Texas Commission on Environmental Quality

Correspondence Cover Sheet
Waste Permits Division

Date: 12/19/2025
Facility Name: SouthWaste Disposal Dallas Fa(
Permit, Registration, or Authorization No.: 2256C

Nature of Submittal:
[ ] Initial
[x] Deficiency Response to TCEQ Tracking No.: 32246028
(from subject line of TCEQ Notice of Deficiency)

Affix a completed Correspondence Cover Sheet to the front of each submission to the Waste Permits Division. Check ***one box*** to indicate type of correspondence. Call (512) 239-2335 if you have questions.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Communications
Permit (New): [ ] Landfill [ ] Processor [ ] Compost	[ ] Alternative Daily Cover Status Report
[ ] Registration Application (New)	[ ] Closure Report
[x] Major Amendment	[ ] Compost Report
[ ] Limited Scope Major Amendment	[ ] Groundwater Alternate Source Demonstration
[ ] Modification with Public Notice	[ ] Groundwater Corrective Action Report
[ ] Modification without Public Notice	[ ] Groundwater Monitoring Report
[ ] Ownership Transfer/Name Change Modification	[ ] Groundwater Background Evaluation Report
[ ] Temporary Authorization	[ ] Landfill Gas Corrective Action Report
[ ] Voluntary Revocation	[ ] Landfill Gas Monitoring Report
Subchapter T: [ ] Permit [ ] Registration	[ ] Liner Evaluation Report
[ ] Subchapter T Disturbance Non-Enclosed Structure	[ ] Soil Boring Plan
Notice of Intent: [ ] New [ ] Revision [ ] Closure	[ ] Special Waste Request
[ ] Other Application:	[ ] Other Report or Communication:

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Notifications	
[ ] CCR Registration (New)	[ ] Extension Request	[ ] Interim Status Change
[ ] Permit Application (New)	[ ] CfPT Plan/Result	[ ] Interim Status Closure Plan
[ ] Permit Renewal	[ ] CPT Plan/Result	[ ] Closure Certification/Report
[ ] Post-Closure Order (New)	[ ] Construction Certification/Report	**CCR Notifications:**
[ ] Major Amendment	[ ] Corrective Action Effectiveness Report	[ ] CCR Closure Care Plan
[ ] Minor Amendment	[ ] Groundwater Alternative Source Demonstration Report	[ ] CCR Design Criteria
Class of Permit Modification: [ ] 1 [ ] 1ED [ ] 2 [ ] 3	[ ] Groundwater Background Evaluation Report	[ ] CCR Groundwater Monitoring and Corrective Action Report
[ ] Endorsement	[ ] Groundwater Monitoring Report	[ ] CCR Location Restriction
[ ] Temporary Authorization	[ ] Soil Core Monitoring Report	[ ] CCR Operating Criteria
[ ] Voluntary Revocation	[ ] Treatability Study	[ ] CCR Post-closure Care Plan
[ ] 335.6 Notification	[ ] Trial Burn Plan/Result	[ ] Other Report or Notification (specify):
[ ] Other:	[ ] Unsaturated Zone Monitoring Report	

Parkhill

December 19, 2025

Mr. Michael O'Malley
License & Permit Specialist, Waste Permits Division
Texas Commission on Environmental Quality
12100 Park 35 Circle, Building F (MC 126)
Austin, Texas 78753

Re: SouthWaste Disposal, LLC – SouthWaste Disposal Dallas Facility
Mansfield, Tarrant County, Texas
MSW Permit No. 2256C
Major Permit Amendment - Administrative NOD #2 (TCEQ Tracking No. 32246028)

Dear Mr. O'Malley:

The revisions made to the application for amendment of MSW Permit 2256B in Mansfield, Tarrant County, Texas are enclosed with this letter. In response to the TCEQ letter dated December 17, 2025, we have included our responses to each of the comments by adding a separate column to the unique deficiency identifier along with the location in the permit for which it was corrected. Administrative NOD #1 and #2 response tables are included.

If you have any questions or comments, you may contact me at 806.473.3683 or [redacted]

Sincerely,

PARKHILL

By Todd E. Stiggins

Todd E. Stiggins, P.E.
Senior Civil Engineer | Partner

TES/jg
Enclosures: Permit Application

Texas Commission on Environmental Quality

Part I Application Form for New Permit, Permit Amendment, or Registration for a Municipal Solid Waste Facility

Instructions for completing this Part I Application Form are provided in TCEQ 00650-instr[1]. Include a Core Data Form (TCEQ 10400)[2] with the application for the facility owner, and Core Data Forms for the operator and property owner if different from the facility owner. If you have questions, contact the Municipal Solid Waste (MSW) Permits Section by email to mswper@tceq.texas.gov, or by phone at 512-239-2335. Rules cited on this form are in Title 30 Texas Administrative Code (30 TAC) and may be viewed online at www.tceq.texas.gov/goto/view-30tac.

Application Tracking Information

Facility Regulated Entity Name[3]: SOUTHWASTE DISPOSAL DALLAS FACILITY

Site Operator (Permittee or Registrant Name)[4]: SOUTHWASTE DISPOSAL, LLC

MSW Authorization Number: 2256C

Initial Submission Date: 10/27/2025

Revision Date: 12/19/2025

Application Data

1. Submission Type	
☐ Initial Submission	☒ Notice of Deficiency (NOD) Response

2. Authorization Type	
☒ Permit	☐ Registration

3. Application Type	
☐ New Permit	
☒ Permit Major Amendment	☐ Permit Limited Scope Major Amendment
☐ New Registration	

[1] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/00650-instr.pdf
[2] www.tceq.texas.gov/goto/coredata
[3] Facility Regulated Entity Name must match the Regulated Entity Name indicated on the TCEQ Core Data Form.
[4] Site Operator is defined in 30 TAC 330.3(148) as the holder of, or the applicant for, an authorization (or license) for a municipal solid waste facility.

4. Application Fee

Amount

☐ $2,050—New Landfill Permits, and Landfill Permit Major Amendments Described in 30 TAC 305.62(j)(1)

☒ $150—Other Permits, Permit Amendments, Limited Scope Major Amendments, and all Registrations

Payment Method

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

Enter ePay Trace Number: 582EA000697493

☐ Check (send to TCEQ Financial Administration Division)

Payor Name: ____________________ Check Number: __________

5. Electronic Versions of Application

TCEQ will publish electronic versions of applications online. Applicants are required to submit complete clean (unmarked) copies of their applications in electronic format once they are administratively complete and technically complete. Additionally, applicants must provide electronic copies of responses to notices of deficiencies for publishing online. (Refer to instructions for this form for how to submit electronically.)

6. Party Responsible for Publishing Notice

Indicate who will be responsible for publishing notice:

☒ Applicant ☐ Agent in Service ☐ Consultant

Contact Name: Ben Camacho

Title: Director of Permitting & Compliance

Email Address: [redacted]

7. Alternative Language Notice

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

Is an alternative language notice required for this application?

☒ Yes ☐ No

Indicate the alternative language: Spanish

8. Public Place for Copy of Application

Name of the Public Place: Mansfield Public Library

Physical Address: 104 S. Wisteria St.

City: Mansfield County: Tarrant State: TX Zip Code: 76063

Phone Number: 817-728-3690

9. Consolidated Permit Processing

Is this submittal part of a consolidated permit processing request, in accordance with 30 TAC Chapter 33?

☐ Yes ☒ No

If "Yes", indicate the other TCEQ program authorizations requested:

10. 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."

11. Permits and Construction Approvals

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

Table 1. Permits and Construction Approvals.

Permit or Approval	Received	Pending	Not Applicable
Hazardous Waste Management Program under Texas Solid Waste Disposal Act			X
Underground Injection Control Program under Texas Injection Well Act			X
National Pollutant Discharge Elimination System Program under Clean Water Act; Waste Discharge Program under Texas Water Code, Chapter 26			X
Prevention of Significant Deterioration Program under Federal Clean Air Act (FCAA); Nonattainment Program under the FCAA			X
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA			X
Ocean Dumping Permits under Marine Protection Research and Sanctuaries Act			X
Dredge or Fill Permits under Clean Water Act			X
Licenses under the Texas Radiation Control Act			X
Other (describe): Air New Source Registration 115976	X		
Other (describe): TXRNEW710	X		

12. General Information About the Facility

Facility Regulated Entity Name: SOUTHWASTE DISPOSAL DALLAS FACILITY

Contact Name: Ben Camacho Title: Director of Permitting & Compliance

MSW Authorization Number (if existing): 2256C

Regulated Entity Reference Number: **RN**102327715

Physical or Street Address (if available): 525 S 6th Ave

City: Mansfield County: Tarrant State: TX Zip Code: 76063

Phone Number: 972-406-1215

Latitude (decimal degrees, six decimal places): N 32.553611

Longitude (decimal degrees, six decimal places): W 97.152778

Elevation (above mean sea level): 675.9 feet (benchmark elevation for landfills)

Description of facility location with respect to known or easily identifiable landmarks:

Located at 525 S 6th Ave in the city of Mansfield. Approximately 0.5 miles south of the intersection of S 6th Ave and W Broad St.

Access routes from the nearest United States or state highway to the facility:

From US-287 S, exit Heritage Pkwy, continue west on Heritage Pkwy, turn right on US-287 Business, continue northwest on US-287 Business, turn left on Airport Drive, continue southwest on Airport Drive, turn right on South 6th Street

Coastal Management Program

Is the facility within the Coastal Management Program boundary?

☐ Yes ☒ No

13. Facility Types

Facility types are described in 30 TAC 330.5(a).

Indicate facility type (select all that apply):

☐ Type I ☐ Type IV ☒ Type V

☐ Type IAE ☐ Type IVAE ☐ Type VI

14. Activities Conducted at the Facility

☒ Storage ☒ Processing ☐ Disposal

15. Facility Waste Management Units

Check the box for each type of waste management unit proposed.

- ☐ Landfill Unit(s)
- ☐ Incinerator(s)
- ☐ Class 1 Landfill Unit(s)
- ☒ Process Tank(s)
- ☒ Storage Tank(s)
- ☐ Tipping Floor
- ☐ Storage Area
- ☐ Other (specify):
- ☒ Container(s)
- ☐ Roll-off Boxes
- ☐ Surface Impoundment
- ☐ Autoclave(s)
- ☐ Refrigeration Unit(s)
- ☐ Mobile Processing Unit(s)
- ☐ Compost Pile(s) or Vessel(s)

16. Description of Proposed Facility or Changes to Existing Facility

Provide a brief description of the proposed activities if application is for a new facility, or the proposed changes to an existing facility or permit conditions if the application is for an amendment.

This permit amendment is requested to increase the permitted processing and storage capacity of the facility. Parts I, II, III, and IV revisions reflect refinements to the existing liquid waste processing facility within the constructed building and are consistent with 30 TAC Chapter 330.57(c)(2) and (3), 330.61, 330.63. No expansion of the current building or pavement is requested.

17. Facility Contact Information

Site Operator (Permittee or Registrant)

Name: SouthWaste Disposal, LLC

Customer Reference Number: **CN** 603436114

Contact Name: Ben Camacho Title: Director of Permitting & Compliance

Mailing Address: 525 S 6TH AVE

City: Mansfield County: Tarrant State: TX Zip Code: 76063

Phone Number: 713-413-9400

Email Address: [redacted]

Operator (if different from *Site Operator*)

Name: N/A

Customer Reference Number: **CN**__________

Contact Name: __________ Title: __________

Mailing Address: __________

City: __________ County: __________ State: ____ Zip Code: _____

Phone Number: __________

Email Address: __________

Consultant (if applicable)

Firm Name: Parkhill

Consultant Name: Todd E. Stiggins, P.E.

Texas Board of Professional Engineers Firm Registration Number: F-560

Contact Name: Todd E. Stiggins, P.E. Title: Partner

Mailing Address: 4222 85th St.

City: Lubbock County: Lubbock State: TX Zip Code: 79423

Phone Number: 806-473-2200

Email Address: [redacted]

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

Name: N/A

Mailing Address: __________

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

Phone Number: __________

Email Address: __________

18. Facility Supervisor License

Indicate the level of Municipal Solid Waste Facility Supervisor license, as defined in 30 TAC Chapter 30, Occupational Licenses and Registrations, Subchapter F that the individual who supervises or manages the operations will obtain prior to commencing operations.

☐ Class A Supervisor License ☒ Class B Supervisor License

19. Facility Ownership

Facility Owner

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 the other owner, and include a Core Data Form for the other owner. Attach supplemental sheet if more than one other owner.

Other Owner Name: ___

What is Owned: ☐ Facility Units ☐ Property

☐ Other (describe): ___

Mailing Address: ___

City: ___ County: ___ State: ___ Zip Code: ___

Phone Number: ___

Email Address: ___

20. Other Government Entities Information

Texas Department of Transportation

District: FTW

District Engineer's Name: David Salazar, P.E.

Mailing Address: 2501 SW Loop 820

City: Fort Worth County: Tarrant State: TX Zip Code: 76133

Phone Number: 817-370-6514

Email Address [redacted]

Local Government Authority Responsible for Road Maintenance (if applicable)

Government or Agency Name: City of Mansfield - Streets/ Traffic Operat

Contact Person's Name: James Rogge

Mailing Address: 1200 E. Broad St.

City: Mansfield County: Tarrant State: TX Zip Code: 76063

Phone Number: 817-276-4208

Email Address: [redacted]

City Mayor Information

City Mayor's Name: Michael Evans
Mailing Address: 1200 E. Broad St.
City: Mansfield County: Tarrant State: TX Zip Code: 76063
Phone Number: 817-276-4203
Email Address: [redacted]

City Health Authority

Authority Name: Tarrant County Public Health
Contact Person's Name: Dr. Brian Byrd
Contact Person's Title: Director
Mailing Address: 1101 S. Main St.
City: Fort Worth County: Tarrant State: TX Zip Code: 76104
Phone Number: 817-248-6299
Email Address: [redacted]

County Judge Information

County Judge's Name: Judge Tim O'Hare
Mailing Address: 100 East Weatherford St., Suite 501
City: Fort Worth County: Tarrant State: TX Zip Code: 76196
Phone Number: 817-884-1441
Email Address: [redacted]

County Health Authority

Agency Name: Tarrant County Public Health
Contact Person's Name: Dr. Brian Byrd
Contact Person's Title: Director
Mailing Address: 1101 S. Main St.
City: Fort Worth County: Tarrant State: TX Zip Code: 76104
Phone Number: 817-248-6299
Email Address: [redacted]

State Representative Information

House District Number: 96
State Representative's Name: Representative David Cook
District Office Mailing Address: 309 E. Broad Street
City: Mansfield County: Tarrant State: TX Zip Code: 76063
Phone Number: 817-473-1960
Email Address: [redacted]

State Senator Information

District Number: 10

State Senator's Name: Senator Phil King

District Office Mailing Address: 2340 W. Interstate 20, Suite 218

City: Arlington County: Tarrant State: TX Zip Code: 76017

Phone Number: 817-465-2506

Email Address: [redacted]

Council of Governments (COG)

COG Name: North Central Texas Council of Governments

COG Representative's Name: Susan Alvarez

COG Representative's Title: Environment & Development Department

Mailing Address: P.O. Box 5888

City: Arlington County: Tarrant State: TX Zip Code: 76005

Phone Number: 817-695-9210

Email Address: [redacted]

River Basin Authority

Authority Name: Trinity River Authority

Contact Person's Name: Kevin Ward, General Manager

Watershed Sub-Basin Name: Upper Trinity River Basin

Mailing Address: P.O. Box 60

City: Arlington County: Tarrant State: TX Zip Code: 76004

Phone Number: 817-467-4343

Email Address:

Local Drainage or Flood Management Authority

Authority Name: City of Mansfield Engineering Services

Contact Person's Name: Trace Hilton, P.E., CFM

Mailing Address: 1200 E Broad Street

City: Mansfield County: Tarrant State: TX Zip Code: 76063

Phone Number: 817-276-4247

Email Address: [redacted]

U.S. Army Corps of Engineers District

Indicate the U.S. Army Corps of Engineers district in which the facility is located:

☐ Albuquerque, NM ☐ Galveston, TX

☒ Fort Worth, TX ☐ Tulsa, OK

Local Government Jurisdiction

Within City Limits of: Mansfield, TX

Within Extraterritorial Jurisdiction of: N/A

Is the facility located in an area in which the governing body of the municipality or county has prohibited the storage, processing, or disposal of municipal or industrial solid waste?

☐ Yes ☒ No

If "Yes", provide a copy of the ordinance as an attachment.

PAGE REVISION DATE: 12/19/2025

Applicant Signature Page

Site Operator (Permittee or Registrant Name) 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: Ben Camacho Title: Director of Permitting & Compliance

Email Address: [redacted]

Signature: ______ Date: 12-30-2025

Authorization by Facility Owner for Operator to Submit Application

To be completed by the facility owner if the application is submitted by an operator who is not the facility owner.

I am the owner of the facility that is the subject of this application, and authorize the operator, ______ to submit this application pursuant to 30 TAC 305.43(c).

Name: ______ Title: ______

Email Address: ______

Signature: ______ Date: ______

Notary

SUBSCRIBED AND SWORN to before me by the said Ben Camacho

On this 30th day of December, 2025

My commission expires on the 16th day of October, 2027

Patti Caldwell

Notary Public in and for Texas

Travis, Texas (notary's jurisdiction, including county and state)

Note: Application Must Bear Signature & Seal of Notary Public

NOTARY PUBLIC STATE OF TEXAS
PATTI CALDWELL
Notary ID # 130405355
My Commission Expires
10/16/2027

Property Owner Affidavit

Property Owner Affidavit for Landfill Facility

I acknowledge in accordance with 30 TAC 330.59(d)(2) that the State of Texas may hold me either jointly or severally responsible for the operation, maintenance, and closure and post-closure care of the facility. For a facility where waste will remain after closure, I acknowledge that I have a responsibility to file with the county deed records an affidavit to the public advising that the land will be used for a solid waste facility prior to the time that the facility actually begins operating as a municipal solid waste landfill facility, and to file a final recording upon completion of disposal operations and closure of the landfill units according to 30 TAC 330.19 (relating to Deed Recordation). I further acknowledge that the facility owner or operator and the State of Texas shall have access to the property during the active life and post-closure care period for the purpose of inspection and maintenance.

Name: ______________________________

Email Address: ______________________________

Signature: ______________________________ Date: ____________

Property Owner Affidavit for Processing Facility

I acknowledge in accordance with 30 TAC 330.59(d)(2) that the State of Texas may hold me either jointly or severally responsible for the operation, maintenance, and closure of the facility. I further acknowledge that the facility owner or operator and the State of Texas shall have access to the property during the active life and post-closure care period for the purpose of inspection and maintenance.

Name: Ben Camacho

Email Address: [redacted]

Signature: ______________________________ Date: 10/29/2025

Notary

SUBSCRIBED AND SWORN to before me by the said BEN CAMACHO

On this 29 day of October 2025

My commission expires on the 16 day of MARCH, 2027

____
Notary Public in and for

TRAVIS / TEXAS (notary's jurisdiction, including county and state)

Note: Application Must Bear Signature & Seal of Notary Public

COURTNEY ANN THOMPSON
NOTARY PUBLIC
STATE OF TEXAS
ID 134255535
EXP. 03-16-2027

Part I Attachments

Refer to instruction document TCEQ 00650-instr[5] for professional engineer seal requirements.

Attachments Table 1. Required attachments.

Required Attachments	Attachment Number
Supplementary Technical Report [30 TAC 305.45(a)(8)]	Part I
Property Legal Description [30 TAC 330.59(d)(1)]	Part I, Appendix I.C
Property Metes and Bounds Description [30 TAC 330.59(d)(1)]	Part I, Appendix I.C
Facility Legal Description [30 TAC 330.59(d)(1)]	Part I, Appendix I.C
Facility Metes and Bounds Description [30 TAC 330.59(d)(1)]	Part I, Appendix I.C
Metes and Bounds Drawings [30 TAC 330.59(d)(1)]	Part I, Appendix I.C
On-Site Easements Drawing [30 TAC 330.61(c)(10)]	Part I, Appendix I.C
Land Ownership Map [30 TAC 330.59(c)(3)]	Part I, Appendix I.B
Landowners List [30 TAC 330.59(c)(3)]	Part I, Appendix I.B
Mailing Labels (in electronic file, in Avery 5160 format; see instructions) [30 TAC 281.5(7)]	Part I, Appendix I.B
General Location Maps [30 TAC 330.59(c)(2)]	Part I, Appendix I.A
Texas Department of Transportation (TxDOT) County Map [30 TAC 330.59(c)(2)]	Part I, Appendix I.A
General Topographic Maps [30 TAC 330.61(e)]	Part I, Appendix I.A
Verification of Legal Status / Legal Authority (certificate of incorporation) [30 TAC 281.5 and 330.59(e)]	Part I, Appendix I.D
Evidence of Competency [30 TAC 330.59(f)]	Part I, Appendix I.E
Signatory Authority Documentation [30 TAC 305.44 and 330.59(g)]	Part I, Appendix I.F
TCEQ Core Data Form(s) TCEQ-10400[6] [30 TAC 281.5(7)]	Part I

[5] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/00650-instr.pdf
[6] www.tceq.texas.gov/permitting/central_registry/guidance.html

Attachments Table 2. Additional attachments as applicable.

Additional Attachments (select all that apply and add others as needed)	**Attachment Number**
■ Plain Language Summary Form TCEQ-20947[7] [30 TAC 39.405(k)]	
■ Public Involvement Plan Form TCEQ-20960[8]	
■ Fee Payment Receipt	Part I, Appendix I.G
☐ Confidential Documents	
☐ Waste Storage, Processing and Disposal Ordinances [Texas Health and Safety Code, Section 363.112[9]]	
☐ Final Plat Record of Property Description [30 TAC 330.59(d)(1)(B)]	
Other (describe):	
Other (describe):	
Other (describe):	

[7] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20947-instr.pdf
[8] www.tceq.texas.gov/downloads/agency/decisions/hearings/environmental-equity/pip-form-tceq-20960.pdf
www.tceq.texas.gov/downloads/agency/decisions/hearings/environmental-equity/instructions-for-pip-form-tceq-20960.pdf
[9] statutes.capitol.texas.gov/Docs/HS/htm/HS.363.htm#363.112

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* | ☒ Other **Permit Amendment**

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 603436114		**RN 102327715**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) | 10/27/2025

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* — *If new Customer, enter previous Customer below:*

SOUTHWASTE DISPOSAL LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
800553020	32018302813	20-3596390	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐Owner ☐ Operator ☒ Owner & Operator ☐ Other:
☐Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:

16350 PARK TEN PL STE 215							
City	Houston	**State**	TX	**ZIP**	77084	**ZIP + 4**	5053

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	[redacted]

18. Telephone Number	**19. Extension or Code**	**20. Fax Number** *(if applicable)*
(713) 413-9400		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

SOUTHWASTE DISPOSAL DALLAS FACILITY

23. Street Address of the Regulated Entity: *(No PO Boxes)*	525 S 6th Ave							
	City	Mansfield	**State**	TX	**ZIP**	76063	**ZIP + 4**	2309
24. County	Tarrant							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:		
26. Nearest City	**State**	**Nearest ZIP Code**
Mansfield	TX	76063

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	32.55361		**28. Longitude (W) In Decimal:**	97.15278	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
32	33	13	97	09	10

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4953			

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

34. Mailing Address:	525 S 6th Ave							
	City	Mansfield	**State**	TX	**ZIP**	76063	**ZIP + 4**	2309
35. E-Mail Address:	BCamacho@WRMCo.Com							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(713) 413-9400		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☒ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Todd E. Stiggins, P.E.	**41. Title:**	Partner
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(806) 473-3683		( ) -	[redacted]

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	SouthWaste Disposal LLC	**Job Title:**	Director of Permitting and Compliance
Name *(In Print)*:	Ben Camacho	**Phone:**	(713) 413- 9400
Signature:		**Date:**	10-29-2025

Texas Commission on Environmental Quality

Plain Language Summary of Municipal Solid Waste Permit or Permit Amendment Application

Applicants are required by public notice rules in Title 30 Texas Administrative Code, Chapter 39, Section 39.405(k)[1] to provide this summary of an application.

A. Purpose of the Proposed Facility

This facility is designed to process non-hazardous solid waste.

B. Information About the Applicant

Name: SouthWaste Disposal, LLC

Applicant Type: Corporation

Facility Name: SouthWaste Disposal Dallas Facility

Permit Application Number: 2256C

Customer Number (CN): CN603436114

Regulated Entity Reference Number (RN): RN102327715

C. Location of the Proposed Facility

Facility Address (or description of site location if no address):

Tarrant County, 525 South 6th Avenue

Link to Map of Facility Location (TCEQ Location Mapper[2]): https://arcg.is/1Wfb9e

D. Information about Facility Operation

What types of waste would be received?

Grease trap waste from food preparation facilities, grit trap waste, lint trap waste, septic tank waste, wastewater sludge, and non-hazardous industrial waste.

What geographical area would the wastes come from?

The facility services the City of Mansfield. The facility also serves the broader area of Tarrant County, Johnson County, Dallas County, and Ellis County

[1] www.tceq.texas.gov/goto/view-30tac
[2] www.tceq.texas.gov/gis/hb-610-viewer

What days and hours would the facility operate?

Typical operating hours are Monday-Friday 5:00 am - 8:30 pm, Saturday 5:00 am - 3:30 pm, Closed on Sundays.

At what rate would wastes be accepted?

The daily maximum amount of waste accepted at the facility is 360,000 gallons.

How would wastes be managed?

Trucks carrying waste enter an enclosed unloading area. Before unloading waste, the roll up doors are closed. Waste is then pumped into the operating area of the facility. The waste is treated and separated into multiple end products through processes including physical, chemical, and thermal separation methods. The final products are moved off site for reuse or disposal.

E. Pollution Control Methods

What methods would the facility use for containing wastes and odors, and monitoring for releases?

All process units are contained in an enclosed building which prevents the release of waste. The facility floors are sloped to drain to sumps. Any accidental spills or possible leaks in equipment are collected and cycled back into the processing equipment.

To prevent the release of odors. The building will maintain a negative pressure to prevent odor release. Building exhaust is treated with an air scrubber to minimize odors. The Facility staff will perform daily odor surveys along facility boundary.

What methods would the facility use or require for preventing litter or spills, and for cleanup of litter and spills?

Waste received by the facility will be delivered within enclosed vessels, vacuum trucks, or trailer-mounted tanks, so spilling along access routes to the Facility is not expected. Facility staff conducts inspections at least once daily on days the Facility is in operation. The Facility is required to clean up spilled waste within 2.0 miles from Facility entrance in either direction.

Should a leaking vehicle arrive at the site, transporter shall be notified and responsible for any off-site cleanup.

Comisión de Calidad Ambiental de Texas

Resumen en lenguaje sencillo de la solicitud de permiso municipal de residuos sólidos o de modificación del permiso

Los solicitantes están obligados por las normas de notificación pública del Título 30 del Código Administrativo de Texas, Capítulo 39, Sección 39.405(k)[1] a proporcionar este resumen de una solicitud.

A. Objetivo de la instalación propuesta

Planta diseñada para procesar desechos sólidos no peligrosos.

B. Información sobre el solicitante

Nombre: SouthWaste Disposal, LLC

Tipo de solicitante: Corporación

Nombre de la instalación: SouthWaste Disposal Dallas Facility

Número de solicitud de permiso: 2256C

Número de cliente (CN): CN603436114

Número de referencia de la entidad regulada (RN): RN102327715

C. Ubicación de la instalación propuesta

Dirección del establecimiento (o descripción de la ubicación del sitio si no hay dirección):

525 Avenida 6ta. Sur, Condado de Tarrant.

Enlace al mapa de ubicación de las instalaciones en TCEQ Location Mapper[2]:

https://arcg.is/1Wfb9e

D. Información sobre el funcionamiento de las instalaciones

¿Qué tipos de residuos se recibirían?

Desechos de trampa de grasa; provenientes de instalaciones de preparación de alimentos, desechos de trampa de arena, desechos de trampa de pelusa, desechos de tanque séptico, lodo de aguas residuales y desechos industriales no peligrosos.

¿De qué zona geográfica procederían los residuos?

Esta Planta provee servicios a la Ciudad de Mansfield. La Planta también provee servicios que abarcan los Condados de Tarrant, Johnson, Dallas y Ellis.

[1] www.tceq.texas.gov/goto/view-30tac
[2] www.tceq.texas.gov/gis/hb-610-viewer

¿Qué días y horas funcionará la instalación?

Horas típicas de operación serán de Lunes-Viernes de 5:00 am - 8:30 pm, Sábado de 5:00 am - 3:30 pm, Cerrado los Domingos.

¿A qué ritmo se aceptarían los residuos?

La cantidad diaria máxima de desechos que aceptará la Planta es de 360,000 galones.

¿Cómo se gestionarían los residuos?

Camiones cargados con desechos entran en el área interior cerrada de desembarque. Antes de descargar los desechos, las puertas enrollables serán cerradas. Los desechos son luego bombeados a el área de operaciones de la Planta. Después los desechos son tratados y separados obteniendo múltiples productos por métodos de separación físicos, químicos y térmicos. Los productos resultantes finales son luego retirados del sitio para reúso o desecho.

E. Métodos de control de la contaminación

¿Qué métodos utilizará la instalación para contener los residuos y los olores, y para controlar las emisiones?

Todas las unidades de proceso son cerradas y se encuentran dentro de un edificio interior para prevenir el escape de desechos. Los pisos de la Planta están en declive drenando hacia sumideros de colección. Cualquier derrame accidental o posible fugas en el equipo de proceso serán capturados y devueltos al equipo de procesamiento.
El edificio mantendrá una presión de aire negativa para prevenir el escape de olores. El escape de aire interior del edificio será tratado con un depurador de aire para minimizar los malos olores. El personal de la Planta realizará pruebas diarias de evaluación de las concentraciones de olores.

¿Qué métodos utilizaría o exigiría la instalación para evitar la basura o los derrames, y para la limpieza de la basura y los derrames?

Los desechos que la Planta reciba será en contenedores cerrados, en camiones aspiradores, o en cisternas montadas sobre remolque; Así es que no se esperan derrames sobre las rutas de acceso a la Planta. El personal de la Planta realiza inspecciones por lo menos una vez al día mientras que la Planta esté en operación. Se le requiere a la Planta limpiar derrames de desechos dentro de las 2.0 millas de la entrada, en ambas direcciones de tráfico.
En caso de que un vehículo llegue al sitio con una fuga, el transportista será notificado y responsable por limpiar el derrame causado fuera de las instalaciones de la Planta.

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

☐ New Permit or Registration Application
☒ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☒ Requires public notice,

☒ Considered to have significant public interest, **and**

☒ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.

☐ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☒ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

☐ Texas Land Application Permit (TLAP)

☐ State Only Concentrated Animal Feeding Operation (CAFO)

☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

This facility is designed to process waste products such as grease trap waste, grit trap waste, lint trap waste, septic tank waste, wastewater sludge, and non-hazardous industrial waste. The Plain Language Summary form, TCEQ-20947 "Plain Language Summary of Municipal Solid Waste Permit or Permit Amendment Application", is included with this application.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

Mansfield

(City)

Tarrant

(County)

1113.06

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

☒ City ☐ County ☐ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

95.9

(b) Per capita income for population near the specified location

$53,326

(c) Percent of minority population and percent of population by race within the specified location

Hispanic or Latino: 19%; White: 50%; Black or African American: 22%; American Indian and Alaska Native: 0.5%; Asian: 6%; Native Hawaiian and Other Pacific Islander: 0.1%; Other: 0.5%

(d) Percent of Linguistically Isolated Households by language within the specified location

Spanish: 8%

(e) Languages commonly spoken in area by percentage

% Speaking Spanish at home: 22%
% Speaking Asian and Pacific Island languages at home: 2%
% Speaking Other Indo-European at home: 2%

(f) Community and/or Stakeholder Groups

N/A

(g) Historic public interest or involvement

N/A

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☒ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☒ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☒ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

- ☑ Publish in alternative language newspaper
- ☐ Posted on Commissioner's Integrated Database Website
- ☐ Mailed by TCEQ's Office of the Chief Clerk
- ☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☒ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☒ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

☑ TCEQ Regional Office ☑ TCEQ Central Office

☑ Public Place (specify) 104 S Wisteria St, Mansfield, TX 76063

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☐ No

What types of notice will be provided?

- ☐ Publish in alternative language newspaper
- ☐ Posted on Commissioner's Integrated Database Website
- ☐ Mailed by TCEQ's Office of the Chief Clerk
- ☐ Other (specify)

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SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

Parkhill

4222 85th Street

Lubbock, Texas 79424

TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

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Mansfield, Tarrant County, Texas

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
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TABLE OF CONTENTS

PART I – GENERAL INFORMATION

1.0 GENERAL - 30 TAC §330.59(a)(1) I-1
  1.1 Site Description - 30 TAC §305.45(a)(8)(A) I-1
  1.2 Supplementary Technical Report - 30 TAC §305.45(a)(8) I-2
2.0 LOCATION - 30 TAC §330.59(b) I-4
3.0 MAPS - 30 TAC §305.45, §330.59(c) I-5
  3.1 General Location Maps I-5
  3.2 Land Ownership Map and Land Owners List I-5
  3.3 Mineral Interest I-5
4.0 PROPERTY OWNER INFORMATION I-6
  4.1 Legal Description I-6
  4.2 Easements I-6
  4.3 Property Owner Affidavit I-6
5.0 LEGAL AUTHORITY - 30 TAC §330.59(e) I-7
6.0 EVIDENCE OF COMPETENCY - 30 TAC §330.59(f) I-8
7.0 APPOINTMENTS - 30 TAC §330.59(g) I-9
8.0 APPLICATION FEE - 30 TAC §330.59(h) I-10

APPENDICES

APPENDIX I.A: SITE LOCATION MAPS
APPENDIX I.B: LAND OWNERSHIP MAP AND LANDOWNER LIST
APPENDIX I.C: PROPERTY OWNER INFORMATION
APPENDIX I.D: LEGAL AUTHORITY
APPENDIX I.E: EVIDENCE OF COMPETENCY
APPENDIX I.F: APPOINTMENTS
APPENDIX I.G: DOCUMENTATION OF APPLICATION FEE PAYMENT

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PART II – EXISTING CONDITIONS

1.0 EXISTING CONDITIONS SUMMARY - 30 TAC §330.61(a) II-1
2.0 WASTE ACCEPTANCE PLAN - 30 TAC §330.61(b) II-3
- 2.1 Waste Accepted II-3
- 2.2 Waste Not Accepted II-3
- 2.3 Limiting Waste Parameters II-3
- 2.4 General Waste Sources II-4
- 2.5 Waste Source, Characteristics, and Parametric Limitations – 30 TAC §330.61(b)(1) II-4

3.0 GENERAL LOCATION MAPS - 30 TAC §330.61(c) II-7
4.0 FACILITY LAYOUT MAPS - 30 TAC §330.61(d) II-8
5.0 GENERAL TOPOGRAPHIC MAPS - 30 TAC §330.61(e) II-9
6.0 AERIAL PHOTOGRAPH - 30 TAC §330.61(f) II-10
7.0 LAND-USE MAP - 30 TAC §330.61(g) II-11
8.0 IMPACT ON SURROUNDING AREA - 30 TAC §330.61(h) II-12
- 8.1 Zoning II-12
- 8.2 Surrounding Land Use II-12
- 8.3 Growth Trends II-12
- 8.4 Proximity to Residences and Other Uses II-12
- 8.5 Known Wells Within 500 Feet II-13

9.0 TRANSPORTATION - 30 TAC §330.61(i) II-14
- 9.1 Availability and Adequacy of Roads II-14
- 9.2 Volume of Vehicular Traffic II-14
- 9.3 Texas Department of Transportation (TxDOT) Coordination II-14

10.0 GENERAL GEOLOGY AND SOILS STATEMENT - 30 TAC §330.61(j) II-15
11.0 GROUNDWATER AND SURFACE WATER - 30 TAC §330.61(k) II-16
- 11.1 Groundwater Conditions II-16
- 11.2 Surface Water II-16
- 11.3 Liquid Wastes II-16
- 11.4 Texas Pollutant Discharge Elimination System (TPDES) Compliance II-16

12.0 ABANDONED OIL AND WATER WELLS - 30 TAC §330.61(l) II-17
- 12.1 Water Wells II-17
- 12.2 Crude Oil or Natural Gas Wells II-17

13.0 FLOODPLAINS AND WETLANDS STATEMENT - 30 TAC §330.61(m) II-18
14.0 ENDANGERED OR THREATENED SPECIES - 30 TAC §330.61(n) II-19

10/27/2025

15.0 TEXAS HISTORICAL COMMISSION REVIEW - 30 TAC §330.61(o) II-20
16.0 COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW – 30 TAC §330.61(p) II-21

APPENDICES

APPENDIX II.A: FIGURES
APPENDIX II.B: ZONING INFORMATION
APPENDIX II.C: TRAFFIC REPORT
APPENDIX II.D: TEXAS DEPARTMENT OF TRANSPORTATION CORRESPONDENCE
APPENDIX II.E: TEXAS PARKS AND WILDLIFE DEPARTMENT TARRANT COUNTY LIST OF RARE SPECIES AND CORRESPONDENCE FROM EXISTING PERMIT
APPENDIX II.F: U.S. FISH AND WILDLIFE AND TEXAS PARKS AND WILDLIFE CORRESPONDENCE
APPENDIX II.G: TEXAS HISTORICAL COMMISSION REVIEW
APPENDIX II.H: COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW
APPENDIX II.I: FLOODPLAINS
APPENDIX II.J: LOCATION RESTRICTIONS

PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT A – SITE DEVELOPMENT PLAN

1.0 INTRODUCTION - 30 TAC §330.63(a) III.A-1
2.0 GENERAL FACILITY DESIGN - 30 TAC §330.63(b) III.A-2
3.0 FACILITY SURFACE WATER DRAINAGE REPORT - 30 TAC §330.63(c) III.A-3
4.0 WASTE MANAGEMENT UNIT DESIGN - 30 TAC §330.63(d) III.A-4
5.0 GEOLOGY REPORT - 30 TAC §330.63(e) III.A-5
6.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN – 30 TAC §330.63(f) III.A-6
7.0 LANDFILL GAS MANAGEMENT PLAN – 30 TAC §330.63(g) III.A-7
8.0 CLOSURE PLAN - 30 TAC §330.63(h) III.A-8
9.0 POST-CLOSURE PLAN - 30 TAC §330.63(i) III.A-9
10.0 COST ESTIMATES FOR CLOSURE AND POST-CLOSURE CARE – 30 TAC §330.63(j) III.A-10

10/27/2025

ATTACHMENT B – GENERAL FACILITY DESIGN

1.0 FACILITY ACCESS - 30 TAC §330.63(b) III.B-1
1.1 Access Control - 30 TAC §330.63(b)(1) III.B-1
1.2 Waste Movement - 30 TAC §330.63(b)(2) III.B-1
1.3 Sanitation - 30 TAC §330.63(b)(3) III.B-4
1.4 Water Pollution Control - 30 TAC §330.63(b)(4) III.B-5
1.5 Endangered Species Protection - 30 TAC §330.63(b)(5) III.B-5

APPENDICES

APPENDIX III.B.A: MAPS AND DRAWINGS

ATTACHMENT C – FACILITY SURFACE WATER DRAINAGE REPORT

1.0 GENERAL - 30 TAC 330.63(c) III.C-1

ATTACHMENT D – WASTE MANAGEMENT UNIT DESIGN

1.0 GENERAL - 30 TAC 330.63(d) III.D-1

ATTACHMENT E – GEOLOGY REPORT

1.0 GENERAL – 30 TAC §330.63(e) III.E-1

ATTACHMENT F – GROUNDWATER SAMPLING AND ANALYSIS PLAN

1.0 GENERAL – 30 TAC §330.63(f) III.F-1

ATTACHMENT G – LANDFILL GAS MANAGEMENT PLAN

1.0 GENERAL – 30 TAC §330.63(g) III.G-1

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10/27/2025

ATTACHMENT H – CLOSURE PLAN

1.0 GENERAL – 30 TAC §330.63(h) III.H-1
- 1.1 Processing Facility Closure - 30 TAC §330.459 .... III.H-1
- 1.2 Certification of Final Facility Closure - 30 TAC §330.461 .... III.H-1

ATTACHMENT I – POST-CLOSURE PLAN

1.0 GENERAL - 30 TAC §330.63(i) III.I-1

ATTACHMENT J – CLOSURE AND POST-CLOSURE COST ESTIMATES

1.0 COST ESTIMATE FOR CLOSURE - 30 TAC §330.63(j) III.J-1

PART IV – SITE OPERATING PLAN

1.0 INTRODUCTION IV-2
- 1.1 Contents of Part IV - 30 TAC §330.65(a) IV-2

2.0 PERSONNEL AND TRAINING IV-3
- 2.1 Training IV-3

3.0 DISCHARGE PERMIT REQUIREMENTS - 30 TAC §330.65(d) IV-6

4.0 WASTE ACCEPTANCE AND ANALYSIS - 30 TAC §330.203 .... IV-7
- 4.1 Sources and Characteristics of Waste IV-7
- 4.2 Waste Quantity IV-10
- 4.3 Waste Analysis IV-10
- 4.4 Waste Pre-Approval Testing IV-11
- 4.5 Waste Acceptance Procedures IV-12

5.0 FACILITY-GENERATED WASTES - 30 TAC §330.205 .... IV-14
- 5.1 Treated Wastewater Effluent IV-14
- 5.2 Solids IV-14
- 5.3 Sludge IV-14
- 5.4 Oil IV-15

6.0 CONTAMINATED WATER MANAGEMENT - 30 TAC §330.207 .... IV-16

10/27/2025

7.0 STORAGE REQUIREMENTS - 30 TAC §330.209 .... IV-17
8.0 APPROVED CONTAINERS 30 TAC §330.211 .... IV-18
9.0 RECORDKEEPING AND REPORTING REQUIREMENTS - 30 TAC §330.219 and 675 .... IV-19
10.0 FIRE PROTECTION - 30 TAC §330.221 .... IV-20
11.0 ACCESS CONTROL - 30 TAC §330.223 .... IV-21
11.1 Facility Security IV-21
11.2 Vehicle Access IV-21
12.0 UNLOADING WASTE - 30 TAC §330.225 .... IV-22
13.0 SPILL PREVENTION AND CONTROL - 30 TAC §330.227 .... IV-23
14.0 OPERATING HOURS -30 TAC §330.229 .... IV-24
15.0 FACILITY SIGN -30 TAC §330.231 .... IV-25
16.0 CONTROL OF WINDBLOWN MATERIAL AND LITTER - 30 TAC §330.233 .... IV-26
17.0 MATERIALS ALONG ROUTE TO THE FACILITY - 30 TAC §330.235 .... IV-27
18.0 FACILITY ACCESS ROADS - 30 TAC §330.237 .... IV-28
19.0 NOISE POLLUTION AND VISUAL SCREENING - 30 TAC §330.239 .... IV-29
20.0 OVERLOADING AND BREAKDOWN - 30 TAC §330.241 .... IV-30
21.0 SANITATION - 30 TAC §330.243 .... IV-31
22.0 VENTILATION AND AIR POLLUTION CONTROL - 30 TAC §330.245 .... IV-32
23.0 HEALTH AND SAFETY - 30 TAC §330.247 .... IV-34
24.0 EMPLOYEE SANITATION FACILITIES - 30 TAC §330.249 .... IV-35

APPENDICES

APPENDIX A: EXAMPLE WASTE PROFILE
APPENDIX B: EXAMPLE NON-HAZARDOUS WASTE MANIFEST
APPENDIX C: EXAMPLE ODOR SURVEY FORM

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PART I – GENERAL INFORMATION

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

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16350 Park Ten Place #215

Houston, Texas 77084

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TABLE OF CONTENTS

1.0 GENERAL - 30 TAC §330.59(a) I-1
- 1.1 Site Description - 30 TAC §305.45(a)(8)(A)........ I-1
- 1.2 Supplementary Technical Report - 30 TAC §305.45(a)(8) I-2

2.0 LOCATION - 30 TAC §330.59(b) I-4

3.0 MAPS - 30 TAC §305.45, §330.59(c)........ I-5
- 3.1 General Location Maps I-5
- 3.2 Land Ownership Map and Land Owners List........ I-5
- 3.3 Mineral Interest........ I-5

4.0 PROPERTY OWNER INFORMATION........ I-6
- 4.1 Legal Description........ I-6
- 4.2 Easements I-6
- 4.3 Property Owner Affidavit........ I-6

5.0 LEGAL AUTHORITY - 30 TAC §330.59(e)........ I-7

6.0 EVIDENCE OF COMPETENCY - 30 TAC §330.59(f)........ I-8

7.0 APPOINTMENTS - 30 TAC §330.59(g) I-9

8.0 APPLICATION FEE - 30 TAC §330.59(h) I-10

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED
PROFESSIONAL ENGINEER

10/27/2025

APPENDICES

APPENDIX I.A: SITE LOCATION MAPS
APPENDIX I.B: LAND OWNERSHIP MAP AND LANDOWNER LIST
APPENDIX I.C: LEGAL DESCRIPTION AND PERMIT BOUNDARY MAP
APPENDIX I.D: LEGAL AUTHORITY
APPENDIX I.E: EVIDENCE OF COMPETENCY
APPENDIX I.F: APPOINTMENTS
APPENDIX I.G: DOCUMENTATION OF APPLICATION FEE PAYMENT

TABLES

TABLE I.6.A: FACILITY KEY PERSONNEL

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED
PROFESSIONAL ENGINEER

10/27/2025

1.0 GENERAL – 30 TAC §330.59(b)(1)

SouthWaste Disposal Dallas Facility (Facility) is located at 525 South 6th Avenue, in the City of Mansfield, approximately 0.5 miles south of the intersection of South 6th Avenue and West Broad Street, Tarrant County, Texas. The Facility currently operates a TCEQ Type V Liquid Waste Processing Facility. The Facility is owned by SouthWaste Disposal, LLC, a privately-owned limited-liability company. The Facility is proposing a permit amendment to increase the Facility's capacity to process up to 90,000,000 gallons of waste per year.

This permit amendment application has been prepared in general accordance with 30 TAC Chapter 330 rules, adopted by the Texas Commission on Environmental Quality (TCEQ), and effective on the date of this application.

Part I of this application covers information about the site and applicant as required by 30 TAC §281.5, §305.45, and §330.59. Part II contains a summary of existing conditions of the site, surrounding areas, and a description of anticipated disposal activities as required by §330.61. Part III covers the site development plan as required by 30 TAC §330.63. Part IV contains the site operating plan as required by §330.65.

1.1 Site Description – 30 TAC §305.45(a)(8)(A)

The Facility is located on a 2.5-acre tract of land in Mansfield, Texas and consists of Liquid Waste Processing and Grit Washout facilities within the permit boundary. Residuals from grit washout are collected and processed through the Liquid Waste Processing Facility. All waste processing takes place in enclosed buildings.

The Liquid Waste Processing Facility authorized by this permit is designed to separate wastes received into solids, dewatered sludge, oil, and wastewater. The Facility accepts the following wastes for processing:

- Industrial wastes, including non-hazardous Class 1, Class 2, and Class 3 waste;
- Grease trap waste from commercial and industrial sources:
- Grit trap waste from commercial and industrial sources;
- Lint trap waste;
- Sludges from municipal or industrial wastewater treatment;
- Chemical toilet waste;
- Septage from residential and commercial sources; and
- Waste from commercial and industrial oil-water separators.

There are no permits or construction approvals applied for or received under any of the following programs for this property:

- Hazardous Waste Management Program under the Texas Solid Waste Disposal Act;
- Underground Injection Control Program under the Texas Injection Well Act;
- Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA);
- Nonattainment Program under the FCAA;
- National emission standards for hazardous air pollutants preconstruction approval under the FCAA;
- Ocean dumping permits under the Marine Protection Research and Sanctuaries Act;
- Dredge or fill permits under the FCAA;
- Licenses under the Texas Radiation Control Act;
- Subsurface area drip dispersal system permits under Texas water Code, Chapter 32; and
- Other environmental permits.

1.2 Supplementary Technical Report – 30 TAC §305.45(a)(8)

This Supplementary Technical Report is submitted in accordance with 30 TAC §305.45(a)(8). The Facility operates under MSW Permit No. 2256B with a maximum waste process capacity of 50,000,000 gallons of waste per year. In accordance with 30 TAC §305.62(j)(1)(C), this permit amendment is to authorize an increase in capacity to a maximum of 90,000,000 gallons of waste per year.

This 90,000,000 gallons per year maximum capacity averages to 7,500,000 gallons of waste per month or to 246,575 gallons per operating day (assuming operations seven days per week). The daily maximum waste acceptance rate remains 360,000 gallons.

The maximum amount of untreated and partially treated waste stored onsite at any one time shall not exceed 235,000 gallons (including sludge tanks), although this amount of waste is never anticipated to be present at the Facility. The maximum length of time unprocessed waste may remain at the Facility shall not exceed 72 hours, as required by 30 TAC §330.241(a)(1). The average length of time unprocessed waste is expected to remain onsite is 24 hours. The maximum waste process time is 48 hours and average waste processing time is 12 hours. Processed or separated solids, sludge, and oil/grease waste may remain onsite up to 120 hours. Processed water/liquid waste discharges to the wastewater collection system daily (at minimum), and processed solids are transported to an MSW landfill as containers are filled, at least weekly.

Processing occurs within an enclosed building. An air scrubber treats exhaust from the building to reduce odors.

The wastes received are separated into solids, dewatered sludge, oil, and wastewater. The separated and solidified bio-solids are hauled to a wastewater treatment plant, where they are used as a feedstock to encourage microbial growth or are disposed of at an authorized land application site, compost Facility, or landfill. The facilities must be authorized by the Texas Commission on Environmental Quality (TCEQ) to accept grease trap solids. Grease within the wastes can be separated and recovered for beneficial reuse and recycled into alternative energy end products. The remainder of the waste stream is wastewater. The wastewater is discharged to the Trinity River Authority Central Regional Wastewater System in accordance with the requirements of the City of Mansfield Industrial Wastewater Permit Number C-25-014.

If at any time during the life of the Facility the Owner becomes aware of any condition in the permit that necessitates a change to accommodate new technology or improved methods or that makes it impractical to keep the Facility in compliance, the Owner shall submit to the Executive Director requested changes to the permit in accordance with 30 TAC §305.62 or 30 TAC §305.70 and must receive approval prior to implementation. All drawings or other sheets prepared for requested revisions must be submitted following the format in 30 TAC §330.57(g). All revised engineering and geoscientific plans, drawings, and reports shall be signed and sealed by a licensed professional engineer or geoscientist as specified in 30 TAC §330.57(f).

2.0 LOCATION - 30 TAC §330.59(b)

The Facility is located at 525 South 6th Avenue, in the City of Mansfield, approximately 0.5 miles south of the intersection of South 6th Avenue and West Broad Street, Tarrant County, Texas. The latitudinal and longitudinal geographic coordinates of the site are:

- Latitude: 32°33'13"N
- Longitude: 97°09'10"W

Primary access route to the Facility is via US-287 S, exit Heritage Parkway, continue west on Heritage Parkway, turn right on US-287 Business, continue northwest on US-287 Business, turn left on Airport Drive, continue southwest on Airport Drive, turn right on South 6th Street. Part II Appendix A, Figure II.A.1 shows roadways used to access the Facility.

- US-287 South is a four-lane divided highway.
- Heritage Parkway is a four-lane road with a dividing median and curbs.
- US-287 Business is a two-lane, undivided paved road without curbs.
- Airport Drive is a two-lane, undivided paved roadway with curbs.
- South 6th Street is a two-lane, undivided paved road without curbs.

3.0 MAPS - 30 TAC §305.45, §330.59(c)

3.1 General Location Maps

Maps have been prepared in accordance with 30 TAC §330.59(c) and §305.45. The base map used for each of the general location maps is the most current version available for each respective source, as referenced on each general location map. The following location maps are included in Appendix I.A – Site Location Maps:

- Figure I.A.1 – General Highway Map
- Figure I.A.2 – General Topographic Map
- Figure I.A.3 – Wells and Springs Within One Mile
- Figure I.B.1 - Land Ownership Map
- Figure I.C.1 – Property Boundary Map

3.2 Land Ownership Map and Land Owners List

The property owners within 1/4 mile of the Facility boundary have been compiled from the records of Tarrant County Appraisal District, as of the date this application was filed. Appendix I.B contains the Land Ownership Map and Land Owners List. The Land Owners List is also provided in electronic format on the enclosed CD per §330.59(c)(3)(B) requirements.

3.3 Mineral Interest

The Tarrant County Appraisal District does not indicate a separate mineral deed for the property.

4.0 PROPERTY OWNER INFORMATION

4.1 Legal Description

The legal description metes and bounds for the Facility property boundary, Tarrant County volume, and page number are included in Appendix I.C. The property boundary is shown on Figure I.C.1 – Property Boundary Map.

4.2 Easements

All existing easements are shown in Appendix I.C on the survey prepared by Prism Surveys, Inc. Easements are also depicted in Part II Appendix I.A on Figure II.A.12 – General Site Plan, as required by §330.61(c)(10).

4.3 Property Owner Affidavit

The signed Property Owner Affidavit is in Appendix I.C – Property Owner Information.

5.0 LEGAL AUTHORITY - 30 TAC §330.59(e)

SouthWaste Disposal, LLC owns and operates the Facility. Verification of legal authority and status of the Facility is included in Appendix I.D, as required by §330.59(e) and §281.5. No other person or entity has any ownership of the Facility. SouthWaste Disposal, LLC is the sole owner of the Facility.

6.0 EVIDENCE OF COMPETENCY - 30 TAC §330.59(f)

In accordance with 30 TAC Chapter §30, relating to Occupational Licenses and Registrations, a licensed solid waste Facility supervisor is employed. The Facility employs one solid waste Facility supervisor who maintains at least a TCEQ Class B license. Key personnel for the Facility operation are noted in Table I.6.a.

Table I.6.a – FACILITY KEY PERSONNEL

Name	Affiliation
Ben Camacho	Director of Compliance
Howard Howell	General Manager

Downstream Environmental, LLC, SouthWaste Disposal, LLC., Tap, Inc., and Partners Dewatering International, LLC. are wholly owned subsidiary companies of Waste Resource Management, Inc. (WRM).

WRM has owned and/or operated several active MSW facilities throughout Texas in the last 10 years, as indicated in Appendix I.E

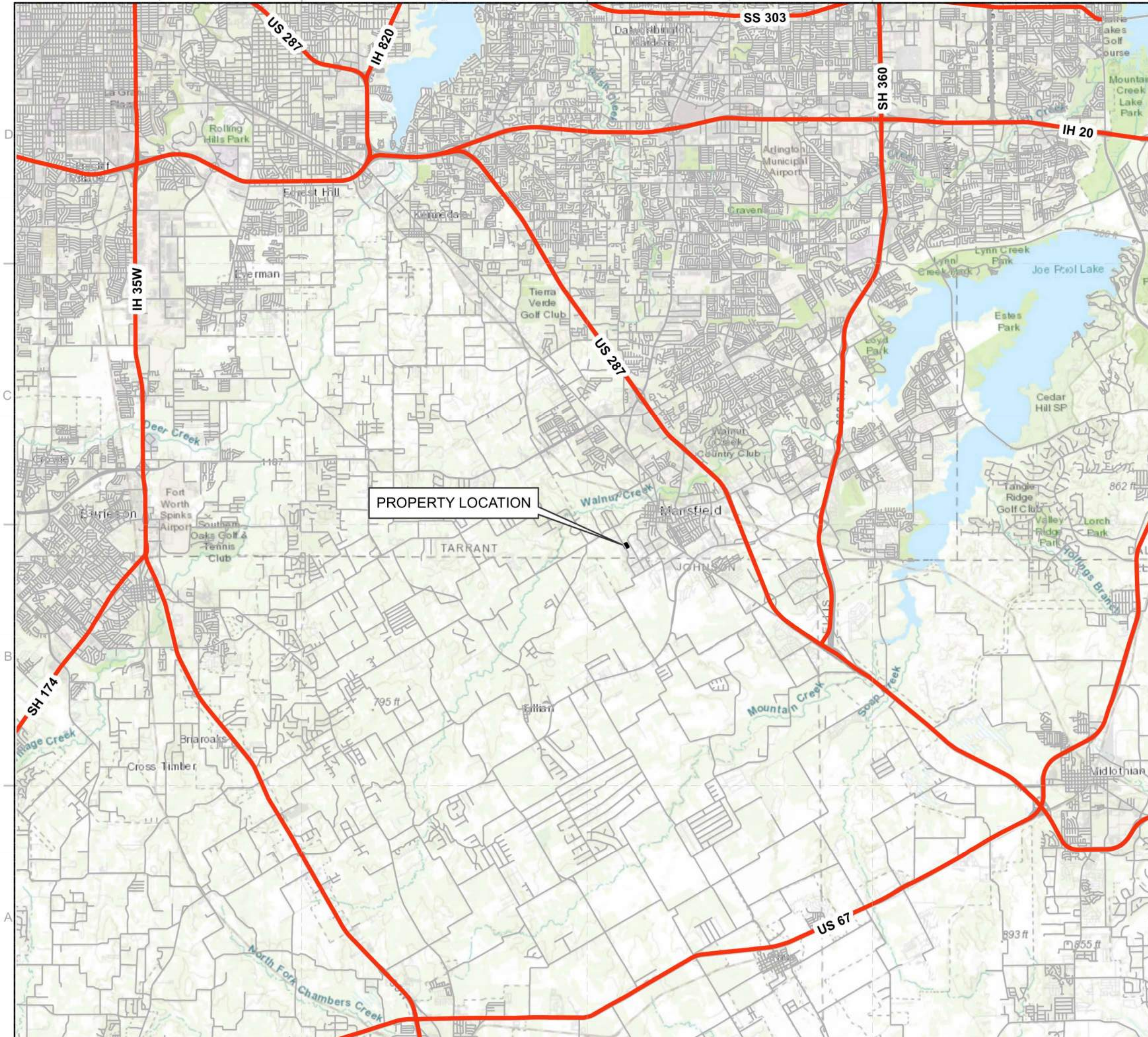
7.0 APPOINTMENTS - 30 TAC §330.59(g)

Appendix I.F contains the Engineer's Appointment authorizing Parkhill to be the permitting engineer of the Facility, in accordance with §330.59(g).

8.0 APPLICATION FEE - 30 TAC §330.59(h)

The Facility has paid the $2,050 permit application fee in accordance with §330.59(h). The fee was paid through the online TCEQ ePay portal. A copy of the transaction receipt is provided in Appendix I.G.

APPENDIX I.A: SITE LOCATION MAPS



0 1 2
Miles

LEGEND:
- MAJOR ROAD
- MINOR ROAD

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Texas roadway data obtained from TxDOT GIS database from the TxDOT Roadway Inventory layer updated 3/4/2021.

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10/27/2025

TODD E. STIGGINS 107769

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

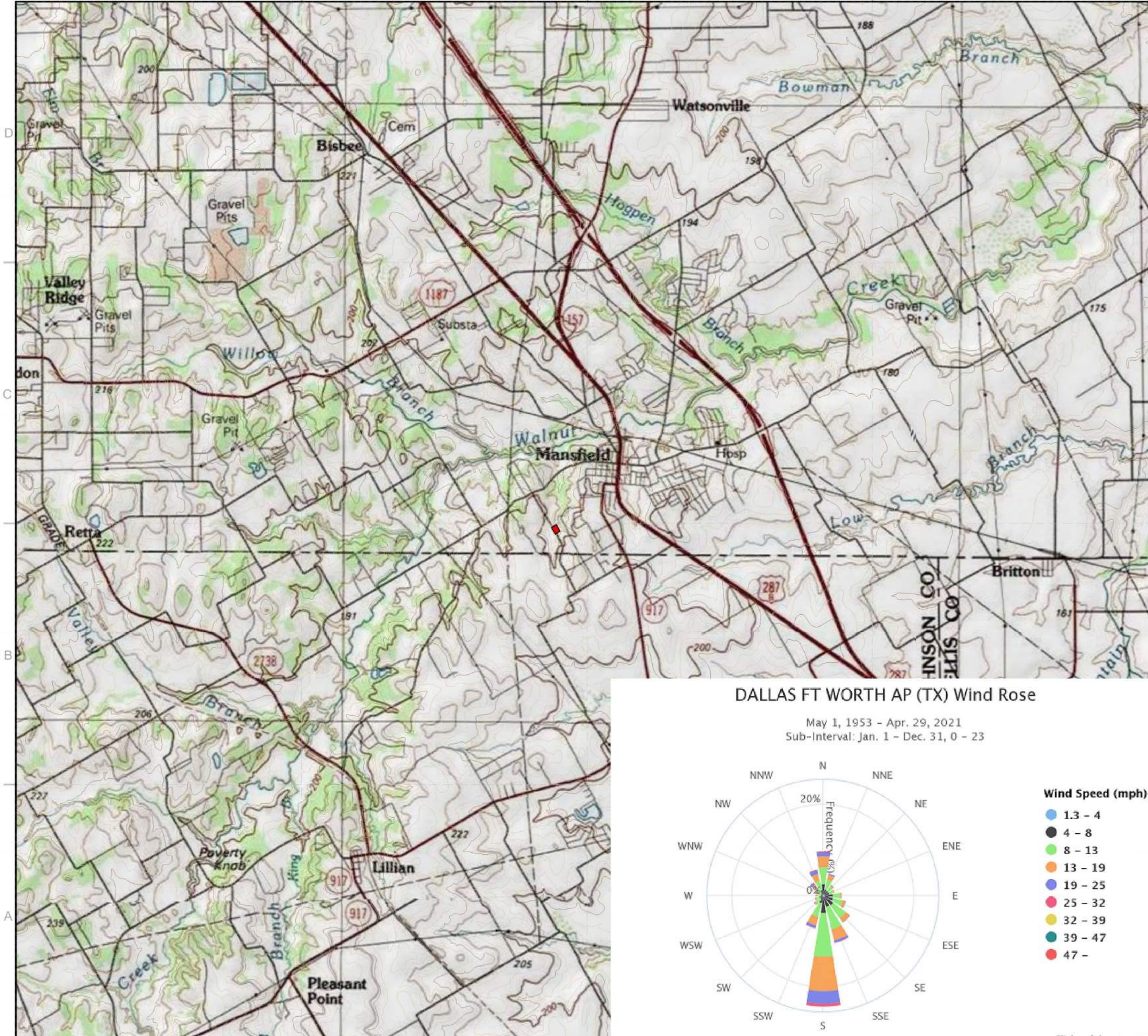
PROJECT NO.
9454.21

#	DATE	DESCRIPTION

GENERAL HIGHWAY MAP

FIG.I.A.1

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part I\FIG I.A.1-General Highway Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 12:47:14 PM USER: SHarvey



0 0.5 1
Miles

Parkhill

10/27/2025

TODD E. STIGGINS
107769

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

LEGEND:

- PROPERTY BOUNDARY
- USGS CONTOUR (MINOR)
- USGS CONTOUR (MAJOR)

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

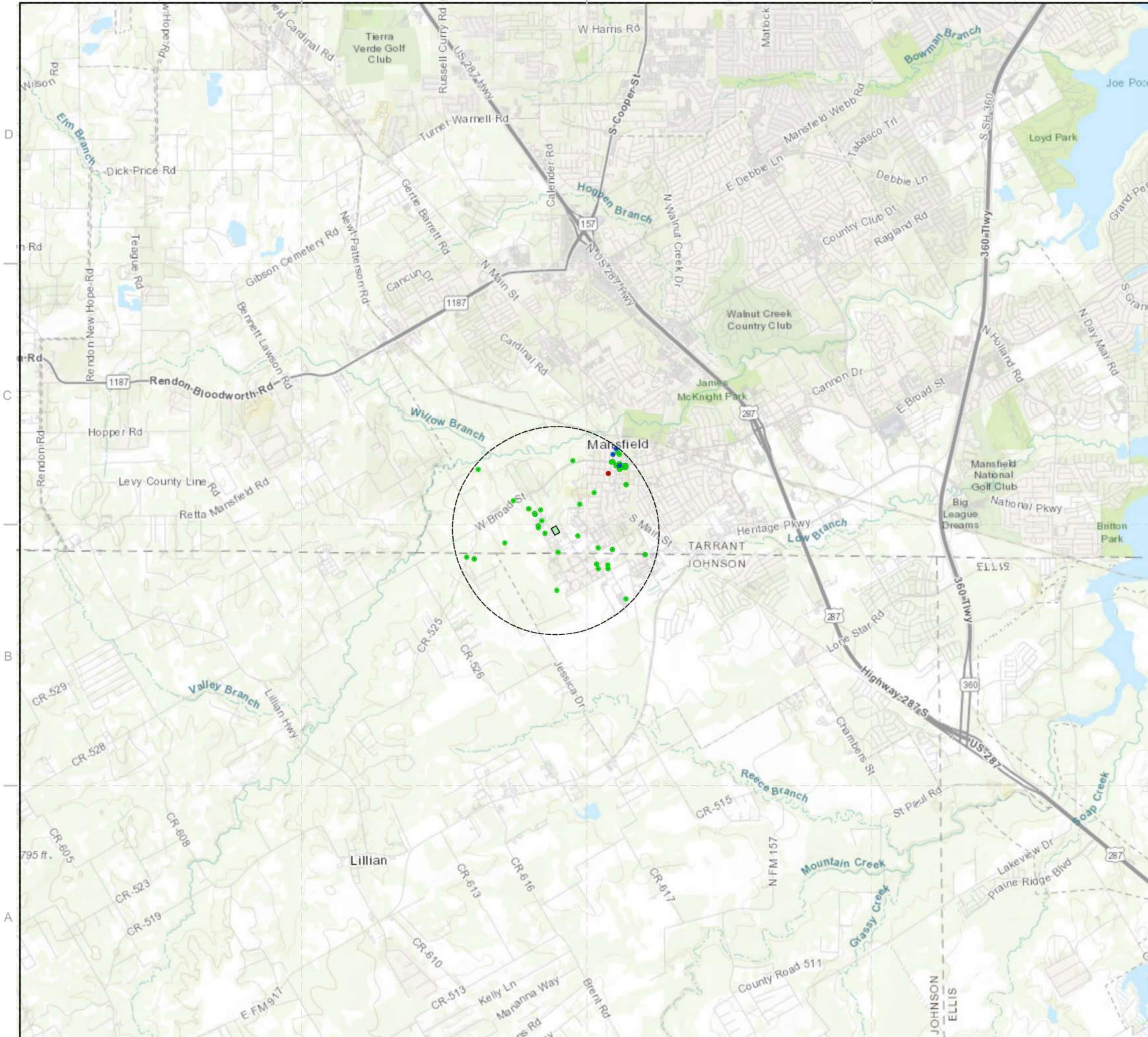
Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

GENERAL TOPOGRAPHIC MAP

FIG.I.A.2

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_PermitPart I\FIG I.A.2-General Topo Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 12:49:02 PM USER: SHarvey



0 0.5 1

Miles

NOTE:
1. THERE ARE NO KNOWN NATURAL SPRINGS WITHIN 1 MILE OF THE FACILITY
2. THERE ARE NO KNOWN OIL WELLS WITHIN 1 MILE OF THE FACILITY
3. THERE ARE NO KNOWN WASTE DISPOSAL ACTIVITIES CONDUCTED ON THE TRACT OTHER THAN THOSE INCLUDED IN THIS APPLICATION.

LEGEND:
- PROPERTY BOUNDARY
- 1 MILE RADIUS
- BRACKISH WELL
- GROUNDWATER WELL
- WELL REPORT

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Well locations obtained from the Texas Water Development Board GIS Data (http://www.twdb.texas.gov/mapping/gisdata.asp). Well locations updated nightly.

Parkhill

10/27/2025

PARKHILL, SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

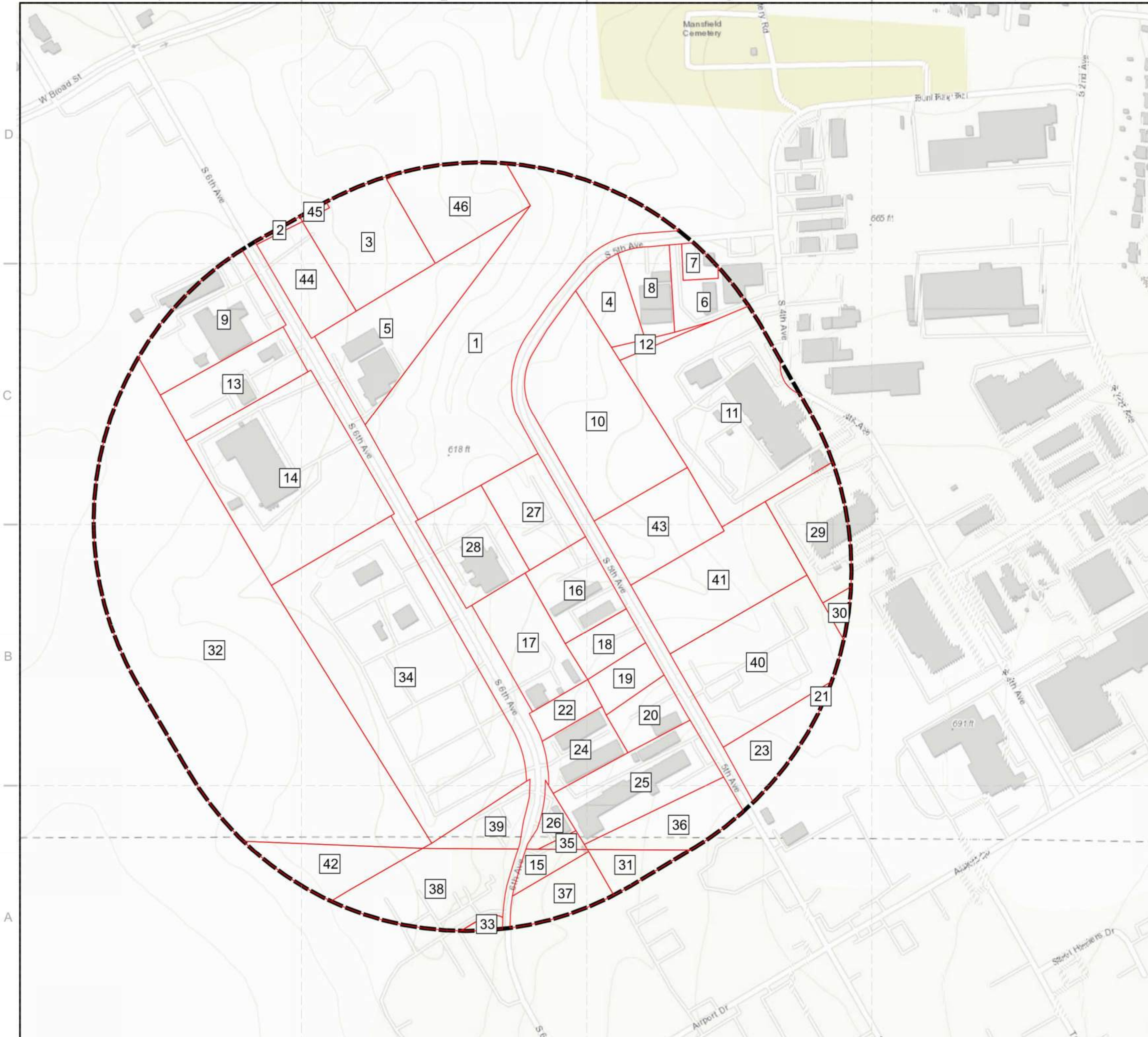
WELLS AND SPRINGS WITHIN ONE MILE

FIG.I.A.3

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_PermitPart I\FIG I.A.3-Wells-1-Mile.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 12:49:58 PM USER: SHarvey

Parkhill

APPENDIX I.B: LAND OWNERSHIP MAP AND LANDOWNER LIST



0 200 400
Feet

LEGEND:

PARCELS

0.25 MILE RADIUS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

City of Mansfield parcel location and owner information obtained from City of Mansfield Texas online interactive maps. https://www.mansfieldtexas.gov/383/Geographic-Information-Systems-GIS

Parkhill

10/27/2025

TODD E. STIGGINS
107769

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC

A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

LAND OWNERSHIP MAP

FIG.I.B.1

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_PermitPart I\FIG I.B.1-Land Ownership.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 12:52:14 PM USER: SHarvey

		Property Address Information				Owner Mailing Address Infromation		
NO.	OWNER	PROPERTY ADDRESS	PROPERTY CITY	PROPERTY COUTNY	PROPERTY ZIP	Mailing Address	Mailing City	Mailing Zip
1	HARRIS, CHRIS	500 S 5TH AVE	Mansfield	TARRANT	76063	W 1309A ABRAM ST	ARLINGTON, TX	76013
2	ALTAR HOLDINGS LLC	101 S 6TH AVE	Mansfield	TARRANT	76063	309 E BROAD ST	MANSFIELD, TX	76063
3	PMRS REAL ESTATE LLC	101 S 6TH AVE	Mansfield	TARRANT	76063	4309 OLD GROVE DR	MANSFIELD, TX	76063
4	MIAN, RAZA	515 S 5TH AVE	Mansfield	TARRANT	76063	1704 LATERA CIR	FLOWER MOUND, TX	75028
5	SHOWMAKER, RICHARD	301 S 6TH AVE	Mansfield	TARRANT	76063	7016 MIRAMAR CIR	FORT WORTH, TX	76126
6	RELIANSE EXCELL LLC	602 S 4TH AVE	Mansfield	TARRANT	76063	1600 REDBUD BLVD	MCKINNEY, TX	75069
7	RELIANSE EXCELL LLC	501 S 5TH AVE	Mansfield	TARRANT	76063	1600 REDBUD BLVD	MCKINNEY, TX	75069
8	LINRON PROPERTIES LTD	511 S 5TH AVE	Mansfield	TARRANT	76063	603 S 4TH AVE	MANSFIELD, TX	76063
9	JM ROSE 2046 INVESTMENTS LLC	204 S 6TH AVE	Mansfield	TARRANT	76063	204 S 6TH AVE	MANSFIELD, TX	76063
10	MIAN, RAZA	525 S 5TH AVE	Mansfield	TARRANT	76063	1704 LATERA CIR	FLOWER MOUND, TX	75028
11	CONVEYORS INC	620 S 4TH AVE	Mansfield	TARRANT	76063	PO BOX 50817	FORT WORTH, TX	76105
12	CONVEYORS INC	620 S 4TH AVE	Mansfield	TARRANT	76063	PO BOX 50817	FORT WORTH, TX	76105
13	CHARLES W YOUNG	210 S 6TH AVE	Mansfield	TARRANT	76063	210 S SIXTH AVE	MANSFIELD, TX	76063
14	MANSFIELD 6TH AVE PROPERTIES	300 S 6TH AVE	Mansfield	TARRANT	76063	2001 W WASHINGTON ST	SOUTH BEND, IN	46628
15	OPEN RANGE PROPERTIES LLC	801 S 6TH AVE	Mansfield	JOHNSON	76063	2080 CANNON DR	MANSFIELD, TX	76063
16	HOWSE BROS SANITATION CO INC	550 S 5TH AVE	Mansfield	TARRANT	76063	118 FLANDERS RD	WESTBOROUGH, MA	1581
17	SIXTH AVE BLDG LLC	601 S 6TH AVE	Mansfield	TARRANT	76063	3708 EAGLES NEST TRL	BURLESON, TX	76028
18	KUMAR, SUNIL	600 S 5TH AVE	Mansfield	TARRANT	76063	1006 SAINT GREGORY DR	MANSFIELD, TX	76063
19	MEEHAN PROPERTIES LLC	700 S 5TH AVE	Mansfield	TARRANT	76063	721 S 5TH AVE	MANSFIELD, TX	76063
20	MEEHAN PROPERTIES LLC	710 S 5TH AVE	Mansfield	TARRANT	76063	721 S 5TH AVE	MANSFIELD, TX	76063
21	JKRM PARTNERS LTD	801 S 5TH AVE	Mansfield	TARRANT	76063	PO BOX 928	MIDLOTHIAN, TX	76065
22	MCREHCO HOLDINGS LLC	605 S 6TH AVE	Mansfield	TARRANT	76063	605 S 6TH AVE	MANSFIELD, TX	76063
23	JKRM PARTNERS LTD	801 S 5TH AVE	Mansfield	TARRANT	76063	PO BOX 928	MIDLOTHIAN, TX	76065
24	OPEN RANGE PROPERTIES LLC	731 S 6TH AVE	Mansfield	TARRANT	76063	2080 CANNON DR	MANSFIELD, TX	76063
25	G H HENSLEY INDUSTRIES INC	800 S 5TH AVE	Mansfield	TARRANT	76063	PO BOX 29779	DALLAS, TX	75229
26	OPEN RANGE PROPERTIES LLC	823 S 6TH AVE	Mansfield	TARRANT	76063	2080 CANNON DR	MANSFIELD, TX	76063
27	HOWSE BROS SANITATION SERVICE	540 S 5TH AVE	Mansfield	TARRANT	76063	118 FLANDERS RD	WESTBOROUGH, MA	1581
28	SOUTH WASTE DISPOSAL LLC	525 S 6TH AVE	Mansfield	TARRANT	76063	9575 KATY FWY STE 130	HOUSTON, TX	77024
29	STRATOFLEX INC	700 S 4TH AVE	Mansfield	TARRANT	76063	6035 PARKLAND BLVD	CLEVELAND, OH	44124
30	FERGUSON FIRE & FABRICATION	800 S 4TH AVE	Mansfield	TARRANT	76063	12500 JEFFERSON AVE	NEWPORT NEWS, VA	23602
31	812 S 5TH AVENUE LLC	812 S 5TH AVE	Mansfield	JOHNSON	76063	200 E BEACH AVE	INGLEWOOD, CA	90302
32	BETHLEHEM BAPTIST CHURCH OF MA	1101 W BROAD ST	Mansfield	TARRANT	76063	1188 W BROAD ST	MANSFIELD, TX	76063
33	BROSEH FINANCIAL INVESTMENTS LP	820 S 6TH AVE	Mansfield	JOHNSON	76063	820 S 6TH AVE	MANSFIELD, TX	76063
34	SIXTH AVENUE PARTNERS LP	520 S 6TH AVE	Mansfield	TARRANT	76063	520 S 6TH AVE	MANSFIELD, TX	76063
35	OPEN RANGE PROPERTIES LLC	801 S 6TH AVE	Mansfield	TARRANT	76063	2080 CANNON DR	MANSFIELD, TX	76063
36	812 S 5TH AVENUE LLC	812 S 5TH AVE	Mansfield	JOHNSON	76063	200 E BEACH AVE	INGLEWOOD, CA	90302
37	812 S 5TH AVENUE LLC	812 S 5TH AVE	Mansfield	JOHNSON	76063	200 E BEACH AVE	INGLEWOOD, CA	90302
38	SENTRY LAND LP	800 S 6TH AVE	Mansfield	JOHNSON	76063	1816 HIGH COUNTRY DR	WESTLAKE, TX	76262
39	SENTRY LAND LP	800 S 6TH AVE	Mansfield	JOHNSON	76063	1816 HIGH COUNTRY DR	WESTLAKE, TX	76262
40	MEEHAN PROPERTIES LLC	721 S 5TH AVE	Mansfield	TARRANT	76063	2151 N HOLLAND RD	MANSFIELD, TX	76063
41	MIDWEST PROPERTY LLC	601 S 5TH AVE	Mansfield	TARRANT	76063	9031 SHAVER RD	PORTAGE, MI	49024
42	BETHLEHEM BAPTIST CHURCH OF MANSFIELD INC	1101 W BROAD ST	Mansfield	JOHNSON	76063	1188 W BROAD ST	MANSFIELD, TX	76063
43	CONVEYORS INC	525 S 5TH AVE	Mansfield	TARRANT	76063	620 S 4TH AVE	MANSFIELD, TX	76063
44	PMRS REAL ESTATE LLC	101 S 6TH AVE	Mansfield	TARRANT	76063	4309 OLD GROVE DR	MANSFIELD, TX	76063
45	ALTAR HOLDINGS LLC	101 S 6TH AVE	Mansfield	TARRANT	76063	1200 E BROAD ST	MANSFIELD, TX	76063
46	ALTAR HOLDINGS LLC	101 S 6TH AVE	Mansfield	TARRANT	76063	1200 E BROAD ST	MANSFIELD, TX	76063

812 S 5TH AVENUE LLC
200 E BEACH AVE
INGLEWOOD CA 90302

ALTAR HOLDINGS LLC
309 E BROAD ST
MANSFIELD TX 76063

BETHLEHEM BAPTIST CHURCH
OF MA
1188 W BROAD ST
MANSFIELD TX 76063

BETHLEHEM BAPTIST CHURCH
OF MANSFIELD INC
1188 W BROAD ST
MANSFIELD TX 76063

BROSEH FINANCIAL
INVESTMENTS LP
820 S 6TH AVE
MANSFIELD TX 76063

CHARLES W YOUNG
210 S SIXTH AVE
MANSFIELD TX 76063

CONVEYORS INC
PO BOX 50817
FORT WORTH TX 76105

FERGUSON FIRE AND
FABRICATION
12500 JEFFERSON AVE
NEWPORT NEWS VA 23602

G H HENSLEY INDUSTRIES INC
PO BOX 29779
DALLAS TX 75229

CHRIS HARRIS
W 1309A ABRAM ST
ARLINGTON TX 76013

HOWSE BROS SANITATION CO
INC
118 FLANDERS RD
WESTBOROUGH MA 1581

HOWSE BROS SANITATION
SERVICE
118 FLANDERS RD
WESTBOROUGH MA 1581

JKRM PARTNERS LTD
PO BOX 928
MIDLOTHIAN TX 76065

JM ROSE 2046 INVESTMENTS
LLC
204 S 6TH AVE
MANSFIELD TX 76063

SUNIL KUMAR
1006 SAINT GREGORY DR
MANSFIELD TX 76063

LINRON PROPERTIES LTD
603 S 4TH AVE
MANSFIELD TX 76063

MANSFIELD 6TH AVE
PROPERTIES
2001 W WASHINGTON ST
SOUTH BEND IN 46628

MCREHCO HOLDINGS LLC
605 S 6TH AVE
MANSFIELD TX 76063

MEEHAN PROPERTIES LLC
721 S 5TH AVE
MANSFIELD TX 76063

RAZA MIAN
1704 LATERA CIR
FLOWER MOUND TX 75028

MIDWEST PROPERTY LLC
9031 SHAVER RD
PORTAGE MI 49024

OPEN RANGE PROPERTIES LLC
2080 CANNON DR
MANSFIELD TX 76063

PMRS REAL ESTATE LLC
4309 OLD GROVE DR
MANSFIELD TX 76063

RELIANSE EXCELL LLC
1600 REDBUD BLVD
MCKINNEY TX 75069

SENTRY LAND LP
1816 HIGH COUNTRY DR
WESTLAKE TX 76262

RICHARD SHOWMAKER
7016 MIRAMAR CIR
FORT WORTH TX 76126

SIXTH AVE BLDG LLC
3708 EAGLES NEST TRL
BURLESON TX 76028

SIXTH AVENUE PARTNERS LP
520 S 6TH AVE
MANSFIELD TX 76063

SOUTH WASTE DISPOSAL LLC
9575 KATY FWY STE 130
HOUSTON TX 77024

STRATOFLEX INC
6035 PARKLAND BLVD
CLEVELAND OH 44124

Parkhill

APPENDIX I.C: PROPERTY OWNER INFORMATION

N.T.S.

PARKING TABULATION	
TOTAL REGULAR SPACES PROVIDED:	24
TOTAL COMPACT SPACES PROVIDED:	0
TOTAL HANDICAP SPACES PROVIDED:	1
TOTAL COMBINED SPACES PROVIDED:	25

FLOOD INFORMATION

F.I.R.M. NO. 48439C PANEL: 0470K
REVISED DATE 9-25-09 ZONE: "X", "X-SHADED"

FLOOD INFORMATION PROVIDED HEREON IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE FLOOD INSURANCE RATE MAPS. THE INFORMATION SHOULD BE USED TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS. WE ARE NOT RESPONSIBLE FOR THE F.I.R.M.'S ACCURACY.

NOTES

1. ALL EASEMENTS AND BUILDING LINES SHOWN ARE PER THE RECORDED PLAT UNLESS OTHERWISE NOTED.

2. ALL BUILDING LINES, EASEMENTS, BUILDING RESTRICTIONS (DEED RESTRICTIONS, ETC.) AND ZONING ORDINANCES, IF ANY, THAT MAY AFFECT SUBJECT PROPERTY SHOULD BE VERIFIED PRIOR TO PLANNING AND/OR CONSTRUCTION.

4. MINIMUM FINISH FLOOR REQUIREMENTS, IF SHOWN, ARE PER RECORDED PLAT AND/OR DEED RESTRICTIONS ONLY, AND NOTED AS SUCH. ADDITIONAL FINISHED FLOOR REQUIREMENTS MAY BE REQUIRED BY F.E.M.A. AND/OR LOCAL GOVERNING AUTHORITIES.

5. SURFACE OR SUBSURFACE FAULTING, HAZARDOUS WASTE, MINERAL RIGHTS, WETLAND DESIGNATION OR OTHER ENVIRONMENTAL ISSUES AND ARCHEOLOGICAL ISSUES HAVE NOT BEEN ADDRESSED WITHIN THE SCOPE OF THIS SURVEY.

6. ABSTRACT INFORMATION PROVIDED HEREON IS BELIEVED TO BE SUFFICIENT AND CORRECT BY THE UNDERSIGNED SURVEYOR, THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. THE ENCUMBRANCES OF RECORD, AS REFLECTED ON THIS SURVEY ARE BASED ON THE RECORDED MAP OR PLAT AND/OR DEEDS AND TITLE INFORMATION OWNER/BUILDER SHOULD VERIFY ALL BUILDINGS LINES, EASEMENTS, RESTRICTION, AND ORDINANCES, IF ANY, AS SHOWN HEREON.

7. A GROUND AND/OR AERIAL EASEMENT MAY EXIST ADJACENT TO ANY EXISTING UTILITY. OWNER/BUILDER MUST VERIFY CLEARANCE OF UTILITIES AND EASEMENTS WITH APPLICABLE UTILITY COMPANIES PRIOR TO PLANNING AND/OR CONSTRUCTION.

8. BURIED UTILITIES HAVE BEEN SHOWN, PER FIELD OBSERVATIONS AS MARKED BY DIGG TESS (TICKET NO. 2084276151).

9. NO ARCHITECTURAL PROTRUSIONS SUCH AS EAVES, OVERHANGS, WINDOW LEDGES, ETC. IN RELATION TO EASEMENTS AND/OR BUILDING LINES OBSERVED AT TIME OF SURVEY.

10. THERE IS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.

11. THERE IS NO OBSERVED EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.

12. THERE IS NO OBSERVED EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

13. NO PZR PROVIDED BY CLIENT AT TIME OF SURVEY.

14. NO PARTY WALLS DESIGNATED BY CLIENT AT TIME OF SURVEY.

15. THERE WERE NO DELINEATED WETLANDS FOUND ON THE GROUND AT THE TIME OF THIS SURVEY.

16. THERE WAS NO EVIDENCE OF CEMETERIES OR BURIAL GROUNDS OBSERVED AT TIME OF SURVEY.

17. THE PROPERTY HAS DIRECT ACCESS TO SIXTH AVENUE, A PUBLICLY DEDICATED RIGHT-OF-WAY.

18. THE PROPERTY DESCRIBED HEREIN IS THE SAME PROPERTY DESCRIBED IN TITLE COMMITMENT PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY. GF No. 20-928-TX, EFFECTIVE DATE: OCTOBER 27, 2020.

19. BEARINGS SHOWN HEREON ARE BASED OFF NORTH AMERICAN DATUM 1983 TEXAS STATE PLANE COORDINATE SYSTEM ZONE NORTH CENTRAL (4202).

FIELD NOTE DESCRIPTION

LOT 2R1, BLOCK 2 OF LOT 2R1 AND LOT 2R2, BLOCK 2, MANSFIELD INDUSTRIAL PARK, AN ADDITION TO THE CITY OF MANSFIELD, TARRANT COUNTY, TEXAS ACCORDING TO THE PLAT THEREOF RECORDED IN CABINET B, SLIDE 2345, PLAT RECORDS, TARRANT COUNTY, TEXAS; SITUATED IN THE THOMAS J. HANKS SURVEY, ABSTRACT No. 644 IN TARRANT COUNTY, TEXAS.

SCHEDULE B

This survey is based on a title report prepared by First American Title Insurance Company, GF No. 20-928-TX, Effective Date: October 27, 2020. Items not listed below are standard title exceptions and/or are not matters or issues that pertain to this survey.

10. The following matters and all terms of the documents creating or offering evidence of the matters:

f. Easement: Overhead and/or underground electric supply and communications lines
Recorded: 8/1/1996 in Volume 12456, Page 1515, Official Public Records, Tarrant County, Texas, as shown in Cabinet B, Slide 2345, of the Plat Records, Tarrant County, Texas.
DOES APPLY, AS SHOWN HEREON

g. The following easement(s) as set out on plat/map in Cabinet B, Slide 2345 of the Plat Records of Tarrant County, Texas, and as shown in Volume 388-140, Page 333, Plat Records, Tarrant County, Texas

- 25' building setback line
DOES APPLY, AS SHOWN HEREON

- 10' utility easements
DOES APPLY, AS SHOWN HEREON

-10' drainage easement
DOES APPLY, AS SHOWN HEREON

h. Oil, Gas and Mineral Lease, and all terms, conditions, and stipulations therein:
Recorded: 9/26/2007 in County Clerk's File No. D207343756 of the Official Public Records of Tarrant County, Texas.
NOT A SURVEY MATTER

ALTA/NSPS LAND TITLE SURVEY

Surveyor's Certification

"The undersigned being a Registered Professional Land Surveyor of the State of Texas does hereby certify to the best of my knowledge, information, and belief to Goldman Sachs Bank USA, as Administrative Agent and Collateral Agent, together with its successors and/or assigns, Land Services of Texas, LLC, First American Title Insurance Company, and Southwaste Disposal, LLC that:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1-4, 6a, 6b 7a, 7b1, 7c, 8-9, 10, 11b, 13-14, and 16-18, 19 of Table A thereof. The field work was completed on December 17, 2020"

3/29/21

STATE OF TEXAS REGISTERED NATHAN ALAN PARE 6845 PROFESSIONAL LAND SURVEYOR

NATHAN ALAN PARE
Registered Professional Land Surveyor
Texas Registration Number: 6845
npare@tritechtx.com

THIS SURVEY IS NULL AND VOID WITHOUT THE ORIGINAL SIGNATURE OF SURVEYOR.
THIS SURVEY IS VALID FOR THIS TRANSACTION ONLY.

FIGURE I.C.1

ALTA/NSPS LAND TITLE SURVEY

526 S. 6TH AVENUE
MANSFIELD, TARRANT COUNTY, TEXAS 76063

TRI-TECH SURVEYING COMPANY, L.P.
10401 WESTOFFICE DR.
HOUSTON, TEXAS 77042
PH: 713-667-0800
TBPLS #10115900
www.tritechtx.com

SHEET 1 OF 1

PROPERTY DESCRIPTION

BEING a description of a 2.498 acre tract of land situated in the Thomas J. Hanks Survey Abstract No. 644, in the City of Mansfield, Tarrant County, Texas and being commonly known as Lot 2R1, in Block 2 of Mansfield Industrial Park, an addition to the City of Mansfield as shown on the Plat recorded in Cabinet B, at Slide 2345 of the Plat Records of Tarrant County, Texas. Said 2.498 acre tract being more fully described as follows:

BEGINNING at a 1/2-inch steel rod found for corner on the present east right-of-way line of Sixth Avenue (a called 90 foot wide right-of-way at this point), and being the west common corner between said Lot 2R1 and Lot 1, in Block 1 of Harris Industrial Plaza, an addition to the City of Mansfield as shown on the Plat recorded in Volume 388-184, at Page 54 of the Plat Records of Tarrant County, Texas;

THENCE North 59 deg. 49 min. 04 sec. East, departing said Sixth Avenue and along the common line between said Lot 2R1 and said Lot 1, a distance of 291.25 feet to a 1/2-inch steel rod set for corner at the north common corner between Lot 2R1 and Lot 2R2 in said Mansfield Industrial Park addition;

THENCE South 29 deg. 42 min. 21 sec. East, departing said Lot 1 and along the common line between said Lots 2R1 and 2R2, a distance of 375.04 feet to a 1/2-inch steel rod set for corner, and being the south common corner between said Lots 2R1 and 2R2, and also being the northwest corner of Lot 1, in Block 2 of Howse Brothers Addition, an addition to the City of Mansfield as shown on the Plat recorded in Cabinet B, at Slide 1841 of the Plat Records of Tarrant County, Texas;

THENCE South 59 deg. 36 min. 25 sec. West, departing said Lot 2R2 and said Howse Brothers Addition, and along the south line of said Lot 2R1, a distance of 288.26 to a 1/2-inch steel rod found for corner on the previously mentioned east right-of-way line of Sixth Avenue;

THENCE North 30 deg. 09. min. 47 sec. West, along said east line, a distance of 376.09 feet to the POINT OF BEGINNING;

and containing 2.498 acres or 108,818 square feet of land more or less.

Property Owner Affidavit

I, Ben Camacho as Director of Compliance
(Printed Signatory Name) (Signatory Capacity)

As authorized signatory for **SouthWaste Disposal, LLC**
(Printed Name of Property Owner of Record)

acknowledge that the State of Texas may hold **SouthWaste Disposal, LLC** either jointly or severally responsible for the operation, maintenance, and closure of the facility. I further acknowledge that **SouthWaste Disposal, LLC** or the operator, and the State of Texas shall have access to the property during the active life and after closure of the purpose of inspection and maintenance.

(Signature)

4-1-2022
(Date)

APPENDIX I.D: LEGAL AUTHORITY

Corporations Section
P.O.Box 13697
Austin, Texas 78711-3697

Carlos H. Cascos
Secretary of State

Office of the Secretary of State

Certificate of Fact

The undersigned, as Secretary of State of Texas, does hereby certify that the document, Articles of Organization for SouthWaste Disposal, LLC (file number 800553020), a Domestic Limited Liability Company (LLC), was filed in this office on October 03, 2005.

It is further certified that the entity status in Texas is in existence.

In testimony whereof, I have hereunto signed my name officially and caused to be impressed hereon the Seal of State at my office in Austin, Texas on November 02, 2015.

Carlos H. Cascos
Secretary of State

Parkhill

APPENDIX I.E: EVIDENCE OF COMPETENCY

Downstream Environmental, LLC, SouthWaste Disposal, LLC., Tap, Inc., and Partners Dewatering International, LLC. are wholly owned subsidiary companies of Waste Resource Management, Inc. (WRM).

Downstream Environmental, LLC. is experienced with MSW facility type operations and understands the MSW rules and regulations set forth by the State of Texas. The organization is currently staffed with several licensed solid waste facility supervisors that manage operations throughout Texas. The facility currently employs a licensed solid waste facility supervisor.

WRM owns and/or operates several active MSW facilities throughout Texas, as indicated below:

RN Number:	RN101662617		
Name:	BR Perrin Plant		
Primary Business:	Municipal Solid Waste Disposal		
Street Address:	3737 Walnut Bend Lane		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77042
Physical Location:			
Wilcrest Green in Harris County from Beltway 8 West, take Westpark exit approximately 1 mile west of Beltway 8 to Walnut Bend Lane, go south on Walnut Bend to dead-end into Downstream Facility			
Customer's Role:	Owner / Operator	*Begin Date*:	08/14/2003
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2298	Active
Storm water	Permit	TX0137031 / WQ0005200000	Active

RN Number:	RN101478071		
Name:	SouthWaste Disposal, LLC San Antonio Facility		
Primary Business:	Organic composting		
Street Address:	20805 Old Limn Road		
County: Bexar	*Nearest City:* Elmendorf	*State:* TX	*Zip Code:* 78112
Physical Location:			
7 miles west of Elmendorf near roadway 1 mile southwest of Interstate Highway 37			
Customer's Role:	Owner / Operator	*Begin Date*:	06/04/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2317	Active
Petroleum storage tank	Registration	87042	Active
Storm water	Permit	TXR05BC61	Active

RN Number:	RN105876601		
Name:	Austin Liquid Waste Processing Facility		
Primary Business:	No primary business description on file		
Street Address:	828 Linger Lane		
County: Travis	*Nearest City:* Austin	*State:* TX	*Zip Code:* 78725
Physical Location:			
Located on Linger Lane approximately 800 feet southwest of the intersection of Highway 183 and Linger Lane			
Customer's Role:	Owner	*Begin Date*:	NA
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2367	Active

RN Number:	RN101289171		
Name:	SouthWaste Disposal, LLC South Plains Facility		
Primary Business:	Grease and grit trap processing		
Street Address:	801 North Avenue P		
County: Lubbock	*Nearest City:* Lubbock	*State:* TX	*Zip Code:* 79403
Physical Location:			
No physical location description on file			
Customer's Role:	Owner / Operator	*Begin Date*:	05/05/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2231	Active
Storm water	Permit	TXR05CQ40	Active

RN Number:	RN103155800 RN101288603		
Name:	SouthWaste Disposal Hurst Facility		
Primary Business:	Industrial chemical manufacturing plant		
Street Address:	6407 Hurst Street		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77024
Physical Location:			
1.933 acres located on 6407 Hurst Street in Houston, Harris County			
Customer's Role:	Owner / Operator	*Begin Date*:	01/01/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Sludge	Registration	23737	Cancelled
Sludge	Registration	24075	Active
Air new source permits	Registration	120677	Active
Air new source permits	Registration	120683	Active
MSW processing	Permit	2241A	Active
Storm water	Permit	TXR05BV26	Active

RN Number:	RN102327715		
Name:	SouthWaste Disposal Dallas Facility		
Primary Business:	No primary business description on file.		
Street Address:	525 South 6th Avenue		
County: Tarrant	*Nearest City:* Mansfield	*State:* TX	*Zip Code:* 76063
Physical Location:			
Located at 525 South 6th Avenue in the city of Mansfield approximately ½ mile south of the intersection of 6th Avenue and Broad Street			
Customer's Role:	Owner / Operator	*Begin Date*:	10/23/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air New Source Permits	Registration	115976	Active
MSW Processing	Permit	2256A	Active
Storm water	Permit	TXRNEW710	Active

RN Number:	RN102966595		
Name:	Big K Environmental		
Primary Business:	Septic Receiving		
Street Address:	423 Little York Rd		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77076
Physical Location:			
Left side of the road on Little York Road between Airline & Hardy Toll Road, approximately 6 blocks before intersection with Airline when travelling in a westerly direction.			
Customer's Role:	Owner / Operator	*Begin Date*:	06/07/2007
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2350	Active

RN Number:	RN101999290		
Name:	La Coste WWTP		
Primary Business:	No primary business description on file		
Street Address:	11331 Lytle-La Coste Rd		
County: Medina	*Nearest City:* La Coste	*State:* TX	*Zip Code:* 78039
Physical Location:			
East of La Coste city limits 0.3 mile due south of the Southern Pacific Railroad on the Lytle La Coste Road in Medina County, Texas			
Customer's Role:	Owner / Operator	*Begin Date*:	05/30/2002
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Registration	43011	Active

APPENDIX I.F: APPOINTMENTS

The WRM Companies

October 24, 2025

MSW Permits Section
Texas Commission on Environmental Quality (TCEQ)
12100 Park 35 Circle, Building F (MC-124)
Austin Texas 78753

RE: Downstream Environmental, LLC
TCEQ Major Permit Amendment Application
MSW Permit No. 22556B

Dear TCEQ:

This is to advise you that officials of SouthWaste Disposal, LLC duly appoint Parkhill as consulting and designing engineers in support of the submittal of a Permit Amendment Application for a Type V solid waste facility.

Parkhill is an engineering firm employing professional engineers in good standing in accordance with State statutes, and the firm possesses experience in designing similar facilities. Todd E. Stiggins, P.E. with PSC is the Engineer of Record for this amendment application. He is registered with the state of Texas with more than 15 years of experience.

We hereby authorize you to review and comment on reports, planning material, correspondence, and data related to this application that will be submitted by Parkhill.

Sincerely,

Southwaste Disposal, LLC.

By_____________________________

Ben Camacho
Director of Compliance

APPENDIX I.G: DOCUMENTATION OF APPLICATION FEE PAYMENT

Questions or Comments >>

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Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number:	582EA000697493
Date:	11/25/2025 02:14 PM
Payment Method:	CC - Authorization [redacted]
ePay Actor:	TODD STIGGINS
Actor Email:	[redacted]
IP:	138.199.118.178
TCEQ Amount:	$150.00
Texas.gov Fee:	$3.63
Texas.gov Price:	$153.63*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

Name:	TODD STIGGINS
Company:	TODD STIGGINS
Address:	938 COUNTY ROAD 11, TAHOKA, TX 79373
Phone:	817-907-8633

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
796409	MSW PERMIT/REGISTRATION/AMEND/MOD/TEMP AUTHORIZATIONS APPLICATION FEE		$100.00
796410	30 TAC 305.53B MWP NOTIFICATION FEE		$50.00
		TCEQ Amount:	$150.00

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PART II – EXISTING CONDITIONS AND CHARACTER OF FACILITY AND SURROUNDING AREA

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

Parkhill

4222 85th Street

Lubbock, Texas 79424

TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

Parkhill

PART II – EXISTING CONDITIONS AND CHARCATER OF FACILITY AND SURROUNDING AREA

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

10/27/2025

PREPARED BY:

Parkhill

4222 85th Street

Lubbock, Texas 79424

TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

TABLE OF CONTENTS

1.0 EXISTING CONDITIONS SUMMARY - 30 TAC §330.61(a) II-1

2.0 WASTE ACCEPTANCE PLAN - 30 TAC §330.61(b) II-2
- 2.1 Waste Accepted II-2
- 2.2 Waste Not Accepted II-2
- 2.3 Limiting Waste Parameters II-2
- 2.4 General Waste Sources II-3

3.0 GENERAL LOCATION MAPS - 30 TAC §330.61(c) II-4

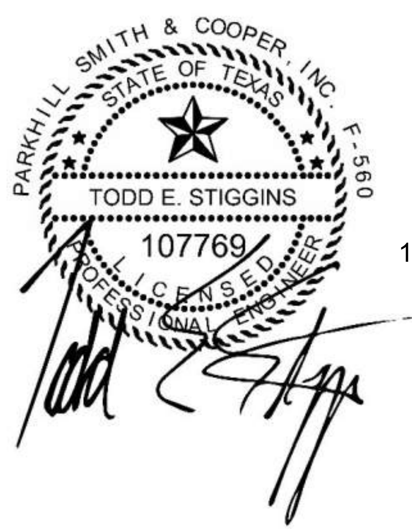
4.0 FACILITY LAYOUT MAPS - 30 TAC §330.61(d) II-5

5.0 GENERAL TOPOGRAPHIC MAPS - 30 TAC §330.61(e) II-6

6.0 AERIAL PHOTOGRAPH - 30 TAC §330.61(f) II-7

7.0 LAND-USE MAP - 30 TAC §330.61(g) II-8

8.0 IMPACT ON SURROUNDING AREA - 30 TAC §330.61(h) II-9
- 8.1 Zoning II-9
- 8.2 Surrounding Land Use II-9
- 8.3 Growth Trends II-9
- 8.4 Proximity to Residences and Other Uses II-9
- 8.5 Known Wells Within 500 Feet II-10



10/27/2025

9.0 TRANSPORTATION - 30 TAC §330.61(i) II-11
- 9.1 Availability and Adequacy of Roads II-11
- 9.2 Volume of Vehicular Traffic II-11
- 9.3 Texas Department of Transportation (TxDOT) Coordination II-11

10.0 GENERAL GEOLOGY AND SOILS STATEMENT - 30 TAC §330.61(j) II-12

11.0 GROUNDWATER AND SURFACE WATER - 30 TAC §330.61(k) II-13
- 11.1 Groundwater Conditions II-13
- 11.2 Surface Water II-13
- 11.3 Liquid Wastes II-13
- 11.4 Texas Pollutant Discharge Elimination System (TPDES) Compliance II-13

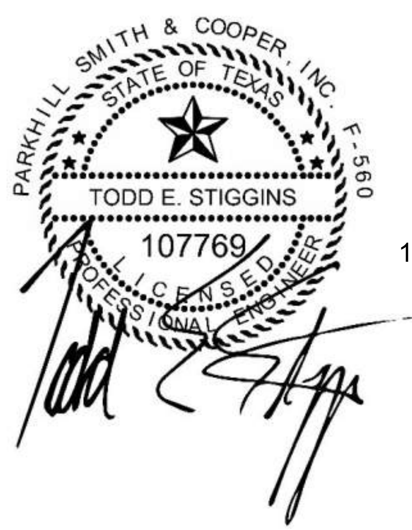
12.0 ABANDONED OIL AND WATER WELLS - 30 TAC §330.61(l) II-14
- 12.1 Water Wells II-14
- 12.2 Crude Oil or Natural Gas Wells II-14

13.0 FLOODPLAINS AND WETLANDS STATEMENT - 30 TAC §330.61(m) II-15

14.0 ENDANGERED OR THREATENED SPECIES - 30 TAC §330.61(n) II-16

15.0 TEXAS HISTORICAL COMMISSION REVIEW - 30 TAC §330.61(o) II-27

16.0 COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW – 30 TAC §330.61(p) II-18



10/27/2025

APPENDICES

APPENDIX II.A: FIGURES
APPENDIX II.B: ZONING INFORMATION
APPENDIX II.C: TRAFFIC REPORT
APPENDIX II.D: TEXAS DEPARTMENT OF TRANSPORTATION CORRESPONDENCE
APPENDIX II.E: TEXAS PARKS AND WILDLIFE DEPARTMENT TARRANT COUNTY LIST OF RARE SPECIES AND CORRESPONDENCE FROM EXISTING PERMIT
APPENDIX II.F: U.S. FISH AND WILDLIFE AND TEXAS PARKS AND WILDLIFE CORRESPONDENCE
APPENDIX II.G: TEXAS HISTORICAL COMMISSION REVIEW
APPENDIX II.H: COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW
APPENDIX II.I: FLOODPLANS
APPENDIX II.J: LOCATION RESTRICTIONS

TABLES

TABLE II.1 - WASTE CONSTITUENT LIMITATIONS
TABLE II.2 - GENERAL LOCATION MAP DATA
TABLE II.3 - FACILITY LAYOUT MAP DATA
TABLE II.4 – LAND USE
TABLE II.5 – FACILITY-GENERATED TRAFFIC

PARKHILL, SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED
PROFESSIONAL ENGINEER

10/27/2025

1.0 EXISTING CONDITIONS SUMMARY – 30 TAC §330.61(a)

SouthWaste Disposal Dallas Facility (Facility) is located at 525 South 6th Avenue, in the City of Mansfield, approximately 0.5 miles south of the intersection of South 6th Avenue and West Broad Street, Tarrant County, Texas. The property occupied by the Facility is 2.5 acres and has full access to sewer, gas, and electricity. The Facility is a TCEQ authorized Type V Liquid Waste Processing Facility. The Facility was first authorized to operate under MSW Permit No. 2256 on October 24, 1995. The permit authorization was superseded by Permit No. 2256A on May 8, 2017. The 2256A authorization was superseded by Permit No. 2256B on July 17, 2023. This amendment proposes to, among other changes described in this application, increase Facility capacity to process up to 90,000,000 gallons of waste per year.

A land use analysis, included in Appendix IIB, has been completed to evaluate likely impacts from increasing the processing capacity of the Facility on the surrounding area. The land use analysis includes community growth patterns and the character of surrounding land uses. Since the Facility has been in operation since 1995, its continued operation is compatible with its land use.

A traffic study, included in Appendix II.C, has been completed. The study concluded that all intersections and roadways included in the study currently operate at acceptable levels of services.

The Facility is located in Mansfield, Texas, lies on the eastern edge of the physiographic province known as the Grand Prairie. The Grand Prairie in this area has low, undulating hills formed on the sandy soils of the Woodbine Formation outcrop.

Regional aquifers in Tarrant and adjacent counties include the Cretaceous, Trinity Aquifers (major), and the Woodbine Aquifer (minor). The Trinity consists of the Paluxy, the Glen Rose, and the Twin Mountains aquifers.

There are no known water wells on the site and a water well search revealed the potential of one private water well located within 500 feet of the Facility.

There are no oil or gas wells on site. An oil and gas well search showed there were no active or abandoned oil or gas wells or dry holes within 500 feet of the Facility.

All liquid waste processing areas are outside of the 100-year floodplain. Since the Facility site is completely developed and entirely paved with the exception of small manicured grassed areas along the east and west permit boundaries, the Facility does not cause or contribute to violations of any applicable state water quality standard, violate any applicable toxic effluent standard or prohibition of the Clean Water Act, jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat protected under the Endangered Species Act of 1973, or violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

A review of the site was performed by the Texas Historical Commission. The review determined that no survey was required and that Facility operations do not impact the state's cultural resources.

Based upon the existing conditions and character of the Facility and surrounding area, there are no site-specific conditions that require special design considerations or possible mitigation of conditions identified in 30 TAC §330.61(h)-(o). The Facility meets the requirements of 30 TAC §330.61(a).

2.0 WASTE ACCEPTANCE PLAN - 30 TAC §330.61(b)

The Facility Waste Acceptance and Analysis Plan is presented in Part IV, Section 4.0.

2.1 Waste Accepted

This Type V Facility accepts the following wastes:

- Industrial wastes, including Class 1 non-hazardous, Class 2, and Class 3 waste;
- Grease trap waste from commercial and industrial sources;
- Grit trap waste from commercial and industrial sources;
- Lint trap waste;
- Sludges from municipal and industrial wastewater treatment;
- Chemical toilet waste;
- Septage from residential and commercial sources; and
- Waste from commercial and industrial oil-water separators.

2.2 Waste Not Accepted

The following wastes shall not be accepted for processing and treatment at the Type V Facility:

- Wastes lacking an appropriate manifest, trip ticket, or unidentified wastes;
- Untreated medical waste;
- Pharmaceuticals;
- Waste from oil, gas, and geothermal activities subject to regulation by the Railroad Commission of Texas;
- Polychlorinated biphenyl wastes;
- Radioactive waste; or
- Regulated hazardous waste.

2.2.1 Limiting Waste Parameters

The waste processed at the Type V Facility is comprised of varying percentages of previously noted acceptable wastes, depending on market conditions. The Facility shall be designed and operated so the quantity of any particular approved waste received is not a limiting factor for effective processing of all wastes.

The Facility accepts up to 7,500,000 gallons of waste per month for processing, including any wash water from the tank cleaning Facility. This is 90,000,000 gallons per year or an average of approximately 246,575 gallons per operating day (assuming operations seven days per week) for its site life, including the next five years. The daily maximum waste acceptance rate shall be no greater than 360,000 gallons.

The primary constituents that affect the ability to meet industrial discharge permit limits are pH, BOD, and COD. At minimum, wastes accepted for processing must meet constituent limitations in Table II.1.

Table II.1 – WASTE CONSTITUENT LIMITATIONS

Constituent	Industrial Waste	Grease Trap	Grit Trap	Lint Trap	Sludge	Septage
pH	2-12	4.5-5.5	6-7	6-9	5-9	2-12.5
Fats, Oils, and Greases (%)	5-20	10-20	<5	<5	5-10	<10
Solids (%)	0.05-0.15	5-15	25-75	25-75	5-50	0.1-15
COD (mg/L)	1,000-5,000	50,000-200,000	2,000-7,000	350-450	450-700	1,500-700,000
BOD_5(mg/L)	700-15,000	50,000-200,000	<350	400-450	200-300	440-78,600
Water (%)	80-95	65-85	25-60	50-60	50-95	85-99.9

2.3 General Waste Sources

In general, the Facility expects to receive waste primarily from the Dallas/Fort Worth area and surrounding counties. The surrounding counties which may contribute waste to the Facility include but are not limited to Ellis, Collin, Dallas, Denton, Hood, Johnson, Parker, Tarrant, and Wise. Based upon the 2020 United States Census, the total population of these counties is approximately 7,242,300.

3.0 GENERAL LOCATION MAPS - 30 TAC §330.61(c)

Appendix A, Figures II.A.1 through II.A.12 present features required in §330.61(c)(1)-(12). Table II.2 outlines rule requirements and the respective figure presenting the information:

Table II.2 – GENERAL LOCATION MAP DATA

Rule Citation	Feature or characteristic	Figure
§330.61(c)(1)	Wind Rose	II.A.3
§330.61(c)(2)	Water wells within 500 feet	II.A.5
§330.61(c)(3)	Structures within 500 feet	II.A.2
§330.61(c)(4)	Land use within 1 mile	II.A.2
§330.61(c)(5)	Facility access roads	II.A.1
§330.61(c)(6)	Latitude and longitude	II.A.1
§330.61(c)(7)	Area streams	II.A.3
§330.61(c)(8)	Airports within 6 miles	II.A.8
§330.61(c)(9)	Property boundary	II.A.12
§330.61(c)(10)	Drainage, pipeline, and utility easements	II.A.12
§330.61(c)(11)	Facility access control features	Figure II.A.12
§330.61(c)(12)	Archaeologically significant sites, historic structures and site, and sites having exceptional aesthetic quality within one mile of the Facility (§330.61(h)(4)	N/A (no sites present)

4.0 FACILITY LAYOUT MAPS - 30 TAC §330.61(d)

Part II Appendix - presents features required in §330.61(d)(1)-(8). Table II.3 outlines rule requirements and the respective figure presenting the information:

Table II.3 – FACILITY LAYOUT MAP DATA

Rule Citation	Feature or characteristic	Figure
§330.61(d)(1)	Outline of the units	N/A
§330.61(d)(2)	Facility roadways	II.A.12
§330.61(d)(3)	Monitor wells	N/A
§330.61(d)(4)	Locations of buildings	II.A.12
§330.61(d)(5)	Construction sequence	N/A
§330.61(d)(6)	Fencing	II.A.12
§330.61(d)(7)	Facility screening	II.A.12
§330.61(d)(8)	Site entrance roads	II.A.12
§330.61(d)(9)	N/A – applies to landfills	N/A

5.0 GENERAL TOPOGRAPHIC MAPS – 30 TAC §330.61(e)

A general topographic map depicting area surrounding the Facility is presented as Appendix A, Figure II.A.3. The general topographic map uses the most current digital United States Geological Survey (USGS) GIS data. The map shows Facility/permit boundary overlain on USGS data at a scale of 1-inch equals 2,000 feet.

6.0 AERIAL PHOTOGRAPH - 30 TAC §330.61(f)

An aerial photograph with a 1-inch-equals-2,000-feet scale shows an area within at least 1-mile radius of the site (Appendix A, Figure II.A.4). Facility boundary and 1-mile radius are overlain on the aerial photo.

7.0 LAND USE MAP - 30 TAC §330.61(g)

Appendix A, Figure II.A.2 is a land use map presenting features required in §330.61(g). The land use features identified and depicted on Figure II.A.2 include the Facility permit boundary and existing uses such as commercial, industrial, and residential uses within one mile of the permit boundary. Locations of residences and commercial establishments within one mile of the permit boundary are shown. Refer to Exhibit B of the Special Warranty Deed in Appendix I.C for drainage, pipeline, or utility easements.

8.0 IMPACT ON SURROUNDING AREA – 30 TAC §330.61(h)

This land use evaluation for the area within 1 mile of the Facility addresses land use matters required by the TCEQ.

8.1 Zoning

The official zoning map adopted by City of Mansfield is included in Appendix II.B. This site is currently zoned as special purpose, industrial, which allows for use as a TCEQ Type V Liquid Waste Processing Facility.

8.2 Surrounding Land Use

Surrounding land use is presented graphically on Figure II.A.2. Current land use data was obtained from property records available from City of Mansfield. The largest land use within one mile of the Facility is Residential (34.0%), followed by agriculture (21.0%), and Industrial (14.7%). These land use categories encompass approximately 69.7% of land use within one mile of the Facility. Current land use within one mile of the Facility is characterized in Table II.4:

Table II.4 – LAND USE

Land Use	Acres	Percentage
Agriculture	439.5	21.0%
Commercial	244.4	11.7%
Industrial	307.9	14.7%
Institutional	27.6	1.3%
Residential	711.3	34%
Undeveloped	235.7	11.3%
Other	123.6	5.9%

8.3 Growth Trends

The growth trends of the Dallas/Fort Worth metropolitan area have been determined by the North Central Texas Council of Governments (NCTCOG). According to the 2045 Demographic Forecasts prepared by NCTCOG, the City of Mansfield is expected to grow from 72,040 persons in2020 to 102,920 persons by 2045. NCTCOG projects significant residential growth northwest and northeast of the site within five miles of the Facility boundary.

8.4 Proximity to Residences and Other Uses

- Approximately 1,548 single family residential homes and 4 multifamily residences are located within 1 mile of the Facility.
- Approximately 238 commercial establishments are within 1 mile of the Facility.
- One school is within 1 mile of the Facility.
- No licensed daycare facilities are within 1 mile of the Facility.
- Six churches within 1 mile of the Facility.
- One cemetery is within 1 mile of the Facility.
- No ponds or lakes are within 1 mile of the Facility.
- No community centers are within 1 mile of the Facility.
- Nearest residence is approximately 1,550 feet north of the Facility's Property Boundary..
- The Facility shares a property boundary to the northeast and southeast with commercial establishments.

8.5 Known Wells Within 500 Feet

Known water and oil/gas wells in the vicinity of the site are presented on Appendix II.A, Figure II.A.5.

TWDB database includes two drilling reports for water wells within 500 feet of the Facility. The two separate water well drilling reports appear to contain identical information and are assumed to reference the same well. TWDB database does not have a record that the water well was developed and currently active. The well may be active and private.

9.0 TRANSPORTATION – 30 TAC §330.61(i)

No improvements to roadways used to access the Facility are required based upon the expected volume of vehicular traffic generated by the Facility during its life. A Traffic Report is provided as Appendix II.C.

9.1 Availability and Adequacy of Roads

Primary access route to the Facility is via US-287 S, exit Heritage Parkway, continue west on Heritage Parkway, turn right on US-287 Business, continue northwest on US-287 Business, turn left on Airport Drive, continue southwest on Airport Drive, turn right on South 6th Street. Appendix II.A, Figure II.A.1 shows roadways used to access the Facility.

- US-287 South is a four-lane divided highway.
- Heritage Parkway is a four-lane road with a dividing median and curbs.
- US-287 Business is a two-lane, undivided paved road without curbs.
- Airport Drive is a two-lane, undivided paved roadway with curbs.
- South 6th Street is a two-lane, undivided paved road without curbs.

9.2 Volume of Vehicular Traffic

Vehicles accessing the site fall under several site purposes/activities. The primary activities for which vehicles access the Facility are: 1) employees; 2) liquid waste haulers; and 3) grit washout customers. Site-generated traffic for liquid waste haulers are limited by the maximum waste acceptance rate of 360,000 gallons per day. Transporters deliver wastes in loads averaging 6,000 gallons. Based upon this condition and current assumptions regarding Facility-generated traffic, Table II.6 presents the estimated peak Facility generated traffic:

Table II.6 – FACILITY GENERATED TRAFFIC

Vehicle/Customer Type	Maximum Anticipated Daily One-Way Trips
Employees	50
Liquid Waste Haulers	50
Grit Washout Customers	20
Total	**120**

9.3 Texas Department of Transportation (TxDOT) Coordination

The TXDOT area office was contacted in writing regarding potential effects of the increase in traffic volume from this Facility. Correspondence is provided in Appendix II.D.

10.0 GENERAL GEOLOGY AND SOILS STATEMENT – 30 TAC §330.61(j)

The City of Mansfield overlays Eagle Ford Group (Cretaceous), Woodbine Formation (Cretaceous), the Fluviatile Terrace deposits (Quaternary), and Alluvium (Quaternary). The Facility is located above the Woodbine Formation and near the Eagle Ford Group.

This region of the Eagle Ford Group formation is defined by the United States Geologic Survey (USGS) as generally being comprised of shale, sandstone, and limestone in the upper and middle parts of the formation. The lower portions of the formation are generally aluminum silicate clay or hard limestone. The formation averages 200-300 feet in depth.

The Woodbine Formation is defined by USGS as mostly fine grained, tuffaceous sandstone that is reddish brown in color. The upper layers of sandstone may have large discoid concretions and the presence of gray, jarositic shale. The middle layers are mostly fine grained sandstone with some interbeds of partly sandy, carbonaceous clay. The lower layers are comprised of interbedded fine grained sandstone and sandy clay with some beds of ironstone. The formation averages 175-250 feet in depth.

Fluviatile Terrance deposits are defined by USGS as predominantly gravel, sand, silt, and clay. These deposits are associated with ancient floodplains and are comprised of contiguous terraces of geologic material separated by solid lines dependent on age.

Alluvium is defined by USGS as predominantly gravel, sand silt, silty clay, and organic matter. Alluvium deposits are indistinct low terrace deposits associated with ancient flood plains.

11.0 GROUNDWATER AND SURFACE WATER - 30 TAC §330.61(k)

This section discusses site-specific groundwater conditions at and near the site, surface water near the site, and provides information demonstrating how the Facility complies with applicable Texas Pollutant Discharge Elimination System (TPDES) stormwater permitting requirements and Clean Water Act, §402, as amended.

The Facility contains all waste in enclosed buildings within appropriate tanks and secondary containment provided by reinforced concrete, or covered watertight roll-off boxes; therefore, it does not pose a risk of contamination to local and regional groundwater and surface water.

11.1 Groundwater Conditions

The Facility is located over the Trinity Aquifer, classified by Texas Water Development Board (TWDB) as a Major Aquifer of Texas. The Facility is also located over the Woodbine Aquifer, classified by TWDB as a Minor Aquifer of Texas.

The Trinity Aquifer is composed of several smaller aquifers contained within the Trinity Group. Although referred to differently in different parts of the state. They include the Antlers, Glen Rose, Paluxy, Twin Mountains, Travis Peak, Hensell, and Hosston aquifers. These aquifers consist of limestones, sands, clays, gravels, and conglomerates. Their combined freshwater saturated thickness averages about 600 feet in North Texas and about 1,900 feet in Central Texas. In general, groundwater is fresh but very hard in the outcrop of the aquifer. Total dissolved solids increase from less than 1,000 milligrams per liter in the east and southeast to between 1,000 and 5,000 milligrams per liter, or slightly to moderately saline, as the depth to the aquifer increases. Sulfate and chloride concentrations also tend to increase with depth. The aquifer is one of the most extensive and highly used groundwater resources in Texas. Although its primary use is for municipalities, it is also used for irrigation, livestock, and other domestic purposes. Some of the state's largest water level declines, ranging from 350 to more than 1,000 feet, have occurred in counties along the IH-35 corridor from McLennan County to Grayson County. These declines are primarily attributed to municipal pumping, but they have slowed over the past decade as a result of increasing reliance on surface water.

The Woodbine Aquifer consists of sandstone interbedded with shale and clay that form three distinct water-bearing zones. The Woodbine Aquifer reaches 600 feet in thickness in subsurface areas, and freshwater saturated thickness averages about 160 feet. Water quality and yield vary with the depth of the aquifer. The lower zones of the aquifer typically yield the most water, whereas the upper zone yields limited water that tends to be very high in iron. In general, water to a depth of 1,500 feet is fresh, containing less than 1,000 milligrams per liter of total dissolved solids. Water at depths below 1,500 feet is slightly to moderately saline, containing from 1,000 to 4,000 milligrams per liter of total dissolved solids. The aquifer provides water for municipal, industrial, domestic, livestock, and small irrigation supplies.

11.2 Surface Water

The nearest surface water body to the Facility is a small, unnamed creek north of the Facility that drains to the north to Walnut Creek. Walnut Creek drains to the northeast to Joe Pool Lake. Joe Pool Lake is approximately 6 miles east of the Facility.

11.3 Liquid Wastes

Liquid wastes are processed within steel tanks, reinforced concrete basins, or specialized process equipment to contain and prevent discharge of process liquids to surface or groundwater.

11.4 Texas Pollutant Discharge Elimination System (TPDES) Compliance

In accordance with 30 TAC §330.61(k)(3)(A), the Facility submitted a notice of intent (NOI) to comply with the requirements of TPDES General Permit No. TXR050000. The Facility operates and shall continue to comply with Permit No. TXRNEW710.

12.0 ABANDONED OIL AND WATER WELLS – 30 TAC §330.61(l)

12.1 Water Wells

No known water wells exist within the property boundary. Should a well be discovered, it will be properly plugged and a plugging report submitted to appropriate agencies. Water wells in the vicinity of the site are shown on Appendix A, Figure II.A.5. The two separate water well drilling reports appear to contain identical information and are assumed to reference the same well. The TWDB database does not contain a record that the water well was developed and currently active. However, the well may be active and private. The well is assumed to be operational and will continue to remain operational.

12.2 Crude Oil or Natural Gas Wells

In December of 2022, a review of the oil and gas well locations on the Texas Railroad Commission website interactive map (https://gis.rrc.texas.gov/GISViewer/) was conducted. The review showed no active or abandoned oil or gas wells or dry holes within 500 feet of the facility. Should a well be discovered, it will be properly plugged and a plugging report submitted to appropriate agencies.

13.0 FLOODPLAINS AND WETLANDS STATEMENT – 30 TAC §330.61(m)

Figure II.A.11 presents the digital National Flood Hazard Layer (NFHL) derived from Flood Insurance Rate Maps (FIRM) for the property and surrounding area. In accordance with 30 TAC §330.547. All storage and processing facilities are located outside of the 100-year flood plain.

No wetlands are present within the Permit Boundary. A site investigation was submitted to the Corp of Engineers in 2015 to confirm that no wetlands are present on site. The Corp of Engineers agreed on August 4, 2015 that Facility operation is not subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. Refer to Part II Appendix I for the correspondence with the Corp of Engineers.

14.0 ENDANGERED OR THREATENED SPECIES – 30 TAC §330.61(n)

The Facility does not result in the destruction or adverse modification of critical habitat of endangered or threatened species, nor cause/contribute to taking any endangered species. An MSW Type V Facility was built onsite and has operated under Permit No. 2256 from 1995 to 2017,, under Permit No. 2256A from 2017 to 2023, and under Permit No. 2256B since 2023. The increase in permitted capacity of the Facility does not disturb any additional part of the site, nor result in destruction or adverse modification of any Federally Designated critical habitat for any threatened or endangered species. See correspondence to USFWS and TPWD in Appendix II.E and II.F.

15.0 TEXAS HISTORICAL COMMISSION REVIEW – 30 TAC §330.61(o)

The Texas Historical Commission (THC) was contacted regarding this application, about historical or archaeological antiquities. Copies of correspondence are provided in Appendix II.G. THC has not responded to the notice. In 1995, THC found that the initial construction of the Facility could proceed without further consultation and not survey was required. The proposed increase in capacity does not disturb any addition site areas.

16.0 COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW – 30 TAC §330.61(p)

SouthWaste Disposal, LLC submitted Parts I and II of this Permit Application to the North Central Texas Council of Governments (NCTCOG) for conformance with regional solid waste plan. A copy of the cover letter to NCTCOG for this submission is provided in Appendix II.H, which provides evidence of required submission.

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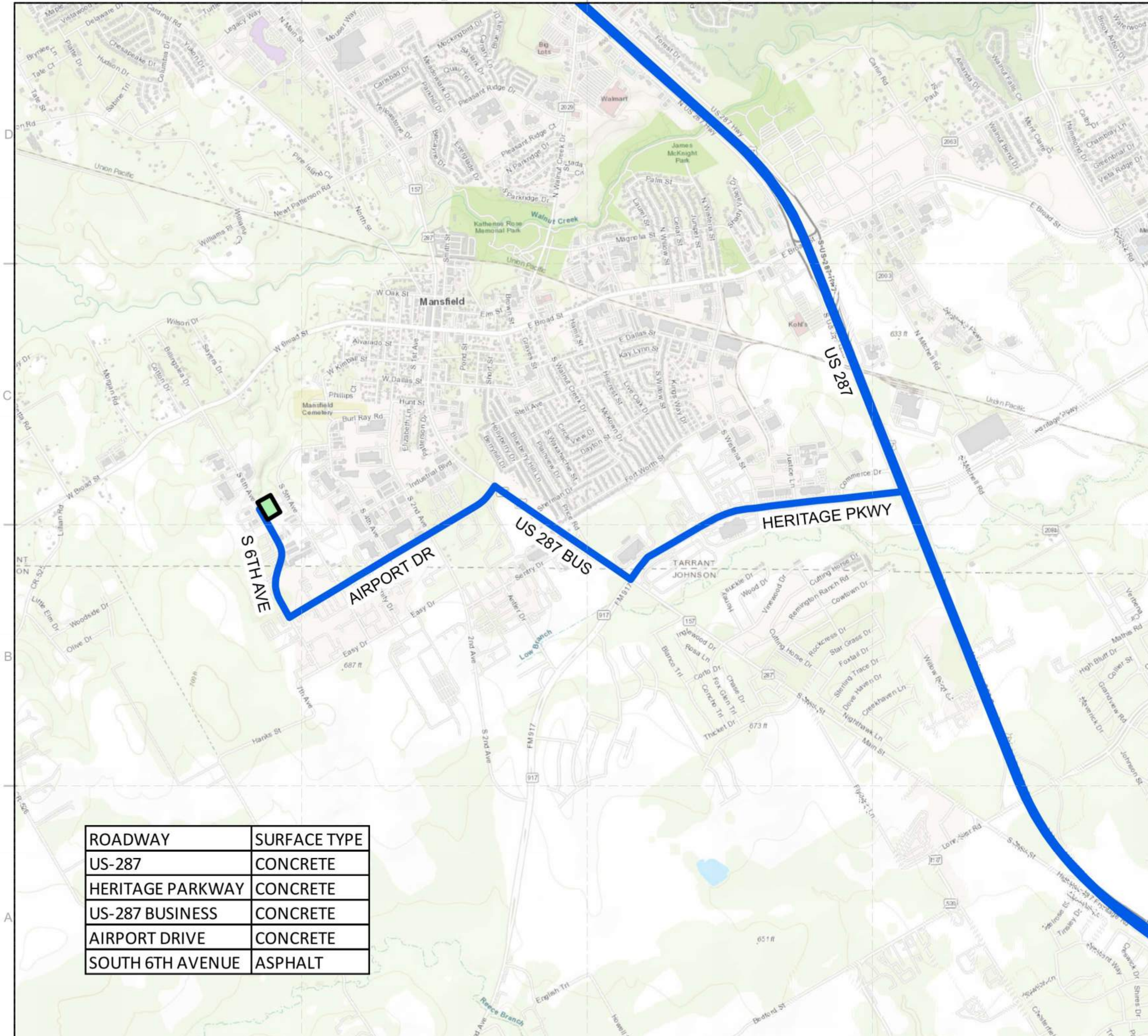
APPENDIX II.A: FIGURES



ROADWAY	SURFACE TYPE
US-287	CONCRETE
HERITAGE PARKWAY	CONCRETE
US-287 BUSINESS	CONCRETE
AIRPORT DRIVE	CONCRETE
SOUTH 6TH AVENUE	ASPHALT

NOTE:
SITE IS LOCATED AT:
LAT: 32°33'13"N
LONG: 97°09'10"W

LEGEND:
- PROPERTY BOUNDARY
- PRIMARY ACCESS ROADS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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10/27/2025
TODD E. STIGGINS
107769

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

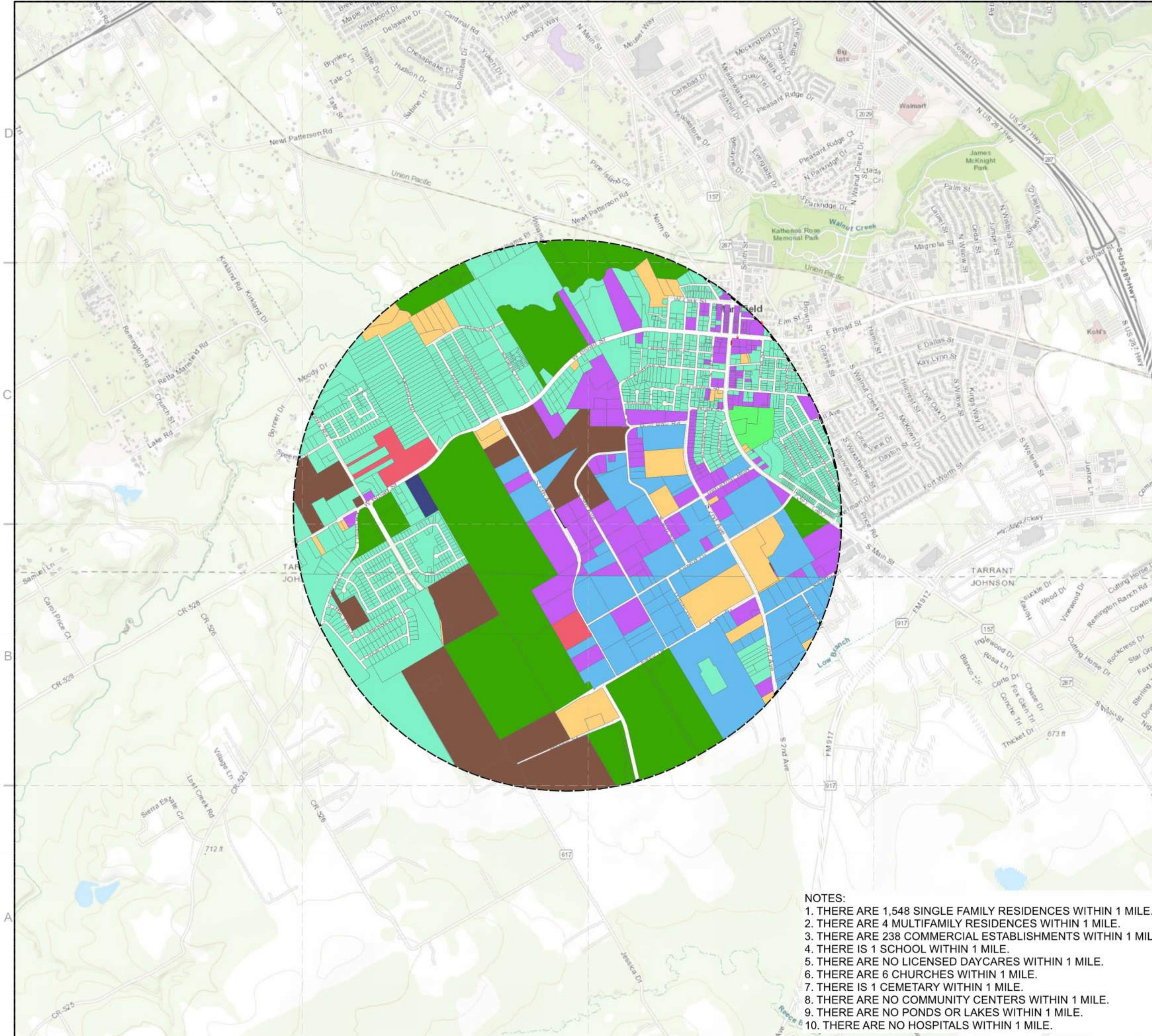
PROJECT NO.
9454.21

#	DATE	DESCRIPTION

DETAILED HIGHWAY MAP

FIG.II.A.1

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.1-Detailed Highway Map.mxd LAYOUT NAME: Layers PRINTED: Thursday, July 10, 2025 - 12:57:03 PM USER: SHarvey



0 1,000 2,000
Feet

Legend

LANDUSE

- AGRICULTURE
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- RESIDENTIAL APARTMENT
- RESIDENTIAL RETIREMENT
- RESIDENTIAL SINGLE FAMILY
- UNDEVELOPED
- OTHER
- 1 MILE RADIUS
- PROPERTY BOUNDARY
- CEMETERY
- SCHOOL
- CHURCH

NOTES:
1. THERE ARE 1,548 SINGLE FAMILY RESIDENCES WITHIN 1 MILE.
2. THERE ARE 4 MULTIFAMILY RESIDENCES WITHIN 1 MILE.
3. THERE ARE 238 COMMERCIAL ESTABLISHMENTS WITHIN 1 MILE.
4. THERE IS 1 SCHOOL WITHIN 1 MILE.
5. THERE ARE NO LICENSED DAYCARES WITHIN 1 MILE.
6. THERE ARE 6 CHURCHES WITHIN 1 MILE.
7. THERE IS 1 CEMETARY WITHIN 1 MILE.
8. THERE ARE NO COMMUNITY CENTERS WITHIN 1 MILE.
9. THERE ARE NO PONDS OR LAKES WITHIN 1 MILE.
10. THERE ARE NO HOSPITALS WITHIN 1 MILE.

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Mansfield, Texas parcel and landuse information obtained from the City of Mansfield online GIS interactive map. Location of institutions and/or structures obtained from City of Mainsfield website and Google Maps.

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_PermitPart II\FIG II.A.2-General Land Use.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 12:59:54 PM USER: SHarvey

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PARKHILL, SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
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SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

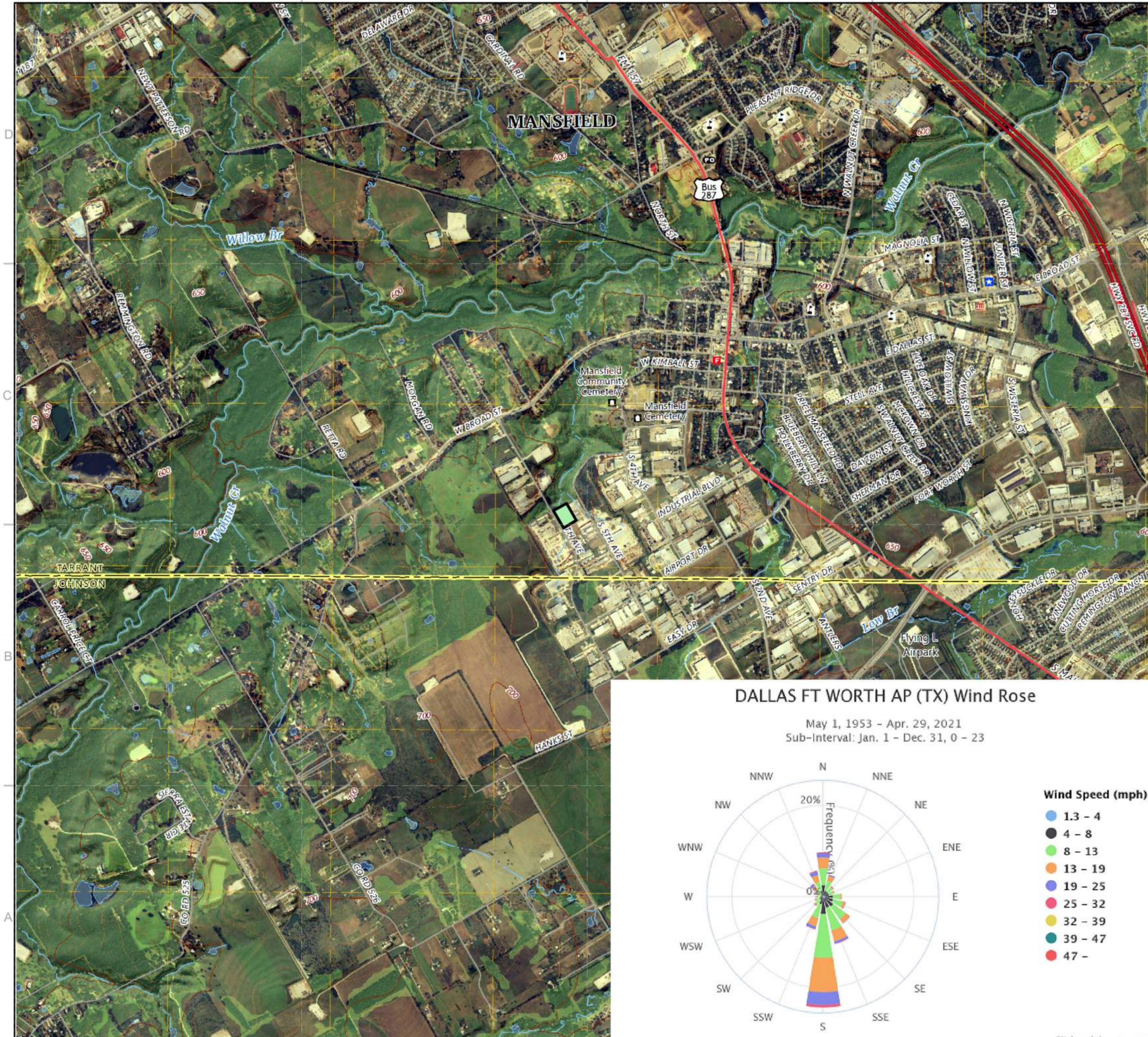
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

GENERAL LANDUSE MAP

FIG.II.A.2



LEGEND:

PROPERTY BOUNDARY

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:

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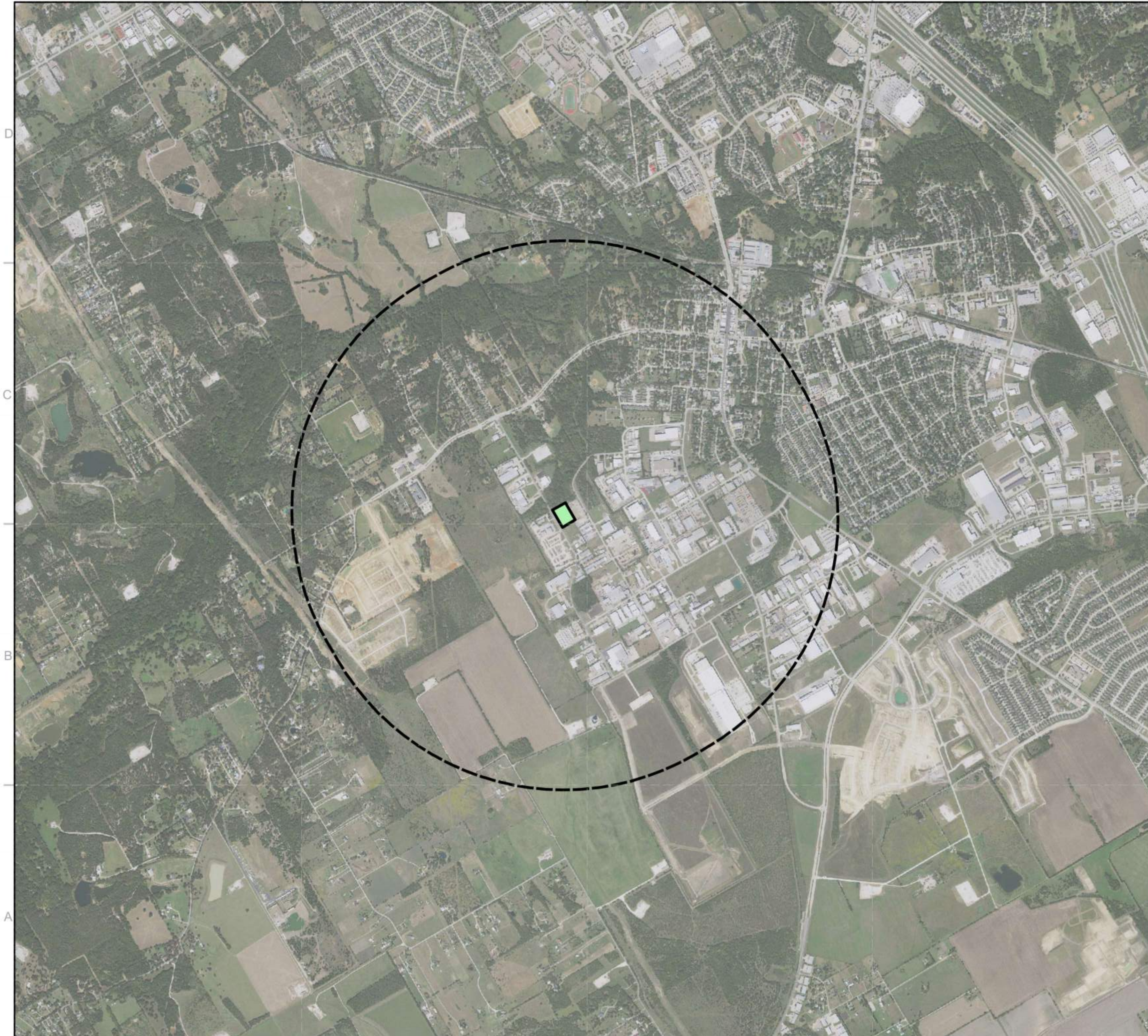
#	DATE	DESCRIPTION

GENERAL TOPOGRAPHIC MAP

FIG.II.A.3

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.3-General Topo Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:01:19 PM USER: SHarvey



FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.4-Aerial Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:08:22 PM USER: SHarvey

0 1,000 2,000
Feet

LEGEND:
- PROPERTY BOUNDARY
- 1 MILE RADIUS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:
Aerial imagery from Texas Natural Resources Information System; Texas NAIP Imagery 2020. Source Data Website: https://datagateway.nrcs.usda.gov/

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STATE OF TEXAS
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#	DATE	DESCRIPTION

AERIAL PHOTOGRAPHY MAP

FIG.II.A.4

N

0 150 300
Feet

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NOTE:
1. THE TWO SEPARATE WATER WELL DRILLING REPORTS APPEAR TO CONTAIN IDENTICAL INFORMATION AND ARE ASSUMED TO REFERENCE THE SAME WELL. TWDB DATABASE DOES NOT HAVE A RECORD THAT INDICATES IF THE WELL REFERENCE BY THE TWO DRILLING REPORTS IS A DEVELOPED AND ACTIVE WELL . THE WELL MAY BE ACTIVE AND PRIVATE.
2. IN SEPTEMBER OF 2025, A REVIEW OF THE OIL AND GAS WELL LOCATIONS ON THE TEXAS RAILROAD COMMISSION WEBSITE INTERACTIVE MAP (HTTPS:/GIS.RRC.TEXAS.GOV/GISVIEWER/) WAS CONDUCTED. THE REVIEW SHOWED NO KNOWN OIL/GAS WELLS OR DRY HOLES WIHTIN 500 FEET FO THE FACILITY.
3. THHERE ARE NO KNOWN NATURAL SPRINGS WITHIN 500 FEET OF THE PROPERTY BOUNDARY.

LEGEND:
- PROPERTY BOUNDARY
- 500 FOOT RADIUS
- DRILLER REPORT

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Well locations obtained from the Texas Water Development Board GIS Data (http://www.twdb.texas.gov/mapping/gisdata.asp). Well locations updated nightly.

SOUTHWASTE DISPOSAL DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

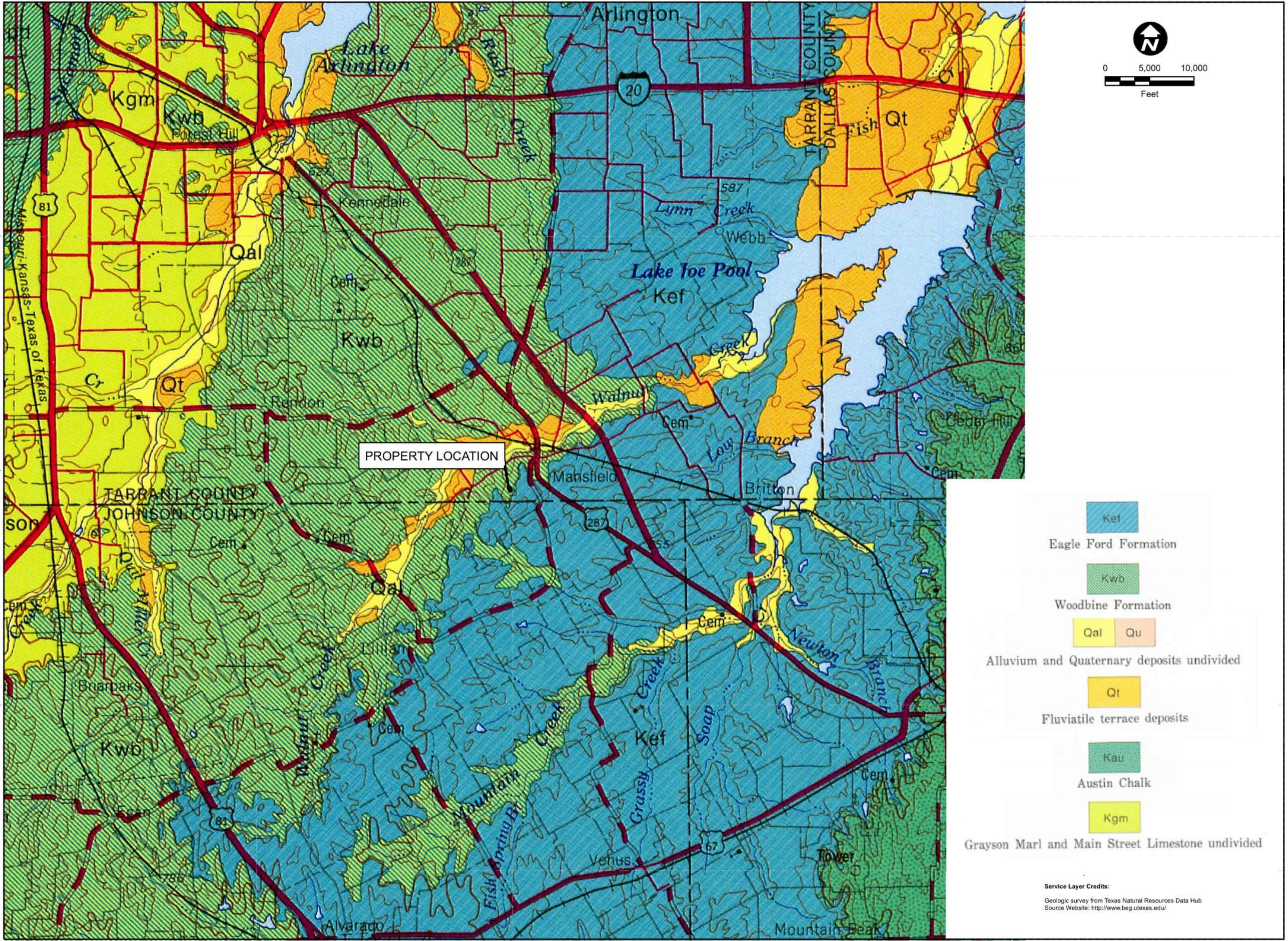
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION
1	12/23/2022	Tech NOD-1

WELLS AND SPRINGS WITHIN 500 FEET

FIG.II.A.5



FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.6-Geologic Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:14:33 PM USER: SHarvey

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SOUTHWASTE DISPOSAL
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CLIENT

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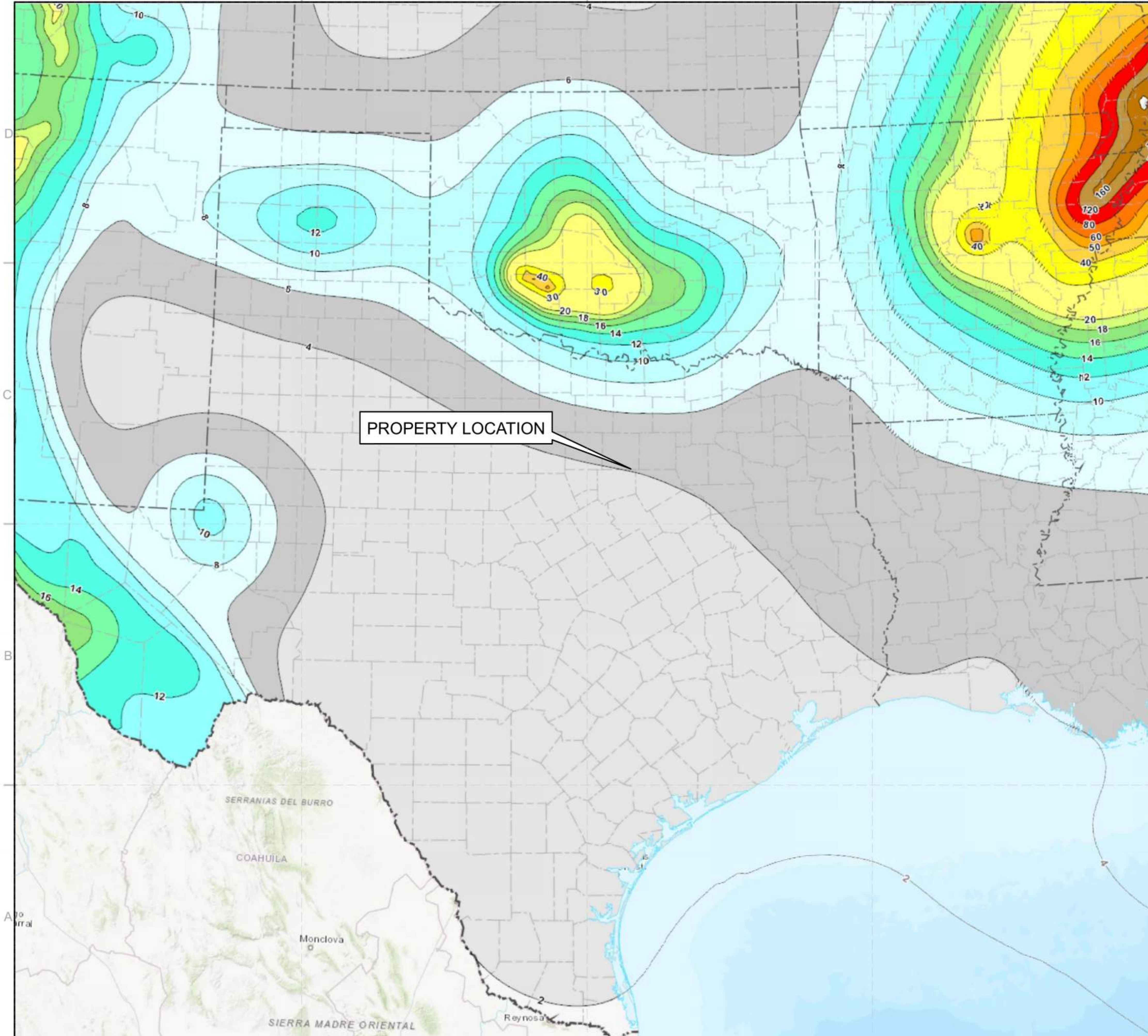
PROJECT NO.
9454.21

#	DATE	DESCRIPTION

GENERAL GEOLOGICAL MAP
FIG.II.A.6



0 40 80
Miles

Parkhill

10/27/2025

TODD E. STIGGINS
107769

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

NOTES:
1. GEOLOGIC INFORMATION IS FROM THE USGS MINERAL RESOURCES PROGRAM PGA, 2% PROBABILITY OF BEING EXCEEDED IN 50 YEARS.
2. THE PGA, 2% PROBABILITY OF BEING EXCEEDED IN 50 YEARS IS EQUIVALENT TO A 10% PROBABILITY OF EXCEEDANCE IN 250 YEARS.
3. THE FACILITY IS LOCATED IN AN AREA WITH LESS THAN A 10% OF GRAVITY, WHICH IS EQUIVALENT TO BEING LESS THAN 0.1 G.

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

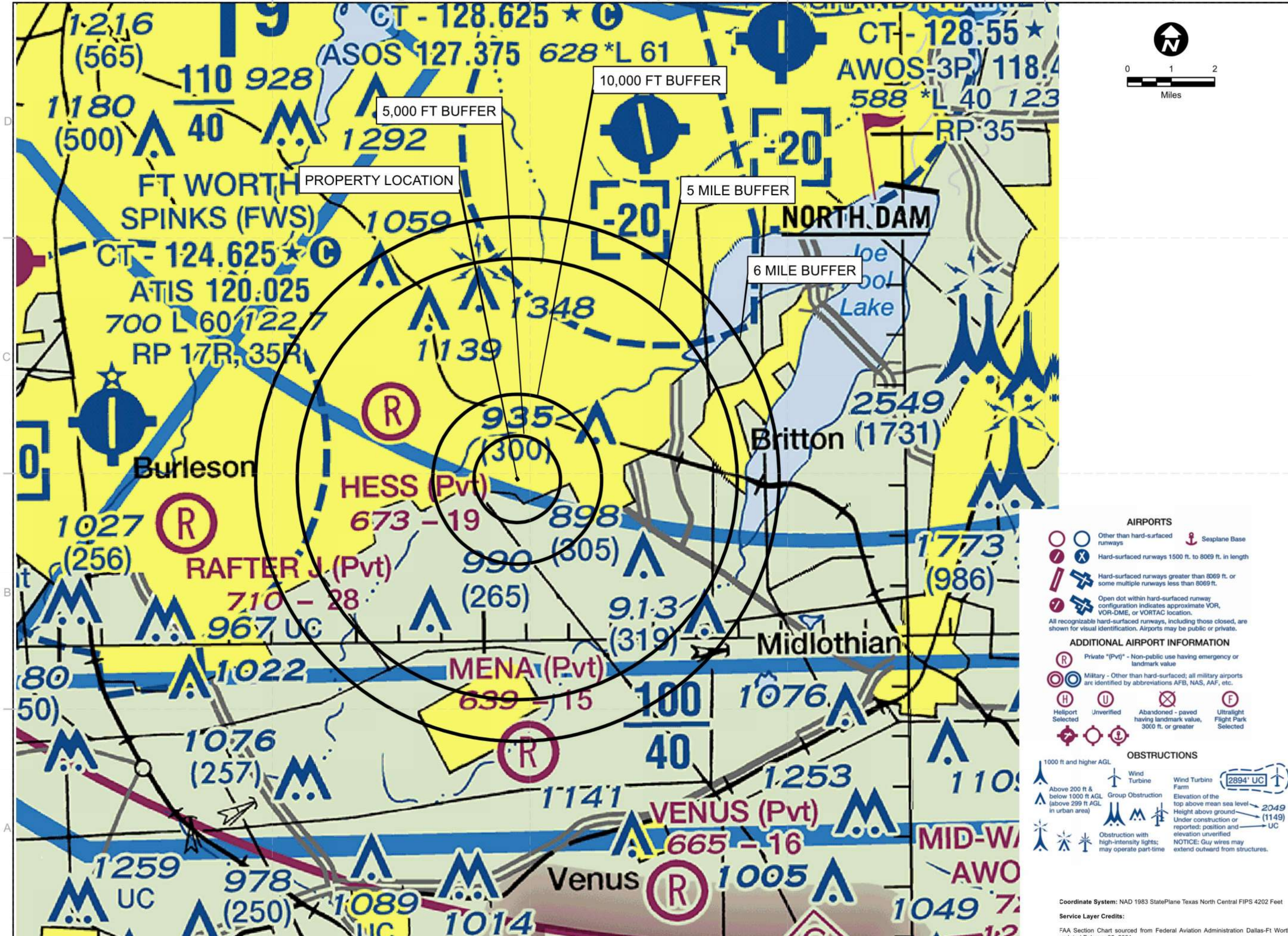
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
US Geological Survey National Seismic Hazard Mapping Program

Seismic Map: US Geological Survey National Seismic Hazard Mapping Program

SEISMIC IMPACT HAZARD MAP

FIG.II.A.7

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.7-Seismic Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:16:33 PM USER: SHarvey



Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:

FAA Section Chart sourced from Federal Aviation Administration Dallas-Ft Worth, updated Febuary 25, 2021.

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.8-Airport Location.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:17:25 PM USER: Sharvey

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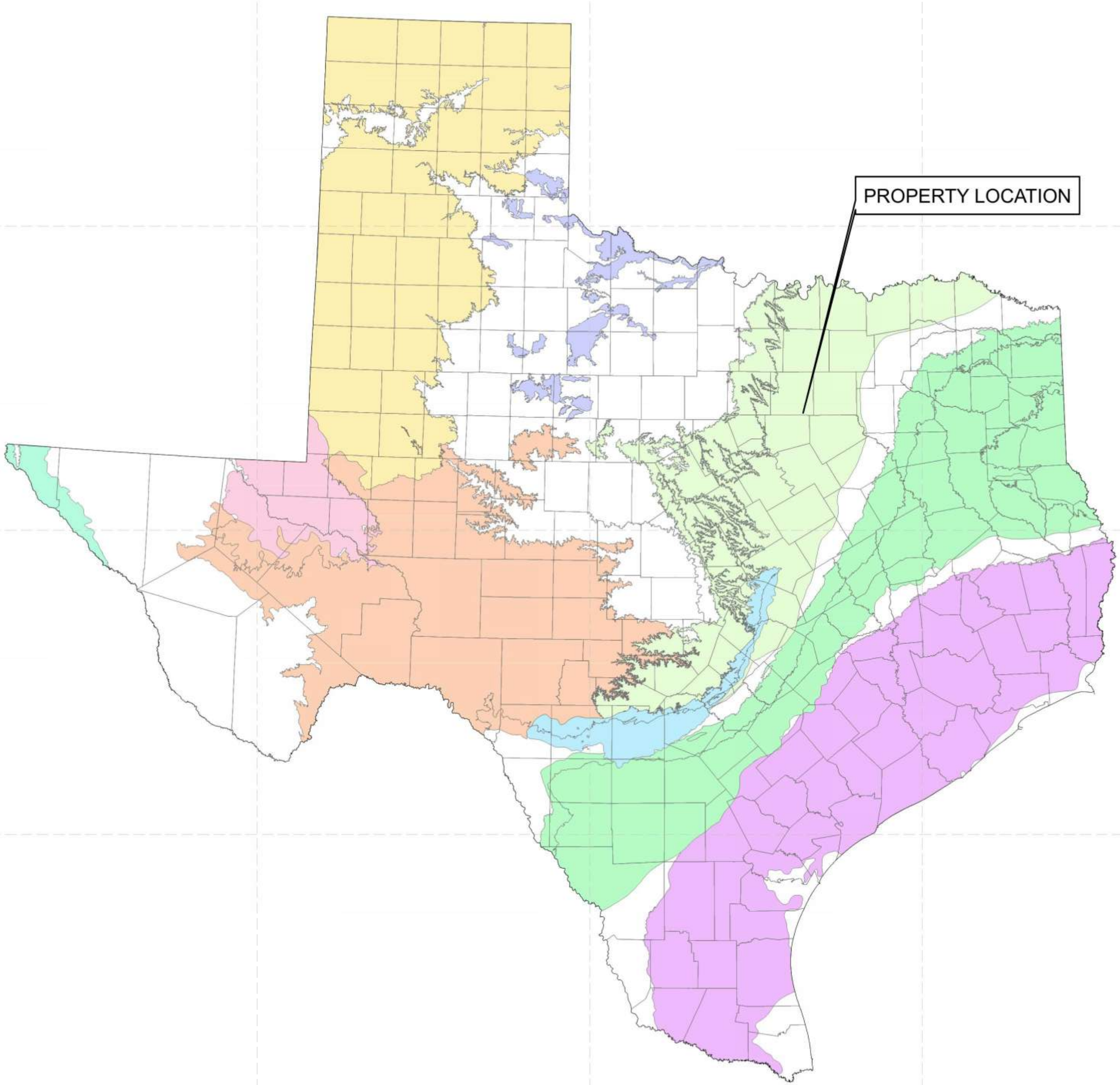
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

FAA AIRPORT LOCATION MAP

FIG.II.A.8



0 40 80
Miles

LEGEND:
MAJOR AQUIFERS

- CARRIZO
- EDWARDS
- EDWARDS-TRINITY
- GULF COAST
- HUECO BOLSON
- OGALLALA
- PECOS VALLEY
- SEYMOUR
- TRINITY

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:

Major aquifer locations sourced from the online Texas Water Development Board Pubic GIS Data.
https://www.twdb.texas.gov/mapping/gisdata.asp

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10/27/2025

PARKHILL, SMITH & COOPER, INC. STATE OF TEXAS TODD E. STIGGINS 107769 LICENSED F-560

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A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

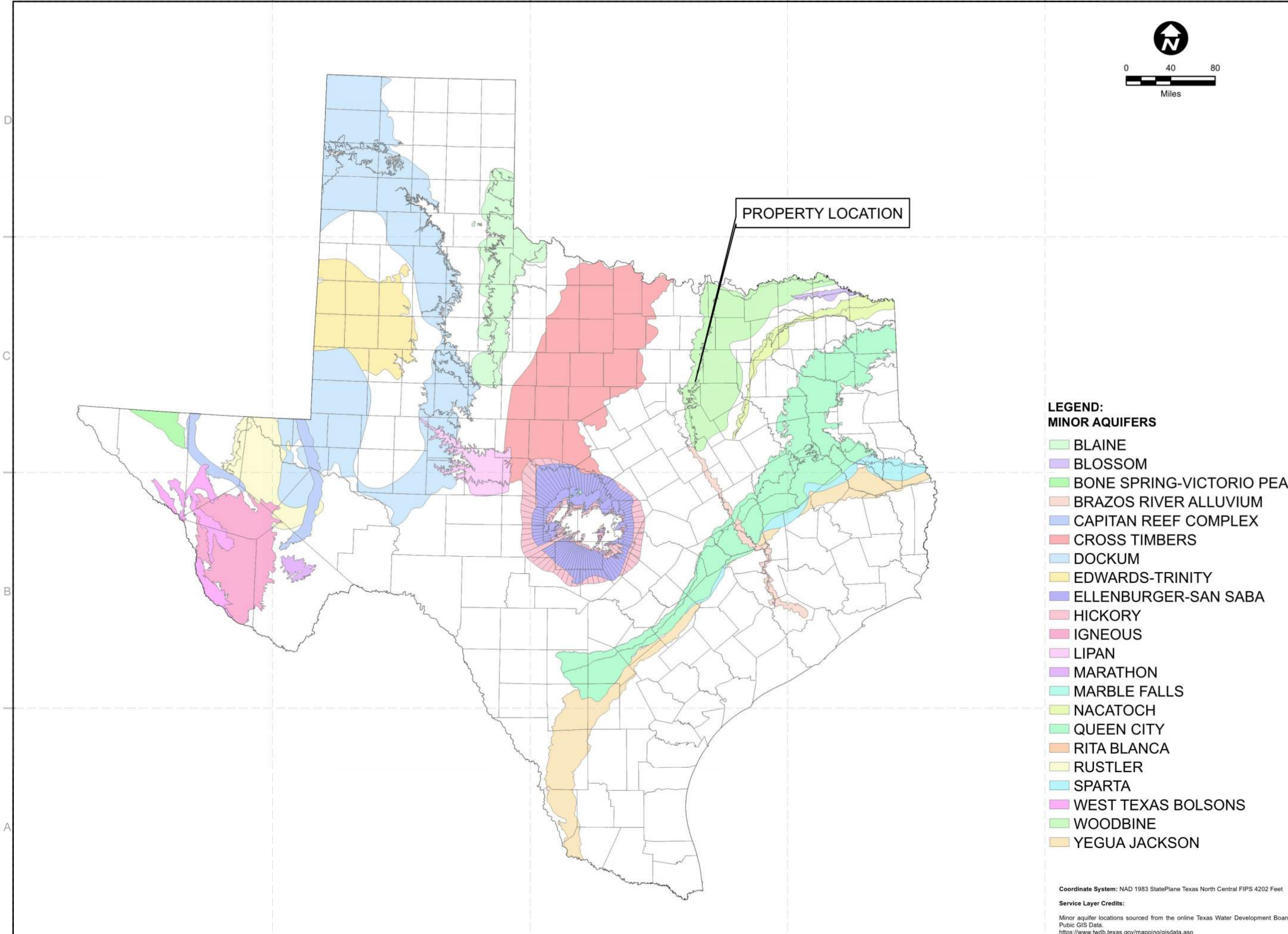
PROJECT NO.
9454.21

#	DATE	DESCRIPTION

MAJOR AQUIFERS LOCATION MAP

FIG.II.A.9

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.9-Major Aquifers.mxd LAYOUT NAME: Layers PRINTED: Thursday, July 10, 2025 - 1:18:39 PM USER: SHarvey



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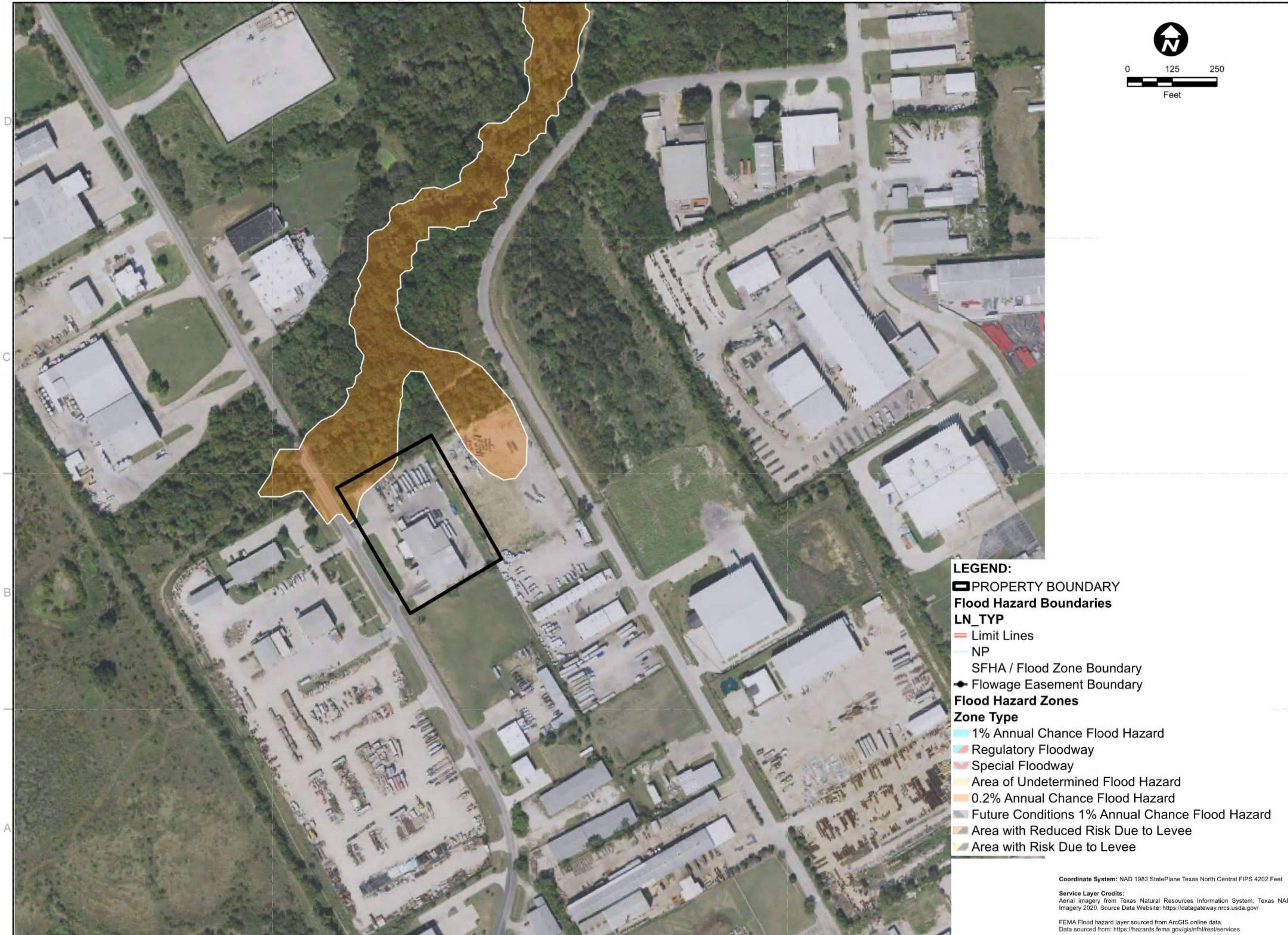
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

MINOR AQUIFERS LOCATION MAP

FIG.II.A.10



Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:
Aerial imagery from Texas Natural Resources Information System; Texas NAIP Imagery 2020. Source Data Website: https://datagateway.nrcs.usda.gov/

FEMA Flood hazard layer sourced from ArcGIS online data.
Data sourced from: https://hazards.fema.gov/gis/nfhl/rest/services

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.11-Floodplains.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:20:08 PM USER: SHarvey

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10/27/2025

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SOUTHWASTE DISPOSAL
DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

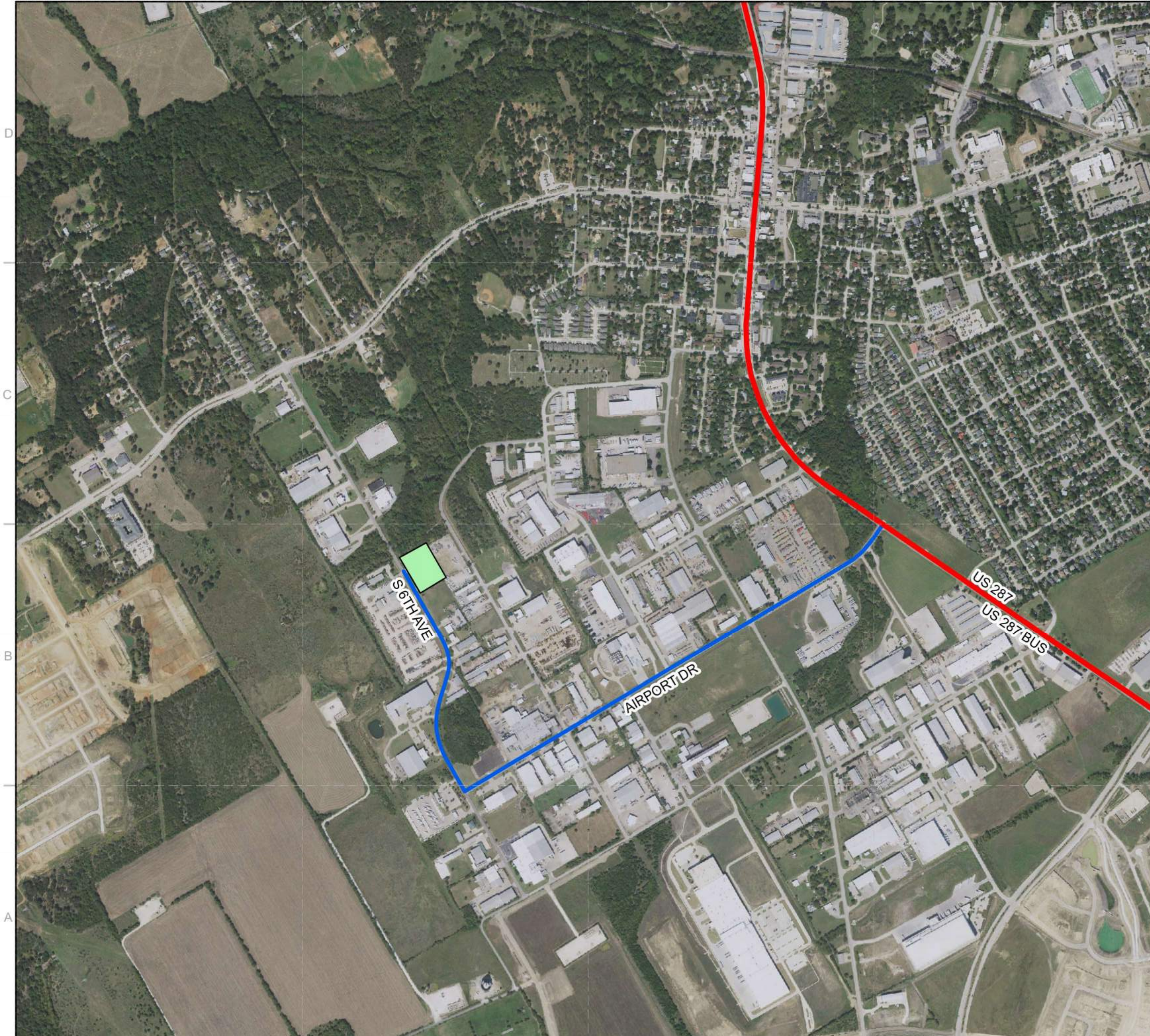
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

FLOODPLAINS MAP

FIG.II.A.11



LEGEND:

- HIGHWAY
- PRIMARY ACCESS ROADS
- PROPERTY BOUNDARY

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:

Aerial imagery from Texas Natural Resources Information System; Texas NAIP Imagery 2020. Source Data Website: https://datagateway.nrcs.usda.gov/

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SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

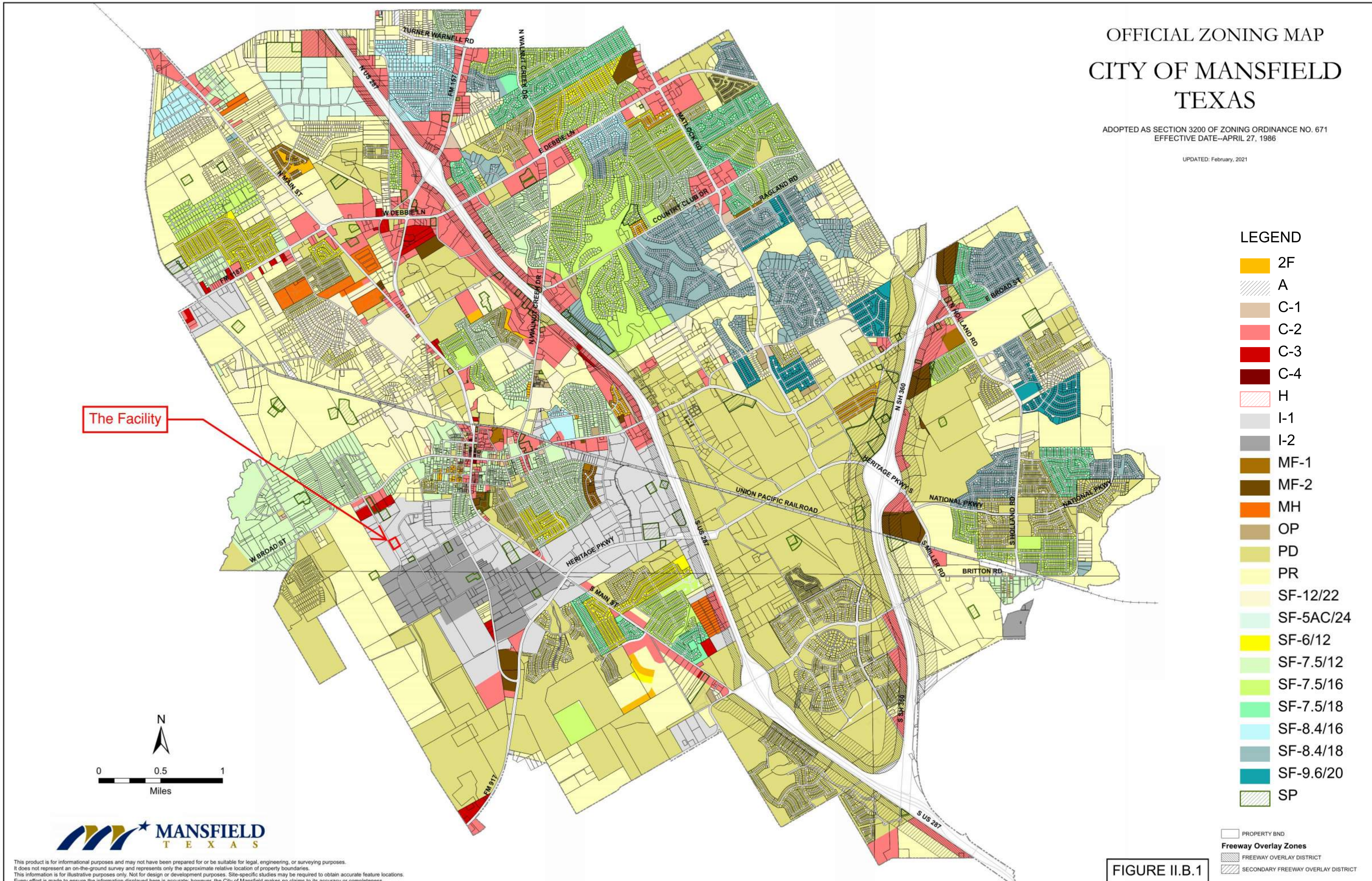
#	DATE	DESCRIPTION

GENERAL LOCATION MAP

FIG.II.C-1

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.C.1-General Location Map.mxd LAYOUT NAME: Layers PRINTED: Thursday, July 10, 2025 - 1:21:22 PM USER: SHarvey

APPENDIX II.B: ZONING INFORMATION



OFFICIAL ZONING MAP
CITY OF MANSFIELD TEXAS
ADOPTED AS SECTION 3200 OF ZONING ORDINANCE NO. 671
EFFECTIVE DATE--APRIL 27, 1986
UPDATED: February, 2021
The Facility
TURNER WARNELL RD
N US 287
FM 157
N WALNUT CREEK DR
E DEBBIE LN
MATLOCK RD
COUNTRY CLUB DR
RAGLAND RD
N MAIN ST
W DEBBIE LN
FM 1187
E BROAD ST
N HOLLAND RD
N SH 360
HERITAGE PKWY S
UNION PACIFIC RAILROAD
NATIONAL PKWY
S HOLLAND RD
S MITCHELL RD
BRITTON RD
HERITAGE PKWY
S US 287
W BROAD ST
S MAIN ST
S SH 360
FM 917
N
0
0.5
1
Miles
LEGEND
2F
A
C-1
C-2
C-3
C-4
H
I-1
I-2
MF-1
MF-2
MH
OP
PD
PR
SF-12/22
SF-5AC/24
SF-6/12
SF-7.5/12
SF-7.5/16
SF-7.5/18
SF-8.4/16
SF-8.4/18
SF-9.6/20
SP
PROPERTY BND
Freeway Overlay Zones
FREEWAY OVERLAY DISTRICT
SECONDARY FREEWAY OVERLAY DISTRICT
MANSFIELD TEXAS
This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes.
It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.
This information is for illustrative purposes only. Not for design or development purposes. Site-specific studies may be required to obtain accurate feature locations.
Every effort is made to ensure the information displayed here is accurate; however, the City of Mansfield makes no claims to its accuracy or completeness.

FIGURE II.B.1

Parkhill

APPENDIX II.C: TRAFFIC REPORT

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 ROADWAY CLASSIFICATIONS 1

2.1 HISTORIC TRAFFIC VOLUMES 1

3.0 FACILITY-GENERATED TRAFFIC VOLUMES 2

4.0 EXISTING HISTORICAL TRAFFIC VOLUMES 2

5.0 ROADWAY ANALYSYS...3

6.0 CONCLUSIONS 3

APPENDIX

ATTACHMENT A: HDR ENGINEERING INC. 2015 TRANSPORTATION STUDY

TABLES

TABLE 1: FACILITY GENERATED ONE-WAY TRAFFIC
TABLE 2: HISTORIC BACKGROUND DAILY TAFFIC VOLUME
TABLE 3: PROJECTED DAILY TRAFFIC VOLUMES
TABLE 4: ROADWAY CAPACITY

FIGURES

FIGURE II.A-1 DETAILED HIGHWAY MAP

10/27/2025

1.0 INTRODUCTION

The purpose of this Traffic Report is to provide data on the availability and adequacy of roads that the owner, operator, and customers use to access the Facility. This Report provides data on the volume of background vehicular traffic and Facility-generated traffic on access roads used by Facility-generated traffic within one mile of the Facility, both existing and expected, during the life of the Facility.

The primary access route to the SouthWaste Disposal Dallas Facility (Facility) is via US-287 S, exit Heritage Parkway, continue west on Heritage Parkway, turn right on US-287 Business, continue northwest on US-287 Business, turn left on Airport Drive, continue southwest on Airport Drive, turn right on South 6th Street. Appendix II.A, Figure II.A.1 shows roadways used to access the Facility.

30 TAC §330.61(i)(2) require the analysis horizon be equal to the expected life of the Facility. In this case, a planning horizon of 20 years has been selected, which is typical for similar facilities permitted in Texas.

The following analyses have been performed in this Report:

- Initial Facility Operation – 2025
- 20-Year Planning Horizon - 2045

2.0 ROADWAY CLASSIFICATIONS

Each access roadway is classified by the Federal Functional Classification System as outlined below. Refer to Figure II-A.1 for facility access roadways.

- US-287 South – US-287 South is classified a principal arterial road/freeway. US-287 South is a four-lane divided highway and has a posted speed limit of 65 miles per hour.
- Heritage Parkway - Heritage Parkway is classified a minor arterial road. Heritage Parkway is a four-lane road with a dividing median and curbs, and has a posted speed limit of 45 miles per hour.
- US-287 Business - US-287 Business is classified a principal arterial road. US-287 Business is a two-lane, undivided paved road without curbs and has a posted speed limit of 45 miles per hour.
- Airport Drive - Airport Drive is classified a minor collector road. Airport Drive is a two-lane, undivided paved roadway with curbs and has a posted speed limit of 40 miles per hour.
- South 6th Avenue – South 6th Avenue is classified as a major collector road. South 6th Avenue is a two-lane, undivided paved road without curbs. South 6th Avenue has a posted speed limit of 40 miles per hour.

2.1 HISTORIC TRAFFIC VOLUMES

Texas Department of Transportation (TxDOT) provides values for Annual Average Daily Traffic (AADT). Based on TxDOT Traffic Count Database System (TCDS), AADT (2024) of South 6th Street, the major collector road for getting to the site, is 1,730.

3.0 FACILITY-GENERATED TRAFFIC VOLUMES

Vehicles access the site for one of several purposes/activities. Primary activities are: (1) Employees; (2) Liquid Waste Haulers; (3) Tank Cleaning Customers; and (4) Hazardous Waste Transporters accessing the 10-day storage facility. Site-generated traffic for liquid waste haulers are limited by the maximum waste acceptance rate of 360,000 gallons per day. Transporters deliver wastes in loads conservatively estimated to average 3,000 gallons. Based upon this condition, and current assumptions regarding Facility-generated traffic, the following table presents the estimated peak Facility-generated traffic:

Table 1 – Facility-Generated One-Way Traffic

Vehicle/Customer Type	Maximum Facility Traffic/ Trips Under MSW Permit 2256B	Proposed Increase In Maximum Facility Traffic/Trips MSW Permit 2256C
Employees	50	10
Liquid Waste Haulers	80	40
Grit Washout Customers	10	10
Total	140	60

Due to low overall facility-generated traffic volume, it is conservatively assumed the facility will generate peak traffic immediately after the facility begins standard operating hours, and not increase to the maximum trip count over a period of time.

Peak total vehicles per hour accessing the site is anticipated to be 40, or about 20% of total daily traffic. This is anticipated to occur between 5:00 AM and 8:30 PM, as employees and waste vehicles begin to arrive. The Facility is permitted to operate on a 24/7 cycle as required for disposal, but standard operating hours are 5:00 AM to 8:30 PM.

4.0 EXISTING HISTORICAL TRAFFIC VOLUMES

The following table presents the historical background traffic data for the surrounding roadways gathered by TxDOT and a traffic study performed by HDR Engineering, Inc for the Facility in 2015. The HDR traffic study is included in Attachment A of this Appendix.

Table 2 presents Historic Background Traffic Volumes. The TxDOT AADT that was recorded in 2024 includes the daily traffic volume of the Facility as it operates under MSW Permit 2256B.

Table 2 – Historic Background Daily Traffic Volume

Road	HDR Traffic Study (2015)	TxDOT AADT (2024)
South 6th Ave	1,759	1,730
Airport Drive	2,473	2,947

The historical background traffic volume information shows a relatively consistent total volume over time. Operation of the Facility between 2015 and 2025 did not cause a significant increase in traffic flow on access roadways. While TxDOT's AADT found an increase in vehicles on Airport Drive, the AADT did not find an increase of traffic on South 6th avenue, where the facility is located. Because South 6th avenue did not have an increase in vehicle count in the same time period of study, it is reasonable to assume the increase vehicle count of Airport Drive is not caused by vehicles specifically traveling to/ from the facility.

5.0 ROADWAY ANALYSIS

Table 3 presents the traffic volumes at the time the proposed expansion is permitted to begin accepting waste and at the 20-year planning horizon. The background traffic data collected by TxDOT in 2024 already includes the traffic flow generated by the current conditions of 2256B. Because of this, the projected increase of facility generated traffic is displayed in Table 3 in order to compare the impacts of the 2256C amendment.

As a conservative estimate, total traffic volumes on the roadway are assumed to follow population projections. The Texas Water Development Board predicts an average annual population growth trend in Tarrant County of 1% for the next 20 years.

The percentage of total daily traffic generated by the Facility is relatively low.

Table 3 – Projected Daily Traffic Volumes

Road Segment	Direction of Travel	Proposed Increase In 2024 Daily Traffic Volumes Under MSW Permit 2256C				2044 Daily Traffic Volumes Under MSW Permit 2256C			
		Increase In Facility-Generated Traffic (2-way)	Background Traffic	Total	Percent Traffic from 2256C Expansion	Facility-Generated Traffic (2-way)	Background Traffic	Total	Percent Traffic from 2256C Expansion
South 6th Ave	2-way	120	1,730	1,850	6.5%	145	2,110	2,255	6.4%
Airport Drive	2-way	120	2,947	3,067	3.9%	145	3,596	3,741	3.9%

Attachment A includes the recommended roadway capacity calculation for a 2-lane high capacity road. This calculation found the recommended capacity of Airport Drive and South 6th Avenue are 3,200 vehicles, based on an average daily traffic count. While Airport Drive is projected to exceed the recommended capacity by 2044, this increase is assumed to be by other sources other than the facility. This assumption is supported by the fact that South 6th avenue, where the facility is located, did not have an increase in vehicle count in the same time period of study.

6.0 CONCLUSIONS

The impact of the 2256C amendment, based on the percentage of total traffic, is not expected to create adverse impacts to the roadways that provide access to the facility.

Attachment A: HDR Engineering Inc. 2015 Transportation Study

Southwaste Disposal Dallas

Transportation Study

Austin, Texas
October 29, 2015

Southwaste Disposal Dallas

Transportation Study

Austin, Texas
October 29, 2015

Prepared for

Biggs & Mathews Environmental, Inc.

Prepared by

HDR Engineering, Inc.

Texas P.E. Firm Registration No. F-754

504 Lavaca Street, Suite 1175

Austin, Texas 78701 USA

Telephone 512 904-3700

Facsimile 512 904-3773

Website: hdrinc.com

John M. McInturff

Contents

Page

1 Introduction II.C-1

2 Roadway System in Proximity to Site II.C-2

3 Data Collection II.C-7

4 Traffic Analysis II.C-24

4.1 Roadway Capacity Analysis Methodology II.C-24

4.2 2015 Existing Traffic Analysis II.C-26

4.2.1 Intersection Analysis II.C-30

4.3 2035 Forecasted Conditions with Site Generated Traffic II.C-31

4.3.1 Roadway Capacity Analysis II.C-34

4.3.2 Intersection Analysis II.C-37

5 Conclusions and Recommendations II.C-38

6 References II.C-40

7 Appendix II.C-41

Tables

Page

Table II.C-1. Existing Access Roadway Characteristics II.C-6

Table II.C-2. Hourly Traffic Volumes - Broad Street, East of 6th Avenue II.C-9

Table II.C-3. Hourly Traffic Volumes - Main Street, North of Broad Street II.C-10

Table II.C-4. Hourly Traffic Volumes - Airport Drive, West of S 2nd Avenue II.C-11

Table II.C-5. Hourly Traffic Volumes - S 2nd Avenue, South of Airport Drive II.C-12

Table II.C-6. Hourly Traffic Volumes - S 6th Avenue, North of Facility North Driveway II.C-13

Table II.C-7. Hourly Traffic Volumes - Facility North Driveway, East of S 6th Avenue II.C-14

Table II.C-8. Hourly Traffic Volumes - Facility South Driveway, East of S 6th Avenue II.C-15

Table II.C-9. Hourly Traffic Volumes - S Main Street, South of Airport Drive II.C-16

Table II.C-10. Hourly Traffic Volumes - S 6th Avenue, South of Facility South Driveway II.C-17

Table II.C-11. Existing Vehicle Classifications - Broad Street, West of Main Street II.C-18

Table II.C-12. Existing Vehicle Classifications - Main Street, North of Broad Street II.C-19

Table II.C-13. Existing Vehicle Classifications - Main Street, South of Airport Drive II.C-20

Table II.C-14. Existing Vehicle Classifications - Airport Drive, West of 2nd Avenue II.C-21

Table II.C-15. Existing Vehicle Classifications - 2nd Avenue, South of Airport Drive II.C-22

Table II.C-16. Existing Vehicle Classifications - 6th Avenue, South of Broad Street II.C-23

Table II.C-17. 2015 Existing Average Operation Day Traffic Volumes II.C-26

Table II.C-18. Level of Service for 2015 Existing Average Day Traffic Volumes (Two-Lane Highway Analysis) ... II.C-27
Table II.C-19. Level of Service for 2015 Existing Average Day Traffic Volumes (Multilane Highway Analysis) ... II.C-28
Table II.C-20. 2015 Existing Maximum Operation Day Traffic Volumes ... II.C-28
Table II.C-21. Level of Service for 2015 Existing Maximum Day Traffic Volumes (Two-Lane Highway Analysis) ... II.C-29
Table II.C-22. Level of Service for 2015 Existing Maximum Day Traffic Volumes (Multilane Highway Analysis) ... II.C-29
Table II.C-23. Estimated Traffic Volumes for the Disposal Facility ... II.C-32
Table II.C-24. 2035 Forecasted Average Operation Day Traffic Volumes ... II.C-33
Table II.C-25. 2035 Forecasted Maximum Operation Day Traffic Volumes ... II.C-34
Table II.C-26. Level of Service for 2035 Forecasted Average Operation Day Traffic Volumes (Two-Lane Highway Analysis) ... II.C-35
Table II.C-27. Level of Service for 2035 Forecasted Average Day Traffic Volumes (Multilane Highway Analysis) ... II.C-35
Table II.C-28. Level of Service for 2035 Forecasted Maximum Operation Day Traffic Volumes (Two-Lane Highway Analysis) ... II.C-36
Table II.C-29. Level of Service for 2035 Forecasted Maximum Day Traffic Volumes (Multilane Highway Analysis) ... II.C-36

Figures

Page
Figure II.C-1. Detailed Highway Map ... II.C-3
Figure II.C-2. Site Plan ... II.C-4

1 Introduction

This transportation study was conducted by HDR Engineering, Inc. at the request of Biggs & Mathews Environmental, Inc. to provide information concerning factors related to access roads and vehicular traffic with respect to the permit amendment application MSW No. 2256A for the Southwaste Disposal Dallas Facility. The facility is located approximately 2,300 feet south of Broad Street on 6th Avenue in Mansfield, Texas. Access to the facility is provided via two existing traffic driveways on 6th Avenue. The horizon year of this study is 2035. Existing traffic conditions and projected future traffic conditions for the horizon year for average day operations and maximum day operations were analyzed as part of the study.

Section 330.61 of the Texas Administrative Code contains regulations of the Texas Commission on Environmental Quality (TCEQ) regarding solid waste facility applications. These regulations require the following technical issues related to access roads and associated restrictions be identified and/or analyzed:

- Provide data on the availability and adequacy of roads that the owner or operator will use to access the site.
- Provide data on the volume of vehicular traffic on access roads within one mile of the proposed facility, both existing and expected, during the expected life of the proposed facility.
- Project the volume of traffic expected to be generated by the facility on the access roads within one mile of the proposed facility.

Activities completed during the transportation study included research of records and/or contacts with personnel from the Texas Department of Transportation (TxDOT), Tarrant County, Johnson County, City of Mansfield, and Mansfield Independent School District for information pertaining to the transportation system serving the proposed facility expansion, and collection of vehicular traffic counts. Daily traffic volumes were obtained for the following roadways within one mile of the proposed facility using 24-hour electronic tube counters:

- Broad Street, east of 6th Avenue
- Main Street, north of Broad Street
- Airport Drive, west of S 2nd Avenue
- S 2nd Avenue, south of Airport Drive
- S 6th Avenue, north of facility driveways
- Southwaste Disposal Dallas north driveway, east of S 6th Avenue
- Southwaste Disposal Dallas south driveway, east of S 6th Avenue
- Main Street, south of Airport Drive
- S 6th Avenue, south of facility driveways

Turning movement counts were also collected at the following intersections:

- 2nd Avenue and Airport Drive
- 6th Avenue and Airport Drive
- 6th Avenue/Billingslea Drive and Broad Street
- 6th Avenue and north facility driveway
- 6th Avenue and south facility driveway
- Main Street (BUS 287) and Airport Drive
- Main Street (BUS 287) and Broad Street

TxDOT, Tarrant County, Johnson County, and the City of Mansfield were consulted regarding future roadway construction and load limits since area access roadways are under their jurisdictions. Information on population, traffic projections, and proposed transportation improvements was obtained from the TxDOT Statewide Planning Map (Ref. 1), Texas State Data Center 2014 Population Projections (Ref. 2), City of Mansfield Master Thoroughfare Plan (Ref. 3), and North Central Texas Council of Governments (NCTCOG) Historical Traffic Counts (Ref. 4). Historical traffic volume data were obtained from the Statewide Planning Map and NCTCOG Historical Traffic Counts. Projected future daily model volume data were obtained from the Master Thoroughfare Plan. The response from the City of Mansfield has been documented in the following sections and is provided in the Appendix.

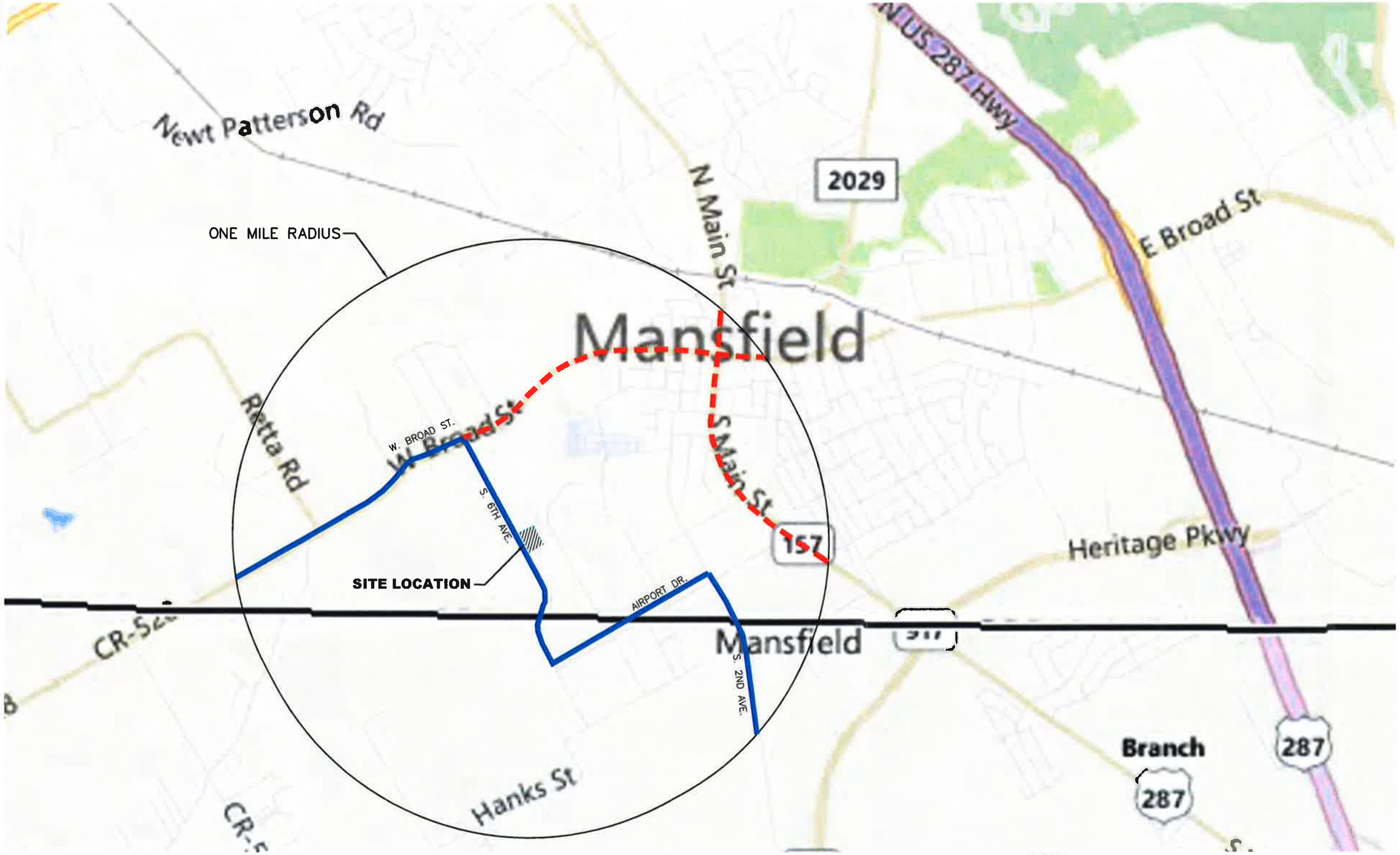
Based upon the results of this study, conclusions are provided regarding the expected impact of the proposed facility expansion with respect to existing access roadways.

2 Roadway System in Proximity to Site

The facility is located approximately 2,300 feet south of Broad Street on 6th Avenue in Mansfield. Figure II.C-1 shows the roadway system serving the facility. Access to the site is provided via the existing facility driveways on S 6th Avenue, as shown in Figure II.C-2.

A field study was conducted to note roadway conditions and intersection design for roadways which could be used by vehicles accessing the facility. This information, combined with roadway capacity analyses, was utilized to assess the availability and adequacy of the area roadway network. Descriptions of the following area roadways within one mile of the disposal facility are provided:

- Broad Street
- Main Street
- Airport Drive
- S 2nd Avenue
- S 6th Avenue



0 1000 2000
SCALE IN FEET

LEGEND

FACILITY ACCESS ROAD

CURRENT FACILITY ACCESS ROAD (SEE NOTE 2)

NOTES:

1. FACILITY ACCESS MAP BASED ON INFORMATION FROM NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS GIS DATA MAPS BY ESRI DATED APRIL 14, 2011, DOWNLOADED ON JULY 9, 2015.
2. THE CITY OF MANSFIELD, IN THE FUTURE, MAY LIMIT TRUCK TRAFFIC ON EAST BROAD STREET AND ON SOUTH MAIN STREET BETWEEN EAST BROAD STREET AND HIGHWAY 917.

STATE OF TEXAS
FELIPE ANTONIO WESCOUP
103826
LICENSED
PROFESSIONAL ENGINEER
10/29/2015

ISSUED FOR PERMITTING PURPOSES

REVISIONS							
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DETAILED HIGHWAY MAP

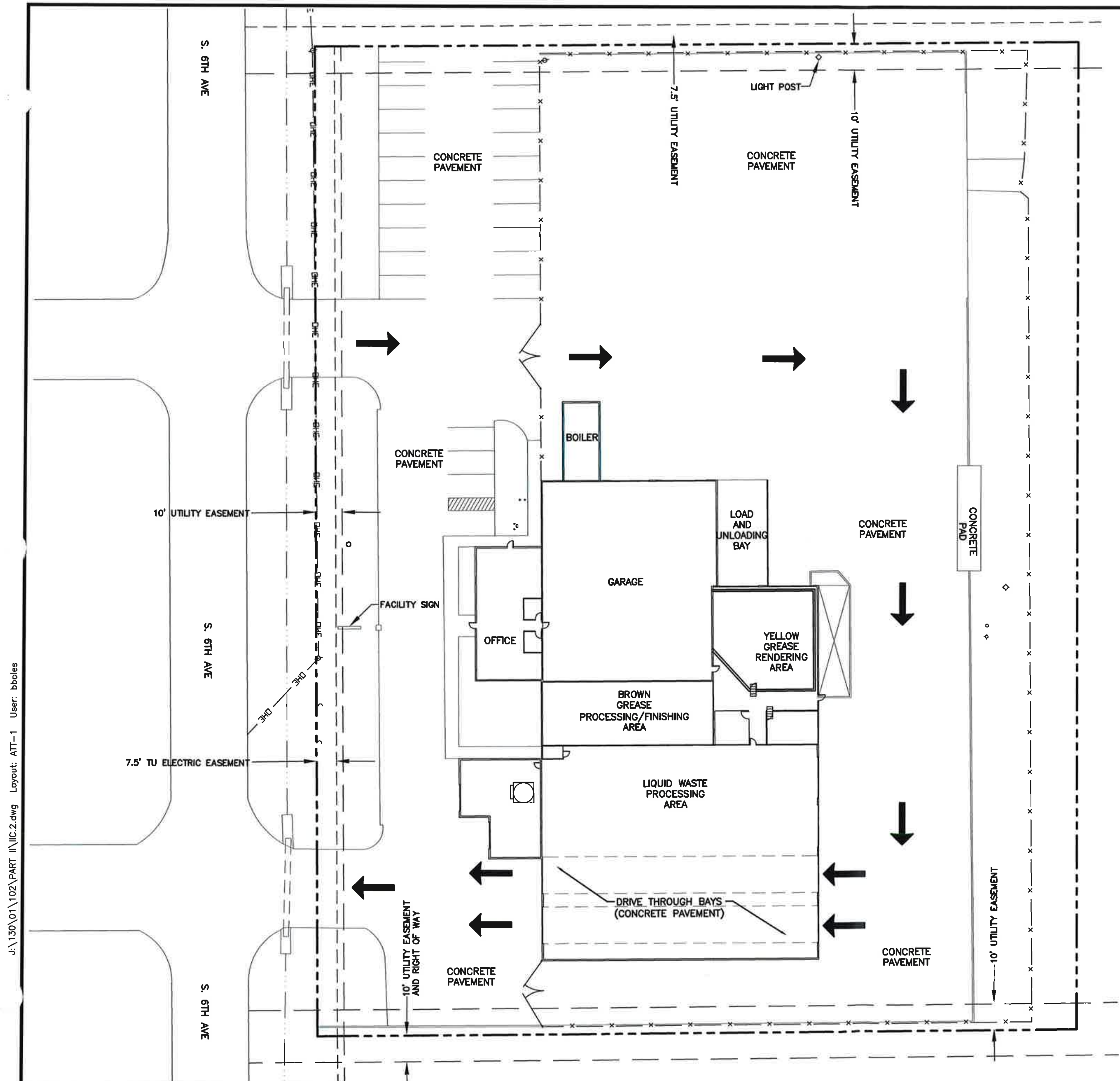
SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY
MAJOR PERMIT AMENDMENT

BIGGS & MATHEWS ENVIRONMENTAL
CONSULTING ENGINEERS
MANSFIELD • WICHITA FALLS
817-563-1144

TBPE FIRM NO. F-256 TBPG FIRM NO. 50222

DSN. ---	DATE : 10/15	FIGURE
DWN. BBB	SCALE : GRAPHIC	II.C–1
CHK. FAW	DWG : IIC.1.dwg	

J:\130\01\102\PART II\IIC.1.dwg Layout: DWG User: bboles



0 20 40
SCALE IN FEET

LEGEND

PERMIT BOUNDARY
CHAIN LINK FENCE
TRAFFIC FLOW

NOTES:

1. DRAWING PREPARED BY BIGGS AND MATHEWS ENVIRONMENTAL, INC. FOR SOUTHWASTE DISPOSAL, LLC.
2. SITE PLAN BASED ON LAND TITLE SURVEY OF LOT 2R1, BLOCK 2, A 2.498 ACRE TRACT MANSFIELD INDUSTRIAL PARK, ABSTRACT NO. 644 BY PRISM SURVEYS, INC. DATED MAY 3, 2013.

STATE OF TEXAS
FELIPE ANTONIO WESCOUP
103826
LICENSED
PROFESSIONAL ENGINEER

10/29/2015

ISSUED FOR PERMITTING PURPOSES

SITE PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY
MAJOR PERMIT AMENDMENT

BIGGS & MATHEWS ENVIRONMENTAL
CONSULTING ENGINEERS
MANSFIELD • WICHITA FALLS
817-563-1144

TBPE FIRM NO. F-256 | TBPG FIRM NO. 50222

REVISIONS						
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DSN. FAW	DATE : 10/15	FIGURE
DWN. BBB	SCALE : GRAPHIC	II.C–2
CHK. FAW	DWG : IIC.2.dwg	

Broad Street – Broad Street is a four-lane divided roadway consisting of 12-foot lanes in the vicinity of the site. In the City of Mansfield Master Thoroughfare Plan, Broad Street is classified as a divided four-lane major arterial with 90 feet of right-of-way. The traffic volume recorded during the study on Broad Street east of S 6th Avenue was 7,338 vehicles per day (vpd). No roadway improvements are currently planned along Broad Street in the study area. There are no known weight restrictions on Broad Street in the vicinity of the site other than the maximum legal weight limit of 80,000 pounds.

Main Street – Main Street is a four-lane divided roadway north of Broad Street and a two-lane undivided roadway south of Airport Drive consisting of 12-foot travel lanes. In the City of Mansfield Master Thoroughfare Plan, Main Street is classified as an undivided five-lane minor arterial with 90 feet of right-of-way. The traffic volume recorded during the study on N Main Street north of Broad Street is 17,551 vpd. The traffic volume recorded during the study on S Main Street, south of Airport Drive is 8,614 vpd. No roadway improvements are currently planned along Main Street in the study area. There are no known weight restrictions on Main Street in the vicinity of the site other than the maximum legal weight limit of 80,000 pounds.

Airport Drive – Airport Drive is a two-lane unstriped, undivided roadway with a 36-foot cross-section in the vicinity of the site. In the City of Mansfield Master Thoroughfare Plan, Airport Drive is classified as an undivided three-lane minor collector with 60 feet of right-of-way. The traffic volume recorded during the study on Airport Drive west of S 2nd Avenue was 2,473 vpd. No roadway improvements are currently planned along Airport Drive in the study area. There are no known weight restrictions on Airport Drive in the vicinity of the site other than the maximum legal weight limit of 80,000 pounds.

S 2nd Avenue – S 2nd Avenue is a two-lane undivided roadway consisting of 12-foot travel lanes in the vicinity of the site. In the City of Mansfield Master Thoroughfare Plan, S 2nd Avenue is classified as an undivided three-lane minor collector with 60 feet of right-of-way. The traffic volume recorded during the study on S 2nd Avenue south of Airport Drive was 2,337 vpd. No roadway improvements are currently planned along S 2nd Avenue in the study area. There are no known weight restrictions on S 2nd Avenue in the vicinity of the site other than the maximum legal weight limit of 80,000 pounds.

S 6th Avenue – S 6th Avenue is a two-lane undivided roadway consisting of 12-foot travel lanes in the vicinity of the site. In the City of Mansfield Master Thoroughfare Plan, S 6th Avenue is classified as an undivided three-lane minor collector with 60 feet of right-of-way. The traffic volume recorded during the study on S 6th Avenue was 1,759 vpd north of the Southwaste Disposal Dallas facility driveways. No roadway improvements are currently planned along S 6th Avenue in the study area. There are no known weight restrictions on S 6th Avenue in the vicinity of the site other than the maximum legal weight limit of 80,000 pounds.

Design factors and use restrictions for these roadways are summarized in Table II.C-1.

Table II.C-1. Existing Access Roadway Characteristics

Roadway	Maximum Vehicle Height (feet)	Maximum Weight (1,000's pounds)	Cross-Section[1] (# of Lanes)	Surface Type	Average Daily Traffic (vpd)[2]
Broad Street	14	80.0	4	Portland Cement Concrete	7,338
Main Street	14	80.0	4/2	Asphalt	17,551
Airport Drive	14	80.0	2	Portland Cement Concrete	2,473
S 2nd Avenue	14	80.0	2	Asphalt	2,337
S 6th Avenue	14	80.0	2	Asphalt	1,759

Notes:

1. Cross-section shown is that for the primary portions of the roadway.
2. Average daily traffic volumes were obtained from 2015 HDR 24-hour electronic tube counts performed by Gram North Texas, as shown in Tables II.C-2 through II.C-10.

3 Data Collection

Traffic volume data collected during the study consisted of automatic tube counts and turning movement counts. Summaries of daily (24-hour) traffic volumes collected on July 23, 2015 on the roadways mentioned previously, and on September 25, 2015 on the facility driveways, are presented in Tables II.C-2 through II.C-10. Turning movement counts collected on July 23, 2015 were used to develop the summary of vehicle classifications and hourly traffic volumes presented in Tables II.C-11 through II.C-16.

Daily traffic volumes were collected at the following locations:

- Broad Street, east of 6th Avenue
- Main Street, north of Broad Street
- Airport Drive, west of S 2nd Avenue
- S 2nd Avenue, south of Airport Drive
- S 6th Avenue, north of facility driveways
- Southwaste Disposal Dallas north driveway, east of S 6th Avenue
- Southwaste Disposal Dallas south driveway, east of S 6th Avenue
- Main Street, south of Airport Drive
- S 6th Avenue, south of facility driveways

The results are reported in the following tables as collected.

All tube count data collected were validated by comparison with adjacent turning movement count data. Additionally, driveway volumes were validated against facility ticketing data for reasonable consistency. It is expected that there will be minor discrepancies between the data collected, as the 24-hour volumes are collected by an automated pneumatic tube counter and adjusted to arrive at a reasonable volume estimate, whereas the turning movement count is performed by an individual observing and recording traffic data. There is additional potential for discrepancy when clock synchronicity, tube malfunction, multiple axle vehicles, and human error are considered. Given this expected potential for error between the counts, it was determined that all of the 24-hour traffic volume data collected were reasonable, with the exception of the volumes collected on 6th Avenue, and the facility driveways. Cross referencing the AM and PM peak hour tube counts with the turning movement counts revealed significant discrepancies between the two. Given the high volume of heavy vehicle traffic, and following discussions with Gram North Texas, it was determined that the turning movement data provided a more accurate description of the traffic volumes on these roadways. For the driveway counts, the discrepancy was significant; therefore, additional video based counts were performed on September 25, 2015 to provide a reasonable estimate of facility traffic for the study. 24-hour volume data are documented herein, but the turning movement counts formed the basis of the roadway and intersection analysis.

Vehicle classification data were collected during the study at each of the study area intersections. This information was included in the visual turning movement counts to differentiate among the following vehicle types: Southwaste Disposal Dallas facility vehicles, other heavy vehicles bearing three or more axles, and passenger cars. These vehicle classification counts are presented in Tables II.C-11 through II.C-16.

The traffic volume results described previously can be expected to vary throughout the year. As noted in AASHTO (Ref. 5), "The amount by which the volume of an average day is exceeded on certain days is appreciable and varied. At typical rural locations, the volume on certain days may be significantly higher than the ADT [average daily traffic]."

Table II.C-2. Hourly Traffic Volumes - Broad Street, East of 6th Avenue

Broad Street			
East of 6th Avenue			
July 23, 2015			
Time	Eastbound	Westbound	Total
12:00 AM	21	32	53
1:00 AM	22	9	31
2:00 AM	14	13	27
3:00 AM	17	7	24
4:00 AM	42	20	62
5:00 AM	112	62	174
6:00 AM	161	136	297
7:00 AM	290	162	452
8:00 AM	235	150	385
9:00 AM	228	184	412
10:00 AM	209	147	356
11:00 AM	245	187	432
12:00 PM	254	241	495
1:00 PM	194	243	437
2:00 PM	194	188	382
3:00 PM	194	273	467
4:00 PM	241	322	563
5:00 PM	310	336	646
6:00 PM	195	267	462
7:00 PM	129	240	369
8:00 PM	130	179	309
9:00 PM	100	155	255
10:00 PM	59	97	156
11:00 PM	34	58	92
Total	**3,630**	**3,708**	**7,338**

Table II.C-3. Hourly Traffic Volumes - Main Street, North of Broad Street

Main Street			
North of Broad Street			
July 23, 2015			
Time	Northbound	Southbound	Total
12:00 AM	33	55	88
1:00 AM	45	15	60
2:00 AM	35	25	60
3:00 AM	43	30	73
4:00 AM	62	114	176
5:00 AM	189	296	485
6:00 AM	316	377	693
7:00 AM	574	440	1,014
8:00 AM	476	391	867
9:00 AM	507	403	910
10:00 AM	522	386	908
11:00 AM	664	505	1,169
12:00 PM	670	596	1,266
1:00 PM	535	554	1,089
2:00 PM	624	519	1,143
3:00 PM	697	590	1,287
4:00 PM	683	593	1,276
5:00 PM	680	712	1,392
6:00 PM	488	589	1,077
7:00 PM	396	389	785
8:00 PM	353	333	686
9:00 PM	216	304	520
10:00 PM	135	181	316
11:00 PM	92	119	211
Total	**9,035**	**8,516**	**17,551**

Table II.C-4. Hourly Traffic Volumes - Airport Drive, West of S 2nd Avenue

Airport Drive			
West of S 2nd Avenue			
July 23, 2015			
Time	Eastbound	Westbound	Total
12:00 AM	7	9	16
1:00 AM	5	5	10
2:00 AM	7	0	7
3:00 AM	12	3	15
4:00 AM	3	60	63
5:00 AM	41	171	212
6:00 AM	34	119	153
7:00 AM	54	102	156
8:00 AM	45	100	145
9:00 AM	51	73	124
10:00 AM	63	66	129
11:00 AM	76	71	147
12:00 PM	102	113	215
1:00 PM	56	92	148
2:00 PM	114	90	204
3:00 PM	195	76	271
4:00 PM	116	56	172
5:00 PM	108	46	154
6:00 PM	30	27	57
7:00 PM	10	9	19
8:00 PM	11	9	20
9:00 PM	5	6	11
10:00 PM	3	6	9
11:00 PM	9	7	16
Total	**1,157**	**1,316**	**2,473**

Table II.C-5. Hourly Traffic Volumes - S 2nd Avenue, South of Airport Drive

S 2nd Avenue			
South of Airport Drive			
July 23, 2015			
Time	Northbound	Southbound	Total
12:00 AM	2	7	9
1:00 AM	5	3	8
2:00 AM	4	5	9
3:00 AM	8	9	17
4:00 AM	7	17	24
5:00 AM	42	36	78
6:00 AM	106	39	145
7:00 AM	92	60	152
8:00 AM	87	34	121
9:00 AM	50	43	93
10:00 AM	62	47	109
11:00 AM	68	79	147
12:00 PM	75	67	142
1:00 PM	61	72	133
2:00 PM	78	95	173
3:00 PM	82	128	210
4:00 PM	63	136	199
5:00 PM	75	132	207
6:00 PM	38	90	128
7:00 PM	26	58	84
8:00 PM	19	48	67
9:00 PM	13	30	43
10:00 PM	3	14	17
11:00 PM	3	19	22
Total	**1,069**	**1,268**	**2,337**

Table II.C-6. Hourly Traffic Volumes - S 6th Avenue, North of Facility North Driveway

S 6th Avenue			
North of Facility North Driveway			
July 23,2015			
Time	Northbound	Southbound	Total
12:00 AM	6	0	6
1:00 AM	19	2	21
2:00 AM	7	5	12
3:00 AM	17	1	18
4:00 AM	14	24	38
5:00 AM	13	60	73
6:00 AM	22	106	128
7:00 AM	28	87	115
8:00 AM	41	36	77
9:00 AM	54	56	110
10:00 AM	42	38	80
11:00 AM	64	38	102
12:00 PM	94	72	166
1:00 PM	57	69	126
2:00 PM	73	29	102
3:00 PM	80	58	138
4:00 PM	95	48	143
5:00 PM	117	22	139
6:00 PM	46	25	71
7:00 PM	25	12	37
8:00 PM	12	9	21
9:00 PM	15	10	25
10:00 PM	7	1	8
11:00 PM	3	0	3
Total	**951**	**808**	**1,759**

Table II.C-7. Hourly Traffic Volumes - Facility North Driveway, East of S 6th Avenue

Facility North Driveway			
East of S 6th Avenue			
September 25, 2015			
Time	Eastbound	Westbound	Total
12:00 AM	1	0	1
1:00 AM	1	1	2
2:00 AM	2	2	4
3:00 AM	1	0	1
4:00 AM	1	1	2
5:00 AM	3	2	5
6:00 AM	6	1	7
7:00 AM	2	1	3
8:00 AM	2	0	2
9:00 AM	3	1	4
10:00 AM	3	0	3
11:00 AM	7	5	12
12:00 PM	4	4	8
1:00 PM	6	4	10
2:00 PM	2	3	5
3:00 PM	3	5	8
4:00 PM	2	1	3
5:00 PM	1	2	3
6:00 PM	1	2	3
7:00 PM	2	1	3
8:00 PM	3	3	6
9:00 PM	0	1	1
10:00 PM	0	0	0
11:00 PM	1	0	1
Total	**57**	**40**	**97**

Table II.C-8. Hourly Traffic Volumes - Facility South Driveway, East of S 6th Avenue

Facility South Driveway			
East of S 6th Avenue			
September 25, 2015			
Time	Eastbound	Westbound	Total
12:00 AM	0	0	0
1:00 AM	0	2	2
2:00 AM	0	0	0
3:00 AM	0	0	0
4:00 AM	0	0	0
5:00 AM	0	0	0
6:00 AM	0	2	2
7:00 AM	1	2	3
8:00 AM	0	1	1
9:00 AM	0	2	2
10:00 AM	0	1	1
11:00 AM	2	3	5
12:00 PM	1	4	5
1:00 PM	1	2	3
2:00 PM	0	1	1
3:00 PM	3	1	4
4:00 PM	0	1	1
5:00 PM	0	2	2
6:00 PM	1	0	1
7:00 PM	0	1	1
8:00 PM	0	2	2
9:00 PM	0	0	0
10:00 PM	0	0	0
11:00 PM	0	0	0
Total	**9**	**27**	**36**

Table II.C-9. Hourly Traffic Volumes - S Main Street, South of Airport Drive

S Main Street			
South of Airport Drive			
July 23, 2015			
Time	Northbound	Southbound	Total
12:00 AM	18	24	42
1:00 AM	18	10	28
2:00 AM	20	19	39
3:00 AM	13	17	30
4:00 AM	49	32	81
5:00 AM	126	110	236
6:00 AM	221	125	346
7:00 AM	307	186	493
8:00 AM	253	194	447
9:00 AM	279	185	464
10:00 AM	240	193	433
11:00 AM	324	214	538
12:00 PM	306	299	605
1:00 PM	288	258	546
2:00 PM	272	248	520
3:00 PM	281	367	648
4:00 PM	271	351	622
5:00 PM	337	367	704
6:00 PM	272	259	531
7:00 PM	191	241	432
8:00 PM	166	169	335
9:00 PM	105	162	267
10:00 PM	56	81	137
11:00 PM	38	52	90
Total	**4,451**	**4,163**	**8,614**

Table II.C-10. Hourly Traffic Volumes - S 6th Avenue, South of Facility South Driveway

S 6th Avenue			
South of Facility South Driveway			
July 23, 2015			
Time	Northbound	Southbound	Total
12:00 AM	3	0	3
1:00 AM	16	1	17
2:00 AM	11	4	15
3:00 AM	14	2	16
4:00 AM	11	11	22
5:00 AM	13	32	45
6:00 AM	16	74	90
7:00 AM	28	95	123
8:00 AM	44	57	101
9:00 AM	42	49	91
10:00 AM	47	41	88
11:00 AM	46	36	82
12:00 PM	72	50	122
1:00 PM	49	48	97
2:00 PM	53	41	94
3:00 PM	78	46	124
4:00 PM	87	41	128
5:00 PM	128	26	154
6:00 PM	40	21	61
7:00 PM	26	16	42
8:00 PM	9	9	18
9:00 PM	10	7	17
10:00 PM	4	4	8
11:00 PM	4	0	4
Total	**851**	**711**	**1,562**

Table II.C-11. Existing Vehicle Classifications - Broad Street, West of Main Street

Broad Street							
West of Main Street							
July 23, 2015							
Eastbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	0	0.0	1	0.3	295	99.7	296
8:00 - 9:00 AM	5	2.2	0	0.0	222	97.8	227
4:00 – 5:00 PM	4	1.6	2	0.8	251	97.7	257
5:00 – 6:00 PM	0	0.0	1	0.3	326	99.7	327
EB SUBTOTAL	9	0.8	4	0.4	1,094	98.8	1,107
Westbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	3	2.2	1	0.7	132	97.1	136
8:00 - 9:00 AM	5	3.2	1	0.6	149	96.1	155
4:00 – 5:00 PM	2	0.6	2	0.6	321	98.8	325
5:00 – 6:00 PM	0	0.0	0	0.0	370	100.0	370
WB SUBTOTAL	10	1.0	4	0.4	972	98.6	986
TOTAL	**19**	**0.9**	**8**	**0.4**	**2,066**	**98.7**	**2,093**

Table II.C-12. Existing Vehicle Classifications - Main Street, North of Broad Street

Main Street							
North of Broad Street							
July 23, 2015							
Northbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	13	2.5	1	0.2	515	97.4	529
8:00 - 9:00 AM	13	3.1	0	0.0	410	96.9	423
4:00 – 5:00 PM	10	1.6	2	0.3	633	98.1	645
5:00 – 6:00 PM	8	1.3	1	0.2	616	98.6	625
NB SUBTOTAL	44	2.0	4	0.2	2,174	97.8	2,222
Southbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	13	3.3	1	0.3	375	96.4	389
8:00 - 9:00 AM	23	6.7	0	0.0	322	93.3	345
4:00 – 5:00 PM	13	2.3	2	0.4	551	97.3	566
5:00 – 6:00 PM	8	1.1	0	0.0	693	98.9	701
SB SUBTOTAL	57	2.8	3	0.1	1,941	97.0	2,001
TOTAL	**101**	**2.4**	**7**	**0.2**	**4,115**	**97.4**	**4,223**

Table II.C-13. Existing Vehicle Classifications - Main Street, South of Airport Drive

Main Street							
South of Airport Drive							
July 23, 2015							
Northbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	15	5.2	0	0.0	272	94.8	287
8:00 - 9:00 AM	15	7.4	0	0.0	188	92.6	203
4:00 – 5:00 PM	11	4.3	1	0.4	242	95.3	254
5:00 – 6:00 PM	12	3.8	0	0.0	301	96.2	313
NB SUBTOTAL	53	5.0	1	0.1	1,003	94.9	1,057
Southbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	16	9.7	0	0.0	149	90.3	165
8:00 - 9:00 AM	22	15.2	0	0.0	123	84.8	145
4:00 – 5:00 PM	10	3.0	0	0.0	318	97.0	328
5:00 – 6:00 PM	5	1.4	0	0.0	353	98.6	358
SB SUBTOTAL	53	5.3	0	0.0	943	94.7	996
TOTAL	**106**	**5.2**	**1**	**0.0**	**1,946**	**94.8**	**2,053**

Table II.C-14. Existing Vehicle Classifications - Airport Drive, West of 2nd Avenue

Airport Drive							
West of 2nd Avenue							
July 23, 2015							
Eastbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	10	35.7	0	0.0	18	64.3	28
8:00 - 9:00 AM	9	37.5	0	0.0	15	62.5	24
4:00 – 5:00 PM	2	1.9	0	0.0	105	98.1	107
5:00 – 6:00 PM	3	2.9	0	0.0	101	97.1	104
EB SUBTOTAL	24	9.1	0	0.0	239	90.9	263
Westbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	3	2.9	1	1.0	99	96.1	103
8:00 - 9:00 AM	12	15.4	0	0.0	66	84.6	78
4:00 – 5:00 PM	11	28.2	0	0.0	28	71.8	39
5:00 – 6:00 PM	9	30.0	0	0.0	21	70.0	30
WB SUBTOTAL	35	14.0	1	0.4	214	85.6	250
TOTAL	**59**	**11.5**	**1**	**0.2**	**453**	**88.3**	**513**

Table II.C-15. Existing Vehicle Classifications - 2nd Avenue, South of Airport Drive

2nd Avenue							
South of Airport Drive							
July 23, 2015							
Northbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	4	4.4	1	1.1	86	94.5	91
8:00 - 9:00 AM	3	6.0	0	0.0	47	94.0	50
4:00 – 5:00 PM	5	8.8	0	0.0	52	91.2	57
5:00 – 6:00 PM	2	3.3	0	0.0	59	96.7	61
NB SUBTOTAL	14	5.4	1	0.4	244	94.2	259
Southbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	5	8.5	0	0.0	54	91.5	59
8:00 - 9:00 AM	0	0.0	0	0.0	35	100.0	35
4:00 – 5:00 PM	2	1.5	1	0.7	134	97.8	137
5:00 – 6:00 PM	5	4.4	0	0.0	109	95.6	114
SB SUBTOTAL	12	3.5	1	0.3	332	96.2	345
TOTAL	**26**	**4.3**	**2**	**0.3**	**576**	**95.4**	**604**

Table II.C-16. Existing Vehicle Classifications - 6th Avenue, South of Broad Street

6th Avenue							
South of Broad Street							
July 23,2015							
Northbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	1	4.8	1	4.8	19	90.5	21
8:00 - 9:00 AM	13	34.2	0	0.0	25	65.8	38
4:00 – 5:00 PM	8	6.6	2	1.7	111	91.7	121
5:00 – 6:00 PM	3	2.3	1	0.8	127	96.9	131
NB SUBTOTAL	25	8.0	4	1.3	282	90.7	311
Southbound							
Time Period	Heavy Vehicles		Waste Vehicles		Other Vehicles		Total
	No.	%	No.	%	No.	%	
7:00 - 8:00 AM	6	5.7	1	0.9	99	93.4	106
8:00 - 9:00 AM	4	7.7	1	1.9	47	90.4	52
4:00 – 5:00 PM	1	2.6	2	5.3	35	92.1	38
5:00 – 6:00 PM	0	0.0	0	0.0	14	100.0	14
SB SUBTOTAL	11	5.2	4	1.9	195	92.9	210
TOTAL	**36**	**6.9**	**8**	**1.5**	**477**	**91.6**	**521**

4 Traffic Analysis

4.1 Roadway Capacity Analysis Methodology

The Highway Capacity Manual (Ref. 6) provides methodologies for estimating roadway operating levels of service (LOS) in terms of comparing expected speed-flow and density-flow relationships. Roadway LOS is characterized by four performance measures:

- Density of the traffic (passenger cars per mile per lane)
- Speed of the traffic (miles per hour)
- Volume to capacity ratio for the roadway/direction/lane
- Percent time spent following

Each of these measures affects the overall roadway operating level of service. In general, overall operating LOS A to D are typically deemed acceptable, while an overall LOS of E or F is unacceptable, in terms of the roadway capacity. Each LOS is described in detail within the Highway Capacity Manual.

Based on the criteria given in the Highway Capacity Manual, the first step of the roadway network was to categorize the roadways within one mile of the disposal facility for analysis purposes. Based on their operating characteristics, all of the roadways analyzed as part of the study are classified as urban streets.

Urban street facilities are roadways that experience interrupted flow. Stop signs, traffic signals, and/or roundabout intersections located within two mile intervals along the roadway effectively meter the flow of traffic on the roadway. For this reason, urban street facilities experience level of service differently than rural two-lane and multilane highway facilities. However, due to the limited amount of data collected during the study, urban street analyses would not provide reliable level of service estimates for the study roadways. Since roadway capacity is a function of roadway cross-section, analyses of urban streets using two-lane and multilane highway analysis methodologies provide baseline values for the effectiveness of each facility. Combined with intersection analyses at the critical intersections along the facility access routes, these methodologies provide a reasonable evaluation of vehicle operations for these roadways. Therefore, two-lane highway analysis was performed for 6th Avenue, Airport Drive, S Main Street, and S 2nd Avenue, and multilane highway analysis was performed for Broad Street and N Main Street using the microcomputer software program HCS2010 (Ref. 7). Intersection analysis was performed for critical intersections within the study area, using the microcomputer software program "Synchro" (Ref. 8), which is based on the methodology specified in the Highway Capacity Manual.

The existing traffic volumes on study area roadways are listed in Table II.C-17. Estimated daily trips and facility trip distribution were estimated based on the classification counts collected by HDR, Inc. (Gram North Texas) and ticketing data provided by the facility. Four traffic conditions are investigated as part of this transportation study:

- 2015 Existing Average Day Operation
- 2015 Existing Maximum Day Operation
- 2035 Forecasted Average Day Operation
- 2035 Forecasted Maximum Day Operation

Waste vehicle volume on a maximum operation day is 1.5 times that of an average operation day according to information provided by Biggs & Mathews Environmental, Inc.

4.2 2015 Existing Traffic Analysis

Table II.C-17. 2015 Existing Average Operation Day Traffic Volumes

Location	Existing Traffic Volumes 2015					
	Daily			Peak Hour		
	Facility Trips	Non-Facility Trips	Total	Facility Trips	Non-Facility Trips	Total
Broad Street west of Main Street	58	7,280	7,338	3	663	666
6th Avenue south of Broad Street	60	1,699	1,759	3	199	202
2nd Avenue south of Airport Drive	8	2,329	2,337	0	207	207
Airport Drive west of 2nd Avenue	24	2,449	2,473	1	168	169
Main Street south of Airport Drive	16	8,598	8,614	1	663	664
Main Street north of Broad Street	42	17,509	17,551	2	1,349	1,351

Table II.C-18. Level of Service for 2015 Existing Average Day Traffic Volumes (Two-Lane Highway Analysis)

Location	Roadway Capacity[3] (pc/hr)	Peak Hour Volume (veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	% of Roadway Capacity Used by Existing Facility Vehicles[1]
6th Avenue south of Broad Street	3,200	202	6.3	A	0.1
Airport Drive west of 2nd Avenue	3,200	169	5.3	B	<0.1
2nd Avenue south of Airport Drive	3,200	207	6.5	B	0.0
Main Street south of Airport Drive	3,200	664	20.8	B	<0.1

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 – Refer to HCM Exhibit 15-3 for Class III LOS Criteria
3 – Refer to HCM Page 15-5 for two-lane highway capacity

Table II.C-19. Level of Service for 2015 Existing Average Day Traffic Volumes (Multilane Highway Analysis)

Location	Access Road Capacity (Calculated) [3] (pc/h/ln)	One Way Peak Hour Volume (Veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	Facility Vehicles % of One Way Capacity-Peak Hour[1]
Broad Street west of Main Street	1,900	351	9.2%	A	<0.1
Main Street north of Broad Street	1,900	679	17.9%	A	<0.1

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 - Minimum access road capacity used – calculated free flow speed < 45 mph.
3 – Refer to HCM Exhibit 14-2 for Capacity Calculation.

Table II.C-20. 2015 Existing Maximum Operation Day Traffic Volumes

Location	Existing Traffic Volumes 2015					
	Daily			Peak Hour		
	Facility Trips	Non-Facility Trips	Total	Facility Trips	Non-Facility Trips	Total
Broad Street west of Main Street	88	7,280	7,368	5	663	668
6th Avenue south of Broad Street	92	1,699	1,791	5	199	204
2nd Avenue south of Airport Drive	12	2,329	2,341	0	207	207
Airport Drive west of 2nd Avenue	36	2,449	2,485	2	168	170
Main Street south of Airport Drive	24	8,598	8,622	2	663	665
Main Street north of Broad Street	64	17,509	17,573	3	1,349	1,352

Table II.C-21. Level of Service for 2015 Existing Maximum Day Traffic Volumes (Two-Lane Highway Analysis)

Location	Roadway Capacity[3] (pc/hr)	Peak Hour Volume (veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	% of Roadway Capacity Used by Existing Facility Vehicles[1]
6th Avenue south of Broad Street	3,200	204	6.4	A	0.2
Airport Drive west of 2nd Avenue	3,200	170	5.3	B	0.1
2nd Avenue south of Airport Drive	3,200	207	6.5	B	0.0
Main Street south of Airport Drive	3,200	665	20.8	B	0.1

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 – Refer to HCM Exhibit 15-3 for Class III LOS Criteria
3 – Refer to HCM Page 15-5 for two-lane highway capacity

Table II.C-22. Level of Service for 2015 Existing Maximum Day Traffic Volumes (Multilane Highway Analysis)

Location	Access Road Capacity (Calculated)[3] (pc/h/ln)	One Way Peak Hour Volume (Veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	Facility Vehicles % of One Way Capacity-Peak Hour[1]
Broad Street west of Main Street	1,900	351	9.2	A	0.1
Main Street north of Broad Street	1,900	679	17.9	A	0.1

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 - Minimum access road capacity used – calculated free flow speed < 45 mph.
3 – Refer to HCM Exhibit 14-2 for Capacity Calculation.

4.2.1 Intersection Analysis

Broad Street and Main Street

The intersection of Broad Street and Main Street is signalized. Main Street forms the northbound and southbound approaches to the intersection, and Broad Street forms the eastbound and westbound approaches to the intersection. The northbound approach of Main Street provides one left-turn lane, two through lanes, and one right-turn lane. The southbound approach provides one left-turn lane, one through lane, and one through/right-turn shared lane. Both the eastbound and westbound approaches provide one left-turn lane, one through lane, and one through/right-turn shared lane. Current overall LOS is B for both AM and PM peak periods on both an average operation day and a maximum operation day. No sight distance limitations or other safety factors were observed during field review of intersection operations.

Broad Street and 6th Avenue/Billingslea Drive

6th Avenue forms the stop-controlled northbound approach to this unsignalized intersection. Billingslea Drive forms the stop-controlled southbound approach. Both the northbound and southbound approaches provide one left-turn/though/right-turn shared lane. The eastbound and westbound approaches of Broad Street each provide one left-turn lane, one through lane, and one through/right-turn shared lane. Current overall LOS is A for both AM and PM peak periods on both an average operation day and a maximum operation day. The stop-controlled northbound and southbound approaches operate at LOS B under the same conditions. No sight distance limitations or other safety factors were observed during field review of intersection operations.

6th Avenue and North Facility Driveway

The Southwaste Disposal Dallas facility driveway forms the yield-controlled westbound approach to this unsignalized intersection. The SJ Louis Construction Company facility provides a gated eastbound driveway approach. Both the eastbound and westbound approaches provide one left-turn/right-turn shared lane. The northbound and southbound approaches of 6th Avenue each provide one left-turn/through/right-turn shared lane. The current overall LOS is A for both AM and PM peak periods on both an average operation day and a maximum operation day. The yield-controlled westbound approach operates at LOS A under the same conditions. No sight distance limitations or other safety factors were observed during field review of intersection operations.

6th Avenue and South Facility Driveway

The Southwaste Disposal Dallas facility driveway forms the yield-controlled westbound approach to this unsignalized "T" intersection. The westbound approach provides one left-turn/right-turn shared lane. The northbound approach of 6th Avenue provides one through/right-turn shared lane, and the southbound approach provides one left-turn/through shared lane. The current overall LOS is A for both AM and PM peak periods on both an average operation day and a maximum operation day. The yield-controlled westbound approach operates at LOS A under the same conditions. No sight distance limitations or other safety factors were observed during field review of intersection operations.

6th Avenue and Airport Drive

Airport Drive forms the stop-controlled westbound approach to this unsignalized "T" intersection. The westbound approach provides one left-turn/right-turn shared lane. The northbound approach of 6th Avenue provides one through/right-turn shared lane, and the southbound approach provides one left-turn/through shared lane. The current overall LOS is A for both AM and PM peak periods on both an average operation day and a maximum operation day. The stop-controlled westbound approach operates at LOS A under the same conditions. No sight distance limitations or other safety factors were observed during field review of intersection operations.

2nd Avenue and Airport Drive

Airport Drive forms the stop-controlled eastbound and westbound approaches to this unsignalized intersection. All four approaches provide one left-turn/through/right-turn shared lane. The current overall LOS is A for both AM and PM peak periods on both an average operation day and a maximum operation day. The stop-controlled eastbound and westbound approaches operate at LOS B under the same conditions. No sight distance limitations or other safety factors were observed during field review of intersection operations.

Main Street and Airport Drive

Airport Drive forms the stop-controlled eastbound approach to this unsignalized "T" intersection. The eastbound approach provides one left-turn/right-turn shared lane. The northbound approach of Main Street provides one left-turn/through shared lane, and the southbound approach provides one through/right-turn shared lane. The current overall LOS is A for both AM and PM peak periods on both an average operation day and a maximum operation day. The stop-controlled eastbound approach operates at LOS B under the same conditions. No sight distance limitations or other safety factors were observed during field review of intersection operations.

4.3 2035 Forecasted Conditions with Site Generated Traffic

Projected facility (site) traffic volumes include the following contributing elements:

- Private vehicles (autos) belonging to facility personnel
- Waste shipment vehicles

Existing and future site-generated vehicular traffic volumes were developed from existing turning movement and classification data collected during the study, ticketing data provided by Southwaste Disposal Dallas, and projected facility growth provided by Biggs & Mathews Environmental, Inc. Estimated daily site-generated traffic is shown in Table II.C-23. Biggs & Mathews Environmental, Inc. provided the following description of existing and projected facility operations:

- As noted in Tables II.C-7 and II.C-8, 133 vehicles were observed entering and exiting the site on September 25, 2015. However, facility driveway count data includes internal capture of waste delivery trips. Some delivery vehicles will enter and exit the facility multiple times during disposal operations. As a result, the facility generates fewer than the 133 trips observed from the count data on an average day. To arrive at a reasonable estimate of daily site traffic, count data were compared with facility ticketing data obtained on the same day to develop the total daily site trip generation estimate of 84 vpd.

- Facility traffic growth was developed independently of background traffic. Existing classification counts noted in Tables II.C-11 through II.C-16 above provided the basis for determining facility trip distribution. All facility traffic will enter and exit the site via 6th Avenue through the north and south facility driveways.
- According to the information provided by Biggs & Mathews Environmental, Inc., the facility will be permitted to expand operations by 89%. Municipal solid waste (MSW) processing facilities do not have an estimated site life and can operate in accordance with their MSW permit indefinitely. A horizon year of 2035 was selected to be consistent with traffic projections by the City of Mansfield. The facility is permitted to operate twenty-four hours a day, 52 weeks per year and 5.5 days per week. The maximum day operations are estimated to be 1.5 times the volume of the average day operations.

Table II.C-23. Estimated Traffic Volumes for the Disposal Facility

Operation Scenario	Year 2015 Number of Existing Trips	Year 2035 Projected Number of Trips
Average	84	158
Maximum	126	238

Background traffic growth rates were determined based on information obtained from the City of Mansfield Master Thoroughfare Plan, TxDOT Historical ADT Traffic Maps, and Population Projection of Texas State Data Center. Based on the data obtained during the study and discussions with the City of Mansfield, it was assumed that background traffic (non-site traffic) within the study area will increase annually at a rate of five (5) percent over the twenty year period from 2015 to 2035.

It should be noted that the City intends to remove Main Street as a designated truck route between FM 157 and FM 917. Additionally, Broad Street will be restricted to commercial deliveries for businesses located on Broad Street once these changes go into effect. Therefore, all Southwaste facility waste vehicles will be rerouted to access the site via S 2nd Avenue under 2035 forecasted conditions. For this reason, no facility traffic is projected to use Main Street or Broad Street, and facility trips on 6th Avenue, south of Broad Street are projected as zero, since facility traffic will only enter and exit from the south.

The projected traffic volumes on each study area roadway are listed in Tables II.C-24 and II.C-25.

Table II.C-24. 2035 Forecasted Average Operation Day Traffic Volumes

Location	Forecasted Traffic Volumes 2035					
	Daily			Peak Hour		
	Facility Trips	Non-Facility Trips	Total	Facility Trips	Non-Facility Trips	Total
Broad Street west of Main Street	0	19,316	19,316	0	1,760	1,760
6th Avenue south of Broad Street	0	4,508	4,508	0	528	528
2nd Avenue south of Airport Drive	158	6,180	6,338	8	550	558
Airport Drive west of 2nd Avenue	158	6,498	6,656	8	446	454
Main Street south of Airport Drive	0	22,813	22,813	0	1,759	1,759
Main Street north of Broad Street	0	46,457	46,457	0	3,580	3,580

Table II.C-25. 2035 Forecasted Maximum Operation Day Traffic Volumes

Location	Forecasted Traffic Volumes 2035					
	Daily			Peak Hour		
	Facility Trips	Non-Facility Trips	Total	Facility Trips	Non-Facility Trips	Total
Broad Street west of Main Street	0	19,316	19,316	0	1,760	1,760
6th Avenue south of Broad Street	0	4,508	4,508	0	528	528
2nd Avenue south of Airport Drive	238	6,180	6,418	12	550	562
Airport Drive west of 2nd Avenue	238	6,498	6,736	12	446	458
Main Street south of Airport Drive	0	22,813	22,813	0	1,759	1,759
Main Street north of Broad Street	0	46,457	46,457	0	3,580	3,580

4.3.1 Roadway Capacity Analysis

In order to determine the roadway level of service under 2035 traffic conditions, a comparison between the expected speed-flow and density-flow was made. Traffic volumes were projected using the traffic counts collected by HDR as the base value. All roadway improvements noted within this report were assumed to be completed prior to forecasted year 2035 conditions. Tables II.C-26 through II.C-29 summarize peak hour volume projections and capacity analysis results for year 2035. As shown, traffic generated by the facility will represent a very small portion of the capacity of each study area roadway during the peak period.

It should be noted that these calculations are based on traffic volumes assumed to occur during the peak period of traffic flow for each roadway, not on daily traffic volumes. It is more appropriate to evaluate a roadway based on its peak hour volume rather than the 24-hour volume, since peak hour volumes provide a better indication of the operating conditions of the roadway. Peak period flow rates were determined based on existing traffic turning movement counts collected by HDR during the study. The future peak hour volumes were determined using historical count data obtained from the City, TxDOT and the Population Projection of Texas State Data Center, and based on discussions with City staff during the study. Projected facility traffic volumes were based on the projected waste acceptance rate provided by Biggs & Mathews Environmental, Inc.

Table II.C-26. Level of Service for 2035 Forecasted Average Operation Day Traffic Volumes (Two-Lane Highway Analysis)

Location	Roadway Capacity[3] (pc/hr)	Peak Hour Volume (veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	% of Roadway Capacity Used by Existing Disposal Vehicles[1]
6th Avenue south of Broad Street	3,200	528	16.5	B	0.0
Airport Drive west of 2nd Avenue	3,200	454	14.2	C	0.3
2nd Avenue south of Airport Drive	3,200	558	17.4	C	0.3
Main Street south of Airport Drive	3,200	1,759	55.0	D	0.0

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 – Refer to HCM Exhibit 15-3 for Class III LOS Criteria
3 – Refer to HCM Page 15-5 for two-lane highway capacity

Table II.C-27. Level of Service for 2035 Forecasted Average Day Traffic Volumes (Multilane Highway Analysis)

Location	Access Road Capacity (Calculated)[3] (pc/h/ln)	One Way Peak Hour Volume (Veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	Disposal Vehicles % of One Way Capacity-Peak Hour[1]
Broad Street west of Main Street	1,900	932	24.5	B	0.0
Main Street north of Broad Street	1,900	1,802	47.4	C	0.0

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 - Minimum access road capacity used – calculated free flow speed < 45 mph.
3 – Refer to HCM Exhibit 14-2 for Capacity Calculation.

Table II.C-28. Level of Service for 2035 Forecasted Maximum Operation Day Traffic Volumes (Two-Lane Highway Analysis)

Location	Roadway Capacity[3] (pc/hr)	Peak Hour Volume (veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	% of Roadway Capacity Used by Existing Disposal Vehicles[1]
6th Avenue south of Broad Street	3,200	528	16.5	B	0.0
Airport Drive west of 2nd Avenue	3,200	458	14.3	C	0.4
2nd Avenue south of Airport Drive	3,200	562	17.6	C	0.4
Main Street south of Airport Drive	3,200	1,759	55.0	D	0.0

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 – Refer to HCM Exhibit 15-3 for Class III LOS Criteria
3 – Refer to HCM Page 15-5 for two-lane highway capacity

Table II.C-29. Level of Service for 2035 Forecasted Maximum Day Traffic Volumes (Multilane Highway Analysis)

Location	Access Road Capacity (Calculated)[3] (pc/h/ln)	One Way Peak Hour Volume (Veh/hr)	% of Access Road Capacity Used[1]	HCM Roadway LOS[2]	Disposal Vehicles % of One Way Capacity-Peak Hour[1]
Broad Street west of Main Street	1,900	932	24.5	B	0.0
Main Street north of Broad Street	1,900	1,802	47.4	C	0.0

Notes:

1 – Based on traffic volumes (veh/hr) compared with capacity (pc/hr).
2 - Minimum access road capacity used – calculated free flow speed < 45 mph.
3 – Refer to HCM Exhibit 14-2 for Capacity Calculation

4.3.2 Intersection Analysis

Broad Street and Main Street

This intersection will operate at LOS D and F during the AM and PM peak periods, respectively, for both average and maximum day operation scenarios under 2035 forecasted conditions, assuming existing geometrics and traffic controls are maintained. It should be noted that disposal facility traffic does not cause the intersection to operate at unacceptable levels of service. No improvements are recommended at this intersection to accommodate facility expansion.

Broad Street and 6th Avenue/Billingslea Drive

This intersection will operate at LOS A and F during both the AM and PM peak periods, respectively, under 2035 forecasted conditions for both average and maximum day operation scenarios, assuming existing geometrics and traffic control are maintained. The stop-controlled northbound approach operates at LOS F under all forecasted scenarios. Traffic signal installation will become necessary at this intersection once signal warrants have been met. However, disposal facility traffic does not cause the intersection to operate at unacceptable levels of service, and no facility traffic will be allowed to access via this intersection during 2035 conditions due to trip rerouting required by the City.

6th Avenue and North Facility Driveway

This intersection will operate at LOS A for both average and maximum day operation scenarios during both the AM and PM peak periods under 2035 forecasted conditions, assuming existing geometrics and traffic control are maintained. The yield-controlled westbound approach operates at LOS B under the same conditions. No improvements are recommended at this intersection.

6th Avenue and South Facility Driveway

This intersection will operate at LOS A for both average and maximum day operation scenarios during both the AM and PM peak periods under 2035 forecasted conditions, assuming existing geometrics and traffic control are maintained. The yield-controlled westbound approach operates at LOS B under the same conditions. No improvements are recommended at this intersection.

6th Avenue and Airport Drive

This intersection will operate at LOS A for both average and maximum day operation scenarios during both the AM and PM peak periods under 2035 forecasted conditions, assuming existing geometrics and traffic control are maintained. The stop-controlled westbound approach operates at LOS B under the same conditions. No improvements are recommended at this intersection.

2nd Avenue and Airport Drive

This intersection will operate at LOS A and F during the AM and PM peak periods, respectively, for both average and maximum day operation scenarios under 2035 forecasted conditions, assuming existing geometrics and traffic control are maintained. The stop-controlled eastbound approach operates at LOS C during the AM peak period and F during the PM peak period under both scenarios. The City should consider installation of a traffic signal at this intersection once signal warrants have been met. Facility traffic is expected to account for less than three percent of the total volume and less than one percent of the roadway capacity for both Airport Drive and 2nd Avenue after trip rerouting, and does not cause the intersection to operate at unacceptable levels of service.

Main Street and Airport Drive

This intersection will operate at LOS A and F during the AM and PM peak periods, respectively, for both average and maximum day operation scenarios under 2035 forecasted conditions, assuming existing geometrics and traffic control are maintained. The stop-controlled eastbound approach operates at LOS C during the AM peak period and F during the PM peak period under both scenarios. Traffic signal installation will become necessary at this intersection once signal warrants have been met. However, disposal facility traffic does not cause the intersection to operate at unacceptable levels of service, and no facility traffic will be allowed to access via this intersection during 2035 conditions due to trip rerouting required by the City.

5 Conclusions and Recommendations

Based upon the information gathered during this transportation study, the following conclusions are made concerning the impact of the proposed expansion of the Southwaste Disposal Dallas facility on the local transportation system serving the site.

- There are no known weight restrictions on the access roadways in the vicinity of the site other than the maximum legal weight limit of 80,000 pounds.
- There are no known improvements currently planned or under construction within the study area.
- Based on the existing 2015 intersection and roadway capacity analyses, all intersections and roadways included in the study currently operate at acceptable levels of service.
- Based on the intersection capacity analysis, the following stop-controlled approaches of unsignalized intersections will operate at unacceptable levels of service under 2035 forecasted conditions, with or without facility related traffic: 6th Avenue at Broad Street, Airport Drive at S 2nd Avenue, and Airport Drive at Main Street.
- Traffic signal installation will become necessary at the following intersections once signal warrants have been met: Broad Street and 6th Avenue/Billingslea Drive, and Airport Drive and Main Street. However, disposal facility traffic does not cause these intersections to operate at unacceptable levels of service, and no facility traffic will be allowed to access via these intersections during 2035 conditions due to trip rerouting required by the City.

- The City should consider installation of a traffic signal at the intersection of Airport Drive and 2nd Avenue once signal warrants have been met. Facility traffic is expected to account for less than three percent of the total volume and less than one percent of the roadway capacity for both Airport Drive and 2nd Avenue after trip rerouting, and does not cause the intersection to operate at unacceptable levels of service.
- Based on the intersection capacity analysis, the signal-controlled intersection of Main Street and Broad Street will operate at unacceptable levels of service under 2035 forecasted conditions. No site traffic is projected to access the facility via this intersection. Therefore, no improvements are recommended at this intersection in order to accommodate facility expansion.
- Based on the information presented previously, there are no existing or future restrictions on the main access roadways within one mile of the site that would preclude safe and efficient operations for the Southwaste Disposal Dallas facility.
- Based on roadway capacity analysis, all main access roadways within one mile of the site will operate at acceptable levels of service.
- As detailed in Tables II.C-18 through II.C-19 and Tables II.C-21 through II.C-22, 2015 existing site traffic accounts for less than one (1) percent of the overall roadway capacity on each of the study area roadways during the observed peak hour for each.
- As detailed in Tables II.C-26 through II.C-29, 2035 forecasted site traffic accounts for less than one (1) percent of the overall roadway capacity on each of the study area roadways during the observed peak hour for each.

6 References

1. Texas Department of Transportation

   2015 TxDOT Statewide Planning Map, Mansfield, Texas

2. Texas State Data Center

   2014 Population Projections, Tarrant County, Texas

3. City of Mansfield

   2010 City of Mansfield Master Thoroughfare Plan, Mansfield, Texas

4. North Central Texas Council of Governments

   2015 NCTCOG Historical Traffic Counts, Mansfield, Texas

5. American Association of State Highway and Transportation Officials

   2011 A Policy on Geometric Design of Highways and Streets, Sixth Edition, Washington, D.C.

6. Transportation Research Board

   2010 Highway Capacity Manual, Washington, D.C.

7. University of Florida

   2015 HCS 2010 Highway Capacity Software, v6.65, McTrans Center, Gainesville, Florida.

8. Trafficware Ltd

   2014 Synchro 9, Sugar Land, Texas

7 Appendix

Page

1. TxDOT-Fort Worth Coordination Letter II.C-42
2. Tarrant County Coordination Letter II.C-45
3. Mansfield I.S.D. Coordination Letter II.C-48
4. Johnson County Coordination Letter II.C-49
5. City of Mansfield Coordination Letter II.C-52
6. City of Mansfield Formal Response II.C-55
7. Site Traffic Distribution Worksheets II.C-59
8. Synchro Analysis Worksheets II.C-79
9. HCS Analysis Worksheets II.C-143

August 24, 2015

Mr. Brian Barth, P.E.
District Engineer
TxDOT Fort Worth District
2501 SW. Loop 820
Fort Worth, Texas 76133

Subject: Southwaste Disposal Dallas, Mansfield, Texas

Dear Mr. Barth:

Biggs Matthews Environmental, Inc. is preparing a permit application for the proposed expansion of the Southwaste Disposal facility located in Mansfield, Texas. The purpose of this letter is to document coordination with TxDOT consistent with the requirements of the municipal solid waste regulations, 30 Texas Administrative Code Chapter 330 (30 TAC §330.61(l) (4)). Additionally we are requesting information regarding any traffic or location restrictions or proposed roadway improvements in the vicinity of the site.

The site entrance is located on 525 S 6th Avenue, approximately 2,300 feet south of W Broad Street. The primary access route to the Southwaste Disposal facility is S 6th Avenue. Enclosed Figure 1 shows the location of the site prepared from Texas Department of Transportation maps.

Listed below are specific issues that we would like TxDOT to confirm or address in written form:

- Traffic volume projections: Please provide an annual traffic volume growth rate for Business 287 (Main Street) in the vicinity of the site. This information will be used to compare the traffic anticipated to be generated by the Southwaste Disposal with the TxDOT traffic projections.
- Please provide the capacity determined by TxDOT for Business 287 (Main Street) in the vicinity of the site.
- Please provide any information regarding planned maintenance or construction improvements in the vicinity of the site, specifically on Business 287 (Main Street). Also please include any existing information regarding traffic volume counts and studies performed in the vicinity of the site.

- Please provide information on any load-zoned roadways in the vicinity of the site that have gross vehicle weight limits less than 80,000 pounds.
- Please provide existing cross-section data showing travel lane and shoulder widths on Business 287 (Main Street) in the vicinity of the site.
- Please provide any special design criteria that may be required for the operation of the facility.

We appreciate your review of this information and your written response. Please feel free to contact Irene (Lu) Lin or me if you have any questions.

Sincerely,

Timothy Grimes, P.E., PTOE
Project Engineer

Enclosure

IL

cc: Felipe A. Wescoup, P.E., BME
Mike McInturff, P.E., PTOE, HDR

504 Lavaca Street, #1175
Austin, Texas 78701
512-904-3700
Texas Registered Engineering Firm F-754

FIGURE 1

SITE LOCATION MAP

August 24, 2015

Mr. William Riley, P.E.
Director
Transportation Services Department
Tarrant County, Texas
100 East Weatherford Street
Fort Worth, Texas 76196

Subject: Southwaste Disposal Dallas, Mansfield, Texas

Dear Mr. Riley:

Biggs Matthews Environmental, Inc. is preparing a permit application for the proposed expansion of the Southwaste Disposal facility located in Mansfield, Texas. The purpose of this letter is to document coordination with Tarrant County consistent with the requirements of the municipal solid waste regulations, 30 Texas Administrative Code Chapter 330 (30 TAC §330.61(i)(4)). Additionally we are requesting information regarding any traffic or location restrictions or proposed roadway improvements in the vicinity of the site.

The site entrance is located on 525 S 6th Avenue, approximately 2,300 feet south of W Broad Street. The primary access route to the Southwaste Disposal facility is S. 6th Avenue. Enclosed Figure 1 shows the location of the site prepared from Texas Department of Transportation maps.

Listed below are specific issues that we would like the County to confirm or address in written form:

- Traffic volume projections: Please provide an annual traffic volume growth rate for any roadways maintained by the County within the study area. This information will be used to compare the traffic anticipated to be generated by the Southwaste Disposal with the County's traffic projections.
- Please provide the capacity determined by the County for any roadways maintained by the County within the study area, if available.

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- Please provide any information regarding planned maintenance or construction improvements in the vicinity of the site. Also please include any existing information regarding traffic volume counts and studies performed in the vicinity of the site.
- Please provide information on any load-zoned roadways in the vicinity of the site that have gross vehicle weight limits less than 80,000 pounds.
- Please provide any special design criteria that may be required for the operation of the facility.

We appreciate your review of this information and your written response. Please feel free to contact Irene (Lu) Lin or me if you have any questions.

Sincerely,

Timothy Grimes, P.E., PTOE
Project Engineer

IL

Enclosure

cc: Felipe A. Wescoup, P.E., BME
Mike McInturff, P.E., PTOE, HDR

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Austin, Texas 78701
512-904-3700
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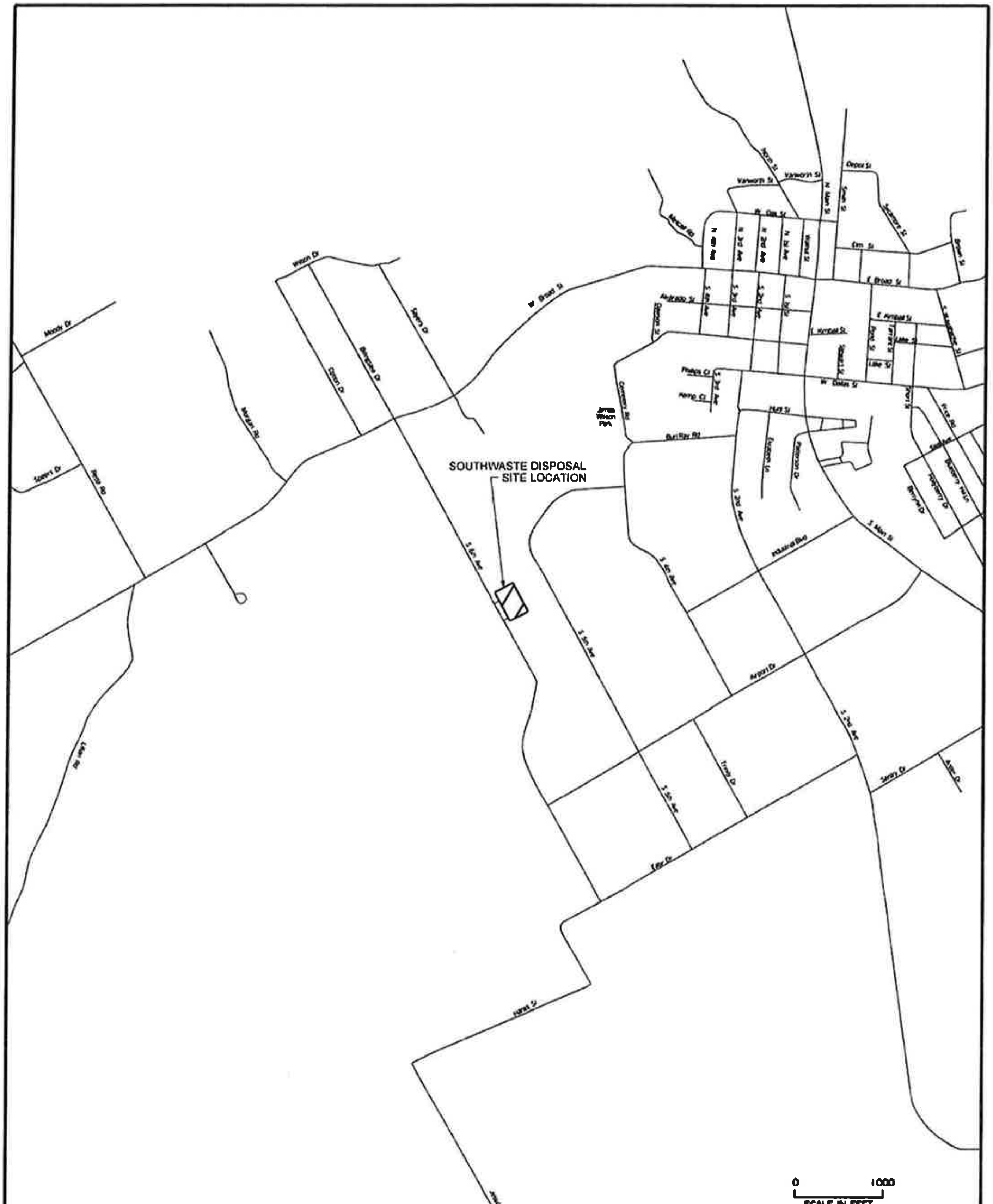

FIGURE 1

SITE LOCATION MAP

October 29, 2015 I II.C-47

HDR

August 24, 2015

Mr. Gerald Bunch
Transportation Manager
Mansfield ISD
605 East Broad Street
Mansfield, Texas 76063

Subject: Mansfield ISD School Bus Routes

Dear Mr. Bunch:

HDR Engineering, Inc. is in the process of completing a transportation study for a development project within the Mansfield Independent School District. It is required, as part of the study, to evaluate the impacts of site traffic on school bus routes in the area. Please provide any information you may have regarding bus routes on the following roadway segments within the district:

- W Broad Street, from Pond Street to Lillian Road
- S 6^{th} Avenue, from W Broad Street to Airport Drive
- Airport Drive, from S 6^{th} Avenue to S Main Street
- Main Street, from Oak Street to Sherman Drive
- S 2^{nd} Avenue, from Airport Drive to Sentry Drive

We appreciate your review of this information and your written response. Please feel free to contact Irene (Lu) Lin or me if you have any questions.

Sincerely,

Timothy Grimes, P.E., PTOE
Project Engineer

IL

cc: Felipe A. Wescoup, P.E., BME
Mike McInturff, P.E., PTOE, HDR

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Austin, Texas 78701
512-904-3700
Texas Registered Engineering Firm F-754

HDR

August 24, 2015

Mr. Thomas Disheroon
Public Works Director
Johnson County, Texas
1 N. Main Street
Cleburne, Texas 76033

Subject: Southwaste Disposal Dallas, Mansfield, Texas

Dear Mr. Disheroon:

Biggs Matthews Environmental, Inc. is preparing a permit application for the proposed expansion of the Southwaste Disposal Dallas facility located in Mansfield, Texas. The purpose of this letter is to document coordination with Johnson County consistent with the requirements of the municipal solid waste regulations, 30 Texas Administrative Code Chapter 330 (30 TAC §330.61(i)(4)). Additionally we are requesting information regarding any traffic or location restrictions or proposed roadway improvements in the vicinity of the site.

The site entrance is located at 525 S 6th Avenue, approximately 2,300 feet south of W Broad Street. The primary access route to the Southwaste Disposal facility is S 6th Avenue. Enclosed Figure 1 shows the location of the site prepared from Texas Department of Transportation maps.

Listed below are specific issues that we would like the County to confirm or address in written form:

- Traffic volume projections: Please provide an annual traffic volume growth rate for any roadways maintained by the County within the study area. This information will be used to compare the traffic anticipated to be generated by the Southwaste Disposal with the County's traffic projections.
- Please provide the capacity determined by the County for any roadways maintained by the County within the study area, if available.
- Please provide any information regarding planned maintenance or construction improvements in the vicinity of the site. Also please include any existing information regarding traffic volume counts and studies performed in the vicinity of the site.

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- Please provide information on any load-zoned roadways in the vicinity of the site that have gross vehicle weight limits less than 80,000 pounds.
- Please provide any special design criteria that may be required for the operation of the facility.

We appreciate your review of this information and your written response. Please feel free to contact Irene (Lu) Lin or me if you have any questions.

Sincerely,

Timothy Grimes, P.E., PTOE
Project Engineer

IL

Enclosure

cc: Felipe A. Wescoup, P.E., BME
Mike McInturff, P.E., PTOE, HDR

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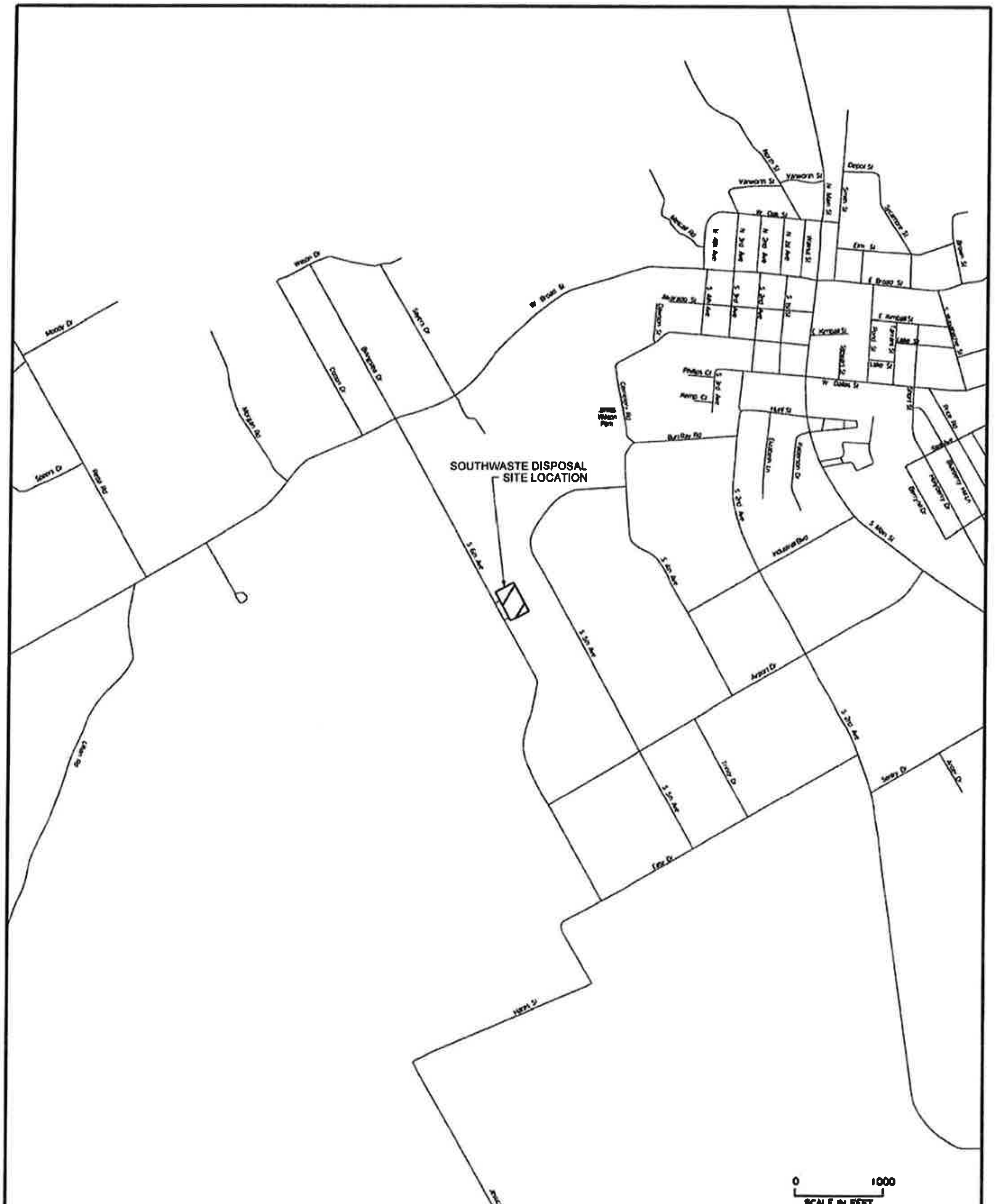

FIGURE 1

SITE LOCATION MAP

October 29, 2015 | II.C-51

August 24, 2015

Mr. Bart Vanamburgh, P.E.
City Engineer
City of Mansfield, Texas
1200 E. Broad St.
Mansfield, Texas 76063

Subject: Southwaste Disposal Dallas, Mansfield, Texas

Dear Mr. Vanamburgh:

Biggs Matthews Environmental, Inc. is preparing a permit application for the proposed expansion of the Southwaste Disposal Dallas facility located in Mansfield, Texas. The purpose of this letter is to document coordination with the City of Mansfield consistent with the requirements of the municipal solid waste regulations, 30 Texas Administrative Code Chapter 330 (30 TAC §330.61(i)(4)). Additionally we are requesting information regarding any traffic or location restrictions or proposed roadway improvements in the vicinity of the site.

The site entrance is located at 525 S 6th Avenue, approximately 2,300 feet south of W Broad Street. The primary access route to the Southwaste Disposal facility is S 6th Avenue. Enclosed Figure 1 shows the location of the site prepared from Texas Department of Transportation maps.

Listed below are specific issues that we would like the City to confirm or address in written form:

- Traffic volume projections: Please provide any traffic volume projections you may have for the following roadways in the vicinity of the site.
    1. Broad Street
    2. Main Street
    3. S 6th Avenue
    4. Airport Drive
    5. S 2nd Avenue
- Please provide the capacity determined by the City for the roadways listed above within the City limits, if available.
- Please provide any information you may have regarding planned maintenance or construction improvements in the vicinity of the site, specifically along the roadways listed

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above. Also please include any existing information regarding traffic volume counts and studies performed in the vicinity of the site, if available.

- Please provide information on any load-zoned roadways in the vicinity of the site that have gross vehicle weight limits less than 80,000 pounds.
- Please provide existing cross-section data showing travel lane and shoulder widths for the roadways listed above in the vicinity of the site.
- Please provide any special design criteria that may be required for the operation of the facility.

We appreciate your review of this information and your written response. Please feel free to contact Irene (Lu) Lin or me if you have any questions.

Sincerely,

Timothy Grimes, P.E., PTOE
Project Engineer

IL

cc: Felipe A. Wescoup, P.E., BME
Mike McInturff, P.E., PTOE, HDR

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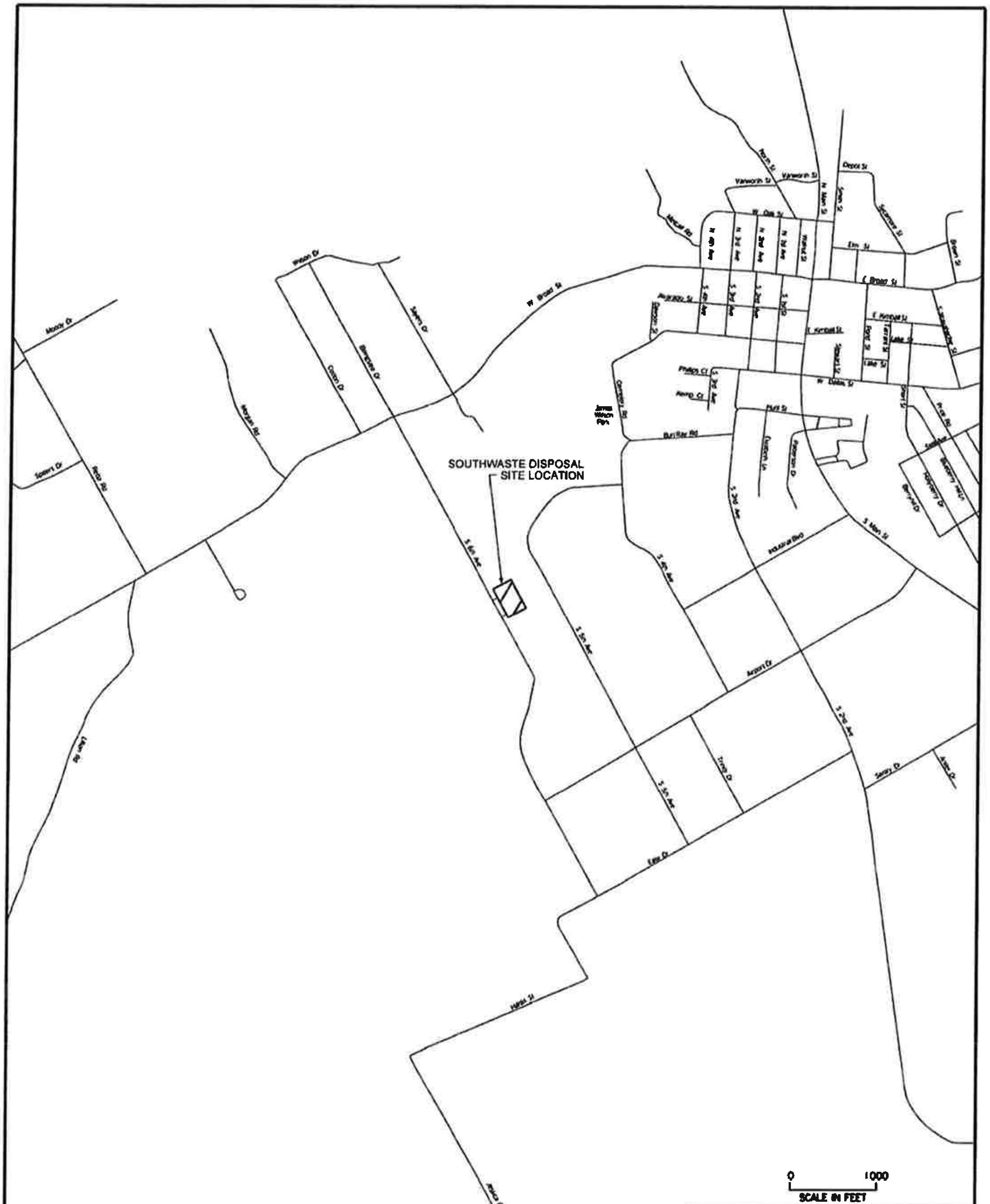

FIGURE 1

SITE LOCATION MAP

From: Bart VanAmburg[redacted]
Sent: Wednesday, September 09, 2015 4:44 PM
To: Grimes, Tim
Cc: [redacted] Felix Wong; Jeff Price
Subject: Southwaste Disposal

Timothy,

I received a letter from you dated August 24, 2015 requesting traffic data associated with an industry at 525 South 6th Ave.

I have attached our current truck route map. Be aware it is our council's intent to remove Main Street (between FM 157 and FM 917) as a truck route.

Also attached is a map of projected traffic volumes for the year 2035. This is from a recent effort to update our thoroughfare plan.

The following link is to the most recent traffic count data:
http://www.mansfield-texas.com/traffic-counts

We have no current improvements or significant maintenance planned for any of the referenced roadways in the vicinity of 525 South 6th.

Any information you may want relative to the existing business operation or proposed expansion would be from multiple departments. We hold DRC meetings every Wednesday morning from 9 to noon that include planning, engineering, fire, and building inspections. That would be the best venue to gather specific information.

Bart VanAmburgh, P.E.
City Engineer

City of Mansfield
1200 E Broad Street
Mansfield, TX 76063
817 276-4233

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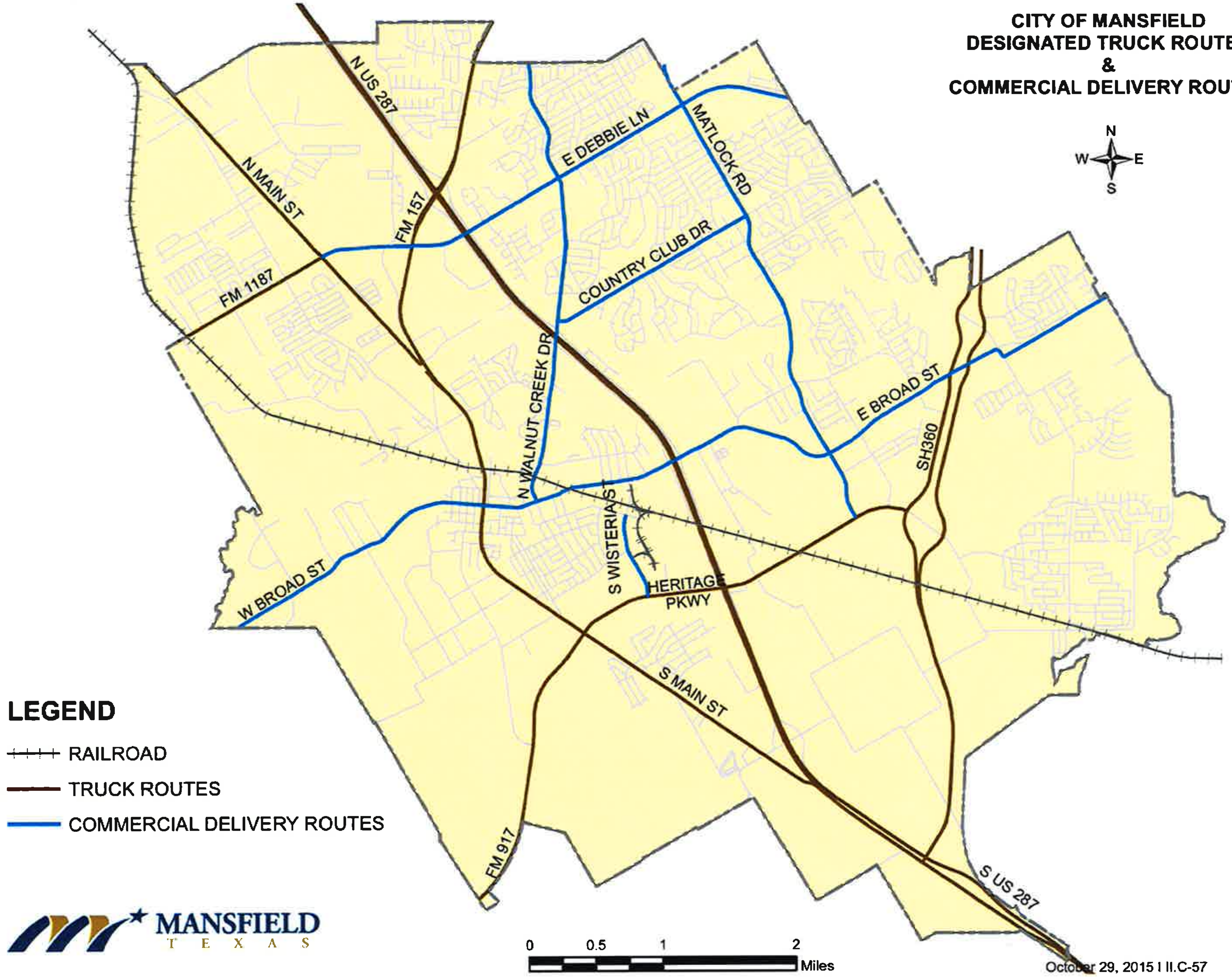
CITY OF MANSFIELD DESIGNATED TRUCK ROUTES & COMMERCIAL DELIVERY ROUTES



MANSFIELD TEXAS

October 29, 2015 I II.C-57

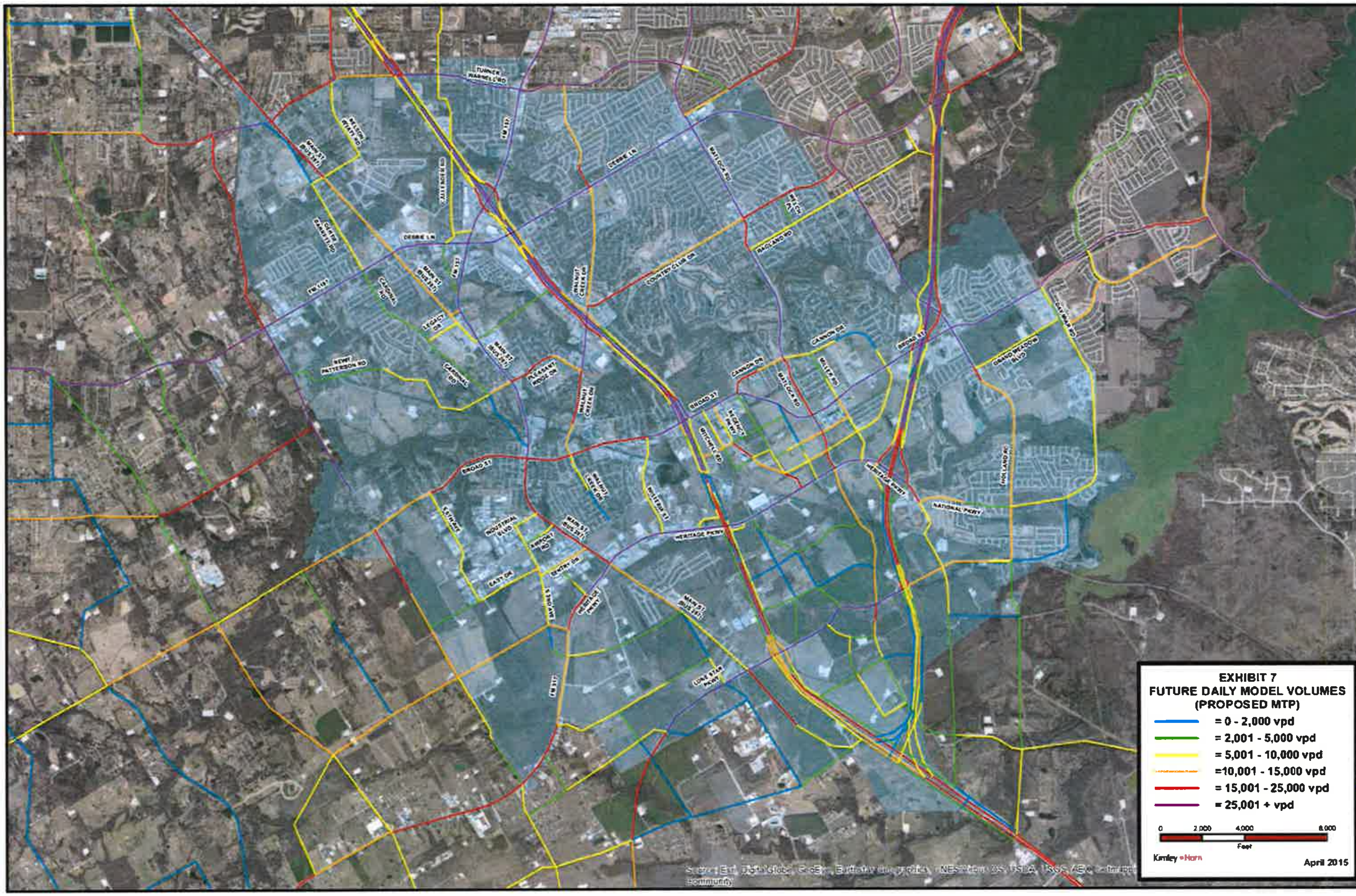
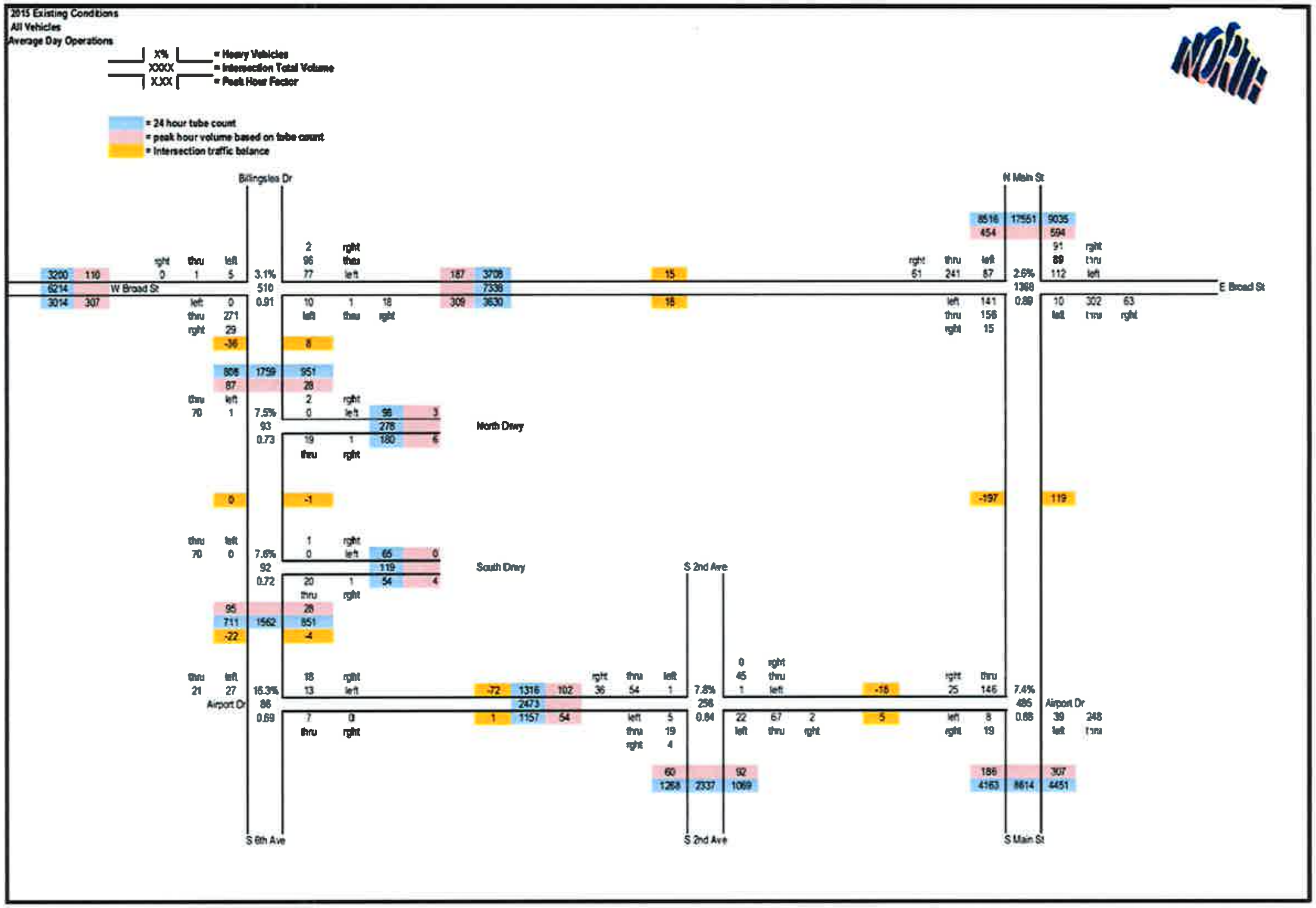


EXHIBIT 7
FUTURE DAILY MODEL VOLUMES
(PROPOSED MTP)
= 0 - 2,000 vpd
= 2,001 - 5,000 vpd
= 5,001 - 10,000 vpd
=10,001 - 15,000 vpd
= 15,001 - 25,000 vpd
= 25,001 + vpd
0
2,000
4,000
8,000
Feet
Kimley»Horn
April 2015

Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

AM Peak

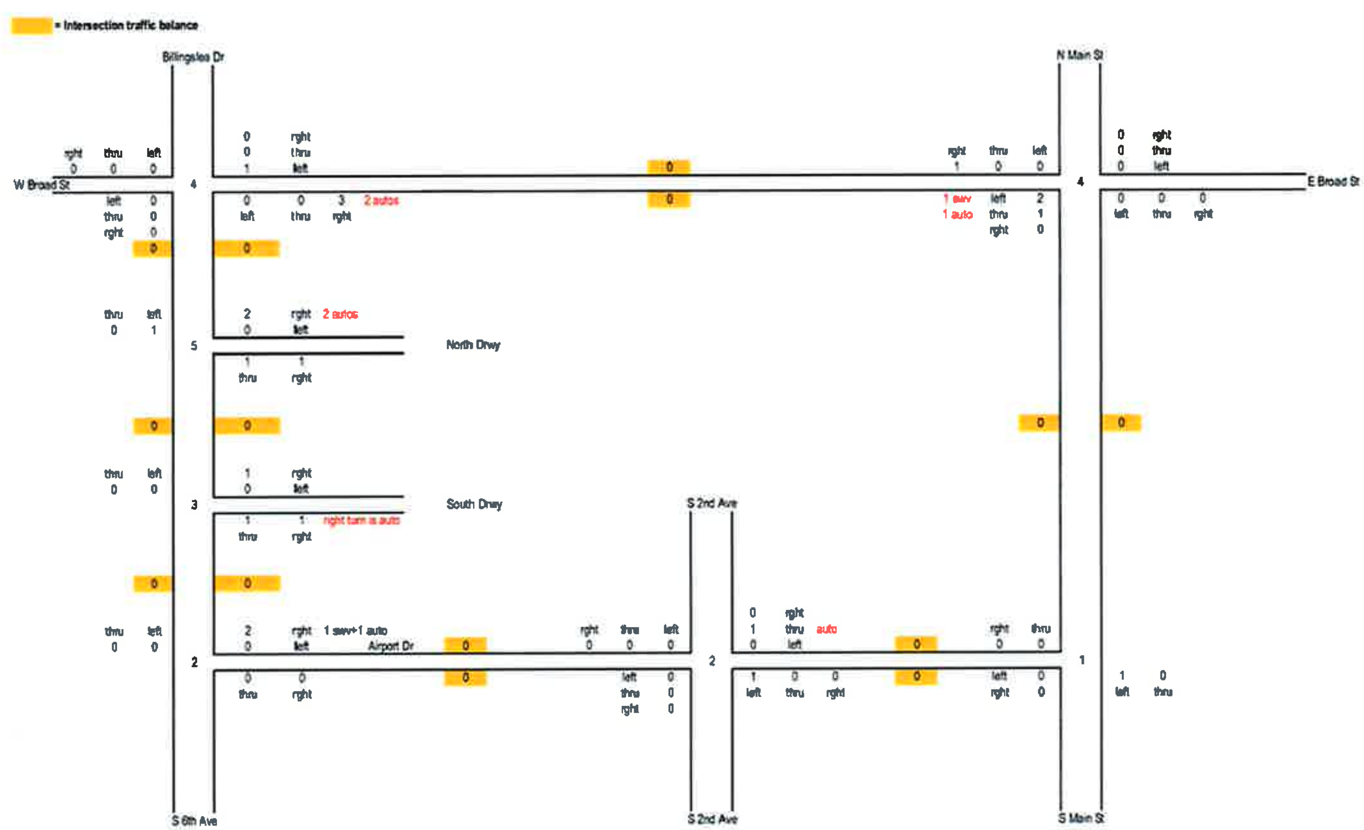


Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

AM Peak

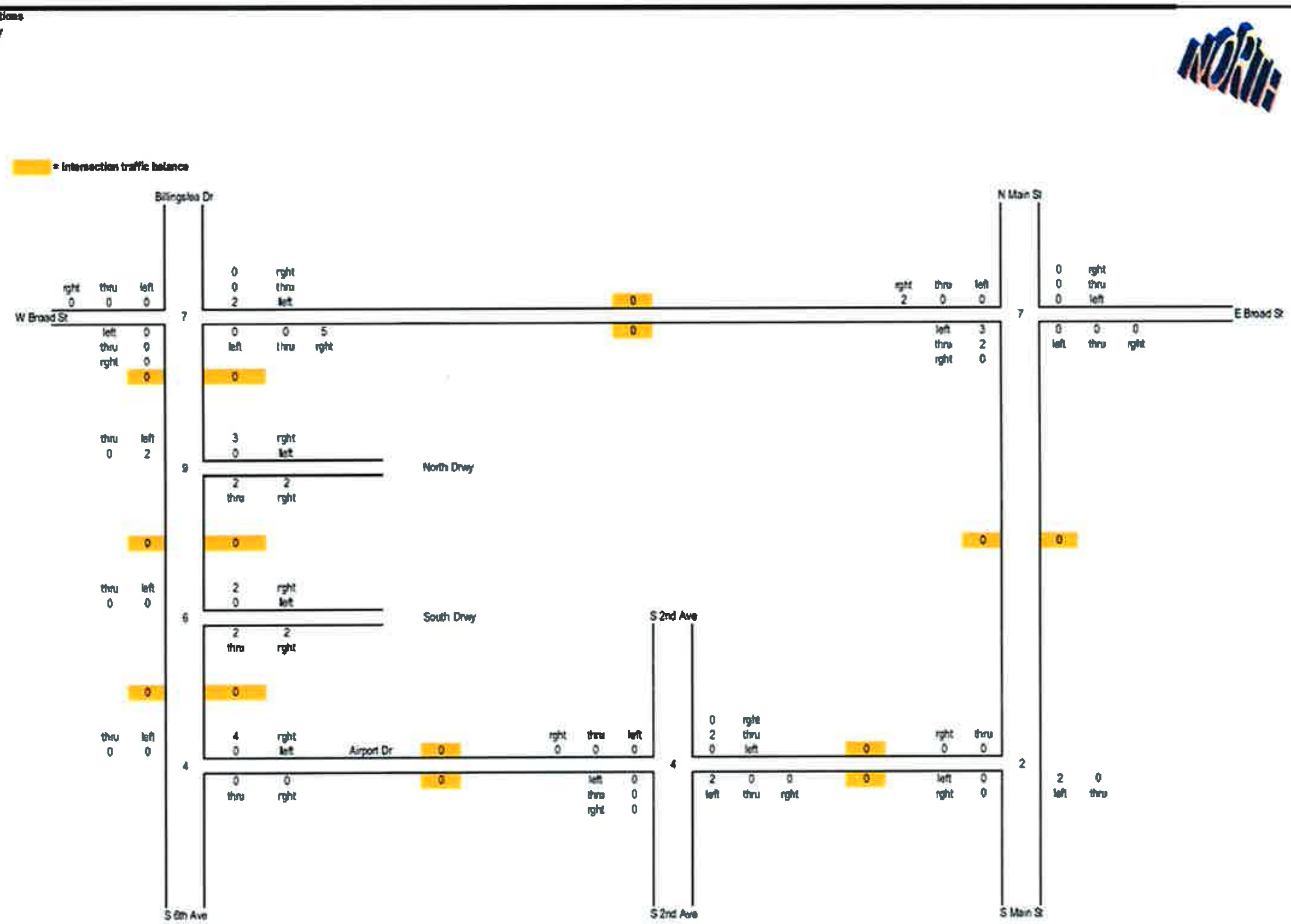
2015 Existing Conditions
Waste Vehicles Only
Average Day Operations



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

AM Peak

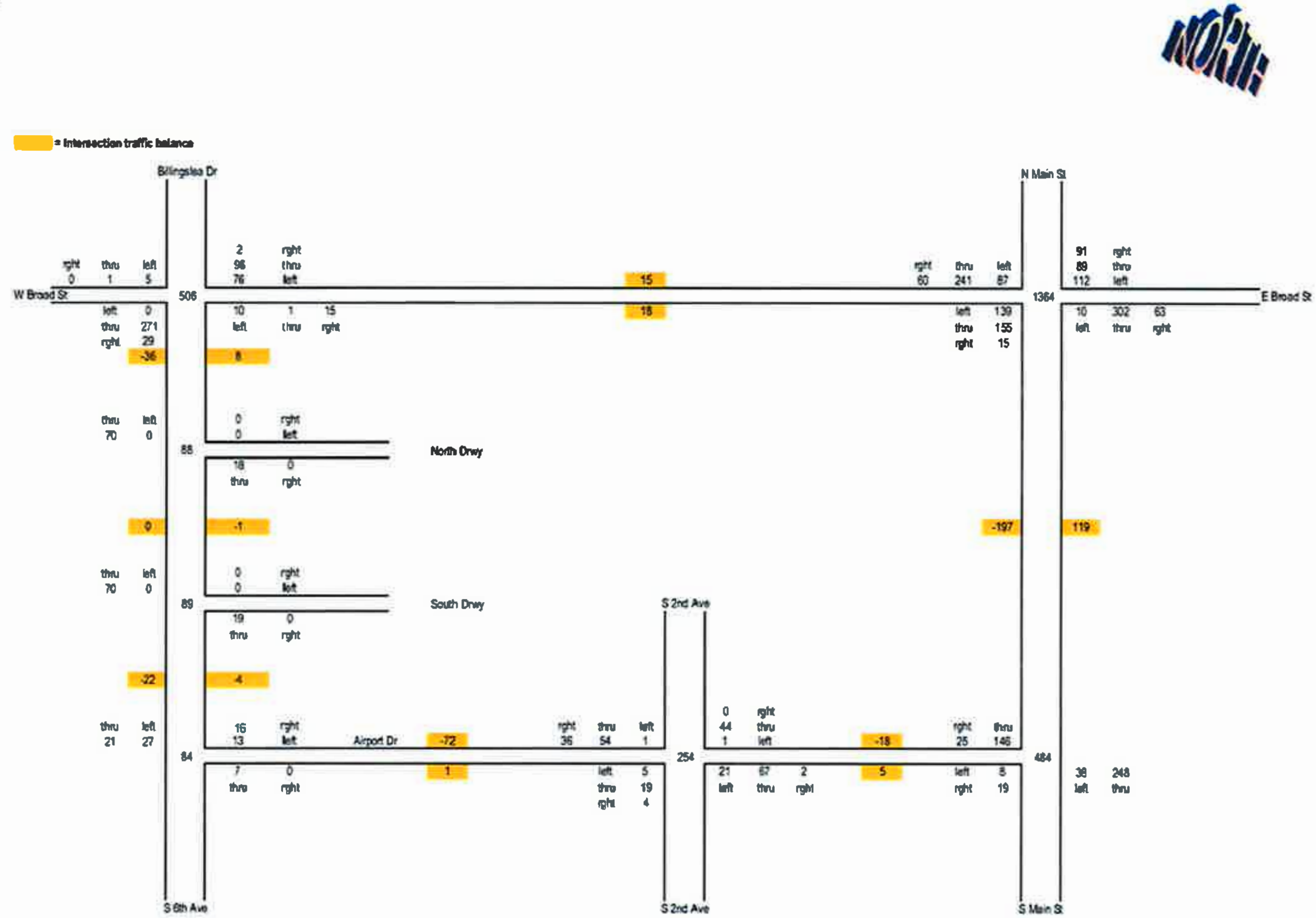
2015 Existing Conditions
Waste Vehicles Only
Max Day Operations



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

AM Peak

2015 Existing Conditions
Background Traffic

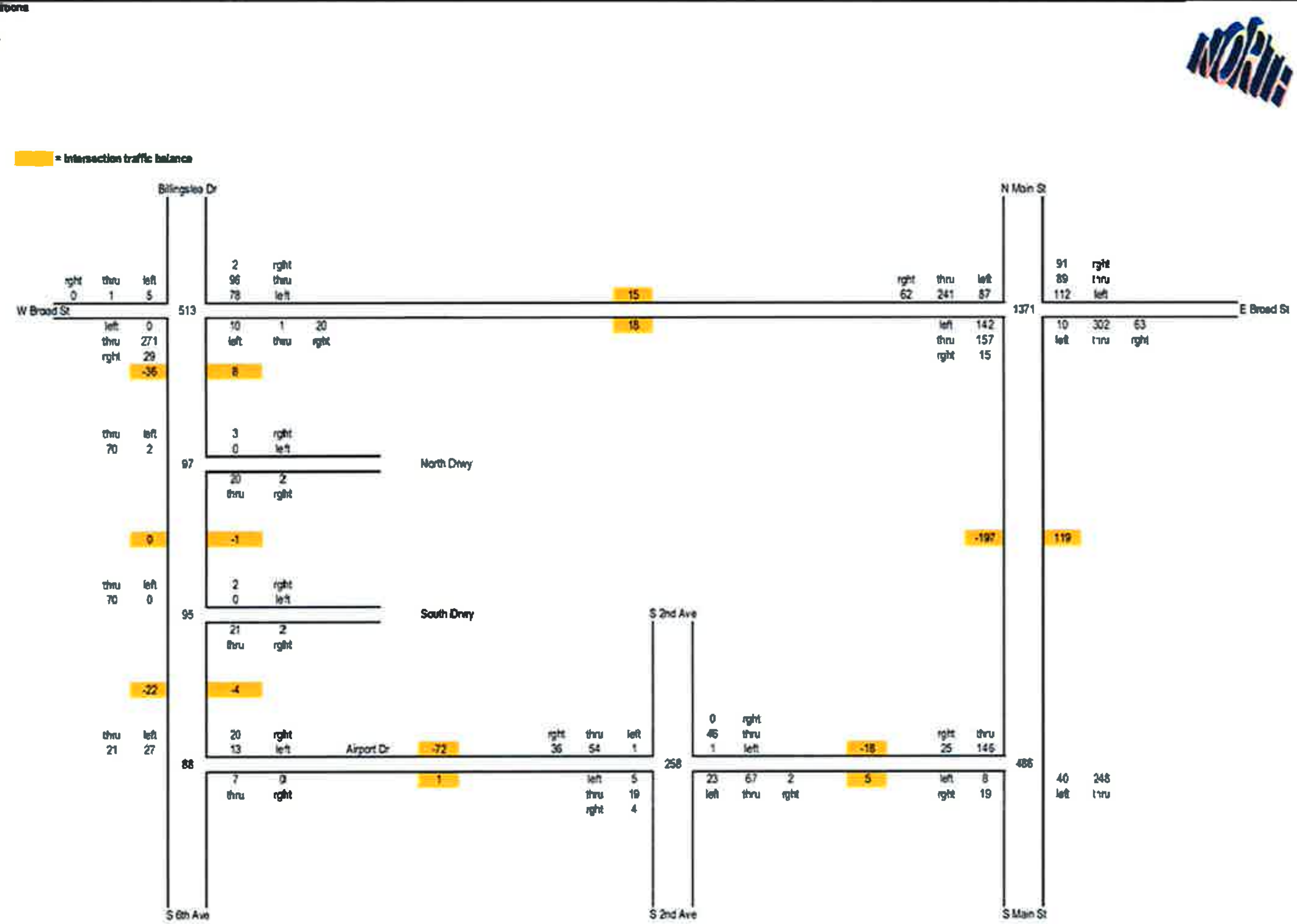


Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

AM Peak

2015 Existing Conditions
All Vehicles
Max Day Operations

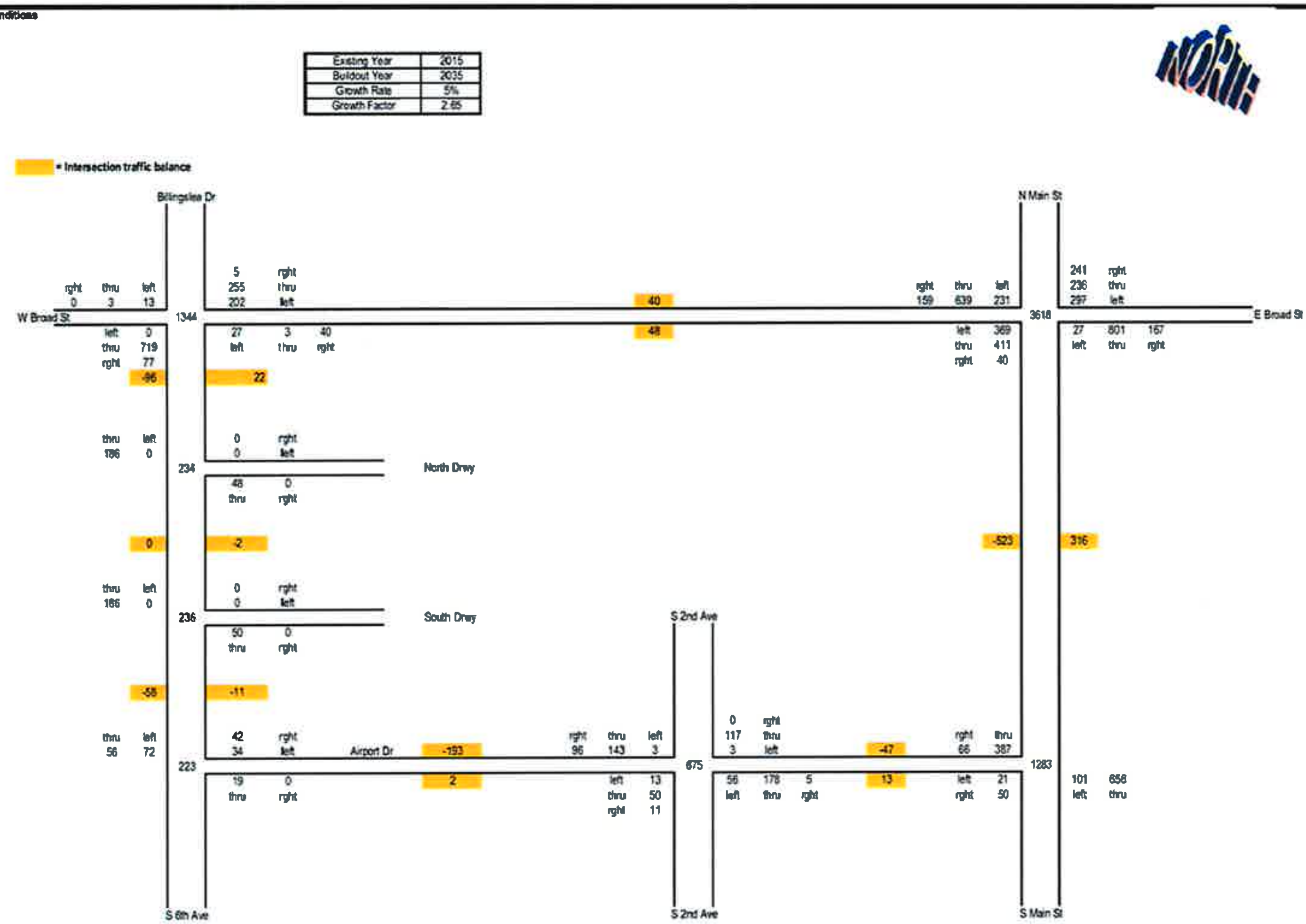


Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

AM Peak

2035 Forecasted Conditions
Background Traffic

Existing Year	2015
Buildout Year	2035
Growth Rate	5%
Growth Factor	2.65



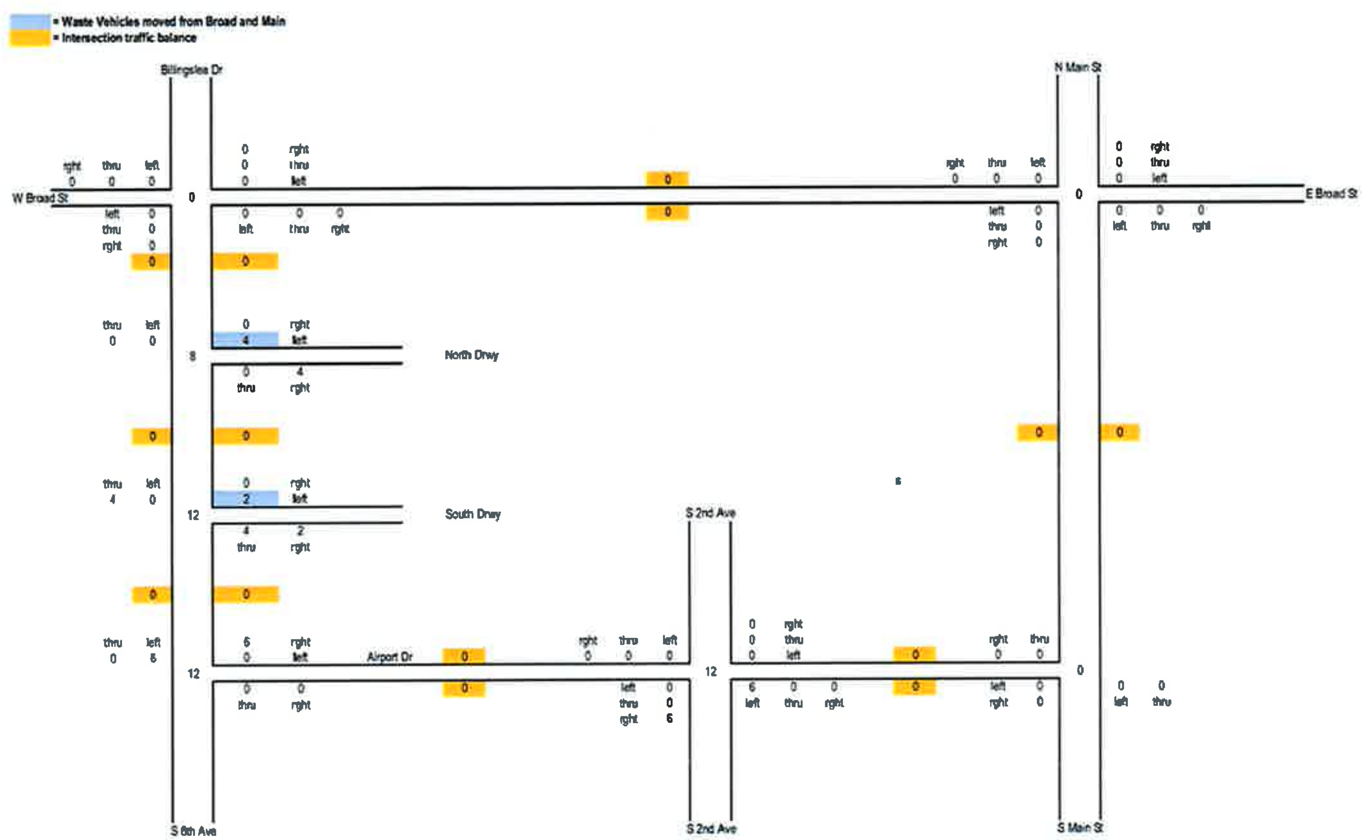
October 29,2015 I II.C-64

Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

AM Peak

2035 Forecasted Conditions
Waste Vehicles Only
Average Day Operations

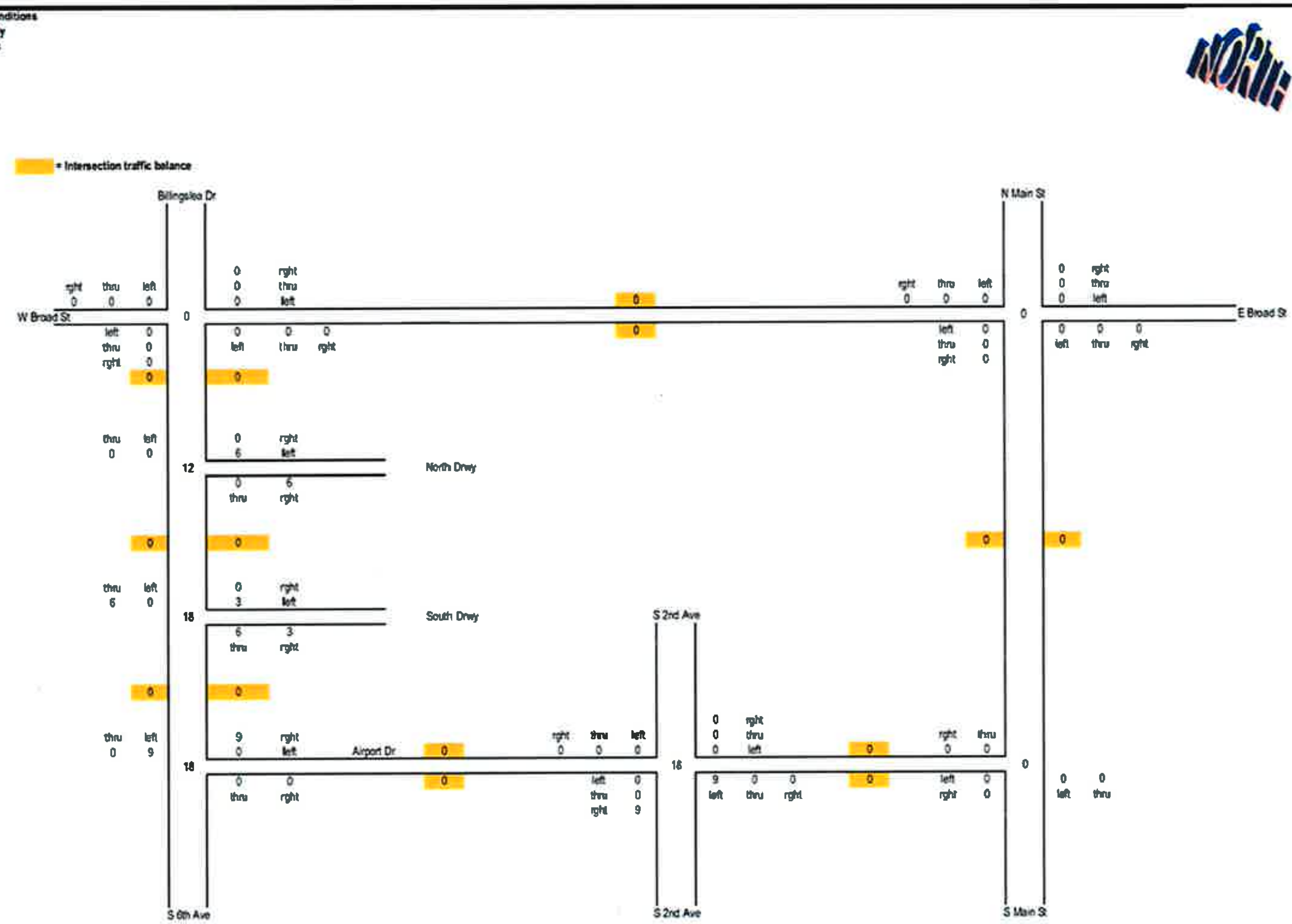
Existing Year	2015
Buildout Year	2035
Growth Rate	3%
Growth Factor	1.89



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

AM Peak

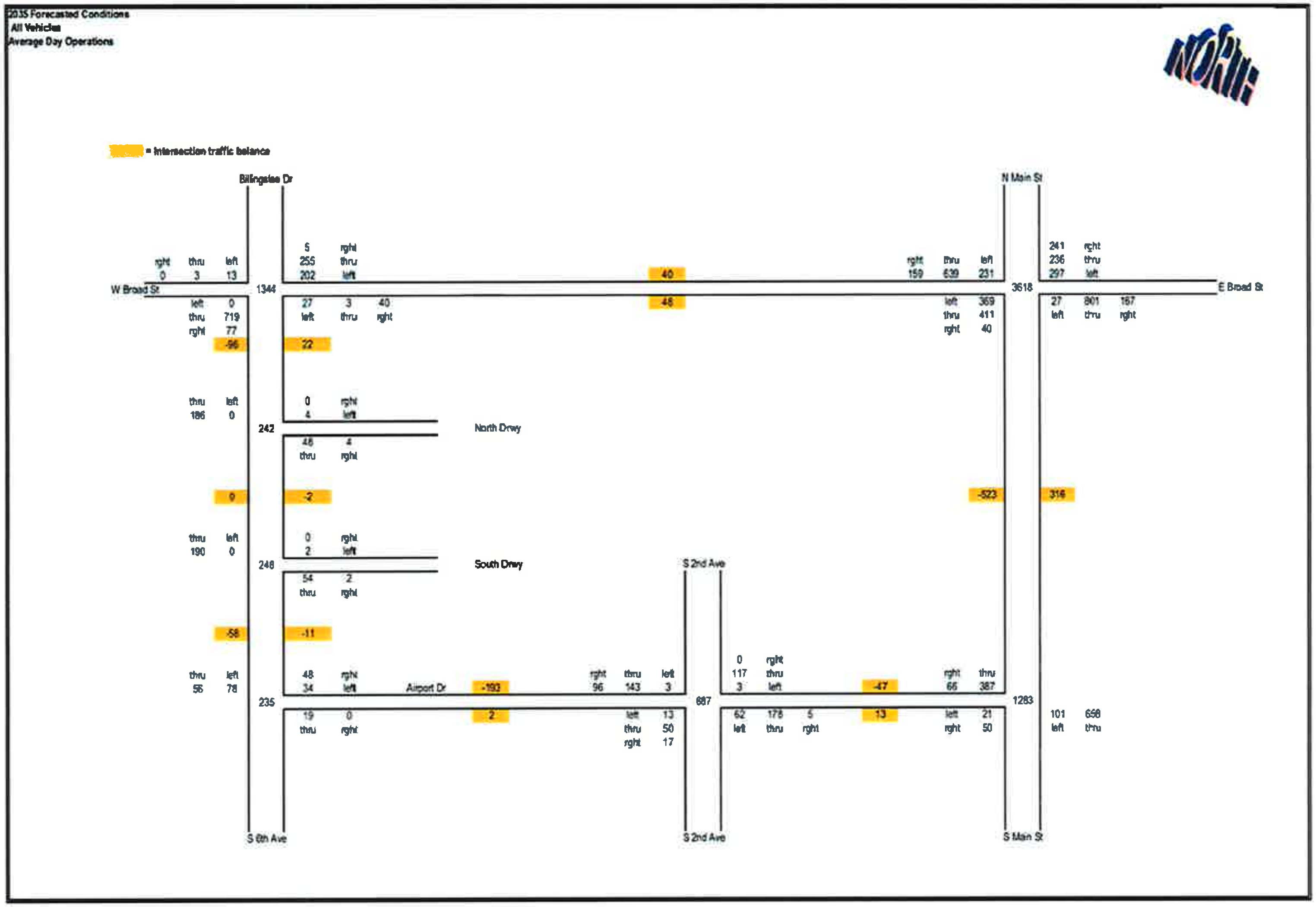
2035 Forecasted Conditions
Waste Vehicles Only
Max Day Operations



Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

AM Peak

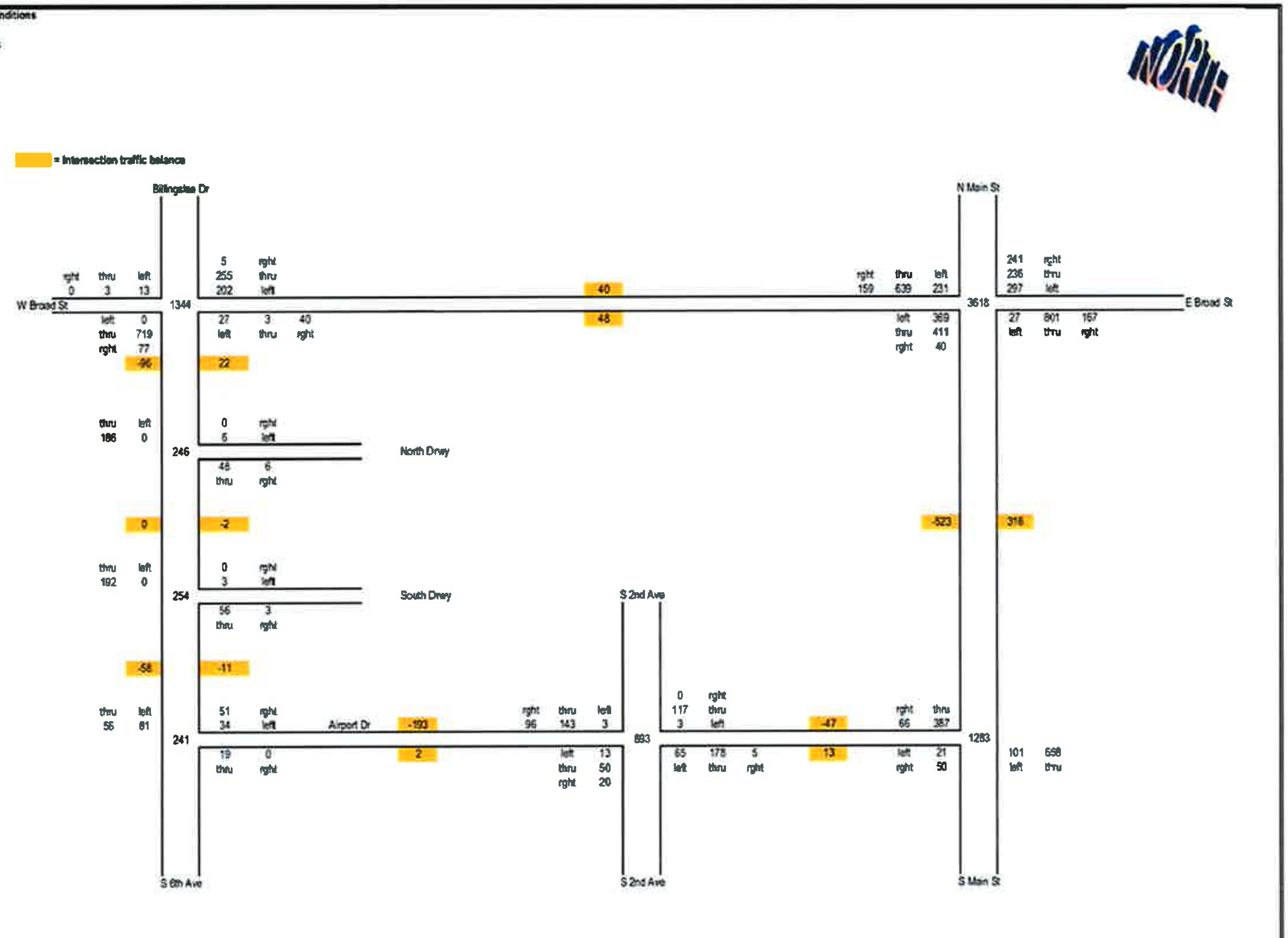


Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

AM Peak

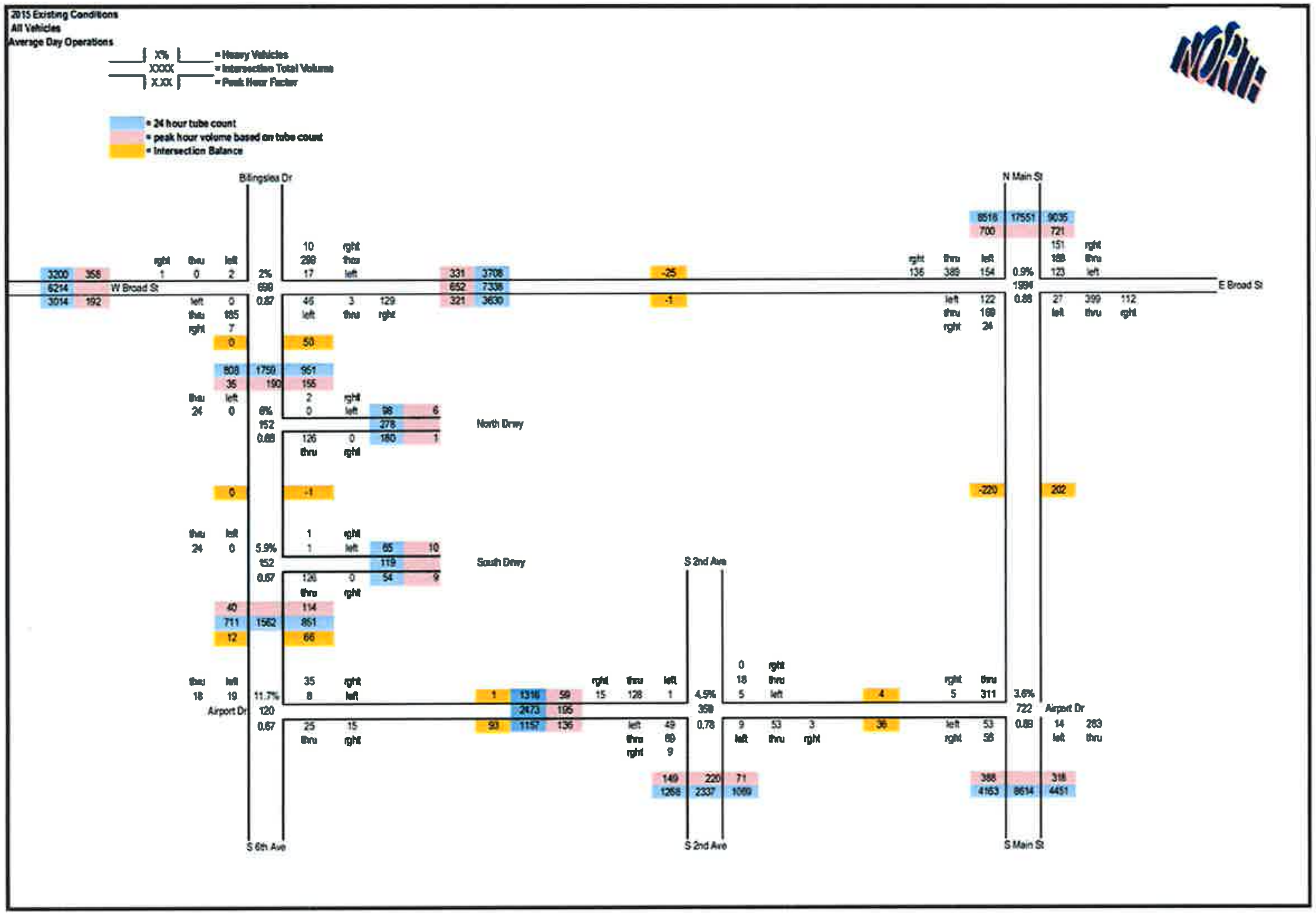
2035 Forecasted Conditions
All Vehicles
Max Day Operations



Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

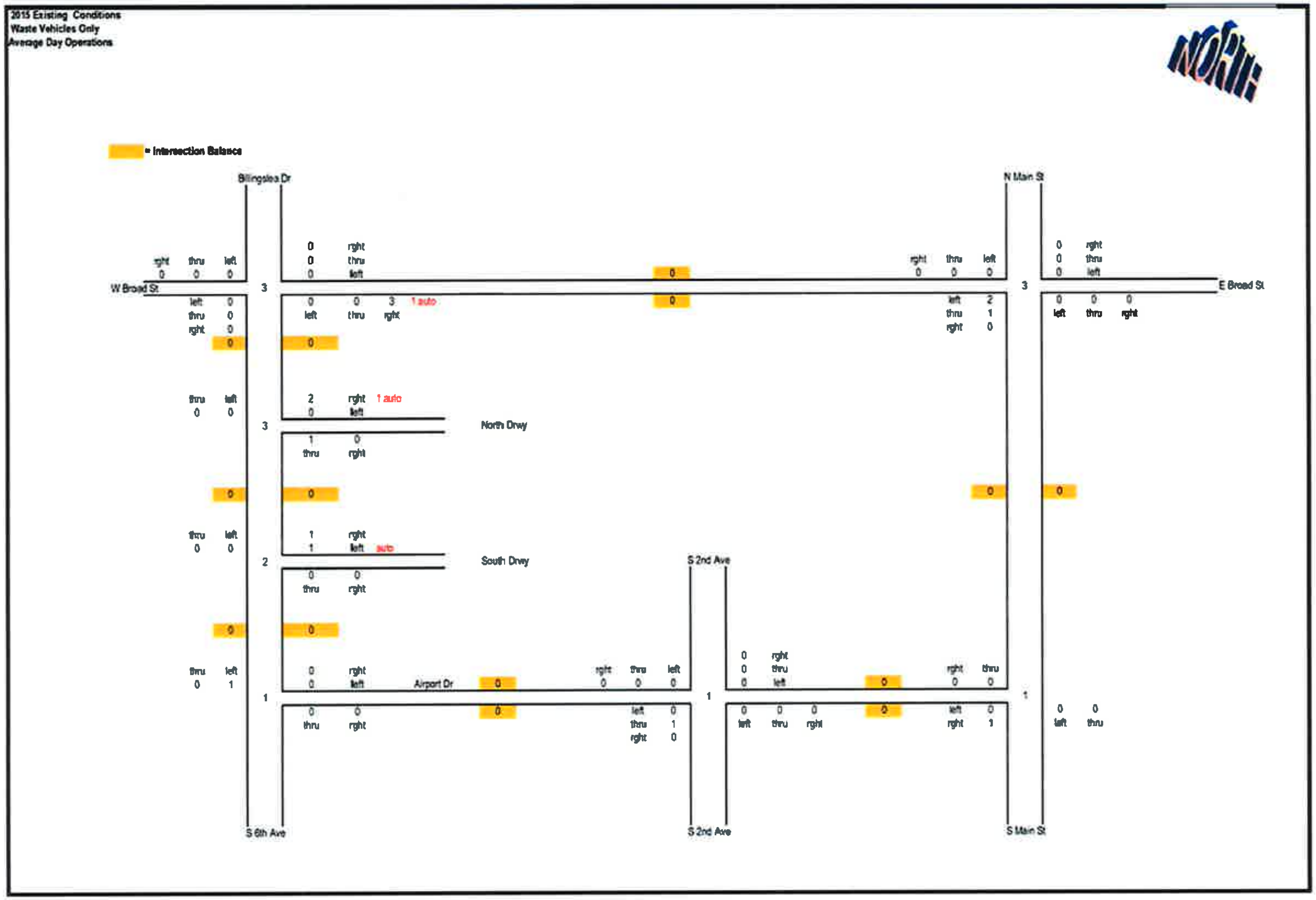
PM Peak



Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

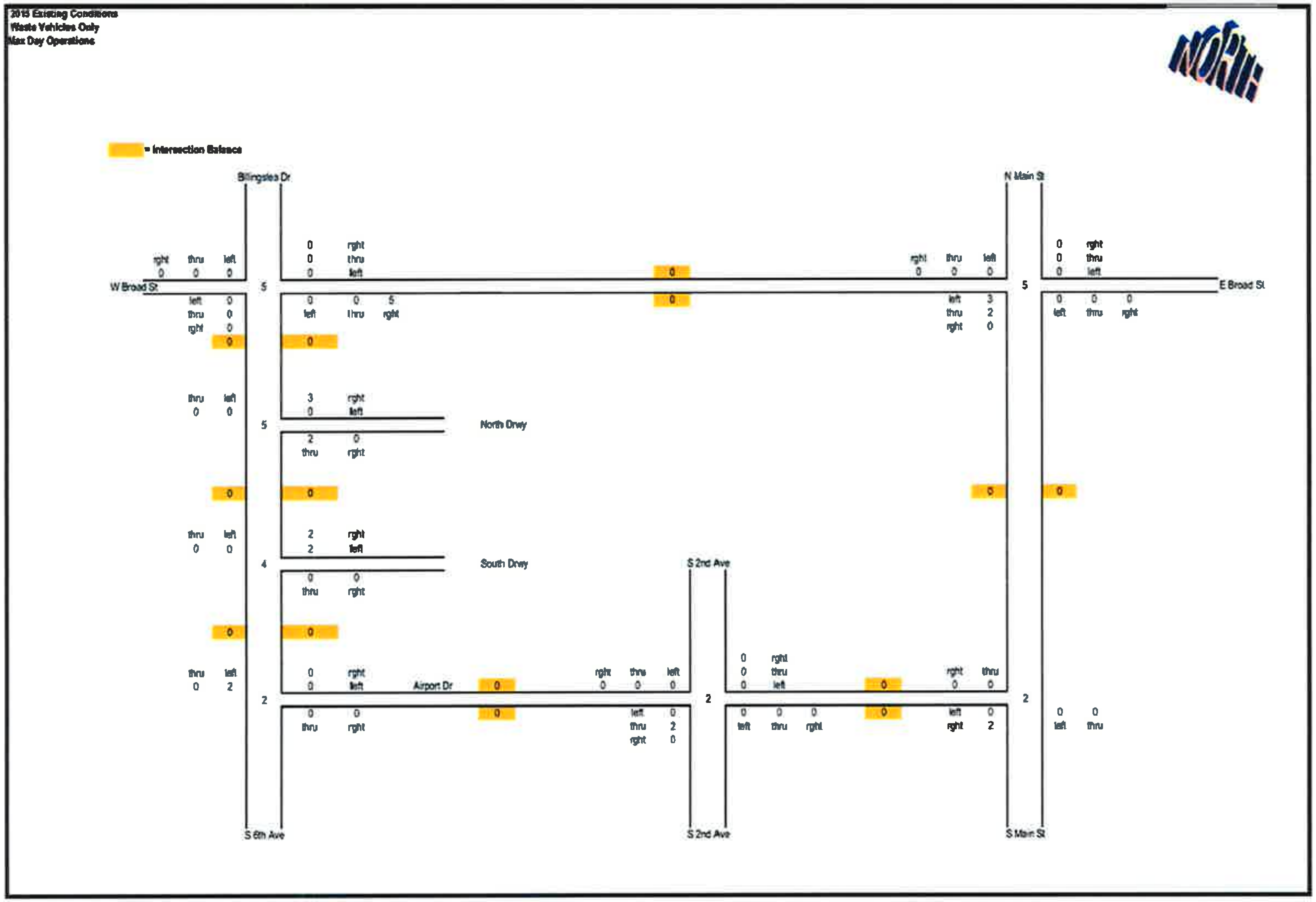
PM Peak



Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

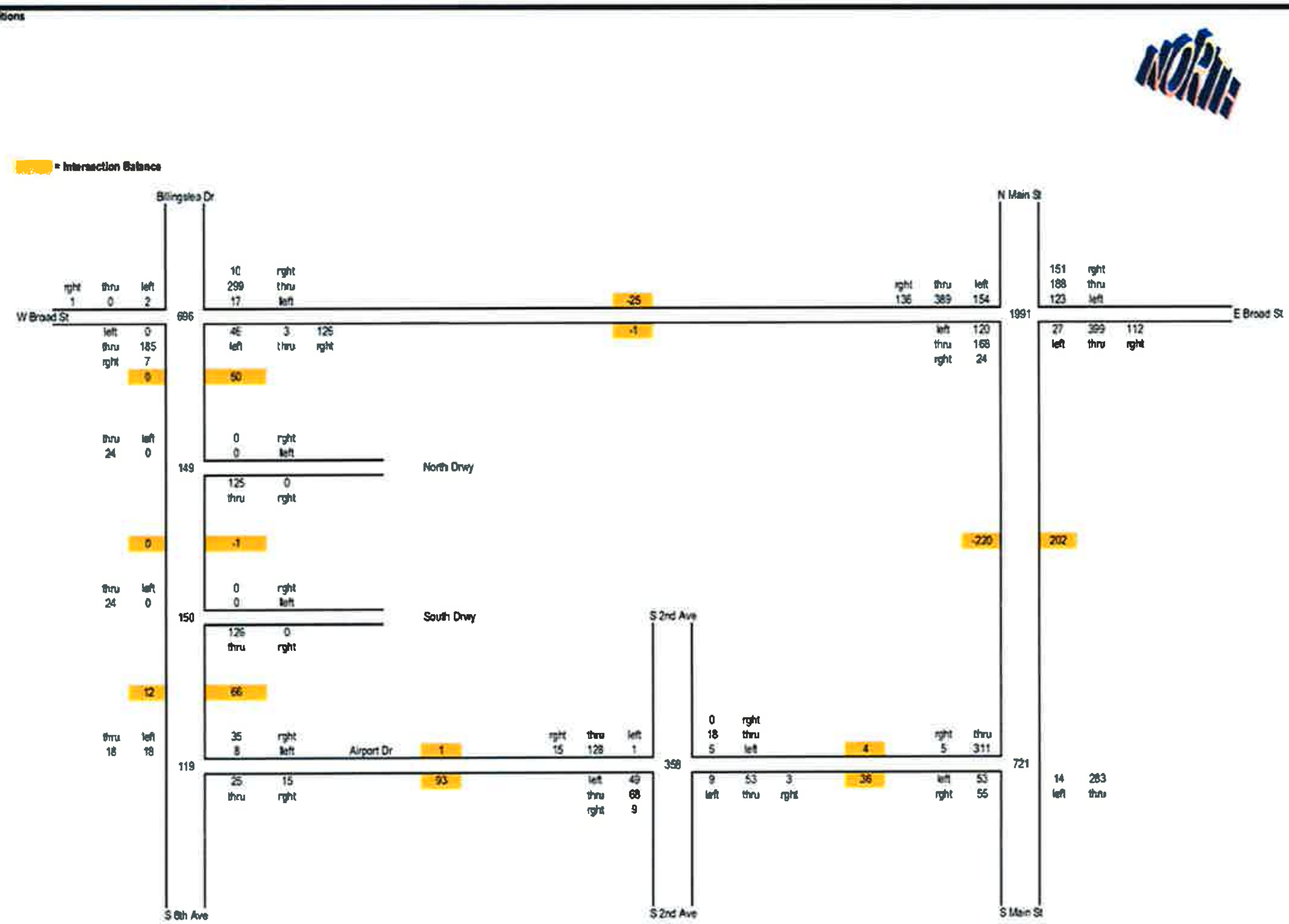
PM Peak



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

PM Peak

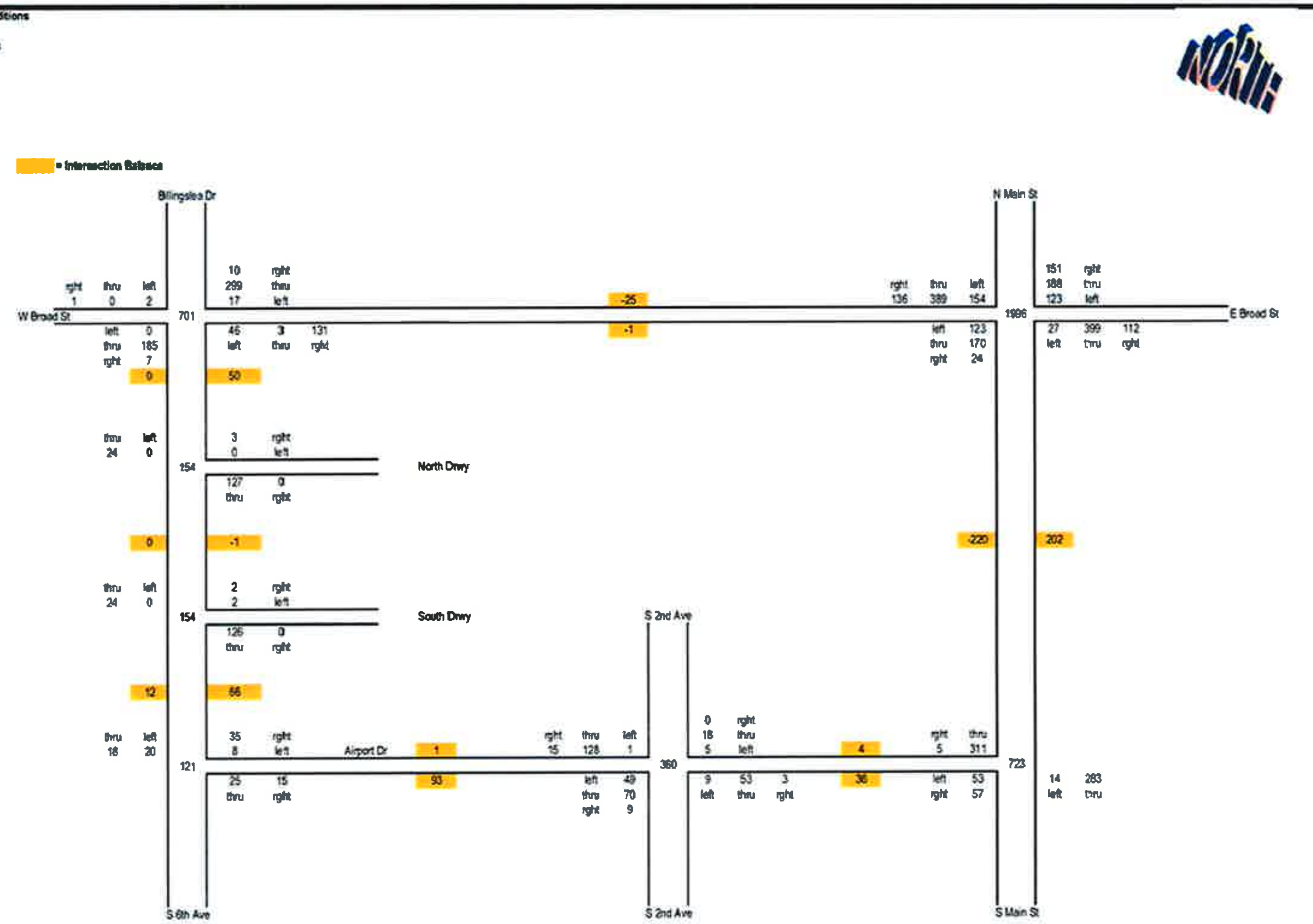
2015 Existing Conditions
Background Traffic



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

PM Peak

2015 Existing Conditions
All Vehicles
Max Day Operations



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

PM Peak

2035 Forecasted Conditions
Background Traffic

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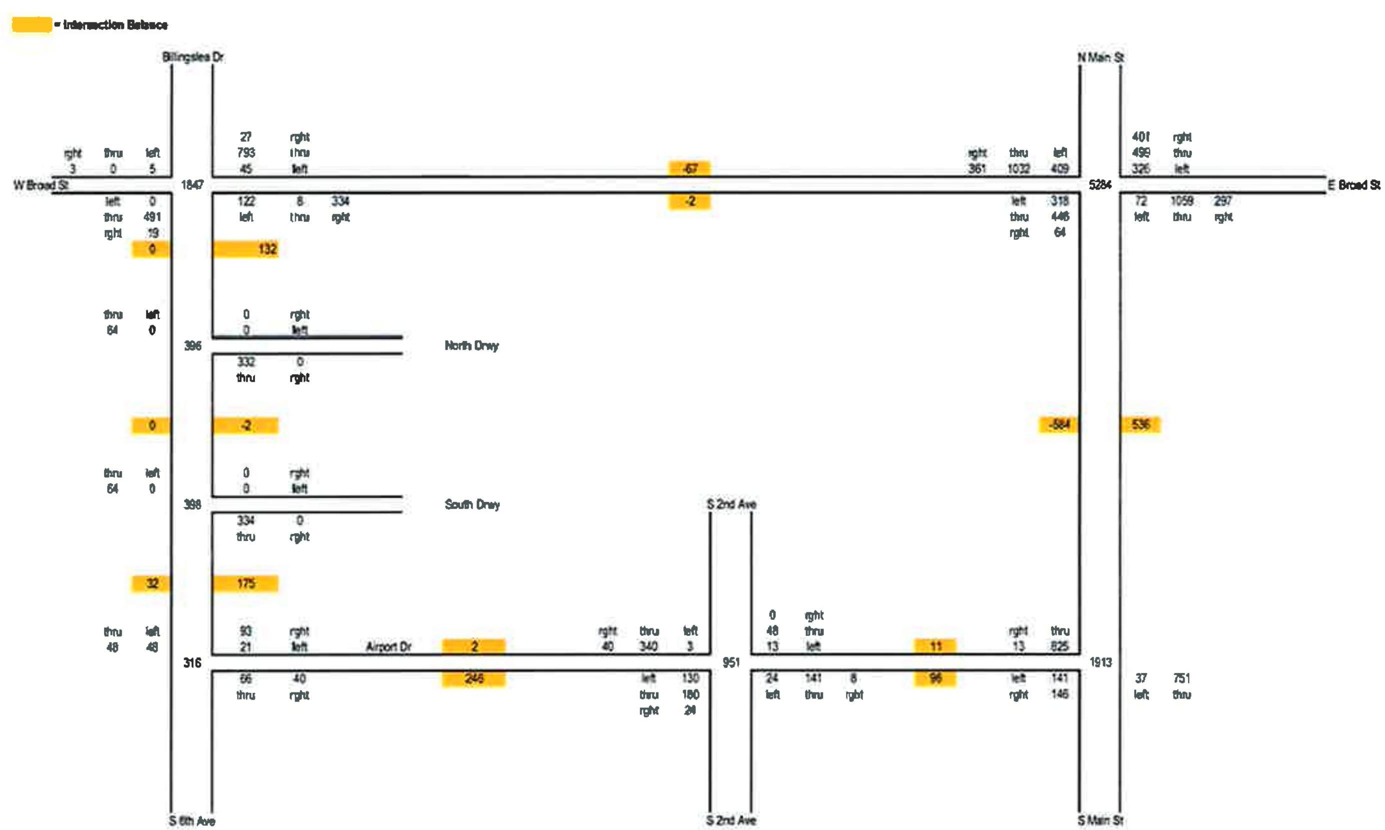

Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

PM Peak

2035 Forecasted Conditions
Waste Vehicles Only
Average Day Operations

Existing Year	2015
Buildout Year	2035
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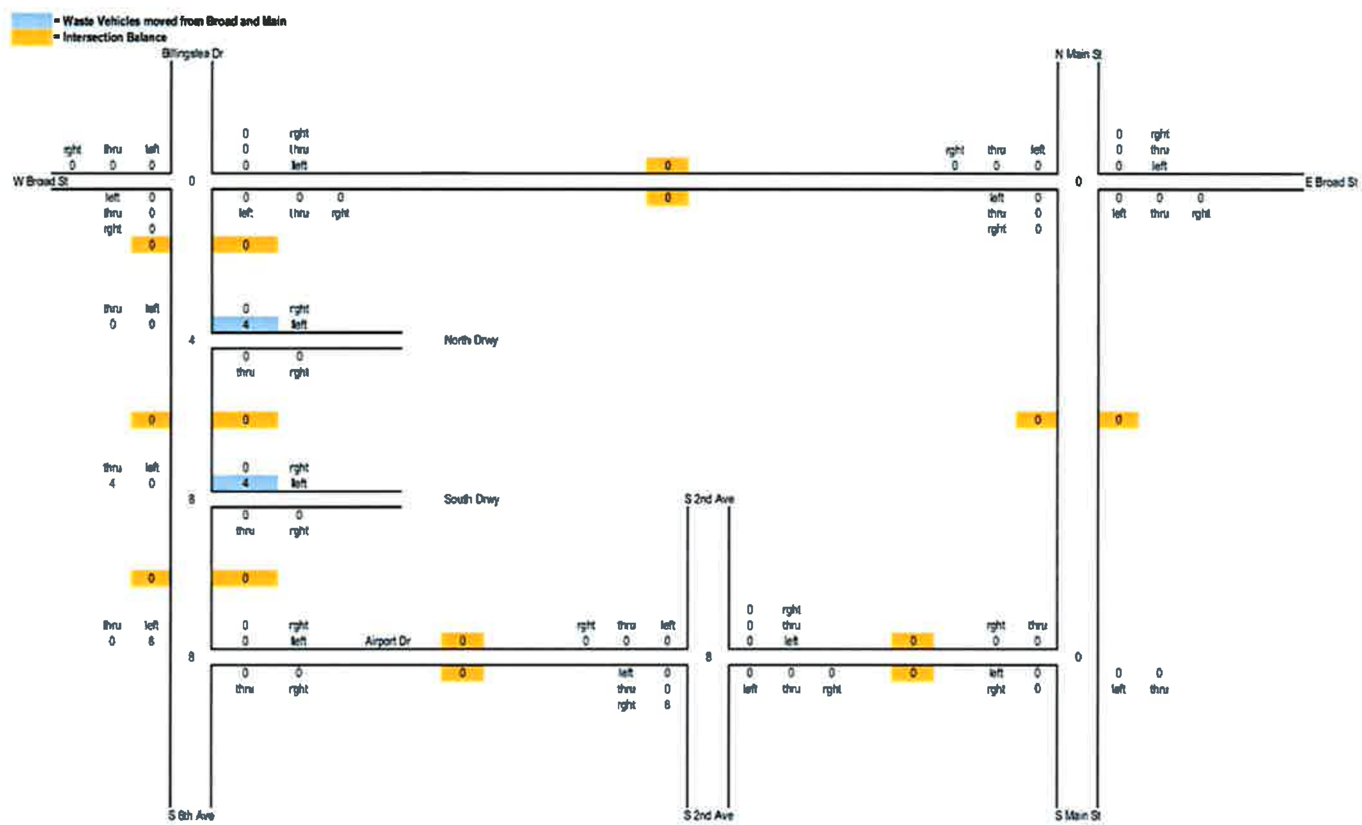
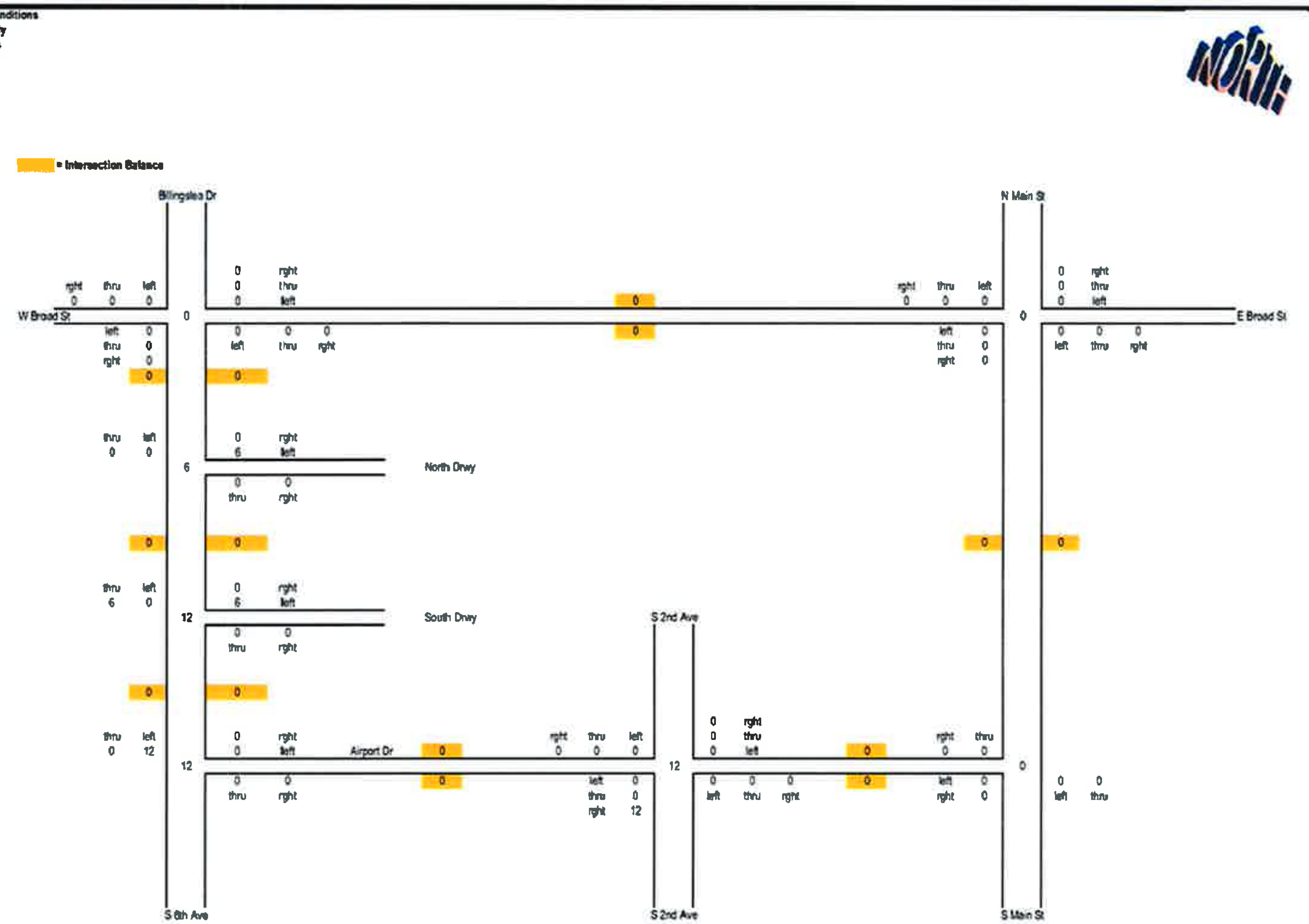


Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

PM Peak

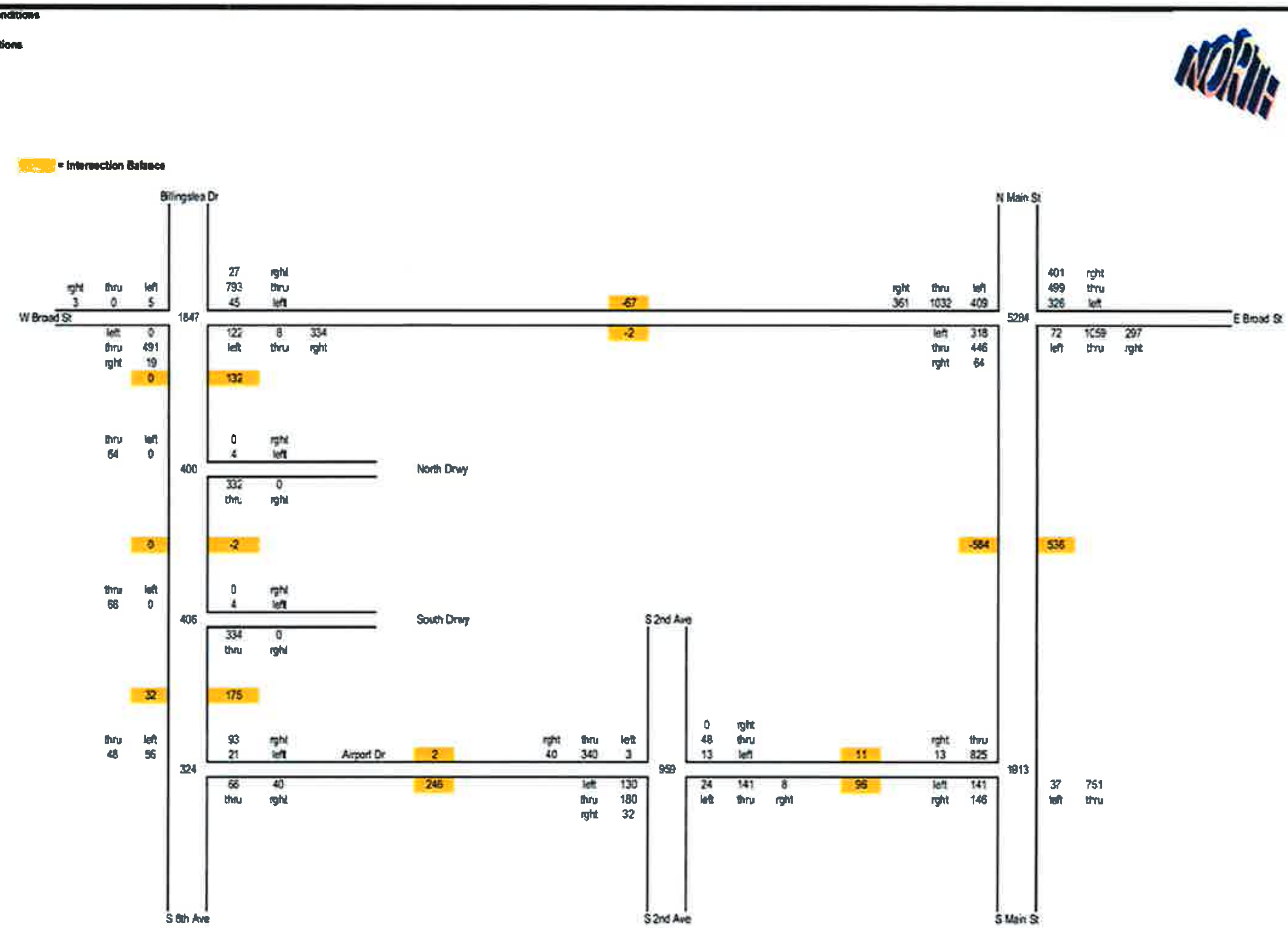
2035 Forecasted Conditions
Waste Vehicles Only
Max Day Operations



Southwaste Disposal Traffic Study
DISTRIBUTION SPREADSHEET

PM Peak

2035 Forecasted Conditions
All Vehicles
Average Day Operations

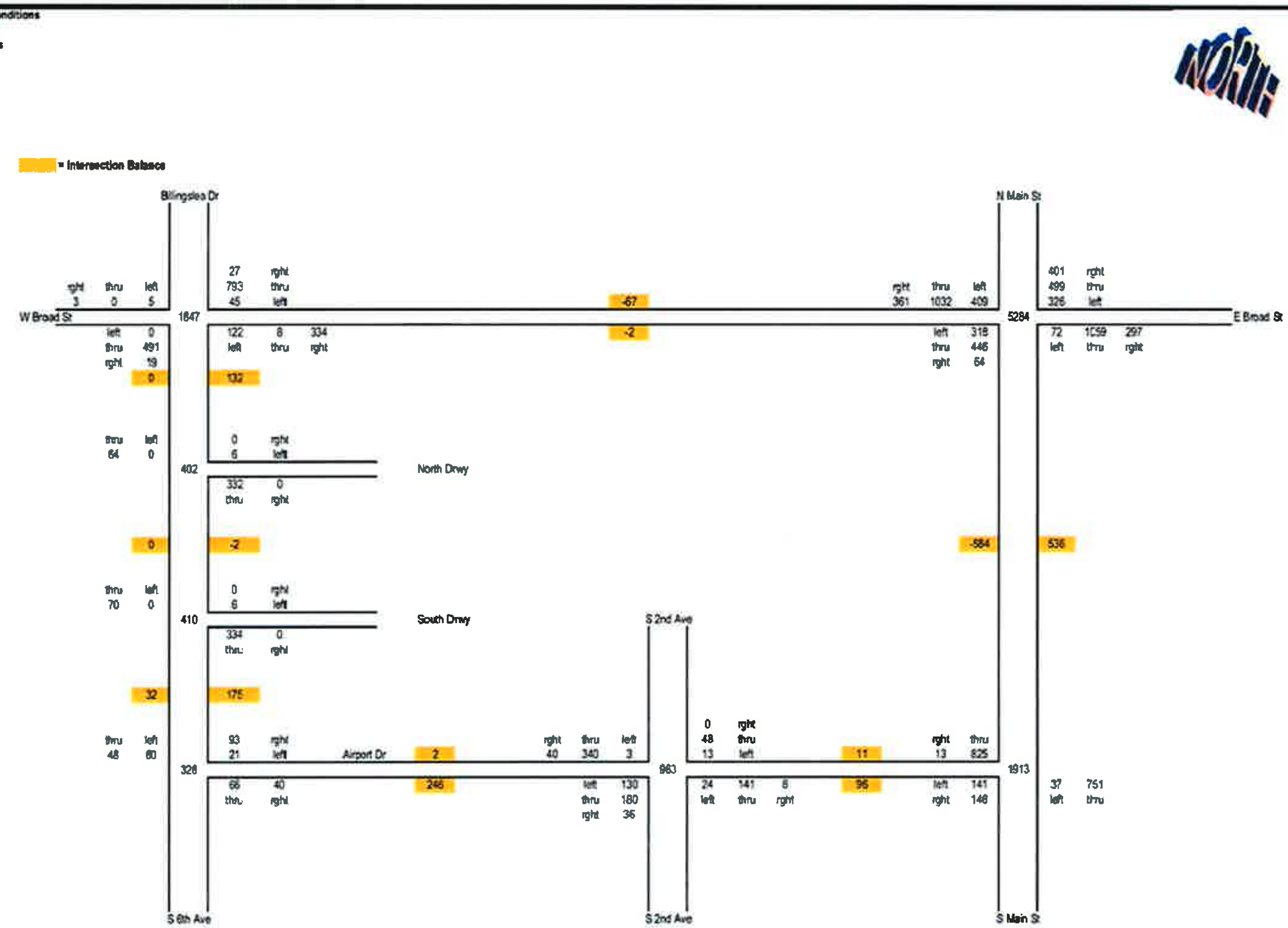


Southwaste Disposal Traffic Study

DISTRIBUTION SPREADSHEET

PM Peak

2035 Forecasted Conditions
All Vehicles
Max Day Operations



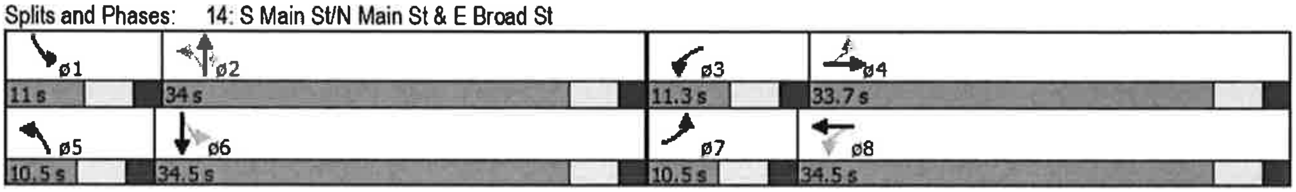
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑	↱	↰	↑↱	
Traffic Volume (vph)	141	156	15	112	89	91	10	302	63	87	241	61
Future Volume (vph)	141	156	15	112	89	91	10	302	63	87	241	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.987			0.924				0.850		0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1694	3459	0	1694	3238	0	1752	3388	1463	1752	3400	0
Flt Permitted	0.625			0.598			0.547			0.452		
Satd. Flow (perm)	1114	3459	0	1066	3238	0	1009	3388	1463	834	3400	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			102				164		37	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	158	175	17	126	100	102	11	339	71	98	271	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	192	0	126	202	0	11	339	71	98	340	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	10.5	33.7		11.3	34.5		10.5	34.0	34.0	11.0	34.5	
Total Split (%)	11.7%	37.4%		12.6%	38.3%		11.7%	37.8%	37.8%	12.2%	38.3%	
Maximum Green (s)	5.0	28.2		5.8	29.0		5.0	28.5	28.5	5.5	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	14.7	11.0		15.9	11.6		16.8	13.1	13.1	20.7	20.0	
Actuated g/C Ratio	0.27	0.20		0.30	0.22		0.31	0.24	0.24	0.39	0.37	
v/c Ratio	0.43	0.27		0.32	0.26		0.03	0.41	0.15	0.23	0.26	
Control Delay	18.1	20.2		15.6	11.7		12.0	20.8	0.7	13.1	12.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.1	20.2		15.6	11.7		12.0	20.8	0.7	13.1	12.8	
LOS	B	C		B	B		B	C	A	B	B	
Approach Delay		19.3			13.2			17.2			12.9	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 53.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 15.6 — Intersection LOS: B
Intersection Capacity Utilization 44.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St



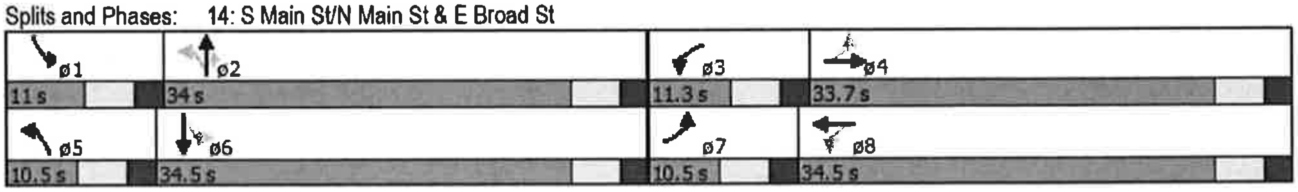
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑	↱	↰	↑↱	
Traffic Volume (vph)	142	157	15	112	89	91	10	302	63	87	241	62
Future Volume (vph)	142	157	15	112	89	91	10	302	63	87	241	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.987			0.924				0.850		0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1694	3459	0	1694	3238	0	1752	3388	1463	1752	3396	0
Flt Permitted	0.625			0.598			0.547			0.452		
Satd. Flow (perm)	1114	3459	0	1066	3238	0	1009	3388	1463	834	3396	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			102				164		38	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	160	176	17	126	100	102	11	339	71	98	271	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	193	0	126	202	0	11	339	71	98	341	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	10.5	33.7		11.3	34.5		10.5	34.0	34.0	11.0	34.5	
Total Split (%)	11.7%	37.4%		12.6%	38.3%		11.7%	37.8%	37.8%	12.2%	38.3%	
Maximum Green (s)	5.0	28.2		5.8	29.0		5.0	28.5	28.5	5.5	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	14.7	11.0		15.9	11.6		16.8	13.1	13.1	20.7	20.0	
Actuated g/C Ratio	0.27	0.20		0.30	0.22		0.31	0.24	0.24	0.39	0.37	
v/c Ratio	0.43	0.27		0.32	0.26		0.03	0.41	0.15	0.23	0.26	
Control Delay	18.2	20.2		15.6	11.7		12.1	20.8	0.7	13.1	12.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.2	20.2		15.6	11.7		12.1	20.8	0.7	13.1	12.8	
LOS	B	C		B	B		B	C	A	B	B	
Approach Delay		19.3			13.2			17.2			12.9	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 53.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 44.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St



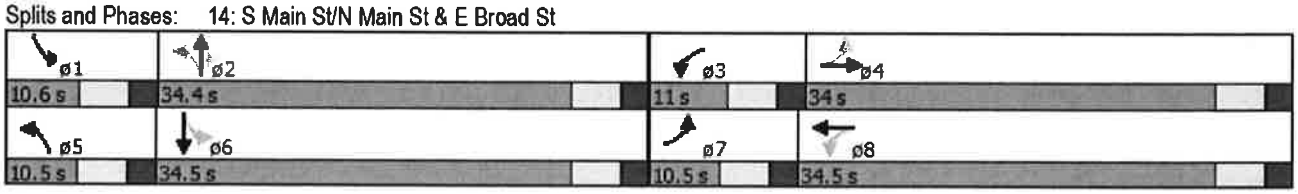
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱		↰	↑↑	↱	↰	↑↑↱	
Traffic Volume (vph)	122	169	24	123	188	151	27	399	112	154	389	136
Future Volume (vph)	122	169	24	123	188	151	27	399	112	154	389	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.982			0.933				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	3510	0	1728	3335	0	1787	3455	1492	1787	3435	0
Flt Permitted	0.499			0.594			0.426			0.385		
Satd. Flow (perm)	907	3510	0	1080	3335	0	801	3455	1492	724	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			172				164		58	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	139	192	27	140	214	172	31	453	127	175	442	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	219	0	140	386	0	31	453	127	175	597	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	10.5	34.0		11.0	34.5		10.5	34.4	34.4	10.6	34.5	
Total Split (%)	11.7%	37.8%		12.2%	38.3%		11.7%	38.2%	38.2%	11.8%	38.3%	
Maximum Green (s)	5.0	28.5		5.5	29.0		5.0	28.9	28.9	5.1	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	15.1	11.2		15.8	11.6		20.5	15.1	15.1	24.8	23.1	
Actuated g/C Ratio	0.26	0.19		0.27	0.20		0.35	0.26	0.26	0.43	0.40	
v/c Ratio	0.45	0.32		0.39	0.48		0.08	0.50	0.25	0.43	0.43	
Control Delay	19.6	20.7		17.7	13.9		12.1	21.4	3.4	16.6	15.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	19.6	20.7		17.7	13.9		12.1	21.4	3.4	16.6	15.6	
LOS	B	C		B	B		B	C	A	B	B	
Approach Delay		20.3			15.0			17.2			15.8	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 58.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 16.7 — Intersection LOS: B
Intersection Capacity Utilization 54.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St



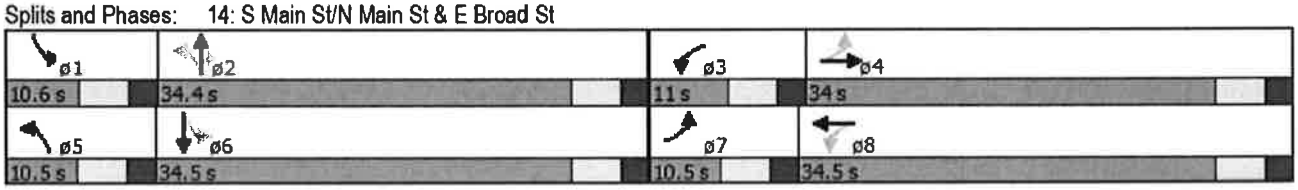
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱		↰	↑↑	↱	↰	↑↑↱	
Traffic Volume (vph)	123	170	24	123	188	151	27	399	112	154	389	136
Future Volume (vph)	123	170	24	123	188	151	27	399	112	154	389	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.982			0.933				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	3510	0	1728	3335	0	1787	3455	1492	1787	3435	0
Flt Permitted	0.499			0.593			0.426			0.385		
Satd. Flow (perm)	907	3510	0	1078	3335	0	801	3455	1492	724	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			172				164		58	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	140	193	27	140	214	172	31	453	127	175	442	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	220	0	140	386	0	31	453	127	175	597	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	10.5	34.0		11.0	34.5		10.5	34.4	34.4	10.6	34.5	
Total Split (%)	11.7%	37.8%		12.2%	38.3%		11.7%	38.2%	38.2%	11.8%	38.3%	
Maximum Green (s)	5.0	28.5		5.5	29.0		5.0	28.9	28.9	5.1	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	15.1	11.3		15.9	11.6		20.5	15.1	15.1	24.8	23.1	
Actuated g/C Ratio	0.26	0.19		0.27	0.20		0.35	0.26	0.26	0.43	0.40	
v/c Ratio	0.45	0.32		0.39	0.48		0.08	0.50	0.25	0.43	0.43	
Control Delay	19.6	20.8		17.7	13.9		12.1	21.4	3.4	16.6	15.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	19.6	20.8		17.7	13.9		12.1	21.4	3.4	16.6	15.6	
LOS	B	C		B	B		B	C	A	B	B	
Approach Delay		20.3			14.9			17.2			15.8	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 58.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 16.7 Intersection LOS: B
Intersection Capacity Utilization 54.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St



Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	271	29	77	96	2	10	1	18	5	1	0
Future Vol, veh/h	0	271	29	77	96	2	10	1	18	5	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	298	32	85	105	2	11	1	20	5	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	108	0	0	330	0	0	537	591	165	425	606	54
Stage 1	-	-	-	-	-	-	314	314	-	276	276	-
Stage 2	-	-	-	-	-	-	223	277	-	149	330	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1473	-	-	1219	-	-	425	416	847	511	408	998
Stage 1	-	-	-	-	-	-	669	652	-	704	678	-
Stage 2	-	-	-	-	-	-	756	677	-	836	642	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1473	-	-	1219	-	-	401	387	847	471	380	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	401	387	-	471	380	-
Stage 1	-	-	-	-	-	-	669	652	-	704	631	-
Stage 2	-	-	-	-	-	-	702	630	-	815	642	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.6	11.4	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	595	1473	-	-	1219	-	-	453
HCM Lane V/C Ratio	0.054	-	-	-	0.069	-	-	0.015
HCM Control Delay (s)	11.4	0	-	-	8.2	-	-	13.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	271	29	78	96	2	10	1	20	5	1	0
Future Vol, veh/h	0	271	29	78	96	2	10	1	20	5	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	298	32	86	105	2	11	1	22	5	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	108	0	0	330	0	0	539	593	165	427	608	54
Stage 1	-	-	-	-	-	-	314	314	-	278	278	-
Stage 2	-	-	-	-	-	-	225	279	-	149	330	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1473	-	-	1219	-	-	423	415	847	509	407	998
Stage 1	-	-	-	-	-	-	669	652	-	702	677	-
Stage 2	-	-	-	-	-	-	754	676	-	836	642	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1473	-	-	1219	-	-	399	386	847	468	378	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	399	386	-	468	378	-
Stage 1	-	-	-	-	-	-	669	652	-	702	629	-
Stage 2	-	-	-	-	-	-	700	628	-	813	642	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.6	11.3	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	605	1473	-	-	1219	-	-	450
HCM Lane V/C Ratio	0.056	-	-	-	0.07	-	-	0.015
HCM Control Delay (s)	11.3	0	-	-	8.2	-	-	13.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	185	7	17	299	10	46	3	129	2	0	1
Future Vol, veh/h	0	185	7	17	299	10	46	3	129	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	213	8	20	344	11	53	3	148	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	355	0	0	221	0	0	428	611	110	497	610	178
Stage 1	-	-	-	-	-	-	217	217	-	389	389	-
Stage 2	-	-	-	-	-	-	211	394	-	108	221	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1200	-	-	1345	-	-	511	407	922	456	408	834
Stage 1	-	-	-	-	-	-	765	722	-	606	607	-
Stage 2	-	-	-	-	-	-	771	604	-	886	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1200	-	-	1345	-	-	505	401	922	376	402	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	505	401	-	376	402	-
Stage 1	-	-	-	-	-	-	765	722	-	606	598	-
Stage 2	-	-	-	-	-	-	758	595	-	740	719	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	11.6	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	746	1200	-	-	1345	-	-	460
HCM Lane V/C Ratio	0.274	-	-	-	0.015	-	-	0.007
HCM Control Delay (s)	11.6	0	-	-	7.7	-	-	12.9
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	185	7	17	299	10	46	3	131	2	0	1
Future Vol, veh/h	0	185	7	17	299	10	46	3	131	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	213	8	20	344	11	53	3	151	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	355	0	0	221	0	0	428	611	110	497	610	178
Stage 1	-	-	-	-	-	-	217	217	-	389	389	-
Stage 2	-	-	-	-	-	-	211	394	-	108	221	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1200	-	-	1345	-	-	511	407	922	456	408	834
Stage 1	-	-	-	-	-	-	765	722	-	606	607	-
Stage 2	-	-	-	-	-	-	771	604	-	886	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1200	-	-	1345	-	-	505	401	922	375	402	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	505	401	-	375	402	-
Stage 1	-	-	-	-	-	-	765	722	-	606	598	-
Stage 2	-	-	-	-	-	-	758	595	-	738	719	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	11.6	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	748	1200	-	-	1345	-	-	459
HCM Lane V/C Ratio	0.277	-	-	-	0.015	-	-	0.008
HCM Control Delay (s)	11.6	0	-	-	7.7	-	-	12.9
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	2	19	1	1	70
Future Vol, veh/h	0	2	19	1	1	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	0	3	26	1	1	96

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	126	27	0	0	27	0
Stage 1	27	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	855	1031	-	-	1549	-
Stage 1	980	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	854	1031	-	-	1549	-
Mov Cap-2 Maneuver	854	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	909	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1031	1549	-
HCM Lane V/C Ratio	-	-	0.003	0.001	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	3	20	2	2	70
Future Vol, veh/h	0	3	20	2	2	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	0	4	27	3	3	96

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	130	29	0	0	30	0
Stage 1	29	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	850	1029	-	-	1545	-
Stage 1	978	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	848	1029	-	-	1545	-
Mov Cap-2 Maneuver	848	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1029	1545	-
HCM Lane V/C Ratio	-	-	0.004	0.002	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection							
Int Delay, s/veh	0.1						

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	2	126	0	0	24
Future Vol, veh/h	0	2	126	0	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	0	3	185	0	0	35

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	220	185	0	0	185	0
Stage 1	185	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	759	847	-	-	1366	-
Stage 1	837	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	759	847	-	-	1366	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	977	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	847	1366	-
HCM Lane V/C Ratio	-	-	0.003	-	-
HCM Control Delay (s)	-	-	9.3	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	3	127	0	0	24
Future Vol, veh/h	0	3	127	0	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	0	4	187	0	0	35

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	222	187	0	0	187	0
Stage 1	187	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	757	845	-	-	1364	-
Stage 1	835	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	757	845	-	-	1364	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	977	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	845	1364	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	-	-	9.3	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	1	20	1	0	70
Future Vol, veh/h	0	1	20	1	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	0	1	28	1	0	97

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	125	28	0	0	29	0
Stage 1	28	-	-	-	-	-
Stage 2	97	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	856	1030	-	-	1546	-
Stage 1	979	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	856	1030	-	-	1546	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1030	1546	-
HCM Lane V/C Ratio	-	-	0.001	-	-
HCM Control Delay (s)	-	-	8.5	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	2	21	2	0	70
Future Vol, veh/h	0	2	21	2	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	0	3	29	3	0	97

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	128	31	0	0	32	0
Stage 1	31	-	-	-	-	-
Stage 2	97	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	852	1026	-	-	1542	-
Stage 1	976	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	852	1026	-	-	1542	-
Mov Cap-2 Maneuver	852	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1026	1542	-
HCM Lane V/C Ratio	-	-	0.003	-	-
HCM Control Delay (s)	-	-	8.5	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	1	1	126	0	0	24
Future Vol, veh/h	1	1	126	0	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	1	1	188	0	0	36

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	224	188	0	0	188	0
Stage 1	188	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	755	844	-	-	1362	-
Stage 1	835	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	755	844	-	-	1362	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	976	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	797	1362	-
HCM Lane V/C Ratio	-	-	0.004	-	-
HCM Control Delay (s)	-	-	9.5	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	2	2	126	0	0	24
Future Vol, veh/h	2	2	126	0	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	3	3	188	0	0	36

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	224	188	0	0	188	0
Stage 1	188	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	755	844	-	-	1362	-
Stage 1	835	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	755	844	-	-	1362	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	976	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	797	1362	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	9.6	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	13	18	7	0	27	21
Future Vol, veh/h	13	18	7	0	27	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	19	26	10	0	39	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	119	10	0	0	10	0
Stage 1	10	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	844	1032	-	-	1523	-
Stage 1	978	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	822	1032	-	-	1523	-
Mov Cap-2 Maneuver	822	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	859	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	4.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	932	1523	-
HCM Lane V/C Ratio	-	-	0.048	0.026	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	13	20	7	0	27	21
Future Vol, veh/h	13	20	7	0	27	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	19	29	10	0	39	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	119	10	0	0	10	0
Stage 1	10	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	844	1032	-	-	1523	-
Stage 1	978	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	822	1032	-	-	1523	-
Mov Cap-2 Maneuver	822	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	859	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	4.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	938	1523	-
HCM Lane V/C Ratio	-	-	0.051	0.026	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	8	35	25	15	19	18
Future Vol, veh/h	8	35	25	15	19	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	12	52	37	22	28	27

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	133	49	0	0	60	0
Stage 1	49	-	-	-	-	-
Stage 2	84	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	838	992	-	-	1482	-
Stage 1	948	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	822	992	-	-	1482	-
Mov Cap-2 Maneuver	822	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	898	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	955	1482	-
HCM Lane V/C Ratio	-	-	0.067	0.019	-
HCM Control Delay (s)	-	-	9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection							
Int Delay, s/veh	4.4						

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	8	35	25	15	20	18
Future Vol, veh/h	8	35	25	15	20	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	12	52	37	22	30	27

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	136	49	0	0	60	0
Stage 1	49	-	-	-	-	-
Stage 2	87	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	834	992	-	-	1482	-
Stage 1	948	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	816	992	-	-	1482	-
Mov Cap-2 Maneuver	816	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	893	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1482	-
HCM Lane V/C Ratio	-	-	0.067	0.02	-
HCM Control Delay (s)	-	-	9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	5	19	4	1	45	0	22	67	2	1	54	36
Future Vol, veh/h	5	19	4	1	45	0	22	67	2	1	54	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	6	23	5	1	54	0	26	80	2	1	64	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	248	223	86	235	243	81	107	0	0	82	0	0
Stage 1	88	88	-	133	133	-	-	-	-	-	-	-
Stage 2	160	135	-	102	110	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	6.28	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	693	665	956	707	649	963	1447	-	-	1478	-	-
Stage 1	905	810	-	856	775	-	-	-	-	-	-	-
Stage 2	828	773	-	889	793	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	639	652	956	674	636	963	1447	-	-	1478	-	-
Mov Cap-2 Maneuver	639	652	-	674	636	-	-	-	-	-	-	-
Stage 1	888	809	-	840	760	-	-	-	-	-	-	-
Stage 2	755	758	-	859	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	11.2	1.8	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1447	-	-	680	637	1478	-	-
HCM Lane V/C Ratio	0.018	-	-	0.049	0.086	0.001	-	-
HCM Control Delay (s)	7.5	0	-	10.6	11.2	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	5	19	4	1	46	0	23	67	2	1	54	36
Future Vol, veh/h	5	19	4	1	46	0	23	67	2	1	54	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	6	23	5	1	55	0	27	80	2	1	64	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	251	225	86	238	246	81	107	0	0	82	0	0
Stage 1	88	88	-	136	136	-	-	-	-	-	-	-
Stage 2	163	137	-	102	110	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	6.28	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	690	664	956	704	646	963	1447	-	-	1478	-	-
Stage 1	905	810	-	853	773	-	-	-	-	-	-	-
Stage 2	825	772	-	889	793	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	634	650	956	671	632	963	1447	-	-	1478	-	-
Mov Cap-2 Maneuver	634	650	-	671	632	-	-	-	-	-	-	-
Stage 1	887	809	-	836	758	-	-	-	-	-	-	-
Stage 2	750	757	-	859	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	11.2	1.9	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1447	-	-	678	633	1478	-	-
HCM Lane V/C Ratio	0.019	-	-	0.049	0.088	0.001	-	-
HCM Control Delay (s)	7.5	0	-	10.6	11.2	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0	-	-

Intersection												
Int Delay, s/veh	5.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	49	69	9	5	18	0	9	53	3	1	128	15
Future Vol, veh/h	49	69	9	5	18	0	9	53	3	1	128	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	63	88	12	6	23	0	12	68	4	1	164	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	280	271	174	319	279	70	183	0	0	72	0	0
Stage 1	176	176	-	93	93	-	-	-	-	-	-	-
Stage 2	104	95	-	226	186	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	666	631	862	628	624	984	1374	-	-	1509	-	-
Stage 1	819	748	-	907	812	-	-	-	-	-	-	-
Stage 2	894	810	-	770	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	642	625	862	548	618	984	1374	-	-	1509	-	-
Mov Cap-2 Maneuver	642	625	-	548	618	-	-	-	-	-	-	-
Stage 1	812	747	-	899	805	-	-	-	-	-	-	-
Stage 2	861	803	-	669	739	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	11.3	1.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1374	-	-	644	601	1509	-	-
HCM Lane V/C Ratio	0.008	-	-	0.253	0.049	0.001	-	-
HCM Control Delay (s)	7.6	0	-	12.5	11.3	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	0.2	0	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	49	70	9	5	18	0	9	53	3	1	128	15
Future Vol, veh/h	49	70	9	5	18	0	9	53	3	1	128	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	63	90	12	6	23	0	12	68	4	1	164	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	280	271	174	320	279	70	183	0	0	72	0	0
Stage 1	176	176	-	93	93	-	-	-	-	-	-	-
Stage 2	104	95	-	227	186	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	666	631	862	627	624	984	1374	-	-	1509	-	-
Stage 1	819	748	-	907	812	-	-	-	-	-	-	-
Stage 2	894	810	-	769	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	642	625	862	546	618	984	1374	-	-	1509	-	-
Mov Cap-2 Maneuver	642	625	-	546	618	-	-	-	-	-	-	-
Stage 1	812	747	-	899	805	-	-	-	-	-	-	-
Stage 2	861	803	-	667	739	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	11.3	1.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1374	-	-	644	601	1509	-	-
HCM Lane V/C Ratio	0.008	-	-	0.255	0.049	0.001	-	-
HCM Control Delay (s)	7.6	0	-	12.5	11.3	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	0.2	0	-	-

Intersection						
Int Delay, s/veh	1.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	8	19	39	248	146	25
Future Vol, veh/h	8	19	39	248	146	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	9	22	44	282	166	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	550	180	194	0	-	0
Stage 1	180	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.17	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.263	-	-	-
Pot Cap-1 Maneuver	488	850	1350	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	469	850	1350	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1350	-	685	-	-
HCM Lane V/C Ratio	0.033	-	0.045	-	-
HCM Control Delay (s)	7.8	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	8	19	40	248	146	25
Future Vol, veh/h	8	19	40	248	146	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	9	22	45	282	166	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	553	180	194	0	-	0
Stage 1	180	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.17	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.263	-	-	-
Pot Cap-1 Maneuver	486	850	1350	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	467	850	1350	-	-	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1350	-	684	-	-
HCM Lane V/C Ratio	0.034	-	0.045	-	-
HCM Control Delay (s)	7.8	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	53	56	14	283	311	5
Future Vol, veh/h	53	56	14	283	311	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	60	63	16	318	349	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	701	352	355	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	402	687	1193	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	396	687	1193	-	-	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	699	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1193	-	506	-	-
HCM Lane V/C Ratio	0.013	-	0.242	-	-
HCM Control Delay (s)	8.1	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	53	57	14	283	311	5
Future Vol, veh/h	53	57	14	283	311	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	60	64	16	318	349	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	701	352	355	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	402	687	1193	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	396	687	1193	-	-	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	699	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1193	-	507	-	-
HCM Lane V/C Ratio	0.013	-	0.244	-	-
HCM Control Delay (s)	8.1	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

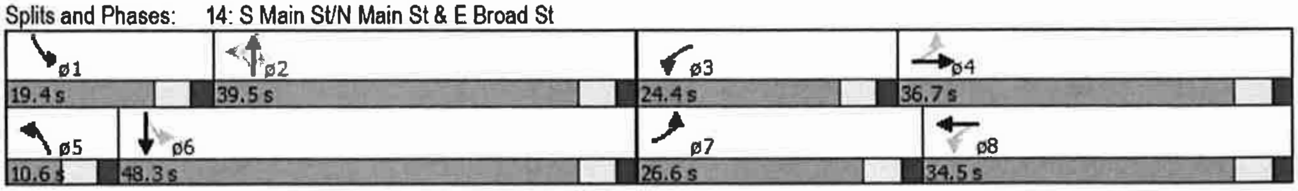
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑	↱	↰	↑↱	
Traffic Volume (vph)	369	411	40	297	236	241	27	801	167	231	639	159
Future Volume (vph)	369	411	40	297	236	241	27	801	167	231	639	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.987			0.924				0.850		0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1694	3459	0	1694	3238	0	1752	3388	1463	1752	3400	0
Flt Permitted	0.180			0.299			0.258			0.104		
Satd. Flow (perm)	321	3459	0	533	3238	0	476	3388	1463	192	3400	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			186				173		28	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	415	462	45	334	265	271	30	900	188	260	718	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	415	507	0	334	536	0	30	900	188	260	897	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	26.6	36.7		24.4	34.5		10.6	39.5	39.5	19.4	48.3	
Total Split (%)	22.2%	30.6%		20.3%	28.8%		8.8%	32.9%	32.9%	16.2%	40.3%	
Maximum Green (s)	21.1	31.2		18.9	29.0		5.1	34.0	34.0	13.9	42.8	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	43.2	22.2		37.0	19.0		38.0	32.8	32.8	52.3	46.2	
Actuated g/C Ratio	0.40	0.20		0.34	0.17		0.35	0.30	0.30	0.48	0.42	
v/c Ratio	1.06	0.72		0.90	0.75		0.13	0.88	0.34	0.89	0.62	
Control Delay	92.0	46.2		52.2	34.3		19.0	48.3	7.7	59.6	27.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	92.0	46.2		52.2	34.3		19.0	48.3	7.7	59.6	27.7	
LOS	F	D		D	C		B	D	A	E	C	
Approach Delay		66.8			41.2			40.7			34.9	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 109.1
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 45.1 Intersection LOS: D
Intersection Capacity Utilization 88.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St



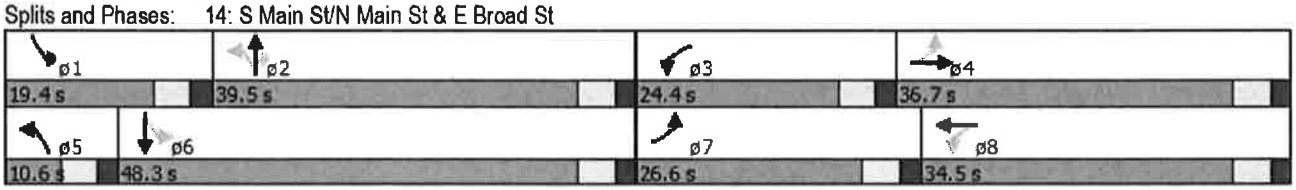
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑	↱	↰	↑↱	
Traffic Volume (vph)	369	411	40	297	236	241	27	801	167	231	639	159
Future Volume (vph)	369	411	40	297	236	241	27	801	167	231	639	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Teper Length (ft)	25			25			25			25		
Lene Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.987			0.924				0.850		0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Setd. Flow (prot)	1694	3459	0	1694	3238	0	1752	3388	1463	1752	3400	0
Flt Permitted	0.180			0.299			0.258			0.104		
Setd. Flow (perm)	321	3459	0	533	3238	0	476	3388	1463	192	3400	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			186				173		28	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	415	462	45	334	265	271	30	900	188	260	718	179
Shered Lene Treffic (%)												
Lane Group Flow (vph)	415	507	0	334	536	0	30	900	188	260	897	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Templete	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Treiling Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Chennel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	26.6	36.7		24.4	34.5		10.6	39.5	39.5	19.4	48.3	
Total Split (%)	22.2%	30.6%		20.3%	28.8%		8.8%	32.9%	32.9%	16.2%	40.3%	
Maximum Green (s)	21.1	31.2		18.9	29.0		5.1	34.0	34.0	13.9	42.8	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	43.2	22.2		37.0	19.0		38.0	32.8	32.8	52.3	46.2	
Actuated g/C Ratio	0.40	0.20		0.34	0.17		0.35	0.30	0.30	0.48	0.42	
v/c Ratio	1.06	0.72		0.90	0.75		0.13	0.88	0.34	0.89	0.62	
Control Delay	92.0	46.2		52.2	34.3		19.0	48.3	7.7	59.6	27.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	92.0	46.2		52.2	34.3		19.0	48.3	7.7	59.6	27.7	
LOS	F	D		D	C		B	D	A	E	C	
Approach Delay		66.8			41.2			40.7			34.9	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 109.1
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 45.1 Intersection LOS: D
Intersection Capacity Utilization 88.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St



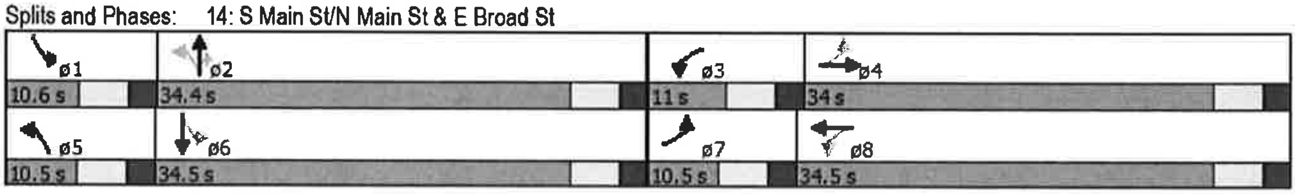
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑	↱	↰	↑↱	
Traffic Volume (vph)	318	446	64	326	499	401	72	1059	297	409	1032	361
Future Volume (vph)	318	446	64	326	499	401	72	1059	297	409	1032	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.981			0.933				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	3506	0	1728	3335	0	1787	3455	1492	1787	3435	0
Flt Permitted	0.146			0.312			0.133			0.128		
Satd. Flow (perm)	265	3506	0	567	3335	0	250	3455	1492	241	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			146				164		57	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	361	507	73	370	567	456	82	1203	338	465	1173	410
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	580	0	370	1023	0	82	1203	338	465	1583	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	10.5	34.0		11.0	34.5		10.5	34.4	34.4	10.6	34.5	
Total Split (%)	11.7%	37.8%		12.2%	38.3%		11.7%	38.2%	38.2%	11.8%	38.3%	
Maximum Green (s)	5.0	28.5		5.5	29.0		5.0	28.9	28.9	5.1	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	32.4	27.4		33.4	27.9		33.9	28.9	28.9	35.2	31.2	
Actuated g/C Ratio	0.36	0.31		0.38	0.31		0.38	0.33	0.33	0.40	0.35	
v/c Ratio	2.03	0.53		1.30	0.89		0.45	1.07	0.57	2.54	1.27	
Control Delay	501.3	26.6		183.2	36.1		23.4	78.9	16.9	723.8	157.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	501.3	26.6		183.2	36.1		23.4	78.9	16.9	723.8	157.5	
LOS	F	C		F	D		C	E	B	F	F	
Approach Delay		208.7			75.2			63.2			286.1	
Approach LOS		F			E			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.9
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.54
Intersection Signal Delay: 164.8 Intersection LOS: F
Intersection Capacity Utilization 114.5% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 14: S Main St/N Main St & E Broad St

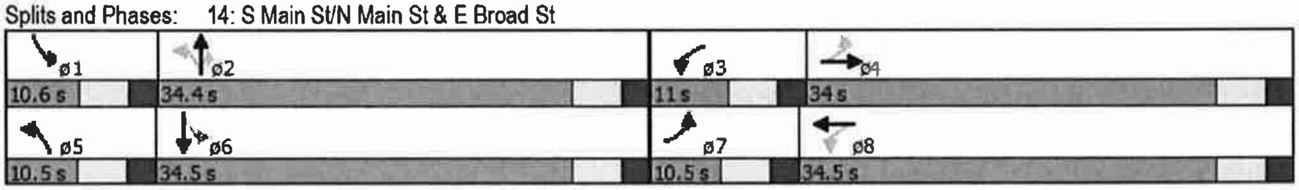


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	446	64	326	499	401	72	1059	297	409	1032	361
Future Volume (vph)	318	446	64	326	499	401	72	1059	297	409	1032	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	11	10	12	12	12
Storage Length (ft)	70		0	100		0	75		75	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.981			0.933				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	3506	0	1728	3335	0	1787	3455	1492	1787	3435	0
Flt Permitted	0.146			0.312			0.133			0.128		
Satd. Flow (perm)	265	3506	0	567	3335	0	250	3455	1492	241	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			146				164		57	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		1359			1009			1425			881	
Travel Time (s)		26.5			17.2			27.8			17.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	361	507	73	370	567	456	82	1203	338	465	1173	410
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	580	0	370	1023	0	82	1203	338	465	1583	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		17			17			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.5	33.5		10.5	34.5		10.5	33.5	33.5	10.5	34.5	
Total Split (s)	10.5	34.0		11.0	34.5		10.5	34.4	34.4	10.6	34.5	
Total Split (%)	11.7%	37.8%		12.2%	38.3%		11.7%	38.2%	38.2%	11.8%	38.3%	
Maximum Green (s)	5.0	28.5		5.5	29.0		5.0	28.9	28.9	5.1	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min		None	Min	Min	None	Min	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		22.0			22.0			23.0	23.0		23.0	
Pedestrian Calls (#/hr)		10			10			10	10		10	
Act Effct Green (s)	32.4	27.4		33.4	27.9		33.9	28.9	28.9	35.2	31.2	
Actuated g/C Ratio	0.36	0.31		0.38	0.31		0.38	0.33	0.33	0.40	0.35	
v/c Ratio	2.03	0.53		1.30	0.89		0.45	1.07	0.57	2.54	1.27	
Control Delay	501.3	26.6		183.2	36.1		23.4	78.9	16.9	723.8	157.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	501.3	26.6		183.2	36.1		23.4	78.9	16.9	723.8	157.5	
LOS	F	C		F	D		C	E	B	F	F	
Approach Delay		208.7			75.2			63.2			286.1	
Approach LOS		F			E			E			F	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 88.9	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.54	
Intersection Signal Delay: 164.8	Intersection LOS: F
Intersection Capacity Utilization 114.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 14: S Main St/N Main St & E Broad St



Intersection												
Int Delay, s/veh	5.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	719	77	202	255	5	27	3	40	13	3	0
Future Vol, veh/h	0	719	77	202	255	5	27	3	40	13	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	790	85	222	280	5	30	3	44	14	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	875	0	0	1418	1562	437	1124	1602	143
Stage 1	-	-	-	-	-	-	832	832	-	727	727	-
Stage 2	-	-	-	-	-	-	586	730	-	397	875	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1266	-	-	761	-	-	96	110	565	159	104	875
Stage 1	-	-	-	-	-	-	328	380	-	379	425	-
Stage 2	-	-	-	-	-	-	461	423	-	597	363	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1266	-	-	761	-	-	72	78	565	110	74	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	78	-	110	74	-
Stage 1	-	-	-	-	-	-	328	380	-	379	301	-
Stage 2	-	-	-	-	-	-	323	300	-	546	363	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.1	54.9	48
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	145	1266	-	-	761	-	-	101
HCM Lane V/C Ratio	0.531	-	-	-	0.292	-	-	0.174
HCM Control Delay (s)	54.9	0	-	-	11.7	-	-	48
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	2.6	0	-	-	1.2	-	-	0.6

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	719	77	202	255	5	27	3	40	13	3	0
Future Vol, veh/h	0	719	77	202	255	5	27	3	40	13	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	790	85	222	280	5	30	3	44	14	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	875	0	0	1418	1562	437	1124	1602	143
Stage 1	-	-	-	-	-	-	832	832	-	727	727	-
Stage 2	-	-	-	-	-	-	586	730	-	397	875	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	1266	-	-	761	-	-	96	110	565	159	104	875
Stage 1	-	-	-	-	-	-	328	380	-	379	425	-
Stage 2	-	-	-	-	-	-	461	423	-	597	363	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1266	-	-	761	-	-	72	78	565	110	74	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	78	-	110	74	-
Stage 1	-	-	-	-	-	-	328	380	-	379	301	-
Stage 2	-	-	-	-	-	-	323	300	-	546	363	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.1	54.9	48
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	145	1266	-	-	761	-	-	101
HCM Lane V/C Ratio	0.531	-	-	-	0.292	-	-	0.174
HCM Control Delay (s)	54.9	0	-	-	11.7	-	-	48
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	2.6	0	-	-	1.2	-	-	0.6

Intersection	
Int Delay, s/veh	76.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	491	19	45	793	27	122	8	334	5	0	3
Future Vol, veh/h	0	491	19	45	793	27	122	8	334	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	175	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	564	22	52	911	31	140	9	384	6	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	943	0	0	586	0	0	1134	1621	293	1317	1616	471
Stage 1	-	-	-	-	-	-	575	575	-	1030	1030	-
Stage 2	-	-	-	-	-	-	559	1046	-	287	586	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	723	-	-	985	-	-	157	102	703	115	103	539
Stage 1	-	-	-	-	-	-	470	501	-	250	309	-
Stage 2	-	-	-	-	-	-	481	304	-	696	495	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	723	-	-	985	-	-	150	97	703	46	98	539
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	97	-	46	98	-
Stage 1	-	-	-	-	-	-	470	501	-	250	293	-
Stage 2	-	-	-	-	-	-	453	288	-	310	495	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	$ 302.1	64.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	338	723	-	-	985	-	-	70
HCM Lane V/C Ratio	1.578	-	-	-	0.053	-	-	0.131
HCM Control Delay (s)	$ 302.1	0	-	-	8.9	-	-	64.1
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	30.9	0	-	-	0.2	-	-	0.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	76.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	491	19	45	793	27	122	8	334	5	0	3
Future Vol, veh/h	0	491	19	45	793	27	122	8	334	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	173	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	564	22	52	911	31	140	9	384	6	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	943	0	0	586	0	0	1134	1621	293	1317	1616	471
Stage 1	-	-	-	-	-	-	575	575	-	1030	1030	-
Stage 2	-	-	-	-	-	-	559	1046	-	287	586	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	723	-	-	985	-	-	157	102	703	115	103	539
Stage 1	-	-	-	-	-	-	470	501	-	250	309	-
Stage 2	-	-	-	-	-	-	481	304	-	696	495	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	723	-	-	985	-	-	150	97	703	46	98	539
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	97	-	46	98	-
Stage 1	-	-	-	-	-	-	470	501	-	250	293	-
Stage 2	-	-	-	-	-	-	453	288	-	310	495	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	$ 302.1	64.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	338	723	-	-	985	-	-	70
HCM Lane V/C Ratio	1.578	-	-	-	0.053	-	-	0.131
HCM Control Delay (s)	$ 302.1	0	-	-	8.9	-	-	64.1
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	30.9	0	-	-	0.2	-	-	0.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	4	0	48	4	0	186
Future Vol, veh/h	4	0	48	4	0	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	0	66	5	0	255

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	323	68	0	0	71	0
Stage 1	68	-	-	-	-	-
Stage 2	255	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	659	979	-	-	1492	-
Stage 1	940	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	659	979	-	-	1492	-
Mov Cap-2 Maneuver	659	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	659	1492	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Control Delay (s)	-	-	10.5	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	6	0	48	6	0	186
Future Vol, veh/h	6	0	48	6	0	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	8	0	66	8	0	255

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	325	70	0	0	74	0
Stage 1	70	-	-	-	-	-
Stage 2	255	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	657	976	-	-	1488	-
Stage 1	938	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	657	976	-	-	1488	-
Mov Cap-2 Maneuver	657	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	657	1488	-
HCM Lane V/C Ratio	-	-	0.013	-	-
HCM Control Delay (s)	-	-	10.5	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	4	0	332	0	0	64
Future Vol, veh/h	4	0	332	0	0	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	6	0	488	0	0	94

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	582	488	0	0	488	0
Stage 1	488	-	-	-	-	-
Stage 2	94	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	469	572	-	-	1055	-
Stage 1	609	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	469	572	-	-	1055	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	469	1055	-
HCM Lane V/C Ratio	-	-	0.013	-	-
HCM Control Delay (s)	-	-	12.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	6	0	332	0	0	64
Future Vol, veh/h	6	0	332	0	0	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Frae
RT Channalized	-	None	-	None	-	Nona
Storage Length	0	-	-	-	-	-
Veh in Madian Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Paak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	9	0	488	0	0	94

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	582	488	0	0	488	0
Staga 1	488	-	-	-	-	-
Stage 2	94	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	469	572	-	-	1055	-
Stage 1	609	-	-	-	-	-
Staga 2	920	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	469	572	-	-	1055	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (vah/h)	-	-	469	1055	-
HCM Lane V/C Ratio	-	-	0.019	-	-
HCM Control Delay (s)	-	-	12.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tila Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	2	0	54	2	0	190
Future Vol, veh/h	2	0	54	2	0	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	3	0	75	3	0	264

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	340	76	0	0	78	0
Stage 1	76	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	644	969	-	-	1483	-
Stage 1	932	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	644	969	-	-	1483	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	1483	-
HCM Lane V/C Ratio	-	-	0.004	-	-
HCM Control Delay (s)	-	-	10.6	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	3	0	56	3	0	192
Future Vol, veh/h	3	0	56	3	0	192
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	4	0	78	4	0	267

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	347	80	0	0	82	0
Stage 1	80	-	-	-	-	-
Stage 2	267	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.18	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.272	-
Pot Cap-1 Maneuver	638	964	-	-	1478	-
Stage 1	928	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	638	964	-	-	1478	-
Mov Cap-2 Maneuver	638	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	764	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	638	1478	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	10.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	4	0	334	0	0	68
Future Vol, veh/h	4	0	334	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	6	0	499	0	0	101

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	600	499	0	0	499	0
Stage 1	499	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	457	564	-	-	1045	-
Stage 1	602	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	457	564	-	-	1045	-
Mov Cap-2 Maneuver	457	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	913	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	457	1045	-
HCM Lane V/C Ratio	-	-	0.013	-	-
HCM Control Delay (s)	-	-	13	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	6	0	334	0	0	70
Future Vol, veh/h	6	0	334	0	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	9	0	499	0	0	104

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	603	499	0	0	499	0
Stage 1	499	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.46	6.26	-	-	4.16	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	-	-	2.254	-
Pot Cap-1 Maneuver	456	564	-	-	1045	-
Stage 1	602	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	456	564	-	-	1045	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	910	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	456	1045	-
HCM Lane V/C Ratio	-	-	0.02	-	-
HCM Control Delay (s)	-	-	13.1	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	6.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	34	48	19	0	78	56
Future Vol, veh/h	34	48	19	0	78	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	49	70	28	0	113	81

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	335	28	0	0	28	0
Stage 1	28	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	633	1008	-	-	1499	-
Stage 1	960	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	583	1008	-	-	1499	-
Mov Cap-2 Maneuver	583	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	4.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	774	1499	-
HCM Lane V/C Ratio	-	-	0.154	0.075	-
HCM Control Delay (s)	-	-	10.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	34	51	19	0	81	56
Future Vol, veh/h	34	51	19	0	81	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	16	16	16	16	16	16
Mvmt Flow	49	74	28	0	117	81

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	344	28	0	0	28	0
Stage 1	28	-	-	-	-	-
Stage 2	316	-	-	-	-	-
Critical Hdwy	6.56	6.36	-	-	4.26	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	-	-	2.344	-
Pot Cap-1 Maneuver	625	1008	-	-	1499	-
Stage 1	960	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	574	1008	-	-	1499	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	651	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	4.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	774	1499	-
HCM Lane V/C Ratio	-	-	0.159	0.078	-
HCM Control Delay (s)	-	-	10.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.3	-

Intersection						
Int Delay, s/veh	5.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	21	93	66	40	56	48
Future Vol, veh/h	21	93	66	40	56	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	31	139	99	60	84	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	367	128	0	0	158	0
Stage 1	128	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	613	896	-	-	1363	-
Stage 1	874	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	574	896	-	-	1363	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	4.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	812	1363	-
HCM Lane V/C Ratio	-	-	0.21	0.061	-
HCM Control Delay (s)	-	-	10.6	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	21	93	66	40	60	48
Future Vol, veh/h	21	93	66	40	60	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	31	139	99	60	90	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	379	128	0	0	158	0
Stage 1	128	-	-	-	-	-
Stage 2	251	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	604	896	-	-	1363	-
Stage 1	874	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	562	896	-	-	1363	-
Mov Cap-2 Maneuver	562	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	715	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	4.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	808	1363	-
HCM Lane V/C Ratio	-	-	0.211	0.066	-
HCM Control Delay (s)	-	-	10.6	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-

Intersection												
Int Delay, s/veh	6.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	13	50	17	3	117	0	62	178	5	3	143	96
Future Vol, veh/h	13	50	17	3	117	0	62	178	5	3	143	96
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	15	60	20	4	139	0	74	212	6	4	170	114

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	667	600	227	637	655	215	285	0	0	218	0	0
Stage 1	235	235	-	363	363	-	-	-	-	-	-	-
Stage 2	432	365	-	274	292	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	6.28	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	364	407	798	382	378	810	1244	-	-	1317	-	-
Stage 1	755	699	-	644	614	-	-	-	-	-	-	-
Stage 2	590	613	-	719	660	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	239	378	798	310	351	810	1244	-	-	1317	-	-
Mov Cap-2 Maneuver	239	378	-	310	351	-	-	-	-	-	-	-
Stage 1	704	696	-	600	572	-	-	-	-	-	-	-
Stage 2	416	571	-	638	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.4	22.2	2	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1244	-	-	385	350	1317	-	-
HCM Lane V/C Ratio	0.059	-	-	0.247	0.408	0.003	-	-
HCM Control Delay (s)	8.1	0	-	17.4	22.2	7.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1	1.9	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	13	50	20	3	117	0	65	178	5	3	143	96
Future Vol, veh/h	13	50	20	3	117	0	65	178	5	3	143	96
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	15	60	24	4	139	0	77	212	6	4	170	114

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	674	608	227	646	662	215	285	0	0	218	0	0
Stage 1	235	235	-	370	370	-	-	-	-	-	-	-
Stage 2	439	373	-	276	292	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	6.28	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.18	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	360	402	798	376	375	810	1244	-	-	1317	-	-
Stage 1	755	699	-	638	610	-	-	-	-	-	-	-
Stage 2	585	608	-	717	660	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	234	372	798	302	347	810	1244	-	-	1317	-	-
Mov Cap-2 Maneuver	234	372	-	302	347	-	-	-	-	-	-	-
Stage 1	702	696	-	593	567	-	-	-	-	-	-	-
Stage 2	410	565	-	634	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	22.5	2.1	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1244	-	-	386	346	1317	-	-
HCM Lane V/C Ratio	0.062	-	-	0.256	0.413	0.003	-	-
HCM Control Delay (s)	8.1	0	-	17.5	22.5	7.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1	2	0	-	-

Intersection	
Int Delay, s/veh	80.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	130	180	32	13	48	0	24	141	8	3	340	40
Future Vol, veh/h	130	180	32	13	48	0	24	141	8	3	340	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	167	231	41	17	62	0	31	181	10	4	436	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	747	722	462	852	742	189	487	0	0	191	0	0
Stage 1	469	469	-	247	247	-	-	-	-	-	-	-
Stage 2	278	253	-	605	495	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	325	349	594	276	340	845	1061	-	-	1365	-	-
Stage 1	569	556	-	750	696	-	-	-	-	-	-	-
Stage 2	722	692	-	479	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	270	336	594	112	327	843	1061	-	-	1361	-	-
Mov Cap-2 Maneuver	270	336	-	112	327	-	-	-	-	-	-	-
Stage 1	550	554	-	725	673	-	-	-	-	-	-	-
Stage 2	633	669	-	259	539	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	219.2	28.2	1.2	0.1
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1061	-	-	319	232	1361	-	-
HCM Lane V/C Ratio	0.029	-	-	1.374	0.337	0.003	-	-
HCM Control Delay (s)	8.5	0	-	219.2	28.2	7.7	0	-
HCM Lane LOS	A	A	-	F	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	22.3	1.4	0	-	-

Intersection	
Int Delay, s/veh	81.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	130	180	36	13	48	0	24	141	8	3	340	40
Future Vol, veh/h	130	180	36	13	48	0	24	141	8	3	340	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	167	231	46	17	62	0	31	181	10	4	436	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	747	722	462	855	742	186	487	0	0	191	0	0
Stage 1	469	469	-	247	247	-	-	-	-	-	-	-
Stage 2	278	253	-	608	495	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	325	349	594	275	340	849	1061	-	-	1365	-	-
Stage 1	569	556	-	750	696	-	-	-	-	-	-	-
Stage 2	722	692	-	478	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	270	336	594	110	327	849	1061	-	-	1365	-	-
Mov Cap-2 Maneuver	270	336	-	110	327	-	-	-	-	-	-	-
Stage 1	550	554	-	725	673	-	-	-	-	-	-	-
Stage 2	634	669	-	256	539	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	222	28.5	1.2	0.1
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1061	-	-	321	230	1365	-	-
HCM Lane V/C Ratio	0.029	-	-	1.382	0.34	0.003	-	-
HCM Control Delay (s)	8.5	0	-	222	28.5	7.6	0	-
HCM Lane LOS	A	A	-	F	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	22.7	1.4	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	21	50	101	658	387	66
Future Vol, veh/h	21	50	101	658	387	66
Conflicting Peds, #/hr	0	0	0	0	0	30
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	24	57	115	748	440	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1454	477	515	0	-	0
Stage 1	477	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.17	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.263	-	-	-
Pot Cap-1 Maneuver	140	578	1026	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	113	578	1026	-	-	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	288	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.8	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1026	-	261	-	-
HCM Lane V/C Ratio	0.112	-	0.309	-	-
HCM Control Delay (s)	9	0	24.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	21	50	101	658	387	66
Future Vol, veh/h	21	50	101	658	387	66
Conflicting Peds, #/hr	0	0	0	0	0	30
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	24	57	115	748	440	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1454	477	515	0	-	0
Stage 1	477	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.17	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.263	-	-	-
Pot Cap-1 Maneuver	140	578	1026	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	113	578	1026	-	-	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	288	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.8	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1026	-	261	-	-
HCM Lane V/C Ratio	0.112	-	0.309	-	-
HCM Control Delay (s)	9	0	24.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-

Intersection	
Int Delay, s/veh	132.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	141	146	37	751	825	13
Future Vol, veh/h	141	146	37	751	825	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	158	164	42	844	927	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1861	934	942	0	-	0
Stage 1	934	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	~ 79	319	720	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 70	319	720	-	-	-
Mov Cap-2 Maneuver	~ 70	-	-	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	340	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 882.8	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	720	-	116	-	-
HCM Lane V/C Ratio	0.058	-	2.78	-	-
HCM Control Delay (s)	10.3	0	$ 882.8	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	29.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	132.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	141	146	37	751	825	13
Future Vol, veh/h	141	146	37	751	825	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	158	164	42	844	927	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1861	934	942	0	-	0
Stage 1	934	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	~ 79	319	720	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 70	319	720	-	-	-
Mov Cap-2 Maneuver	~ 70	-	-	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	340	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 882.8	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	720	-	116	-	-
HCM Lane V/C Ratio	0.058	-	2.78	-	-
HCM Control Delay (s)	10.3	0	$ 882.8	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	29.9	-	-

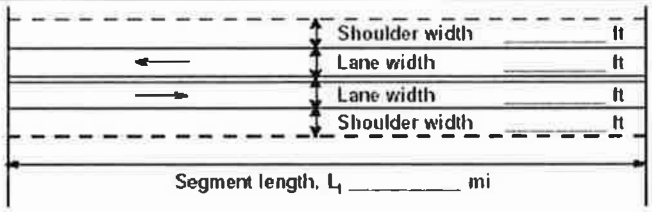
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*6th Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Broad/Airport Street*
Date Performed	*9/3/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:30-17:30 Avg*	Analysis Year	*2015*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi	Up/down
Peak-hour factor, PHF	*0.87*
No-passing zone	*100%*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*31/mi*

Analysis direction vol., V_d	*178veh/h*
Opposing direction vol., V_o	*24veh/h*
Shoulder width ft	*2.0*
Lane Width ft	*12.0*
Segment Length mi	*0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.982*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF^* f_{g,ATS} * f_{HV,ATS})$	*207*	*28*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*7.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.0 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*34.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.8 mi/h*
		Percent free flow speed, PFFS	*94.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*	*0.998*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF^*f_{HV,PTSF}^* f_{g,PTSF})$	*205*	*28*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*22.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*43.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*60.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.12*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1669*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1697*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*204.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*3.84*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.68*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If $v_i(v_d$ or $v_o)$ >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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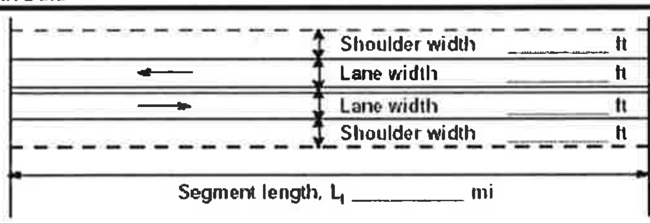
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*Airport Drive*
Agency or Company	*HDR, Inc.*	From/To	*6th Ave/ 2nd Ave*
Date Performed	*9/3/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:15-17:15 Avg*	Analysis Year	*2015*

Project Description: *Southwaste Disposal Dallas*

Input Data



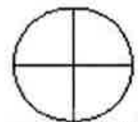
Analysis direction vol., V_d *127veh/h*

Opposing direction vol., V_o *42veh/h*

Shoulder width ft *0.0*

Lane Width ft *17.0*

Segment Length mi *0.6*


Show North Arrow

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.78*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *0%*

Access points *mi* *34/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.6*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*168*	*56*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*4.2 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*37.3 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.2 mi/h*
		Percent free flow speed, PFFS	*88.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*164*	*54*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*48.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*54.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1627*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*162.8*
Effective width, Wv (Eq. 15-29) ft	*23.20*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.65*
Bicycle level of service (Exhibit 15-4)	*C*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If $v_i(v_d$ or $v_o)$ >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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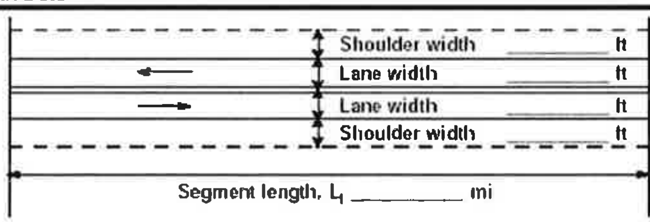
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*IL*	Highway / Direction of Travel	*2nd Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Airport/Easy*
Date Performed	*9/8/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:15-17:15 Avg*	Analysis Year	*2015*

Project Description: *Southwaste Disposal Dallas*

Input Data




Show North Arrow

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*142veh/h*
Opposing direction vol., V_o	*65veh/h*
Shoulder width ft	*2.0*
Lane Width ft	*12.0*
Segment Length mi	*0.2*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.78*
No-passing zone	*100%*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*14/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.6*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}$=1/ (1+ P_T(E_T-1)+P_R(E_R-1))	*0.971*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$)	*187*	*87*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*53.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*49.1 mi/h*
		Percent free flow speed, PFFS	*91.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ P_T(E_T-1)+P_R(E_R-1))	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i$/(PHF*$f_{HV,PTSF}$* $f_{g,PTSF}$)	*183*	*84*
Base percent time-spent-following[4], $BPTSF_d$(%)=100(1-$e^{av_d^b}$)	*20.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.7*	
Percent time-spent-following, $PTSF_d$(%)=$BPTSF_d$+$f_{np,PTSF}$ *($v_{d,PTSF}$ / $v_{d,PTSF}$ + $v_{o,PTSF}$)	*54.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1627*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Cless III only)	*91.1*
Bicycle Level of Service	
Directional demand flow rete in outside lane, v_{OL} (Eq. 15-24) veh/h	*182.1*
Effective width, Wv (Eq. 15-29) ft	*18.06*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.06*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrede segments ere treeted es level terrain.
2. If $v_i(v_d$ or $v_o)$ >=1,700 pc/h, terminete analysis–the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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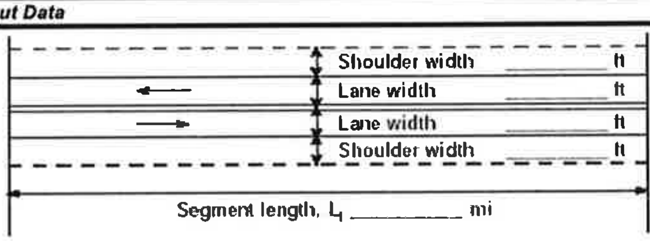
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	IL	Highway / Direction of Travel	S Main Street
Agency or Company	HDR,Inc.	From/To	Airport/Sentry
Date Performed	9/8/2015	Jurisdiction	TxDOT
Analysis Time Period	16:30-17:30 Avg	Analysis Year	2015

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi	Up/down
Peak-hour factor, PHF	0.89
No-passing zone	100%
% Trucks and Buses , P_T	4 %
% Recreetionel vehicles, P_R	0%
Access points *mi*	8/mi

Analysis direction vol., V_d	367veh/h
Opposing direction vol., V_o	297veh/h
Shoulder width ft	8.0
Lane Width ft	12.0
Segment Length mi	0.4

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.3	1.4
Passenger-car equivelents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heevy-vehicle adjustment factor, $f_{HV,ATS}$=1/ (1+ P_T(E_T -1)+P_R (E_R -1))	0.988	0.984
Grede edjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) v_i=V_i / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$)	417	339

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Bese free-flow speed[4], BFFS	60.0 mi/h
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	0.0 mi/h
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	2.0 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	3.7 mi/h	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	58.0 mi/h
		Averege travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	48.5 mi/h
		Percent free flow speed, PFFS	83.6 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-cer equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle edjustment factor, f_{HV}=1/ (1+ P_T(E_T-1)+P_R(E_R-1))	1.000	0.996
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rete[2], v_i(pc/h) v_i=V_i/(PHF*$f_{HV,PTSF}$* $f_{g,PTSF}$)	412	335
Bese percent time-spent-following[4], $BPTSF_d$(%)=100(1-$e^{av_d^b}$)	41.9	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	46.9	
Percent time-spent-following, $PTSF_d$(%)=$BPTSF_d$+$f_{np,PTSF}$ *($v_{d,PTSF}$ / $v_{d,PTSF}$ + $v_{o,PTSF}$)	67.8	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	B
Volume to cepecity ratio, *v/c*	0.25

October 29, 2015 I II.C-149

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1673*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1693*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*83.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*412.4*
Effective width, Wv (Eq. 15-29) ft	*28.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*1.89*
Bicycle level of service (Exhibit 15-4)	*B*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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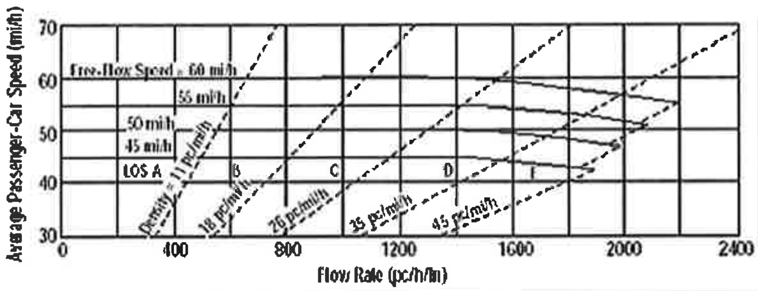
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/3/2015
Analysis Time Period	16:30-17:30 Avg

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	315	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	0.0
Access Points, A (A/mi)	34
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	179
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*179.0*

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	3.77
Bicycle level of service (Exhibit 15-4)	D

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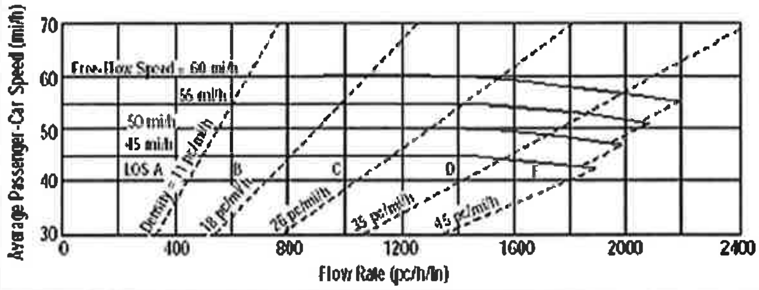
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/3/2015
Analysis Time Period	16:30-17:30 Avg

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	351	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	0.0
Access Points, A (A/mi)	29
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	200
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.4
LOS	A

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*199.4*

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	3.82
Bicycle level of service (Exhibit 15-4)	D

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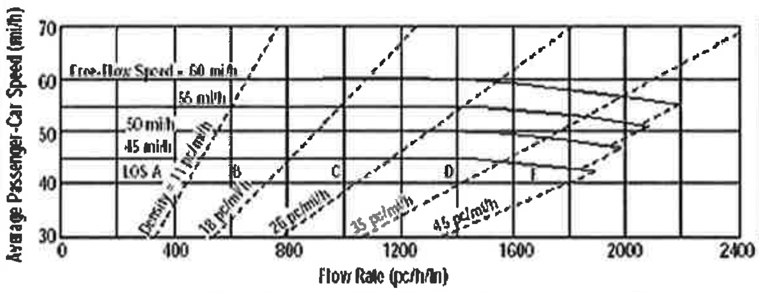
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/8/2015
Analysis Time Period	16:45-17:45 Avg

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	672	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	383
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*381.8*

Effective width, W_v (Eq. 15-29) ft	*12.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.30*
Bicycle level of service (Exhibit 15-4)	*D*

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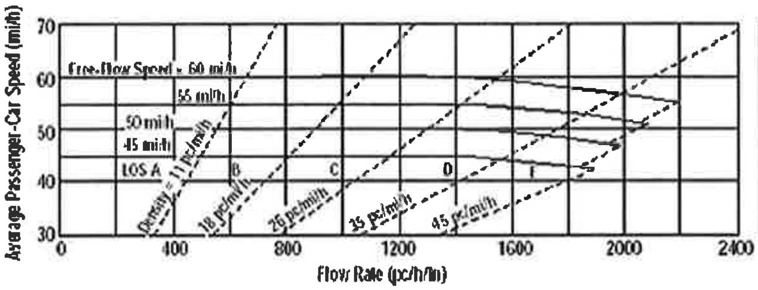
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/8/2015
Analysis Time Period	16:45-17:45 Avg

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	679	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	387
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*385.8*

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.31
Bicycle level of service (Exhibit 15-4)	D

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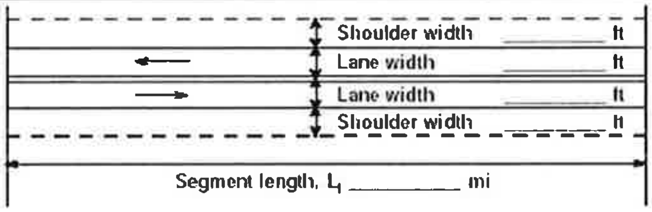
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*6th Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Broad/Airport Street*
Date Performed	*9/3/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:30-17:30 Max*	Analysis Year	*2015*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi	Up/down
Peak-hour factor, PHF	0.87
No-passing zone	100%
% Trucks and Buses, P_T	2 %
% Recreational vehicles, P_R	0%
Access points *mi*	31/mi

Analysis direction vol., V_d	180veh/h
Opposing direction vol., V_o	24veh/h
Shoulder width ft	2.0
Lane Width ft	12.0
Segment Length mi	0.9

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.5	1.9
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.990	0.982
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	209	28

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	45.0 mi/h
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	2.6 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	7.8 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	0.0 mi/h	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	34.7 mi/h
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	32.8 mi/h
		Percent free flow speed, PFFS	94.7 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998	0.998
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	207	28
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	22.2	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	43.3	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	60.3	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	A
Volume to capacity ratio, *v/c*	0.12

October 29, 2015 I II.C-159

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1669*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1697*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*206.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*3.84*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.69*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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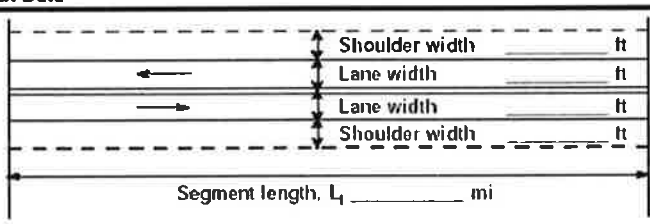
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	IL	Highway / Direction of Travel	Airport Drive
Agency or Company	HDR, Inc.	From/To	6th Ave/ 2nd Ave
Date Performed	9/3/2015	Jurisdiction	City of Mansfield
Analysis Time Period	16:15-17:15 Max	Analysis Year	2015

Project Description: Southwaste Disposal Dallas

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	128veh/h
Opposing direction vol., V_o	42veh/h
Shoulder width ft	0.0
Lane Width ft	17.0
Segment Length mi	0.6
Grade Length mi	Up/down
Peak-hour factor, PHF	0.78
No-passing zone	100%
% Trucks and Buses , P_T	5 %
% Recreational vehicles, P_R	0%
Access points *mi*	34/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.6	1.9
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.971	0.957
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	169	56

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	50.0 mi/h
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	4.2 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	8.5 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	2.4 mi/h	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	37.3 mi/h
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	33.2 mi/h
		Percent free flow speed, PFFS	88.9 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.1	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.995	0.995
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	165	54
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	18.2	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	48.2	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	54.5	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	B
Volume to capacity ratio, *v/c*	0.10

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1627*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*164.1*
Effective width, Wv (Eq. 15-29) ft	*23.12*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.68*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If $v_i(v_d$ or $v_o)$ >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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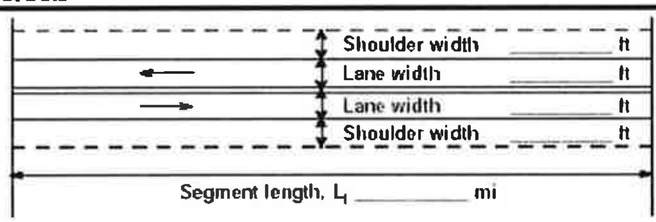
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*2nd Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Airport/Easy*
Date Performed	*9/8/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:15-17:15 Max*	Analysis Year	*2015*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*142veh/h*
Opposing direction vol., V_o	*65veh/h*
Shoulder width ft	*2.0*
Lane Width ft	*12.0*
Segment Length mi	*0.2*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.78*
No-passing zone	*100%*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*14/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.6*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*187*	*87*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS} (Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*53.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*49.1 mi/h*
		Percent free flow speed, PFFS	*91.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*183*	*84*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*20.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*54.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

October 29, 2015 I II.C-163

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1627*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*91.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*182.1*
Effective width, Wv (Eq. 15-29) ft	*18.06*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.06*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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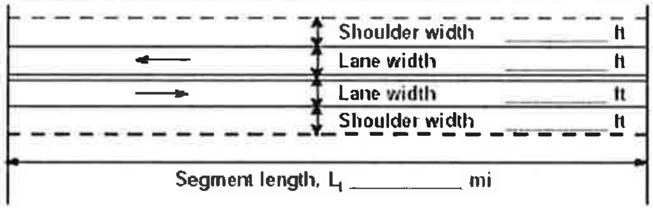
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	IL	Highway / Direction of Travel	S Main Street
Agency or Company	HDR, Inc.	From/To	Airport/Sentry
Date Performed	9/8/2015	Jurisdiction	TxDOT
Analysis Time Period	16:30-17:30 Max	Analysis Year	2015

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	368veh/h
Opposing direction vol., V_o	297veh/h
Shoulder width ft	8.0
Lane Width ft	12.0
Segment Length mi	0.4
Grade Length mi Up/down	
Peak-hour factor, PHF	0.89
No-passing zone	100%
% Trucks and Buses, P_T	4 %
% Recreational vehicles, P_R	0%
Access points *mi*	8/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.3	1.4
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.988	0.984
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	419	339

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	60.0 mi/h
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS} (Exhibit 15-7)	0.0 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	2.0 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	3.7 mi/h	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	58.0 mi/h
		Average travel spead, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	48.4 mi/h
		Percent free flow speed, PFFS	83.5 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	0.996
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	413	335
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	41.9	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	46.9	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	67.8	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	B
Volume to capacity ratio, *v/c*	0.25

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1673*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1693*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*83.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*413.5*
Effective width, Wv (Eq. 15-29) ft	*28.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*1.89*
Bicycle level of service (Exhibit 15-4)	*B*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If $v_i(v_d$ or $v_o)$ >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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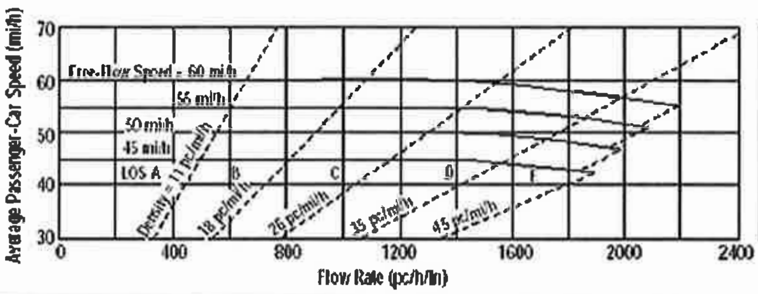
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/3/2015
Analysis Time Period	16:30-17:30 Max

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	317	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	181
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.0
LOS	A

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*180.1*

Effective width, W_v (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	1.61
Bicycle level of service (Exhibit 15-4)	B

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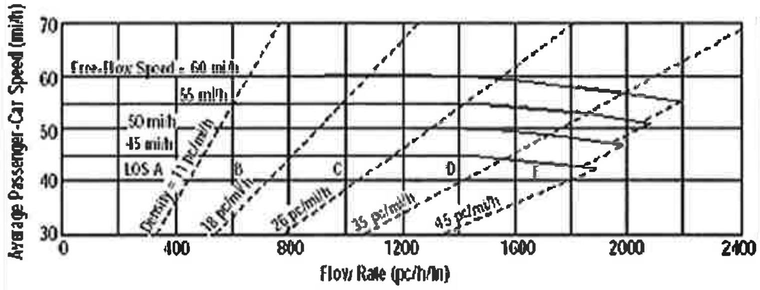
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/3/2015
Analysis Time Period	16:30-17:30 Max

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	351	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	200
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*199.4*

Effective width, W_v (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	1.66
Bicycle level of service (Exhibit 15-4)	B

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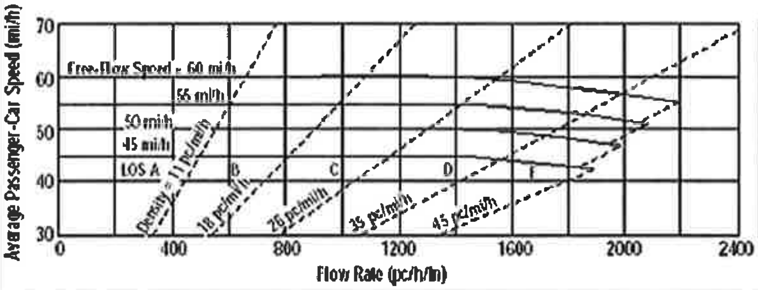
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/8/2015
Analysis Time Period	16:45-17:45 Max

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	673	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	384
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.5
LOS	A

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	382.4

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.30
Bicycle level of service (Exhibit 15-4)	D

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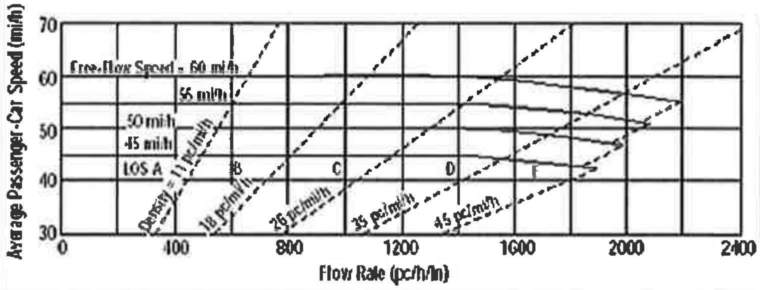
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/8/2015
Analysis Time Period	16:45-17:45 Max

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2015

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	679	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	387
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*385.8*

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.31
Bicycle level of service (Exhibit 15-4)	D

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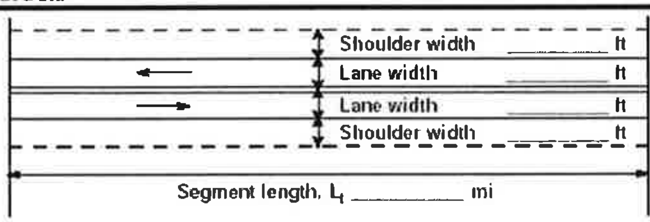
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	IL	Highway / Direction of Travel	6th Avenue NB
Agency or Company	HDR, Inc.	From/To	Broad/Airport
Date Performed	9/30/2015	Jurisdiction	City of Mansfield
Analysis Time Period	16:30-17:30 Avg	Analysis Year	2035

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	464veh/h
Opposing direction vol., V_o	64veh/h
Shoulder width ft	2.0
Lane Width ft	12.0
Segment Length mi	0.9
Grade Length mi	Up/down
Peak-hour factor, PHF	0.87
No-passing zone	100%
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points *mi*	31/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.2	1.9
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996	0.982
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF^* f_{g,ATS} * f_{HV,ATS})$	535	75

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	45.0 mi/h
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	2.6 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	7.8 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	0.0 mi/h	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	34.7 mi/h
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	29.9 mi/h
		Percent free flow speed, PFFS	86.3 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.0	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	0.998
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF^* f_{HV,PTSF} * f_{g,PTSF})$	633	74
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	46.7	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	32.6	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF} *(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	75.3	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	B
Volume to capacity ratio, *v/c*	0.31

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1669*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1697*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*86.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*533.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*3.84*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.17*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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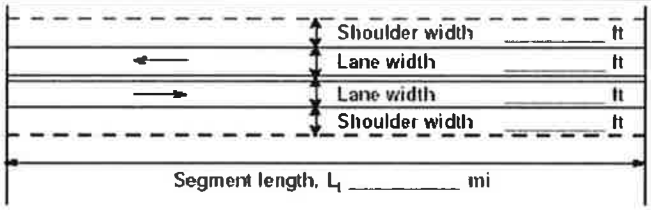
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*IL*	Highway / Direction of Travel	*Airport Drive*
Agency or Company	*HDR, Inc.*	From/To	*6th Ave/ 2nd Ave*
Date Performed	*9/30/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:15-17:15 Avg*	Analysis Year	*2035*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*342veh/h*
Opposing direction vol., V_o	*112veh/h*
Shoulder width ft	*0.0*
Lane Width ft	*17.0*
Segment Length mi	*0.6*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.78*
No-passing zone	*100%*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*34/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}$=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.985*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$)	*445*	*149*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*4.2 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*8.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*37.3 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*29.5 mi/h*
		Percent free flow speed, PFFS	*79.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i$/(PHF*$f_{HV,PTSF}$* $f_{g,PTSF}$)	*438*	*144*
Base percent time-spent-following[4], $BPTSF_d$(%)=100(1-$e^{av_d^b}$)	*40.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*43.5*	
Percent time-spent-following, $PTSF_d$(%)=$BPTSF_d$+f $_{np,PTSF}$ *($v_{d,PTSF}$ / $v_{d,PTSF}$ + $v_{o,PTSF}$)	*73.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*438.5*
Effective width, Wv (Eq. 15-29) ft	*17.00*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.40*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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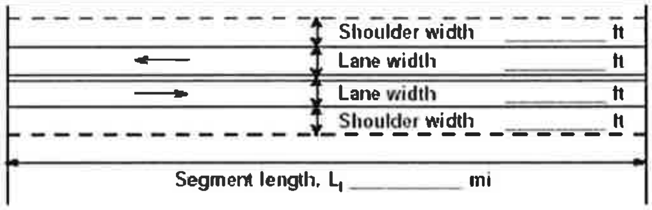
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*2nd Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Airport/Easy*
Date Performed	*9/30/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:15-17:15 Avg*	Analysis Year	*2035*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*385veh/h*
Opposing direction vol., V_o	*173veh/h*
Shoulder width ft	*2.0*
Lane Width ft	*12.0*
Segment Length mi	*0.2*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.78*
No-passing zone	*100%*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*14/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}$=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.990*	*0.976*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$)	*499*	*227*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*53.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*44.4 mi/h*
		Percent free flow speed, PFFS	*82.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i$/(PHF*$f_{HV,PTSF}$* $f_{g,PTSF}$)	*494*	*223*
Base percent time-spent-following[4], $BPTSF_d$(%)=100(1-$e^{av_d^b}$)	*45.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.9*	
Percent time-spent-following, $PTSF_d$(%)=$BPTSF_d$+$f_{np,PTSF}$ *($v_{d,PTSF}$ / $v_{d,PTSF}$ + $v_{o,PTSF}$)	*73.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.29*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1659*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*82.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*493.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.22*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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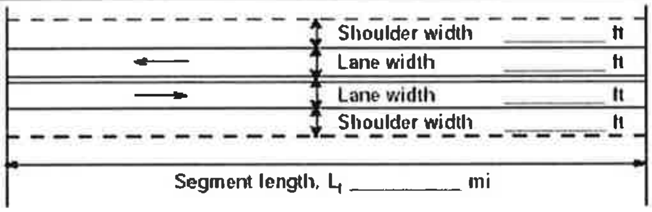
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*S Main Street*
Agency or Company	*HDR,Inc.*	From/To	*Airport/Sentry*
Date Performed	*9/30/2015*	Jurisdiction	*TxDOT*
Analysis Time Period	*16:30-17:30 Avg*	Analysis Year	*2035*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*971veh/h*
Opposing direction vol., V_o	*788veh/h*
Shoulder width ft	*8.0*
Lane Width ft	*12.0*
Segment Length mi	*0.4*
Grade Length mi Up/down	
Peak-hour factor, PHF	*0.89*
No-passing zone	*100%*
% Trucks and Buses , P_T	*4 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*8/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF^* f_{g,ATS}{}^* f_{HV,ATS})$	*1091*	*885*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*2.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*58.0 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.4 mi/h*
		Percent free flow speed, PFFS	*71.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF^* f_{HV,PTSF}{}^* f_{g,PTSF})$	*1091*	*885*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*79.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*18.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}{}^*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*89.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.64*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1091.0*
Effective width, Wv (Eq. 15-29) ft	*28.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.39*
Bicycle level of service (Exhibit 15-4)	*B*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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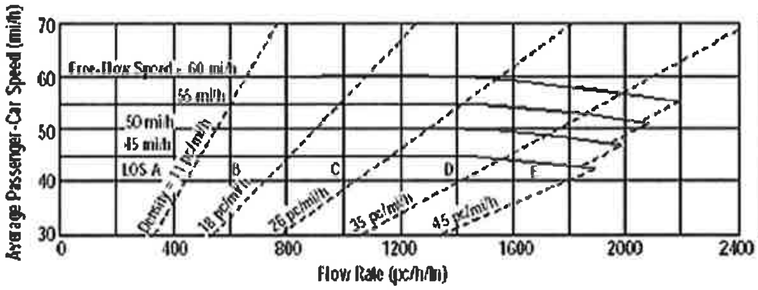
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/2015
Analysis Time Period	16:30-17:30 Avg

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	828	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	472
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.5
LOS	A

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*470.5*

Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.10*
Bicycle level of service (Exhibit 15-4)	*B*

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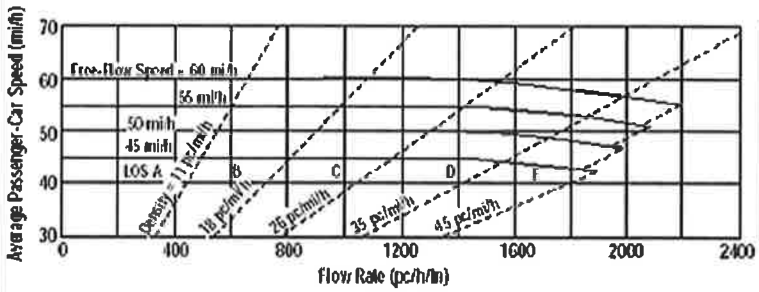
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/2015
Analysis Time Period	16:30-17:30 Avg

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	932	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	532
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	529.5

Effective width, W_v (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	2.16
Bicycle level of service (Exhibit 15-4)	B

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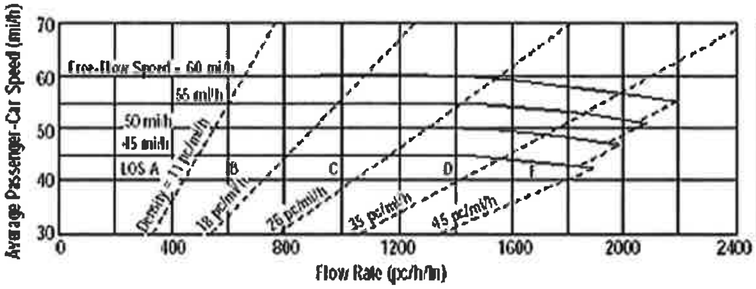
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/2015
Analysis Time Period	16:45-17:45 Avg

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1802	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1028
Speed, S (mi/h)	45.0
D (pc/mi/ln)	22.8
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	1023.9

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.80
Bicycle level of service (Exhibit 15-4)	E

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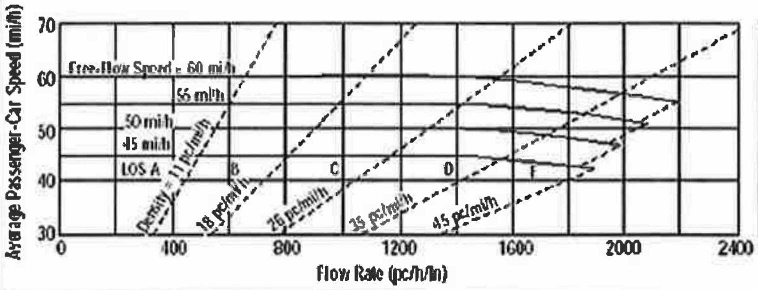
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/2015
Analysis Time Period	16:45-17:45 Avg

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1778	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1015
Speed, S (mi/h)	45.0
D (pc/mi/ln)	22.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1010.2*

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.80
Bicycle level of service (Exhibit 15-4)	E

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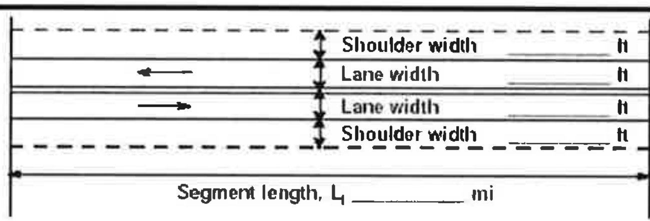
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*6th Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Broad/Airport*
Date Performed	*9/30/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:30-17:30 Max*	Analysis Year	*2035*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*464veh/h*
Opposing direction vol., V_o	*64veh/h*
Shoulder width ft	*2.0*
Lane Width ft	*12.0*
Segment Length mi	*0.9*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.87*
No-passing zone	*100%*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*31/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}$=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.996*	*0.982*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i$ / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$)	*535*	*75*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*7.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*34.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*29.9 mi/h*
		Percent free flow speed, PFFS	*86.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*1.000*	*0.998*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i$/(PHF*$f_{HV,PTSF}$* $f_{g,PTSF}$)	*533*	*74*
Base percent time-spent-following[4], $BPTSF_d$(%)=100(1-$e^{av_d^b}$)	*46.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.6*	
Percent time-spent-following, $PTSF_d$(%)=$BPTSF_d$+$f_{np,PTSF}$ *($v_{d,PTSF}$ / $v_{d,PTSF}$ + $v_{o,PTSF}$)	*75.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.31*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1669*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1697*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*86.3*
Bicycle Level of Service	
Directional demand flow rete in outside lane, v_{OL} (Eq. 15-24) veh/h	*533.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*3.84*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.17*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	
1. Note thet the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments ere treeted es level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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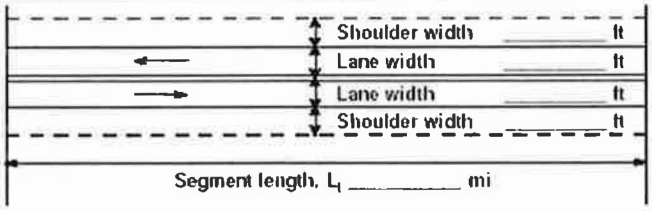
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*Airport Drive*
Agency or Company	*HDR, Inc.*	From/To	*6th Ave/ 2nd Ave*
Date Performed	*9/30/2015*	Jurisdiction	*City of Mansfield*
Analysis Time Period	*16:15-17:15 Max*	Analysis Year	*2035*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi	Up/down
Peak-hour factor, PHF	*0.78*
No-passing zone	*100%*
% Trucks and Buses, P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*34/mi*

Analysis direction vol., V_d	*346veh/h*
Opposing direction vol., V_o	*112veh/h*
Shoulder width ft	*0.0*
Lane Width ft	*17.0*
Segment Length mi	*0.6*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF^* f_{g,ATS} * f_{HV,ATS})$	*450*	*149*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*50.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*4.2 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*37.3 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.5 mi/h*
		Percent free flow speed, PFFS	*79.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF^* f_{HV,PTSF}^* f_{g,PTSF})$	*444*	*144*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*41.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*43.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}{}^*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*443.6*
Effective width, Wv (Eq. 15-29) ft	*17.00*
Effective speed factor, S_t (Eq. 15-30)	*4.17*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.41*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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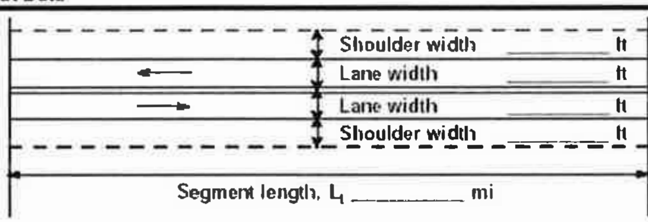
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*IL*	Highway / Direction of Travel	*2nd Avenue*
Agency or Company	*HDR, Inc.*	From/To	*Airport/Easy*
Date Performed	*9/30/2015*	Jurisdiction	*City of Mensfield*
Analysis Time Period	*16:15-17:15 Max*	Analysis Year	*2035*

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi	Up/down
Peak-hour factor, PHF	*0.78*
No-passing zone	*100%*
% Trucks and Buses , P_T	*5 %*
% Recreational vehicles, P_R	*0%*
Access points *mi*	*14/mi*

Analysis direction vol., V_d	*389veh/h*
Opposing direction vol., V_o	*173veh/h*
Shoulder width ft	*2.0*
Lane Width ft	*12.0*
Segment Length mi	*0.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.976*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*504*	*227*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.9 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*53.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*44.3 mi/h*
		Percent free flow speed, PFFS	*82.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*499*	*223*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*45.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1659*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Cless III only)	*82.2*
Bicycle Level of Service	
Directionel demend flow rete in outside lene, v_{OL} (Eq. 15-24) veh/h	*498.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.22*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment fector for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grede adjustment, specific downgrade segments ere treeted as level terrein.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate anelysis--the LOS is F.
3. For the analysis direction only end for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients e and b for Equetion 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on e specific downgrade.

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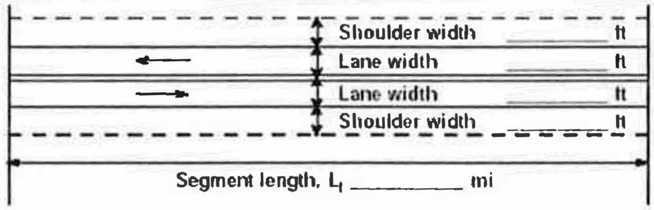
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	IL	Highway / Direction of Travel	S Main Street
Agency or Company	HDR, Inc.	From/To	Airport/Sentry
Date Performed	9/30/2015	Jurisdiction	TxDOT
Analysis Time Period	16:30-17:30 Max	Analysis Year	2035

Project Description: *Southwaste Disposal Dallas*

Input Data



☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	971veh/h
Opposing direction vol., V_o	788veh/h
Shoulder width ft	8.0
Lane Width ft	12.0
Segment Length mi	0.4
Grade Length mi Up/down	
Peak-hour factor, PHF	0.89
No-passing zone	100%
% Trucks and Buses, P_T	4 %
% Recreational vehicles, P_R	0%
Access points *mi*	8/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	1.0	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	1.000
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	1.00	1.00
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	1091	885

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	60.0 mi/h
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	0.0 mi/h
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	2.0 mi/h
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	1.3 mi/h	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	58.0 mi/h
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	41.4 mi/h
		Percent free flow speed, PFFS	71.3 %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	1.0	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	1.0	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000	1.000
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	1.00	1.00
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	1091	885
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	79.2	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	18.4	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	89.4	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	D
Volume to capacity ratio, v/c	0.64

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1091.0*
Effective width, Wv (Eq. 15-29) ft	*28.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.39*
Bicycle level of service (Exhibit 15-4)	*B*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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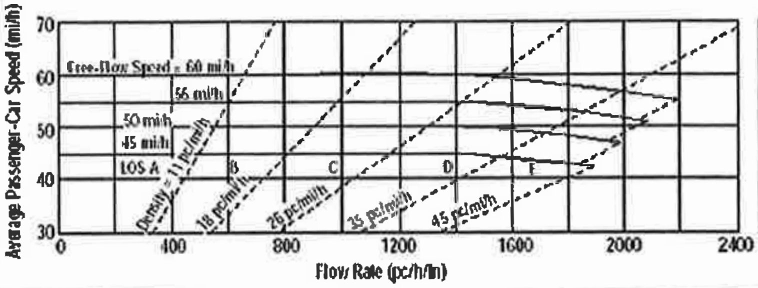
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/02015
Analysis Time Period	16:30-17:30 Max

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	828	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	472
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*470.5*

Effective width, W_v (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	2.10
Bicycle level of service (Exhibit 15-4)	B

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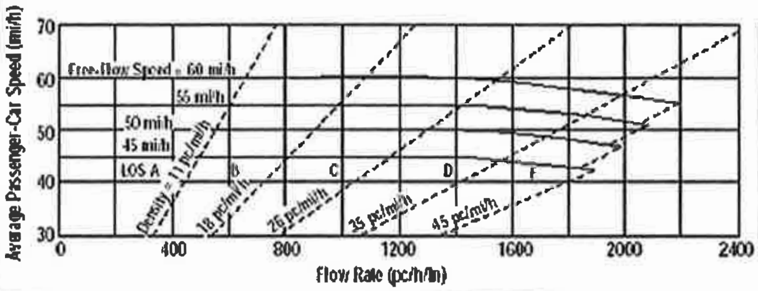
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/02015
Analysis Time Period	16:30-17:30 Max

Site Information

Highway/Direction to Travel	Broad Street
From/To	6th Ave/ Main Street
Jurisdiction	City of Mansfield
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	932	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	532
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*529.5*

Effective width, W_v (Eq. 15-29) ft	24.00
Effective speed factor, S_t (Eq. 15-30)	4.17
Bicycle level of service score, BLOS (Eq. 15-31)	2.16
Bicycle level of service (Exhibit 15-4)	B

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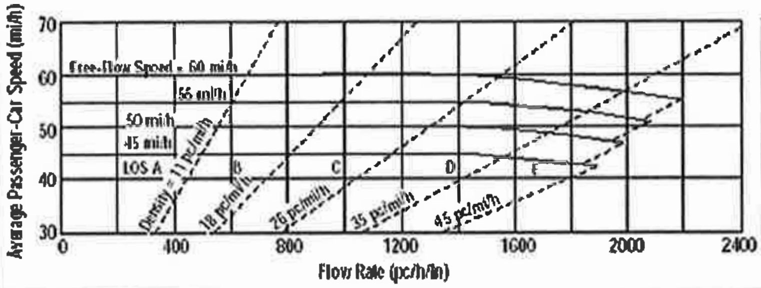
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/2015
Analysis Time Period	16:45-17:45 Max

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1802	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1028
Speed, S (mi/h)	45.0
D (pc/mi/ln)	22.8
LOS	C

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

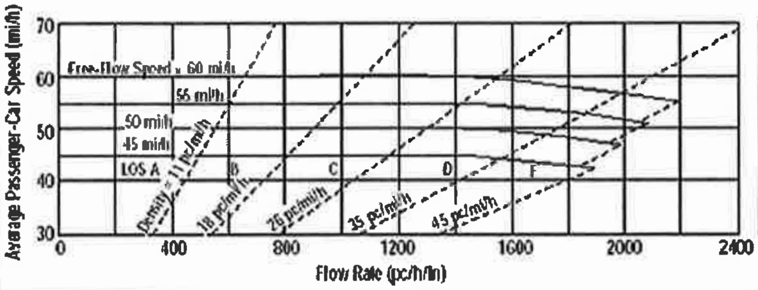
Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1023.9*

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.80
Bicycle level of service (Exhibit 15-4)	E

 HCS 2010™ Version 6.65 Generated: 10/5/2015 4:07 PM

MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	IL
Agency or Company	HDR, Inc.
Date Performed	9/30/2015
Analysis Time Period	16:45-17:45 Max

Site Information

Highway/Direction to Travel	N Main Street
From/To	Oak/Broad
Jurisdiction	TxDOT
Analysis Year	2035

Project Description Southwaste Disposal Dallas

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1778	Peak-Hour Factor, PHF	0.88
AADT(veh/h)		%Trucks and Buses, P_T	1
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.995

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	6.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1015
Speed, S (mi/h)	45.0
D (pc/mi/ln)	22.6
LOS	C

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service

Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1010.2*

October 29, 2015 I II.C-205

Effective width, W_v (Eq. 15-29) ft	12.00
Effective speed factor, S_t (Eq. 15-30)	4.79
Bicycle level of service score, BLOS (Eq. 15-31)	4.80
Bicycle level of service (Exhibit 15-4)	E

 HCS 2010™ Version 6.65 Generated: 10/5/2015 4:06 PM

APPENDIX II.D: TEXAS DEPARTMENT OF TRANSPORTATION CORRESPONDENCE

Parkhill

October 24, 2025

Carl L. Johnson, PE, District Engineer
Texas Department of Transportation
2501 SW Loop 820
Fort Worth, Texas 76133

Re: SouthWaste Disposal Dallas Facility (MSW # 2256C)
Texas Commission on Environmental Quality (TCEQ) Permit
Municipal Solid Waste (MSW) Type V Processing Facility

Dear Mr. Johnson:

In accordance with 30 TAC §330.61(i)(4), we submit this letter to you regarding the noted Project. SouthWaste Disposal, LLC retained the services of Parkhill to prepare a Permit Application to TCEQ to establish a MSW Type V Liquid Waste Processing Facility. The facility is in Mansfield, Tarrant County, Texas, as illustrated in the Attachment A: Facility Location Figure.

Please review the enclosed information regarding traffic related to the proposed permit amendment. We are not aware of any TxDOT location restrictions that would be applicable to the proposed expansion at the facility. Parkhill would like TxDOT to provide information regarding any traffic or location restrictions in the vicinity of the facility.

For any comments, questions, or further information, please contact me directly at 806.473.3683 or [redacted]

Sincerely,

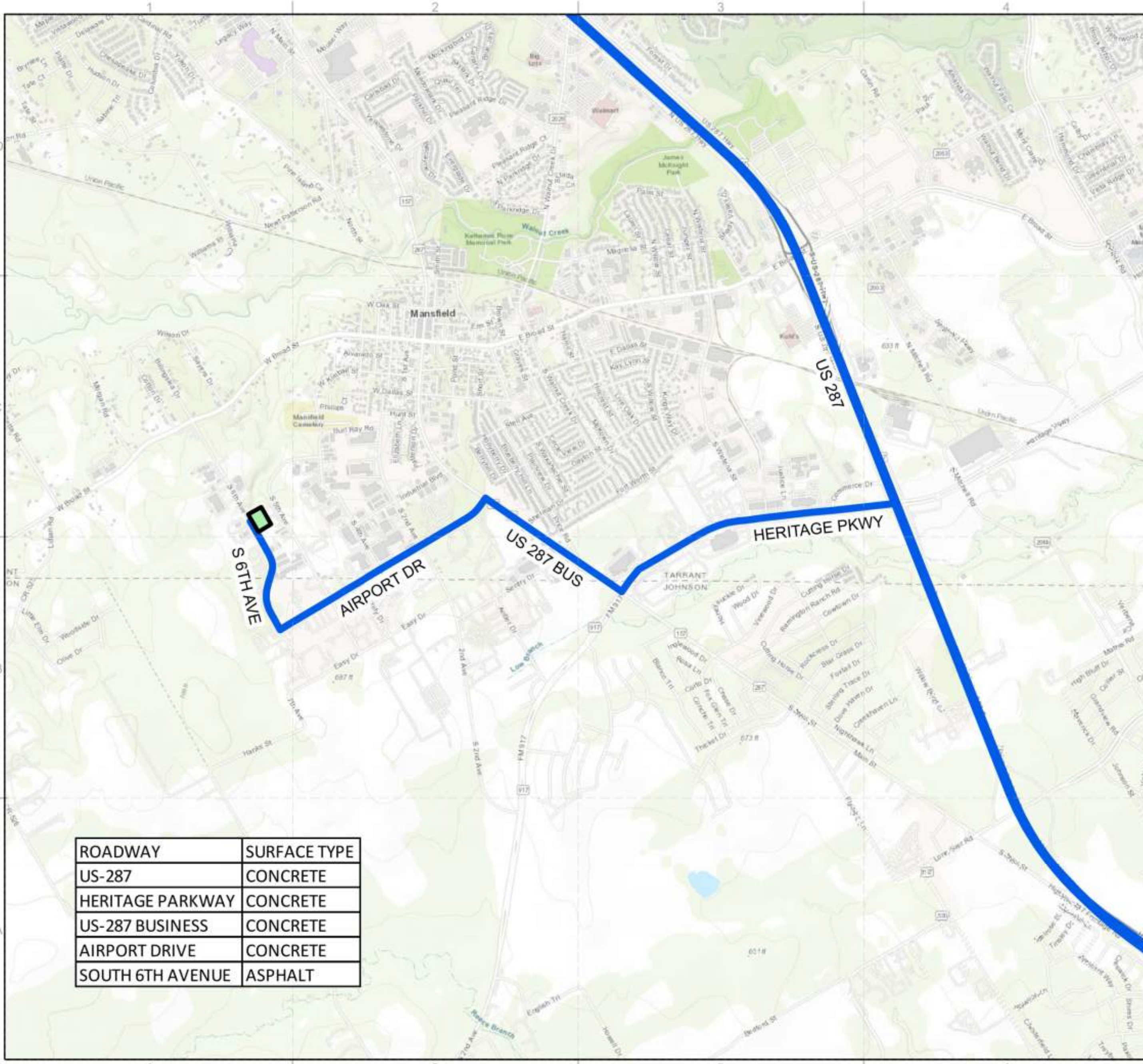
PARKHILL

By ______________________
Todd E. Stiggins, PE
Senior Civil Engineer

TES/pp
Enclosures: Attachment A: Facility Location Figure

A:\2025\45666.25\03_DSGN\03_REPT\00_PD\45666.25 - TxDoT - SouthWaste Disposal Dallas.docx

ATTACHMENT A: FACILITY LOCATION FIGURE



ROADWAY	SURFACE TYPE
US-287	CONCRETE
HERITAGE PARKWAY	CONCRETE
US-287 BUSINESS	CONCRETE
AIRPORT DRIVE	CONCRETE
SOUTH 6TH AVENUE	ASPHALT

0 1,000 2,000
Feet

NOTE:
SITE IS LOCATED AT:
LAT: 32°33'13"N
LONG: 97°09'10"W

LEGEND:
PROPERTY BOUNDARY
PRIMARY ACCESS ROADS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Parkhill

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

FACILITY LOCATION FIGURE

FILE NAME: A:\2025\45668.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.1-Detailed Highway Map.mxd LAYOUT NAME: Layers PRINTED: Thursday, July 10, 2025 - 12:57:03 PM USER: SHarvey

Parkhill

APPENDIX II.E: TEXAS PARKS AND WILDLIFE DEPARTMENT TARRANT COUNTY LIST OF RARE SPECIES AND CORRESPONDENCE FROM EXISTING PERMIT

Parkhill

October 24, 2025

Major David Murray
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

Re: Wildlife Habitat Assessment – Request for Review
SouthWaste Disposal Dallas Facility (MSW # 2256C)
Texas Commission on Environmental Quality (TCEQ) Permit
Municipal Solid Waste (MSW) Type V Processing Facility

Dear Major Murray:

SouthWaste Disposal, LLC has retained the services of Parkhill to prepare a Permit Amendment Application to TCEQ for their MSW Type V Liquid Waste Processing Facility. The facility is in Tarrant County, Texas, as illustrated in the figure Attachment A: Facility Location Figure.

The facility was constructed in 1996. Correspondence with Texas Parks and Wildlife Department from the 2017 permit modification is enclosed. The proposed facility capacity expansion will not disturb any additional site, nor will it result in destruction or adverse modification of any federally designated critical habitat for any threatened or endangered species. The proposed expansion will not cause or contribute to taking any listed threatened or endangered species.

This letter confirms the current absence of any endangered or threatened Species within the area affected by facility operations and/or any effects on those species.

For any comments, questions, or further information, please contact me directly at 806.473.3683 or [redacted]

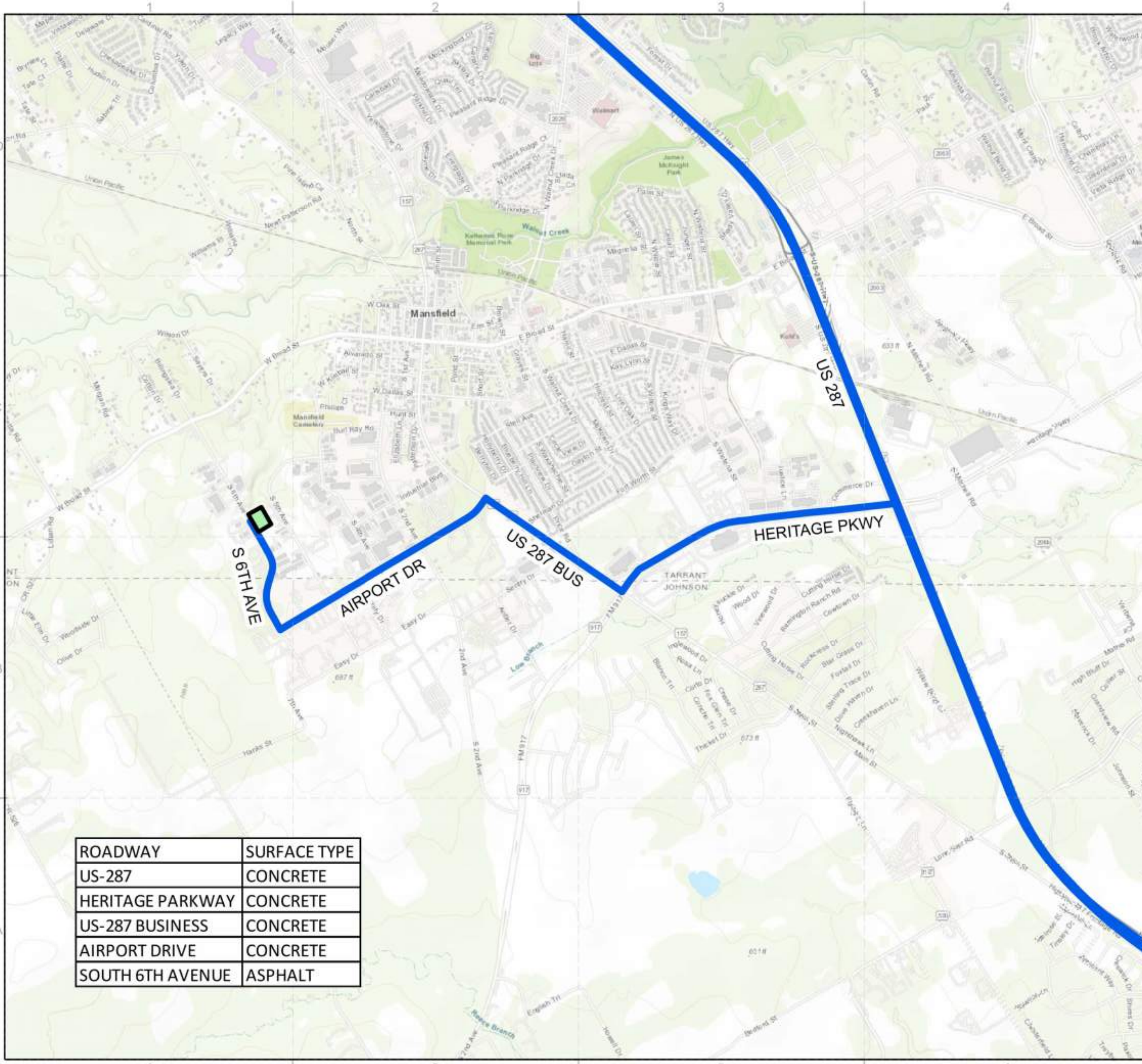
Sincerely,

PARKHILL

By ______________________________
Todd E. Stiggins, PE
Senior Civil Engineer

TES/pp
Enclosure: Attachment A: Facility Location Figure

ATTACHMENT A: FACILITY LOCATION FIGURE



ROADWAY	SURFACE TYPE
US-287	CONCRETE
HERITAGE PARKWAY	CONCRETE
US-287 BUSINESS	CONCRETE
AIRPORT DRIVE	CONCRETE
SOUTH 6TH AVENUE	ASPHALT

0 1,000 2,000
Feet

NOTE:
SITE IS LOCATED AT:
LAT: 32°33'13"N
LONG: 97°09'10"W

LEGEND:
PROPERTY BOUNDARY
PRIMARY ACCESS ROADS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Parkhill

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

FACILITY LOCATION FIGURE

Felipe Wescoup

From: Karen Hardin [redacted]
Sent: Wednesday, August 19, 2015 10:52 AM
To: Felipe Wescoup
Subject: TPWD Review of Southwaste Disposal Liquid Waste Facility Amendment, TPWD Project 35001

Mr. Felipe Wescoup,

Thank you for providing the Southwaste Disposal, Inc. proposed liquid waste facility amendment project for coordination submitted July 29, 2015. Based on a review of the documentation and description provided, the Wildlife Habitat Assessment Program does not anticipate significant adverse impacts to rare, threatened, or endangered species, or other fish and wildlife resources. However, please note it is the responsibility of the project proponent to comply with all federal, state, and local laws that protect fish and wildlife. Provided the project plans do not change, the Texas Parks and Wildlife Department considers coordination to be complete.

Sincerely,

Karen Hardin
Habitat Assessment Biologist
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744
(903)322-5001

APPENDIX II.F: U.S. FISH AND WILDLIFE AND TEXAS PARKS AND WILDLIFE CORRESPONDENCE

October 24, 2025

United States Fish and Wildlife Service
Fort Worth Field Office
501 Felix Street, Suite 1105
Fort Worth, Texas 76115

Re: SouthWaste Disposal Dallas Facility (MSW #2256C)
Texas Commission on Environmental Quality (TCEQ) Permit
Municipal Solid Waste (MSW) Type V Processing Facility

To whom it may concern:

SouthWaste Disposal, LLC has retained the services of Parkhill to prepare a Permit Amendment Application to the TCEQ for their MSW Type V Liquid Waste Processing Facility. The facility is in Tarrant County, Texas, as illustrated in the Attachment A: Facility Location Figure.

The facility was constructed in 1996. The proposed facility capacity expansion will not disturb any additional site, nor will it result in destruction or adverse modification of any federally designated critical habitat for any threatened or endangered species. The proposed expansion will not cause or contribute to taking any listed threatened or endangered species.

This letter confirms the current absence of any endangered or threatened Species within the area affected by facility operations and/or any effects on those species (see Attachment B: Aerial Photography Figure).

For any comments, questions, or further information, please contact me directly at 806.473.3683 or [redacted]

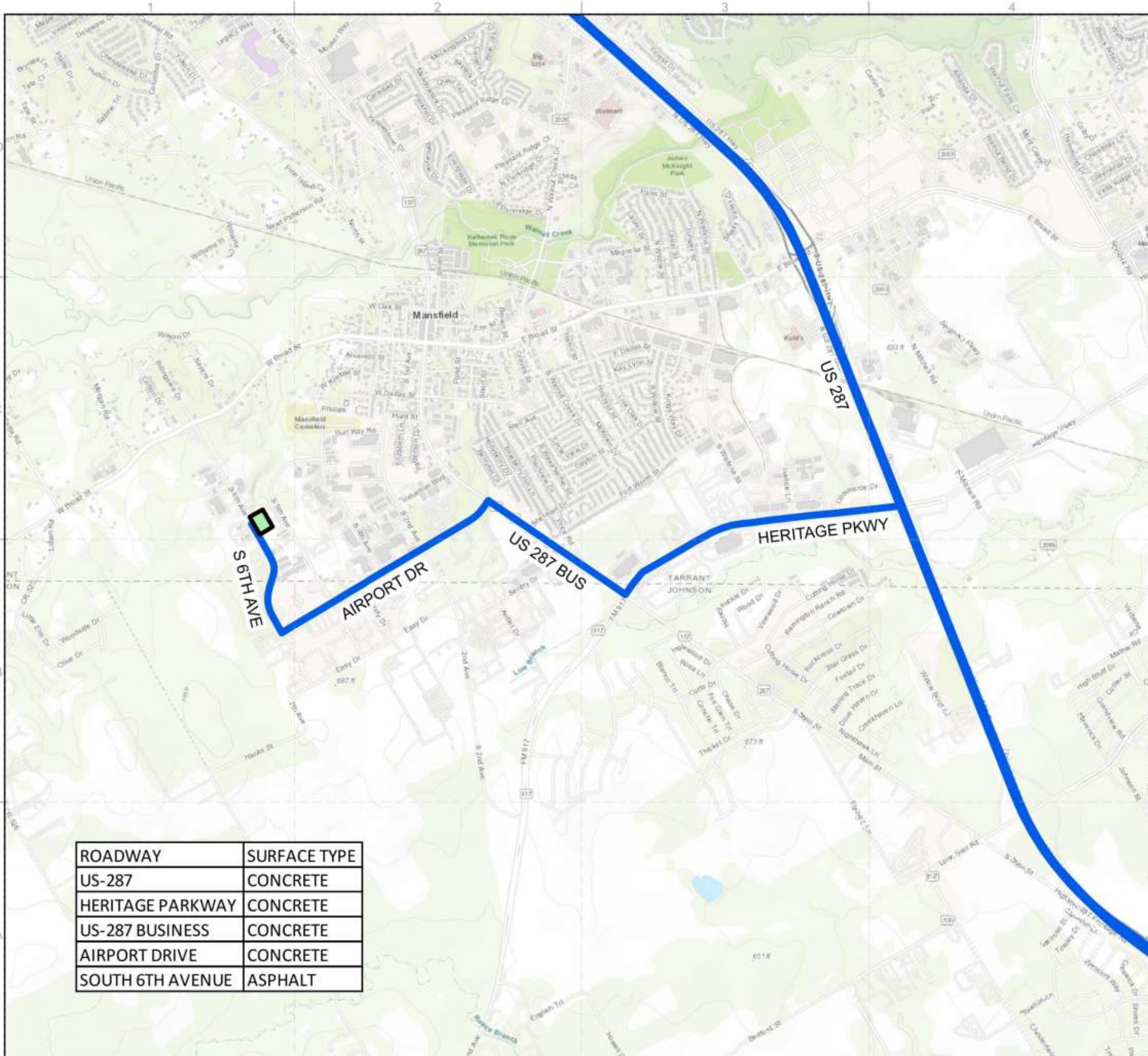
Sincerely,

PARKHILL

By ______________________
Todd Stiggins, PE
Senior Civil Engineer

TES/pp
Enclosures: Attachment A: Facility Location Figure
Attachment B: Aerial Photography Figure

ATTACHMENT A: FACILITY LOCATION FIGURE



ROADWAY	SURFACE TYPE
US-287	CONCRETE
HERITAGE PARKWAY	CONCRETE
US-287 BUSINESS	CONCRETE
AIRPORT DRIVE	CONCRETE
SOUTH 6TH AVENUE	ASPHALT

NOTE:
SITE IS LOCATED AT:
LAT: 32°33'13"N
LONG: 97°09'10"W

LEGEND:
- PROPERTY BOUNDARY
- PRIMARY ACCESS ROADS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Parkhill

ISSUED FOR PERMITTING ONLY

SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

FACILITY LOCATION FIGURE

ATTACHMENT B: AERIAL PHOTOGRAPHY FIGURE

0 1,000 2,000
Feet

LEGEND:

PROPERTY BOUNDARY
1 MILE RADIUS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:
Aerial imagery from Texas Natural Resources Information System; Texas NAIP Imagery 2020. Source Data Website: https://datagateway.nrcs.usda.gov/

Parkhill

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PERMITTING ONLY

SOUTHWASTE DISPOSAL
DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

AERIAL
PHOTOGRAPHY MAP

APPENDIX II.G: TEXAS HISTORICAL COMMISSION REVIEW

October 24, 2025

Mr. Joseph Bell, Executive Director
Texas Historical Commission
P.O. Box 12276
Austin Texas 78711-2276

Re: SouthWaste Disposal Dallas Facility (MSW #2256C)
Texas Commission on Environmental Quality Permit
Municipal Solid Waste Type V Processing Facility
Archeological/Historical Resources Review for Registration of Proposed Solid Waste Management Type V Liquid Waste Processing Facility in Harris County, Texas.

Dear Mr. Bell:

Parkhill, on behalf of SouthWaste Disposal Dallas Facility, LLC, is preparing a Municipal Solid Waste (MSW) Permit Amendment Application for submittal to the Texas Commission on Environmental Quality (TCEQ) Permits Division. SouthWaste Disposal Dallas Facility is an MSW Type V Liquid Waste Processing Facility in Mansfield, Tarrant County, Texas. Project area consists of an approximate 2.5-acre tract in Mansfield along South 6th Avenue. Location and aerial maps of the project area are attached.

In accordance with TCEQ requirements, we are submitting correspondence demonstrating that Texas Historical Commission was contacted during the initial permit application process for the facility. A review was completed by the Texas Historical Commission to determine if the project falls under Title 30 of the Texas Administrative Code, paragraph 330.61(o) for compliance with the Natural Resource Code, Chapter 191, Antiquities Code of Texas, now subsumed in Title 13, Part II of the Texas Administrative Code. The proposed facility expansion will not disturb any additional site, nor will it result in destruction or adverse modification of the existing permitted facility.

For further information or documentation, please contact me directly at 806.473.3683 or [redacted]

Sincerely,

PARKHILL

By Todd E. Stiggins
Todd E. Stiggins, Partner
Senior Civil Engineer

TES/pp
Enclosures: Attachment A: Facility Location Figure
Attachment B: Aerial Photography Figure

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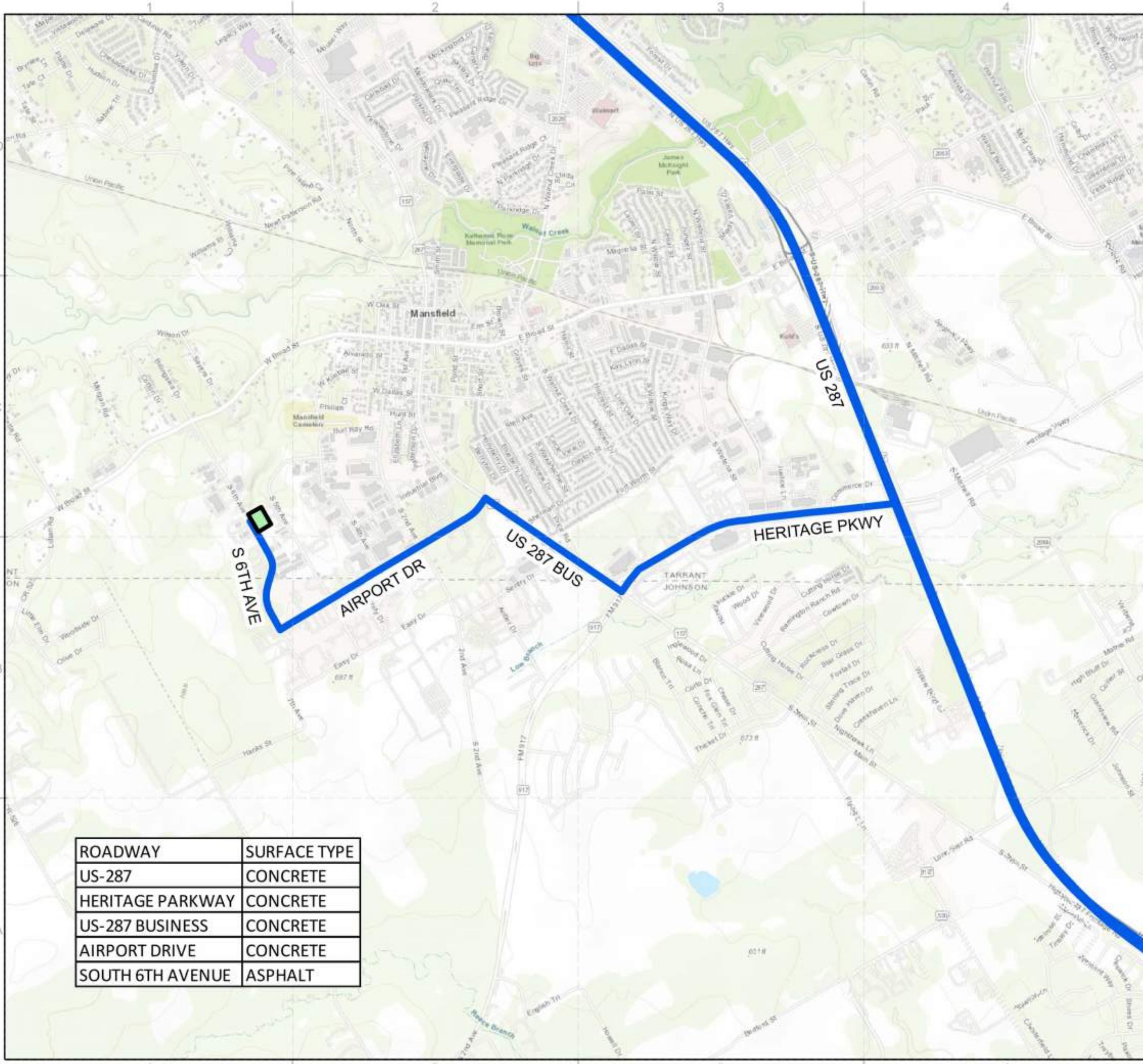
ATTACHMENT A: FACILITY LOCATION FIGURE



ROADWAY	SURFACE TYPE
US-287	CONCRETE
HERITAGE PARKWAY	CONCRETE
US-287 BUSINESS	CONCRETE
AIRPORT DRIVE	CONCRETE
SOUTH 6TH AVENUE	ASPHALT

0 1,000 2,000
Feet

NOTE:
SITE IS LOCATED AT:
LAT: 32°33'13"N
LONG: 97°09'10"W

LEGEND:
PROPERTY BOUNDARY
PRIMARY ACCESS ROADS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Parkhill

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SOUTHWASTE DISPOSAL DALLAS FACILITY

TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT
SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

FACILITY LOCATION FIGURE

FILE NAME: A:\2025\45666.2503_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.1-Detailed Highway Map.mxd LAYOUT NAME: Layers PRINTED: Thursday, July 10, 2025 - 12:57:03 PM USER: SHarvey

ATTACHMENT B: AERIAL PHOTOGRAPHY FIGURE

0 1,000 2,000
Feet

LEGEND:
PROPERTY BOUNDARY
1 MILE RADIUS

Coordinate System: NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Service Layer Credits:
Aerial imagery from Texas Natural Resources Information System; Texas NAIP Imagery 2020. Source Data Website: https://datagateway.nrcs.usda.gov/

Parkhill

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PERMITTING ONLY

SOUTHWASTE DISPOSAL
DALLAS FACILITY
TCEQ MSW PERMIT NO. 2256C

SouthWaste Disposal LLC
A WRM Company

CLIENT

SOUTHWASTE DISPOSAL LLC
525 S 6TH AVE
MANSFIELD, TX 76063-2309

PROJECT NO.
9454.21

#	DATE	DESCRIPTION

AERIAL PHOTOGRAPHY MAP

FILE NAME: A:\2020\45666.2503_DSGN\01_DWG\050_CIVIL\03_Permit\Part II\FIG II.A.4-Aerial Map.mxd LAYOUT NAME: DATA FRAME PRINTED: Thursday, July 10, 2025 - 1:08:22 PM USER: SHarvey

TEXAS HISTORICAL COMMISSION
P.O. BOX 12276 AUSTIN, TEXAS 78711 (512)463-6096

DEPARTMENT OF ANTIQUITIES PROTECTION

10/6/95

TO: Texas Natural Resource Conservation

SUBJECT: AEI Waste Disposal
proposed Type V Solid Waste Dewatering Facility
(Texas Natural Resource Conservation Commission, Tarrant, F60) (95-10-0945)

Dear Sir:

Thank you for the opportunity to review and comment on the project referenced above. Because of the scope of the project, the potential for construction activities to affect cultural resources is very low. Accordingly, this project can proceed without further consultation with this office.

It is possible, however, that buried cultural materials may be present in the project area. If such materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue in the project area where no cultural materials are present. Please contact this office at 512/463-6096 to consult on any further actions that may be necessary to protect the cultural remains.

Sincerely,

James E. Bruseth

James E. Bruseth, Ph.D.
Deputy State Historic Preservation Officer

JEB/TKP/Albatross

APPENDIX II.H: COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW

Parkhill

October 24, 2025

Susan Alvarez, Director
Environmental & Development Department
North Central Texas Council of Governments
616 Six Flags Drive
Arlington, Texas 76011

Re: SouthWaste Disposal Dallas Facility, (MSW # 2256C)
Texas Commission on Environmental Quality (TCEQ) Permit Application
Municipal Solid Waste (MSW) Type V Processing Facility

Dear Ms. Alvarez:

SouthWaste Disposal, LLC retained the services of Parkhill to prepare a Permit Application to the Texas Commission on Environmental Quality (TCEQ) to establish a MSW Type V liquid waste processing facility. The facility is in Mansfield, Tarrant County, Texas, as illustrated on the enclosed map.

In accordance with 30 TAC 330.61(p), please find attached Part I/II of the Permit Application for review by the North Central Texas Council of Governments to evaluate conformance with the regional solid waste plan.

For any comments, questions, or further information, please contact me directly at 806.473.3683 [redacted]

Sincerely,

PARKHILL

By ______________________
Todd E. Stiggins, P.E.
Senior Civil Engineer │ Partner

TES/nc/jg
Enclosure: Permit Application Part I/II

From: Caralyn Dawson [redacted]
Sent: Tuesday, December 2, 2025 10:57 AM
To: Todd Stiggins [redacted]
Cc: Hannah Ordonez [redacted] Cassidy Campbell [redacted] Elizabeth Sin [redacted]
Subject: Facility Conformance Review for SouthWaste Disposal Dallas

Good morning, Mr. Stiggins,

I am reaching out regarding the Type V Amendment Application for the SouthWaste Disposal Dallas facility received by NCTCOG. I will be facilitating this review at NCTCOG.

In case you are not familiar with our process, here is an overview:

- Applicant fills out Municipal Solid Waste Facility Application Evaluation form, which may be found here. This document also includes background information regarding the Conformance Review process. Please note that the completed MSW facility evaluation form, as well as any future conformance applications, are now able to be submitted to NCTCOG via email.
- Applicant attends a meeting of the Facility Conformance Subcommittee, which will be virtual and scheduled based on your availability, to present a 15-20 minute overview presentation of the submitted application and how it conforms to the North Central Texas Regional Solid Waste Management Plan. Then, there will be time allotted for questions by the Subcommittee. When all questions are answered, the applicant will be asked to leave so the Subcommittee can discuss and make its recommendation. (A membership roster of the Subcommittee can be found here).

At this time, we have a meeting of the Facility Conformance Review Subcommittee scheduled to be held on Tuesday, January 13, 2026, from 10:30am to 12:00pm via Microsoft Teams. If this meeting date and time works for your availability, please let me know and I will add this facility to the agenda. If you would not be able to attend this meeting, please let me know and I will send an availability poll to you and to the Subcommittee members to schedule another meeting.

Once a meeting date is set:

- Please provide a copy of your slides to me by the day before the meeting. I will consolidate them into the main presentation slides for the meeting.
- The Subcommittee's recommendation for conformance will be brought to the region's solid waste advisory committee, the Resource Conservation Council or RCC, for consideration at its next meeting following the Facility Conformance Review. At this time, the next RCC meeting is scheduled to be held on Tuesday, February 10, 2026. You are welcome to attend this meeting as it is open to the public, but it is not required. I will provide you the meeting details in a subsequent email. Note that it is the Resource Conservation Council who makes the formal approval of your conformance determination, and so the determination that the Facility Conformance Review Subcommittee recommends will not be final until the RCC has voted on it.
- After the Resource Conservation Council has voted on the conformance recommendation, NCTCOG will mail and email a letter stating the conformance outcome to the applicant and to TCEQ.

Would you also be able to provide us with the name of the TCEQ staff member who is reviewing the application?

Thank you, and please let me know if you have any questions,

Caralyn Dawson
Environment and Development Planner II
North Central Texas Council of Governments
direct: (817) 608-2377| main: (817) 695-9210
[redacted]

Parkhill

APPENDIX II.I: FLOODPLAINS

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

August 4, 2015

Regulatory Division

SUBJECT: Project Number SWF-2015-00324, Southwaste Disposal Dallas Facility

Mr. Tim Cox
Southwaste Disposal, LLC
9575 Katy Frwy
Suite 130
Houston, TX 77024

Dear Mr. Cox:

This letter is in regard to information received July 30, 2015, concerning the proposal by Southwaste Disposal, LLC to construct refinements within the existing facility located in the city of Mansfield, Tarrant County, Texas. This project has been assigned Project Number SWF-2015-00324. Please include this number in all future correspondence concerning this project.

Under Section 404 of the Clean Water Act the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the United States, including wetlands. USACE responsibility under Section 10 of the Rivers and Harbors Act of 1899 is to regulate any work in, or affecting, navigable waters of the United States. Based on your description of the proposed work, and other information available to us, we have determined this project will not involve activities subject to the requirements of Section 404 or Section 10. Therefore, it will not require Department of the Army authorization pursuant to Section 404 and/or Section 10.

Thank you for your interest in our nation's water resources. If you have any questions concerning our regulatory program, please refer to our website at http://www.swf.usace.army.mil/Missions/Regulatory.aspx or contact Ms. Cynthia Partee at the address above or telephone 817-886-1461 and refer to your assigned project number.

Please help the regulatory program improve its service by completing the survey on the following website: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Sincerely,

ORIGINAL SIGNED

Stephen L. Brooks
Chief, Regulatory Division

FIGURE I.I.1

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Texas State Plane north central zone (FIPSZONE 4202). The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by NCTCOG. This information was digitized at a scale of at least 1: 12,000 from aerial photography dated 2003.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a *Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)——(A)	Cross section line
(23)- - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000m N	1000-meter Universal Transverse Mercator grid ticks, zone 14
6000000 FT	5000-foot grid values: Texas State Plane coordinate system, north central zone (FIPSZONE 4202), Lambert Conformal Conic
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
January 6, 1993
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 02, 1995
August 23, 2000
September 25, 2009 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to revise vertical datum, to update roads and road names, to incorporate previously issued Letters of Map Revision, and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NFIP

PANEL 0470K

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
TARRANT COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 470 OF 495

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
TARRANT COUNTY	480582	0470	K
MANSFIELD, CITY OF	480606	0470	K

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 48439C0470K

MAP REVISED SEPTEMBER 25, 2009

Federal Emergency Management Agency

Parkhill

APPENDIX II.J: LOCATION RESTRICTIONS

1.0 LOCATION RESTRICTIONS – 30 TAC §330.543-561

1.1 Easements and Buffer Zones – 30 TAC §330.543

No solid waste unloading, storage, disposal, or processing operations shall occur within any easement, buffer zone, or right-of-way that crosses the Facility. All pipeline and utility easements shall be clearly marked with posts extending at least 6 feet above ground level, spaced at intervals no greater than 300 feet. Refer to Exhibit B of the Special Warranty Deed in Appendix I.C for drainage, pipeline, or utility easements.

The Facility was permitted under MSW #2256B to have a minimum buffer distance between the south wall of the process building and the southern permit boundary of 27-feet. The proposed capacity increase does not decrease the permitted minimum buffer under MSW#2256B. The facility requests the executive director continue authorization for the alternative buffer zone as part of the MSW #2256C application.

30 TAC §330.543 allows for the executive director to consider alternative buffer zone requirements of 30 TAC §330.543 for permitted and registered storage and processing MSW facilities. The buffer distances for the Facility provide adequate width for safe passage for fire fighting and other emergency vehicles.

1.2 Airport Safety – 30 TAC §330.545

Airport safety restrictions apply to landfill units only and not applicable to this Facility.

1.3 Floodplains – 30 TAC §330.547

Figure II.A.11 presents the digital National Flood Hazard Layer (NFHL) derived from Flood Insurance Rate Maps (FIRM) for the property and surrounding area. In accordance with 30 TAC §330.547. All storage and processing facilities are located outside of the 100 year flood plain.

1.4 Groundwater – 30 TAC §330.549

The Facility is not located over the Edwards Aquifer recharge zone nor a Class 1 industrial solid waste landfill unit; therefore, this section is not applicable to this Facility.

1.5 Endangered or Threatened Species – 30 TAC §330.551

The Facility and the operation of the Facility does not result in destruction or adverse modification of critical habitats of endangered or threatened species, nor cause/contribute to taking any endangered species. The proposed capacity increase has no effect on endangered or threatened species.

1.6 Wetlands - 30 TAC §330.553

No wetlands are present within the Permit Boundary. A site investigation was submitted to the Corp of Engineers in 2015 to confirm that no wetlands are present on site. The Corp of Engineers agreed on August 4, 2015 that Facility operations are not subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. Refer to Part II Appendix I for the correspondence with the Corp of Engineers.

1.7 Fault Areas – 30 TAC §330.555

Fault areas restriction applies to landfill units only and not applicable to this Facility.

1.8 Seismic Impact Zones – 30 TAC §330.557

Seismic impact zone restriction applies to landfill units only and not applicable to this Facility.

1.9 Unstable Areas – 30 TAC §330.559

Unstable area restrictions apply to landfill units only and not applicable to this Facility.

1.10 Coastal Areas – 30 TAC §330.561

The Facility is not located in a coastal area; therefore, this section is not applicable to this Facility.

Parkhill

2.0 ENGINEER CERTIFICATION

I, Todd E. Stiggins, P.E., certify I am a Registered Professional Engineer in the State of Texas, License 107769, and confirm, based upon my education and experience, this Facility is in compliance with location restrictions as described in 30 TAC §330.543 - §330.561.

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED PROFESSIONAL ENGINEER

10/27/2025

Parkhill

PART III – FACILITY INVESTIGATION AND DESIGN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

Parkhill

4222 85th Street

Lubbock, Texas 79424

TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

Parkhill

PART III – FACILITY INVESTIGATION AND DESIGN

SOUTHWASTE DISPOSAL, LLC
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TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

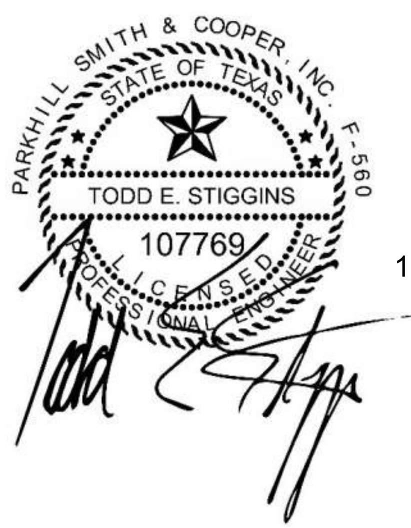

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TABLE OF CONTENTS

ATTACHMENT A – SITE DEVELOPMENT PLAN

1.0 INTRODUCTION III.A-1
2.0 GENERAL FACILITY DESIGN – 30 TAC §330.63(b) III.A-2
3.0 FACILITY SURFACE WATER DRAINAGE REPORT - 30 TAC §330.63(c) III.A-3
4.0 WASTE MANAGEMENT UNIT DESIGN - 30 TAC §330.63(d) III.A-4
5.0 GEOLOGY REPORT - 30 TAC §330.63(e) III.A-5
6.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN III.A-6
7.0 LANDFILL GAS MANAGEMENT PLAN - TAC §330.63(g) III.A-7
8.0 CLOSURE PLAN - 30 TAC §330.63(h) III.A-8
9.0 POST-CLOSURE PLAN - 30 TAC §330.63(i) III.A-9
10.0 COST ESTIMATES FOR CLOSURE AND POST-CLOSURE CARE - 30 TAC §330.63(j) III.A-10

ATTACHMENT B – GENERAL FACILITY DESIGN

1.0 FACILITY ACCESS– 30 TAC §330.63(b) III.B-1
- 1.1 Access Control - 30 TAC §330.63(b)(1) III.B-1
- 1.2 Waste Movement – 30 TAC §330.63(b)(2) III.B-1
- 1.3 Sanitation -30 TAC §330.63(b)(3) III.B-4
- 1.4 Water Pollution Control - 30 TAC §330.63(b)(4) III.B-4
- 1.5 Endangered Species Protection - – 30 TAC §330.63(b)(5) III.B-4

APPENDICES

APPENDIX III.B.A: MAPS AND DRAWINGS

ATTACHMENT C – FACILITY SURFACE WATER DRAINAGE REPORT

1.0 GENERAL - 30 TAC §330.63(c) III.C-1

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED PROFESSIONAL ENGINEER

10/27/2025

ATTACHMENT D – WASTE MANAGEMENT UNIT DESIGN

1.0 GENERAL – 30 TAC §330.63(d) III.D-1

ATTACHMENT E – GEOLOGY REPORT

1.0 GENERAL – 30 TAC §330.63(e) III.E-1

ATTACHMENT F – GROUNDWATER SAMPLING AND ANALYSIS PLAN

1.0 GENERAL – 30 TAC §330.63(f) III.F-1

ATTACHMENT G – LANDFILL GAS MANAGEMENT PLAN

1.0 GENERAL – 30 TAC §330.63(g) III.G-1

ATTACHMENT H – CLOSURE PLAN

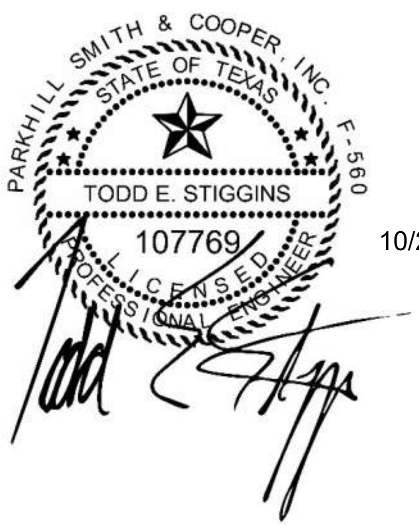
1.0 GENERAL – 30 TAC §330.63(h) III.H-1
1.6 Processing Facility Closure - 30 TAC §330.459 .... III.H-1
1.7 Certification of Final Facility Closure - 30 TAC §330.461 .... III.H-1

ATTACHMENT I – POST-CLOSURE PLAN

1.0 GENERAL - 30 TAC §330.63(n) III.I-1

ATTACHMENT J – CLOSURE AND POST-CLOSURE COST ESTIMATES

1.0 COST ESTIMATE FOR CLOSURE - 30 TAC §330.63(j) III.J-1



10/27/2025

PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT A – SITE DEVELOPMENT PLAN

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

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16350 Park Ten Place #215

Houston, Texas 77084

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Parkhill Project # 45666.25

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT A – SITE DEVELOPMENT PLAN

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TABLE OF CONTENTS

1.0 INTRODUCTION III.A-1

2.0 GENERAL FACILITY DESIGN – 30 TAC §330.63(b)............................ III.A-2

3.0 FACILITY SURFACE WATER DRAINAGE REPORT - 30 TAC §330.63(c) III.A-3

4.0 WASTE MANAGEMENT UNIT DESIGN - 30 TAC §330.63(d)................ III.A-4

5.0 GEOLOGY REPORT - 30 TAC §330.63(e) III.A-5

6.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN – 30 TAC §330.63(f).. III.A-6

7.0 LANDFILL GAS MANAGEMENT PLAN – 30 TAC §330.63(g) III.A-7

8.0 CLOSURE PLAN - 30 TAC §330.63(h).. III.A-8

9.0 POST-CLOSURE PLAN - 30 TAC §330.63(i) III.A-9

10.0 COST ESTIMATES FOR CLOSURE AND POST-CLOSURE CARE – 30 TAC §330.63(j)..III.A-10

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED
PROFESSIONAL ENGINEER

10/27/2025

1.0 INTRODUCTION

SouthWaste Disposal Dallas Facility (Facility) is located at 525 South 6th Avenue, in the City of Mansfield, approximately 0.5 miles south of the intersection of South 6th Avenue and West Broad Street, Tarrant County, Texas. The Facility consists of liquid waste processing and grit washout facilities within the permit boundary. Wastewater residuals from grit washout are collected and processed through the Liquid Waste Processing Facility.

The Liquid Waste Processing Facility is permitted to process a maximum of 90,000,000 gallons of waste per year, inclusive of residuals from the washout facility. The Facility accepts the following wastes for processing:

- Industrial wastes, including Class 1 non-hazardous, Class 2, and Class 3 waste;
- Grease trap waste from commercial and industrial sources;
- Grit trap waste from commercial and industrial sources;
- Lint trap waste;
- Sludges from municipal and industrial wastewater treatment;
- Chemical toilet waste;
- Septage from residential and commercial sources; and
- Waste from commercial and industrial oil-water separators.

The Facility is designed to separate wastes received into solids, dewatered sludge, oil, and wastewater.

2.0 GENERAL FACILITY DESIGN - 30 TAC §330.63(B)

The general facility design, including facility access, waste movement, sanitation, water-pollution control, and endangered-species protection, is found as Attachment III.B – General Facility Design. In accordance with 30 TAC §330.63(b)(1), a description of how access is controlled to protect the public from exposure to potential health and safety hazards as well as discourage unauthorized entry or uncontrolled disposal of solid waste or hazardous materials for the Facility, is noted in the narrative and drawings. In accordance with 30 TAC §330.63(b)(2), waste movement, flow diagrams, proposed ventilation, odor control, and general construction details to indicate storage, processing, and disposal for waste, are included in Attachment III.B. In accordance with 30 TAC §330.63(b)(3), Attachment III.B describes how the Facility enables proper cleaning. In accordance with 30 TAC §330.63(b)(4), Attachment III.B describes how the Facility handles all liquids resulting from site operation, not causing surface water or groundwater pollution. Attachment III.B also contains an endangered species protection statement in accordance with 30 TAC §330.63(b)(5).

3.0 FACILITY SURFACE WATER DRAINAGE REPORT - 30 TAC §330.63(C)

This Facility meets the requirements of 30 TAC §330.303 related to Surface Water Drainage for Municipal Solid Waste Facilities. In accordance with 30 TAC §330.63(c), the Facility is not a landfill or compost unit and therefore is not required to provide the information listed in 30 TAC §330.63(c)(1) or §330.63(c)(2).

In accordance with 30 TAC §330.303(a), this Facility is constructed, maintained, and operated to manage run-on and runoff during the peak discharge of a 25-year rainfall event. Additionally, the Facility shall prevent the off-site discharge of waste and feedstock material, including, but not limited to, in-process and/or processed materials.

In compliance with 30 TAC §330.303(b), surface water drainage in and around this Facility shall be controlled to minimize surface water running onto, into, and off the treatment area. On-site stormwater is generally characterized as sheet flow. The site drains east as shown on Figure III.B.2.

All waste processing areas are housed within buildings and constructed with secondary containment to prevent comingling of surface water with process liquids.

Figure II.A.11 presents the digital National Flood Hazard Layer (NFHL) derived from Flood Insurance Rate Maps (FIRM) for the property and surrounding area. In accordance with 30 TAC §330.547. All storage and processing facilities are located outside of the 100-year floodplain.

No wetlands are present within the Permit Boundary. Appendix II.A, Figure II.A.11 shows known wetlands from National Wetlands Inventory (NWI), present in the area around the Facility.

4.0 WASTE MANAGEMENT UNIT DESIGN - 30 TAC §330.63(D)

In accordance with 30 TAC §330.63(d), Part III, Attachment D contains Waste Management Unit Design information.

5.0 GEOLOGY REPORT - 30 TAC §330.63(E)

30 TAC §330.63(e) is not applicable to Type V Liquid Waste Processing Facilities.

6.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN – 30 TAC §330.63(F)

30 TAC §330.63(f) is not applicable to Type V Liquid Waste Processing Facilities.

7.0 LANDFILL GAS MANAGEMENT PLAN – 30 TAC §330.63(G)

30 TAC §330.63(g) is not applicable to Type V Liquid Waste Processing Facilities.

8.0 CLOSURE PLAN - 30 TAC §330.63(H)

In accordance with 30 TAC §330.63(h), Attachment III.H – Closure Plan, includes a closure plan prepared in accordance with 30 TAC Chapter 30, Subchapter K.

9.0 POST-CLOSURE PLAN - 30 TAC §330.63(I)

30 TAC §330.63(i) is not applicable to Type V Liquid Waste Processing Facilities.

10.0 COST ESTIMATES FOR CLOSURE AND POST-CLOSURE CARE – 30 TAC §330.63(J)

In accordance with 30 TAC §330.63(j), §330.505, Attachment III.J – Cost Estimates for Closure and Post-Closure Plan, includes drawings, calculations, cost estimates for closure and post-closure activities at the Facility, assumptions, and signature and seal (note that the units containing liquids must be assumed full). Cost estimates may be adjusted during the life of the Facility. Evidence of financial assurance is included in Attachment III.J.

PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT B – GENERAL FACILITY DESIGN

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

Parkhill

4222 85th Street

Lubbock, Texas 79424

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT B – GENERAL FACILITY DESIGN

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STATE OF TEXAS

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TABLE OF CONTENTS

1.0 FACILITY ACCESS – 30 TAC §330.63(b) III.B-1

1.1 Access Control – 30 TAC §330.63(b)(1).. III.B-1

1.2 Waste Movement – 30 TAC §330.63(b)(2).. III.B-1

1.3 Sanitation – 30 TAC §330.63(b)(3) III.B-4

1.4 Water Pollution Control – 30 TAC §330.63(b)(4).. III.B-4

1.5 Endangered Species Protection – 30 TAC §330.63(b)(5) III.B-4

APPENDICES

APPENDIX III.B.A: MAPS AND DRAWINGS

TABLES

TABLE III.B.1 – TANK LIST

TABLE III.B.2 – ANCILLARY EQUIPMENT

10/27/2025

1.0 FACILITY ACCESS – 30 TAC §330.63(B)

1.1 Access Control – 30 TAC §330.63(b)(1)

To restrict public access and prevent unauthorized access, the site is completely enclosed by a 6-feet-high fence, with two lockable gates. Facility structures and gates are locked while the Facility is not in operation, not accepting waste, or no staff are present onsite.

Facility access consists of a two-lane paved road. All onsite internal roads are concrete paved. Onsite access roadways are designed to accommodate vehicles anticipated to access the site to transport and unload waste material. Adequate turning radii and vehicle circulation lanes are provided to allow efficient and uninterrupted traffic flow under normal operating conditions. Mud and dust are not anticipated to be an issue at the Facility, as access is from a paved roadway and all onsite access roads are also paved.

Access is further controlled by onsite staff present during operating hours to observe and direct traffic flow as required.

1.2 Waste Movement – 30 TAC §330.63(b)(2)

The Liquid Waste Processing Facility consists of one building as shown on Figure III.A.3. The Facility receives industrial and commercial wastes, processed to separate solids and oil from free liquid. Free liquid is treated to industrial pretreatment standards and discharged to the sanitary sewer. Sludge and solids are disposed at a landfill permitted to accept the waste. A portion of oil is recovered and sold as a raw material. The maximum length of time unprocessed waste may remain at the Facility shall not exceed 72 hours. Processed waste may remain onsite up to 120 hours.

1.2.1 Process Description

The Owner, plant manager, site supervisor, or trained plant personnel are on-site, at all times during operation of the Facility. Registered transporters will bring waste to the Facility in enclosed trucks.

The facility processes grease trap waste into three primary outputs: greases/oils, solids, and water. All parts of process are located within the process building. The liquid waste treatment process is described below.

1. **Unloading and Initial Separation**
   Vehicles enter the process building and unload in one of two designated unloading bays. The incoming waste is directly pumped through mechanical separation screens. These screens remove coarse solids, which are collected in roll-off containers for off-site disposal at a landfill, compost facility, or an approved land application site.
2. **Receiving Tanks**
   The screened liquid waste flows into the **receiving tanks.** The receiving tanks also collect blowdown water from the facility’s boiler. Inside the tanks, the waste naturally stratifies by density. This process allows oils and grease to rise and form a floating grease cap, while water settles at the bottom.
3. **Recycle Oil Process – Cook Tank**
   The grease cap is transferred to the **cook tank**, where it is heated using steam from the facility's boiler. Heating enhances the separation of **oil**, **water**, and **sludge**.
   - The separated grease is pumped to a centrifuge.
   - The separated water is pumped to the equalization tanks.
4. **Recycle Oil Process – Centrifuge**
   The centrifuge uses mechanical spinning to separate residual sludge from the **final reusable oil**.
   - The reusable oil is transferred to a **finish oil tank**.
     - Reject sludge from the centrifuge is pumped to the sludge holding tanks.
5. **Recycle Oil Process – Finish Oil Tank**
   The finish oil tank received the recyclable oil product from the centrifuge. The oil can be further refined in this tank but is ultimately held in storage until it is transferred to an end product user.
6. **Waste Water Treatment Process - Equalization Tanks**
   Liquid waste from the receiving tanks and from the screw press is pumped into **equalization tanks**,

which serve as intermediate clarification units. These tanks allow s**ludge** to settle at the bottom and **Clarified water** to rise to the top.

7. **Waste Water Treatment Process - pH Adjustment Tank**
   The **pH adjustment tank** receives clarified water from the equalization tanks and process water from the air scrubber. A controlled dose of caustic solution is added from the caustic tank to ensure pH compliance for discharge.
8. **Waste Water Treatment Process – Dissolved Air Flotation (DAF) System**
   The **DAF unit** removes remaining suspended solids before the treated water is discharged to the **City of Mansfield's sanitary sewer system**. Sludge rejected from the DAF is directed to the **sludge holding tanks**.
9. **Sludge Processing – Sludge Holding Tanks**
   All sludge from the centrifuge, equalization tanks, pH adjustment tank, and DAF is collected in the **sludge holding tanks**. The sludge holding tanks detain sludge until it is pumped to the screw press for treatment.
10. **Sludge Processing – Screw Press**
    The screw press receives sludge from the sludge holding tank. The **screw press** uses mechanical force to dewater the sludge. The **dewatered solids (cake)** are collected in roll-off containers and hauled to a landfill, compost facility, or other approved site. **Separated liquids** are recirculated to the **equalization tanks** for reprocessing.

1.2.2 Flow Diagrams

Process Flow Diagram (Figure III.A.1) indicates storage, processing, and disposal sequences for various wastes received at the Liquid Waste Processing Facility.

1.2.3 Schematic View Drawings

The Facility Site Plan (Figure III.A.2) depicts the general location of the Liquid Waste Processing Facility within the Facility and in relation to other structures onsite. Treatment Unit Layout (Figure III.A.3) depicts entrance, exits, and processing equipment used for collection, separation, processing, and disposing waste at the Facility.

1.2.4 Ventilation and Odor Control Measures

The Facility air emissions shall not cause/contribute to a condition of air pollution as defined by the Texas Clean Air Act. An air scrubber system designed to minimize odors shall be installed.

All unloading of waste occurs directly into the receiving tanks to limit atmospheric waste exposure. All processing occurs completely within the enclosed Type V building and all doors shall remain closed except when access is required. Waste handling, storage, and the processing procedures minimize exposure of liquid waste to the air. All process and storage tanks are closed-top vessels.

Facility staff shall maintain the Facility in as clean a condition as practical by washing, sweeping, and cleaning floors and equipment. The Facility shall control any ponded water to avoid a nuisance and alleviate any objectionable odors. These efforts are to maintain a safe work environment and limit odor-causing conditions within the Facility. Should an odor condition arise and persist, Facility staff shall employ additional odor-control measures such as odor neutralizing or masking agents.

1.2.5 Generalized Construction Details

Figures III.B.4 and III.B.5 provide generalized construction details and cross sections for the Liquid Waste Processing Facility storage and processing units, slab and subsurface supports, and secondary containment areas.

All liquid waste processing takes place within the processing building and no unenclosed containment areas exist. Final details of actual installed units, if they differ in type or capacity, shall accompany the Liquid Waste Processing Facility pre-operation notice. All listed units may not be present at initial operation. Full and final process-equipment buildout is expected to occur over several years. No storage or processing tanks nor equipment are vented outside enclosed buildings.

Table III.B.1 is the tank list and Table III.B.2 lists ancillary equipment. Required equipment shall conform to the following criteria:

Table III.B.1 – TANK LIST

DESCRIPTION	QUANTITY	CAPCITY (GAL.)	TOTAL (GAL.)	MATERIAL TYPE	APPROXIMATE TANK DIMENSION
Receiving Tank	3	20,000	60,000	Stainless Steel	Dia: 12' ; Height: 25'
Equalization Tank	2	20,000	40,000	Stainless Steel	Dia: 12' ; Height: 25'
pH Adjustment Tank	2	20,000	40,000	Stainless Steel	Dia: 12' ; Height: 25'
Dissolved Air Flotation	1	15,000	15,000	Stainless Steel	Dia: 12' ; Height: 25'
Sludge Holding Tank	2	20,000	40,000	Stainless Steel	Dia: 12' ; Height: 25'
Cook Tank	1	20,000	20,000	Stainless Steel	Dia: 12' ; Height: 25'
Finish Oil Tank	1	20,000	20,000	Stainless Steel	Dia: 12' ; Height: 25'
Caustic*	1	6,000*	6,000*	Stainless Steel	Dia: 8' ; Height: 15'
Unprocessed and In-Process Waste Total:			**215,000**		
Processed Waste Total:			**20,000**		
Gerand TOTAL:			**235,000**		
*The Caustic tank will not hold waste, so the capacity is not included in the total facility capacity.					

Table III.B.2 – ANCILLARY EQUIPMENT

DESCRIPTION	QUANTITY	OUTPUT RATE (GPM)	CAPACITY
Screens	1	400 GPM	N/A
Primary Pump System	1	400 GPM	N/A
Secondary Pump System	1	400 GPM	N/A
Boiler	1	N/A	N/A
Air Scrubber	1	N/A	N/A
Roll-Off Container	1	N/A	25CY

1.2.6 Storage and Disposal Plans for Oil and Sludge

Oil storage occurs in steel tanks and sludge storage in steel tanks or dewatering containers. Solids produced from removing liquid from sludge are disposed in a permitted landfill permitted to receive the waste to receive waste, after drying, when containers reach capacity (at least weekly), or transported to a wastewater treatment plant to be used as a feedstock to encourage microbial growth.

Separated oil may remain at the Facility in enclosed containers until a sufficient volume is collected for viability to be removed by a recycler, but in no case longer than 120 hours.

1.2.7 Effluent Disposition

Treated liquid effluent from the Liquid Waste Processing Facility is discharged to the municipal sanitary sewer system.

1.2.8 Noise Pollution Control

Unloading and processing liquid waste does not generate noise pollution of significant levels. Furthermore, all unloading and processing shall occur within the enclosed building.

1.3 Sanitation – 30 TAC §330.63(b)(3)

The Liquid Waste Processing Facility includes various design aspects to facilitate proper cleaning.

1.3.1 Controlling Surface Drainage

Surfaces around the Liquid Waste Processing Facility building is graded so no stormwater runoff flows into the Facility building. No liquid waste process unit is exposed to precipitation while in service. Dewatering boxes may be stored outside after dewatering is complete, if covered with a watertight cover.

1.3.2 Walls and Floors

Walls and floors in the Liquid Waste Processing Facility are constructed of steel/reinforced concrete to facilitate sanitation by pressure-rinsing and scrubbing.

1.3.3 Cleaning Equipment

The Liquid Waste Processing Facility is connected to a municipal water supply. Onsite high-pressure rinse equipment facilitates cleaning the building and processing equipment. The Facility staff shall clean the Facility weekly, at minimum, with hot water and soap. Wastewater from cleaning is processed through the liquid waste processing system. The high-pressure rinse equipment produces an average of 50 gallons per minute. Cleaning operations will include an average of 15 minutes of high pressure hose use. The approximate 750 gallons of water used during sanitation operations will be collected in the sump and pumped to the receiving tanks for treatment

1.3.4 Floor or Sump Drains

The Facility floors are sloped to drain to the sump, providing adequate drainage throughout the Liquid Waste Processing Facility, see Figure III.B.3. Liquid waste collected from the sump is pumped back into facility processing equipment for treatment. The floor sump also serves as a catchment in case of a leak from process equipment.

1.4 Water Pollution Control - 30 TAC §330.63(b)(4)

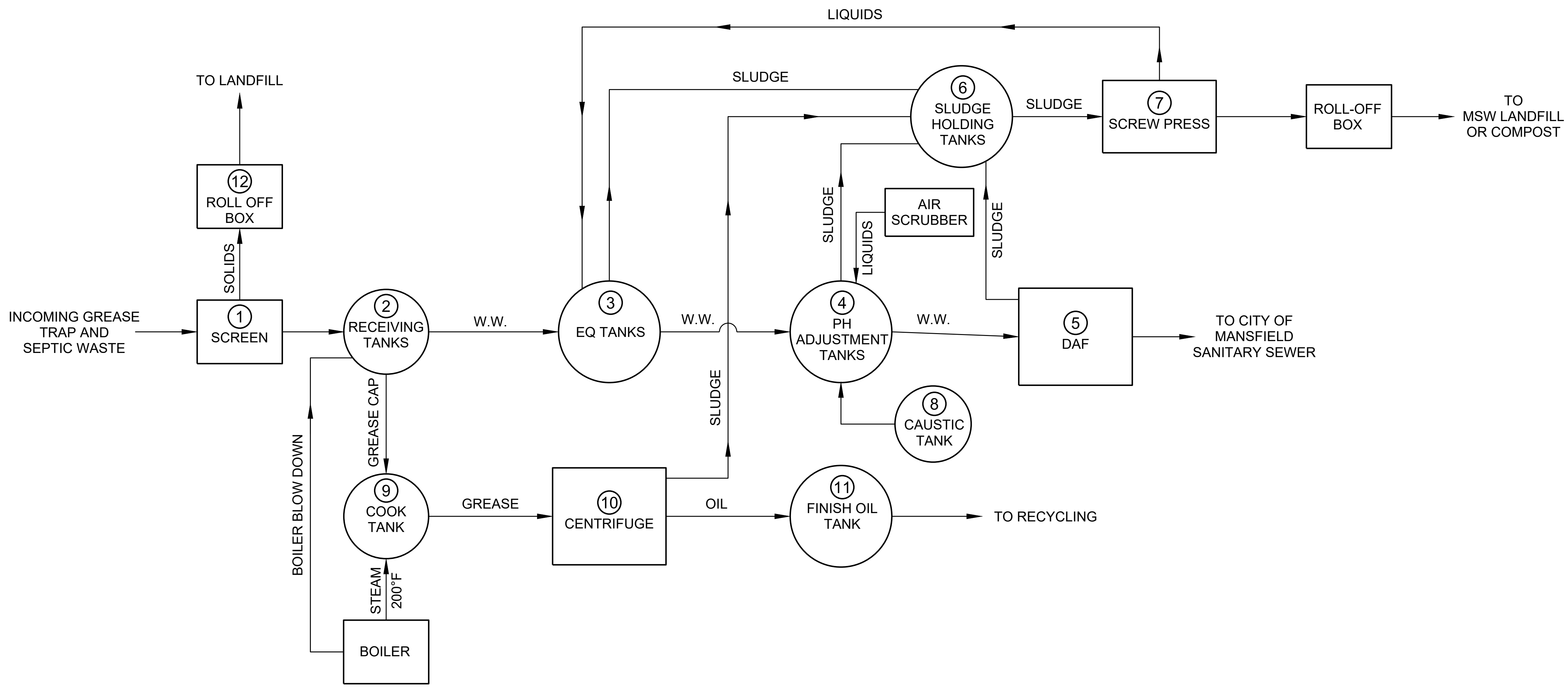
Liquid wastes are processed within steel tanks, reinforced concrete basins, or specialized process equipment to contain and prevent discharge of process liquids to surface or groundwater. Treated effluent resulting from processing liquid waste is discharged directly to the municipal sanitary sewer system, in accordance with an industrial pre-treatment discharge permit. Wastewater resulting from cleaning and washing equipment shall be collected and treated through liquid waste treatment process.

1.5 Endangered Species Protection – 30 TAC §330.63(b)(5)

The Facility does not result in destruction/adverse modification of critical habitat of endangered/threatened species or cause/contribute to taking any endangered species. The Facility is not within range of endangered and threatened species known to inhabit Tarrant County and respective habitats. Further discussion is provided in Part II, Section 14.0 of the Liquid Waste Processing Facility Permit.

APPENDIX III.B.A: MAPS AND DRAWINGS

REV 02 – 12.30.22
REV 00 – 03.23.22



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Southwaste Disposal Dallas Facility

TCEQ MSW Permit 2256C

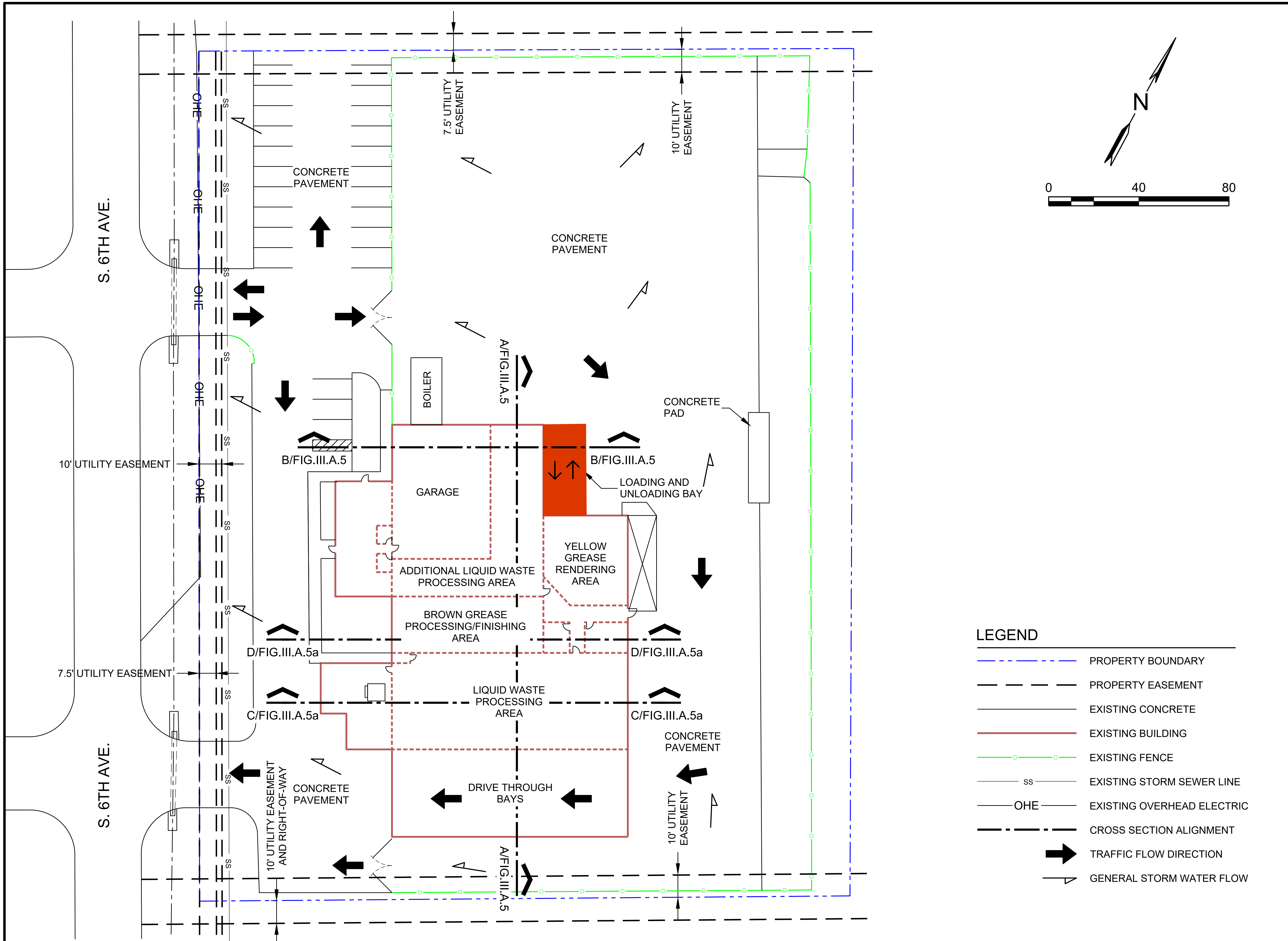
CLIENT
Southwaste Disposal LLC
525 S. 6th. Ave.
Mansfield, TX 76063-2309

PROJECT NO.
45666.25

#	DATE	DESCRIPTION

Process Flow Diagram

FIG.III.A.1



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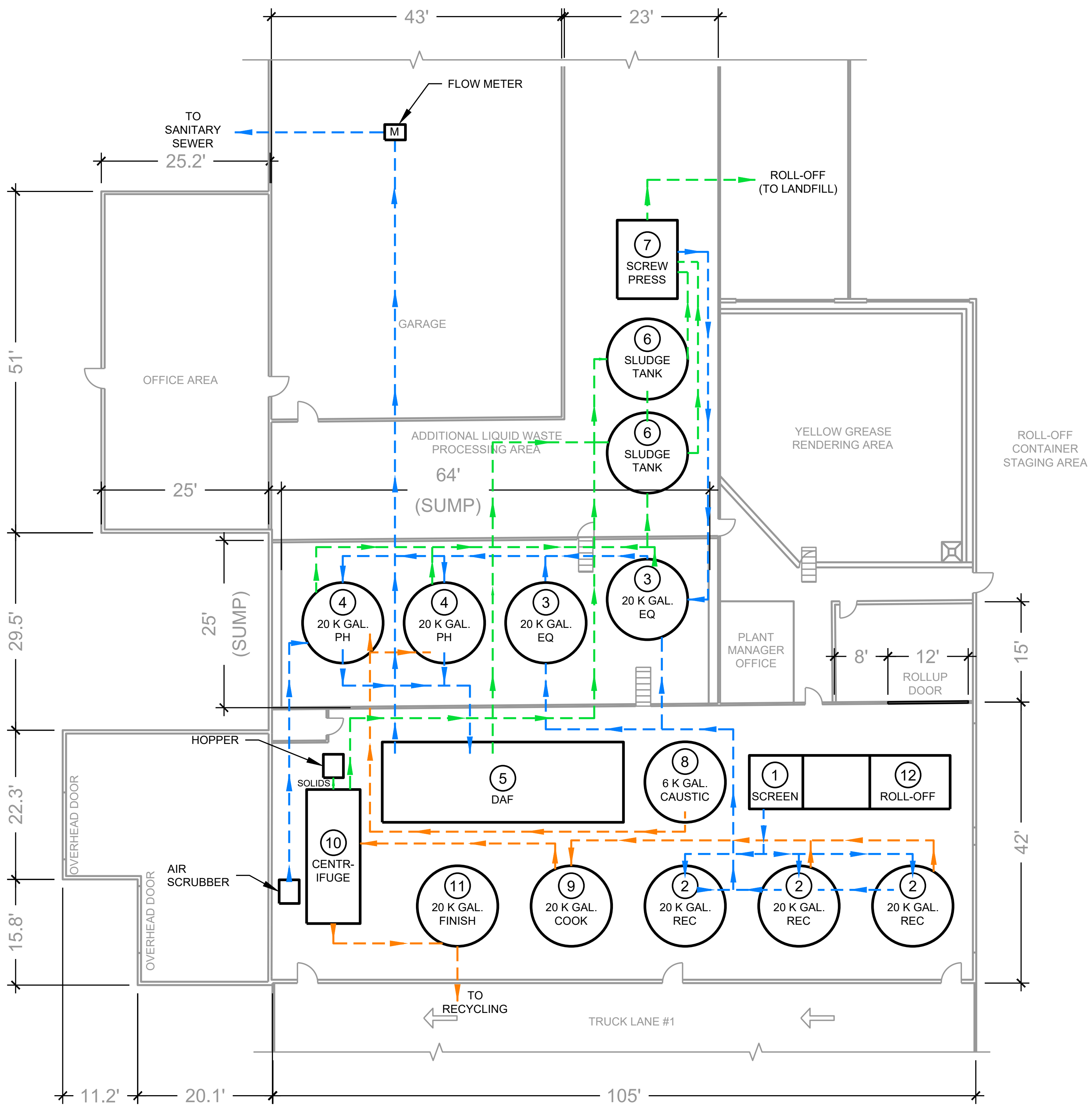
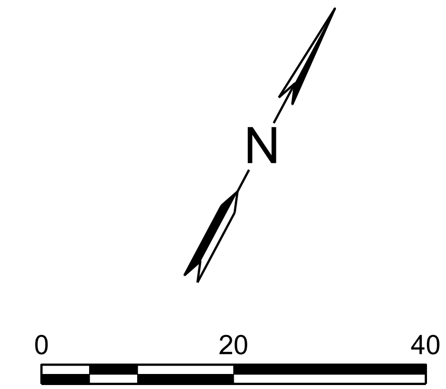
#	DATE	DESCRIPTION

Site Layout Plan

FIG.III.A.2





EQUIPMENT LIST

Item #	Description	Quantity	Capacity (Gal.)	Total (Gal.)
1	Screen	1	--	--
2	Receiving Tank	3	20,000	60,000
3	Equalization Tank	2	20,000	40,000
4	pH Adjustment Tank	2	20,000	40,000
5	Dissolved Air Flotation	1	15,000	15,000
6	Sludge Holding Tank	2	20,000	40,000
7	Screw Press	1	--	--
8	Caustic Tank	1	6,000	6,000
9	Cook Tank	1	20,000	20,000
10	Centrifuge	1	20,000	20,000
11	Finish Oil Tank	1	20,000	20,000

LEGEND

- LIQUIDS LINE
- SLUDGE LINE
- OIL/GREASE LINE

NOTE:

1. THE FACILITY'S STORAGE VOLUME WILL NOT EXCEED THE MAXIMUM PERMITTED STORAGE VOLUME OF 235,000 GALLONS.

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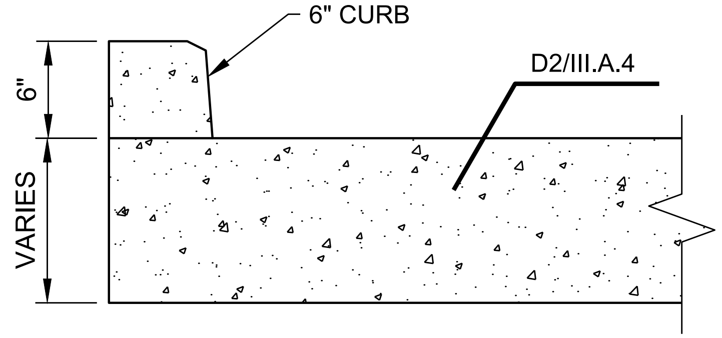
PROJECT NO.
9454.21

#	DATE	DESCRIPTION

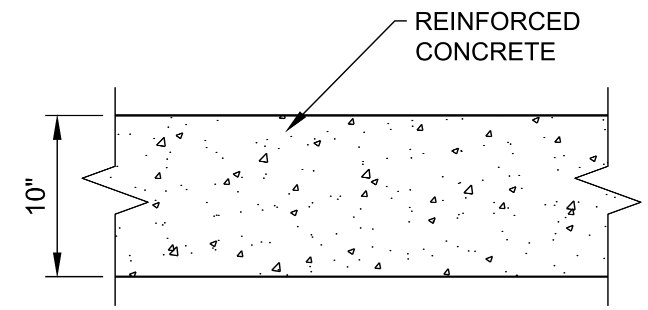
Treatment Unit Layout

FIGURE 2

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\F02-45666-25.dwg LAYOUT NAME: FIGURE 2 PRINTED: Friday, July 18, 2025 - 2:06pm USER: gmolinar



D1 CURB
NOT TO SCALE



D2 PAVEMENT A
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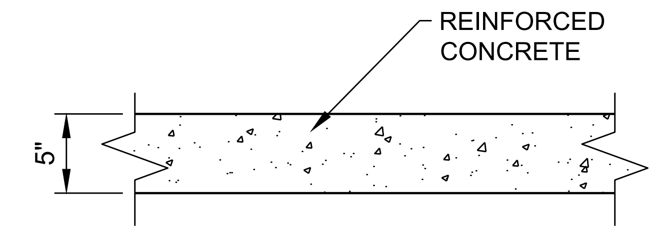
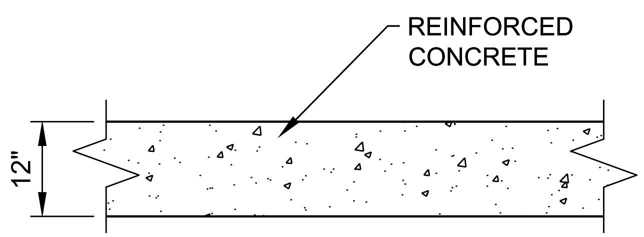
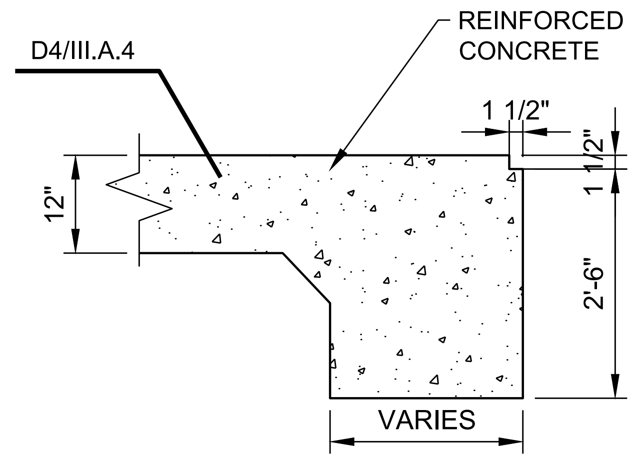


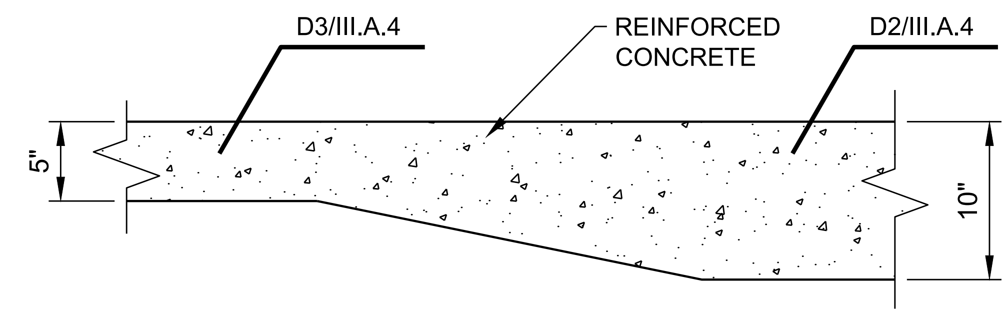
D3 PAVEMENT B
NOT TO SCALE



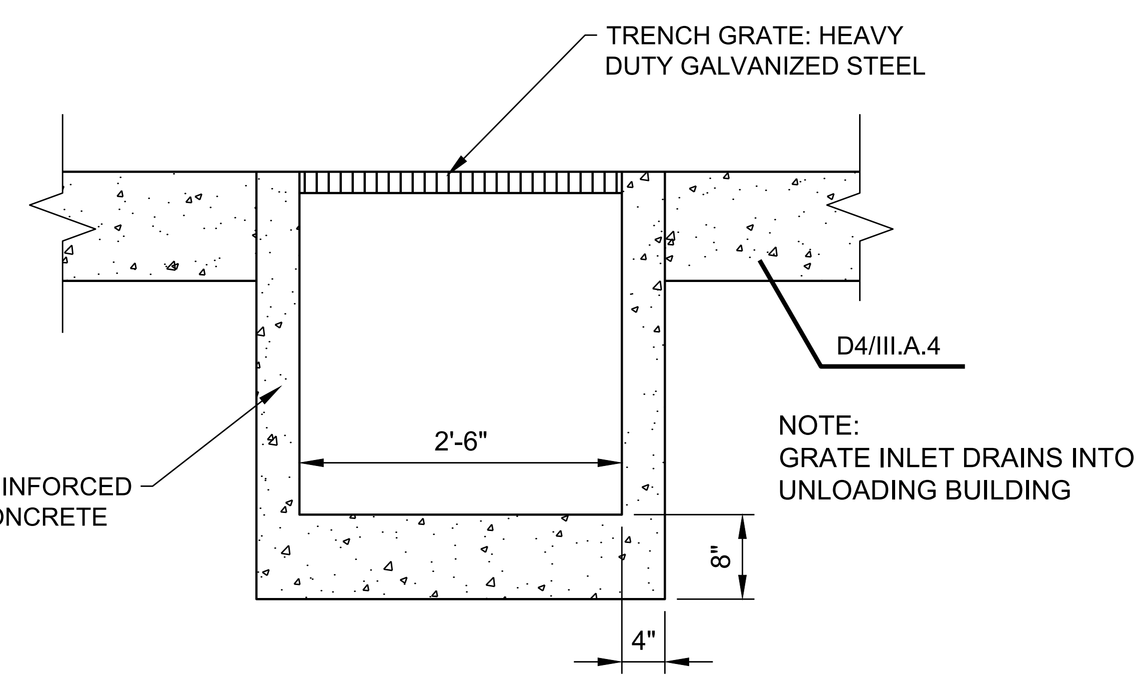
D4 SLAB
NOT TO SCALE



D5 GRADE BEAM
NOT TO SCALE



D6 PAVEMENT TRANSITION
NOT TO SCALE



NOTE:
GRATE INLET DRAINS INTO
UNLOADING BUILDING

D7 GRATE INLET
NOT TO SCALE

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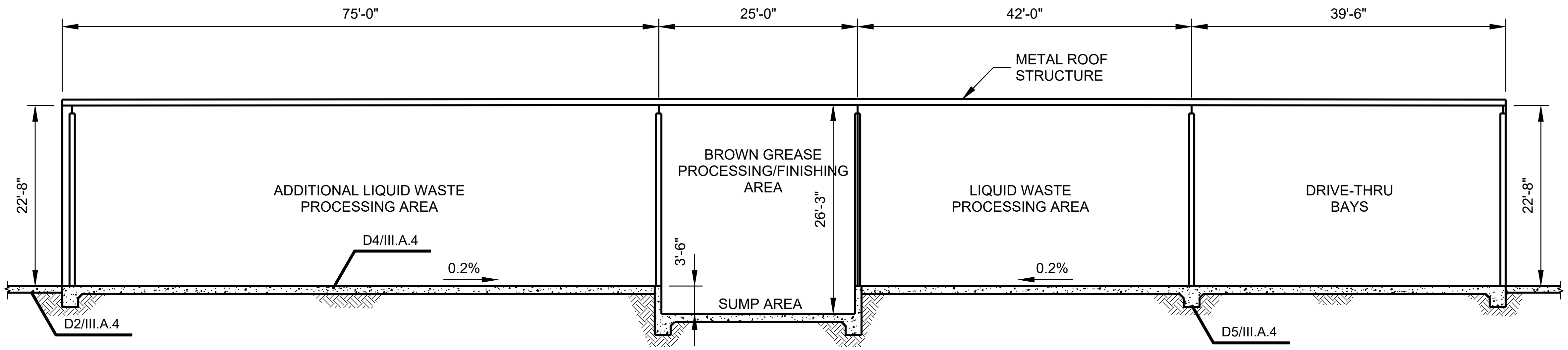
45666.25

#	DATE	DESCRIPTION

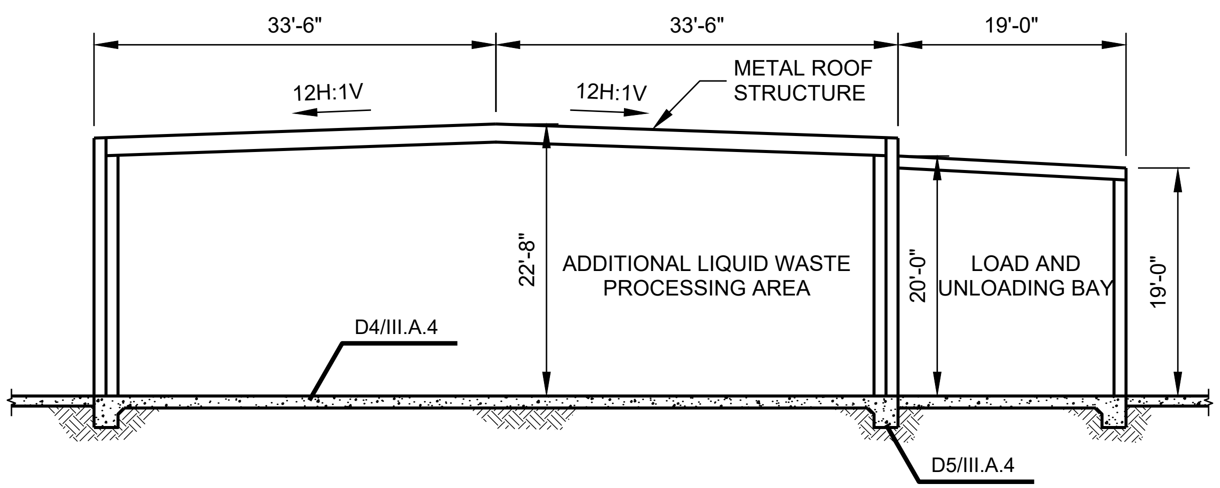
General Construction Details

FIG.III.A.4

FILE NAME: A:\2025\45666.25\03_DSGN\01_DWG\050_CIVIL\03_Permit\Part III\FIG-III.A.4-45666-251.dwg LAYOUT NAME: FIG.III.A.4 PRINTED: Thursday, September 11, 2025 - 4:04pm USER: gmolinar



A PROCESSING BUILDING SECTION
1/16"=1'-0"



B PROCESSING BUILDING SECTION
1/16"=1'-0"

NOTES:
1. THE PROCESS BUILDING IS AN EXISTING STRUCTURE. THIS DRAWING DEPICTS THE AS-BUILT STRUCTURE.
2. STEEL REINFORCEMENT FOR REINFORCED CONCRETE NOT SHOWN FOR CLARITY.
3. PROCESSING EQUIPMENT NOT SHOWN FOR CLARITY.

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PROJECT NO.
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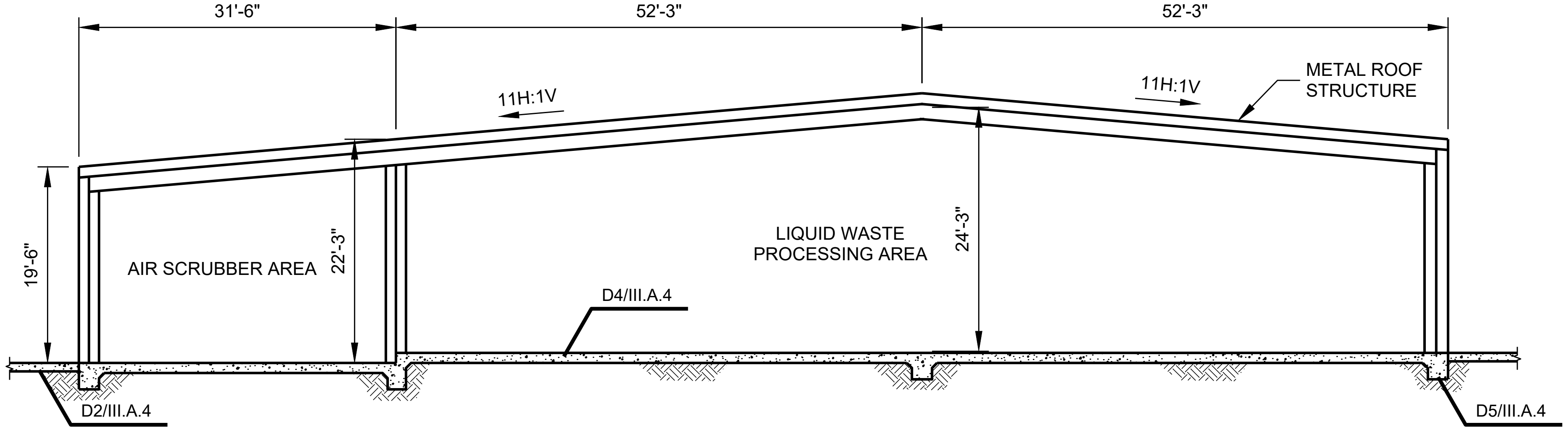
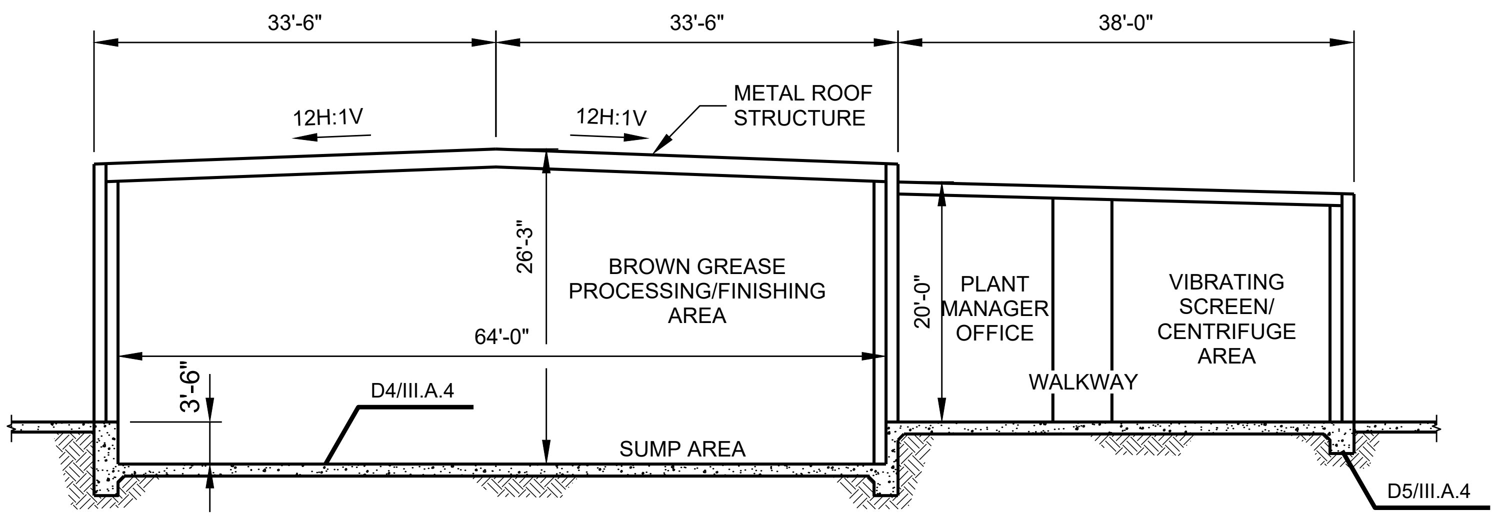
#	DATE	DESCRIPTION

General Building Cross Sections

FIG.III.A.5



C PROCESSING BUILDING SECTION
1/16"=1'-0"



D PROCESSING BUILDING SECTION
1/16"=1'-0"

NOTES:
1. THE PROCESS BUILDING IS AN EXISTING STRUCTURE. THIS DRAWING DEPICTS THE AS-BUILT STRUCTURE.
2. STEEL REINFORCEMENT FOR REINFORCED CONCRETE NOT SHOWN FOR CLARITY.
3. PROCESSING EQUIPMENT NOT SHOWN FOR CLARITY.

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#	DATE	DESCRIPTION

General Building Cross Sections

FIG.III.A.5a

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT C – FACILITY SURFACE WATER DRAINAGE REPORT

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

Parkhill

4222 85th Street

Lubbock, Texas 79424

TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT C – FACILITY SURFACE WATER DRAINAGE REPORT

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C
Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
107769
LICENSED
PROFESSIONAL ENGINEER

10/27/2025

PREPARED BY:

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4222 85th Street

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TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(c) III.C-1

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STATE OF TEXAS
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10/27/2025

1.0 GENERAL - 30 TAC §330.63(C)

This Facility meets the requirements of 30 TAC §330.303 related to Surface Water Drainage for Municipal Solid Waste Facilities. In accordance with 30 TAC §330.63(c), the Facility is not a landfill or compost unit and therefore is not required to provide the information listed in 30 TAC §330.63(c)(1) or §330.63(c)(2).

PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT D – WASTE MANAGEMENT UNIT DESIGN

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT D – WASTE MANAGEMENT UNIT DESIGN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

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16350 Park Ten Place #215

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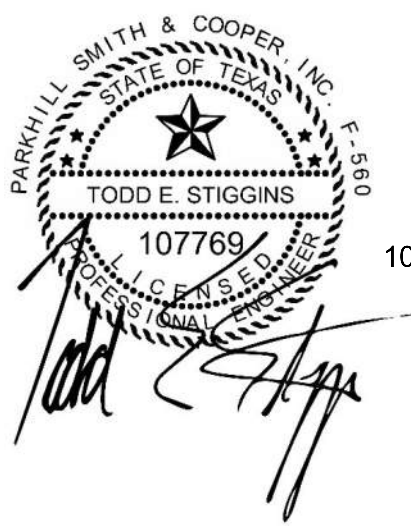

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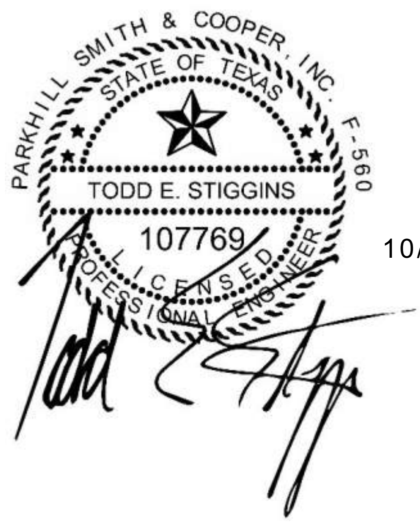
1.0 GENERAL – 30 TAC §330.63(d)(1) III.D-1



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1.0 GENERAL – 30 TAC §330.63(D)(1)

The Facility is designed to process a daily maximum limit of 360,000 gallons. The Facility accepts up to 90,000,000 gallons per year or an average of approximately 246,575 gallons per operating day (assuming operations seven days per week). Liquid waste are stored in tanks and process equipment housed in an enclosed facility. Waste is processed promptly as to not result in nuisances or public health hazards. The Facility operates a continuous process where wastewater is received in receiving tanks and pushed through the cycle of varying dewatering and process equipment before entering the City of Mansfield sewer. The volume of receiving tanks is not intended to hold the maximum amount of untreated waste. The Facility has 235,000 gallons of liquid storage totaled through all the processing equipment. The facility can store 215,000 gallons of unprocessed and partially processed waste. The facility can store 20,000 gallons of processed waste. The daily maximum waste storage is contained and shared through the entire process equipment train.

Maximum length of time unprocessed waste shall be allowed to remain on site is 72 hours. Average waste processing time is 12 hours.

Processed wastewater is immediately discharged into the municipal sanitary sewer. Maximum length of time that processed waste shall be allowed to remain on site is 120 hours.

The following waste management unit design requirements do not apply:

- 30 TAC §330.63(d)(2) is for incineration units.
- 30 TAC §330.63(d)(4) is for landfill units.
- 30 TAC §330.63(d)(5) is for arid exemption landfill units.
- 30 TAC §330.63(d)(6) is for Type V mobile liquid waste processing units.
- 30 TAC §330.63(d)(7) is for Type IX energy, material, gas recovery for beneficial use, or landfill mining waste processing units.
- 30 TAC §330.63(d)(8) is for compost units.
- 30 TAC §330.63(d)(9) is for Type VI waste processing demonstration facilities.

If at any time during the life of the Facility the Owner becomes aware of any condition in the permit that necessitates a change to accommodate new technology or improved methods or that makes it impractical to keep the Facility in compliance, the Owner shall submit to the Executive Director requested changes to the permit in accordance with 30 TAC §305.62 or 30 TAC §305.70 and must receive approval prior to implementation. All drawings or other sheets prepared for requested revisions must be submitted following the format in 30 TAC §330.57(g). All revised engineering and geoscientific plans, drawings, and reports shall be signed and sealed by a licensed professional engineer or geoscientist as specified in 30 TAC §330.57(f).

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT E – GEOLOGY REPORT

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

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4222 85th Street

Lubbock, Texas 79424

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT E – GEOLOGY REPORT

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

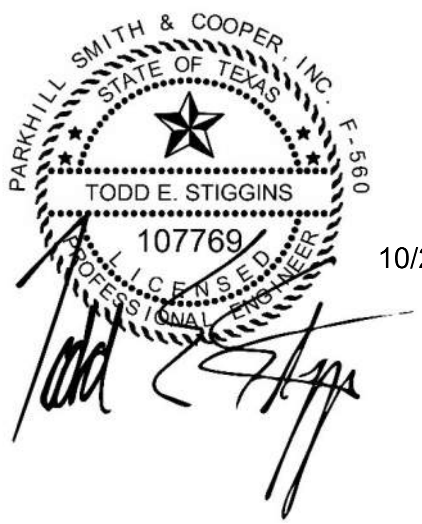

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TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(e) III.E-1

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1.0 GENERAL - 30 TAC §330.63(E)

30 TAC §330.63(e) is not applicable to Type V Liquid Waste Processing Facilities.

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT F – GROUNDWATER SAMPLING AND ANALYSIS PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT F – GROUNDWATER SAMPLING AND ANALYSIS PLAN

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

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PREPARED BY:

Parkhill

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TBPE F-560

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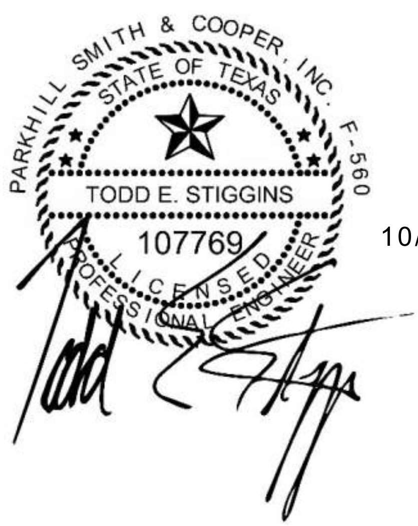
Parkhill Project # 45666.25

TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(f) III.F-1



10/27/2025

1.0 GENERAL - 30 TAC §330.63(F)

30 TAC §330.63(f) is not applicable to Type V Liquid Waste Processing Facilities.

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT G – LANDFILL GAS MANAGEMENT PLAN

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

PREPARED BY:

Parkhill

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TBPE F-560

Rev 00 – 10.27.2025

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT G – LANDFILL GAS MANAGEMENT PLAN

SOUTHWASTE DISPOSAL, LLC
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TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(g) III.G-1

10/27/2025

1.0 GENERAL - 30 TAC §330.63(G)

30 TAC §330.63(g) is not applicable to Type V Liquid Waste Processing Facilities.

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT H – CLOSURE PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT H – CLOSURE PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

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TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

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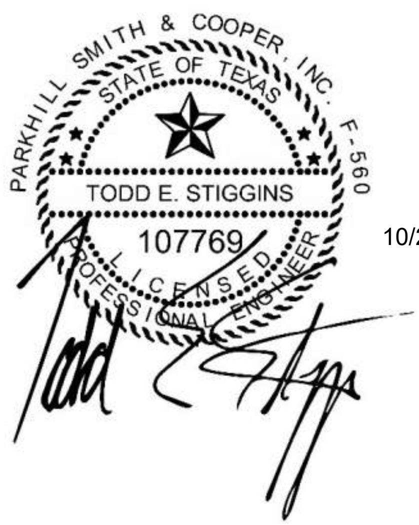
TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(h) III.H-1
1.1 Processing Facility Closure - 30 TAC §330.459 .... III.H-1
1.2 Certification of Final Facility Closure - 30 TAC §330.461 .... III.H-1



10/27/2025

1.0 GENERAL – 30 TAC §330.63(H)

A Closure Plan has been developed for the Liquid Waste Processing Facility and complies with 30 TAC §330 Subchapter K.

1.1 Processing Facility Closure – 30 TAC §330.459

At time of closure, SouthWaste Disposal Dallas Facility (Facility) shall remove all waste, waste residues, and recovered materials. Solid wastes shall be disposed offsite at an appropriate location, permitted, and approved to accept waste. All liquid waste onsite, in process or processed, shall be evacuated to an authorized facility. Liquid Waste Processing facility units shall be dismantled and transported off site or decontaminated. Processing areas, post-processing areas, and surfaces in contact with waste, shall be sanitized by pressure-rinsing and scrubbed with hot water and soap. After sanitation is completed, water from sanitation shall be collected in the sump and pumped into a truck to be evacuated to an authorized facility to treat the sanitation water.

Although the Facility is designed and operated to prevent releases, if there is evidence of a waste release from the Liquid Waste Processing Facility, the TCEQ executive director may require an investigation into the nature and extent of the release and an assessment of measures necessary to perform corrective action.

The provisions of 330.459(d) are not applicable to the Facility as it is not a recycling facility.

1.2 Certification of Final Facility Closure – 30 TAC §330.461

A public notice for final Facility closure shall be provided in the newspaper of largest circulation near the Facility no later than 90 days before initiation of final closure. This public notice is required to include name, address, and physical location of the Facility, permit number, and last day of intended receipt of materials for processing at the Facility.

An adequate number of copies of the approved Closure Plan shall be made available for public review. The TCEQ Executive Director shall be provided with a written notification of intent to close the Facility 90 days before initiation of final closure. The Notice of Intent shall be placed in the Site Operating Plan (SOP).

No later than 90 days before initiation of final closure, a site sign shall be installed at the main entrance and exit noting the date of closure for the entire Facility and of prohibition against further receipt of waste materials after the started date. Suitable barriers or locks shall be installed at all gates to adequately prevent unauthorized receipt of waste materials at the closed Facility.

Within 10 days of final completion of the Facility closure, the owner/operator shall submit to the executive director, a certification, signed by an independent licensed professional engineer, verifying final Facility closure is complete in accordance with the approved closure plan.

Following receipt of required final closure documents, as applicable, commission regional office may conduct an inspection and provide a report verifying proper closure of the Facility according to approved Closure Plan before termination of operation and closure of the Facility. The submittal is required to include all applicable documentation necessary for certification of final Facility closure and request a voluntary revocation of Facility permit within 10 days of final closure activities.

Provisions of 330.461(c)(1) and 330.461(d) are not applicable to this Facility as no wastes shall remain at the closed Facility.

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT I – POST-CLOSURE PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT I – POST-CLOSURE PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PARKHILL SMITH & COOPER, INC. F-560
STATE OF TEXAS
TODD E. STIGGINS
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10/27/2025

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Rev 00 – 10.27.2025

Parkhill Project # 45666.25

TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(i) III.I-1

10/27/2025

1.0 GENERAL - 30 TAC §330.63(I)

30 TAC §330.63(i) is not applicable to Type V Liquid Waste Processing Facilities.

PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT J – CLOSURE AND POST-CLOSURE COST ESTIMATES

SOUTHWASTE DISPOSAL, LLC

DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

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PART III – FACILITY INVESTIGATION AND DESIGN

ATTACHMENT J – CLOSURE AND POST-CLOSURE COST ESTIMATES

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

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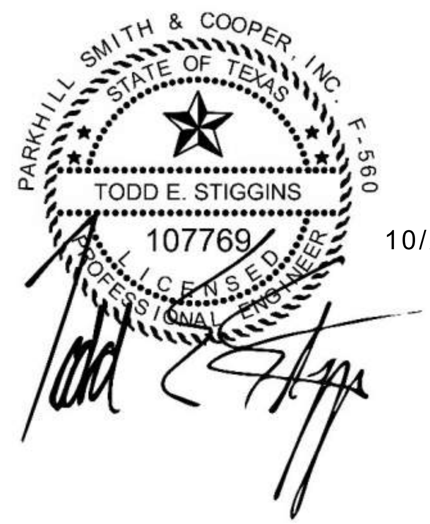
Rev 00 – 10.27.2025
Parkhill Project # 45666.25

TABLE OF CONTENTS

1.0 GENERAL – 30 TAC §330.63(j) III.J-1



10/27/2025

1.0 COST ESTIMATE FOR CLOSURE - 30 TAC §330.63(J)

A Closure Cost Estimate has been prepared for the Liquid Waste Processing Facility and is based on cost of hiring a third party, unaffiliated with owner/operator, to collect, transport, and dispose the maximum quantity of waste presented onsite, perform cleaning, disinfection, and decommissioning. Estimate includes assumptions and sign and seal (note that the units containing liquids must be assumed full). Estimate complies with 30 TAC §330 Subchapter L.

SouthWaste Disposal Dallas Facility
Type V MSW Facility
Closure Cost Estimate

10/27/2025

ITEM	DESCRIPTION	UNITS	QUANTITY PER UNIT	QUANTITY	UNIT COST	TOTAL COST
1	**Waste Disposal**					
1	Receiving Tank	GAL	20,000	3	$ 0.43	$ 25,800.00
2	Equalization Tank	GAL	20,000	2	$ 0.43	$ 17,200.00
3	pH Adjustment Tank	GAL	8,000	2	$ 0.43	$ 6,880.00
4	Dissolved Air flotation	GAL	6,000	1	$ 0.43	$ 2,580.00
5	Sludge Holding Tank	GAL	12,000	2	$ 0.43	$ 10,320.00
6	Screw Press	GAL	11,000	1	$ 0.43	$ 4,730.00
7	Caustic Tank	GAL	1,700	1	$ 0.43	$ 731.00
8	Cook Tank	GAL	3,150	1	$ 0.43	$ 1,354.50
9	Finish Oil Tank	GAL	12,000	1	$ 0.43	$ 5,160.00
	Total (Rounded up to the Hundred Dollar)					$ 74,800.00
2	**Process Unit Decommission**					
	Equipment Cleanup/Decommission Labor (20 man-day)	DAY		20	$ 300.00	$ 6,000.00
	Total					$ 6,000.00
3	**General Cleanup of Processing Facility**					
	Labor General Cleanup (8 man-day)	DAY		8	$ 300.00	$ 2,400.00
	Oversight (including facility visual inspection) (1 day)	DAY		1	$ 1,750.00	$ 1,750.00
	Total					$ 4,150.00
4	**Secure Facility**					
	Install Facility Signage	LS		1	$ 600.00	$ 600.00
	Secure Fences/Gates	LS		1	$ 600.00	$ 600.00
	Total					$ 1,200.00
5	**Management**					
	Sampling/Testing/Classification of Waste	LS		1	$ 3,500.00	$ 3,500.00
	Facility Inspection/Closure Certificate	LS		1	$ 5,800.00	$ 5,800.00
	Total					$ 9,300.00
	Subtotal					$ 95,450.00
	Contingency (10%)					$ 9,550.00
	Grand Total					**$ 105,000.00**

1. Values are in 2025 dollars.
2. All tanks are assumed to be full.

10/27/2025

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PART IV – SITE OPERATING PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

TCEQ MSW Permit No. 2256C

Mansfield, Tarrant County, Texas

PREPARED FOR:

SouthWaste Disposal, LLC

16350 Park Ten Place #215

Houston, Texas 77084

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PART IV – SITE OPERATING PLAN

SOUTHWASTE DISPOSAL, LLC
DALLAS FACILITY

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TBPE F-560

Rev 00 – 10.27.2025

Parkhill Project # 45666.25

Parkhill

TABLE OF CONTENTS

1.0 INTRODUCTION IV-2
1.1 Contents of Part IV - 30 TAC §330.65(a) IV-2

2.0 PERSONNEL AND TRAINING IV-3
2.1 Training IV-3

3.0 DISCHARGE PERMIT REQUIREMENTS - 30 TAC §330.65(d) IV-6

4.0 WASTE ACCEPTANCE AND ANALYSIS - 30 TAC §330.203 .... IV-7
4.1 Sources and Characteristics of Waste IV-7
4.2 Waste Quantity IV-10
4.3 Waste Analysis IV-10
4.4 Waste Pre-Approval Testing IV-11
4.5 Waste Acceptance Procedures IV-12

5.0 FACILITY-GENERATED WASTES - 30 TAC §330.205 .... IV-14
5.1 Treated Wastewater Effluent IV-14
5.2 Solids IV-14
5.3 Sludge IV-14
5.4 Oil IV-15

6.0 CONTAMINATED WATER MANAGEMENT - 30 TAC §330.207 .... IV-16

7.0 STORAGE REQUIREMENTS - 30 TAC §330.209 .... IV-17

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10/27/2025

8.0 APPROVED CONTAINERS 30 TAC §330.211 .... IV-18

9.0 RECORDKEEPING AND REPORTING REQUIREMENTS - 30 TAC §330.219 AND 675 .... IV-19

10.0 FIRE PROTECTION - 30 TAC §330.221 .... IV-20
- 10.1 Fire Prevention 20
- 10.2 Procedures in the Event of a Fire 20

11.0 ACCESS CONTROL - 30 TAC §330.223 .... IV-22
- 11.1 Facility Security IV-22
- 11.2 Vehicle Access IV-22

12.0 UNLOADING WASTE - 30 TAC §330.225 .... IV-23

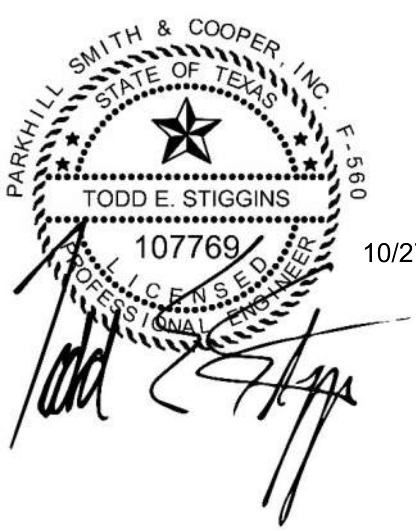
13.0 SPILL PREVENTION AND CONTROL - 30 TAC §330.227 .... IV-24

14.0 OPERATING HOURS -30 TAC §330.229 .... IV-25

15.0 FACILITY SIGN -30 TAC §330.231 .... IV-26

16.0 CONTROL OF WINDBLOWN MATERIAL AND LITTER - 30 TAC §330.233 .... IV-27

17.0 MATERIALS ALONG ROUTE TO THE FACILITY - 30 TAC §330.235 .... IV-28



10/27/2025

18.0 FACILITY ACCESS ROADS - 30 TAC §330.237 ....IV-29

19.0 NOISE POLLUTION AND VISUAL SCREENING - 30 TAC §330.239........IV-30

20.0 OVERLOADING AND BREAKDOWN - 30 TAC §330.241.........................IV-31

21.0 SANITATION - 30 TAC §330.243 ....IV-32

22.0 VENTILATION AND AIR POLLUTION CONTROL - 30 TAC §330.245......IV-33

23.0 HEALTH AND SAFETY - 30 TAC §330.247 ....IV-35

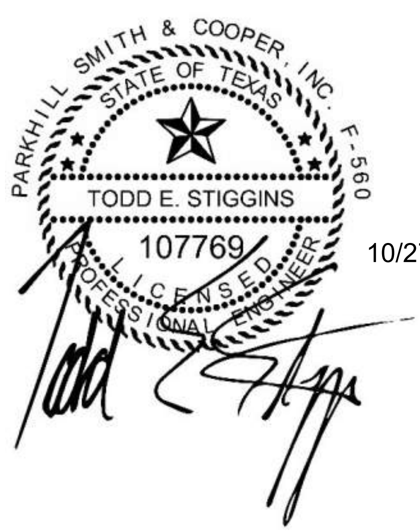
24.0 EMPLOYEE SANITATION FACILITIES - 30 TAC §330.249 ....IV-36

APPENDICES

APPENDIX A: EXAMPLE WASTE PROFILE
APPENDIX B: EXAMPLE NON-HAZARDOUS WASTE MANIFEST
APPENDIX C: EXAMPLE ODOR SURVEY FORM

TABLES

TABLE 1 - FACILITY STAFF
TABLE 2 - WASTE ACCEPTANCE CONSTITUENT LIMITATIONS
TABLE 3 - CONSTITUENT LIMITS FOR SLUDGE
TABLE 4 - OPERATING RECORD



10/27/2025

DEFINITIONS

CFR – Code of Federal Regulations

EPA – United States Environmental Protection Agency

Facility - All contiguous land and structures, other appurtenances, and improvements on the land used for storage, or processing, solid waste.

FOG – Fats, oils, and grease.

GGTF – Grease and Grit Treatment Facility.

Liquid Waste - Any waste material determined to contain "free liquids" as defined by EPA Method 9095 (Paint Filter Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846).

MSW - Municipal Solid Waste, is any municipal solid waste or mixture of municipal solid wastes identified or listed as a hazardous waste by administrator or EPA.

NELAP – National Environmental Accreditation Program.

Paint Filter Test (EPA Method 9095B) – Method used to determine presence of free liquids in a representative sample of waste.

PCBs - Polychlorinated biphenyl wastes.

Solid Waste - Garbage, rubbish, refuse, sludge from wastewater treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, municipal, commercial, mining, and agricultural operations and from community and institutional activities.

TAC - Texas Administrative Code.

TCEQ – Texas Commission of Environmental Quality.

TCLP – Toxicity Characteristic Leaching Procedure.

TPDES - Texas Pollutant Discharge Elimination System.

TPH – Total Petroleum Hydrocarbon.

1.0 INTRODUCTION

SouthWaste Disposal Dallas Facility (Facility) is located at 525 South 6th Avenue, in the City of Mansfield, approximately 0.5 miles south of the intersection of South 6th Avenue and West Broad Street, Tarrant County, Texas.

The Facility consists of Liquid Waste Processing and grit washout facilities. Residuals from tank washout are collected and processed through the Liquid Waste Processing Facility. The Facility is designed to separate wastes received into solids, dewatered sludge, oil, and wastewater. The Facility is permitted to process a maximum 90,000,000 gallons of waste per year, inclusive of residuals from the washout facility.

This Site Operating Plan (SOP) is intended to provide guidance to site management and operating personnel for Facility operation. The SOP facilitates site management and operation in compliance with applicable TCEQ regulations and current standards of practice in the industry, compatible with Facility design. Operations reflect current standards of practice in the liquid waste processing industry. This SOP also serves as a reference source and can be used as a training tool for Facility personnel. It is not intended to be a comprehensive operating manual covering specific operations of each process or type of equipment present at the Facility.

1.1 Contents of Part IV – 30 TAC §330.65(a)

This SOP meets requirements of 30 TAC §330.65 and §330 Subchapter E – Operational Standards for Municipal Solid Waste Storage and Processing Units (30 TAC §330.201-249). This SOP is intended to cover all Facility onsite liquid waste processing units. The Facility is responsible for day-to-day facility operations using onsite personnel and contracted outside personnel as needed.

This Facility does not have an environmental management system as described in 30 TAC §90.32 and EPA National Environmental Performance Track (NEPT) Program. Therefore, 30 TAC §330.65(b) is not applicable to the Facility.

2.0 PERSONNEL AND TRAINING

The Facility is intended to be operated by a small staff. Under normal operating conditions, a minimum of two staff persons are onsite when waste is received and to operate the process. The Facility staffing requirements are presented in Table 1:

Table 1 – FACILITY STAFF

Staff	Licensure and Training Requirements	Job Responsibilities
Lead Plant Manager Operator / Solid Waste Facility Supervisor	License: TCEQ MSW B License Training: Facility Orientation. Fire Safety. Health and Safety. Waste Screening. Vendor/Manufacturer Specific Equipment Training.	▪ Overall plant operation and performance. ▪ Implementation of this SOP. ▪ Supervision of other Facility staff. ▪ Maintaining plan records. ▪ Waste screening. ▪ Waste unloading supervision. ▪ Equipment maintenance and repair. ▪ Personnel safety
Waste Unloading Attendant / Process Operator	License: Not Required Training: 6-month minimum experience in operations or on the job training by supervisor/manager. Facility Orientation. Fire Safety. Health and Safety. Waste Screening. Vendor/Manufacturer Specific Equipment Training.	▪ Equipment operations and maintenance. ▪ Waste unloading supervision.
Litter Control	License: Not required. Training: Internal safety and personal protective equipment.	▪ Screening for prohibited or unauthorized waste. ▪ Picks up windblown litter as directed.

Additional support staff may be present within the processing facility at various times. This support staff is required to receive the level of internal training required for the Process Operator; however, they are not be required to obtain a TCEQ MSW Operator License.

2.1 Training

Facility personnel are required to complete a training program that may involve classroom and/or on-the-job training that teaches how to perform their duties to ensure Facility compliance with rules.

Training is required to be directed by someone trained in waste management procedures. All staff must receive an orientation program before beginning Facility work. All staff is required to be trained in fire safety and health and safety. Additional job specific training is required depending on the employee's role at the Facility. All employees are required to receive the following training with annual training review and periodic training updates:

- Facility Orientation
- Fire Safety
- Health and Safety Program
- Waste Screening

2.1.1 Facility Orientation Training

When hired, staff must be provided with Facility orientation training. At minimum, this training covers:

- Facility communication and alarm systems;
- Facility and process unit layout;
- Treatment process flow diagram;
- Treatment equipment operation, repair, and replacement procedures;
- Emergency response including fire safety; and
- Procedures for shutdown of facility operation and process equipment.

2.1.2 Fire Safety Training

Staff are required to be trained when hired, and annually thereafter, regarding fire prevention, fire control, firefighting procedures, and notification requirements. These general rules are in place for fire response in the event of a fire at the Facility:

- If a fire cannot be safely extinguished by hand-held extinguishers, call the Fire Department by dialing 911.
- Do not attempt to fight a fire alone. Alert other facility personnel.
- Be familiar with use and limitations of firefighting equipment available at the Facility.
- Do not attempt to fight a fire without adequate personal protective equipment (PPE).

2.1.3 Health and Safety Training

Health and Safety Training shall be held in accordance with the Health and Safety Plan described in Section 23 – Health and Safety, herein.

2.1.4 Waste Screening Training

All employees involved with waste receiving operations shall be trained to recognize unauthorized waste, regulated hazardous waste, and PCBs through observation of waste color, physical state, odor, ignitability, and pH. Staff shall also be trained to compare characteristics of waste shipment with waste characterization required before approval of waste for processing.

3.0 DISCHARGE PERMIT REQUIREMENTS – 30 TAC §330.65(D)

The Facility operates under Industrial Wastewater Discharge Permit No. C-25-014 from the City of Mansfield. The permit does not provide flow rate limitations. Treated liquid waste effluent is discharged to City of Mansfield's sanitary sewer system. Liquids in the sewer system are treated at Trinity River Authority (TRA) Central Regional Wastewater System Wastewater Plant. The Facility's discharge is periodically monitored by TRA. Permit No. C-25-014 calls out the specific limitation for BOD, pH, Oils/grease and TSS. Refer to the most up to date version of Permit No. C-25-014 for the current and specific parameter limits. Permit No. C-25-014 is required to be on file at the Facility office.

Contaminated water at the Facility resulting from wash downs, minor spills, or clean-up will be captured and routed through the Facility's treatment system. Contaminated water is required to be treated to meet the limits as Permit No. C-25-014 requires before discharge to the City of Mansfield's sanitary sewer.

4.0 WASTE ACCEPTANCE AND ANALYSIS – 30 TAC §330.203

The Facility accepts non-hazardous waste for processing and treatment. All wastes must be properly manifested or have a trip ticket.

Waste analysis requirements are presented in Section 4.3 and waste acceptance procedures in Section 4.5 herein.

4.1 Sources and Characteristics of Waste

The Type V Facility may accept liquid and semi-liquid wastes for processing primarily from Tarrant County and surrounding areas, including:

- Industrial wastes, including non-hazardous Class 1, Class 2, and Class 3 waste;
- Grease trap waste from commercial and industrial sources;
- Grit trap waste from commercial and industrial sources;
- Lint trap waste;
- Sludges from municipal and industrial wastewater treatment;
- Septage from residential and commercial sources;
- Chemical toilet waste;
- Waste from commercial and industrial oil-water separators; and
- Tank wash water generated at the onsite tank washing facility.

The following are general types of waste accepted at the Facility. Each waste type includes a typical expected waste composition. Although wastes may have constituents in typical ranges, acceptance at the Facility is limited to ranges presented in Table 2 - Waste Acceptance Constituent Limitations.

4.1.1 Industrial Waste

May be generated from various sources including industrial processes, off-specification products, and washing floors/equipment at manufacturing or processing facilities that may include solids, liquids, water, and oils. Industrial wastes are subject to pre-approval by Facility staff before acceptance. Waste composition:

- 1,000-5,000 mg/L COD;
- 700-15,000 mg/L BOD5;
- 2-12 pH; and
- 0.05- to 0.15-percent solids.

4.1.2 Grit Trap Waste

Typically generated from grit/sand interceptors present at car washes, service stations, vehicle maintenance, and repair facilities, where dirt and grime is washed from vehicles or equipment. This waste may contain detergents, grit, dirt, sand, gravel, soil, water, oils and other solids. Waste composition:

- 2,000–7,000 mg/L COD;
- <350 mg/L BOD5;
- 6-7 pH; and
- 25- to 50-percent solids.

4.1.3 Grease Trap Waste

Typically generated by industrial and commercial food preparation services. This waste may contain fats, oils, greases, solids, and water. Waste composition:

- 50,000-200,000 mg/L COD
- 50,000-200,000 mg/L BOD5
- 4.5-5.5 ph; and
- 5-15-percent solids.

4.1.4 Lint Trap Waste

Typically generated by laundromats, hospitals, hotels/motels, and other facilities involved in washing linens. This waste may contain detergents, textile fibers, string, lint, water, and other inert solids such as buttons. Waste composition:

- 350-450 mg/L COD;
- 400-450 mg/L BOD5;
- 9-9.3 pH; and
- 10- to 15-percent solids.

4.1.5 Sludge

Sludges accepted at the Facility may be generated at municipal or industrial wastewater treatment facilities and may contain solids and water. Waste composition:

- 450-700 mg/L COD;
- 200-300 mg/L BOD5;
- 5-8 pH; and
- 5- to 9-percent solids.

4.1.6 Septage

Generated from pumping residential or business septic/holding tanks and chemical toilets. Waste composition:

- 1,500-700,000 mg/L COD;
- 440-78,600 mg/L BOD5;
- 2-12.5 pH; and
- 0.1- to 13-percent solids.

4.1.7 Oil-Water Separators

Oily wastes generated in industrial/commercial oil-water separators accepted for further oil separation. These wastes are typically characterized by oily waters containing detergents, grit, dirt, sand, gravel, soil, and other solids.

4.1.8 Tank Wash Water

The facility offers tank washing of totes, portable tanks, empty truck, and trailer-mounted tanks for vehicles similar to those disposing waste at the facility. Tanks are rinsed and cleaned. Wash water is collected and fed into the Type V processing facility process. This waste may be from a variety of sources, but falls into an acceptable category based on the waste type previously present in the tank.

4.1.9 Prohibited Wastes

The following wastes are not accepted for processing and treatment at the Type V Facility:

- Wastes lacking an appropriate manifest, trip ticket, or unidentified wastes;
- Regulated hazardous waste and municipal hazardous waste from conditionally-exempt small quantity generators (CESQG);
- Untreated medical waste;
- Pharmaceuticals;
- Waste from oil, gas, and geothermal activities subject to regulation by the Railroad Commission of Texas;
- PCBs; and
- Radioactive waste.

4.1.10 Yellow Grease

Yellow grease is processed separately from other incoming waste streams at the Facility. Yellow grease waste accepted at the Facility is rendered and sold offsite. Oily water is transferred to one of two cook tanks. Liquids, solids, and oils are separated by heating tanks with steam. Solids that settle at the bottom of each tank are collected and transported offsite for disposal. After oils are separated in each cook tank, oils are sent to the finish tank where product are collected and transported offsite for resale.

4.2 Waste Quantity

The waste processed at the Facility is comprised of varying percentages of acceptable wastes depending on market conditions. The Facility is designed and operated so the quantity of any particular approved waste received is not a limiting factor for effective processing of all wastes.

The Facility accepts up to 90,000,000 gallons per year or an average of approximately 246,575 gallons per operating day (assuming operations seven days per week). The daily maximum waste acceptance rate shall be 360,000 gallons.

The maximum amount of untreated waste stored onsite at any one time shall not exceed the capacities of receiving tanks of 60,000 gallons. The maximum amount of untreated and partially treated waste stored onsite at any one time shall not exceed 235,000 gallons (including sludge tanks), although this amount of waste is never anticipated to be present at the Facility. The maximum length of time unprocessed waste may remain at the Facility shall not exceed 72 hours, as required by 30 TAC §330.241(a)(1). The average length of time unprocessed waste remains onsite is 24 hours. The maximum waste processing time is 48 hours, and average waste processing time is 12 hours. Processed waste may remain onsite up to 120 hours. Processed water/liquid waste is discharged to the wastewater collection system at a minimum frequency of at least daily, and processed solids are transported to an MSW landfill as the container or dewatering box is filled, but at least weekly.

4.3 Waste Analysis

Incoming wastes and Facility generated wastes are sampled and analyzed according to this section, and all analysis records are to be maintained in the facility operating record for no less than three years.

In accordance with 30 TAC §330.203(c)(1) and §330.203(c)(2), incoming wastes are periodically sampled and analyzed by a NELAP Accredited Lab prior to acceptance at the Facility. Methods for effluent sampling and analysis are to be conducted in accordance with EPA and meet requirements specified in 30 TAC §330.203(c)(1)&(2). All wastes received shall be periodically sampled at a minimum frequency of at least annually and analyzed according to approved EPA methods for:

- Benzene (EPA 5035),
- Lead (EPA 6020), and
- Total petroleum hydrocarbons (TPH) (EPA 1664A or TCEQ 1005).

Grit trap wastes shall be analyzed at least annually for:

- Biochemical Oxygen Demand (BOD) (EPA 5210 B),
- Total Suspended Solids (TSS) (EPA 160.2 or SM 2540D),
- Benzene (EPA 8021B),
- TPH (EPA 1664A or TCEQ 1005), and
- Lead (EPA 6020).

Sludge generated at the Facility that are to be disposed of at a MSW landfill, must be free of liquids and pass the “Paint Filter Test” (EPA Method 9095B). Additionally, sludge shall be analyzed at least annually for:

- Benzene (EPA 5035),
- Lead (EPA 6020), and
- TPH (EPA 1664A or TCEQ 1005).

Wastewater effluent from the facility shall be analyzed at least annually, but no less frequently than required by the Industrial Discharge Permit, for:

- TPH (EPA 1664A or TCEQ 1005),
- Fats, oil and grease (FOG) (EPA 1664 or 413.1), and
- pH (EPA 9045D/150.1 or 4500-H-B).

4.4 Waste Pre-Approval Testing

All new waste sources must be pre-approved before delivery to the Facility. To be accepted, the waste generator must complete a Waste Profile Form (Appendix A) to properly characterize waste.

Waste listed as Class 1 industrial waste must be accompanied by supporting laboratory documentation from a NELAP-accredited laboratory. For non Class 1 industrial wastes, based upon information contained in the Waste Profile Form, Facility may require supporting laboratory documentation. Upon request by Facility staff, a representative waste sample shall be submitted to the Facility for evaluation. The levels of screening are applied to efficiently evaluate all waste proposed to be accepted at the Facility.

Certain non-Class 1 industrial wastes that are familiar to staff may not be required to include supporting laboratory testing or to submit of representative sample of the waste to the Facility, at the discretion of Facility staff. However, Facility staff shall inspect the incoming loads of wastes deemed familiar to ensure the waste matches the expected characteristics of each waste type (color, odor, etc.)

For generators required to supply laboratory documentation that supports the Waste Profile form, ensure the analytical data provided includes the date of sampling, analytical methods, detection levels, results, proper chain of custody, and signature. To supplement/replace analytical data, the generator can provide information on the process generating waste. For a commercial chemical product, the analytical data can be replaced with MSDS or technical specification sheets.

All generators must certify waste does not meet the definition of a hazardous waste outlined in 40 Code of Federal Regulation (CFR) Part 261 Subpart C (characteristic hazardous wastes) and Part 261 Subpart D (listed hazardous wastes). Hazardous wastes are not accepted at this Facility.

If review of analytical data, inspection of representative waste sample, or inspection during waste unloading to not accurately determine physical and chemical composition of waste or if waste is possibly hazardous, then the waste stream is rejected until sufficient information is provided by the generator.

For existing customers/transporters/generators, the Facility may occasionally initiate evaluation procedures on a representative waste sample submitted by the waste generator or sampled directly from the transport vehicle. Such additional testing may be performed based upon previous experience with a particular entity or if personnel notice changes in waste characteristics. An approved independent NELAP-accredited laboratory can be contacted to provide analytical services used to:

- Make a hazardous waste determination;
- Effectively characterize waste;
- Provide data relating to compatibility with other wastes and provide insight into optimization of waste treatment method.

At minimum, all wastes accepted for processing must meet constituent limitations in Table 2.

Table 2 – WASTE ACCEPTANCE CONSTITUENT LIMITATIONS

Constituent	Acceptance Limit
pH	2.0 < pH < 12.5
BOD	<25,000 mg/L
COD	<700,000 mg/L
Flash Point	Flash Point ≥ 140°F
Toxicity	Below TCLP Limit

4.5 Waste Acceptance Procedures

The following outlines processes and procedures in place for acceptance or rejection of incoming waste streams:

4.5.1 Industrial Waste

Industrial waste must be pre-approved before acceptance at the Facility to ensure it is not hazardous or contains prohibited materials. To be approved, waste must be analyzed in accordance with the Waste Profile Form (Appendix A) and meet requirements of Table 2. As noted, it is the responsibility of transporters/generators to prove waste is not classified as hazardous waste. The generator shall utilize services of a third-party NELAC accredited laboratory, to test for constituents listed in 40 CFR Part 261, Subpart D and PCB waste as defined in 40 CFR 761.

Waste profiles must be completed annually at minimum. The following process shall be followed for acceptance of industrial waste:

A. New transporters/generators must complete and submit a representative sample to the Facility for testing in accordance with the Waste Profile Form or complete the Waste Profile Form and submit laboratory results to Facility staff for review. Existing customers must complete a new Waste Profile Form annually at minimum.
B. Upon waste approval, transporter may deliver waste to the Facility for disposal and processing.
C. Each load may be observed by Facility staff for color, physical state, and tested for pH before unloading.
D. Obtain the manifest or trip ticket for the incoming material and verify:
    1. Generator information is correct;
    2. Incoming material has a valid waste code where applicable;
    3. Manifest or trip ticket has all appropriate signatures; and
    4. Compare volume of material with total volume shown on manifest(s) or trip ticket.
E. Conduct a visual examination of material.
F. Additional testing may be requested/required if waste is suspected to not meet stated conditions.

4.5.2 Grit Trap, Lint Trap, Sludge, and Septage Waste

Grit trap waste, lint trap waste, sludge, and septage must be pre-approved before acceptance at the Facility to ensure it is not hazardous or contains prohibited materials. To be approved, the waste stream must have been analyzed in accordance with the Waste Profile Form (Appendix A) and meet requirements of Table 2. Waste profiles must be completed annually at minimum. The following process shall be followed for acceptance of grit trap, line trap, sludge, and septage waste:

A. New transporters/generators must complete and submit Waste Profile Form and may be required to submit a representative waste sample to the Facility for testing or complete the Waste Profile Form and submit laboratory results to Facility staff for review. Existing customers shall be required to complete a new Waste Profile Form annually at minimum.
B. Upon waste approval, transporter may deliver waste to the Facility for disposal and processing.
C. Each load is observed by Facility staff before unloading.

4.5.3 Prohibited or Unauthorized Waste Unloading

If a transporter arrives at the Facility with a waste load containing or suspected to contain constituents outside acceptable limits of Table 2 contain prohibited, unknown, hazardous, or PCB waste, waste shall not be unloaded at the Facility. Transporter is required to remove material from the site until transporter/generator can provide verification waste is acceptable for processing at the Facility by having waste tested at a third-party NELAP-certified laboratory.

If prohibited waste is unloaded at the Facility, Facility operators should take immediate actions to isolate waste by stopping all processes in contact with the waste. If the transporter/generator who disposed of the waste is identified, waste is returned to transporter/generator. If not possible, Facility staff shall contact an appropriate third party permitted to handle and dispose waste at a facility permitted for acceptance.

After securing waste and process equipment, TCEQ must be notified of the incident to report unauthorized unloading of prohibited waste at the Facility.

5.0 FACILITY-GENERATED WASTES – 30 TAC §330.205

The wastes generated at the Facility include:

- Treated wastewater effluent;
- Solids;
- Dewatered sludge; and
- Recovered oil.

5.1 Treated Wastewater Effluent

Treated wastewater effluent, separated from incoming wastes, are managed in accordance with §330.207, and Section 6.0 – Contaminated Water Management. Wastewater is discharged to the City of Mansfield wastewater collection system, in accordance with the facility Industrial Discharge Permit. Wastewater is required to be analyzed in accordance with the Industrial Discharge Permit, but no less than annually for TPH, fats, oil, and grease and pH. An appropriate Industrial Pretreatment Discharge Permit shall be maintained during commencing operations.

Alternately, if treated wastewater effluent meets constituent limitations for use in other processes by a third party, this liquid may be transported by truck to a facility approved to use such a liquid.

Some treated wastewater effluent may be used at the tank-washing facility to rinse the interior of waste tanks, conserving potable water. This water is returned to the treatment process.

5.2 Solids

Solids generated at the Facility consist of primarily inert materials (gravel, sand, small pieces of metal, etc.). This material, once separated from other wastes, is stored in a leakproof dumpster, roll-off box, or other suitable container until a sufficient volume is collected, then hauled to a permitted TCEQ MSW landfill authorized to accept waste for disposal, but no longer than 120 hours.

5.3 Dewatered Sludge

Facility sludge is generated from the separation process and is dewatered using dewatering boxes or filter press to produce a sludge cake that passes paint filter test. The Facility shall be designed and operated to produce a sludge acceptable at municipal solid waste landfills without exceeding standards specified in 30 TAC §330.205(d). Sludge is transported to a permitted TCEQ MSW landfill authorized to accept such waste for disposal.

At minimum, sludge shall not exceed the limits presented in Table 3 and be acceptable at a MSW landfill. Sludges exceeding these limits shall be disposed in an approved MSW landfill with a dedicated Class 1 industrial solid waste cell, if sludge is non-hazardous.

Table 3 – CONSTITUENT LIMITS FOR SLUDGE

Contaminant	Total Limit	TCLP Limit
Benzene	10 milligrams per kilogram (mg/kg)	0.5 milligrams per liter (mg/L)
Lead	30 mg/kg	1.5 mg/L
Total Petroleum Hydrocarbons (TPH)	1,500 mg/kg	N/A

5.4 Oil

Recovered oil is typically a recyclable product and is sent to facilities permitted for beneficial reuse of these recovered products.

6.0 CONTAMINATED WATER MANAGEMENT – 30 TAC §330.207

Contaminated water at the Facility is a result from washdown of floors, tanks, equipment, or spilled waste. Unloading, storing (except for covered dumpsters or dewatering boxes), and processing waste occurs inside an enclosed building with secondary containment. Therefore, rainwater does not contact waste. All contaminated water generated at the Facility is captured and contained within the Facility and returned to the treatment process. The Facility is equipped with a secondary containment area to contain spills, detailed on Figure III.A.5. Lagoons, open-top storage tanks, open vessels, and underground storage units are prohibited at the Facility.

Stormwater runoff is directed away from the treatment building so runoff is not contaminated through contact with waste materials. All outside storage containers shall be covered so rainfall may not collect directly in container or contact waste. Containers are stored in a curbed area which drains to the treatment process.

Treated wastewater is discharged to the City of Mansfield wastewater collection system. Treated wastewater discharged to the wastewater collection system complies with the City's pretreatment permit, and therefore is required to:

- Interfere with or pass through treatment facility processor operations;
- Interfere with or pass through sludge process, use, or disposal; or
- Otherwise be inconsistent with prohibited discharge standards, including 40 CFR Part 403, General Pretreatment Regulations for Existing and New Source Pollution.

All waste streams discharged to the City of Mansfield wastewater collection system is authorized by the City pretreatment division before discharge. Waste will not be discharged unless permitted for discharge by the City of Mansfield.

The Facility is prohibited from discharging contaminated water to any receiving stream, except for treated effluent discharged to wastewater collection system. The Facility is prohibited from discharging contaminated water to a septic system.

7.0 STORAGE REQUIREMENTS – 30 TAC §330.209

All waste materials are stored within enclosed vented tanks or appropriate containers. All tanks are vented and housed within an enclosed building and do not constitute a fire, safety, or health hazard nor do they provide food or harborage for animals and vectors. All containers actively used or filled in processing or collecting sludge and solids, are contained within the enclosed building and do not constitute a fire, safety, or health hazard, nor do they provide food or harborage for animals and vectors. Movable containers, filled and awaiting transport to appropriate disposal facility, may be stored outside, covered, and do not constitute a fire, safety, or health hazard, nor do they provide food or harborage for animals and vectors.

All tanks and containers shall be designed and manufactured for their intended use of holding liquids and solids and shall be of sufficient size and strength for anticipated service. Tanks and containers shall be provided in sufficient numbers to contain all solid waste generated in the time between batch processing (tanks) and transportation to appropriate disposal facility (containers).

8.0 APPROVED CONTAINERS – 30 TAC §330.211

All solid wastes are stored in closed-top tanks or reusable containers (dumpsters, roll-off, dewatering box, etc.). Storage tanks and other containers shall be leak-proof, durable, and designed for safe handling and easy cleaning.

Reusable containers shall be maintained in a clean condition while not in use to retard harborage, feeding, and propagation of vectors but not constitute a nuisance. Containers emptied manually are capable of service without the collector coming into physical contact with solid waste, designed to prevent spillage or leakage during storage, handling, or transport. Containers emptied mechanically are designed to prevent spillage/leakage during storage, handling, and transport.

Should non-reusable containers be used to store waste, they shall be of suitable construction and strength to minimize animal scavenging or rupture during collection and transportation operations.

9.0 RECORDKEEPING AND REPORTING REQUIREMENTS – 30 TAC §330.219 AND 675

A copy of TCEQ MSW permit, approved permit amendment application, and other required plans or related document are maintained at the Facility office in hard copy or electronic format at all times. An as-built set of construction plans and specifications shall be maintained at the Facility office in hard copy or electronic format at all times. All noted documents are available for inspection by agency representatives or other interested parties at the Facility.

Documents and information presented in Table 4 shall be promptly recorded and retained in the operating record throughout facility operation. All reports are to be signed by a duly-authorized person as a signatory for reports in accordance with §305.44(a). Reports shall include the certification required in §305.44(b). If authorization to sign is no longer accurate, a new authorization must be submitted. Executive director may set alternate recordkeeping and notification requirements.

A log of abnormal events including the discovery of prohibited waste as outlined in section 4.1.6 of Part IV, fire, explosions, process disruptions, equipment failures, etc. are maintained in the SOP.

Table 4 – OPERATING RECORD

Records Maintained	Frequency of Update	Rule Citation
TCEQ MSW Permit, Permit modifications and amendments	As approved	§330.219(a)
As-built Construction Plans and Specifications	Each construction event	§330.219(a)
All location-restriction demonstrations	As approved	§330.219(b)(1)
Inspection records	Per event	§330.219(b)(2)
Training procedures	As needed	§330.219(b)(2)
Closure plans and any monitoring, testing, or analytical data relating to closure	As required	§330.219(b)(3)
Cost estimates and financial assurance documentation relating to financial assurance for closure	Annually	§330.219(b)(4)
Copies of correspondence and responses relating to facility operation, Permit modifications, approvals, and other matters pertaining to technical assistance	Per event	§330.219(b)(5)
Documents, manifests, shipping documents, trip tickets, etc., involving special waste	Per event	§330.219(b)(6)
Other document(s) as specified by approved authorization or executive director	As required	§330.219(b)(7)
Record retention provisions for trip tickets as required by §312.145(b)(2)	Per event	§330.219(b)(8)
Recordkeeping provisions	Quarterly	§330.219(b)(9)
A report submitted to Executive Director summarizing recycling activities and percent of incoming solid waste.	Annually by March 1	§330.219(b)(9) & §330.675

10.0 FIRE PROTECTION – 30 TAC §330.221

The local fire department will be informed of the location and processes used at the Facility. Staff will be available to guide emergency personnel through the Facility to help familiarize them with the process and system. The Facility will comply with the local fire code. An adequate supply of water under pressure for firefighting will be available from four 6-inch fire hydrants located on S 5th and S 6th Avenues within 500 feet from the site. In an emergency, the Mansfield Fire Department can be reached by dialing 911 from an office phone. Neighboring business phones and mobile phones can be used in the event of phone system failure.

Due to the nature of the processes conducted in the dewatering facility, fire caused by the equipment or processing is not expected to be a problem. All materials brought into the building are “wet”. The dewatered solids are approximately 25 percent water and do not stay on the property long enough to dry and become a fire hazard. No readily burnable materials are routinely stored on the site, and the building is constructed of fire resistant materials such as steel and concrete. Recovered grease or oil could, however, be flammable. Fire extinguishers located around the building will be available for small emergencies. Type ABC fire extinguishers will be available specifically for grease fires. Firefighting equipment will be checked monthly to ensure that it is ready for use.

All facility personnel are trained in the contents of the fire protection plan, fire extinguisher use, and in communications and response in the event of a grease, oil, grass, structural, or equipment fire.

10.1 Fire Prevention

The first phase of fire safety is fire prevention. Good housekeeping practices are important in fire prevention. Other measures and precautions to be followed at the Facility to minimize the occurrence of fires include:

- Keep all work areas clean and uncluttered.
- Keep all flammable materials in proper containers and stored in a safe manner.
- Be familiar with the Material Safety Data sheets of processed chemicals used at the facility and proper procedures for cleanup and disposal of these chemicals.
- Clean up any grease, oil, and chemical spills immediately, and keep work
- Do not string electrical cords across floors or walkways where they can be stepped on and frayed, exposing the Facility to the possibility of an electrical fire.
- De-energize machinery before any maintenance work is started and thoroughly inspect that equipment before the power is turned back on.
- Use caution when using tools that cause friction or sparks near flammable materials.

10.2 Procedures in the Event of a Fire

Staff will take the following steps if a fire is discovered:

- Contact the local Fire Department by calling 911.
- Alert other Facility personnel.
- Assess the extent of fire, possibilities for the fire to spread, and alternatives for extinguishing the fire.
- If it appears that the fire can be safely fought with available firefighting devices until arrival of the local Fire Department, attempt to contain or extinguish the fire.
- Upon arrival of local Fire Department Personnel, direct them to the fire and provide assistance as appropriate.
- Do not attempt to fight the fire alone. Do not attempt to fight the fire without adequate personal protective equipment. Be familiar with the use and limitations of firefighting equipment available onsite.

11.0 ACCESS CONTROL – 30 TAC §330.223

11.1 Facility Security

To restrict public access and prevent unauthorized access, the site is enclosed by a minimum 6-foot-high fence with lockable gates. Facility structures and perimeter fence gates are locked while the Facility is not in operation, not accepting waste, or no staff are present on site. In accordance with §330.223(a), the Facility is designed and operated to protect human health, safety, and the environment. Public access is controlled to minimize unauthorized vehicular traffic and public exposure to hazards associated with waste management.

11.2 Vehicle Access

Facility access consists of a two-lane paved road. All onsite internal roads are concrete paved. Onsite access roadways are designed to accommodate vehicles anticipated to access the site to transport and unload waste material. Adequate turning radii and vehicle circulation lanes are provided to allow efficient and uninterrupted traffic flow under normal operating conditions. Vehicle parking is provided for equipment, employees, and visitors. Mud and dust are not anticipated to be an issue at the Facility as access is from a paved roadway and all onsite access roads are also paved.

Access is further controlled by onsite staff present during operating hours to observe and direct traffic flow as required.

Customers will be limited to disposing of waste during facility posted operating hours. When the Facility is not open to the public, vehicle access is controlled by gates with remote control entry in accordance with 30 TAC §330.223(c). Only Facility personnel may have access to the site through remote control, no waste transporter may have access to the site gate through remote control. Facility staff are required to be present to accept each waste load before a truck is permitted to discharge waste into the unloading station. The entire Facility is controlled by a 6-foot chain link fence and a security gate provided at each driveway.

12.0 UNLOADING WASTE – 30 TAC §330.225

Unloading and accepting waste occurs in the unloading area of the Facility. Waste acceptance procedures are described in Section 4.0 – Waste Acceptance and Analysis herein.

The Facility is designed for one-way traffic. Signs directing vehicles to the unloading area are present along the access roadway.

All liquid waste unloading occurs within an enclosed building. The unloading area includes two bays for authorized waste to be unloaded into the receiving tanks.

Facility staff prevent unauthorized unloading of waste at the unloading area and observe facility access roads for any unauthorized unloading outside the building. Procedures for control and response to unauthorized unloading is discussed in Section 4.5.3 – Prohibited or Unauthorized Waste Unloading, herein.

13.0 SPILL PREVENTION AND CONTROL – 30 TAC §330.227

Waste unloading, processing, and storage areas are designed to control/contain spills and contaminated water from leaving the Facility in accordance with 30 TAC §330.227. Unloading area/lanes are designed so in the event of a spill, all waste drains to a containment area. All liquid waste storage and processing areas are fully-enclosed design with secondary containment as outlined in Part III, Attachment B, Section 1.2.4, and able to contain a worst-case spill of the largest storage tank present in each area. The design is sufficient to control and contain incidental or worst-case spill or release. Once the cause of the spill is secure, spilled material is returned to the treatment process.

Facility personnel is onsite to attend all unloading operations. Waste is unloaded through pressuring the tank truck and discharging into storage tank. Discharge hose is secured in the receiving dock to prevent spilling during unloading. A concrete or metal-retaining wall surrounds waste storage to contain any spillage while unloading. Floor drains located in the receiving area direct any spillage back into the storage tank.

All tanks used to store waste material or processed material are surrounded with concrete pads with concrete footings or spill pans sufficient to contain spills, leaks, and/or expected rainwater. All tanks are enclosed except for roll-off boxes, pretreatment screens, recyclable fats, oils, and greases as loaded. All rainwater collected in spill area is discharged to drain and storage tank system for processing.

Processing wastewater occurs on a 24-hour basis. Tank overflow devices are used to prevent spillage. Qualified personnel periodically inspect all connections and piping during facility operations. If leakage is detected, processing the waste is suspended and leak repaired.

14.0 OPERATING HOURS – 30 TAC §330.229

Waste acceptance and processing operations, including transporting materials and heavy equipment operation, may occur 24 hours a day, 7 days a week. These waste acceptance and processing hours are needed because the Facility serves a variety of food service businesses and restaurants, which are typically open seven days a week and late into the evenings. Grease trap pumping must occur at some facilities over the weekend or after normal operating hours and the Facility provides a location for receipt of that waste. Actual waste acceptance/operating hours are posted on the Facility sign, which may be less than the permitted operating hours.

15.0 FACILITY SIGN – 30 TAC §330.231

The Facility shall conspicuously display a sign at the entrance measuring at least 4 x 4 feet, with letters at least 3 inches high. The sign is checked periodically for required maintenance. The sign must at minimum state:

- Facility name;
- Type of facility;
- Hours of operation;
- Days of operation;
- Waste acceptance hours;
- Permit number;
- Facility rules;
- Emergency contact information for facility supervisor/manager with authority to obligate after hours; and
- Local emergency fire department phone number.

16.0 CONTROL OF WINDBLOWN MATERIAL AND LITTER – 30 TAC §330.233

Types of waste accepted at the Facility are liquid wastes contained within tanks/containers and processed in enclosed tanks, vessels, or enclosed buildings, but not generating windblown material and litter. All driveways and other areas within the Facility boundary are inspected daily while Facility is in operation. Facility staff collect windblown material and litter at least once per day on days that the Facility is operating from inside the Facility, along fences and access roads, and at the gate, and dispose of collected material and litter properly.

17.0 MATERIALS ALONG ROUTE TO THE FACILITY – 30 TAC §330.235

Wastes transported to the Facility are liquid wastes in enclosed vessels, vacuum truck, or trailer-mounted tanks, so spilling along access routes to the Facility is not expected. Facility staff conducts inspections at least once daily on days the Facility is in operation. The Facility is required to clean up spilled liquid waste within 2.0 miles from Facility entrance in either direction. All cleanup activities along and within the right-of-way of public access roads serving the site shall be coordinated with local authorities and TxDOT before commencement of any cleanup operations.

Should a leaking vehicle arrive at the site, transporter shall be notified and responsible for any off-site cleanup. If vehicles are operating outside of applicable regulations, transporter may be reported to TCEQ or other appropriate enforcement agency.

18.0 FACILITY ACCESS ROADS – 30 TAC §330.237

All onsite access roads are constructed of asphalt or concrete pavement for all-weather access. Onsite roads shall be maintained on an as-needed basis to repair damage (depression, ruts, pot holes, etc.); therefore, mud, debris, and dust issues are not expected. In accordance with 30 TAC §330.237(b), dust from on-site and other access roadways shall not become a nuisance to surrounding areas. A water source and necessary equipment or other means of dust control is provided.

19.0 NOISE POLLUTION AND VISUAL SCREENING – 30 TAC §330.239

Processing and storage are performed behind fencing and inside buildings, providing an adequate barrier to Facility noise pollution. Primary activities generating noise onsite are unloading and processing. Unloading waste may involve vacuum truck equipment but conducted entirely within the building. Noise generated by processing involves pumps and air compressor(s). Because processing and all process equipment are housed completely within the building, noise and visual impacts should not cause nuisance conditions off site.

20.0 OVERLOADING AND BREAKDOWN – 30 TAC §330.241

The design capacity of the solid waste processing facility shall not be exceeded during operation. Facility staff shall conduct operations to not accumulate unprocessed waste in quantities that cannot be processed within a time frame to prevent creation of excessive odors, insect breeding, or harborage of other vectors. If such accumulations inadvertently occur, no additional waste shall be accepted until adverse conditions are abated and treatment/processing of waste has adequately reduced unprocessed waste in storage.

Maximum amount of time unprocessed waste is stored onsite is 72 hours. Tanks and processing equipment are sized such that unprocessed waste can be fully processed within 72 hours of receipt. Maximum amount of time processed wastes is stored onsite is 120 hours.

Should a significant work stoppage, mechanical breakdown, or other process interruption occur at the Facility, staff will restrict the receipt of additional waste. Haulers will be notified of conditions and informed of alternate facilities approved to accept the class of waste. Customers are responsible for arranging processing or disposal at an alternate facility.

If interruption is anticipated to last longer than 24 hours, Facility personnel will arrange to transport accumulated unprocessed waste to another facility approved to accept waste for disposal or processing. An up to date list of alternate sites, with telephone numbers, hours of operation, and other pertinent information will be maintained in the Facility office.

21.0 SANITATION – 30 TAC §330.243

Unloading/processing areas and other areas which may encounter waste are constructed of materials able to withstand intended use and required washing. Any area that encounters waste is washed down weekly, at minimum, to prevent creation of odors, nuisance conditions, and hazards to employees. Should Facility be operating on a 24-hour basis, all working surfaces which encounter waste are washed down at least twice weekly and areas swept daily.

All wash waters drain to sumps and process tanks or collected and pumped into treatment process. Wash water is not allowed to accumulate onsite without proper treatment, to avoid creation of odors or attraction to vectors.

No wash water is directly discharged to wastewater collection system without processing and treatment.

22.0 VENTILATION AND AIR POLLUTION CONTROL – 30 TAC §330.245

In accordance with 30 TAC §330.245(d), the Facility is designed and operated to provide adequate ventilation for odor control and employee safety. Owner/operator prevents nuisance odors from leaving the Facility boundary. If nuisance odors pass the Facility boundary, Facility owner/operator will suspend operations until nuisance is abated. Facility air emissions do not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act. In accordance with 30 TAC §330.245(h), the Facility is designed to allow a minimal time of exposure of liquid waste to the air.

All processing shall occur completely within the enclosed Type V building with all doors closed except when access is required. Waste handling, storage, and processing procedures minimize exposure of liquid waste to the air. Tarps are installed and maintained over the hopper and belt press roll off box. The tarp remains in place except when loading or unloading. Closed connect hoses are connected to receiving trucks to minimize waste contact with air in accordance with 30 TAC §330.245(h). All process and storage tanks are closed-top vessels. The building shall be maintained under a negative pressure with primary ventilation exhaust toward the rear of the property. Building exhaust is treated with an air scrubber to minimize odors. The air scrubber is properly sized to meet final building dimensions and exhaust requirements. In accordance with 30 TAC §330.245(e), all air pollution emission capture and abatement equipment or equivalent technology are properly maintained and operated during the Facility operation. Cleaning and maintenance of the abatement equipment shall be performed as recommended by the manufacturer and as necessary so that the equipment efficiency can be adequately maintained. The Facility has an adequate buffer from building exhaust to the property/permit boundary line to allow for odor dissipation.

Facility staff shall maintain the Facility is in as clean a condition as practical by washing, sweeping, and cleaning floors and equipment. During the process, no putrescible material is recovered and all material is fully processed. The Facility controls any ponded water to avoid a nuisance and alleviate any objectionable odors. The Facility is located on a concrete pad. Following rain events, site personnel inspect the Facility to ensure no ponded water exists on-site and take measures to remove ponded water if encountered. This is an effort to maintain a safe work environment and limit odor causing conditions within the Facility.

Facility staff perform a daily odor survey along the property boundary and keep a record in the operating record of the Facility. An example odor survey form is included in Appendix C of this Site Operating Plan. Should an odor condition arise and persist, Facility staff will employ additional odor control measures (odor neutralizing, masking agents, etc.).

In accordance with 30 TAC §101.201, Facility personnel are required to apply noted procedures to reportable emissions events. A reportable emissions event is any emissions event in any 24-hour period that results in an unauthorized emission from any emissions point equal to, or in excess, of reportable quantity as defined in 30 TAC §101.1.

As soon as practicable, but no later than 24 hours after discovery of an emissions event, owner/operator of a regulated entity shall:

- determine if event is a reportable emissions event; and
- notify regional commission office where regulated entity is located and all appropriate local air pollution control agencies with jurisdiction, if emissions event is reportable.

No maintenance, startup, or shutdown activities are expected to cause emissions in excess of a reportable quantity as defined in 30 TAC §101.1. In accordance with 30 TAC §101.211, if such activity is expected to cause emissions in excess of a reportable quantity, staff will notify the TCEQ regional office, and all appropriate local air pollution control agencies with jurisdiction, at least 10 days before scheduled activity.

In accordance with 30 TAC Chapter 116, the Facility is required to maintain air permits for emission sources. All required air authorizations will be obtained upon the issuance of this permit.

23.0 HEALTH AND SAFETY – 30 TAC §330.247

Operator develops and maintains a Health and Safety Plan, and all staff shall be annually trained (at minimum) in accordance with this Plan. Each new employee shall receive applicable training within 45 days of employment.

In case of an emergency, Facility staff should dial 911 for access to fire and medical emergency services.

24.0 EMPLOYEE SANITATION FACILITIES – 30 TAC §330.249

The Facility is equipped with facilities for employees and visitors with toilets and sinks providing potable water in the Type V building. Employees and visitors have access to soap and other appropriate sanitation products in the restroom.

APPENDIX A: EXAMPLE WASTE PROFILE

SouthWaste Disposal, LLC

Waste Profile No.: ___________

WASTE PROFILE FORM

For additional information, please call (866) 413-9494

A. GENERATOR INFORMATION

Generator's Name: ________________________

Address: ________________________________

____

City: __________________________________

State: _______________ Zip: _____________

Site Location, if different: __________________

____

Contact/Representative: __________________

Title: __________________________________

Phone: _________________________________

Fax: ___________________________________

Email: __________________________________

TCEQ Registration/Generator ID: _____________

EPA/Other Registration ID: _________________

B. CUSTOMER BILLING INFORMATION

Same as Generator: ☐No ☐Yes

If no, complete the following:

Billing Name: ____________________________

Address: ________________________________

____

City: ___________________________________

State: _______________ Zip: _______________

Contact Name: ___________________________

Title: ___________________________________

Phone: __________________________________

Fax: ____________________________________

Email: ___________________________________

B. WASTE STREAM INFORMATION

Common Name of Waste: ____

Detailed Description of the Waste and the Process Generating the Waste: ______________________________

____

Waste Properties at ambient temperature and pressure (77° F, 1 ATM)

Does the waste contain hazardous material(s), as defined in 30 TAC Chapter §335.504? ☐No ☐Yes

Does the waste contain ignitable, corrosive and/or toxic material(s), as defined in 40 CFR Part 261?

☐No ☐Yes. If yes, which?____

Does the waste contain reactive material, as defined in 40 CFR Part 261.23?

☐No ☐Yes. If yes, reactive with? ____

Is the material a Nonhazardous Industrial Waste Class 1, as defined in 30 TAC Chapter §335.505? ☐No ☐Yes

Does the waste contain Regulated Asbestos-Containing Material (RACM), as defined in 30 TAC §335.508?

☐No ☐Yes

Does the waste contain Polychlorinated Biphenyls (PCBs)?

☐No ☐Yes. If yes, which (if any) PCB concentration tests were performed? ____________________

Does the waste contain petroleum substance(s), as defined in 30 TAC §335.508? ☐No ☐Yes

Is the waste from the production of a "new chemical substance," as defined in 30 TAC §335.508? ☐No ☐Yes

Flash Point: __________ Degrees F or C (circle one) pH Range: ___________

Physical State: ☐Solid ☐Semi-Solid ☐Powder ☐Liquid ☐Other (describe): __________________________

Does the waste leach Class 1 toxic constituents at or above levels listed in Table 1, Appendix 1 of 30 TAC §335, Subchapter R when submitted to the toxicity characteristic leaching procedure (TCLP)? ☐No ☐Yes

If yes, which? ____

SouthWaste Disposal, LLC

Waste Profile No.:____________

WASTE PROFILE FORM

Does the waste contain untreated medical waste? ☐No ☐Yes

Does the waste contain U.S. D.O.T. hazardous material or radioactive material(s)? ☐No ☐Yes

Free Liquid: ☐No ☐Yes   Viscosity: ______________________   Density:_________ per CY

Color: ______________   Water Content:________ % by Weight   Infectious: ☐No ☐Yes

Odor: ☐None ☐Mild ☐Strong (describe): ____

TCLP chemical properties (concentrations in mg/l):

Arsenic	________	2,4-D	________	Methyl ethyl ketone	________
Barium	________	1,4-Dichlorobenzene	________	Nitrobenzene	________
Benzene	________	1,2-Dichloroethane	________	Pentrachlorophenol	________
Cadmium	________	1,1-Dichloroethylene	________	Pyridine	________
Carbon tetrachloride	________	2,4-Dinitrotoluene	________	Selenium	________
Chlordane	________	Endrin	________	Silver	________
Chlorobenzene	________	Heptachlor (and its epoxide)	____	Tetrachloroethylene	________
Chloroform	________	Hexachlorobenzene	________	Toxaphene	________
Chromium	________	Hexachlorobutadiene	________	Trichloroethylene	________
o-Cresol*	________	Hexachloroethane	________	2,4,5-Trichlorophenol	________
m-Cresol*	________	Lead	________	2,4,6-Trichlorophenol	________
p-Cresol*	________	Mercury	________	2,4,5-TP (Silvex)	________
Cresol*	________	Methoxychlor	________	Vinyl chloride	________

Other (list): ____

____

*If o-, m- and p-Cresol concentrations cannot be differentiated, the total cresol concentration is used.

The Waste Stream Characterization is based on the following (check box):

☐Laboratory analysis of a representative sample. Copy attached? ☐No ☐Yes

Name of laboratory and date of laboratory report: ________________________________

Laboratory test(s) conducted: ____

☐MSDS. Copy attached? ☐No ☐Yes   Date of MSDS _______________

☐Generator's process knowledge. Copy attached? ☐No ☐Yes

☐Other documentation. Copy attached? ☐No ☐Yes (describe):______________________________

C. WASTE PACKAGING AND QUANTITY INFORMATION

Container type: ☐Bulk Liquids ☐Tank Truck ☐Drums

☐Other: ____

Estimated quantity: ___________ ☐Cubic Yards ☐Tons ☐Gallons ☐Other (specify): ____________________

Estimated frequency of disposal: ☐Yearly ☐Monthly ☐Bi-weekly ☐Weekly ☐Daily ☐Once

☐Other (specify): ____

SouthWaste Disposal, LLC

Waste Profile No.:_____________

WASTE PROFILE FORM

D. GENERATOR'S CERTIFICATION STATEMENT AND INDEMNITY

The Generator does hereby certify that (1) the above and attached information is true, correct and complete to the best of my ability, (2) that no deliberate information was omitted, (3) all known or suspected hazards have been disclosed, (4) the waste is not a hazardous waste regulated by government or local authority, and (5) the waste does not contain PCB's regulated by TSCA or other regulatory authority that are prohibited for disposal in a TCEQ Type V Liquid Waste Processing Facility. The Generator will immediately notify Cactus Reclamation Services, Inc. in writing of any new or newly discovered material property, characteristic or condition of the waste, or of any changes in the above provided information prior to transporting the waste to the Facility. The Generator shall indemnify Cactus Reclamation Services, Inc. against all claims, actions, penalties, liabilities and expenses (including legal expenses) resulting from breach or misrepresentation of this agreement.

____(Name, Please Print) an employee of
____(GENERATOR Company Name), and I am duly authorized to sign this document on behalf of said GENERATOR.

PRINT NAME:_______________________________________

SIGNATURE:____

TITLE: ____

COMPANY:____

DATE: ____

PHONE: ____

FAX: ____

E. FACILITY USE ONLY (DO NOT WRITE WITHIN THIS SPACE)

Authorizing Agent: _________________________

Date: ________________ ☐Approved ☐Rejected

Waste Classification: ☐Hazardous ☐Class 1

☐Class 2 ☐Class 3

Job No.: __________________________________

State Fee Applicable – Class 1? ☐No ☐Yes

Waste Disposal Agreement on File? ☐No ☐Yes

Additional Information: ______________________

____

____

____

____

APPENDIX B: EXAMPLE NON-HAZARDOUS WASTE MANIFEST

SouthWaste Disposal, LLC
NON-HAZARDOUS WASTE MANIFEST

For additional information, please call (866) 413-9494

A. GENERATOR INFORMATION

Generator's Name: ________________________
Address: ________________________________
____
State:________________ Zip:________________
Site Location, if different: ___________________
____

Contact/Representative: ___________________
Title: ____________________________________
Phone:____________________________________
Fax: _____________________________________
Email: ___________________________________
TCEQ Registration/Generator ID: _____________
EPA/Other Registration ID:__________________

B. WASTE INFORMATION

Waste Description	Cactus Waste Profile No.	TCEQ Ind. Waste Code	Total Waste Quantity	Units (e.g. yd^3)	Container Type

I hereby certify that the above described material(s) are not designated a hazardous waste, as defined by 40 CFR §261 or any applicable state law or regulation. Further, I certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation and disposal according to applicable laws and regulations. I am duly authorized to sign this document on behalf of the above listed Generator.

_____________________________________ ______________________________ _____________
Generator/Authorized Agent's Name (PRINT) Signature Date Shipped

SouthWaste Disposal, LLC

NON-HAZARDOUS WASTE MANIFEST

C. TRANSPORTER INFORMATION

Same as Generator: ☐Yes ☐No

If no, complete the following:

Transporter's Name: ______________________

Address: ________________________________

____

City: ___________________________________

State: ________________ Zip: ________________

Contact/Representative: ____________________

Title: ___________________________________

Phone: __________________________________

Fax: ____________________________________

Email: ___________________________________

Driver's Name: ____________________________

I hereby acknowledge receipt of the above described material(s) that was transported from the Generator shipping location without incident to the Cactus Reclamation Services, Inc. Type V Facility. I certify that no hazardous waste, as defined by 30 TAC §335.504 or other regulated substance(s) was knowingly introduced to the waste and/or container while it was in my custody. I am duly authorized to sign this document on behalf of the above listed Transporter.

DOT No.: __________________ Truck No.: _________________ Phone: ___________________________

______________________________________	______________________________	_____________
Driver's Name (PRINT)	Signature	Date Shipped

SouthWaste Disposal, LLC

NON-HAZARDOUS WASTE MANIFEST

Destination Site Information

Site Name: ______________________________

Facility Type: ______________________________ Permit #: _____ Phone: ____

Address: ____

I hereby acknowledge receipt of the above described materials.

Quantity Received: ___________ ☐Gallons ☐Other (specify): ___________________________

____________________________________	____________________________	____________
Authorized Agent's Name (PRINT)	Signature	Date Received

APPENDIX C: EXAMPLE ODOR SURVEY FORM

EXAMPLE ODOR SURVEY FORM

Date		**Wind Direction From**	
Time		**Approximate Wind Speed**	
Inspected By		**Temperature**	

Were odors detected? _______**Yes** _______**No**

If **Yes**, location detected: ____

If **Yes**, was a source of the odor able to be identified? _______**Yes** _______**No**

If **Yes**, what was the source? ____

If **Yes**, action taken (if appropriate): ____

Notes: ____

____

____

____

Inspector Signature