Application for Registration MSW – XXXXX
Type V – Municipal Solid Waste Facility

Nexus Material Recovery and Transfer Station

Harris County
Houston, Texas

Prepared for
Nexus Continuum, LLC

April 2012

Prepared by:

HDR Engineering, Inc.
17111 Preston Road
Suite 200
Dallas, Texas 75248
TBPE Firm Registration F - 754

Executive Summary

Nexus Disposal, LLC is a family-owned minority business that has been operating a commercial waste collection company in the Houston area since 1995. During this time, while Nexus Disposal hauled waste directly to Municipal Solid Waste landfills for disposal, source-segregated recyclable and reusable material were taken to end-users, effectively reducing the amount of material being disposed. The company office and storage area for containers are located at 6124 Cunningham Road in Harris County. The site and the area surrounding the site is comprised of primarily industrial land use activities.

Due to their desire to divert larger volumes of recyclable material from their expanding clientele, Nexus Continuum, LLC has been formed to pursue a registration as a Type V Material Recovery and Transfer Station in accordance with 30 TAC 330.9(f) to properly manage these types of materials. The registered facility will be owned and operated by Nexus Continuum, LLC (Nexus). The facility will be known as the Nexus Material Recovery and Transfer Station. Nexus Continuum, LLC is also a family-owned minority business.

The following presents the information requested in Subchapter B of Chapter 330 of the Texas Administrative Code (TAC). The application is divided into four parts as defined in the regulations.

Part I	-	General Information
Part II	-	Existing Conditions
Part III	-	Facility Design Information
Part IV	-	Site Operating Plan

Nexus intends to process up to 5,000 cubic yards per day of waste and recyclable materials and divert for reuse or recycling a minimum of 500 cubic yards per day (10%). To qualify for registration, Nexus will recover a minimum of 10% of the total incoming material for reuse or recycling.

In order to process this material, Nexus proposes to operate 24 hours per day, 7 days per week. Nexus will process and load up to 250 cubic yards per hour but will not exceed 5,000 cubic yards in a 24 hour period. By operating extended hours, Nexus will provide a valuable service to both waste and recyclable material haulers when other facilities are closed or unavailable.

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of 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

2. Attachments — Describe Any Attachments: *(ex. Title V Application, Waste Transporter Application, etc.)*

■ Yes ☐ No — Type V Registration Application (Municipal Solid Waste)

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN		RN

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 11/09/2011

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

☐ Owner ☐ Operator ■ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

■ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☐ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	■ Other: Limited Liability Company

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*	*If new Customer, enter previous Customer below*	*End Date:*
Nexus Continuum, LLC		

10. Mailing Address:

P. O. Box 41188							
City: Houston	State: TX	ZIP: 77241	ZIP + 4:				

11. Country Mailing Information *(If outside USA)*	12. E-Mail Address *(if applicable)*

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(713)996 - 9090		(713)996-9595

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
32042999279			801341478

20. Number of Employees

■ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated?

■ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

■ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☐ No Change** *(See below)*

**"If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

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

Nexus Material Recovery and Transfer Station

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	6124 Cunningham Road							
	City	Houston	State	TX	ZIP	77041	ZIP + 4	4708
25. Mailing Address:	P. O. Box 41188							
	City	Houston	State	TX	ZIP	77241	ZIP + 4	

26. E-Mail Address:		
27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(713) 996 - 9090		(713) - 996-9595

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Material Recovery and Transfer Station

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	6124 Cunningham Road

36. Nearest City	County	State	Nearest ZIP Code
Houston	Harris	TX	77241

37. Latitude (N) In Decimal:			38. Longitude (W) In Decimal:		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	51	28	95	34	49

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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

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

SECTION IV: Preparer Information

40. Name:	Michael Oden, P.E.	41. Title:	Consulting Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(972) 960 - 4479		(972) 960 - 4471	Michael.Oden@hdrinc.com

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 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	Nexus Continuum, LLC	Job Title:	Operations Manager	
Name *(In Print)*:	Efraín González		Phone:	(713) 996.9090
Signature:	Efraín González Jr.		Date:	10-31-11

Texas Commission on Environmental Quality

Permit or Registration Application for Municipal Solid Waste Facility

Part I

A. General Information

Facility Name:	Nexus Material Recovery and Transfer Station			
Physical or Street Address (if available):	6124 Cunningham Road			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77041
(Area Code) Telephone Number:	731-996-9090			
Charter Number:				

If the application is submitted on behalf of a corporation, provide the Charter Number as recorded with the Office of the Secretary of State for Texas.

Operator Name[1]:	Nexus Continuum, LLC			
Mailing Address:	P.O. Box 41188			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77241
(Area Code) Telephone Number:	731-996-9090			
(Area Code) FAX Number:	731-996-9595			
Charter Number:				

If the permittee is the same as the operator, type "Same as Operator".

Permittee Name:	Same as Operator			
Physical or Street Address (if available):				
(City) (County)(State)(Zip Code):			TX	
(Area Code) Telephone Number:				
Charter Number:				

If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.

Agent Name:	N/A			
Mailing Address:				
(City) (County)(State)(Zip Code):				
(Area Code) Telephone Number:				
(Area Code) FAX Number:				

Application Type:

☐	Permit	☐	Major Amendment	☐	Minor Amendment
☒	Registration	☐	Modification	☐	Temporary Authorization
		☒	w/Public Notice		
		☐	w/out Public Notice	☒	Notice of Deficiency Response

[1] The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on this application [Section 361.087 Texas Health and Safety Code].

Facility Classification:

☐	Type I	☐	Type IV	☒	Type V	☐	Type IX
☐	Type I AE	☐	Type IV AE	☐	Type VI		

Activities covered by this application (check all that apply):

☒	Storage	☒	Processing	☐	Disposal

Waste management units covered by this application (check all that apply):

☒	Containers	☐	Tanks	☐	Surface Impoundments	☐	Landfills
☐	Incinerators	☐	Composting	☐	Type IV Demonstration Unit	☐	Type IX Energy/Material Recovery
☒	Other (Specify)	Transfer Station		☐	Other (Specify)		
☒	Other (Specify)	Material Recovery		☐	Other (Specify)		

Is this submittal part of a Consolidated Permit Processing request, in accordance with 30 TAC Chapter 33?

☐ Yes ☒ No

If yes, state the other TCEQ program authorizations requested.

N/A

Provide a brief description of the portion of the facility covered by this application. For amendments, modifications, and temporary authorizations, provide a brief description of the exact changes to the permit or registration conditions and supporting documents referenced by the permit or registration. Also, provide an explanation of why the amendment, modification, or temporary authorization is requested.

The Nexus facility will be used for the recovery of recyclable or reusable materials as well as the operation of a municipal solid waste transfer station. Material will be consolidated by material type, stored in containers and subsequently transferred to market or a permitted solid waste disposal facility.

Does the application contain confidential Material? ☐ Yes ☒ No

If yes, cross-reference the confidential material *throughout the application* and submit as a separate document or binder conspicuously marked "CONFIDENTIAL."

Alternative Language Notice Instructions

For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, trigger a bilingual education program to apply to an entire school district should the requisite alternative language speaking student population exist. However, there may not exist any bilingual students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as a part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location in satisfaction of the school's obligation to provide such a program as a member of a triggered district.

If it is determined that an alternative language notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Alternative Language Notice Application Form:

Alternative language notice confirmation for this application:

1. Is a bilingual program required by the Texas Education Code in the school district where the facility is located? ☒ YES ☐ NO

   (If NO, alternative language notice publication not required)

2. If YES to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility? ☒ YES ☐ NO

(IF YES to questions 1 and 2, alternative language publication is required; If NO to question 2, then consider the next question)

3. If YES to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location? ☐ YES ☐ NO

(If Yes to questions 1 and 3, alternative language publication is required; If NO to question 3, then consider the next question)

4. If YES to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC '89.1205(g)?
   ☐ YES ☐ NO

(If Yes to questions 1 and 4, alternative language publication is required; If NO to question 4, alternative language notice publication not required)

If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program? Spanish

Note: Applicants for new permits and major amendments must make a copy of the administratively complete application available at a public place in the county where the facility is, or will be, located for review and copying by the public.

Public place where administratively complete permit application will be located.				
Public Place (e.g., public library, county court house, city hall, etc.):	Harris County Fairbanks Branch Public Library			
Mailing Address:	7122 North Gessner			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77040
(Area Code) Telephone Number:	713-466-4438			

B. Facility Location

Except for Type I AE and Type IV AE landfill facilities, for permits, registrations, amendments, and modifications requiring public notice, provide the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted.
www.nexusdisposal.com

Local Government Jurisdiction:	Harris County
Within City Limits of:	N/A
Within Extraterritorial Jurisdiction of City of:	Houston

Is the proposed municipal or industrial solid waste disposal or processing facility located in an area in which the governing body of the municipality or county has prohibited the disposal or processing of municipal or industrial solid waste? (If YES, provide a copy of the ordinance or order):

☐ YES ☒ NO

Provide a description of the location of the facility with respect to known or easily identifiable landmarks.
Approximately 0.6 miles south of the intersection of Cunningham Road and Little York Road, on Cunningham Road in northeast Houston.

Detail the access routes from the nearest United States or state highway to the facility.
From the Sam Houston Tollway, West on Little York Road. South on Cunningham Road for approximately 0.6 mile.

Provide the latitudinal and longitudinal geographic coordinates of the facility.

Latitude	**N** 29d51'28"
Longitude	**W** 95d34'49"
Elevation (above msl)	100 feet

Is the facility within the Coastal Management Program boundary? ☒ Yes ☐ No

Texas Department of Transportation District Location:

TXDOT District Name & Number:	Houston District			
District Engineer's Name:	Michael W. Alford, P.E.			
Street or P. O. Box:	7600 Washington Avenue			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77007
(Area Code) Telephone Number:	713-802-5000			
(Area Code) FAX Number:	713-802-5075			

The local governmental authority or agency responsible for road maintenance:

Agency Name	Harris County			
Contact Person's Name:	Alan J. Potok, P.E.			
Street or P. O. Box:	9900 Northwest Frwy			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77092
(Area Code) Telephone Number:	713-684-4000			
(Area Code) FAX Number:				

State Representative:

District Number:	House District 135			
State Representative's Name:	Gary Elkins			
District Office Address:	9601 Jones Road, Suite 215			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77065

(Area Code) Telephone Number:	832-912-8380
(Area Code) FAX Number:	

State Senator:

District Number:	District 7			
State Senator's Name:	Dan Patrick			
District Office Address:	11451 Katy Fwy, Suite 209			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77079
(Area Code) Telephone Number:	713-464-0282			
(Area Code) FAX Number:				

Council of Government (COG) Information:

COG Name:	Houston-Galveston Area Council			
COG Representative's Name:	Cheryl Mergo			
COG Representative's Title:	Manager Sustainability Programs			
Street or P. O. Box:	P.O. Box 22777, 3555 (Timmons, Suite 120, 77027)			
(City) (County)(State)(Zip Code):	Houston	Harris	TX	77227
(Area Code) Telephone Number:	713-993-4520			
(Area Code) FAX Number:				

River Basin Information:

River Authority:	N/A			
Watershed Sub-Basin Name:				
Street or P. O. Box:				
(City) (County)(State)(Zip Code):				
(Area Code) Telephone Number:				
(Area Code) FAX Number:				

This site is located in the following District of the U.S. Army Corps of Engineers:			
☐ Albuquerque, NM	☐ Ft. Worth, TX	☒ Galveston, TX	☐ Tulsa, OK

C. Maps

General

For permits, registrations, and amendments only, submit a topographic map, ownership map, county highway map, or a map prepared by a registered professional engineer or a registered surveyor which shows the facility and each of its intake and discharge structures and any other structure or location regarding the regulated facility and associated activities. Maps must be of material suitable for a permanent record, and shall be on sheets 8-1/2 inches by 14 inches or folded to that size, and shall be on a scale of not less than one inch equals one mile. The map shall depict the approximate boundaries of the tract of land owned or to be used by the applicant and shall extend at least one mile beyond the tract boundaries sufficient to show the following:

each well, spring, and surface water body or other water in the state within the map area;

the general character of the areas adjacent to the facility, including public roads, towns and the nature of development of adjacent lands such as residential, commercial, agricultural, recreational, undeveloped, etc;

the location of any waste disposal activities conducted on the tract not included in the application; and

the ownership of tracts of land adjacent to the facility and within a reasonable distance from the proposed point or points of discharge, deposit, injection, or other place of disposal or activity.

General location maps

For permits, registrations, and amendments only, submit at least one general location map at a scale of one-half inch equals one mile. This map shall be all or a portion of a county map prepared by Texas Department of Transportation (TxDOT). If TxDOT publishes more detailed maps of the proposed facility area, the more detailed maps shall also be included in Part I. Use the latest revision of all maps.

Land ownership map

Provide a map that locates the property owned by adjacent and potentially affected landowners. The maps should show all property ownership within 1/4 mile of the facility, on-site facility easement holders, and all mineral interest ownership under the facility.

Landowners list

Provide the adjacent and potentially affected landowners' list, keyed to the land ownership map with each property owner's name and mailing address. The list shall include all property owners within 1/4 mile of the facility, easement holders, and all mineral interest ownership under the facility. Provide the property, easement holders', and mineral interest owners' names and mailing addresses derived from the real property appraisal records as listed on the date that the application is filed. Provide the list in electronic form, as well.

D. Property owner information

For permits, registrations, amendments, and modifications that change the legal description, a change in owner, or a change in operator only, provide the following:

E. the legal description of the facility;

E. the abstract number as maintained by the Texas General Land Office for the surveyed tract of land;

(B) the legal description of the property and the county, book, and page number or other generally accepted identifying reference of the current ownership record;

I for property that is platted, the county, book, and page number or other generally accepted identifying reference of the final plat record that includes the acreage encompassed in the application and a copy of the final plat, in addition to a written legal description;

(D) a boundary metes and bounds description of the facility signed and sealed by a registered professional land surveyor;

(E) on-site easements at the facility, and

(F) drawings of the boundary metes and bounds description; and

(2) a property owner affidavit signed by the owner.

E. Legal authority

Provide verification of the legal status of the owner and operator, such as a one-page certificate of incorporation issued by the secretary of state. List all persons having over a 20% ownership in the proposed facility.

Indicate Ownership status of the facility:									
☒	Private	☐	Corporation	☐	Partnership	☐	Proprietorship	☐	Non-Profit Organization
☐	Public	☐	Federal	☐	Military	☐	State	☐	Regional
☐	County	☐	Municipal	☐	Other (Specify)				

Does the operator own the facility units and the facility property?	☒ Yes	☐ No

If "No," for permits, registrations, amendments, and modifications that changes the legal description, a change in owner, or a change in operators submit a copy of the lease for the use of or the option to buy the facility units or facility property, as appropriate, and identify:	
Owner Name:	N/A
Street or P. O. Box:	
(City) (County)(State)(Zip Code):	
(Area Code) Telephone Number:	
(Area Code) FAX Number:	
Charter Number:	

F. Evidence of competency

For permits, registrations, amendments, and modifications that change the legal description, a change in owner, or a change in operators submit a list of all Texas solid waste sites that the owner and operator have owned or operated within the last ten years.

Site Name	Site Type	Permit/Reg. No.	County	Dates of Operation
N/A				

Submit a list of all solid waste sites in all states, territories, or countries in which the owner and operator have a direct financial interest.

Site Name	Location	Dates of Operation	Regulatory Agency (Name & Address)
N/A			

A licensed solid waste facility supervisor, as defined in 30 TAC Chapter 30, Occupational Licenses and Registrations will be employed before commencing facility operation.

Provide the names of the principals and supervisors of the owner's and operator's organization, together with previous affiliations with other organizations engaged in solid waste activities.

Name	Previous Affiliation	Other Organization
Efrain Gonzalez, Sr.	Best Pak Disposal, Inc. Nexus Disposal LLC	Nexus Continuum, LLC
Efrain Gonzalez, Jr.	Nexus Disposal LLC	Nexus Continuum, LLC

For landfill permit applications only, evidence of competency to operate the facility shall also include landfilling and earthmoving experience if applicable, and other pertinent experience, or licenses as described in 30 TAC Chapter 30 possessed by key personnel. The number and size of each type of equipment to be dedicated to facility operation will be specified in greater detail on Part IV of the application within the site operating plan.

Landfilling/Earthmoving Equipment Types	Personnel Experience or Licenses
N/A	

For mobile liquid waste processing units, submit a list of all solid waste, liquid waste, or mobile waste units that the owner and operator have owned or operated within the past five years. Submit a list of any final enforcement orders, court judgments, consent decrees, and criminal convictions of this state and the federal government within the last five years relating to compliance with applicable legal requirements relating to the handling of solid or liquid waste under the jurisdiction of the commission or the United States Environmental Protection Agency. Applicable legal requirement means an environmental law, regulation, permit, order, consent decree, or other requirement.

Solid waste, liquid waste, or mobile waste units owned or operated within past 5 years	Texas and federal final enforcement orders, court judgments, consent decrees, and criminal convictions
N/A	

G. Appointments

Provide documentation that the person signing the application meets the requirements of 30 TAC §305.44, Signatories to Applications. If the authority has been delegated, provide a copy of the document issued by the governing body of the owner or operator authorizing the person that signed the application to act as agent for the owner or operator.

H. Application Fees

For a new permit, registration, amendment, modification, or temporary authorization, submit a $150 application fee.

For authorization to construct an enclosed structure over an old, closed municipal solid waste landfill in accordance with 30 TAC 330 Subchapter T, submit a $2,500 application fee.

If paying by check, send payment to:

Texas Commission on Environmental Quality
Financial Administration Division, MC 214
P. O. Box 13087
Austin, Texas 78711-3087

Payment maybe made online using TCEQ e-pay at www.tceq.state.tx.us/e-services/	
E-pay confirmation number	Paid by check

PROPERTY OWNER AFFIDAVIT

"I, Efraln Gonzalez,
(property owner)
acknowledge 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 in accordance with Title 30 Texas Administrative Code §330.19, Deed Recordation. I further acknowledge that I or the operator and the State of Texas shall have access to the property during the active life and post-closure care period, if required, after closure for the purpose of inspection and maintenance."

Efrain Gonzalez
(Owner signature)

12/02/11
(Date)

Signature Page

I, Efrain González (Operator), President (Title),

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.

Signature: Efrain González Date: 04/04/2012

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, Efrain González (Print or Type Operator Name), hereby designate Efrain González Jr (Print or Type Representative Name)

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

Efrain González Jr
Printed or Typed Name of Operator or Principal Executive Officer

Efrain González Jr
Signature

SUBSCRIBED AND SWORN to before me by the said _____

On this 4th day of April, 2012

My commission expires on the 27th day of February, 2013

MINERVA GONZALEZ
MY COMMISSION EXPIRES
February 27, 2013

Notary Public in and for
Harris County, Texas

(Note: Application Must Bear Signature & Seal of Notary Public)

Part I

Nexus Continuum, LLC

Type V- Municipal Solid Waste Facility

Nexus Material Recovery and Transfer Station

MSW Registration No. XXXXX

Harris County
Houston, Texas

April 2012

4.11.12

This document is released for the purpose of review only under the authority of Joel B. Miller, P.E. #103847. It is not to be used for bidding or construction. Texas Registered Engineering Firm F-754

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Nexus Material Recovery and Transfer Station
Part I
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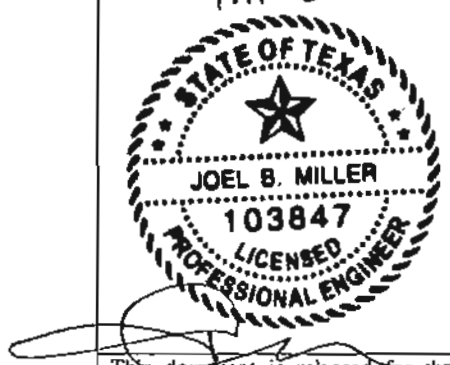

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1.0 SUPPLEMENTARY TECHNICAL REPORT

30TAC § 305.45 (a) (8)

1.1 General Description

Nexus Disposal, LLC, is a local, family-owned minority business that operates a commercial waste and recyclable material collection services company. Its service area primarily consists of Harris County and the City of Houston. Nexus Disposal has provided roll-off boxes and dumpsters for the collection and disposal of municipal solid waste (MSW) as well as recyclable material such as construction or demolition waste (C&D), brush, inert material, white goods and yard waste within its service area since 1995. They have recognized that much of the C&D and brush material collected is recyclable and that disposing of such material in landfills is a waste of reusable material. The proposed Nexus Material Recovery and Transfer Station will be located at 6124 Cunningham Road , the site of its current office and 6131 Thomas Road, Harris County, Texas 77041. See Part I, Figures 1 and 2.

This application presents the information required by the Texas Commission on Environmental Quality (TCEQ) to operate as a registered Municipal Solid Waste Material Recovery and Transfer Station (MSW Type V) pursuant to 30 TAC 330.9(f). The Facility will be owned and operated by Nexus Continuum, LLC (Nexus). Nexus proposes to accept and consolidate waste material and recyclables for transport to a permitted disposal facility or to end-use markets as appropriate. Nexus will accept containers loaded with recyclable C&D material at this facility for deposit in the processing areas. Large or heavy material may be separated and sent directly to appropriate storage areas (or containers). Employees will selectively remove specific commodity types from the remaining material. At the end of the day, or more often if needed, the accumulated recyclable commodities will be removed and placed in segregated storage areas or containers. Municipal solid waste that is not recyclable or reusable will be accumulated on the tipping floor and loaded into transfer trailers or other containers, pending removal and delivery to an area landfill.

This registration application is being submitted under the provisions of 30 TAC 330.9(f) such that a minimum of 10% of the incoming material will be recovered for reuse or recycling. Additionally, the remaining non-recyclable material will be delivered to a landfill within 50 miles of the facility

(unless specifically granted a variance). Part I Figure 1 shows the location of permitted landfills and end-use markets for recyclables near the facility.

1.2 Characteristics of Material

In general, material delivered to the Nexus facility will fall into two categories:

1) material that can be reused or recycled and
2) material that is considered waste and cannot be reused or recycled.

The non-recyclable material will consist of municipal solid waste as defined in 30 TAC 330.3(88). Material that can potentially be reused or recycled would include brush, yard and wood waste, C&D, and inert materials (including aggregates), white goods and other metals. The recovered commodities will meet the definition of recyclable material found at 30 TAC 330.3(122) and will not be considered solid waste. However, any material that is received will become solid waste at such time as it is determined that the material cannot be beneficially reused or recycled, and it is disposed of rather than recycled.

The characteristics of the recyclable material received will vary from load to load, but in general will include the following: scrap lumber and wood; concrete and masonry rubble; trees, brush and soil from land clearing and landscaping projects; gypsum board (sheet rock); plastic, paper and cardboard packaging materials; scrap ferrous and non-ferrous metal; and similar items resulting from the construction, renovation, deconstruction, and demolition of buildings.

Nexus proposes to receive up to 5,000 cubic yards (CY) of material per day for processing (consolidation and/or segregation). This is based on 1,000 tons per day (tpd) at an average incoming density of 400 pounds per cubic yard. A minimum of 10% (500 CY/day) will be recovered for beneficial use. Material not able to be reused or recycled will be considered solid waste and will be accumulated in the designated waste storage areas and placed in approved containers (roll-off boxes) and/or transfer trailers. Waste material will then be removed and hauled to a properly permitted landfill for disposal. Records will be kept of the total number of loads accepted at the facility and the number of loads delivered to end-use markets or to landfills. Records will demonstrate the quantities

of materials recovered and the amount of waste disposed. The quantity of material will be recorded and converted to a weight equivalent for reporting purposes.

1.3 Other Information

This registration application has been prepared to demonstrate compliance with the requirements established in 30 TAC 330.57 through 330.65 (Subchapter B). The application is formatted to include Parts I through IV as specified in the Municipal Solid Waste Management Regulations.

2.0 MAPS

30TAC §330.59(c)

The General Location Map, Detailed Location Map, Land Ownership Map, and Boundary Survey drawings of the property owned by Nexus are presented in Figures 1 through 6 of Part I. The registration boundary will be within the property owned by Nexus as shown on Part I, Figure 2.

3.0 LAND OWNERSHIP MAP AND LIST

30TAC §330.59(c)(3)

Following is a list of all owners of record of real property located within 1/4 mile of the registration boundary, along with a numeric key that identifies the property they own. This key is shown on the Land Ownership Map, (Part I, Figure 3). This list of landowners was obtained from the Harris County Appraisal District deed records, and is the most current available record as of the date of this registration application. Parcels 78 & 85 contain the Nexus Continuum facility. These parcels have been updated to show current ownership. Ownership of Parcel 86 (Part I, Figure 3) is not listed in the real property records and therefore not available.

LANDOWNER'S LIST

1. MAARBERRY CHARLES R & ETAL
   6134 CUNNINGHAM RD
   HOUSTON, TX 77041
2. CARROLL RICK
   6448 CUNNINGHAM RD
   HOUSTON, TX 77041
3. CARROLL RICHARF E
   8326 WIND VEIL RD
   HOUSTON, TX 77041
4. KHATAMI SHARAREH
   12303 LONGWORTH LN
   HOUSTON, TX 77024
5. UNITED GALVANIZING INC
   6127 CUNNINGHAM RD
   HOUSTON, TX 77041
6. 6408 THOMAS LP
   6322 THOMAS RD
   HOUSTON, TX 77041
7. STRAIT CLAUDIA
   6302 THOMAS RD
   HOUSTON, TX 77041
8. HYDROTEX DYNAMICS INC
   6320 CUNNINGHAM RD
   HOUSTON, TX 77041
9. AGUIRRE BERTHA & NOE
   6130 THOMAS RD
   HOUSTON, TX 77041
10. UNITED GALVANIZING INC
    6127 CUNNINGHAM RD
    HOUSTON, TX 77041
11. ESTATE OF FRANCIES GEORGE
    6226 THOMAS RD
    HOUSTON, TX 77041
12. HAYWOOD HELEN MARIE S
    6222 THOMAS RD
    HOUSTON, TX 77041
13. WILLIAMS ERNEST B
    6218 THOMAS RD
    HOUSTON, TX 77041
14. MARBERRY MACHINE INC
    6210 CUNNINGHAM RD
    HOUSTON, TX 77041

15. HOLCOMB DETRA E
6206 THOMAS RD
HOUSTON, TX 77041

16. TOLBERT ELSIE MAE
6326 THOMAS RD
HOUSTON, TX 77041

17. 6408 THOMAS LP
6408 THOMAS RD
HOUSTON, TX 77041

18. 6408 THOMAS LP
6310 THOMAS RD
HOUSTON, TX 77041

19. MARBERRY CHARLES
6134 CUNNINGHAM RD
HOUSTON, TX 77041

20. CUNNINGHAM ROAD PROP CORP
6003 CUNNINGHAM RD
HOUSTON, TX 77041

21. SONG JOON HO & JAI SOOG
159 HAVERSHAM DR
HOUSTON, TX 77024

22. SONG JOON HO & JAI SOOG
6460 CUNNINGHAM RD
HOUSTON, TX 77041

23. HMC LEASING INC
5920 CUNNINGHAM RD
HOUSTON, TX 77041

24. 6408 THOMAS LP
6334 THOMAS RD
HOUSTON, TX 77041

25. WILLIAMS WILMA STRAIT
6303 THOMAS RD
HOUSTON, TX 77041

26. THOMPSON ROAD PROPERTIES LP
6014 THOMAS RD
HOUSTON, TX 77041

27. DRILL BIT INDUSTRIES INC
6323 THOMAS RD
HOUSTON, TX 77041

28. KEILLER GEORGE B
6465 THOMAS RD
HOUSTON, TX 77041

29. HATTON WANDA S
6414 THOMAS RD
HOUSTON, TX 77041

30. DRILL BIT INDUSTRIES INC
6324 CUNNINGHAM RD
HOUSTON, TX 77041

31. ARTERBURY ROY S
6215 THOMAS RD
HOUSTON, TX 77041

32. KIDD LYNDA W
9320 MONTRIDGE DR
HOUSTON, TX 77080

33. P L HALL EST C/O GREG L HALL
1213 PECH RD
HOUSTON, TX 77055

34. MCGILL BARBARA THOMAS
6325 THOMAS RD
HOUSTON, TX 77041

35. STRAIT JO MARIE
6227 THOMAS RD
HOUSTON, TX 77041

36. 6485 THOMAS LP
6403 THOMAS RD
HOUSTON, TX 77041

37. EMG REALTY LTD
6203 CUNNINGHAM RD
HOUSTON, TX 77041

38. RN VENTURES INC
6432 CUNNINGHAM RD
HOUSTON, TX 77041

39. CENTERPOINT ENERGY HOU ELE
P O BOX 1475
HOUSTON, TX 77251

40. CENTERPOINT ENERGY HOU ELE
P O BOX 1475
HOUSTON, TX 77251

41. AGUIRRE NOE
6126 THOMAS RD
HOUSTON, TX 77041

42. ESPITIAS CABINET & DOOR MAKERS INC
8529 RANNIE RD
HOUSTON, TX 77080

43. ESPITIAS CABINET & DOOR MAKERS
8529 RANNIE RD
HOUSTON, TX 77080

44. REO PROPERTIES
13018 BRITTMOORE PARK DR
HOUSTON, TX 77041

45. NOT WITHIN ¼ MILE

46. GARZA SILVIA M ETAL
11147 HOLLY HILL LN
HOUSTON, TX 77041

47. BALLOWE JIMMY W
5930 THOMAS RD
HOUSTON, TX 77041

48. THOMAS ROAD PROPERTIES LP
6006 THOMAS RD
HOUSTON, TX 77041

49. NOPPE RICHARD H & SHERRY A
6417 CUNNINGHAM RD
HOUSTON, TX 77041

50. JAGC REALTY LLC
6425 CUNNINGHAM RD
HOUSTON, TX 77041

51. CLAY CMBS NO 1 LP
6423 CUNNINGHAM RD
HOUSTON, TX 77041

52. CLAY CMBS NO 1 LP
6431 CUNNINGHAM RD
HOUSTON, TX 77041

53. UNITED GALVANIZING INC
6123 CUNNINGHAM RD
HOUSTON, TX 77041

54. CLAY CMBS NO 1 LP
6429 CUNNINGHAM RD
HOUSTON, TX 77041

55. CLAY CMBS NO 1 LP
6421 CUNNINGHAM RD
HOUSTON, TX 77041

56. ORANTES ELPIDIA & JOSE A
6018 THOMAS RD
HOUSTON, TX 77041

57. RAYSON MARJORIE
6024 THOMAS RD
HOUSTON, TX 77041

58. UNITED GALVANIZING INC
6127 CUNNINGHAM RD
HOUSTON, TX 77041

59. UNITED GALVANIZING INC
6127 CUNNINGHAM RD
HOUSTON, TX 77041

60. CUNNINGHAM ROAD PROP CORP
6003 CUNNINGHAM RD
HOUSTON, TX 77041

61. UNITED GALVANIZING INC
P O BOX 40207
HOUSTON, TX 77240

62. CYJ GROUP LLC
13028 BRITTMOORE PARK DR
HOUSTON, TX 77041

63. PEERLESS ENTERPRISES
6305 CUNNINGHAM RD
HOUSTON, TX 77041

64. WAGGNER MACHINE & ENGINEERING
6401 CUNNINGHAM RD
HOUSTON, TX 77041

65. KAHLA HAROLD
6123 CUNNINGHAM RD
HOUSTON, TX 77041

66. UNITED GALVANIZING INC
6123 CUNNINGHAM RD
HOUSTON, TX 77041

67. PEERLESS ENTERPRISES
6305 CUNNINGHAM
HOUSTON, TX 77041

68. PATTERSON SERVICES INC
6119 CUNNINGHAM RD
HOUSTON, TX 77041

69. NORTH AMERICAN GALVANIZING CO
5910 CUNNINGHAM RD
HOUSTON, TX 77041

70. CLAY CMBS NO 2 LP
5901 THOMAS RD
HOUSTON, TX 77041

71. THOMAS ROAD BUSINESS PARK
5901 THOMAS RD
HOUSTON, TX 77041

72. CLAY CMBS NO 4 LP
5905 THOMAS RD
HOUSTON, TX 77041

73. CENTERPOINT ENERGY HOU ELE
P O BOX 1475
HOUSTON, TX 77251

74. CENTERPOINT ENERGY HOU ELE
P O BOX 1475
HOUSTON, TX 77251

75. KINDER MORGAN PETCOKE LP
6100 CUNNINGHAM RD
HOUSTON, TX 77041

76. GONZALEZ MIGUEL A
6116 CUNNINGHAM RD
HOUSTON, TX 77041

77. BUDDY HOLDINGS LP
6061 THOMAS RD
HOUSTON, TX 77041

78. E.M.G. REALTY X, LLC
6131 THOMAS RD
HOUSTON, TX 77041

79. GONZALEZ MIGUEL A
6122 CUNNINGHAM RD
HOUSTON, TX 77041

80. THOMAS ROAD PROPERTIES LP
5921 THOMAS RD
HOUSTON, TX 77041

81. THOMAS ROAD PROPERTIES LP
6039 THOMAS RD
HOUSTON, TX 77041

82. THOMAS ROAD PROPERTIES LP
6039 THOMAS RD
HOUSTON, TX 77041

83. E.M.G. REALTY II, LLC
6120 CUNNINGHAM RD
HOUSTON, TX 77041

84. BOYLES GALVANIZING
P O BOX 1688
COLLEYVILLE, TX 76034

85. E.M.G. REALTY II, LLC
6124 CUNNINGHAM RD
HOUSTON, TX 77041

86. DAVIS CHARLES & CHRIS
7000 CUNNINGHAM RD
HOUSTON, TX 77041

87. DAVIS CHARLES H & ETAL
7000 CUNNINGHAM RD
HOUSTON, TX 77041

88. WILSON CLIFORD D
0 CUNNINGHAM RD
HOUSTON, TX 77041

89. ENGALLINA FRANKS III & JOANN G
7000 CUNNINGHAM RD
HOUSTON, TX 77041

90. 6485 THOMAS LP
6485 THOMAS RD
HOUSTON, TX 77041

91. 6414 THOMAS LP
6414 THOMAS RD
HOUSTON, TX 77041

92. DALREY E
6410 THOMAS RD
HOUSTON, TX 77041

93. V & Q INVESTMENTS INC
5852 THOMAS RD
HOUSTON TX 77041

94. CENTERPOINT ENERGY HOU ELE
0 THOMAS RD
HOUSTON, TX 77041

95. LONGHORN MOBILE HOME COMMUNITY LTD
5931 MCGINTY DR
HOUSTON, TX 77041

96. IGLESIA CRISTIANA SOBRE
5959 MCGINTY DR
HOUSTON, TX 77041

97. NOT WITHIN ¼ MILE

98. MALONE KELLY M
6347 OVERLOOK DR
HOUSTON, TX 77041

99. GARCIA MARIA G
6343 OVERLOOK DR
HOUSTON, TX 77041

100. AVILA JUAN M
6331 OVERLOOK DR
HOUSTON, TX 77041

101. GALVAN FELIPE D
6327 OVERLOOK DR
HOUSTON, TX 77041

102. RODRIQUEZ JESUS S
6323 OVERLOOK DR
HOUSTON, TX 77041

103. LOPEX HUGO S
6319 OVERLOOK DR
HOUSTON, TX 77041

104. SMITH DENNIS L
6315 OVERLOOK DR
HOUSTON, TX 77041

105. ESTRADA RAMON
6311 OVERLOOK DR
HOUSTON, TX 77041

106. RIVERA J FERMIN
6307 OVERLOOK DR
HOUSTON, TX 77041

107. HERNANDEZ VICTOR M & MARIA
6303 OVERLOOK DR
HOUSTON, TX 77041

108. KOONCE GERALD D
6223 OVERLOOK DR
HOUSTON, TX 77041

109. AULD THOMAS R & NORMA M
6215 OVERLOOK DR
HOUSTON, TX 77041

110. MAXWELL MELISSA
6207 OVERLOOK DR
HOUSTON, TX 77041

111. GARZA RUBIN E & SILVIA M
11147 HOLLY HILL LN
HOUSTON, TX 77041

112. GARZA SILVIA M ETAL
11147 HOLLY HILL LN
HOUSTON, TX 77041

113. NGUYEN THIEN VAN
11139 HOLLY HILL LN
HOUSTON, TX 77041

114. BATTISSW A
11135 HOLLY HILL LN
HOUSTON, TX 77041

115. MENA FRANCISCO JAVIER & JUANITA
11131 HOLLY HILL LN
HOUSTON, TX 77041

116. ISLAS BALDMAR
11127 HOLLY HILL LN
HOUSTON, TX 77041

117. NOT WITHIN ¼ MILE

118. NOT WITHIN ¼ MILE

119. NOT WITHIN ¼ MILE

120. NOT WITHIN ¼ MILE

121. NOT WITHIN ¼ MILE

122. MARTINEZ JULIO & EDNA L
11143 CEDARVIEW LN
HOUSTON, TX 77041

123. PEREZ FELISIANO M & MARIA
11139 CEDARVIEW LN
HOUSTON, TX 77041

124. NOT WITHIN ¼ MILE

125. NOT WITHIN ¼ MILE

126. VALENZUELA JESUSA
11142 SHERRY LN
HOUSTON, TX 77041

127. MCCONNELL CHRISTOPHER & JULIE
11138 SHERRY LN
HOUSTON, TX 77041

128. TOMAS JOSEPH P
11134 SHERRY LN
HOUSTON, TX 77041

129. NOT WITHIN ¼ MILE

130. NOT WITHIN ¼ MILE

131. NOT WITHIN ¼ MILE

132. JAROSEK EDMOND C
11143 SHERRY LN
HOUSTON, TX 77041

133. SALAZAR SAMUEL & ROSA I
11135 SHERRY LN
HOUSTON, TX 77041

134. BOLCEREK VICTORIS R
11131 SHERRY LN
HOUSTON, TX 77041

135. NOT WITHIN ¼ MILE

136. NOT WITHIN ¼ MILE

137. NOT WITHIN ¼ MILE

138. JERNIGAN ERIC C II
11142 MELBA LN
HOUSTON, TX 77041

139. RIOS SANTIAGO & AURALIA
11138 MELBA LN
HOUSTON, TX 77041

140. FERNANDEZ JOSE
11130 MELBA LN
HOUSTON, TX 77041

141. GARCIA RICHARD JR & JOANNE
11126 MELBA LN
HOUSTON, TX 77041

142. NOT WITHIN ¼ MILE

143. NOT WITHIN ¼ MILE

144. NOT WITHIN ¼ MILE

145. KOPECH BILLY
11143 MELBA LN
HOUSTON, TX 77041

146. KOPECH BILLY
11143 MELBA LN
HOUSTON, TX 77041

147. MENDOZA ANGEL & ELVIRA
11135 MELBA LN
HOUSTON, TX 77041

148. VASQUEZ SAMUEL M
11122 PINE CONE LN
HOUSTON, TX 77041

149. GAYDOS STEPHEN & MAGDALENA
11127 MELBA LN
HOUSTON, TX 77041

150. NOT WITHIN ¼ MILE

151. NOT WITHIN ¼ MILE

152. NOT WITHIN ¼ MILE

153. MORALES SANTIAGO & DEBRA
11142 HOLLY HILL LN
HOUSTON, TX 77041

154. MENA JUANITA
11138 HOLLY HILL LN
HOUSTON, TX 77041

155. FLORES GUILLERMO G & MARIA
11134 HOLLY HILL LN
HOUSTON, TX 77041

156. ZAMORA FRANCISCO G
11130 HOLLY HILL LN
HOUSTON, TX 77041

157. BUCKLER KATHY K & ROBERT D
11126 HOLLY HILL LN
HOUSTON, TX 77041

158. NOT WITHIN ¼ MILE

159. NOT WITHIN ¼ MILE

160. NOT WITHIN ¼ MILE

161. 6485 THOMAS LP
0 THOMAS ROAD
HOUSTON, TX 77041

162. HATTON WANDA S
O THOMAS ROAD
HOUSTON, TX 77041

4.0 PROPERTY OWNER INFORMATION

30TAC §330.59(d)

The Nexus facility will be located on portions of Lot 25 and Lot 34 of the Independence Farms Subdivision of Harris County, Texas, as recorded in Volume 855, Pages 670, of the Plat Records of Harris County. The current ownership record may be found in records of the Harris Central Appraisal District (HCAD), which identifies the owners of record. . The property ownership information has been updated for parcels within the proposed registration boundary to show that parcel #78 is owned by E.M.G. Realty X, LLC and #85 is owned by E.M.G. Realty II, LLC. Mr. Efrain Gonzalez Sr. is the majority owner of the company which manages both E.M.G. Realty II, LLC and E.M.G. Realty X, LLC and is an authorized signatory for both.

The metes and bounds description of the property and a drawing of the property description are shown on Figures 4-6 in Part I. A property owner affidavit is included in the Part I form.

5.0 LEGAL AUTHORITY

30TAC §330.59(e)

The applicant, Nexus Continuum, LLC, is a Texas Limited Liability Company which is owned 80% by Efrain Gonzalez, Sr. and 20% by Efrain Gonzalez, Jr. and will own and operate the Nexus Material Recovery and Transfer Station facility. A copy of the certificate of formation issued to Nexus Continuum, LLC by the Secretary of State is provided as Attachment A to Part I.

6.0 EVIDENCE OF COMPETENCY

30TAC §330.59(f)

Efrain Gonzalez, Sr., President of Nexus Continuum, LLC has more than 25 years of experience in the solid waste and recycling services industry in Texas. He managed the Best Pak Disposal landfill in Waller County from inception to close. He co-founded and has operated Nexus Disposal, LLC in Harris County since 1995. Nexus Disposal is a commercial solid waste collection and transportation business with a separate recycling component, and serves customers in the Houston area with its fleet of roll-off trucks, front loading and other collection vehicles.

Efrain Gonzalez, Jr., Operations Manager of Nexus Continuum, LLC has more than 15 years of experience in the solid waste and recycling services industry in Texas. He co-founded and has operated Nexus Disposal, LLC in Harris County since 1995. Mr. Efrain Gonzalez, Jr. has operated the current hauling company since inception in 1995. After September 11, 2001, Mr. Gonzalez assisted in recovery operations by providing waste transfer services in Philadelphia and New York City. Mr. Gonzalez has been engaged since 1991 with other solid waste service companies including Eagle American, Apollo Disposal, Tejas Waste, Alamo Waste and American Eagle.

The following lists the Principals and Supervisors for Nexus Continuum, LLC along with previous affiliations with organizations engaged in solid waste activities.

Name:	**Title:**	**Previous Affiliations:**
Mr. Efrain Gonzalez, Sr.	President	Nexus Disposal, LLC Best Pak Disposal
Mr. Efrain Gonzalez, Jr.	Operations Manager	Nexus Disposal, LLC

A licensed solid waste facility supervisor will be hired or an existing Nexus employee will become licensed as a solid waste facility supervisor prior to commencing operation of the facility, in accordance with Title 30 of the Texas Administrative Code Chapter 330.59(f) (3). Nexus Continuum, LLC has not owned or operated any other solid waste site in Texas or outside of Texas.

7.0 APPOINTMENTS

30TAC §330.59(g)

Certification that this application for the registration of the proposed Nexus Material Recovery and Transfer Station has been signed by someone having authority to do so as required by 30 TAC§305.44 is provided in Part I, Attachment A.

8.0 APPLICATION FEES

30TAC §330.59(h)

The application fee for this registration application was submitted separately to the TCEQ Office of Finance and Administration. A copy of the payment documentation is provided as Attachment B to Part I.

Figures

Figure 1 – General Location Map

GENERAL LOCATION MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

WEISER AIR PARK

BNSF RAILROAD

ATASCOCITA LANDFILL
20.9 MI FROM SITE

6.14 miles

Arsham Metal Industries

Crushed Concrete of Texas

SPENCER

AF Martini

Texas Metal Recyclers

Allied Transfer Station

LITTLE YORK

SITE LOCATION

COLE CREEK

Cherry Crushed Concrete

Southern Crushed Concrete

Living Earth Technology

WMI

Hawthorne Park Landfill

6.15 miles

HORSEPEN CREEK

WEST HOUSTON AIRPORT

ELDRIDGE

BRITTMOORE

SAM HOUSTON TOLLWAY

UP RAILROAD

WHITE OAK BAYOU

ALTAIR LANDFILL
56.7 MI FROM SITE

Greenstar

BUFFALO BAYOU

HARRIS CO

FORT BEND CO

FORT BEND COUNTY LANDFILL
39.9 MI FROM SITE

REPUBLIC SERVICES
12.8 MI FROM SITE

290 · 6 · 10 · 90 · 45 · 610 · 59

LEGEND

- ☆ SITE LOCATION
- ▲ PERMITTED LANDFILL
- ● RECYCLABLE MATERIALS MARKET

4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

SOURCE: 2002 TXDOT URBAN FILE, BY COUNTY, HARRIS COUNTY

0 0.5 1 2 Miles

N W E S

NEXUS CONTINUUM

HDR Engineering, Inc.
TBPE Firm Registration No. F-754
4500 W. Eldorado Pky, Suite 3500
Mckinney, TX 75070-3757
214-733-3900

OCT 2011	PART I FIGURE 1

FILE: 142132_Nexus_Disposal\MapDocs\arcmap\NexusDisposal_Part1_Fig1_GenLoc_11x17.mxd

TCEQ Technical Revision #1, April 2012

Figure 2 – Detailed Location Map

SITE LOCATION

29° 51' 29.09" N
95° 34' 53.11" W

29° 51' 27.40" N
95° 34' 45.51" W

SAM HOUSTON TOLLWAY

PHYSICAL ADDRESS IS
6124 CUNNINGHAM RD AND
6131 THOMAS RD

STATE OF TEXAS
MICHAEL [illegible] DEN
6710
REGISTERED
PROFESSIONAL ENGINEER
10-27-2011

FILE: 142132_Nex... ...isposal\Map\Docs\tomap\NexusDisposal_Part1_Fig2_Detailedfl.doc 11x17.mxd

DETAILED LOCATION MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- MAJOR ROAD
- MINOR ROAD
- RAILROAD
- STREAM / DRAINAGE
- CITY LIMIT

SOURCE: 1996 TXDOT URBAN FILE, BY COUNTY, HARRIS COUNTY

0 250 500 1,000
Feet

N
W E
S

NEXUS CONTINUUM

HDR Engineering, Inc.
TBPE Firm Registration No. F-754
4500 W. Eldorado Pkwy, Suite 3500
McKinney, TX 75070-5757
214-730-5900

OCT 2011

PART 1
FIGURE 2

Figure 3 – Land Ownership Map

LAND OWNERSHIP MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

1/4 MILE RADIUS

NEXUS CONTINUUM SITE

KIRWIN

CEDARVIEW

OVERLOOK

SHERRY

MELBA

HOLLY HILL

THOMAS

CUNNINGHAM

BRITTMOORE PARK

LEGEND

- REGISTRATION BOUNDARY
- LAND PARCEL AND RIGHT-OF-WAY BOUNDARY
- OWNERSHIP UNKNOWN
- (1) KEY TO LAND OWNERSHIP LIST

SOURCE: 2011 HARRIS COUNTY APPRAISAL DISTRICT

0 100 200 400 Feet

N W E S

NEXUS CONTINUUM

HDR Engineering, Inc.
TBPE Firm Registration No. F-754
5000 W. Alabama Ave. Suite 3600
Houston, TX 77056-5757
713.783.5600

OCT 2011	PART I FIGURE 3

10-27-11

STATE OF TEXAS
MICHAEL W. ODEN
67185
REGISTERED
PROFESSIONAL ENGINEER

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Figure 4 – Boundary Survey

NOTE: REPRODUCTION OF ORIGINAL SURVEY DOCUMENT. ORIGINAL DOCUMENT SCALE VALID ONLY FOR FULL SIZE PLOT.

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ACTUAL LAYOUT SCALE IN FEET AS SHOWN

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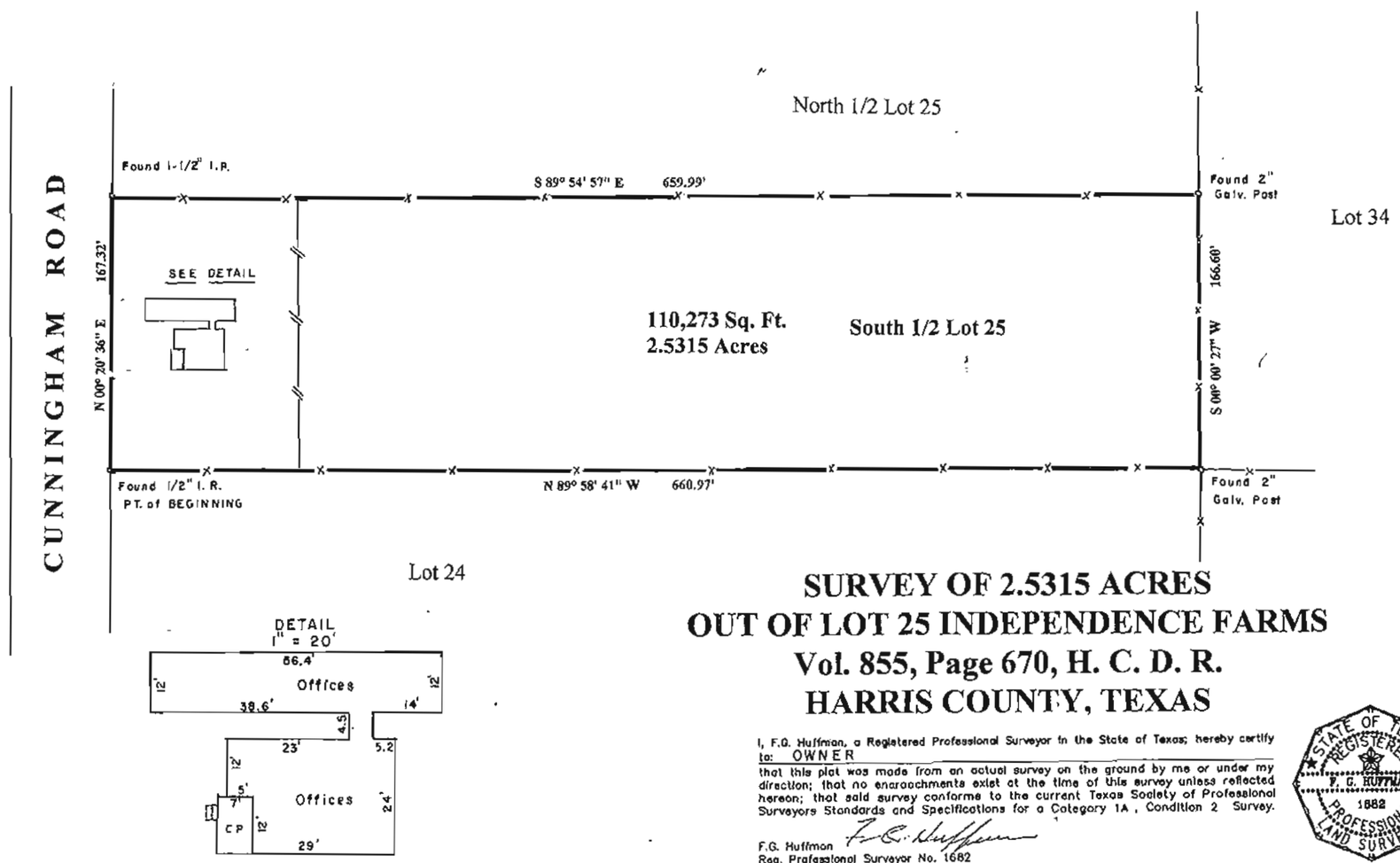
ACTUAL DETAIL SCALE IN FEET AS SHOWN



SURVEY OF 2.5315 ACRES
OUT OF LOT 25 INDEPENDENCE FARMS
Vol. 855, Page 670, H. C. D. R.
HARRIS COUNTY, TEXAS

I, F.G. Huffman, a Registered Professional Surveyor in the State of Texas; hereby certify to: OWNER

that this plat was made from an actual survey on the ground by me or under my direction; that no encroachments exist at the time of this survey unless reflected hereon; that said survey conforms to the current Texas Society of Professional Surveyors Standards and Specifications for a Category 1A, Condition 2 Survey.

F.G. Huffman
Reg. Professional Surveyor No. 1682

STATE OF TEXAS REGISTERED F. G. HUFFMAN 1682 PROFESSIONAL LAND SURVEYOR

LEGEND			
UE	Utility Easement	IP	Iron Pipe
AE	Aerial Easement	IR	Iron Rod
WLE	Water Line Easement	-//-	Metal Fence
BL	Building Line	-X-	Chain Link Fence
CP	Covered Porch	-W-	Wrought Iron Fence
ROW	Right Of Way		

This property lies within Zone X as per the Flood Insurance Rate Map, HARRIS County, Community No. 480287, Panel No. 0630, Suffix L, Dated 6-18-07

NOTE: Zone X indicates outside 100 year flood plain. Zone AE indicates within 100 year flood plain.

Owner ADRIAN GONZALES
Address 6124 CUNNINGHAM RD. HOUSTON, TX. 77041

REVISIONS

Bearing Reference NAD 83

Scale 1" = 60'
Date 12-24-09
Job# 912014
Key Map 409X
Drawn FGH

F. G. Huffman
2430 Lexford Lane
Houston, Texas 77080
Ph. 281 447 7802
Fax 713 467 9370
fghuffman@sbcglobal.net

FGH

4/11/12

STATE OF TEXAS JOEL B. MILLER 103847 LICENSED PROFESSIONAL ENGINEER

DATE: 3/30/2012
TIME: 1:00:06 PM
USER: rcox
FILE: Nexus-Disposal\Nexus-TS-Registration\13.00-CAD\Sheet Files

PLTDRIVER:11X17LASER-BW-PDF.plt
PENTABLE:NEW HDR-ERM.tbl

NEXUS CONTINUUM

HDR
HDR Engineering, Inc.
17111 Preston Rd
Suite 200
Dallas, Texas 75248

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

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	J.MILLER
ENGINEER	J.MILLER
CHECKED BY	
DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

FOR PERMITTING ONLY. NOT FOR BIDDING, OR CONSTRUCTION.
Prepared by or under the Direct Supervision of JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

METES AND BOUNDS SITE PLAT
NEXUS MATERIAL RECOVERY & TRANSFER STATION

FILENAME: PART 1 FIG4.dgn
SCALE:
SHEET: PART 1 FIGURE 4

TCEQ Technical Revision #1, April 2012

Figure 5 – Boundary Survey

NOTE: REPRODUCTION OF ORIGINAL SURVEY DOCUMENT. ORIGINAL DOCUMENT SCALE VALID ONLY FOR FULL SIZE PLOT.

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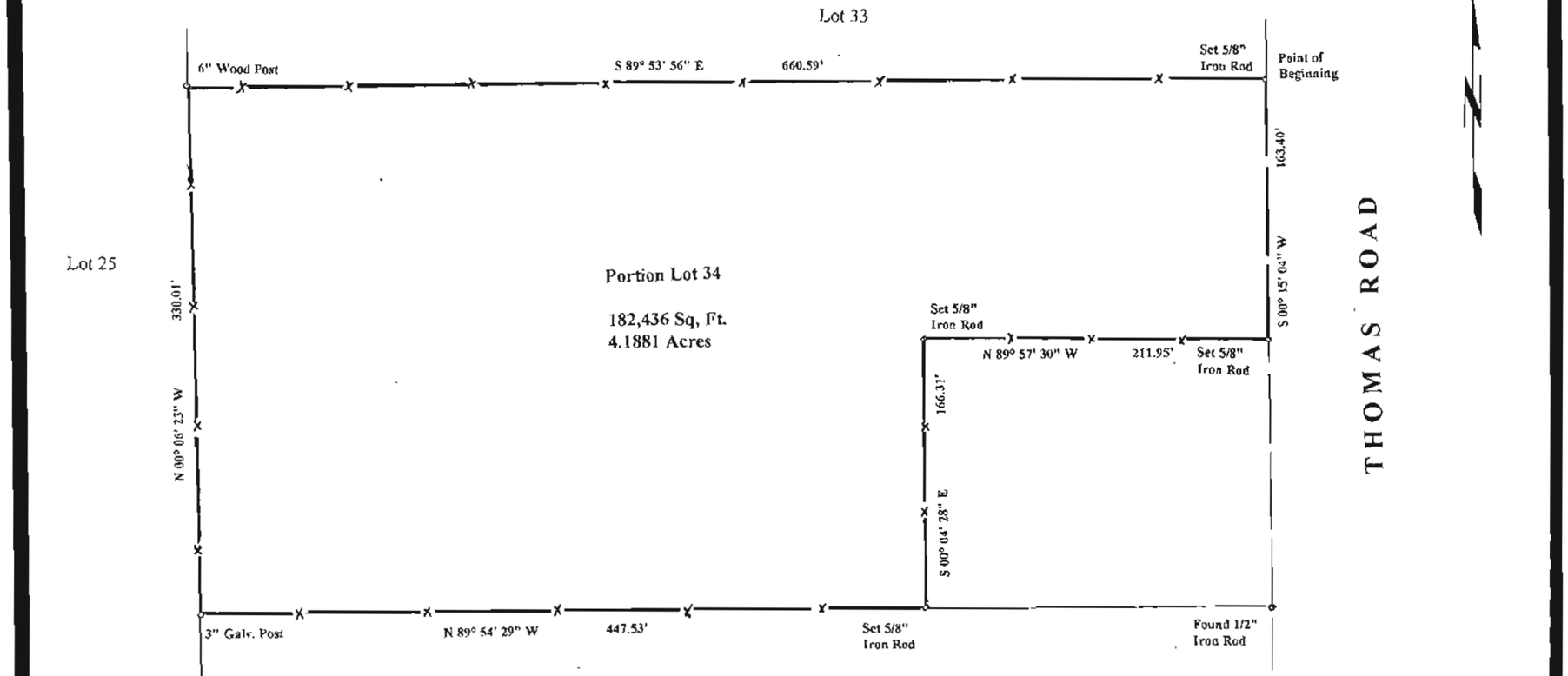
ACTUAL LAYOUT SCALE IN FEET AS SHOWN



OWNER
Dertrick Arnold
Yvonne Manning
Darrell Arnold
Ricky Arnold
Vanessa Alston

I, F.G. Huffman, a Registered Professional Surveyor in the State of Texas; hereby certify to: OWNER
that this plat was made from an actual survey on the ground by me or under my direction; that no encroachments exist at the time of this survey unless reflected hereon; that said survey conforms to the current Texas Society of Professional Surveyors Standards and Specifications for a Category 1A , Condition 2 Survey.

F.G. Huffman
Reg Professional Surveyor No. 1682

STATE OF TEXAS REGISTERED F. G. HUFFMAN 1682 PROFESSIONAL LAND SURVEYOR

LEGEND

UE	Utility Easement	IP	Iron Pipe
AE	Aerial Easement	IR	Iron Rod
WLE	Water Line Easement	-//-	Board Fence
BL	Building Line	-X-	Wire Fence
CP	Covered Porch	-W-	Wrought Iron Fence
ROW	Right Of Way		

This property lies within Zone X as per the Flood Insurance Rate Map, HARRIS County, Community No. 480287, Panel No. 063C Suffix L Dated 6-18-07
NOTE: Zone X indicates outside 100 year flood plain Zone AE indicates within 100 year flood plain

Portion Lot 34
Addition INDEPENDENCE FARMS
Section — Recorded in Vol 855 Page 67C
Harris County Deed Records,
Harris County, Texas

6131 THOMAS ROAD
HOUSTON, TX. 77041

REVISIONS

Bearing Reference NAD 93

Scale 1" = 60'
Date 10-12-10
Job# 10-1007A
Key Map 409 X
Drawn FGH
Checked By FGH

F.G. HUFFMAN
2430 Lexford Lane
Houston, Texas 77080
Ph 281 447 7802
Fax 713 467 9370
FGHUFFMAN@sbcglobal.net

FGH

d.11.12

STATE OF TEXAS JOEL B. MILLER 103847 LICENSED PROFESSIONAL ENGINEER

DATE: 3/30/2012
TIME: 1:00:47 PM
USER: rcox
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NEXUS CONTINUUM

HDR
HDR Engineering, Inc.
17111 Preston Rd.
Suite 200
Dallas, Texas 75248

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

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	J.MILLER
ENGINEER	J.MILLER
CHECKED BY	
DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

FOR PERMITTING ONLY. NOT FOR BIDDING, OR CONSTRUCTION.
Prepared by or under the Direct Supervision of
JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

METES AND BOUNDS SITE PLAT
NEXUS MATERIAL RECOVERY & TRANSFER STATION

FILENAME	PART 1 FIG5.dgn
SCALE	

SHEET
PART 1
FIGURE 5

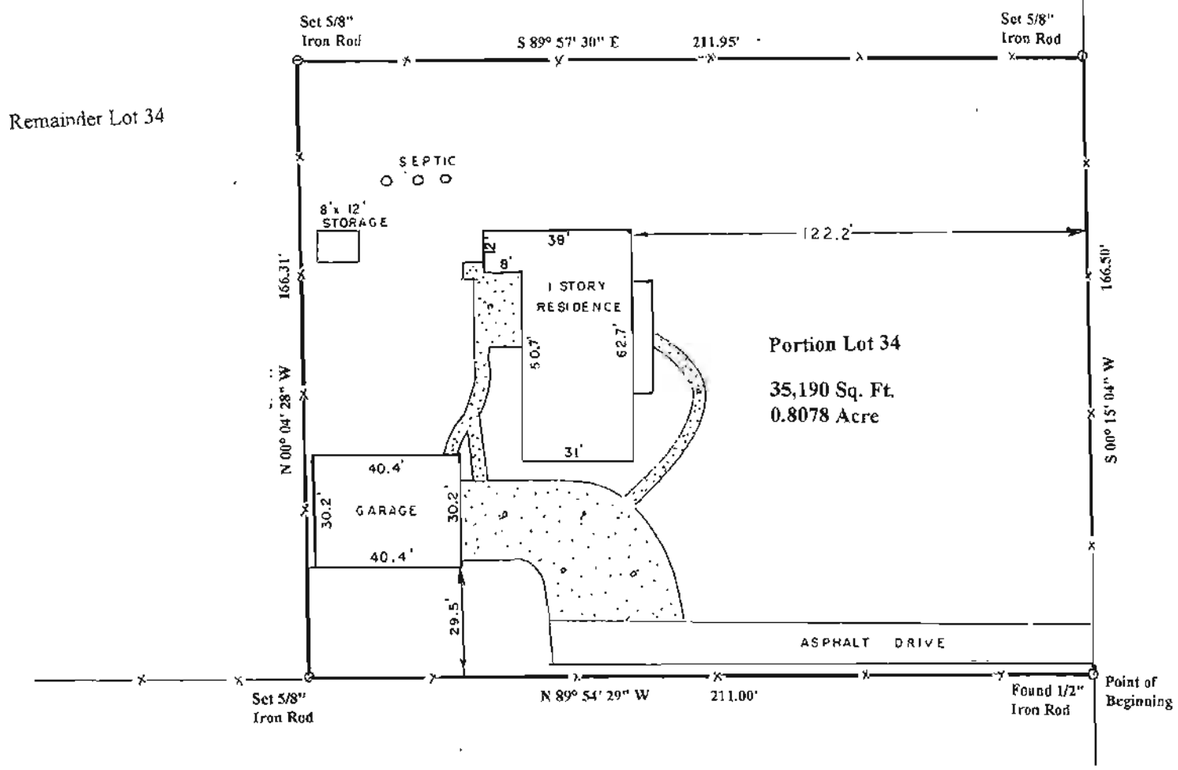
TCEQ Technical Revision #1, April 2012

Figure 6 – Boundary Survey

NOTE: REPRODUCTION OF ORIGINAL SURVEY DOCUMENT. ORIGINAL DOCUMENT SCALE VALID ONLY FOR FULL SIZE PLOT.

0 40

ACTUAL LAYOUT SCALE IN FEET AS SHOWN



OWNER
Dertrick Arnold
Yvonne Manning
Darrell Arnold
Ricky Arnold
Vanessa Alston

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F.G. Huffman
Reg. Professional Surveyor No. 1682

STATE OF TEXAS REGISTERED F. G. HUFFMAN 1682 PROFESSIONAL LAND SURVEYOR

4.11.12

STATE OF TEXAS JOEL B. MILLER 103847 LICENSED PROFESSIONAL ENGINEER

LEGEND

UE	Utility Easement	IP	Iron Pipe
AE	Aerial Easement	IR	Iron Rod
WLE	Water Line Easement	-//-	Board Fence
		-X-	Wire Fence
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CP	Covered Porch		
ROW	Right Of Way		

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NOTE: Zone X indicates outside 100 year flood plain. Zone AE indicates within 100 year flood plain.

Portion Lot 34
Addition INDEPENDENCE FARMS
Section ___ Recorded in Vol. 85 Page 670
Harris County Deed Records,
Harris County, Texas

5131 THOMAS ROAD
HOUSTON, TX. 77041

REVISIONS

Bearing Reference NAD 83

Scale 1" = 30'
Date 10-13-10
Job# 10-1007
Key Map 409 X
Drawn FGH
Checked By FGH

FG HUFFMAN
2430 Lexford Lane
Houston, Texas 77080
Ph 281 447 7802
Fax 713 467 9370
FGHUFFMAN@sbcglobal.net

FGH

DATE: 3/30/2012
TIME: 11:01:29 PM
USER: rcox
FILE: Nexus\01 apost\Nexus#1\Registration\13.00\CAD\Sheet Files
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PENTABLE=NEW HDR-COM.TBL

NEXUS CONTINUUM

HDR

HDR Engineering, Inc.
17111 Preston Rd.
Suite 200
Dallas, Texas 75248

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PROJECT NUMBER	142132

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Prepared by or under the Direct Supervision of JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

METES AND BOUNDS SITE PLAT
NEXUS MATERIAL RECOVERY & TRANSFER STATION

FILENAME	PART 1 FIG6.dgn
SCALE	
SHEET	PART 1 FIGURE 6

TCEQ Technical Revision #1, April 2012

Attachment A:
Signatory Certification and Legal Authority

Signatory Certification

I, Efrain Gonzalez, Jr., certify under penalty of law that I am the Operations Manager, a responsible officer, of Nexus Continuum, LLC, and I have the authority to sign this registration application for the Nexus Material Recovery and Transfer Station on behalf of Nexus Continuum, LLC.

Efrain Gonzalez, Jr., Operations Manager

1-17-11

Date

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

Hope Andrade
Secretary of State

Office of the Secretary of State

CERTIFICATE OF FILING
OF

Nexus Continuum, LLC
File Number: 801341478

The undersigned, as Secretary of State of Texas, hereby certifies that a Certificate of Formation for the above named Domestic Limited Liability Company (LLC) has been received in this office and has been found to conform to the applicable provisions of law.

ACCORDINGLY, the undersigned, as Secretary of State, and by virtue of the authority vested in the secretary by law, hereby issues this certificate evidencing filing effective on the date shown below.

The issuance of this certificate does not authorize the use of a name in this state in violation of the rights of another under the federal Trademark Act of 1946, the Texas trademark law, the Assumed Business or Professional Name Act, or the common law.

Dated: 11/09/2010

Effective: 11/09/2010

Hope Andrade
Secretary of State

Certificate of Formation

of

Nexus Continuum, LLC
(A Limited Liability Company)

FILED
In the Office of the
Secretary of State of Texas
NOV 09 2010
Corporations Section

ARTICLE ONE

The name of the filing entity being formed is Nexus Continuum, LLC (the "Company").

ARTICLE TWO

The filing entity being formed is a limited liability company.

ARTICLE THREE

The purpose for which the Company is formed is any lawful purpose for which a limited liability company may be formed under the Texas Business Organizations Code.

ARTICLE FOUR

The street address of the Company's initial Registered Office, and the name of its initial Registered Agent at that office, are as follows:

Efrain Gonzalez, Jr.
6124 Cunningham Road
Houston, Texas 77041

ARTICLE FIVE

The Company will have one or more Managers. The names and addresses of the initial Managers are:

Efrain Gonzalez, Jr.
6124 Cunningham Road
Houston, Texas 77041

Efrain Gonzalez, Sr.
6124 Cunningham Road
Houston, Texas 77041

ARTICLE SIX

The undersigned Organizer hereby disclaims any past or future interests in or control of Nexus Continuum, LLC and resigns as the Organizer effective upon the formation of the Company.

IN WITNESS WHEREOF, I have hereunto set my hand this ninth day of November, 2010.

Sharon M. Leal

Sharon M. Leal, Organizer
408 W. 17th Street, Suite 101
Austin, Texas 78701-1207
(512) 474-2002

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

Hope Andrade
Secretary of State

Office of the Secretary of State

November 10, 2010

Lawyer's Aid Service Inc
PO Box 848
Austin, TX 78767 USA

RE: Nexus Continuum, LLC
File Number: 801341478

It has been our pleasure to file the certificate of formation and issue the enclosed certificate of filing evidencing the existence of the newly created domestic limited liability company (llc).

Unless exempted, the entity formed is subject to state tax laws, including franchise tax laws. Shortly, the Comptroller of Public Accounts will be contacting the entity at its registered office for information that will assist the Comptroller in setting up the franchise tax account for the entity. Information about franchise tax, and contact information for the Comptroller's office, is available on their web site at http://window.state.tx.us/taxinfo/franchise/index.html.

The entity formed does not file annual reports with the Secretary of State. Documents will be filed with the Secretary of State if the entity needs to amend one of the provisions in its certificate of formation. It is important for the entity to continuously maintain a registered agent and office in Texas. Failure to maintain an agent or office or file a change to the information in Texas may result in the involuntary termination of the entity.

If we can be of further service at any time, please let us know.

Sincerely,

Corporations Section
Business & Public Filings Division
(512) 463-5555

Enclosure

Attachment B:
Application Fees

HDR | ONE COMPANY | *Many Solutions »*

January 21, 2011

Texas Commission on Environmental Quality
Financial Administration Division
Revenue Section/Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

Reference: **Fee Payment for MSW Registration Application**
Proposed Type V Material Recovery and Transfer Station
Nexus Continuum, LLC - MSW Registration No. (To Be Assigned)
Harris County, Texas

Dear Cashier,

Enclosed is a check from Nexus Disposal, LLC, payable to the Texas Commission on Environmental Quality (TCEQ) and issued in the amount of $150.00. This payment is the application fee for a Municipal Solid Waste (MSW) registration application for the MSW Material Recovery and Transfer Station referenced above.

If you have any questions, please do not hesitate to contact me at 214-733-5911.

Sincerely,
HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

Michael W. Oden, P.E.
Project Manager

Enclosure: check

cc: TCEQ MSW Permits Section
Efrain Gonzalez, Jr. - Nexus

HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

4500 West Eldorado Parkway
Suite 3500
McKinney, TX 75070-5757

Phone: (214) 733-5900
Fax: (214) 733-5950
www.hdrinc.com

NEXUS DISPOSAL LLC
PO BOX 41188
HOUSTON, TX 77241

JPMORGAN CHASE BANK, NA
HOUSTON, TX 77088
32-081/1110

1549

1/13/2011

PAY TO THE ORDER OF Texas Commission on Environmental Quality $**150.00

One Hundred Fifty and 00/100********** DOLLARS

T.C.E.Q.
P.O. Box 13087
Austin, TX 78711-3087

Application Fee

⑈001549⑈ ⑆111000614⑆ 852236736⑈

NEXUS DISPOSAL LLC

1549

Texas Commission on Environmental Quality		1/13/2011	
Professional Development	Transfer Station		150.00

Chase Bank	Application Fee	for: Nexus Continuum LLC	150.00

Part II

Nexus Continuum, LLC

Type V- Municipal Solid Waste Facility

Nexus Material Recovery and Transfer Station

MSW Registration No. XXXXX

Harris County
Houston, Texas

April 2012

4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

This document is released for the purpose of review only under the authority of Joel B. Miller, P.E. #103847. It is not to be used for bidding or construction. Texas Registered Engineering Firm F-754.

For pages i thru ii

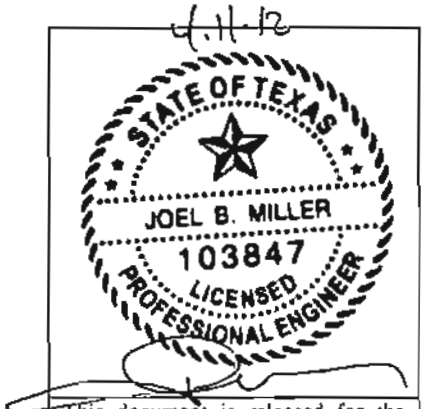
Nexus Material Recovery and Transfer Station
Part II
Table of Contents

List of Figures

List of Attachments

Attachment A: TxDOT Coordination
Attachment B: Soil Information
Attachment C: Wetlands and Endangered or Threatened Species Statement
Attachment D: Texas Historical Commission Review
Attachment E: Local Agency Coordination

4.11.12



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For pages 1 thru 27

1.0 EXISTING CONDITIONS SUMMARY

30TAC §330.61(a)

Nexus Disposal, LLC is a local, family-owned minority business that operates a commercial solid waste and recyclables collection services company. In operation since 1995, its service area primarily consists of Harris County and the City of Houston. Nexus Disposal currently operates from 6124 Cunningham Road, Harris County, Texas. The current facility occupies 1 acre of the approximately 2.5 acre property which is located immediately adjacent to Cunningham Road. This location provides easy access to the Sam Houston Tollway approximately 1 mile to the east (see General Location Map, Part I, Figure 1). Current operations include an office and storage area for roll-off trucks, transfer trailers and containers when not in use. Truck storage and maintenance activities occur on other property.

Nexus Disposal currently operates a fleet of trucks and containers to serve its customers. Waste and recyclable material storage containers typically range in size from 12 to 40 cubic yards (CY). The more commonly used sizes are 20 and 40 CY. Nexus Disposal specializes in serving the construction and demolition (C&D) waste market. C&D waste is defined in Title 30 of the Texas Administration Code Chapter 330.3(33) [30 TAC 330.3(33)] as " ... waste resulting from construction or demolition projects; includes all materials that are directly or indirectly the by-products of construction work or that result from the demolition of buildings and other structures, including; but not limited to, paper, cartons, gypsum board, wood, excelsior, rubber, and plastics." Construction or demolition projects also generally produce materials such as trees or brush, concrete or masonry rubble, and excavated soil that could become part of the C&D waste stream if not recycled. However, the vast majority of the C&D waste stream is recyclable, so it must first be processed and sorted by commodity type before it can be effectively sold for reuse. Effective processing (segregation and consolidation) can return as much as 95 percent of the typical C&D waste stream for reuse.

Nexus Disposal also provides certification of material recycling as required by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. Properly managing the recyclable by-products of construction, demolition, renovation, or deconstruction and of society's infrastructure is an integral part of sustainability.

Nexus Disposal has long seen the need for effective recycling of C&D material in the Houston metropolitan area, having provided service to this industry for over 15 years at the current location. The site is in a mostly industrial location, well suited for a material recovery and transfer station facility. Markets for recyclable materials and adequate landfill space for waste materials exist in the near vicinity (see Part I, Figure 1). The site has access, adequate separation and buffer distances from neighbors and is compatible with existing land use. This site is proposed for the Nexus Material Recovery and Transfer Station facility. As such, Nexus Continuum, LLC (Nexus) has prepared this registration application and will become the owner and operator of the processing activities at the Nexus facility.

Nexus is preparing this registration for a Material Recovery and Transfer Station (MRTS) Type V facility, and is eligible for a registration pursuant to 30 TAC 330.9(f) since Nexus will recover a minimum of 10% by weight or weight equivalent of the total incoming waste stream for reuse or recycling and the remaining will be transported to a landfill within 50 miles of the facility (unless specifically granted a variance – see Part II Section 3.0 for variance request).

2.0 WASTE ACCEPTANCE PLAN

30TAC §330.61(b)

2.1 General

The Nexus facility will receive both recyclable and non-recyclable materials. The materials that typically can be sent for reuse include brush, yard and wood waste, C& D, and inert materials (including aggregates), white goods and other metals. Non-recyclable materials could include municipal solid waste and any of the materials described above should a market not be available or the material deemed unacceptable and disposed.

C&D material is a result of construction or demolition projects and it includes all materials that are directly or indirectly the by-products of construction work or that result from demolition of buildings and other structures, including, but not limited to, paper, cartons, gypsum board, wood, excelsior, rubber, and plastics. The majority of this material is recyclable, and recycled material markets are well-established for materials typically found in this waste stream in the area (see Part I, Figure 1). Processing (sorting, consolidating, etc.) is necessary to produce commodities that achieve certain quality standards for reuse. Due to space limitations, typically only one roll-off container is placed at a project site. Consequently, both recyclable and non-recyclable materials may be placed into the roll-off containers. The non-recyclable materials may be incidental amounts of food waste from construction workers to significant amounts of materials that are not economically feasible to market. Based on the experience of Nexus in collecting and processing C&D materials, only 10 to 20 percent of the C&D material received is not recyclable. This material will be separated from the marketable commodities and transferred to a Houston-area permitted landfill once deemed unacceptable for reuse or recycling.

The major components of municipal solid waste include garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles, and all other solid waste other than industrial solid waste resulting from or incidental to municipal, community, commercial, institutional, and recreational activities. As part of this registration Nexus proposes to accept municipal solid waste at the facility. The majority of this waste stream will be commercial waste from area customers. Although commercial waste is typically transferred directly to area landfills, in times when the landfills are

closed or when collection vehicles are not full at the end of a route, consolidation of the partial load with other partial loads reduces the number of trips to the landfill. Should significant amounts of commercial waste be determined to be recyclable (paper, cardboard, etc.), it will be directed to temporary storage locations or the sorting area for recyclables. Municipal solid waste from residential sources will not be recovered or reused and will be consolidated and transferred directly to an area landfill for disposal.

One of the purposes of the material recovery and transfer station registration is to allow Nexus to consolidate and transfer to a landfill the non-recyclable portion of the material it receives. This waste will be placed in containers for transportation to a landfill. The facility will also allow Nexus to continue to remove recyclable materials prior to disposal.

Regulated hazardous waste and putrescible waste will not be accepted at the facility, therefore there is not a waste characteristic or constituent that would be a limiting factor in the design of the facility based on the type of materials to be received.

2.2 Sources and Characteristics of Waste

Waste and recyclables delivered to the Nexus facility will be primarily from Harris County and the city of Houston, although minor amounts could be delivered from surrounding areas. C&D materials are generated from a wide range of events and activities including storm-related disaster relief and clean up, building fires, new construction of homes and buildings, and demolition, remodeling, reconstruction and roof replacement of existing infrastructure.

Customers generating C&D materials are typically serviced on a scheduled or on a demand basis. Once a container is loaded, it is picked up by the service company and delivered to the Nexus facility. Nexus will remove recyclable material, as that term is defined in 30 TAC 330.3(122), from construction and demolition loads and other loads with a high percentage of materials that can be reused or recycled.

Some portion of the material delivered to the facility from C&D projects will not be recyclable material, either because the material does not meet quality standards, no market exists or, if markets exist, their transportation and reuse/recycling is not economically feasible. When Nexus determines a material is not recyclable, they will collect and consolidate it with other non-recyclable materials and dispose of it offsite at appropriate permitted solid waste facilities.

Nexus proposes to operate a MSW Transfer Station, as well as a Material Recovery facility. The transfer station will enable Nexus to accumulate, consolidate and compact the residual solid waste from recyclable loads along with municipal solid waste delivered to the facility into roll-off containers or transfer trailers, allowing for temporary storage and subsequent transfer to a permitted landfill.

Nexus will remove at least 10 percent of the material it receives for reuse or recycling. However, Nexus intends to remove as much recyclable material as is reasonably and economically feasible. By increasing the amount of material recovered from the waste stream, Nexus is helping to reduce society's dependency on landfill disposal and preserving natural resources.

2.3 Quantity of Waste

The amount of material that will be received at the facility is estimated to be a maximum of 5,000 cubic yards per day (CY/d). Based on an average incoming density of 400 pounds per cubic yard, the anticipated maximum material to be received is expected to be 1,000 tons per day (TPD). The facility will have the capacity to transfer up to 5,000 CY/d. This is based on the ability to load two 125 CY transfer trailers in an hour (250 CY/hr x 20 hours – assumes 4 hours of down time). This reflects an average waste processing time of 250 CY/hr (0.24 min/CY) at full capacity. If smaller capacity trailers are utilized, the maximum amount of material that can be processed may be less than the stated 5,000 CY/d. With smaller trailers and/or less incoming waste, the waste processing time could increase up to an expected maximum waste processing time of 120 CY/hr (0.50 min/CY) at lower (initial) capacity. It is anticipated that 2,400 cubic yards per day will be received initially. The maximum amount of waste and recyclable material to be received is 5,000 CY/d, of which a minimum of 500 cubic yards per day will be recovered and sent for reuse or recycling.

The facility proposes to operate up to 24 hours per day seven days per week and expects to receive a maximum of about 365,000 tons per calendar year. The population equivalent (based on 5 pounds per capita per day) of 365,000 tons per year is 400,000. The following Table II-1 shows the maximum amount of solid waste to be received daily and annually for the next five years. These projections are not intended to limit the receipt to less than the maximum of 5,000 cubic yards per day.

Table II-1: Projected Waste Acceptance

Year	Daily (CY)	Annually (CY)
1	2,400	876,000
2	2,600	963,600
3	2,904	1,059,960
4	3,194	1,165,956
5	3,514	1,282,552

Note: Increase is assumed at 10% per year.

The maximum amount of solid waste and recyclables to be stored at the facility is based on 43 transfer trailers loaded with an average of 125 cubic yards of material each. Therefore, a maximum of 5,375 cubic yards may be stored outside of the process building. Use of smaller capacity trailers may decrease the amount of available storage. Additional storage is available in the transfer trailer load out area and on the tipping floor. However, this storage volume availability is not intended to increase the maximum storage of 5,375 cubic yards. Once this storage volume has been received, no additional material will be accepted until an equal volume is removed.

The average length of time that solid waste will be stored at the facility is expected to be 24 hours with a maximum length of 72 hours. Solid waste will be delivered to a permitted area landfill. The average length of time that recyclable materials will be stored at the facility is expected to be two days with a maximum length of 180 days, depending on the market at the time. Recyclable material will be delivered to local commodity markets.

3.0 QUALIFICATION FOR REGISTRATION

30TAC §330.61(b)(2)

The Nexus facility will include a registered Type V municipal solid waste material recovery and transfer station that will receive, process, and transfer up to 5,000 cubic yards per day. The facility is qualified to be registered in accordance with provisions in 30 TAC 330.9(f)(1) by recovering a minimum of 10% by weight or weight equivalent for reuse or recycling. The facility is qualified to be registered in accordance with provisions in 30 TAC 330.9(f)(2) by disposing of municipal solid waste in a permitted landfill no more than 50 miles from the facility. Pursuant to this statement, Nexus requests the following variance for a specific landfill:

Variance Request from the requirements of 30 TAC 330.9 (f)(2):

- Part I, Figure 1 shows the general location of the reuse/recycling markets and some of the permitted landfills in the Houston area. 30 TAC 330.9(f)(2) requires that material that will not be sent for reuse or recycling will be transported to a permitted landfill that is no more than 50 miles from the facility. In an effort to ensure flexibility and competitive business practices, Nexus hereby requests a minor variance to this requirement. Nexus requests specific authorization to dispose of municipal solid waste at the Altair Landfill (MSW 203A) near Columbus, Texas (in addition to any other permitted landfill within 50 miles). The Altair Landfill is located in Colorado County south of Interstate 10 and, at 56.7 miles away from the Nexus site, is only slightly further than the 50 mile radius. The following attributes make it a viable alternative for future disposal under this registration:Potential for a long-term disposal contract;
- Remaining landfill capacity;
- Eliminates the need to drive into neighborhoods in the greater Houston area;
- Fuel-efficiency and logistics for waste hauling along interstate highway;
- Potential for future alternative (to closer landfills) for hurricane waste disposal

As part of this registration, Nexus requests a minor variance to the requirement of 30 TAC 330.9(f)(2) requiring the disposal facility to be within 50 miles of the site.

4.0 GENERAL LOCATION MAPS

30TAC §330.61(c)

A General Location Map is presented as Figure 1 in Part I. Figure 1 in Part II also shows the location of the facility on a USGS quadrangle map, along with other features. Collectively, these maps present the information required by 30 TAC 330.61(c).

- The prevailing wind direction with a wind rose is presented on Figure 1 of Part II.
- Known water wells within 500 feet of the registration boundary are shown on Figure 7 in Part II.
- The locations of all structures and inhabitable buildings within 500 feet of the proposed facility are shown, and include approximately 44 structures, of which approximately 10 are residences as shown on Part II, Figure 7.
- Schools (2), licensed day-care facilities (1), churches (9), hospitals (1), cemeteries (0), ponds and lakes, and residential, commercial and recreational areas within one mile of the facility are shown on Part II, Figure 1.
- The latitude and longitude of the facility is shown on Part II, Figure 3.
- Area streams are shown on Part II, Figure 3.
- There are no airports within 6 miles of the facility (see Part I, Figure 1).
- The registration boundary of the facility is shown on various maps.
- There are no drainage, pipeline or utility easements within or adjacent to the facility.
- Facility access control features are shown on Part II, Figure 2.
- Location of roads within 1 mile that will be used for access are shown on part II, Figure 4. These include:

- Cunningham Road – asphalt
- Little York – concrete
- Tanner – concrete
- Sam Houston Tollway - concrete

There are no recorded archeological or historical or sites with exceptional aesthetic quality adjacent to or within the facility.

In addition, the general location maps and statements below show compliance with 30 TAC 330 Subchapter M (Location Restrictions). Specifically:

- There are no drainage, pipeline or utility easements within or adjacent to the facility;
- Buffer zones are provided for solid waste storage and processing areas as shown on Part II, Figure 2;
- Airport proximity is not applicable as the facility is not a landfill unit;
- The facility is not located in the 100-year floodplain;
- The facility is not a landfill unit located within the recharge zone of the Edwards Aquifer;
- The facility does not affect endangered or threatened species (see Part II, Attachment C);
- The facility is not located near jurisdictional wetlands (see Part II, Attachment C);
- The facility is not a landfill unit located in a fault area;
- The facility is not a landfill unit located in a seismic impact zone;
- The facility is not a landfill unit located in an unstable area;
- The facility is not a landfill cell in a coastal area; and,
- The facility is not a proposed Type I or Type IV Landfill.

5.0 FACILITY LAYOUT MAPS

30TAC §330.61(d)

A Facility Layout Map is provided as Figure 2, Part II. This map provides information on:

- The outline of the material process and storage areas
- Interior roadways
- Locations of buildings
- Fencing
- Facility screening plans
- Site entrance from public access roads
- On-site buffer zones (minimum 50-ft from processing facility)

Ground water monitoring wells are not proposed for the Material Recovery and Transfer Station.

6.0 GENERAL TOPOGRAPHIC MAPS

30TAC §330.61(e)

A General Topographic Map is presented as Figure 3, Part II. It was obtained from the Houston-Galveston Area Council and represents information obtained in 2008. It is at a scale of one inch equals 500 feet. Additionally, a USGS quadrangle map has been used as the basis for Figure 1 in Part II. This map is at a scale of one inch equals two thousand feet.

7.0 AERIAL PHOTOGRAPH

30TAC §330.61(f)

An aerial photograph of the required size and scale is provided as Figure 4, Part II. The site boundaries and an area within a one-mile radius are shown on the Figure.

8.0 LAND-USE MAP

30TAC §330.61(g)

A Land-Use Map is presented as Figure 5 in Part II. It shows the existing land uses within one mile of the facility. The land usage presented on this map was obtained from the Houston-Galveston Area Council which obtained the data from the Harris County Appraisal District's web site and is believed to be accurate as of the date of its preparation (2008). This land use information was checked by visual observation and revisions made where applicable based on current use.

Some of the properties within one mile of the site are located within the corporate limits of the City of Houston. There is no existing zoning within the city limits or within Harris County. There are no on-site easements. Access roads serving the facility are shown. It is anticipated that the primary access route for traffic using the facility will be Cunningham Road, W. Little York Road, Tanner Road, and Sam Houston Tollway east of the facility. The most recent land use within the facility boundary is industrial, consisting of the storage and maintenance of solid waste collection vehicles and equipment.

9.0 IMPACT ON SURROUNDING AREA

30TAC §330.61(h)

The proposed material recovery and transfer station facility at this site will not have an adverse impact on human health or the environment. There is no existing zoning that would prohibit this use, and no approval or special permit is required from any local government. Harris County does require permits for development. Meetings have been held with Harris County, and all required development permits will be obtained prior to operating the facility under this registration (see Part II, Attachment E). Neither Harris County nor the City of Houston has established zoning at the site or surrounding area, therefore a zoning map cannot be provided. The site is located in an area comprised primarily of industrial uses.

9.1 Potential Impact to the Human or Natural Environment

Adverse impacts to the environment are not anticipated from the facility. All operations dealing with municipal solid waste are to take place in a partially enclosed building, under a roofed area, and on a concrete floor. Debris barriers will be employed to reduce the potential for wind-blown dispersal of debris and litter. Essentially inert material that is to be recycled or reused may be processed outside of the building. The sorting crew will control blowing litter by selective segregation (i.e., avoiding processing loose material on windy days) and perimeter fencing. Dust and litter suppression by means of a water spray will be employed if needed.

Noise generated by the periodic operation of motorized equipment including a front-end loader or excavator, as well as the trucks used to deliver and remove containers will be minimal. However, the distance from process areas to the property line will also reduce impacts to the surrounding area. Additionally, the facility is within an industrial zone, where equipment typically operates 24 hours a day, making it suitable for the intended use.

9.2 Compatibility with the Surrounding Area

The facility is located generally in the northwest portion of Harris County. Harris County has no authority to establish zoning in the area. Although the site is not zoned, it is suitable for industrial

use. Other commercial and industrial land uses dominate the project area. Harris County development permits will be obtained prior to operating the facility under this registration.

The site is near the Sam Houston Tollway, a six-lane divided highway, and is served by Little York Road and Tanner Road to the north and south, respectively. Existing industrial and commercial areas surround the project area. The project is generally screened from view by on-site vegetation and fencing.

Commercial development within one mile of the site is heavy. It includes an aggregate mining and processing operation, auto repair shop, garage-door company, an engineering firm, a restaurant, tire distributor, builder supply store, garden supply, and multiple smaller service and manufacturing businesses. There are an estimated 125 active commercial establishments or businesses within one mile of the site including another trash hauling company located on property immediately to the south.

Residential use includes the subdivisions approximately one-third mile east and one-half mile west as well as intermittently dispersed single-family residences within a one mile radius of the proposed site. There are an estimated 1,300 active residences within one mile of the site which include 100 mobile homes and 1,200 single family homes.

There are two existing educational facilities within the project vicinity including Kirk Elementary School and the University of Texas, Core Research Center, about one mile southwest of the site and approximately one-half mile north of the site, respectively. There are eight churches located within a one mile radius of the facility. See Figure 1, Part II.

There are no sites believed to have exceptional aesthetic quality within one mile of the facility.

The nearest occupied residences include one single-family home on Cunningham Road south of the site, one single-family residence on the adjacent property to the east (property now belongs to Nexus) as well as the previously discussed subdivisions to the east and west. The facility operation cannot be seen from any of these occupied residences because the operation will be screened by vegetation and

fencing. Vehicle noise that will be generated by the proposed transfer station activities will not be discernable to occupants of these residences because of the low speeds and infrequent occurrence. This noise will be overwhelmed by the noise of truck and automobile traffic along the Sam Houston Tollway which consists of many trucks and tractor-trailer units traveling at all times at highway speeds.

The population of Harris County (2000 Census) was 3,400,590, and the population density of the county as a whole was 1966.8 persons per square mile. Within a one-mile radius of the facility, the population is estimated to be about 5,911 and the population density is estimated to be about 648 persons per square mile. The Houston-Galveston Area Council (H-GAC) forecasts strong suburban growth within a 5 mile area surrounding the project area. Estimated growth patterns predict 67 percent growth in households, and 59 percent of the job growth will occur outside the Sam Houston Tollway, which includes the project area.

Two active water wells are present on the property. A Texas Water Development Board (TWDB) and Harris-Galveston Subsidence District database search indicated there are seven active or recorded water supply wells within 500 feet of the proposed facility, including one of the active wells on site. These are four inch diameter wells drilled between 250 and 450 feet below ground surface. Usage listed in the HGCSD database include, Industrial (3), Public Supply (1) and Domestic (3) with pumpage varying from none to 976,000 gallons in 2009. Visual reconnaissance also identified nine wells within 500 feet of the proposed facility that were not identified in the database search, including the one on the Thomas Road property now owned by Nexus. Additional data on type and depth of these wells is not available at this time (see Part II, Figure 7 for water well locations).

10.0 TRANSPORTATION

30TAC §330.61(i)

All traffic associated with the Nexus facility will approach and leave the facility on Cunningham Road. Cunningham Road has an asphalt-paved road surface without turning lanes. The sight distance approaching the entrance in either direction is in excess of 500 feet, and the speed limit is 30 miles per hour (MPH). A review of publicly-available data on Houston area traffic did not produce traffic projections for Cunningham Road. Traffic data from 2006 reveals 16,690 vehicles per day (vpd) for Tanner Road and 35,280 vpd for Little York Road.

At the initial expected material acceptance rate of 2,400 cubic yards per day (cy/d), the expected volume of traffic associated with the facility is expected to be 84 trips per day (60 vehicles delivering material to the site in 40 CY roll off containers and 18 vehicles transporting waste to landfills in 125 CY transfer trailers and 6 vehicles transporting recyclables to market in 40 CY roll off containers). At the maximum expected receipt of 5,000 cy/d, the facility traffic is expected to be 174 trips per day (125 vehicles delivering material to the site in 40 CY roll off containers or frontend load vehicles and 36 vehicles transporting waste to landfills in 125 CY transfer trailers and 13 vehicles transporting recyclables to market in 40 CY roll off containers). The actual number of vehicles transporting material off the site will vary as the amount of recycled materials are diverted from disposal, as these materials are typically transported in the smaller 40 CY roll off boxes. Waste being sent to a landfill for disposal will typically be loaded in larger transfer trailers. At the maximum volume, truck traffic will average about 8 vehicles per hour or one every 8 minutes. This volume of site-related traffic will have no significant adverse impact on the capacity of Cunningham Road, Little York or Tanner Roads. Because of the relatively low volume of site traffic, along with the favorable geometry, reduced speed limit and long sight distances, no turning or storage lanes are needed to safely accommodate traffic to the facility.

The majority of traffic using the site will approach from the east, via Little York Road or Tanner Road. Discussions have been held with Harris County regarding maintenance and traffic projections for Cunningham Road. See Attachment E in Part II. Documentation of coordination with TxDOT is included in Attachment A of Part II.

There are no airports within six miles of the facility. Since this will be a Type V facility, the requirements of 30 TAC 330.61(i)(5) are not applicable.

11.0 GENERAL GEOLOGY AND SOILS STATEMENT

30TAC §330.61(j)

This section presents general geology and soils information at the site.

The Texas Coastal Plain is characterized by fluviomarine deposits – alluvial, deltaic, and barrier bar – of Pleistocene age and Recent alluvial, deltaic, barrier island, and dune deposits. There are four depositional sequences (terraces) of Pleistocene age present along the Texas Coastal Plain – Willis (oldest), Lissie (also called Bentley), Montgomery, and Beaumont (newest, and also called Beaumont Clay) Formations.

The site is located in the mapped outcrop of the Montgomery Formation (Reference: **Sand Resources of the Gulf Coast**, University of Texas, Bureau of Economic Geology, Report of Investigations No. 60, March 1967). The Montgomery Formation is comprised of sand, silt, clay and minor amounts of gravel. In some older publications, the Montgomery is referred to as the "Upper Lissie." The surface areas are fairly flat and featureless except for shallow depression and pimple mounds.

Soils at the facility are mapped in the Gessner Loam and Katy Fine Sandy Loam associations. Areas around the facility area are mapped in the Addicks Loam and Gessner Complex associations (USDA Natural Resource Conservation Service, *Web Soil Survey of Harris County, Texas, Version 10, October 27, 2009*). Part II, Attachment B contains the Web Soil Survey mapping for the Nexus facility and surrounding area. According to the mapping, the western 60% of the Nexus facility is in the Gessner Loam and the eastern 40% is Katy Fine Sandy Loam. The Gessner and Addicks soils in the area are poorly drained and subject to ponding. They also have moderate permeability ($\approx$ 9 x 10^{-4} cm/sec) and very shallow water tables. The Katy soils are moderately drained and have moderate permeability ($\approx$ 6 x 10^{-4} cm/sec). The Katy soils have deeper water tables (> 8 feet below ground surface). Part II, Attachment B also contains summaries of physical soil properties and engineering soil properties for the soils mapped in the area of the Nexus property.

12.0 GROUNDWATER AND SURFACE WATER

30TAC §330.61(k)

The following discussion provides information on site-specific groundwater and surface water conditions at and near the site.

The uppermost aquifer beneath the site is the Gulf Coast Aquifer. This aquifer consists of complex interbedded clays, silts, sands and gravels. The upper component of the Gulf Coast Aquifer system is the Chicot Aquifer, which contains the Pleistocene Willis, Lissie (Bentley), Montgomery and Beaumont Formations as well as recent alluvium. The total sand thickness comprising the Chicot aquifer is approximately 700 feet in the vicinity of the Nexus facility. (Reference: **Hydrogeology and Simulation of Ground-Water Flow and Land-Surface Subsidence in the Chicot and Evangeline Aquifers, Houston Area, Texas**, Mark C. Kasmarek and Eric W. Strom, U.S. Geological Survey, Water-Resources Investigations Report 02–4022, In cooperation with the City of Houston, 2002.)

Records from the Texas Water Development Board and the Harris-Galveston Subsidence District (HGSD) identified six wells within 500 feet of the property boundary and one on-site well. See Part II, Figure 7. Records from wells near the site indicate that groundwater is encountered at 175 feet below ground surface (bgs). Discussion with Nexus employees indicate the depth to water in the on site well is approximately 380 feet bgs. Water from this well is potable but is used primarily for irrigation, fire protection and dust suppression.

A visual reconnaissance of the area identified potentially eight additional wells within 500 feet of the registration boundary, including one on the Thomas Road property now owned by Nexus. This well is potable and will also be used for irrigation, fire protection and other operational needs. The approximate location of these wells is shown on Part II, Figure 7.

The Nexus facility will be constructed, maintained, and operated to manage run-on and runoff during the peak discharge of a 25-year rainfall event. The Nexus facility will prevent the off-site discharge

of sediment, waste and recyclable materials through a combination of constructed features and operating procedures:

- providing concrete flooring / pavement under all solid waste processing areas,
- providing a roof over solid waste tipping and processing areas,
- providing perimeter berms or silt fences for containment,
- providing leak proof and covered storage units (roll-off boxes or transfer trailers),
- weekly cleaning of potentially contaminated areas, or more often as needed, and
- storage, treatment and disposal of any contaminated water generated within the facility.

The Nexus facility will operate under the TPDES General Permit for storm water discharges. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the facility and it will be updated as necessary to reflect any site modifications proposed by Nexus.

The facility will comply with the requirements of the TPDES storm water permitting by continuous operation and monitoring of its SWPPP throughout the active life of the facility. The SWPPP will be developed specifically for the Nexus facility and will include both ongoing inspection of systems and practices, and sampling and analysis of storm water discharges. A Notice of Intent (NOI) to obtain coverage under the TPDES General Permit will be submitted to the TCEQ prior to the beginning of operations under this registration.

13.0 ABANDONED OIL AND WATER WELLS

30TAC §330.61(l)

There are no abandoned oil or water wells on the facility property. Two active water wells, are present on the site. HGSD 7225 is listed in TWDB records and is currently used at the Nexus Disposal facility. One additional well has been visually identified on the Thomas Road property.

14.0 FLOODPLAINS AND WETLANDS STATEMENT

30TAC §330.61(m)

The Nexus facility is not located within the 100-year floodplain, as shown on the most current Flood Data (FIRM) maps. A copy of this map is included as Part II, Figure 6.

A wetlands determination was performed at the site in July 2010. The results of this determination are presented in Part II, Attachment C. No wetlands or waters of the state were identified on the site.

15.0 ENDANGERED OR THREATENED SPECIES

30TAC §330.61(n)

The facility and its operation will not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or threatened species (see Part II, Attachment C).

16.0 TEXAS HISTORICAL COMMISSION REVIEW

30TAC §330.61(o)

The Texas Historical Commission (THC) has reviewed the project site in the context of the Natural Resources Code, Chapter 191, Texas Antiquities Code. The THC reported that the project does not affect any historic properties. A coordination letter has been sent to the THC requesting documentation of compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code (see Part II, Attachment D).

17.0 COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW

30TAC §330.61(p)

This registration application will be submitted to the Houston-Galveston Area Council (HGAC) for review for compliance with the regional solid waste plan (see Part II, Attachment F).

Figures

Figure 1 – USGS Quadrangle Map

1 MILE RADIUS

SITE LOCATION

500' RADIUS

CULLEN PARK

Melandy

HOUSTON

STATE OF TEXAS
MICHAEL W. ODEN
67165
REGISTERED
PROFESSIONAL ENGINEER

USGS QUADRANGLE MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- STRUCTURE OR INHABITABLE BUILDING
- SCHOOL / UNIVERSITY
- CHURCH
- CEMETERY (NONE)
- DAY CARE
- HOSPITAL
- ARCHAEOLOGICAL OR HISTORICAL SITE (NONE)
- RECREATIONAL AREA

SOURCE: USGS 7.5-MINUTE SERIES TOPOGRAPHIC MAPS, HEDWIG VILLAGE (1982) AND SATSUMA (1982)

0 500 1,000 2,000
Feet

NEXUS CONTINUUM

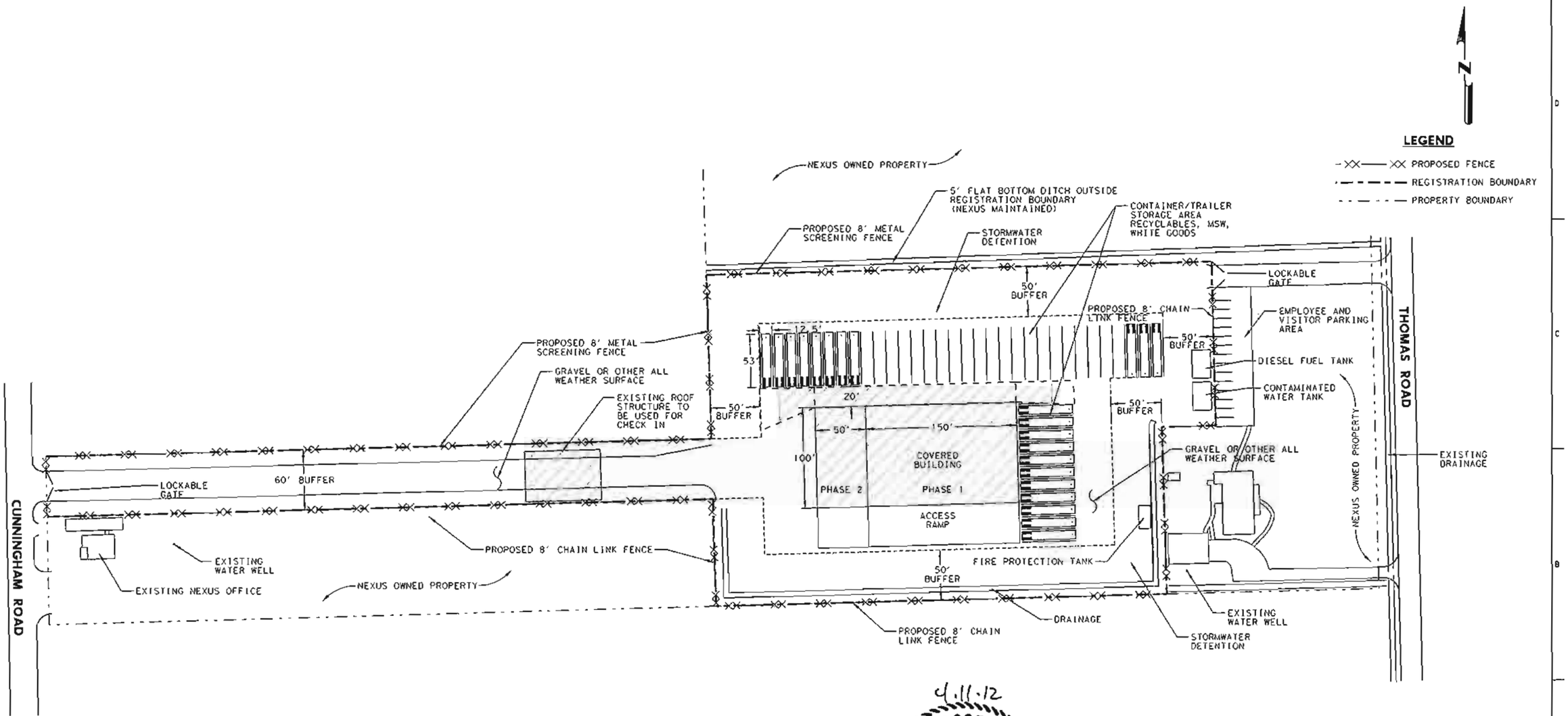
HDR Engineering, Inc.
TBPE Firm Registration No. F-754
4500 W. Eldorado Pky, Suite 4500
McKinney, TX 75070-5757
214-733-6500

OCT 2011

PART II
FIGURE 1

FILE: 142132_N_____DisposalMapDocs\arcmap\NexusDisposal_PartII_Fig1_DetailedLoc_11x17.mxd

Figure 2 – Facility Layout



4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

NOTES:

1. PROPERTY ADDRESS
   6124 CUNNINGHAM ROAD
   6131 THOMAS ROAD
2. ALL DEVELOPMENT PERMITS REQUIRED BY HARRIS COUNTY WILL BE OBTAINED PRIOR TO OPERATION UNDER THIS REGISTRATION.
3. STORAGE AREA FOR MSW AND RECYCLABLES IS SUFFICIENT FOR 43 125 C.Y. TRANSFER TRAILERS.

DATE: 3/30/2012
TIME: 12:58:54 PM
USER: rcox
FILE: N:\Nexus-Disposal\Nexus-TS-Registration\13.0\CAD\Sheet Files\Permit Files\PART II FIG 2 NEXUS-MSW-PDF.plt
DRIVER: HPGL2.DRV
PLOTTED: NEW HDR-PRM.TBL

NEXUS CONTINUUM

HDR
HDR Engineering, Inc.
17111 Preston Rd.
Suite 200
Dallas, Texas 75248

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

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	J.MILLER
ENGINEER	J.MILLER
CHECKED BY	
DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

FOR PERMITTING ONLY. NOT FOR BIDDING, OR CONSTRUCTION.
Prepared by or under the Direct Supervision of
JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

FACILITY LAYOUT
MATERIAL RECOVERY AND TRANSFER STATION

0 50' 100'

FILENAME: PART II FIG2.dgn
SCALE:

SHEET
PART II
FIGURE 2

Figure 3 – General Topographic Map

PETROPARK

REAGAN

CUNNINGHAM

THOMAS

OVERLOOK

UNNAMED DRAINAGE CHANNEL

SITE LOCATION

29° 51' 29.09" N
95° 34' 53.11" W

29° 51' 27.40" N
95° 34' 45.51" W

UNNAMED DRAINAGE CHANNEL

BRITTMOORE PARK

STATE OF TEXAS
MICHAEL W. ODEN
67185
REGISTERED
PROFESSIONAL ENGINEER

GENERAL TOPOGRAPHIC MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- DRAINAGE CHANNEL
- 1-FOOT INDEX CONTOUR
- 1-FOOT INTERMEDIATE CONTOUR

SOURCE: 2008, HOUSTON-GALVESTON AREA COUNCIL

0 125 250 500
Feet

N
W E
S

NEXUS CONTINUUM

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McKinney, TX 75070-5757
214-733-6900

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PART II
FIGURE 3

FILE: 142132 DisposalMapDocs\arcmap\NexusDisposal Part II Fig3_Topo_11x17.mxd

Figure 4 – Aerial Photograph

AERIAL PHOTOGRAPH

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY

STATE OF TEXAS
MICHAEL W. ODEN
67165
REGISTERED
PROFESSIONAL ENGINEER

SOURCE: 2006 HOUSTON-GALVESTON AREA COUNCIL

0 500 1,000 2,000
Feet

N
W E
S

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214-733-5900

OCT 2011	PART II FIGURE 4

FILE: 142132_Na..._DisposalMapDocs\arcmap\NexusDisposal_PartII_Fig4_Aerial_11x17.mxd

Figure 5 – Land Use Map

1 MILE RADIUS

SITE LOCATION

LITTLE YORK

CUNNINGHAM

TANNER

SAM HOUSTON TOLLWAY

LAND USE MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- C — COMMERCIAL
- F/R — FARM / RANCH LAND
- G — GOVERNMENT-OWNED
- I — INDUSTRIAL
- P — PARK (>= 5 ACRES)
- R — RESIDENTIAL SINGLE-FAMILY
- T — TRANSPORTATION (PUBLIC ROADS)
- V — VACANT
- HOUSTON CITY LIMITS

SOURCE: 2008 HOUSTON-GALVESTON AREA COUNCIL. UPDATED BY HDR STAFF SEPTEMBER 2010

0 300 600 1,200 Feet

STATE OF TEXAS
MICHAEL W. ODEN
67165
REGISTERED
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NEXUS CONTINUUM

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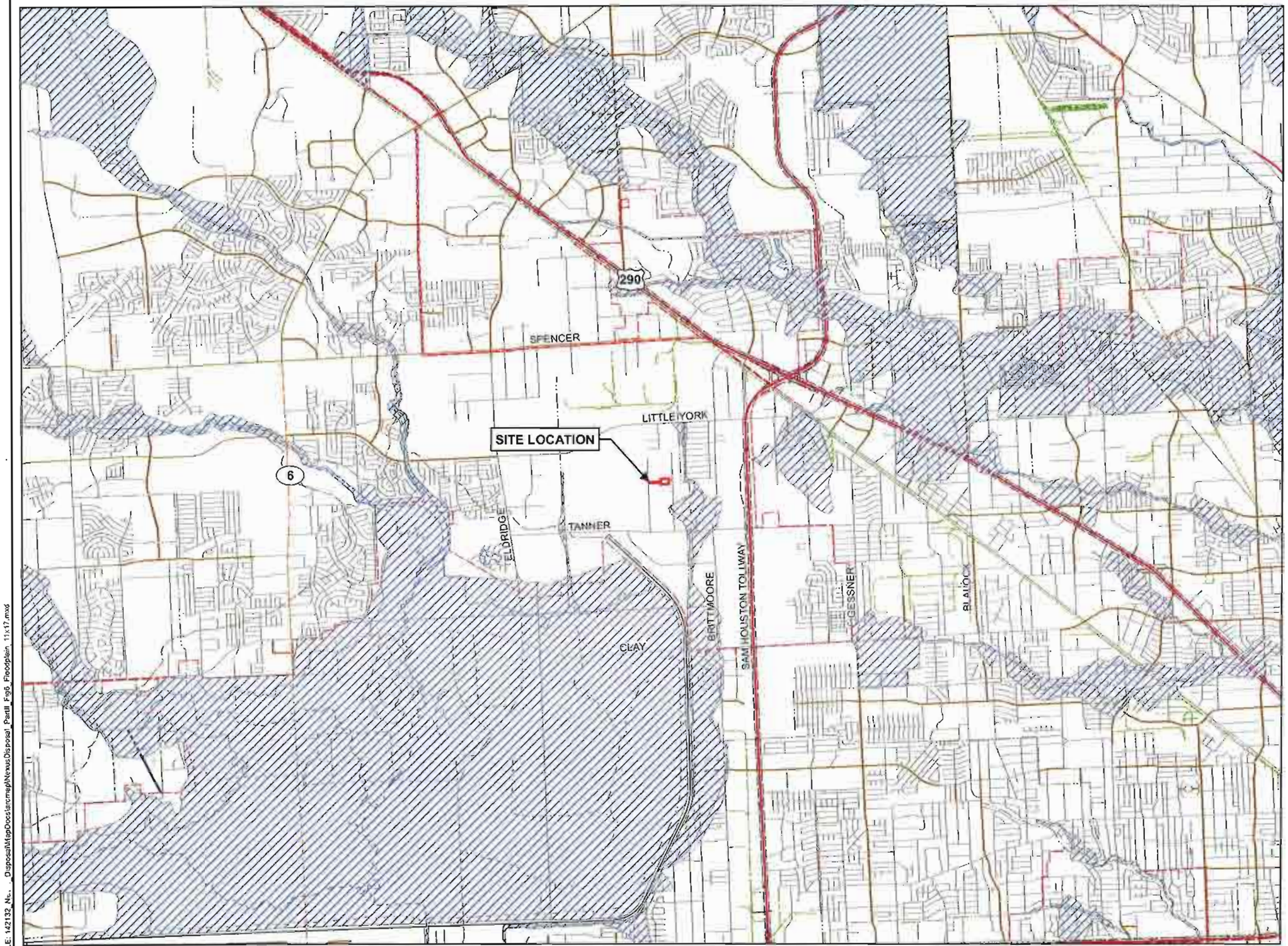
713-783-5900

OCT 2011	PART II FIGURE 5

FILE: 142132 Nexus Disposal\MapDocs\arcmap\NexusDisposal_PartII_Fig5_LandUse_11x17.mxd

Figure 6 – FEMA 100-Year Floodplain Map



FEMA 100-YEAR FLOODPLAIN MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- 100-YEAR FEMA FLOODPLAIN

10-27-11

STATE OF TEXAS
MICHAEL W. ODEN
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REGISTERED
PROFESSIONAL ENGINEER

SOURCE: FEMA Q3 DATA, HARRIS COUNTY

0 0.25 0.5 1 Miles

NEXUS CONTINUUM

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OCT 2011

PART II
FIGURE 6

FILE: 142132_Ne..._Disposal\MapDocs\arcmap\Nexus Disposal_PartII_Fig6_Floodplain_11x17.mxd

Figure 7 – Water Well Locations

WATER WELL LOCATIONS

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

Oil Wells

Pumping Sta

SITE LOCATION

500' RADIUS

PIPELINE

CUNNINGHAM RD

THOMAS RD

Trailer Park

7225

4351

8761

4350

4541

5788

5230

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- REPRESENTATIVE WATER WELL LOCATION
- OBSERVED WATER WELL LOCATION
- STRUCTURE OR INHABITABLE BUILDING

SOURCE: USGS 7.5-MINUTE SERIES TOPOGRAPHIC MAPS, HEDWIG VILLAGE (1982). HARRIS-GALVESTON SUBSIDENCE DISTRICT (2010)

0 125 250 500 Feet

N W E S

NEXUS CONTINUUM

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OCT 2011	PART II FIGURE 7

STATE OF TEXAS
MICHAEL W. ODEN
67165
REGISTERED
PROFESSIONAL ENGINEER

WELL DATA FROM TWDB			
ID	OWNER	DEPTH	SURFACE ELEV
4350	United Galvanizing, Inc.	350	114
4351	United Galvanizing, Inc.	320	114
4541	United Galvanizing, Inc.	400	115
5230	Patterson Rental Tools	250	45
5788	Gonzalez, Miguel A.	450	115
7225	Gonzalez, Efrain	390	110
8761	Gonzalez, Miguel A.	0	111

NOTE: NO INFORMATION EXISTS WITH THE TWDB FOR THE OBSERVED WELLS.

FILE: 142132 Ne... DisposalMapDocs\arcmapNexusDisposal_Part II_Fig7_WellLocations_11x17.mxd

Attachment A:
TxDOT Coordination

Texas Department of Transportation
P.O. BOX 1386 • HOUSTON, TEXAS 77251-1386 • (713) 802-5000

November 8, 2011

CONTACT: DOM

Harris County
Nexus Continuum, LLC
6124 Cunningham Road

Mr. Michael W. Oden, P.E.
Project Manager
HDR Engineering, Inc.
4500 West Eldorado Parkway, Suite 3500
McKinney, Texas 75070-5757

Dear Mr. Oden:

In response to your letter dated October 27, 2011, concerning the reapplication of subject facility, the Texas Department of Transportation (TxDOT) has reviewed your request. Since the site is small and not on State highway system, it will not have a negative effect.

However, TxDOT does reserve the right to comment on the permit application when it is sent out by the Texas Commission on Environmental Quality to the various agencies for review.

Please contact Mr. Leonard E. Polk, P.E., Transportation Engineering Supervisor, at (713) 802-5554, if you should have any questions.

Sincerely,

Quincy D. Allen, P.E.

Quincy D. Allen, P.E.
Director of Maintenance
Houston District

LEP
cc: Mr. Leonard E. Polk, P.E.
Mr. Jesse R. Garcia, P.E.

HDR ONE COMPANY | *Many Solutions*

October 27, 2011

Leonard E. Polk, P.E.
Transportation Engineering Supervisor
Texas Department of Transportation
P.O. Box 1386
Houston, Texas 77251

Reference: **Nexus Continuum, LLC**
Nexus Material Recovery and Transfer Station
Harris County, Texas

Dear Mr. Polk,

Nexus Continuum, LLC (Nexus) has re-applied to the Texas Commission on Environmental Quality (TCEQ) for registration of a Type V - Material Recovery and Transfer Station to be located at 6124 Cunningham Road, Houston, Texas. The proposed facility will receive municipal solid waste and recyclable material. A letter was previously transmitted on January 10, 2011 and a response from TxDOT was sent on February 1, 2011. The original submittal contained Parts I and II. The TCEQ requested the application be withdrawn and resubmitted with all four parts. Therefore, we are informing you of this change.

As stated previously, TCEQ regulations [30 TAC 330.61 (i)(4)] require documentation of coordination with your agency regarding traffic and location restrictions. This letter is to inform you of the proposed facility and request your response indicating that the proposed facility will not conflict with any traffic or location restrictions of the Texas Department of Transportation (TxDOT). Nexus is under a strict deadline to file your response, so we would appreciate receiving it as soon as possible.

The purpose of the registration application is to allow Nexus to receive and consolidate waste and recyclable materials and transfer to a landfill the non-recyclable portion of the incoming material that remains following processing. The waste will be placed in containers for transportation to a permitted landfill. The proposed facility will allow Nexus to remove recyclable materials from the waste stream so that these materials may be beneficially reused as commodities.

The facility will use the same driveways that are being used for the existing operation at this site. It is located on the east side of Cunningham Road, about 0.6 miles south of Little York Road, and 0.5 miles north of Tanner Road. Cunningham Road is scheduled to be widened in the future based upon local thoroughfare plans. See attached location map and aerial photograph for reference. Operation of the facility is expected to initially generate approximately 84 trips per day. A total of 174 trips are expected at capacity. Incoming truck traffic is expected from the north and south via Little York Road and Tanner Road, respectively, from the Sam Houston Tollway. Little York Road and Tanner Road are also scheduled to be widened according to local plans. Departing truck traffic is expected to travel east via the same routes to access the Sam Houston Tollway.

Please contact me at 972-960-4479 if you have any questions. We look forward to your response.

Sincerely,
HDR Engineering, Inc.

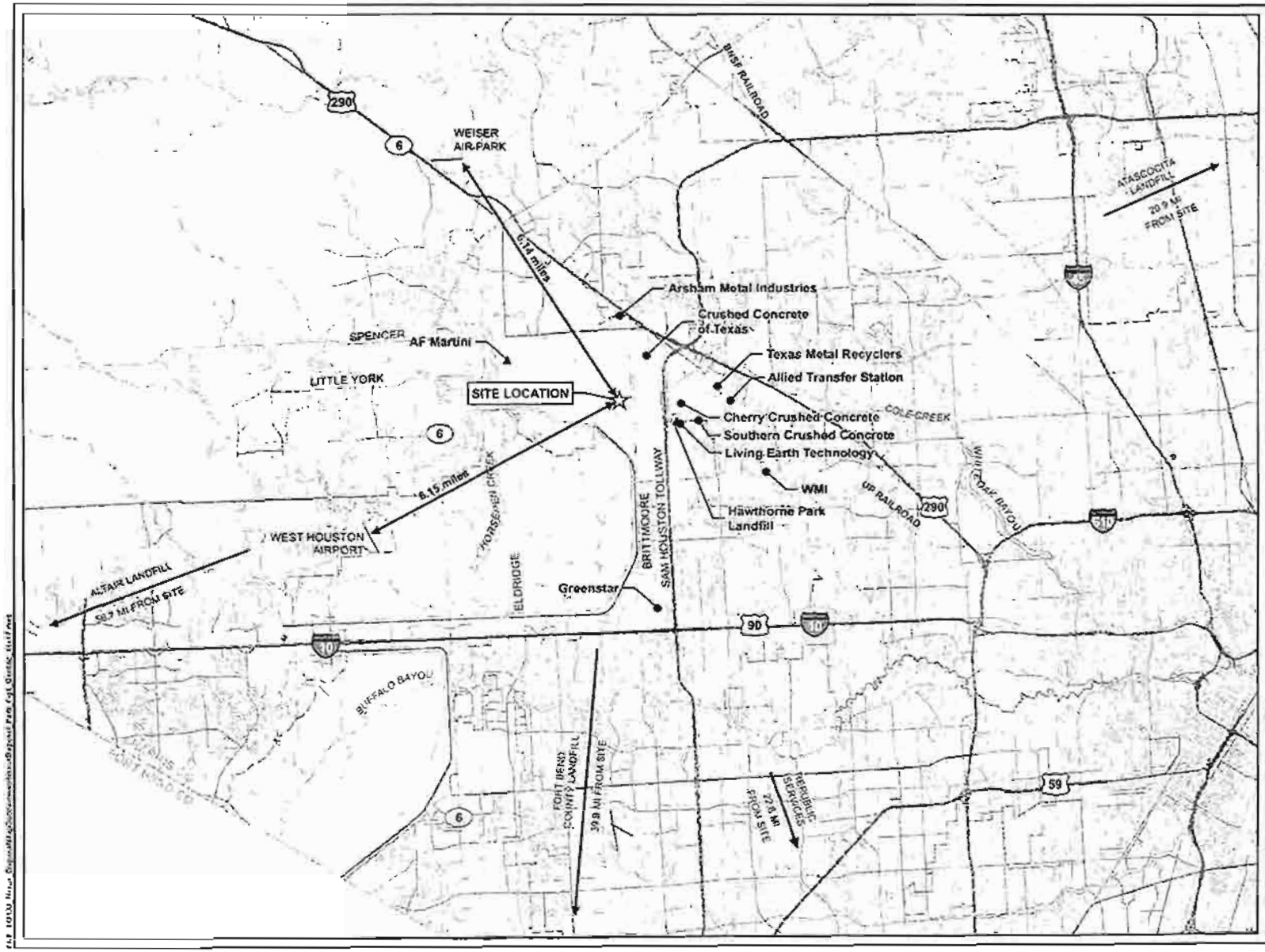
Michael W. Oden, P.E.
Project Manager

Attachment

HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

17111 Preston Road
Suite 200
Dallas, TX 75248-1232

Phone: (972) 960-4400
Fax: (972) 960-4471
www.hdrinc.com



GENERAL LOCATION MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

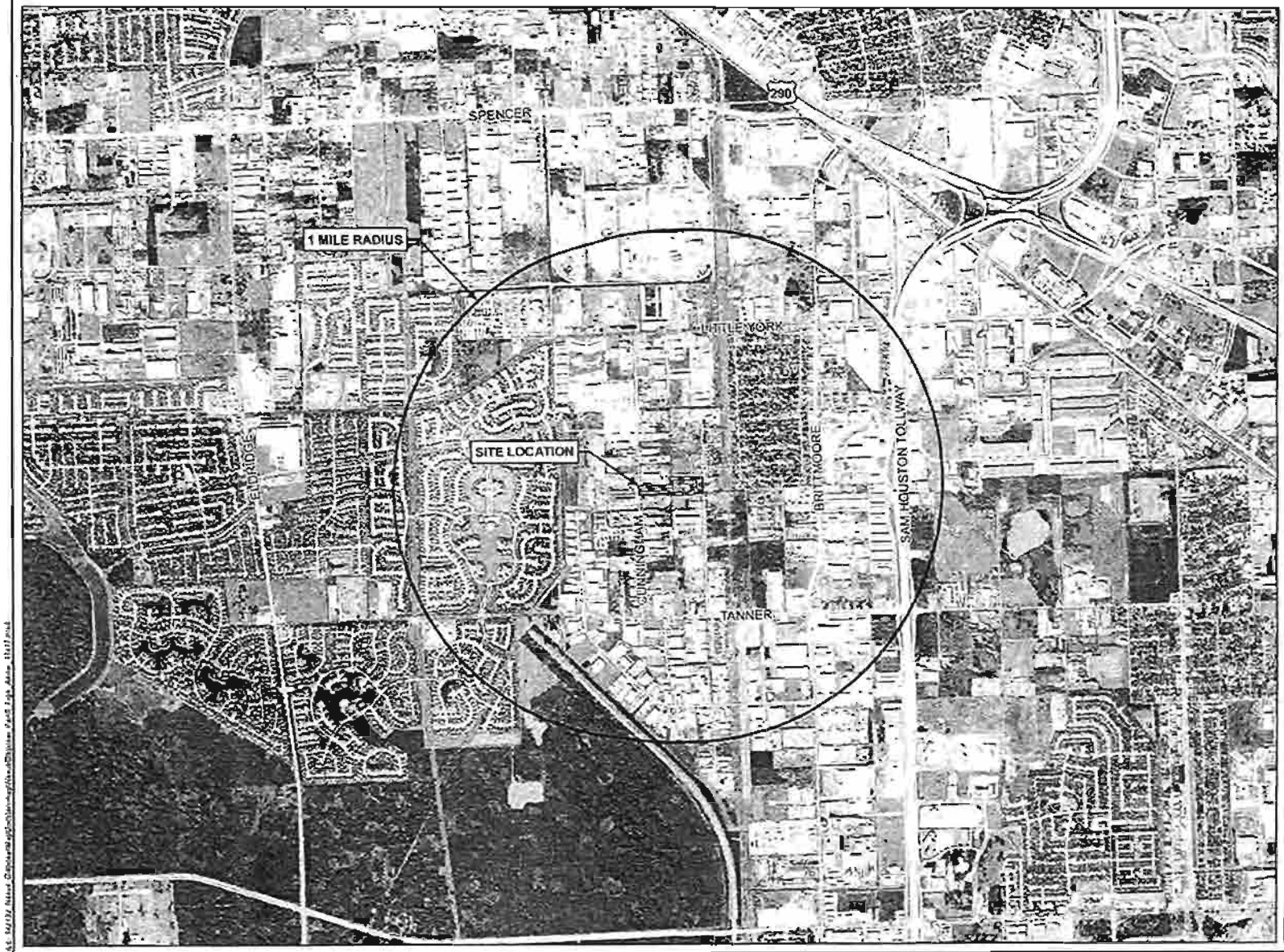
- ☆ SITE LOCATION
- ▲ PERMITTED LANDFILL
- ● RECYCLABLE MATERIALS MARKET

SOURCE: 1995 TXDOT URBAN FILE BY COUNTY, HARRIS COUNTY

NEXUS CONTINUUM

HDR

OCT 2011	PART I FIGURE 1



AERIAL PHOTOGRAPH

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

REGISTRATION BOUNDARY

PROPERTY BOUNDARY

STATE OF TEXAS
MICHAEL W. OSEN
67165
REGISTERED
PROFESSIONAL ENGINEER

SOURCE: 2006 HOUSTON-GALVESTON AREA COUNCIL

NEXUS CONTINUUM

HDR

OCT 2011	PART II FIGURE 4

Attachment B:
Soil Information

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties– Harris County, Texas															
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
Ad—Addicks loam														
Addicks	0-11	35-50- 52	30-39- 45	8-10- 15	1.20-1.50	4.00-14.00	0.15-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	11-49	30-40- 50	40-45- 60	10-15- 18	1.20-1.50	4.00-14.00	0.15-0.24	0.0-2.9	0.1-0.5	.49	.49			
	49-78	15-33- 50	40-45- 55	10-22- 30	1.20-1.60	4.00-14.00	0.15-0.24	3.0-5.9	0.1-0.5	.49	.49			
Ge—Gessner loam														
Gessner	0-16	-46-	-44-	6-11- 15	1.35-1.60	4.00-14.00	0.10-0.15	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	16-80	-44-	-41-	12-15- 18	1.40-1.70	4.00-14.00	0.15-0 20	0.0-2.9	0.1-0.5	.43	.43			
Gs—Gessner complex														
Gessner	0-16	-46-	-44-	6-11- 15	1.35-1.60	4.00-14.00	0.10-0.15	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	16-80	-44-	-41-	12-15- 18	1.40-1.70	4.00-14.00	0.15-0.20	0.0-2.9	0.1-0.5	.43	.43			
Kf—Katy fine sandy loam														
Katy	0-28	-64-	-27-	5-10- 15	1.30-1.50	4.00-14.00	0.15-0.20	0.0-2.9	0.5-2.0	.37	.37	5	3	86
	28-50	-64-	-27-	5-10- 15	1.30-1.50	4.00-14.00	0.15-0.20	0.0-2.9	0.5-1.0	.37	.37			
	50-65	-34-	-37-	25-30- 35	1.50-1.70	0.42-1.40	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	65-80	-33-	-32-	35-35- 50	1.50-1.70	1.40-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			

Data Source Information

Soil Survey Area: Harris County, Texas
Survey Area Data: Version 10, Oct 27, 2009

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

References:
American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

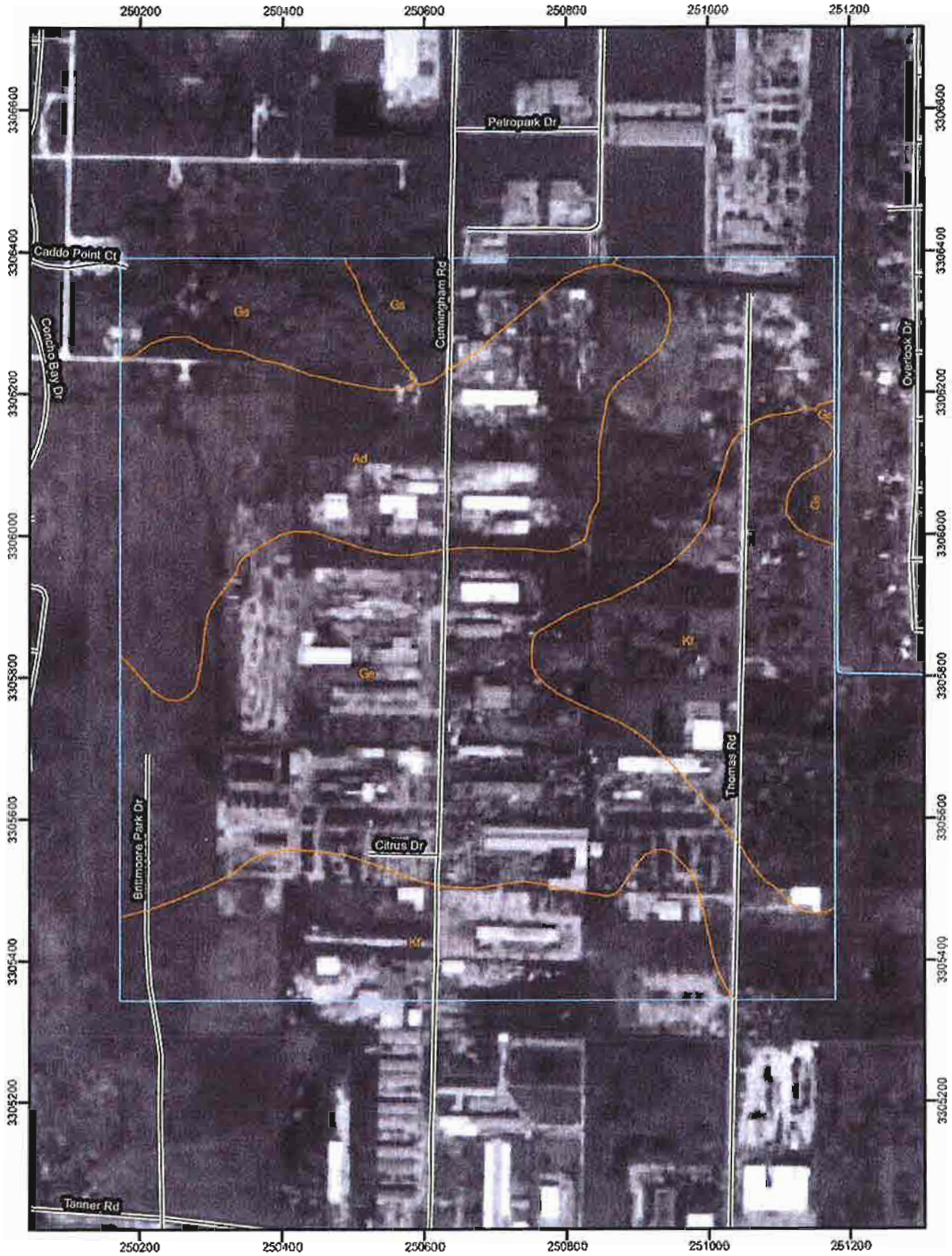
Engineering Properties– Harris County, Texas												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
Ad—Addicks loam												
Addicks	0-11	*Loam	ML	A-4	0	0	95-100	95-100	95-100	55-75	14-21	2-6
	11-49	*Loam, Silt loam	ML, CL-ML, CL	A-4	0	0	95-100	90-100	75-95	60-75	16-23	3-7
	49-78	*Loam, Silt loam, silty clay loam	ML	A-6, A-4	0	0	95-100	90-100	90-100	60-80	10-34	3-13
Ge—Gessner loam												
Gessner	0-16	*Loam	SC	A-4	0	0	98-100	95-100	85-100	45-75	17-28	4-10
	16-80	*Loam, Fine sandy loam	CL, CL-ML	A-4, A-6	0	0	98-100	95-100	85-100	51-70	20-40	5-20
Gs—Gessner complex												
Gessner	0-16	*Loam	SC	A-4	0	0	98-100	95-100	85-100	45-75	17-28	4-10
	16-80	*Loam, Fine sandy loam	CL, CL-ML	A-4, A-6	0	0	98-100	95-100	85-100	51-70	20-40	5-20

Engineering Properties– Harris County, Texas												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
Kf—Katy fine sandy loam												
Katy	0-28	*Fine sandy loam	SM	A-4	0	0	98-100	98-100	98-100	38-60	0-22	NP-3
	28-50	*Fine sandy loam, Loam	ML, SC-SM, SM, CL-ML	A-4	0	0	98-100	98-100	98-100	38-70	0-22	NP-7
	50-65	*Clay loam, Sandy clay	CL	A-7-6, A-6	0	0	98-100	98-100	96-100	55-75	33-48	18-30
	65-80	*Clay loam, Clay, sandy clay loam	CL, CH	A-7-6, A-6	0	0	100	100	98-100	55-75	35-53	18-35

Data Source Information

Soil Survey Area: Harris County, Texas
Survey Area Data: Version 10, Oct 27, 2009

Soil Map—Harris County, Texas
(Nexus Recycling)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:8,080 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

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

Soil Survey Area: Harris County, Texas
Survey Area Data: Version 10, Oct 27, 2009

Date(s) aerial images were photographed: 1995

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

Map Unit Legend

Harris County, Texas (TX201)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ad	Addicks loam	56.0	21.5%
Ge	Gessner loam	119.8	46.1%
Gs	Gessner complex	10.1	3.9%
Kf	Katy fine sandy loam	74.1	28.5%
Totals for Area of Interest		**260.0**	**100.0%**

Attachment C:
Wetlands and
Endangered or Threatened Species Statement

MEMORANDUM

To: **Mike Oden**

From: **Tony Bassak**

Copy: **James Thomas and Christine Magers**

Date: **July 28, 2010**

Subject: **Summary of Findings – Nexus Continuum Material Recovery and Transfer Station Site Visit**

Nexus Continuum, LLC, is a locally family owned, minority business that operates a commercial solid waste and recyclables collection services company. Its service area primarily consists of Harris County and the City of Houston. Nexus Disposal has provided roll-off boxes and dumpsters for the collection and disposal of municipal solid waste (MSW), construction or demolition waste (C&D), brush, inert material, white goods and yard waste within its service area for over 15 years. Nexus Disposal has recognized that much of the C&D and brush material collected is recyclable and that disposing of such material in landfills is a waste of reusable material. A registration application is being prepared for submittal to the TCEQ for a Type V - Material Recovery and Transfer Station at the site. Nexus Continuum, LLC (Nexus) has been formed to prepare the application and to own and operate the facility. The facility will be known as the Nexus Recycling Material Recovery and Transfer Station.

On July 28, 2010, and October 8, 2010, in order to meet regulatory requirements outlined in 330.61(a), HDR staff performed a site assessment that included a threatened and endangered species habitat assessment and waters of the U.S. determination at the Nexus property (Site) located at 6124 Cunningham Road and 6131 Thomas Road in Houston, Texas. The Site consists of approximately 7.6 acres with approximately 180 feet fronting Cunningham Road.

Prior to conducting fieldwork, HDR conducted a thorough review of existing site information including:

- U.S. Geological Survey. 7.5 minute quadrangle topographical map, Hedwig Village, Harris County, Texas. 1982.
- U.S. Geological Survey. 7.5 minute quadrangle topographical map, Satsuma, Harris County, Texas. 1982.

Ecologically-Sensitive Areas and Endangered & Threatened Species

The Texas Parks and Wildlife Department (TPWD) Annotated County Lists of Rare, Threatened and Endangered Species of Texas by County Database website (last updated 3/5/2010) listed endangered, threatened, or rare species in Harris County as:

- *AMPHIBIANS* – Houston toad (*Anaxyrus houstonensis*)
- *BIRDS* - the Bald Eagle *(Haliaeetus leucocephalus),* American peregrine falcon (*Falcon peregrinus anatum*), arctic peregrine falcon *(Falco pereginus tundrius,),* Black rail (*Laterallus jamaicensis*), Brown pelican (*Pelecanus occidentalis*), Henslow's sparrow *(Ammodramus henslowii),* Mountain plover (*Charadrius montanus*), Peregrine falcon (*Falco peregrinus*), Red-cockaded woodpecker (*Picoides borealis*), Snowy plover (*Charadrius alexandrines*), Southern snowy plover (*Charadrius alexandrines tenuirostris*), White-faced ibis (*Plegadis chihi*), White-tailed hawk (*Buteo albicaudatus*), Whooping crane (*Grus americana*), Wood stork (*Mycteria americana*)
- *FISHES* – American eel (*Anguilla rostrata*), Creek chubsucker (*Erimyzon oblongus*), Smalltooth sawfish (*Pristis pectinata*)
- *MAMMALS* – Louisiana black bear (*Ursus americanus luteolus*), plains spotted skunk (*Spilogale putorius interrupta*), Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), red wolf (*Canis rufus*), Southeastern myotis bat (*Myotis austroriparius*)
- *MOLLUSKS* – little spectaclecase (*Villosa lienosa*), Louisiana pigtoe (*Pleurobema riddellii*), pistolgrip (*Tritogonia verrucosa*), rock pocketbook (*Arcidens confragosus*), sanbank pocketbook (*Lampsilis satura*), Texas pigtoe (*Fusconaia askewi*), Wabash pigtoe (*Fusconaia flava*)
- *PLANTS* – coastal gay-feather (*Liatris bracteata*), giant sharpstem umbrella-sedge (*Cyperus cephalanthus*), Houston daisy (*Rayjacksonia aurea*), Texas meadow-rue (*Thalictrum texanum*), Texas prairie dawn (*Hymenoxys texana*), Texas windmill-grass (*Chloris texensis*), threeflower broomweed (*Thurovia triflora*)
- *REPTILES* – alligator snapping turtle (*Macrochelys temminickii*), green sea turtle (*Chelonia mydas*), Gulf saltmarsh snake (*Nerodia clarkia*), Kemp's Ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta caretta*), smooth green snake (*Liochlorophis vernalis*), Texas horned lizard (*Phrynosoma cornutum*), timber/canebrake rattlesnake (*Crotalus horridus*)

An on-site investigation of the proposed site and immediate adjacent properties did not reveal any indications of suitable habitat for threatened or endangered species on or near the project site. Therefore, threatened or endangered species are not anticipated to exist within the project site.

According to the TPWD map "The Vegetation Types of Texas" (1984), the project area is located in the Urban physiognomic region. Urban refers to the high density of development, a lack of any native vegetated areas. The project area is consistent with TPWD mapping.

The facility and the operation of the facility will not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or threatened species.

Jurisdictional Determination and Approximate Wetland Boundary Assessment
A site assessment revealed no potentially jurisdictional features located within the site boundary; therefore, completing a wetland delineation under the guidance of the United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual was not required.

Well Spatial Data Search
Spatial data that identify nearby O&G wells and groundwater wells were obtained from the Texas Railroad Commission (TRC) and the Texas Water Development Board (TPWD) and the Harris-Galveston Subsidence District (H-GSD). The database search identified no O&G wells onsite, and seven groundwater wells within a 500 foot radius of the Site. Visual reconnaissance identified eight wells within a 500 foot radius of the Site. Of the fifteen identified, two groundwater wells are present on the Site and are used for operational needs.

Attachment D:
Texas Historical Commission Review

March 29, 2012

Mr. Mark Denton
State Historic Preservation Officer
Department of Antiquities Protection
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711-2276

Re: Nexus Continuum, LLC
Proposed Type V Material Recovery and Transfer Station
Houston, Harris County, Texas

Dear Mr. Denton:

Nexus Continuum, LLC (Nexus) has applied to the Texas Commission on Environmental Quality (TCEQ) for registration of a Type V - Material Recovery and Transfer Station to be located at 6124 Cunningham Road, Houston, Texas. The proposed facility will receive municipal solid waste and recyclable material. The purpose of the registration application is to allow Nexus to receive and consolidate waste and recyclable materials and transfer to a landfill the non-recyclable portion of the incoming material that remains following processing. The waste will be placed in containers for transportation to a permitted landfill. The proposed facility will allow Nexus to remove recyclable materials from the waste stream so that these materials may be beneficially reused as commodities.

TCEQ regulations [30 TAC 330.61 (o)] require documentation of coordination with your agency documenting compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code. This letter is to inform you of the proposed facility and request your response indicating that the proposed facility will not conflict with any applicable restrictions.

The proposed facility will occupy approximately 5 acres of a 7.6 acre site. This site has been in use for approximately 15 years and has sustained significant disturbances from construction, maintenance, and operational activities. HDR archaeologist Marcus Grant, MA, RPA reviewed the project and on 27 August 2010 examined online maps at http://atlas.thc.state.tx.com.us. Mr. Grant determined that no historic sites, historic landmarks, architectural resources, or cemeteries existed within a one-mile radius of the subject property and concluded the proposed action would have no direct or indirect effect on historic properties. On 2 September 2010, Mr. Grant was advised by Mr. Ed Baker, Texas Center for Environmental Quality (TCEQ) Coordinator for the Texas Historical Commission (THC), via telephone, that submission of a "Request for SHPO Consultation Form" was not required.

HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

4401 West Gate Blvd.
Suite 400
Austin, TX 78745

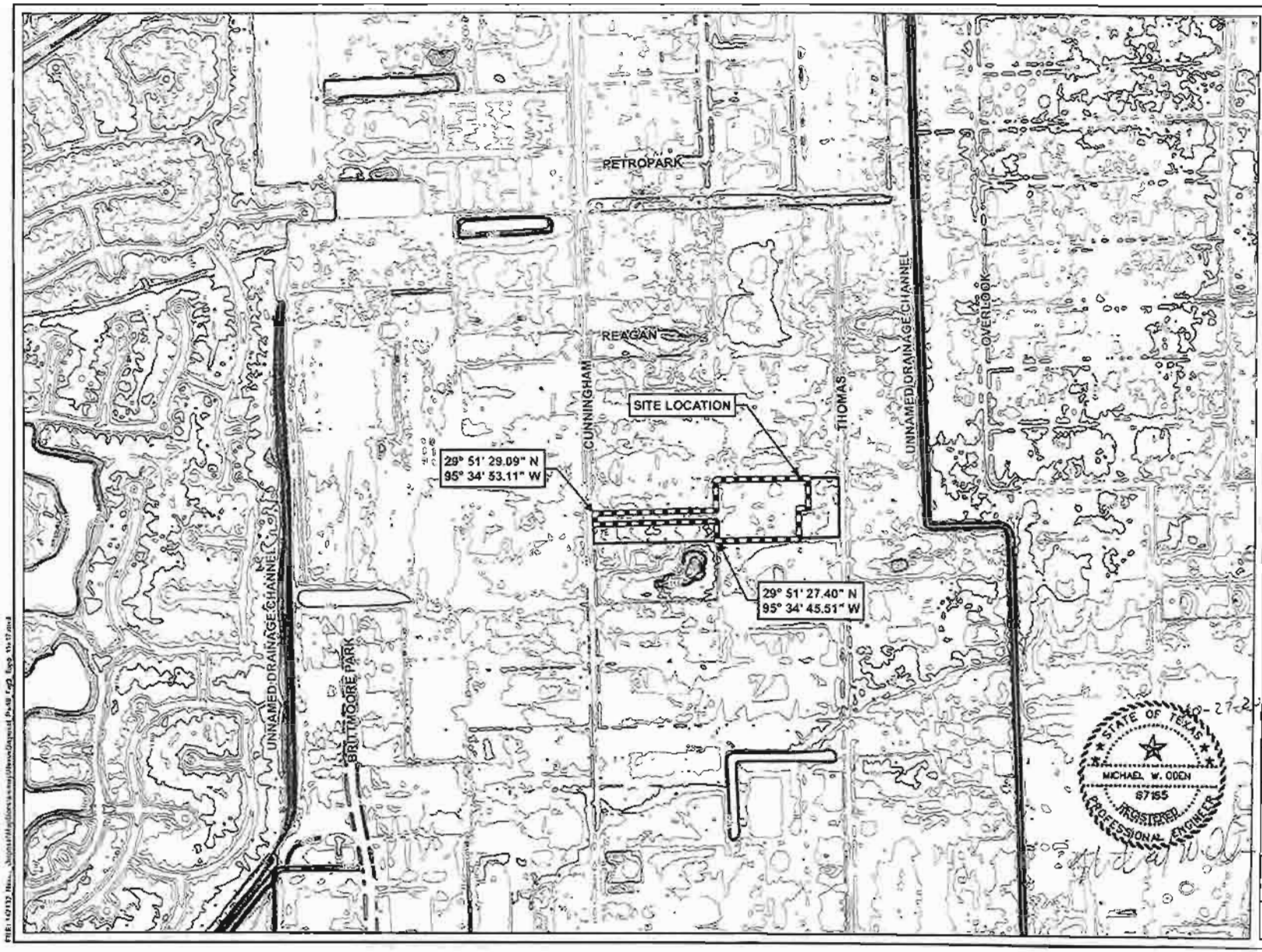
Phone: 512•912•5100
Fax: 512•912•5158
www.hdrinc.com

It has since come to HDR's attention that the application does require a review letter from the THC documenting compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code. We request the assistance of your office in providing the required review letter including any recommendations you may have. Please find enclosed a general topographic map showing the site location and boundaries to assist your review. As Nexus is under a time limit to respond to TCEQ comments, HDR would greatly appreciate a response within 30 days. If further information is needed or you wish to discuss project details, please feel free to contact Joel Miller at 512-498-4716 or Marcus Grant at 303-754-4259.

Sincerely,
HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

Joel Miller, P.E.
Project Manager

Enclosure



GENERAL TOPOGRAPHIC MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- DRAINAGE CHANNEL
- 1-FOOT INDEX CONTOUR
- 1-FOOT INTERMEDIATE CONTOUR

SOURCE: 2003, HOUSTON-GALVESTON AREA COUNCIL

NEXUS CONTINUUM

HDR

OCT 2011	PART II FIGURE 3

Attachment E:
Local Agency Coordination

Houston- Galveston Area Council

Harris County

October 27, 2011

Cheryl Mergo
Manager Sustainability Programs
Community & Environmental Planning Department
Houston-Galveston Area Council of Governments
P.O. Box 22777
Houston, TX 77227-2777

Reference: **Nexus Continuum, LLC**
Nexus Material Recovery and Transfer Station
Harris County, Texas

Dear Ms. Mergo:

Nexus Continuum, LLC (Nexus) has re-applied to the Texas Commission on Environmental Quality (TCEQ) for registration of a Type V Material Recovery and Transfer Station to be located on property located at 6124 Cunningham Road and 6131 Thomas Road, near the Sam Houston Tollway. The facility will be served by Little York Road and Tanner Road to the north and south, respectively. The facility will be known as the Nexus Material Recovery and Transfer Station. A letter was previously sent on January 10, 2011 along with Parts I and II. The TCEQ requested the application be withdrawn and resubmitted with all four parts. Therefore, we are informing you of this change. A copy of the revised Parts I and II of the registration application which was prepared by HDR Engineering, Inc. is enclosed for your review.

Nexus Disposal, LLC is a family-owned minority business that has operated a municipal solid waste (MSW) and recyclables collection business for more than 15 years in the Houston area. Their office is currently located at 6124 Cunningham Road. Nexus Continuum, LLC has been formed to own and operate the Nexus Material Recovery and Transfer Station. The facility will receive up to 5,000 cubic yards per day of municipal waste and recyclable materials, operating 24 hours a day, seven days per week. Recyclable components of the waste stream such as wood, paper, corrugated cardboard, gypsum board, various types of plastic, concrete and masonry rubble, aluminum, ferrous and non-ferrous metal, brush and tree waste, and other materials that are marketable, will be removed for recycling or reuse. The remaining waste will be consolidated into containers and taken to a permitted landfill.

HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

17111 Preston Road
Suite 200
Dallas, TX 75248-1232

Phone: (972) 960-4400
Fax: (972) 960-4471
www.hdrinc.com

TCEQ regulations [30 TAC 330.61(p)] require that Parts I and II of the application be submitted for your review. The intent of this letter is to inform you of the proposed facility and request your response indicating that the facility as proposed will be in compliance with the regional solid waste plan.

Should you have any question regarding this project, please feel free to give me a call at 972-960-4479.

Sincerely,
HDR Engineering, Inc.

Michael W. Oden, P.E.
Project Manager

Attachments

CC: Efrain Gonzalez, Jr. – Nexus Continuum, LLC

October 27, 2011

Mr. Josh Stuckey
Harris County
Public Infrastructure Department
10555 NW Freeway
Suite 100
Houston, Texas 77092

Reference: **Nexus Continuum, LLC**
Nexus Material Recovery and Transfer Station
Harris County, Texas

Dear Mr. Stuckey,

This letter is to follow up on our meeting of November 2, 2010 in which we discussed the subject facility and subsequent letter dated January 10, 2011. Nexus Disposal, LLC is a family-owned minority business that has operated a municipal solid waste (MSW) and recyclables collection business for more than 15 years in the Houston area. Their office is currently located at 6124 Cunningham Road. Nexus Continuum, LLC has been formed to own and operate the Nexus Material Recovery and Transfer Station. The facility will receive up to 5,000 cubic yards per day of municipal waste and recyclable materials, operating 24 hours a day, seven days per week. Recyclable components of the waste stream such as wood, paper, corrugated cardboard, gypsum board, various types of plastic, concrete and masonry rubble, aluminum, ferrous and non-ferrous metal, brush and tree waste, and other materials that are marketable, will be removed for recycling or reuse. The remaining waste will be consolidated into containers and taken to a permitted landfill.

A letter was previously transmitted on January 10, 2011, however, the TCEQ requested the application be withdrawn and resubmitted. Therefore, we are informing you of this change.

Nexus has prepared the registration application for a new facility which will be on property they own located at 6124 Cunningham Road and 6131 Thomas Road in Harris County (see attached Location and Facility Layout Maps). Based on our meeting, Nexus understands that certain development permits will be required from Harris County for the proposed improvements. In particular, final construction plans must be submitted to your office for review that address driveway access, drainage, building regulation and storm water quality.

Once the TCEQ has granted the requested registration, Nexus will proceed with final design and obtain the required permits from Harris County. Attached are additional figures from the application for your information. If you have any questions or need additional information, please do not hesitate to contact me at 972-960-4479.

Sincerely,
HDR Engineering, Inc.

Michael W. Oden, P.E.
Project Manager

Attachments

CC: Efrain Gonzalez, Jr. – Nexus Continuum, LLC

HDR Engineering, Inc.
Texas Registered Engineering Firm F-754

17111 Preston Road
Suite 200
Dallas, TX 75248-1232

Phone: (972) 960-4400
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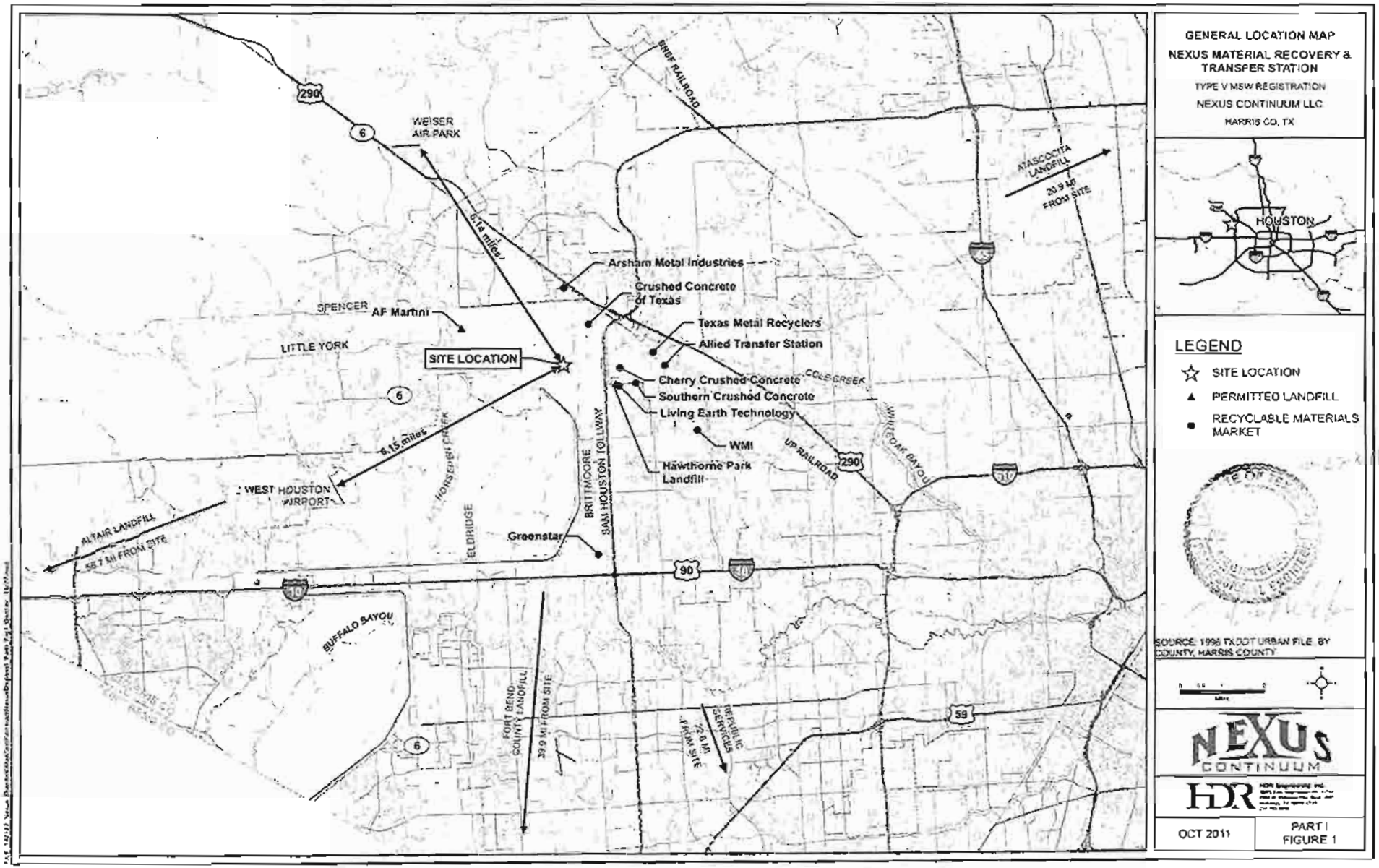
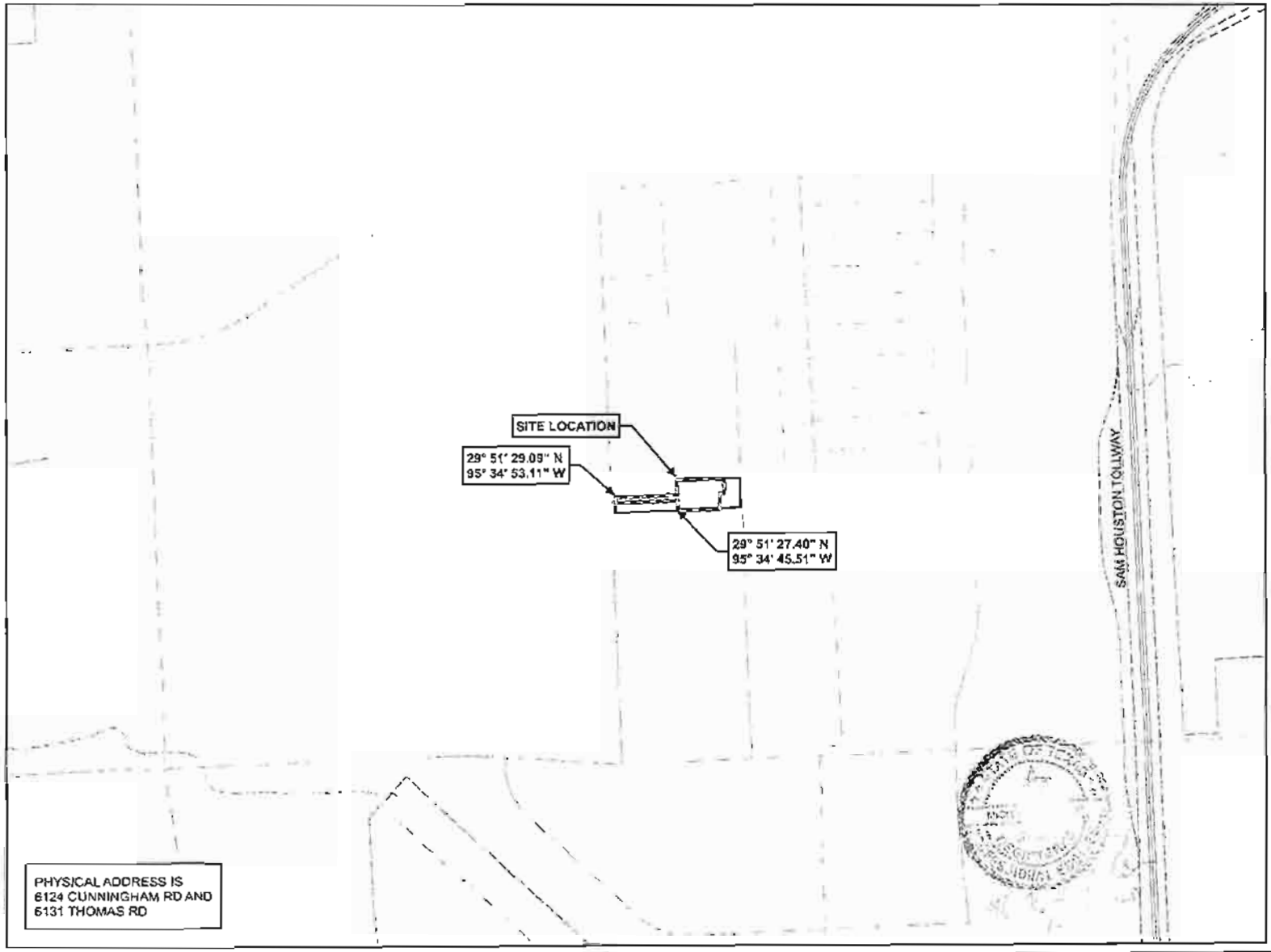

GENERAL LOCATION MAP
NEXUS MATERIAL RECOVERY & TRANSFER STATION
TYPE V MSW REGISTRATION
NEXUS CONTINUUM LLC
HARRIS CO, TX
HOUSTON
LEGEND
SITE LOCATION
PERMITTED LANDFILL
RECYCLABLE MATERIALS MARKET
SOURCE: 1996 TXDOT URBAN FILE BY COUNTY, HARRIS COUNTY
290
6
WEISER AIR PARK
6.14 miles
SPENCER
AF Martini
LITTLE YORK
SITE LOCATION
6.15 miles
WEST HOUSTON AIRPORT
ALTAIR LANDFILL
58.7 MI FROM SITE
HORSEPEN CREEK
ELDRIDGE
BRITTMOORE
SAM HOUSTON TOLLWAY
Greenstar
BUFFALO BAYOU
FORT BEND COUNTY LANDFILL
39.9 MI FROM SITE
REPUBLIC SERVICES
22.8 MI FROM SITE
ERSF RAILROAD
ATASCOCITA LANDFILL
20.9 MI FROM SITE
Arsham Metal Industries
Crushed Concrete of Texas
Texas Metal Recyclers
Allied Transfer Station
Cherry Crushed Concrete
Southern Crushed Concrete
Living Earth Technology
WMI
Hawthorne Park Landfill
COLE CREEK
UP RAILROAD
WHITEOAK BAYOU
10
90
59
NEXUS CONTINUUM
HDR
OCT 2011
PART I
FIGURE 1



DETAILED LOCATION MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX

LEGEND

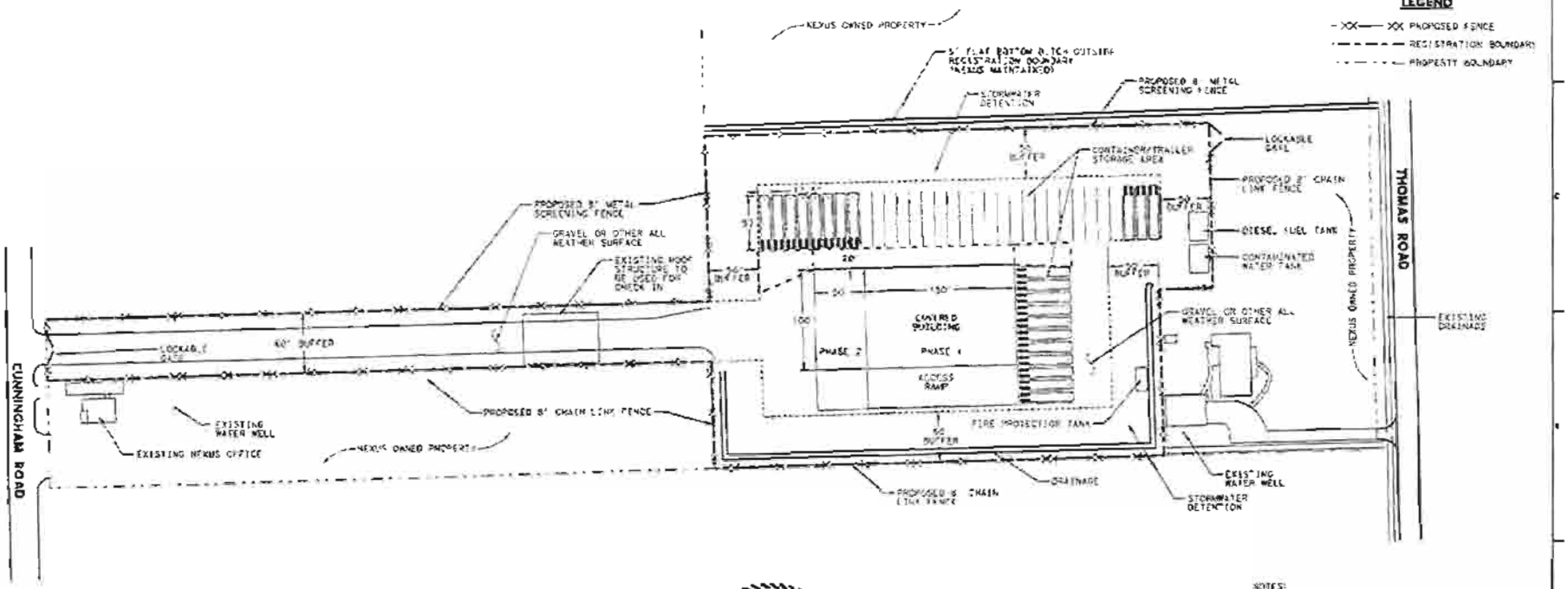
- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- MAJOR ROAD
- MINOR ROAD
- RAILROAD
- STREAM / DRAINAGE
- CITY LIMIT

SOURCE: 1996 TXDOT URBAN FILE, BY COUNTY, HARRIS COUNTY

NEXUS CONTINUUM

HDR

OCT 2011	PART I FIGURE 2



NOTES:

1. PROPERTY ADDRESS
   6124 CUNNINGHAM ROAD
   6131 THOMAS ROAD
2. ALL DEVELOPMENT PERMITS REQUIRED BY HARRIS COUNTY WILL BE OBTAINED PRIOR TO OPERATION UNDER THIS REGISTRATION.
3. STORAGE AREA FOR MSW AND RECYCLABLES IS SUFFICIENT FOR 43 125 C.Y. TRANSFER TRAILERS.

STATE OF TEXAS
MICHAEL W. ODEN
87165
REGISTERED
PROFESSIONAL ENGINEER

NEXUS CONTINUUM

HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER
ENGINEER
CHECKED BY
DESIGNED
DRAWN BY
DATE
PROJECT NUMBER 142132

FOR PERMITTING ONLY. NOT FOR BIDDING OR CONSTRUCTION.
Prepared under the Direct Supervision of
MICHAEL W. ODEN, P.E. #87165
on date

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

FACILITY LAYOUT
MATERIAL RECOVERY AND TRANSFER STATION

0 50' 100'

FILENAME Part II fig2.dgn
SCALE

SHEET
PART II
FIGURE 2

Part III

Nexus Continuum, LLC

Type V- Municipal Solid Waste Facility

Nexus Material Recovery and Transfer Station

MSW Registration No. XXXXX

Harris County
Houston, Texas

April 2012

4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

This document is released for the purpose of review only under the authority of Joel B. Miller, P.E. #103847. It is not to be used for bidding or construction. Texas Registered Engineering Firm F-754.

For pages 1 thru 1

Nexus Material Recovery and Transfer Station
Part III
Table of Contents

List of Figures

Attachments

4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

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For pages 1 thru 24

1.0 SITE DEVELOPMENT PLAN

30 TAC §330.63(a)

In accordance with 30 TAC 330.63(a), the Site Development Plan (SDP) includes criteria used in the selection and design of the facility that provides for safeguarding health, welfare, and physical property of individuals and property. The criteria include geology, soil conditions, drainage, land use, zoning, adequacy of access roads, and other considerations specific to the proposed facility.

The site is located in the Texas Coastal Plain, in the mapped outcrop of the Montgomery Formation (Reference: **Sand Resources of the Gulf Coast**, University of Texas, Bureau of Economic Geology, Report of Investigations No. 60, March 1967).

Soils at the facility are mapped in the Gessner loam and Katy fine sandy loam associations. Both Gessner loam and Katy fine sandy loam soils occur on relatively flat areas (0 to 1 percent). Gessner loam consists of very deep, poorly drained, very slowly permeable soils. The Katy fine sandy loam consists of very deep, moderately well drained, moderately slow permeable soils.

The existing drainage pattern onsite is in the south to southeast direction, and the proposed development will not alter the existing drainage pattern or increase storm water runoff from the site. The proposed facility will be constructed, maintained, and operated to manage run-on and runoff during the peak discharge of a 25-year rainfall event.

Land use in the project area is predominantly industrial. The proposed material recovery and transfer station and related operations will occupy approximately five acres. The site is relatively small and is surrounded by trees and brush, which provides a significant buffer for the commercial, industrial and limited residential land uses adjacent to the property. In addition, Nexus owns adjoining property that provides additional buffer to the north and east.

The site is located in north-eastern Harris County and is not zoned. The site is suitable for industrial use. Within approximately one-quarter mile of the site, commercial development includes:

- Drill Bit Industries, Inc.;
- United Galvanizing, Inc.;
- Waggner Machine & Engineering;
- Kinder Morgan Petcoke, LP.; and
- Astro Waste, Inc.

The facility entrance will be on Cunningham Road, which carries relatively minor automobile and truck traffic compared to the Sam Houston Tollway, a major highway that serves the Houston metro area. Access for administrative staff (office) will be available on the east-side of the facility from Thomas Road. Part II, Attachment A provides a copy of the recent TxDOT coordination regarding this site.

Nexus has operated various municipal solid waste (MSW) collection businesses for more than 15 years, serving primarily the City of Houston and surrounding Harris County. The business currently offices at 6124 Cunningham Road, Houston, Texas. The current business operations occupy approximately 0.75 acres on a 2.5-acre property owned by Nexus, which is proposed to become a part of this Registration. The fact that Nexus has operated its business from this location for more than 15 years is a significant factor in the site selection and design of the proposed facility. Nexus's business is a well-established existing land use in this area.

2.0 GENERAL FACILITY DESIGN

30 TAC §330.63(b)

2.1 Facility Access

§330.63(b)(1)

As shown on the Facility Layout (Part III, Figure 1), the current Nexus facility has 165 feet of frontage on Cunningham Road, this Registration application requests only 60 feet of frontage as access to the processing area. Therefore, the majority of the facility boundary adjoins privately owned property and is separated from these properties with a chainlink fence with barbed wire strands across the top. The adjacent properties north and south of the site appear to be used for industrial purposes. In addition, Nexus owns the properties directly to the north (partial), and east (entire) of the Registration boundary as shown on the Facility Layout (Part III Figure 1). There is no access to the adjacent properties afforded to the general public, so there is no potential for members of the general public to gain access to the site from adjacent properties. Nexus personnel will routinely monitor the condition of the property line fences and will make necessary repairs to maintain their integrity.

The main point of access to the site by vehicular traffic is by means of the main entrance proposed on Cunningham Road. A fence with a lockable gate will be installed, and truck traffic will be physically routed from Cunningham Road through the currently existing roof structure for entrance processing. The exterior gate will be closed and locked during non-operating hours, and when it is opened, any person or vehicle entering the site will be within view of Nexus personnel at the check-in facility. Nexus personnel will not allow any unauthorized entry or deposition of unauthorized solid waste or hazardous materials of any kind. A sign, indicating the type of site, the hours and days of operation, and the registration number will be located at the entrance through which wastes are received. An administrative entrance will be located on the eastern boundary with vehicular access to Thomas Road. This entrance will be available for small vehicle traffic for Nexus personnel and will not include waste delivery. The exterior gate

will be closed and locked during non-operating hours, and when it is opened, any person or vehicle entering the site will be within view of Nexus personnel at the administrative office.

2.2 Waste Movement

§330.63(b)(2)

The amount of waste and recyclable materials, both commingled and source separated, that will be received at the facility is estimated to be a maximum of 5,000 cubic yards per day (CY/d). The site capacity is discussed in more detail in Part II, Section 2.3 and outlined in Part II, Table II-1 (Projected Waste Acceptance). The facility will have the capacity to process and transfer a maximum of 5,000 CY/d of waste and recyclable material, of which a minimum of 500 CY/d (10%) will be recovered and sent for reuse or recycling. Based on an average incoming density of 400 pounds per cubic yard, the anticipated maximum material to be received is expected to be 1,000 tons per day (TPD). The facility proposes to operate up to 24 hours per day seven days per week to provide options for haulers of MSW and recyclable materials when other facilities are closed.

As shown on the Traffic Flow Diagram (Part III Figure 9), incoming material will be brought to the facility by roll-off trucks, front-end loaders and other collection vehicles and off-loaded immediately onto the tipping floor of the material recovery and transfer station. If the containers contain mostly one type of material, they will be unloaded directly to the storage bins or transfer trailers onsite. The amount of time required for unloading will depend on the composition of the load, but the maximum amount of time anticipated for unloading is 9 minutes for an average 40 CY roll-off or collection vehicle (267 CY/hr), which means that the facility will have the ability to unload and process the proposed Registration maximum of 5,000 CY/d (average 267 CY/hr x 20 hours = 5,340 CY/d – greater than 5,000 CY/d). Average unloading and sorting/processing time will increase when the facility is receiving less material, as the workers will not have to process and load material as quickly. Average time may reach 15 minutes for an average 40 CY roll-off in these instances, depending on composition and current operations. Based on this maximum daily volume, and the ability of Nexus to schedule its own transport drivers, it is not

anticipated that excessive queuing of collection vehicles will be required. However, in the event that queuing is necessary, trucks will be able to line up along the 660' site entrance road (capacity for over 24 trucks). It is not anticipated that trucks will need to queue on Cunningham Road.

Once the collection vehicles have unloaded on the tipping floor, the loads will be sorted by hand (with the aid of excavators, backhoes or similar equipment) by sorting personnel. All unauthorized waste will be returned to the generator. If an item has no economic value as a recyclable commodity or has no practical reuse potential, the material will then become municipal solid waste (MSW), and will be placed in a transfer trailer and hauled to the nearest properly permitted landfill when the transfer trailer reaches capacity. The selectively separated recyclable commodities will be stored and managed temporarily in separate storage bins, roll-off containers or transfer trailers onsite. When a sufficient quantity of a particular commodity has accumulated, it will be hauled to market. Commodities such as paper, metal, wood, glass, concrete, sheetrock, brush, asphalt, corrugated cardboard, carpeting, and white goods are among these commodities; which will account for more than 10% of the incoming waste stream at this facility. The Process Flow Diagram (Part III Figure 2) provides a graphical overview of the proposed process.

Ventilation of the processing building will be accomplished by an opening on the south side for truck access from the access ramp. In addition, the other three sides will have various doors and windows that will remain open during operations as needed. The building will be a commercially produced metal building of the type sometimes referred to as "pre-engineered". If necessary, additional ventilation can be provided by ventilation fans designed and installed into the building walls. Building design will ensure a minimum of eight air changes per hour. As a conservative example, at maximum building size, with no other ventilation (not the case, as the structure will not be fully enclosed), the facility would require the following ventilation flow rate:

$$\frac{600{,}000\ cubic\ feet}{1\ air\ change\ volume} * \frac{8\ air\ changes}{1\ hour} * \frac{1\ hour}{60\ minutes} = 80{,}000\ cubic\ feet\ per\ minute$$

This could be accomplished with up to 6 commercially available ventilation fans rated at 13,500 cubic feet per minute. As stated, this is a conservative example and ventilation fans will be utilized if building design warrants their use.

The owner or operator will also employ the following measures for odor control:

- on-site buffer zones (minimum 50-ft – as shown on Part II, Figure 2 and related drawings) will separate the processing facility from the Registration boundary,
- building ventilation measures,
- extremely odorous or dusty material will not be accepted for processing, and
- liquid waste and putrescible waste will not be accepted and solid waste will be stored in odor-retaining containers.

Roll-offs, transfer trailers, and other containers will be kept covered to the extent possible to minimize odors and contact with rain. On-site storage of recyclables and municipal solid waste will be in covered or closed odor-retaining containers constructed of metal and are leak proof, durable, and designed for safe handling and easy cleaning. Reusable containers will be maintained in a clean condition so that they do not constitute a nuisance and to retard the harborage, feeding, and propagation of vectors. Non-reusable containers will not be used. Containers will be covered by metal or plastic attached covers, or polyvinyl tarp covers. These covers will be water, weather and abrasion resistant and will provide coverage of the container contents to limit exposure to precipitation.

In addition, the site is surrounded by other industrial facilities, including other property owned by Nexus. Prevailing winds at the site are from the southeast (see wind rose – Part II Figure 1), which will direct potential odors into the exterior wall on the north side of the load out area, thereby keeping odor to the interior of the site. As noted previously, Nexus owns the properties directly to the north, west and east of the processing area. All odorous material will be processed

quickly on the tipping floor to minimize the amount of time that the odorous material is exposed. The material will be stored onsite for a maximum period of 72 hours in storage bins, roll-offs, or trailers, which will be covered in order to minimize odor. Extremely odorous material will not be accepted for processing.

General Details (Part III Figures 4 and 5) provide detail drawings for various proposed facility features, including: drainage swale, diesel tank and containment, contaminated water tank, and stormwater detention.

General Details (Part III Figure 6) provides cross-section details of the proposed slab and footing, entrance drive, and tipping wall and transfer-trailer load out area.

Containment dikes may be utilized for secondary containment of the diesel fuel tank and the contaminated water storage. These details are shown on General Details (Part III Figure 5).

No sludge, oil or grease will be handled or processed at the facility.

Contaminated water from received waste and from tipping floor washdown will be collected and stored onsite in steel or fiberglass storage tanks with either built-in secondary containment or external containment by means of concrete or a lined dike. The storage tanks will be manufactured for liquid storage and will have a minimum capacity of 5,000 gallons. The tank will be coated per manufacturer instructions as an aid against corrosion. The Facility Layout (Part III Figure 1) indicates the approximate location of the contaminated water storage tank, and General Details (Part III Figure 5) provides a representative detail of the tank with secondary containment berm. Final disposition of the contaminated water will be by permitted discharge into an existing sanitary sewer line at the site, for treatment at an authorized wastewater treatment plant. As a contingency, Nexus will have the ability to truck-haul wastewater to a permitted wastewater treatment plant.

Conducting the processing operations within a partially enclosed building will provide noise pollution control, as the walls on the three sides of the building will direct noise from operations to the interior of the site. The building is located on an industrial site, and is immediately surrounded by other industrial sites, as well as Nexus-owned property to the north, west and east. In addition, the tree and brush covered terrain at the property boundaries will provide additional mitigation of any noise that may emanate from the operation. Current Nexus operations at this site have not generated any noise complaints.

2.3 Sanitation

§330.63(b)(3)

The material recovery and transfer station will receive C&D material, MSW and commingled or source-separated recyclable material; and will be designed to facilitate appropriate cleaning for these types of materials. Surface water run-on will be prevented by a raised tipping floor surface and storage areas. In addition, all material stored onsite will be stored in roll-off boxes or transfer trailers and covered to prevent surface water contamination. Floors shall be constructed of reinforced concrete to facilitate cleaning and scrubbing, and will be swept daily and cleaned with pressure hoses a minimum of twice per week to maintain a reasonably clean environment. Water will be available at various locations to allow for use of hoses for cleaning. After cleaning in designated processing areas, the water will be collected in floor drains located both on the tipping floor and in the transfer-trailer load-out area. The collected water will be stored in a contaminated water storage tank onsite and directed to the sanitary sewer line onsite for disposal. Alternately, the contaminated water may be hauled by truck to a permitted wastewater treatment plant. In all cases final disposal of the contaminated water will take place prior to the tank reaching 70% storage capacity.

2.4 Water Pollution Control

§330.63(b)(4)

The only proposed process that will generate wastewater is the occasional cleanup of the tipping floor and transfer-trailer load-out area. As described above, the wastewater generated from this activity will be collected and stored in onsite storage tank(s) or directed to the onsite sanitary sewer line for disposal. Neither MSW nor contaminated water will be discharged or released from the facility in any manner or form that will result in water pollution. All wastewater will be treated by a permitted treatment facility in compliance with all applicable rules of the TCEQ.

2.5 Endangered Species Protection

§330.63(b)(5)

As discussed in Part II, Section 15 and in Part II, Attachment C; the facility and its operation will not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or threatened species. Therefore, no special design features are needed.

3.0 FACILITY SURFACE WATER PROTECTION

30 TAC §330.63(c)

The facility design complies with the requirements of 30 TAC §330.303 – Surface Water Drainage for Municipal Solid Waste Facilities. The proposed facility will be constructed, operated and maintained to manage run-on and runoff during the peak discharge of a 25-year rainfall event, and will prevent the off site discharge of waste, feedstock materials, contaminated water, and in-process and/or processed materials. Surface water drainage in and around the facility will be controlled to minimize surface water running onto, into, and off of the site.

3.1 Drainage Analyses

§330.63(c)(1)

A detailed Surface Water Drainage Report is provided in Part III, Attachment A. The Nexus Facility proposes "redevelopment" of their western tract along Cunningham Road and "in-fill development" of their eastern tract along Thomas Road. This development will increase the amount of impervious cover on the property. Development plans call for routing storm-water run-on and runoff to existing ditches along Cunningham and Thomas Roads. The existing sheet flow conditions across both the eastern and western tracts will be mostly eliminated by the proposed development.

Drawings showing the general existing drainage areas (prior to site development) used in the drainage calculations are included in the detailed Surface Water Drainage Report (Part III, Attachment A).

The proposed Site Drainage Plan (Part III Figure 3) provides a plan view of the proposed internal drainage after development of the site. Cross sections of proposed drainage features are shown on General Details (Part III Figures 7-8). In general, the proposed trapezoidal channel on the northern boundary of the eastern tract (in the adjoining Nexus property) has been designed to accommodate a total maximum run-on flow of approximately 30 cubic feet per second. With a

bottom width of five-feet and 3:1 sideslopes, calculated maximum flow depth will be less than 2 feet at maximum velocity of approximately 2 feet per second. Run-on for the western portion of the site (entrance drive from Cunningham Road) will be controlled by means a constructed drainage ditch that will route water to the existing ditches on Cunningham Road. Run-off from the eastern Nexus tract will be a combination of sheet flow and channelized flow that directs run-off to either of two underground detention tanks. Although the site does not require detention to preserve existing drainage patterns, it should be noted that Harris County has specific detention volume requirements. For areas greater than 1 acre, a detention volume of 0.50 acre-feet per acre of increased impervious cover is required. For areas less than one-acre, a detention volume of 0.2 acre-feet per acre of increased impervious cover is required. For the 3.6-acre east tract, a maximum detention volume of 1.8 acre-feet is required. For the 0.9-acre west tract, a maximum detention volume of 0.18 acre-feet is required. Detention for the east tract will consist of two 300,000 gallon underground storage tanks. Detention for the west tract will consist of storage in combination with the concrete channel.

Calculations are provided in the Surface Water Drainage Report (Part III, Attachment A) to demonstrate that existing drainage patterns will not be adversely affected and the method of analysis and assumptions used are included.

Drainage calculations are shown in the Surface Water Drainage Report (Part III, Attachment A) for existing conditions and the proposed development so that effects of development could be evaluated. Peak discharge was calculated for both 25-year and 100-year storms using TxDOT and City of Houston Rational Method as well as the NRCS TR-55 Method. Storm runoff volume and peak discharges, without the effects of required stormwater detention, were also calculated. Although the Rational Methods showed post-development increases in peak discharge, TR-55 methods showed little increase in peak discharge. Runoff volume increases were negligible even without considering detention. On site drainage analyses can be seen on Part III, Figure 3. On site drainage calculations are based for full build out of the facilities as

shown on Part III, Figure 1. All drainage facilities must also comply with Harris County requirements and are subject to revisions during final design.

3.2 Flood Control and Analyses

§330.63(c)(2)

The Nexus facility is not located within the 100-year floodplain, as shown on the most current Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA). A copy of this map is included in Part II, Figure 6.

4.0 WASTE MANAGEMENT UNIT DESIGN

30 TAC §330.63(d)

All incoming material brought to the facility will be off-loaded and processed rapidly on the tipping floor of the facility. Non-recyclable waste will be transferred to transfer trailers and hauled to a properly permitted landfill when the transfer trailer reaches capacity. If it is not possible to remove the non-recyclable waste at the end of the day, the waste will be covered to prevent the creation of nuisance conditions or public health concerns. The non-recyclable waste will be stored onsite for no more than 72 hours.

The tipping floor will be graded toward floor drains, and will not allow any contaminated water to run off of the tipping floor or transfer-trailer loading area. The processing area will be covered and elevated, and therefore will not be inundated by run-on resulting from the 25-year rainfall event except by blowing rain. Roll-offs, transfer trailers, and other containers will be covered when they contain waste or recyclable material. Contaminated water calculations for peak flow conditions include conservative assumptions for rainfall, wet waste, and wash-down water. The contaminated water system sump capacity will be a minimum of 170 gallons (total system) to handle the maximum contaminated water generated during the 25 year event due to rain water blowing into the side of processing building and thereby possibly becoming contaminated. All contaminated water will be collected and pipes will carry the contaminated water from the points of collection to the contaminated water storage tank or directly to the sewer system. The tank will be dual contained, and will have a minimum capacity of 5,000 gallons. The design of any tank will be such that contaminated water can be pumped through a force main to the sanitary sewer system. Nexus operators will be able to visually determine the level of the tank during daily operations. The tank will be emptied prior to reaching 70% capacity. Since the tank will be fully enclosed, it will not be required to accommodate a 25-year, 24-hour rainfall event per 30 TAC §330.63(d)(1)(B). Secondary containment will be provided by berms or dikes, and the capacity of the secondary containment (if open to precipitation) will be a minimum of 10,000 gallons, in order to hold the largest tank volume plus the 25-year, 24-hour storm (precipitation event of 11 inches per the TxDOT Hydraulic Design Manual).

The facility proposes to operate up to 24 hours per day seven days per week. Therefore, minimal storage of materials onsite is anticipated, with a maximum storage period for MSW of 72 hours. TCEQ authorization will be requested to exceed this storage period during unusual events such as natural disaster situations. The maximum time limit for the storage of recyclable commodities is 180 days.

Please note that none of the following features apply to this facility:

- Incineration units
- Surface impoundments
- Landfill units
- Arid exemption landfill units
- Mobile liquid waste processing units
- Type IX energy, material, gas recovery for beneficial use
- Compost units
- Type VI waste processing demonstration units

5.0 GEOLOGY REPORT

30 TAC §330.63(e)

The facility is not a landfill or compost unit, therefore, a Geology Report is not required, unless otherwise requested by the executive director of TCEQ.

6.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN

30 TAC §330.63(f)

The facility is not a landfill or compost unit, therefore, a Groundwater Sampling and Analysis Plan is not required, unless otherwise requested by the executive director of TCEQ.

7.0 LANDFILL GAS MANAGEMENT PLAN

30 TAC §330.63(g)

The facility is not a landfill, therefore, a Landfill Gas Management Plan is not required, unless otherwise requested by the executive director of TCEQ.

8.0 CLOSURE PLAN

30 TAC §330.63(h)

This closure plan is presented to address the requirements in 30 TAC §330.459 and 30 TAC §330.461. This closure plan will be utilized in conjunction with the applicable financial assurance requirements in 30 TAC Chapter 37 Subchapter R. In the event Nexus decides or is required to discontinue operation of the facility, closure will be initiated. Closure activities will include procurement of any needed contract services. All waste, waste residues, and any recovered materials will be collected and transported to recycling markets or a permitted disposal facility as required by 30 TAC §330.459(b). It is understood that if there is evidence of a release from a municipal solid waste unit, the executive director may require an investigation into the nature and extent of the release and an assessment of measures necessary to correct an impact to groundwater, as required by 30 TAC §330.459(c). A general cleanup (litter removal and washdown of all operating surfaces) and disinfection and decontamination of the site will be performed to include all equipment, wash down water/media, contaminated water handling units, tipping areas, processing areas, post-processing areas, and vector control. The contaminated water tank will be emptied and the discharge will be pumped through a force main into the sanitary sewer system as permitted or hauled via tanker truck. Subsequent to all cleanup activities, the contaminated water tank will be decommissioned. The tank and secondary containment system will be excavated and removed for disposal and the area filled with clean soil. The underground stormwater detention tanks are proposed to remain on site for run-off control. The site will be secured as appropriate, and all utilities disconnected. A sign stating that the facility is closed will be posted at all facility entrances. All buildings and access gates will be locked. Additional fencing may be installed if deemed necessary at that time. Closure and completion of cleanup will be certified as required. If Nexus desires to use the site for other uses, a request for permission to leave the equipment in place following closure will be submitted at that time.

Nexus will store combustible materials outdoors, and therefore, will comply with the following additional closure requirements specified in 30 TAC §330.459(d). First, closure will include

collecting processed and unprocessed materials, and transporting these materials to an authorized facility for disposition unless otherwise approved or directed in writing by the executive director. Also, closure of the facility will be completed within 180 days following the most recent acceptance of processed or unprocessed materials, unless otherwise directed or approved by the executive director.

The following describes a general schedule for closure activities pursuant to 30 TAC §330.461:

- No later than 90 days prior to initiation of final facility closure, Nexus will publish a public notice of final closure in newspaper(s) of largest circulation in the vicinity of the facility (Houston, Harris County). The notice will include the name, address, physical location of the facility, registration number, and the date of final receipt of waste. Additional copies of the closure plan will be available for public access and review. Nexus will also provide written notification to the executive director of the intent to close the facility and place this notice of intent in the operating record.
- At the time of submittal of the written notice to the executive director, a sign will be posted at the main entrance to the facility (and all other frequently used access points, if any) and at appropriate points around the site perimeter notifying persons of the date of final closure. The sign(s) will contain the date of closing and the prohibition against further receipt of waste materials after the stated closure date, in compliance with 30 TAC §330.461(b).
- Barriers will be installed at all gates or access points to prevent unauthorized dumping.
- Facility closure will be completed within 180 days following the most recent acceptance of processed or unprocessed materials, unless otherwise directed or approved by the executive director.
- Per 30 TAC §330.461(c), within 10 days after completion of closure activities of the facility, Nexus will submit the following:
    - A certification and all applicable documentation from an independent Professional Engineer verifying that closure has been completed in accordance with the final closure plan in accordance with 30 TAC §330.461(c). After the

Commission has approved the certification, a copy will be placed in the operating record.

- A request for voluntary revocation of the facility registration.

Nexus will be closed as a "clean closure," meaning that no recyclable material and no regulated municipal solid waste will remain at the closed facility. Consequently, Nexus will not be required to prepare and file in the Deed Records of Harris County an "affidavit to the public" in accordance with the requirements of 30 TAC §330.19 and 30 TAC §330.457(g). Since Nexus will be closed as a "clean closure", the facility will not require post-closure care under TCEQ rules. Therefore, Nexus will submit to the executive director a request for the voluntary revocation of the facility's registration.

9.0 POST-CLOSURE PLAN

30 TAC §330.63(l)

No TCEQ-regulated waste will remain on site following closure of the facility. Therefore, the facility is not subject to the post-closure care requirements specified in 30 TAC §330.463.

10.0 COST ESTIMATE FOR CLOSURE AND POST-CLOSURE CARE

30 TAC §330.63(j)

Nexus proposes to operate a waste separation/recycling facility and transfer station, and to store combustible materials outdoors, and in accordance with 30 TAC §330.505(a) provides the cost estimate for closure below. This closure cost estimate presents costs in current dollars reflecting the hiring of a third party to close the processing facility by disposition of all processed and unprocessed material in accordance with applicable regulations. This closure and disposition of materials is assumed to be accomplished by a third party unaffiliated with Nexus, and is based on quantity measurements for collection and disposition of all materials.

The following table summarizes the closure cost estimate. The table is followed by notes on specific elements of the closure represented in the cost estimate.

Table III-1: Closure Cost Estimate (2011 Dollars)

CATEGORY	DESCRIPTION	QUANTITY	UNIT	UNIT COSTS	TOTAL COSTS
ADMINISTRATION (1)	Site Survey and Review of Closure Requirements	16	Hr	$140.00	$2,240.00
	Prepare Plans and Specifications	20	Hr	$140.00	$2,800.00
	Bid/Contract Administration	20	Hr	$100.00	$2,000.00
	Clerical	8	Hr	$60.00	$480.00
				SUBTOTAL	$7,520.00
SITE CLEAN-UP	Cleanup/Removal of On-Site Waste Residuals/Litter	16	Hr	$40.00	$640.00
	Transport and Disposal of MSW (2)	900	Ton	$75.00	$67,500.00
	Facility Wash Down and Disinfection	32	Hr	$40.00	$1,280.00
	Contaminated Water Tank Decommission and Removal (3)	1	LS	$5,000.00	$5,000.00
	Access Barrier Installation	1	LS	$2,500.00	$2,500.00
	Recyclables removal (4)	500	CY	$7.00	$3,500.00
				SUBTOTAL	$80,420.00
SIGN INSTALLATION	Sign Manufacturing and Installation	1	LS	$500.00	$500.00
	Public Notice	1	LS	$250.00	$250.00
				SUBTOTAL	$750.00
CERTIFICATION	Perform Site Inspection and Prepare Certification of Closure	16	Hr	$140.00	$2,240.00
	Legal Fees for Deed Modification	25	Hr	$200.00	$5,000.00
				SUBTOTAL	$7,240.00
CONTINGENCY	Contingency (10%)	1	LS	10%	$9,593.00
TOTAL ESTIMATED CLOSURE COST					$105,523.00

Closure Cost Table notes:

1. Administration costs reflect costs of a third-party firm to determine, contract for, and/or execute the closure tasks.
2. Tons of MSW reflects the worst case scenario, in which it is assumed that the maximum daily capacity of the facility will need disposal. This is 5,000 CY, or 1,000 tons minus the minimum 10% recyclable portion. The unit cost assumes transportation charge, loading, and disposal, at $75.00 per ton.
3. Contaminated Water tank removal includes decontamination of tank and appurtenances, as well as removal of any secondary containment liner and berm. Materials will be decontaminated and disposed of properly.
4. Cubic yards of recyclables reflects the minimum (10%) recyclables at the maximum facility capacity. This equates to 500 CY for disposal.

As shown, total closure cost for the proposed facility, in accordance with 30 TAC §330.505(a) is $105,523 in 2011 dollars. Nexus will provide an increase in the closure cost estimate if changes to the closure plan or the facility conditions increase the maximum cost of closure, at any time during the active life of the facility.

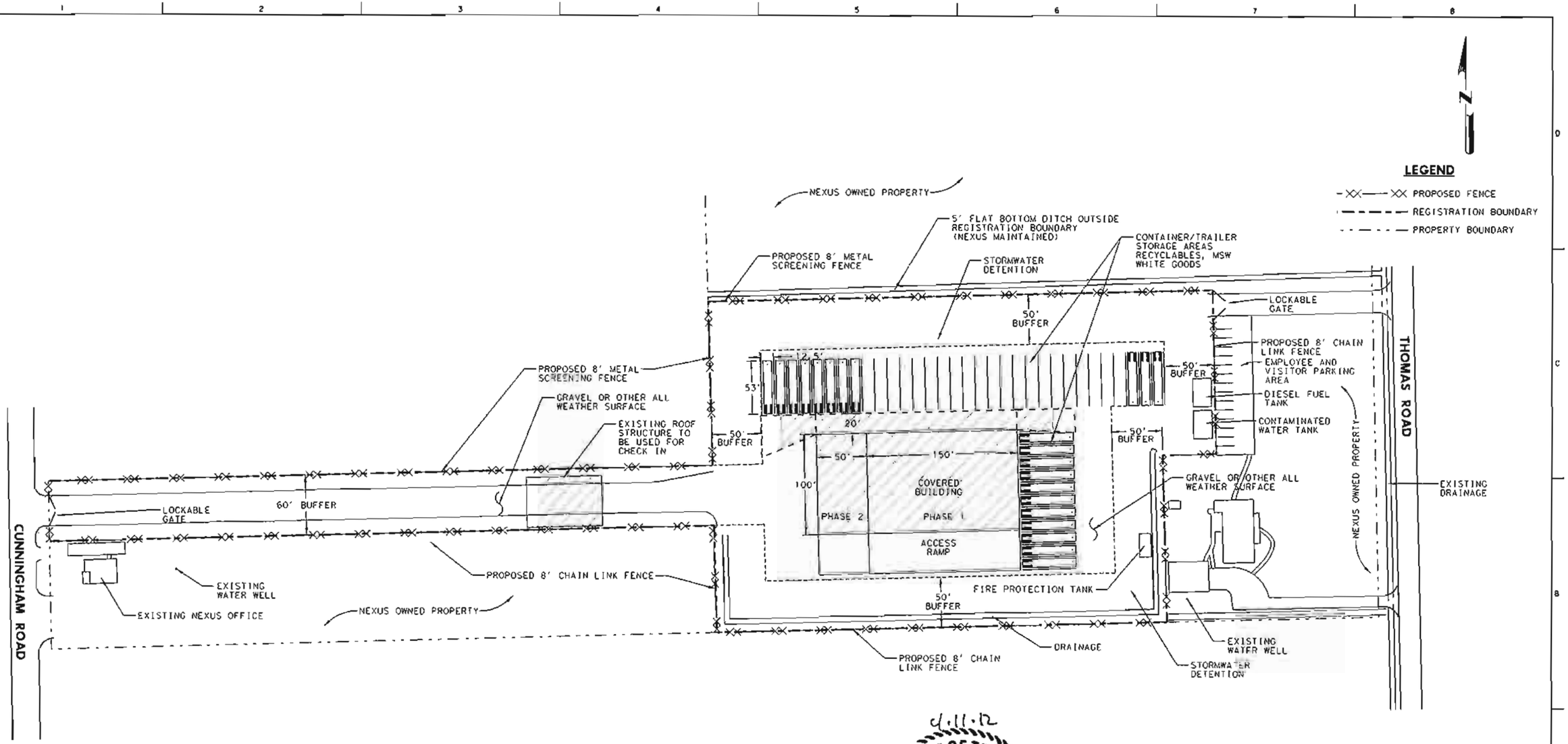
Nexus will submit the required documentation for financial assurance at least 60 days prior to the initial receipt of waste as specified in 30 TAC §330.63(j). Financial assurance coverage will be maintained until all aspects of the closure plan have been completed and the site is determined to be closed, in writing, by the TCEQ.

Since the facility will be "clean closed" and no TCEQ-regulated waste will remain on-site, post closure care will not be required. Accordingly, no post-closure care cost estimate is required. A registration amendment or modification will be required if any changes in the proposed operation, including those which may result in a need for a post-closure care plan and cost estimate are implemented. If a registration amendment or modification is required or requested

by the Executive Director, the appropriate post-closure care plan and cost estimate will be developed at that time.

Figures

Figure 1 – Facility Layout



4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

NOTES:

1. PROPERTY ADDRESS
   6124 CUNNINGHAM ROAD
   6131 THOMAS ROAD
2. ALL DEVELOPMENT PERMITS REQUIRED BY HARRIS COUNTY WILL BE OBTAINED PRIOR TO OPERATION UNDER THIS REGISTRATION.
3. STORAGE AREA FOR MSW AND RECYCLABLES IS SUFFICIENT FOR 43 125 C.Y. TRANSFER TRAILERS.

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NEXUS CONTINUUM

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DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

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Prepared by or under the Direct Supervision of
JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

FACILITY LAYOUT
MATERIAL RECOVERY AND TRANSFER STATION

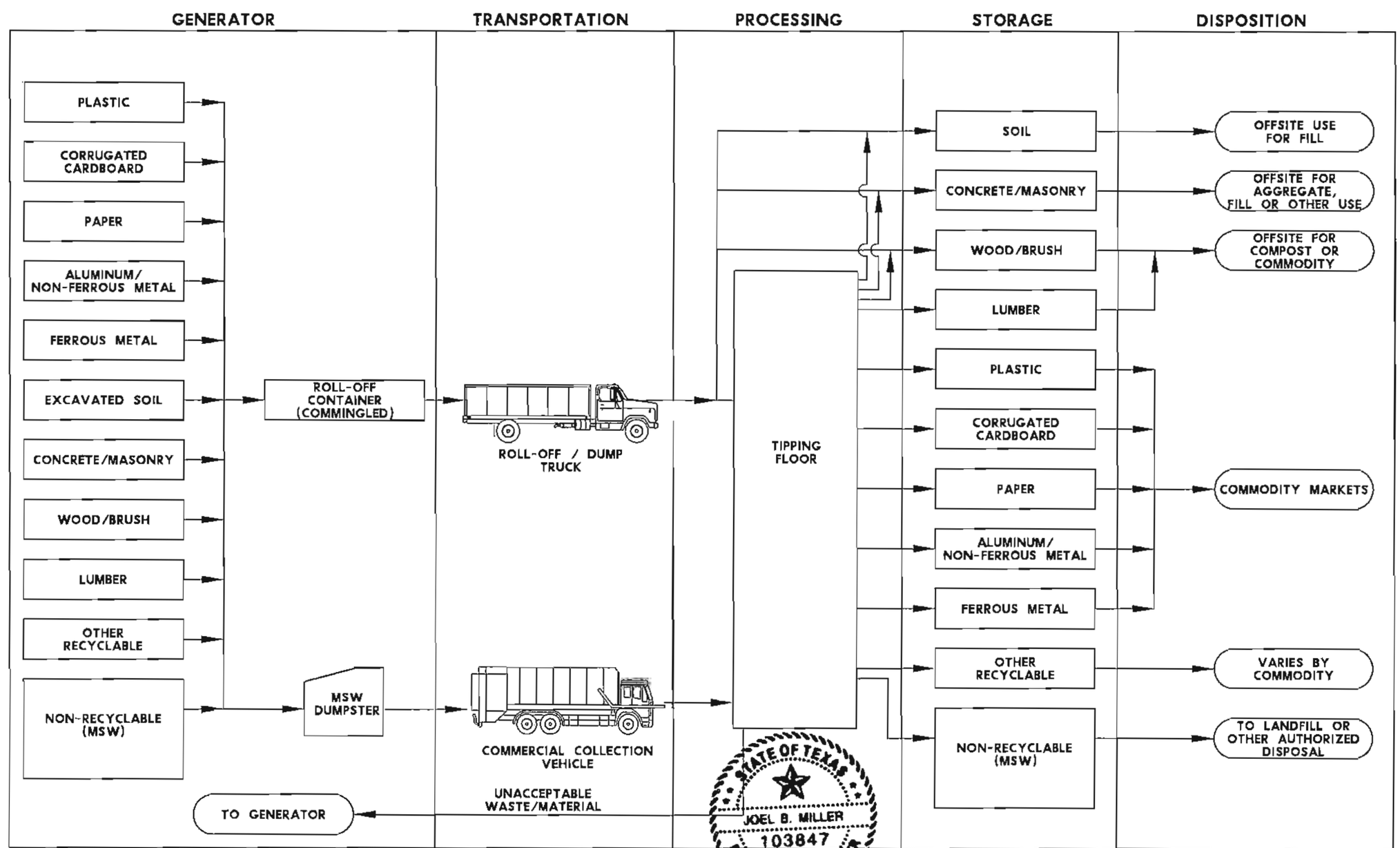
0 50' 100'

FILENAME N_SL08.dgn
SCALE

SHEET
PART III
FIGURE 1

TCEQ Technical Revision #1, April 2012

Figure 2 – Process Flow Diagram



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10-27-11

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NEXUS CONTINUUM

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Firm Registration No.F-754

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ENGINEER	M.ODEN
CHECKED BY	
DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

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JOEL B. MILLER, P.E. 103847
10/26/2011

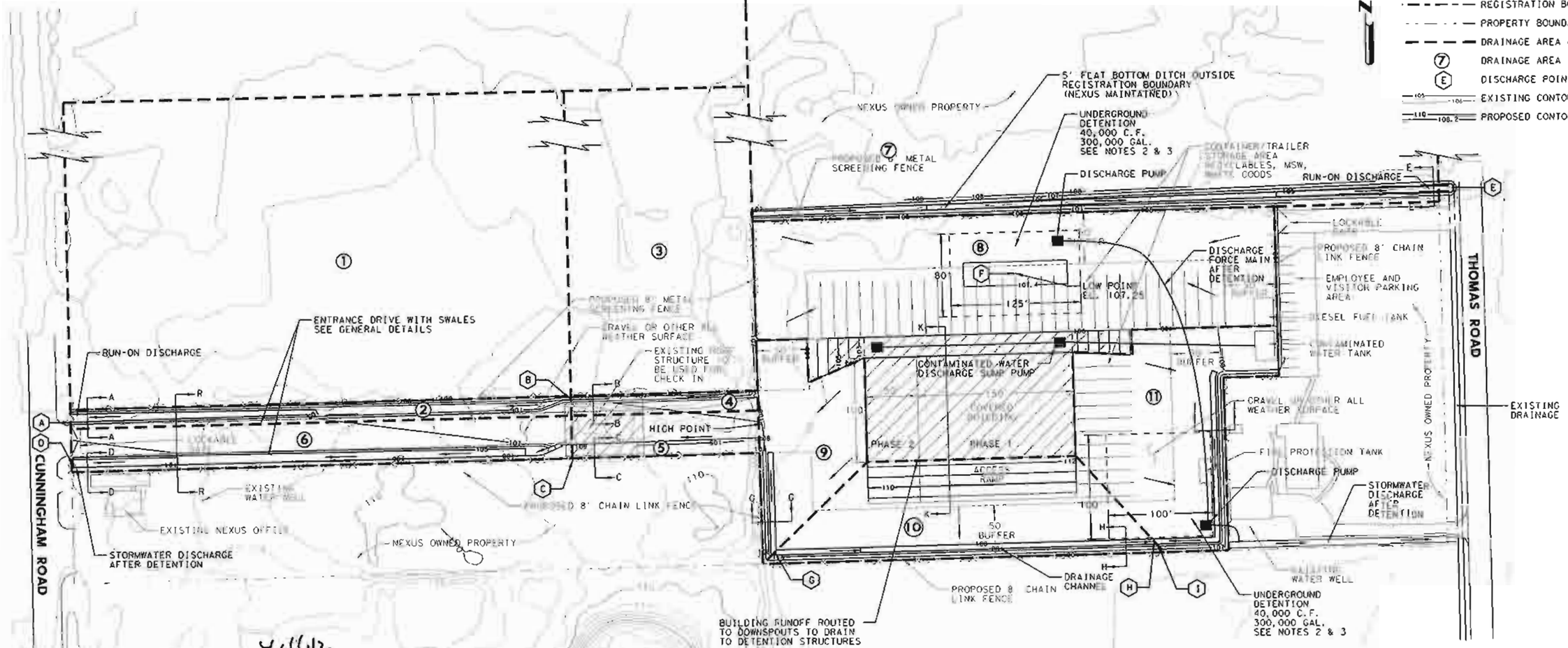
NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

PROCESS FLOW DIAGRAM

FILENAME N_PFD02.dgn
SCALE

SHEET
PART III
FIGURE 2

Figure 3 – Overall Site Drainage Plan



Area ID	Discharge Point	Area (Acres)	C	T_c (Minutes)	I_R (In/Hr)	Q_{DR} (cfs)	Section	Comment
1		9.92	0.6	12	9.36	61.27		Offsite
2		0.17	0.75	10	10.11	1.38		
3		3.72	0.8	12	9.36	22.98		Offsite
4		0.06	0.75	10	10.11	0.52		
3+4	B	3.78	0.8	12.5	9.19	23.03	B-B	
1+2+3+4	A	13.86	0.8	14.3	8.64	79.39	A-A	
5	C	0.19	0.75	10	10.11	1.55	C-C	
6		0.5	0.75	10	10.11	4.14		
5+6	D	0.69	0.75	10	10.11	5.69	D-D	
7	E	13.64	0.35	30	5.85	30.72	E-E	Offsite
8	F	1.94	0.75	10	10.11	16.22	none	
9	G	0.36	0.75	10	10.11	3	G-G	
10		0.64	0.75	10	10.11	5.32		
9+10	H	1	0.75	10	10.11	8.33	H-H	
11	I	0.65	0.75	10	10.11	5.45	I-I	

NOTES:

1. PROPERTY ADDRESS
   6124 CUNNINGHAM ROAD
   6131 THOMAS ROAD
2. DETENTION STORAGE TO MEET HARRIS COUNTY DEVELOPMENT REQUIREMENTS.
3. ESTIMATED LATERAL DIMENSIONS OF DETENTION BASED ON ASSUMED DEPTH TO GROUNDWATER OF APPROXIMATELY SIX FEET BELOW GRADE. SEE GENERAL DETAILS FOR DETENTION OPTIONS.
4. ALL DEVELOPMENT PERMITS REQUIRED BY HARRIS COUNTY WILL BE OBTAINED PRIOR TO OPERATION UNDER THIS REGISTRATION.

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

DATE: 3/30/2012
TIME: 11:05:01 PM
USER: rcox
FILE: Nexus-Discgol\Nexus_Site_Grading.dgn

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DESIGNED	
DRAWN BY	B.COX
QA/QC	
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JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

OVERALL SITE DRAINAGE PLAN
DEVELOPED CONDITIONS

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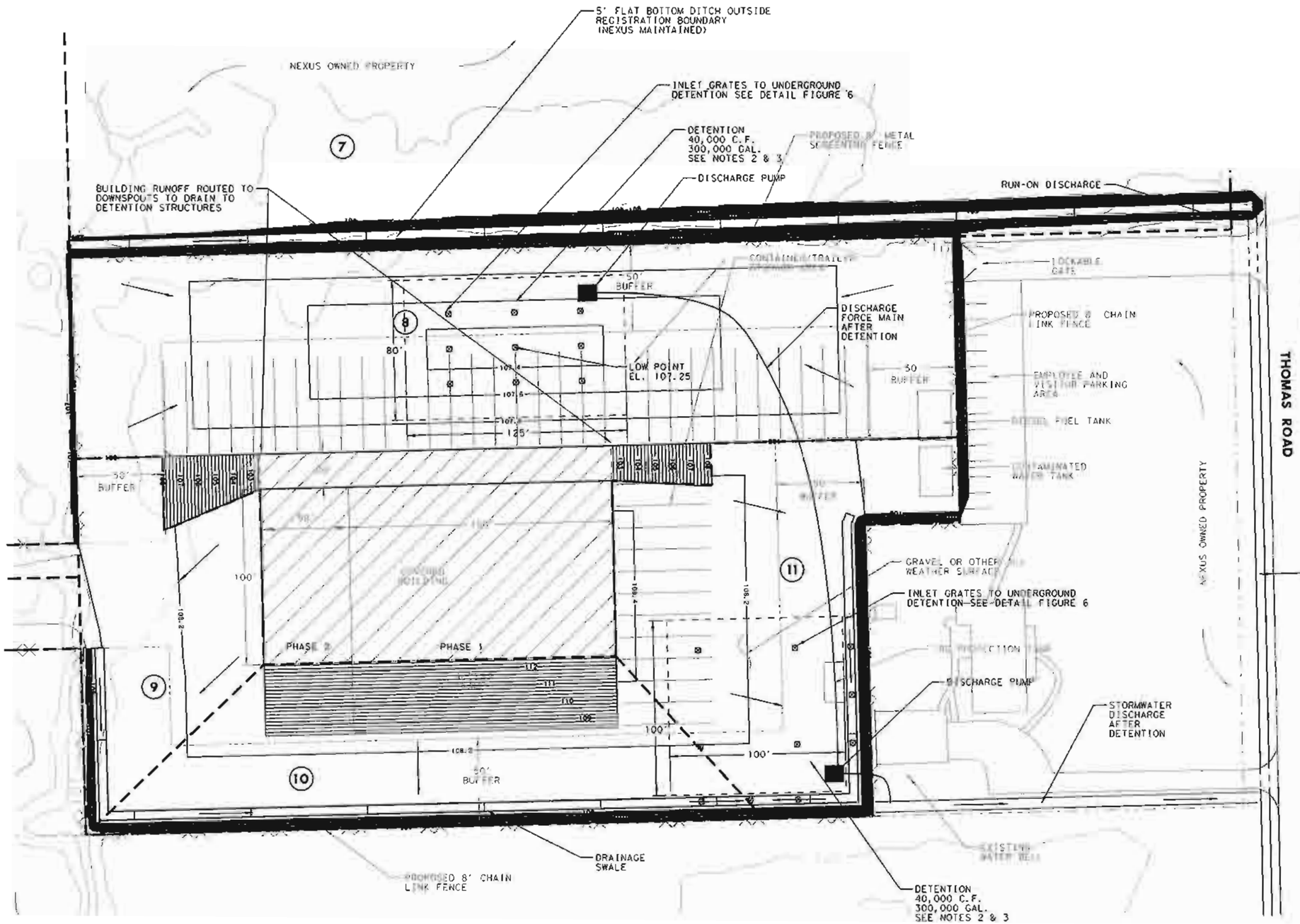
SCALE

SHEET
PART III
FIGURE 3

TCEQ Technical Revision #1, April 2012

Figure 4 – Site Drainage Plan



N

0 30 60

LAYOUT SCALE IN FEET

LEGEND

- PROPOSED FENCE
- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- DRAINAGE AREA BOUNDARY
- (7) DRAINAGE AREA
- INLETS
- 105 EXISTING CONTOURS
- 110 / 108.2 PROPOSED CONTOURS

4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

NOTES:

1. PROPERTY ADDRESS
   6124 CUNNINGHAM ROAD
   6131 THOMAS ROAD
2. DETENTION PONDS OR UNDERGROUND STORAGE TO MEET HARRIS COUNTY DEVELOPMENT REQUIREMENTS.
3. ESTIMATED LATERAL DIMENSIONS OF DETENTION BASED ON ASSUMED DEPTH TO GROUNDWATER OF APPROXIMATELY SIX FEET BELOW GRADE. SEE GENERAL DETAILS FOR DETENTION OPTIONS.
4. ALL DEVELOPMENT PERMITS REQUIRED BY HARRIS COUNTY WILL BE OBTAINED PRIOR TO OPERATION UNDER THIS REGISTRATION.
5. INLET GRATES OR INLET GUTTERS WILL BE USED AS NECESSARY TO CONVEY RUNOFF TO UNDERGROUND DETENTION. DETAILS AND EXACT LOCATION WILL DEPEND ON DETENTION ALTERNATIVE.

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JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

SITE DRAINAGE PLAN
DEVELOPED CONDITIONS

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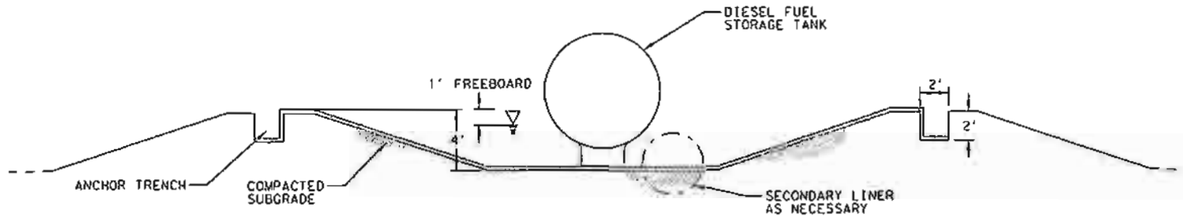
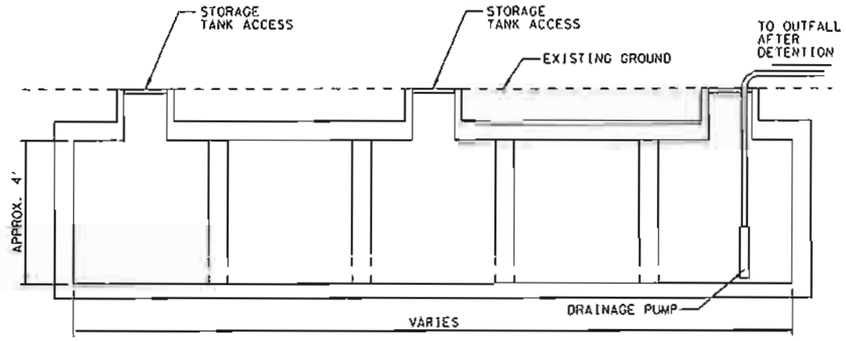
SHEET
PART III
FIGURE 4

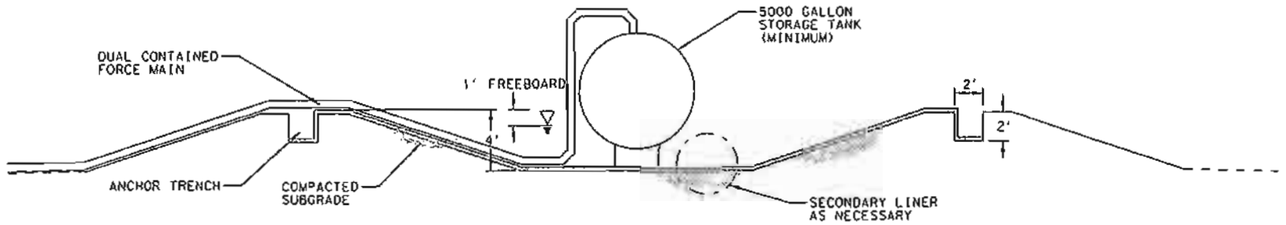
Figure 5 – General Details



TYPICAL DIESEL FUEL TANK
N. T. S.

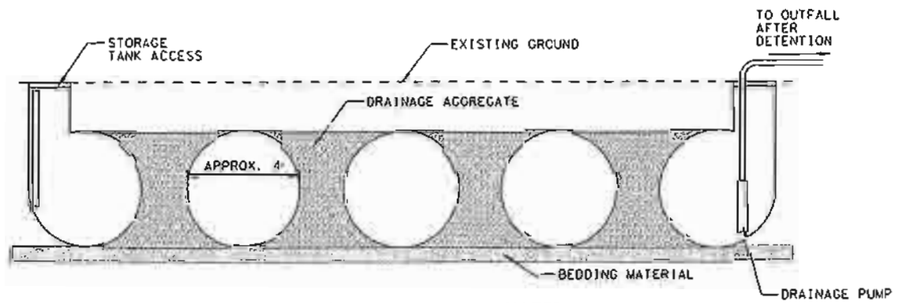


UNDERGROUND STORMWATER DETENTION OPTION A
N. T. S.



TYPICAL CONTAMINATED WATER STORAGE TANK AND BERM DETAILS
N. T. S.

NOTE: TANKS WITH BUILT IN SECONDARY CONTAINMENT WILL NOT REQUIRE BERM AND SECONDARY LINER FOR CONTAINMENT.



UNDERGROUND STORMWATER DETENTION OPTION B
N. T. S.

NOTES:

1. DESIGN AND DIMENSIONS OF DETENTION WILL BE DICTATED BY DESIGN, OPERATIONAL, AND EXISTING CONDITIONS. DEPTH TO GROUNDWATER WILL LIMIT VERTICAL DIMENSIONS.
2. INLET GRATES OR INLET GUTTERS WILL BE USED AS NECESSARY TO CONVEY RUNOFF TO UNDERGROUND DETENTION. DETAILS AND EXACT LOCATION WILL DEPEND ON DETENTION ALTERNATIVE.

STATE OF TEXAS
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PROFESSIONAL ENGINEER
10-26-11

DATE: 10/26/2011
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DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

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Prepared by or under the Direct Supervision of
JOEL B. MILLER, P.E. 103847
10/26/2011

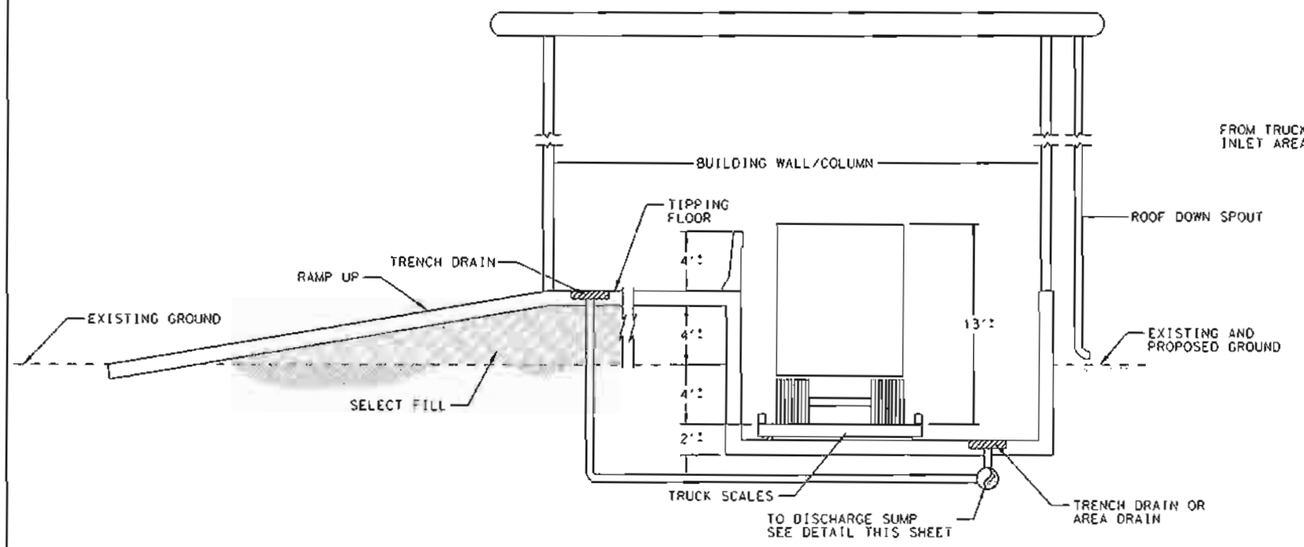
NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

GENERAL DETAILS

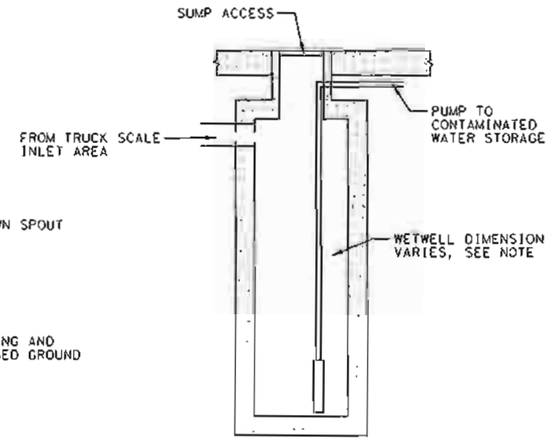
FILENAME	N_GD01.dgn
SCALE	

SHEET
PART II
FIGURE 5

Figure 6 – General Details

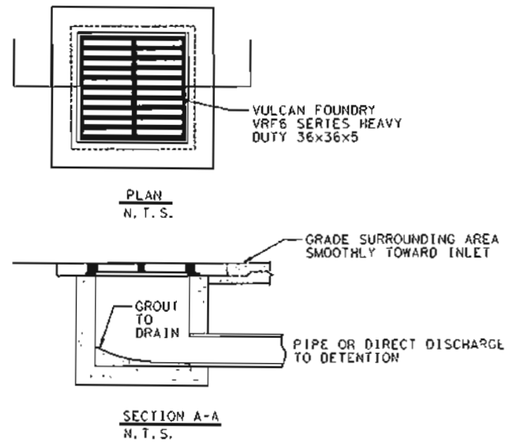


SECTION K-K
SCHEMATIC CROSS SECTION
N. T. S.



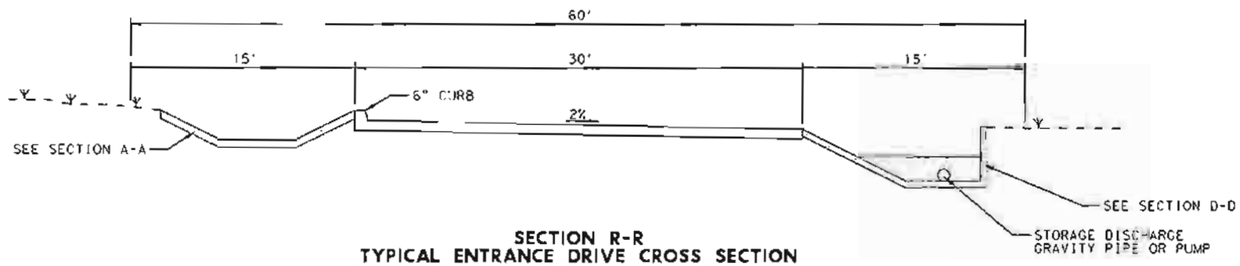
TYPICAL CONTAMINATED WATER DISCHARGE SUMP DETAIL
N. T. S.

NOTE: 170 GALLON MINIMUM STORAGE CAPACITY OF CONTAMINATED WATER SYSTEM.

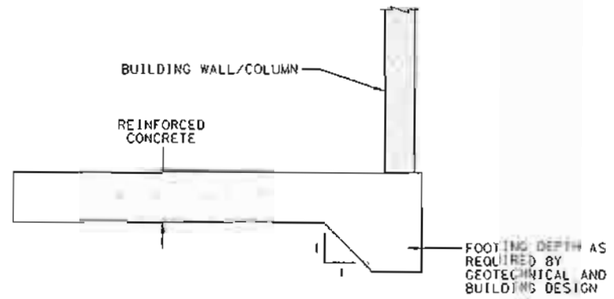


GRATE INLET
N. T. S.

NOTE:
INLET GRATES OR INLET GUTTERS WILL BE USED AS NECESSARY TO CONVEY RUNOFF TO DETENTION. DETAILS AND EXACT LOCATION WILL DEPEND ON DETENTION ALTERNATIVE.



SECTION R-R
TYPICAL ENTRANCE DRIVE CROSS SECTION
N. T. S.



TYPICAL SLAB & FOOTING DETAILS
N. T. S.

4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

DATE: 4/9/2012
TIME: 2:42:11 PM
USER: rcox
FILE: Nexus+Disposal\Nexus*TS+Registration\13.00+CAD\Sheet Files
PLTDRIVER: 11X17LASER+Bw+PDF.plt
PENTABLE: NEW HDR+ERM.tbl

NEXUS CONTINUUM

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HDR Engineering, Inc.
17111 Preston Rd.
Suite 200
Dallas, Texas 75248
Texas P.E. Firm
Firm Registration No.F-754

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	J.MILLER
ENGINEER	J.MILLER
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DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

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Prepared by or under the Direct Supervision of
JOEL B. MILLER, P.E. 103847
4/9/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

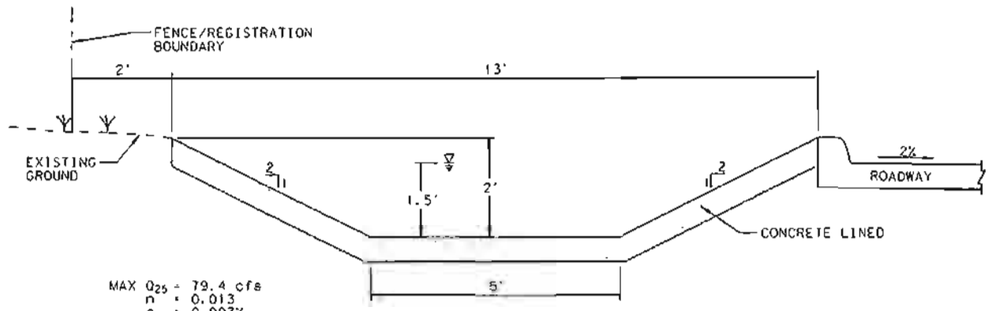
GENERAL DETAILS
CROSS SECTIONS

FILENAME N_G002.dgn
SCALE

SHEET
PART III
FIGURE 6

TCEQ Technical Revision #1, April 2012

Figure 7 – General Details



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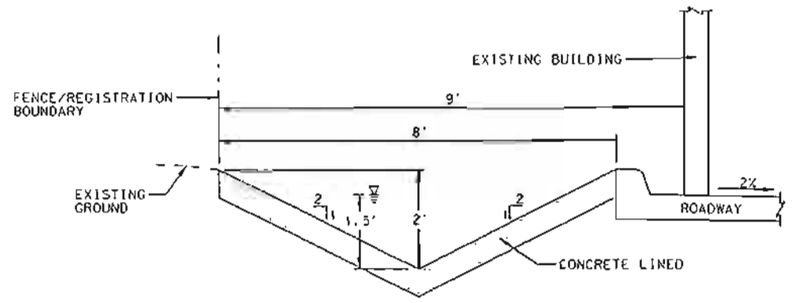
s = 0.003%
d = 1.53'
v = 6.43 fps

SECTION A-A
N.T.S.



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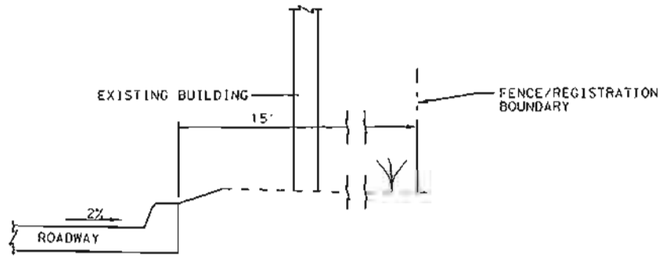
d = 1.54'
v = 4.87 fps

SECTION B-B
N.T.S.



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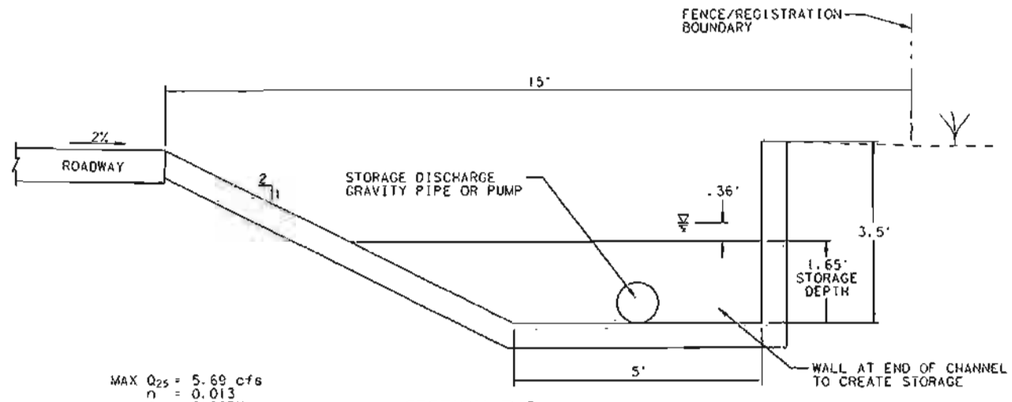
v = 1.38 fps

SECTION C-C
N.T.S.



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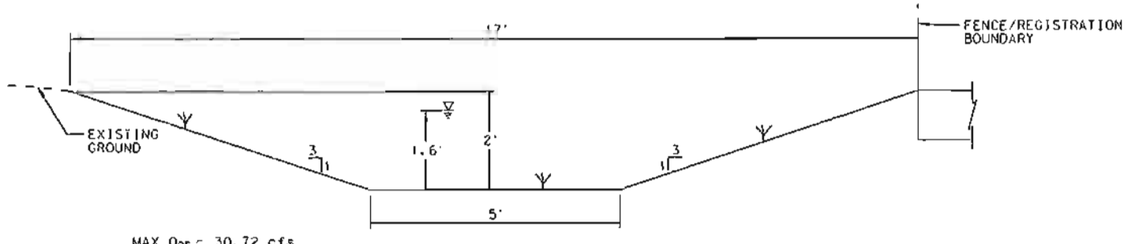
SECTION D-D
N.T.S.



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s = 0.003%
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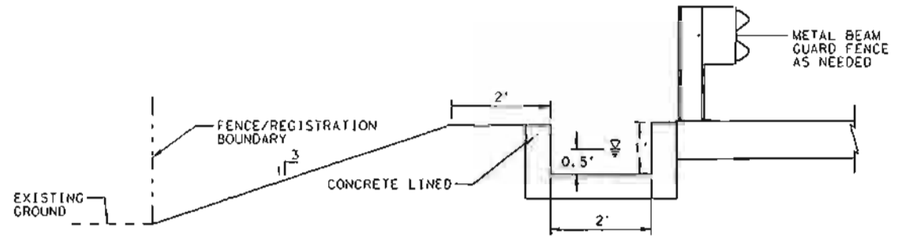
v = 1.38 fps

SECTION E-E
N.T.S.



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s = 0.003%
d = 0.5'
v = 3.01 fps

SECTION G-G
N.T.S.

STATE OF TEXAS
MICHAEL W. ODEN
67185
REGISTERED PROFESSIONAL ENGINEER
10-27-2014

NEXUS CONTINUUM

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4500 W. Eldorado Parkway
Suite 3500
McKinney, Texas 75070
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ENGINEER	M.ODEN
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DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

FOR PERMITTING ONLY. NOT FOR BIDDING OR CONSTRUCTION.
Prepared by or under the Direct Supervision of
MICHAEL W. ODEN, P.E. 67185
$$DATE$$

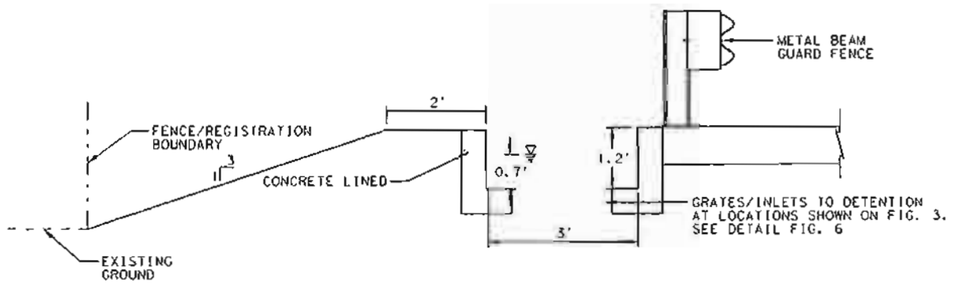
NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

GENERAL DETAILS
CROSS SECTIONS

FILENAME N_GD03.dgn
SCALE

SHEET
PART III
FIGURE 7

Figure 8 – General Details



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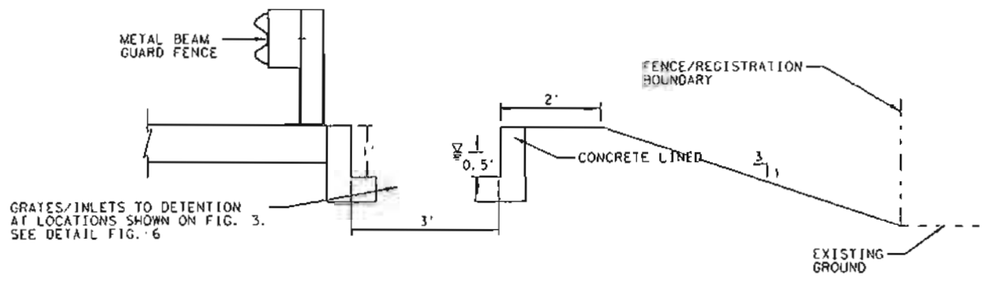
SECTION H-H
N.T.S.



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s = 0.003%
d = 0.54'
v = 3.38 fps

SECTION I-I
N.T.S.

STATE OF TEXAS
MICHAEL W. ODEN
67185
REGISTERED
PROFESSIONAL ENGINEER
10-27-2011

NEXUS CONTINUUM

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

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	M.ODEN
ENGINEER	M.ODEN
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DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

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Prepared by or under the Direct Supervision of
MICHAEL W. ODEN, P.E. 67185
10/26/2011

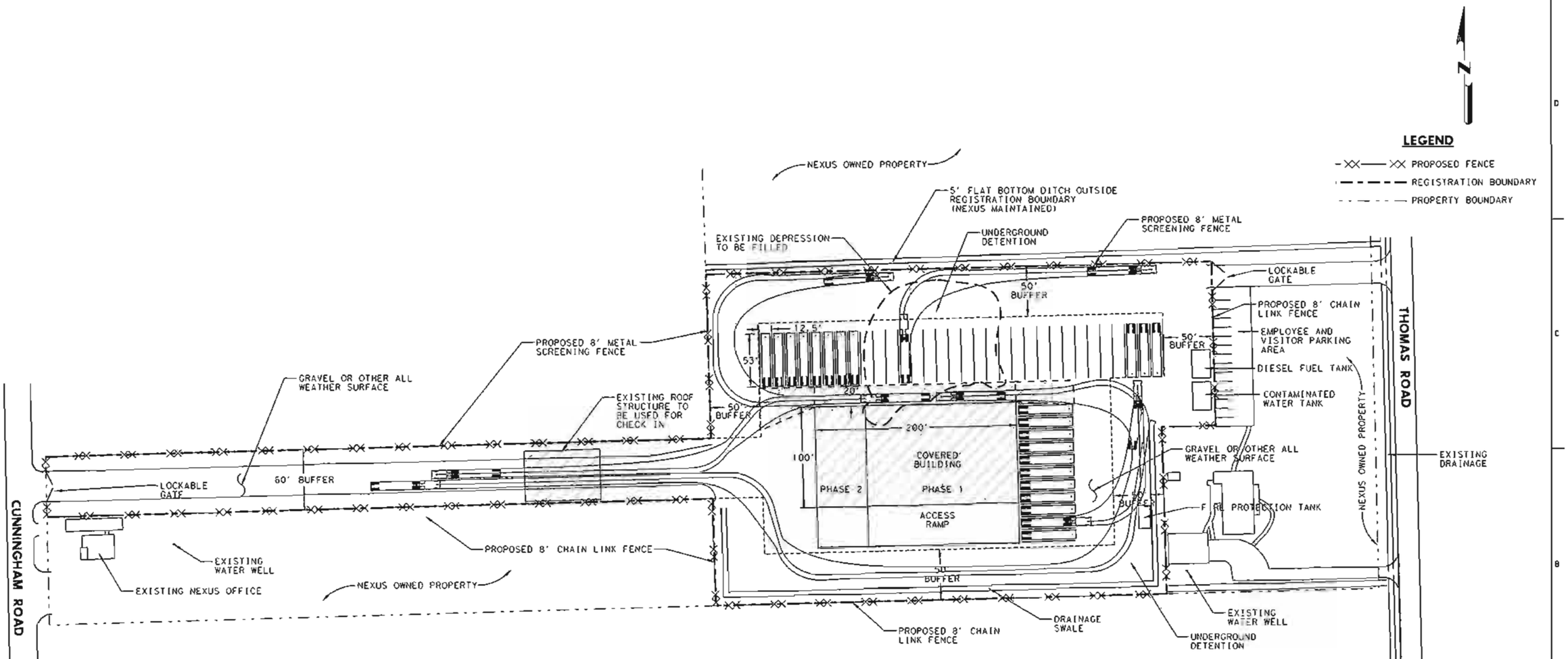
NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

GENERAL DETAILS
CROSS SECTIONS

FILENAME	N_C004.dgn
SCALE	

SHEET
PART III
FIGURE 8

Figure 9 – Traffic Flow Diagram



4/11/12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

NOTES:

1. PROPERTY ADDRESS
   6124 CUNNINGHAM ROAD
   6131 THOMAS ROAD
2. CONCEPTUAL TRAFFIC FLOW SHOWN WITH ACTUAL TRUCK TURNING RADII TO DETERMINE BUILDING AND OTHER SITE FEATURES.
3. ALL TRUCK TRAFFIC WILL ENTER/EXIT CUNNINGHAM ROAD. ACCESS FROM THOMAS ROAD LIMITED TO ADMINISTRATIVE AND EMERGENCY.
4. STORAGE AREA IS SUFFICIENT FOR 43 125 C.Y. TRANSFER TRAILERS.

DATE: 3/30/2012
TIME: 1:07:16 PM
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PENTABLE:NEW HDR-ERM.tbl

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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	J.MILLER
ENGINEER	J.MILLER
CHECKED BY	
DESIGNED	
DRAWN BY	B.COX
QA/QC	
PROJECT NUMBER	142132

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JOEL B. MILLER, P.E. 103847
3/30/2012

NEXUS CONTINUUM, LLC.
HARRIS COUNTY, TEXAS

TRAFFIC FLOW DIAGRAM

0 50' 100'

FILENAME N_TFD04.dgn
SCALE

SHEET
PART III
FIGURE 9

Attachment A – Surface Water Drainage Report

Pierce L. Chandler, Jr., P.E.

DESIGN MEMORANDUM TO: Michael W. Oden, P.E.
SUBJECT: Surface Water Drainage Report
PROJECT: Nexus Continuum Material Recovery & Transfer Station Facility, Houston, Texas
DATE: October 10, 2011
PAGES: 23

Texas Registered Engineering Firm F-566
October 10, 2011
Pages 1-23

PURPOSE AND SCOPE

This design memorandum was prepared to demonstrate compliance with the requirements of **30 TAC §330.303 – Surface Water Drainage for Municipal Solid Waste Facilities and 30 TAC §330.63(c) – Facility Surface Water Drainage Report.** This design memorandum is provided in support of the application by Nexus Continuum for registration of their proposed material recovery and transfer station facility ("Nexus Facility") as a Type V Transfer Station that recycles more than 10% of the incoming waste stream.

PROPERTY DESCRIPTION

The Nexus Facility will occupy a narrow strip of land between Cunningham Road and Thomas Road. The physical location of the Nexus Facility is shown on Part II, Figure II – Facility Layout. Of the approximately 2-1/2 acres of property owned by Nexus Continuum along Cunningham Road, a 60-foot by 660-foot corridor (approximately 0.91 acres) is proposed as part of the Nexus Facility. This narrow strip will be referred to as the "western tract." Of the 5 acres of Nexus-owned property along Thomas Road, approximately 3.6 acres is proposed to be included as part of the Nexus Facility and will be referred to as the "eastern tract." The total registration boundary will encompass 4.51 acres.

SUMMARY

The Nexus Facility will be constructed, maintained, and operated to manage run-on and runoff during the peak discharge of a 25-year rainfall event. The Nexus Facility will prevent the off-site discharge of waste and feed-stock material through a combination of constructed features and operating procedures:

- providing concrete flooring / pavement under all tipping, processing and storage areas
- providing a roof over tipping, processing and interior storage areas to minimize the potential to generate "contaminated water"
- providing constructed features to control run-on and run-off

The Nexus Facility will operate under a TPDES General Permit for storm water discharges. A Storm Water Pollution Prevention Plan ("SWPPP") will be prepared for the facility and will be updated as necessary to reflect site modifications proposed by Nexus.

1204 Bayshore, Rockwall, Texas 75087 omc@airmail.net 972-771-1310(office) 972-740-8827(cell)

The area is characterized by relatively flat relief with a general pattern of drainage to the south. The drainage is split halfway between the two roads. Prevailing hydrologic conditions are industrial development along Cunningham Road and improved pasture/ residential development along Thomas Road. The Nexus Facility proposes "redevelopment" of their western tract along Cunningham Road and "in-fill development" of their eastern tract along Thomas Road that will increase the impervious cover. Development plans call for routing storm-water runoff to existing ditches along Cunningham and Thomas Roads. The existing sheet flow conditions across both the eastern and western tracts will be eliminated by the proposed development. No change in drainage areas or patterns is proposed as part of the development.

Drainage calculations were made for existing conditions and the proposed development so that effects of development could be evaluated. Peak discharge was calculated for both 25-year and 100-year storms using TxDOT and City of Houston Rational Method as well as the NRCS TR-55 Method. The use of multiple methods was to comply with the separate requirements of TCEQ and City of Houston. In addition, such use provides a higher level of confidence in the calculated information.

TCEQ-required Rational Method calculations show that post-development peak discharge increases for the eastern (Thomas Road) drainage subarea. This reflects the effect of development on a relatively undeveloped drainage area. The western (Cunningham Road) drainage subarea discharge is relatively unaffected due to the existing development.

Storm runoff volume and the effects of Houston-required storm water detention were calculated using NRCS TR-55 methods. Only slight increases (3 to 5 %) in runoff volume occurred in the eastern drainage subarea. Increases from the western drainage subarea were negligible (0.3 to 0.4 %). Without any correction for detention, TR-55 method calculations show a significant decrease in peak discharge. City-of-Houston-required detention within the facility decreased peak discharge even further. It should be noted that the proposed diversion of run-on acts as *de facto* detention by increasing time of concentration and consequently decreasing peak discharge.

NEXUS's proposed development will not have any adverse impact on surface water drainage. A comparison of the proposed NEXUS Facility "developed conditions" with existing conditions illustrates the minimal impact to drainage:

- No changes in drainage area or patterns.
- No significant changes in runoff volumes.
- Reduced peak discharges

The design of the Nexus Facility complies with the requirements of **30 TAC 330.303 – Surface Water Drainage for Municipal Solid Waste Facilities**.

GENERAL SURFACE CONDITIONS

Pre-development (natural) drainage conditions

Typical of the Gulf Coastal Prairie physiographic region, the pre-development drainage condition was a relatively flat and poorly-drained, featureless plain that sloped gently south and/or southeast toward the Gulf. Slopes were in the range of 0.3 to 0.35 % in the area of the Nexus Facility. Prevailing soil associations in the area are discussed in detail in **Part II – Attachment B: Soil Information.** Relevant hydrologic information for these soils is summarized in the following table:

Table 1 – Hydrologic Soil Groups

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group
Ad	Addicks Loam	B/D
Ge	Gessner Loam	B/D
Gs	Gessner Complex	B/D
Kf	Katy Fine Sandy Loam	B

If a soil is assigned to a dual Hydrologic Soil Group, e.g., B/D in the above Table, the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

The distribution of these soils is mapped in the **Soil Map** in **Part II – Attachment B: Soil Information.** The east tract and the eastern ½ of the west tract are mapped in the Katy Fine Sandy Loam and the western ½ of the west tract is mapped in the Gessner Loam; however, the area is poorly drained and a Hydrologic Soil Group D is appropriate for these soils and the soils mapped in the surrounding area. In addition, the selection of Hydrologic Soil Group D conditions is conservative for drainage calculations since it maximizes runoff and eliminates any questions about soil mapping errors

Existing drainage conditions

The western tract along Cunningham Road was previously developed for industrial use and most of the area has an improved surface for trafficability, i.e., relatively impervious areas from a hydrologic standpoint. The Nexus property along Thomas Road is relatively undeveloped with only a small, single-family residential structure and detached garage and associated driveway/parking areas; however, the residential development is outside the proposed "eastern tract" boundaries.

Based on **Part II, Figure 4 – Aerial Photograph**, upgradient hydrologic conditions are industrial development along Cunningham Road and improved pasture/ residential development along Thomas Road. **Part II, Figure 3 – General Topographic Map** shows the general drainage pattern is to the south and southeast. As shown on the attached **Drainage Area Map**, run-on to the Nexus property appears to be predominantly sheet flow along the northern boundary with shallow concentrated flow in the road-side ditches along Cunningham and Thomas Roads. Based on mapped information, run-on is generated from an area bounded by

Cunningham and Thomas Roads and extending north approximately 900 feet to a slight drainage divide (drainage north of the drainage divide is routed to a constructed drainage channel tied in to a regional drainage system). The resulting up-gradient area is approximately 27.3 acres. The eastern half of the area is relatively undeveloped; however, industrial development predominates in the western half. Consequently, higher amounts of run-on would be expected for the western tract.

Runoff from the Nexus property is also generally sheet flow across the southern boundary with shallow concentrated flow in the road-side ditches along Cunningham and Thomas Roads and also into a drainage swale midway between Cunningham and Thomas Roads (Miguel A. Gonzalez property, see **Part I, Figure 3 – Land Ownership Map**).

Proposed In-Fill Development and/or Redevelopment

The Nexus Facility proposes "redevelopment" of the western tract and "in-fill development" of the eastern tract that will increase the impervious cover. Development plans call for routing storm-water runoff from the facility to existing roadside ditches along Cunningham and Thomas Roads.

The existing sheet flow conditions across both the eastern and western tracts will be eliminated by the proposed development. Run-on to the Nexus Facility will be intercepted by constructed ditches and/or swales and routed to the roadside ditches along Cunningham and Thomas Roads. City of Houston detention requirements have also been incorporated.

DRAINAGE CALCULATIONS – RATIONAL METHOD FOR PEAK DISCHARGE

Rational Method – Runoff Coefficients

Existing eastern drainage subarea. As noted above, existing soils are can be conservatively assumed to be in Hydrologic Soil Group D. The appropriate Runoff Coefficients, C, were obtained using both TxDOT[1] and City of Houston[2] references. In the TxDOT *Hydraulic Design Manual*, C can be estimated using two different procedures: (1) For "residential suburban" areas, C is in the range of 0.35 to 0.40[3]; and (2) For "rural" areas, TxDOT has a cumulative procedure[4] for determining the Runoff Coefficient, $C = C_r + C_i + C_v + C_s$:

- Relief , $C_r = 0.08$ for flat slopes
- Soil Infiltration, $C_i = 0.12$ for relatively impermeable clay
- Vegetal Cover, $C_v = 0.06$ for good vegetal cover
- Surface, $C_s = 0.06$ for normal surface conditions

The resulting runoff coefficient, $C = C_r + C_i + C_v + C_s = 0.32$.

Based on the two TxDOT approaches, a C = 0.35 is reasonable. It should also be noted that the listed TxDOT runoff coefficients are for low-frequency storms. For a 25-year storm, the runoff coefficients from the TxDOT Tables should be increased by 10% and for a 100-year storm increased by 25%. Alternatively, using the City of Houston requirements[5], C = 0.35 for "residential districts w/ lots more than ½ acres."

Existing western drainage subarea. For the existing industrially-developed western half of the drainage area along Cunningham Road, i.e., "urban districts; industrial", the corresponding Runoff Coefficient, C, was obtained using both TxDOT[6] and City of Houston[7] references. In the TxDOT *Hydraulic Design Manual*, C can be estimated using two different procedures: (1) For "industrial" areas, C is in the range of 0.30 to 0.90[8]; and (2) For "rural" areas, TxDOT has a cumulative procedure[9] for determining the Runoff Coefficient, $C = C_r + C_i + C_v + C_s$. For the western drainage area:

- Relief , $C_r = 0.08$ for flat slopes
- Soil Infiltration, $C_i = 0.16$ for relatively impermeable condition

---

[1] *Hydraulic Design Manual*, TxDOT, 2009
[2] *Stormwater Design Requirements*, City of Houston, 2009
[3] *Runoff Coefficients for Urban Watersheds, Hydraulic Design Manual*, TxDOT, 2009
[4] *Runoff Coefficients for Rural Watersheds, Hydraulic Design Manual*, TxDOT, 2009
[5] *Stormwater Design Requirements, §9.05B.3 a.* ,City of Houston, 2009
[6] *Hydraulic Design Manual*, TxDOT, 2009
[7] *Stormwater Design Requirements*, City of Houston, 2009
[8] *Runoff Coefficients for Urban Watersheds, Hydraulic Design Manual*, TxDOT, 2009
[9] *Runoff Coefficients for Rural Watersheds, Hydraulic Design Manual*, TxDOT, 2009

- Vegetal Cover, $C_v = 0.16$ for bare vegetal cover
- Surface, $C_s = 0.10$ for well-drained surface conditions

The resulting runoff coefficient, $C = C_r + C_i + C_v + C_s = 0.50$. Based on the two approaches, an average C = 0.60 is reasonable. It should also be noted that the listed runoff coefficients are for low-frequency storms. For a 25-year storm, the runoff coefficients from the TxDOT Tables should be increased by 10% and for a 100-year storm increased by 25%. The City of Houston[10] provides C = 0.65 for "industrial districts – light areas."

Proposed Nexus Facility. For the proposed Nexus Facility, almost the entire area will be constructed with impervious cover – either pavement or roof. The corresponding C would be 0.60 to 0.90 (TxDOT, 2009) and/or 0.75 to 0.8 (City of Houston, 2009). For these calculations, an average C = 0.75 will be used for TxDOT calculations and an average C= 0.78 for City of Houston calculations. Note that runoff from the proposed 3.6-acre eastern tract of the facility will be combined with runoff from the remainder of the 5-acre Nexus property along Thomas Road. The remaining 1.4 acres is existing residential-type development with a C = 0.35 regardless of method. For the entire 5-acre property, a weighted C of 0.64 (TxDOT) or 0.66 (City of Houston) will be used.

The proposed Nexus Continuum Facility will result in the entire eastern drainage subarea flow being collected and discharged into the Thomas Road ditch at the southeast corner of the Nexus property. Similarly, the entire western drainage subarea flow will be collected and discharged into the Cunningham Road ditch at the southwest corner of the entrance to the facility.

Rational Method – Time of Concentration

TxDOT methodology. Time of concentration, t_c, is the time for runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. As noted previously, run-on appears to consist mainly of sheet flow with shallow concentrated flow in the roadside ditches associated with Cunningham and Thomas Roads.

Velocity associated with overland or sheet flow will control time of concentration for the eastern half of the drainage area (eastern subarea) For run-on, typical path length is approximately 900 feet at a slope of approximately 0.3%. Using TxDOT Figure 5-4[11] a limiting velocity of 0.5 feet per second is obtained corresponding to the lower chart value of 0.5% slopes and "short grass pasture." A time of concentration of 1,800 seconds or 30 minutes is subsequently calculated. For existing runoff conditions from the eastern tract of the Nexus property, the 330-foot path length across the property would increase the total path length to approximately 1,230 feet and t_c would increase to 41 minutes. For in-fill development conditions, both run-on and on-site flows

[10] *Stormwater Design Requirements, §9.05B.3.a.*, City of Houston, 2009
[11] *Velocities for Upland Method of Estimating Time of Concentration, Hydraulic Design Manual,* TxDOT, 2009

will be concentrated and redirected to Thomas Road. Segment length will approach 660 feet at grades of approximately 0.3 %. Velocity will increase to 1.25 feet per second[12] (limit velocity for 0.5 % slope and "paved area – sheet flow & shallow gutter flow") and the total time of travel along this segment would be 8.8 minutes resulting in a time of concentration of 38.8 minutes.

For the upgradient western subarea, the existing industrialization will result in a flow velocity of approximately 1.25 feet per second (limit velocity for 0.5 % slope and "paved area – sheet flow & shallow gutter flow"). As for the eastern area, run-on path length is approximately 900 feet at grades of approximately 0.3%. Time of concentration, t_c = 720 seconds or 12 minutes is calculated. The additional travel time over the narrow (50 feet) western tract of Nexus will increase t_c to 12.7 minutes. Redevelopment will redirect flow to Cunningham Road. Maximum length of the segment is 660 feet at a slope of 0.3%. This segment will add 8.8 minutes to the 12-minute off-site travel time resulting in a 20.8 minute time of concentration. Times of concentration for the various conditions are summarized in the following table:

Table 2 – Time of Concentration (TxDOT Method)

Condition	Area (acres)	Time of Concentration,, t_c (minutes)
east side run-on area (existing)	13.65	30
east side runoff subarea (existing)	18.65	41
east side run-on area (proposed)	13.65	38.8
east side facility runoff area (proposed)	3.6	8.8*
total east Nexus property runoff (facility + existing)	5.0	8.8*
total eastern drainage subarea discharge (proposed)	18.65	43.2
west side run-on area (existing)	13.65	12
west side runoff subarea (existing)	14.56	12.7
west side run-on area (proposed)	13.65	20.8
west side facility runoff area (proposed)	0.91	8.8*
total western drainage subarea discharge (proposed)	14.56	21.5

***Note that TxDOT procedures set a minimum time of concentration of 10 minutes.**

It should be noted that the times of concentration given in the above table are less than actual because of the 0.5 % slope limitations of the TxDOT methodology relative to the actual 0.3% prevailing slopes over the drainage area. As a consequence, rainfall intensities and peak discharges calculated from the above times of concentration will be conservatively overestimated.

City of Houston Methodology. Alternatively, time of concentration (in minutes) can be calculated using the equation[13]:

$$t_c = 10 \times (\text{area})^{0.1761} + 15$$

[12] *Velocities for Upland Method of Estimating Time of Concentration, Hydraulic Design Manual,* TxDOT, 2009
[13] *Stormwater Design Requirements, §9.05B.3.b.* , City of Houston, 2009

where:

area = subarea of watershed (acres)

Calculations of t_c, based on application of that equation to the various drainage areas and/or subareas, are summarized in the following table:

Table 3 – Time of Concentration (City of Houston Method)

Condition	Area (acres)	Time of Concentration, t_c (minutes)
east side run-on area (existing & proposed)	13.65	30.85
east side runoff subarea (existing)	18.65	31.74
east side facility runoff area (proposed)	3.6	27.53
total east Nexus property runoff (facility + existing)	5	28.28
total eastern drainage subarea discharge (proposed)	18.65	31.74
west side run-on area (existing & proposed)	13.65	30.85
west side runoff subarea (existing)	14.56	31.03
west side facility runoff area (proposed)	0.91	24.84
total western drainage subarea discharge (proposed)	14.56	31.03

Based on the above table results, it does not appear that time of concentration is particularly sensitive to area. Note also that t_c is limited to a minimum value of 15 minutes in the City of Houston methodology.

Rational Method – Rainfall Intensity

TxDOT methodology for rainfall intensity. Drainage calculations for peak discharge were performed in general accordance with the Rational Methodology detailed in TxDOT's *Hydraulic Design Manual.*[14] The Rational Method was used because the drainage areas are much less than 200 acres.

Rainfall intensity for use in the TxDOT rational method is based on the time of concentration for runoff to travel from the most hydraulically remote point of a given watershed and is calculated from the equation:

$$\mathbf{I} = b / (t_c + d)^e$$

where:

t_c = time of concentration in minutes (*limited to a minimum of 10 minutes in TxDOT procedures*)

[14] *Hydraulic Design Manual*, TxDOT, 2009

e, b, d = coefficients for specific frequency rainfall event by county[15] (for the 25-year event for Harris County, e = 0.724, b = 81, and d = 7.7, for the 100-year event for Harris County, e = 0.706, b = 91, d = 7.9).

For existing eastern tract run-on calculations, t_c = 30 minutes using TxDOT methodology as detailed above under **Time of Concentration** – see **Table 2**. For existing eastern tract run-off calculations, t_c would increase to 41 minutes using TxDOT methods. Existing western tract t_c are 12 and 12.7 minutes respectively. The proposed segregation of run-on from eastern facility runoff as part of development results in a run-on time of concentration increased to 38.8 minutes and a run-off time of concentration of 8.8 minutes (note that TxDOT procedures set a minimum time of concentration of 10 minutes). TxDOT rainfall intensity for selected storm events is as follows:

Table 4 – Rainfall Intensity (TxDOT Method)

Condition	Area (acres)	t_c (minutes)	25-year Intensity (inches/hour)	100-year Intensity (inches/hour)
east side run-on area (existing)	13.65	30	5.85	6.99
east side runoff subarea (existing)	18.65	41	4.86	5.84
east side run-on area (proposed)	13.65	38.8	5.03	6.03
east side facility runoff area (proposed)	3.6	10 (8.8 actual)	10.11	11.87
total east property runoff (facility + existing)	5.0	10 (8.8 actual)	10.11	11.87
total eastern drainage subarea discharge (proposed)	18.65	43.2	4.71	5.66
west side run-on area (existing)	13.65	12	9.36	11.02
west side runoff subarea (existing)	14.56	12.7	9.13	10.75
west side run-on area (proposed)	13.65	20.8	7.16	8.51
west side facility runoff area (proposed)	0.91	10 (8.8 actual)	10.11	11.87
total western drainage subarea discharge (proposed)	14.56	21.5	7.04	8.36

City of Houston methodology for rainfall intensity. Houston's *Stormwater Design Requirements*[16] use the same equation as TxDOT for intensity; however, the coefficients are specified differently and time of concentration is not limited to a minimum of 10 minutes. For the 25-year storm event, the coefficients are: b = 115.9, d = 21.2, and e = 0.7808. For the 100-year storm event, the coefficients are: b = 125.4, d = 21.8, and e = 0.7500. Using times of concentration (City of Houston Method) provided in Table 3, rainfall intensities for both storm events are given in the following table:

[15] *TP-40*, U.S. Department of Commerce, 1961
[16] *Stormwater Design Requirements, Figure 9.1*, City of Houston, 2009

Table 5 – Rainfall Intensity (City of Houston)

Condition	Area (acres)	t_c (minutes)	25-year Intensity (inches/hour)	100-year Intensity (inches/hour)
entire run-on area	27.3	32.9	5.14	6.23
entire runoff area	33.21	33.53	5.09	6.18
east side run-on area (existing & proposed)	13.65	30.85	5.30	6.42
east side runoff subarea (existing)	18.65	31.74	5.23	6.34
east side facility runoff area (proposed)	3.6	27.53	5.58	6.74
total east property runoff (facility + existing)	5	28.28	5.51	6.66
total eastern drainage subarea discharge (proposed)	18.65	31.74	5.23	6.34
west side run-on area (existing & proposed)	13.65	30.85	5.30	6.42
west side runoff subarea (existing)	14.56	31.03	5.28	6.40
west side facility runoff area (proposed)	0.91	24.84	5.83	7.03
total western drainage subarea discharge (proposed)	14.56	31.03	5.28	6.40

The TxDOT and Houston rainfall intensities are significantly different – TxDOT being higher – due to the major differences in calculated time of concentration, t_c. TxDOT time of concentrations are based on hydraulic path and Houston time of concentrations are based on drainage area as noted in **Tables 2 and 3**.

Rational Method – Peak Discharge

The Rational Method Equation is expressed as:

$$Q = CIA$$

where:

Q = maximum rate of runoff, i.e., discharge (cubic feet per second or cfs)
C = runoff coefficient (dimensionless)
I = average rainfall intensity (inches per hour or in./hr.)
A = drainage area (acres or Ac.)

The peak discharge for the 25-year storm is summarized in the following table:

Table 6 – 25-year, 24-hour Storm Peak Discharge (Rational Method)

Condition	Area (acres)	TxDOT Runoff Coefficient*	TxDOT Intensity (in/hr)	TxDOT Discharge (cfs)	Houston Runoff Coefficient	Houston Intensity (in/hr)	Houston Discharge (cfs)
Run-on to East Tract (existing)	13.65	0.35 x 1.1	5.85	30.74	0.35	5.30	25.32
Runoff from East Tract (existing)	18.65	0.35 x 1.1	4.86	34.90	0.35	5.23	34.14
Run-on to East Tract (proposed diversion)	13.65	0.35 x 1.1	5.03	26.43	0.35	5.30	25.32
Runoff from East Facility only (proposed)	3.6	0.75 (avg) x 1.1	10.11	30.03	0.78 (avg)	5.58	15.67
Total east Nexus property runoff (facility + existing)	5.0	0.64 (wt) x 1.1	10.11	35.59	0.66 (wt)	5.51	18.18
Total eastern drainage subarea discharge (proposed)	18.65	0.43 (wt) x 1.1	4.71	41.55	0.43 (wt)	5.23	41.94
Run-on to West Tract (existing)	13.65	0.60 x 1.1	9.36	84.32	0.65	5.30	47.02
Runoff from West Tract (existing)	14.56	0.60 x 1.1	9.13	87.74	0.65	5.28	49.97
Run-on to West Tract (proposed diversion)	13 65	0.60 x 1.1	7.16	64.50	0.65	5.30	47.02
Runoff from West Facility only (proposed)	0.91	0.75 (avg) x 1.1	10.11	7.59	0.78 (avg)	5.83	4.14
Total western drainage subarea discharge (proposed)	14.56	0.61 (wt) x 1.1	7.04	68.78	0.66 (wt)	5.28	50.74

***Note: TxDOT runoff coefficients increased by 10% per TxDOT procedure for 25-year storm calculations. Abbreviations "avg" and "wt" refer to average methodology and area-weighted respectively.**

Based on the comparison of proposed development to existing conditions, the above calculations indicate that development will have the following impacts on Rational Method 25-year, 24-hour storm peak discharge from the site:

- For the eastern drainage subarea, TxDOT and Houston methodologies estimate comparable peak discharges.
- For the eastern drainage subarea, in-fill development of the eastern tract, diversion of run-on, and collection of flow to a single discharge point will increase rational method peak discharge compared to existing sheet-flow discharge; however, the effects of detention are not included.
- For the western drainage subarea, TxDOT and Houston methodologies estimate considerably different peak discharges. This is a consequence of the differences in estimating time of concentration.
- For the western drainage subarea, in-fill development of the western tract and diversion of run-on will significantly decrease peak discharge based on TxDOT methodology.
- For the western drainage subarea, in-fill development of the western tract, diversion of run-on, and collection of flow to a single discharge point has no impact on peak discharge based on City of Houston methodology

Although TCEQ requirements for transfer stations are based on 25-year storms, the peak discharge for the 100-year storm was also calculated for comparison purposes. The calculations are summarized in the following table:

Table 7 – 100-year, 24-hour Storm Peak Discharge (Rational Method)

Condition	Area (acres)	TxDOT Runoff Coefficient*	TxDOT Intensity (in/hr)	TxDOT Discharge (cfs)	Houston Runoff Coefficient	Houston Intensity (in/hr)	Houston Discharge (cfs)
Run-on to East Tract (existing)	13.65	0.35 x 1.25	6.99	41.74	0.35	6.42	30.67
Runoff from East Tract (existing)	18.65	0.35 x 1.25	5.84	47.65	0.35	6.34	41.38
Run-on to East Tract (proposed diversion)	13.65	0.35 x 1.25	6.03	36.01	0.35	6.42	30.67
Runoff from East Facility only (proposed)	3.6	0.75 (avg) x 1.25	11.87	40.06	0.78 (avg)	6.74	18.93
Total east Nexus property runoff (facility + existing)	5.0	0.64 (wt) x 1.25	11.87	47.48	0.66 (wt)	6.66	21 98
total eastern drainage subarea discharge (proposed)	18.65	0.43 (wt) x 1.25	5.66	56.74	0.43 (wt)	6.34	50.84
Run-on to West Tract (existing)	13.65	0.60 x 1.25	11.02	112.82	0.65	6.42	56.96
Runoff from West Tract (existing)	14.56	0.60 x 1.25	10.75	117.39	0.65	6.40	60.57
Run-on to West Tract (proposed diversion)	13.65	0.60 x 1.25	8.51	87.12	0.65	6.42	56.96
Runoff from West Facility only (proposed)	0.91	0.75 (avg) x 1.25	11.87	10.13	0.78 (avg)	7.03	4.99
Total western drainage subarea discharge (proposed)	14.56	0.61 (wt) x 1.25	8.36	92.81	0.66 (wt)	6 40	61.50

***Note: TxDOT runoff coefficients increased by 25% per TxDOT procedure for 100-year storm calculations. Abbreviations "avg" and "wt" refer to average methodology and area-weighted respectively.**

Based on the comparison of proposed development to existing conditions, the above calculations indicate that development will have the following impacts on Rational Method 100-year, 24-hour storm peak discharge from the site:

- For the eastern drainage subarea, TxDOT and Houston methodologies estimate differing peak discharges. Much of the difference can be attributed to the 1.25 factor applied to the runoff coefficient.
- For the eastern drainage subarea, in-fill development of the eastern tract, diversion of run-on, and collection of flow to a single discharge point will increase rational method peak discharge compared to existing sheet-flow discharge; however, the effects of detention are not included.
- For the western drainage subarea, TxDOT and Houston methodologies estimate considerably different peak discharges. This is a consequence of the differences in estimating time of concentration.
- For the western drainage subarea, in-fill development of the western tract and diversion of run-on will significantly decrease peak discharge based on TxDOT methodology.
- For the western drainage subarea, in-fill development of the western tract, diversion of run-on, and collection of flow to a single discharge point has no impact on peak discharge based on City of Houston methodology

DRAINAGE CALCULATIONS – TR-55 METHODS FOR RUNOFF VOLUME AND PEAK DISCHARGE

TR-55 – Runoff Curve Numbers

Existing eastern drainage subarea. As noted above, existing soils are can be conservatively assumed to be in Hydrologic Soil Group D. For the relatively undeveloped half of the drainage area along Thomas Road, i.e. "open space", a Runoff Curve Number, CN, of 84 is appropriate.[17]

Existing western drainage subarea. For the existing industrially-developed western half of the drainage area along Cunningham Road, i.e., "urban districts; industrial", a Runoff Curve Number, CN, of 93 is appropriate.[18]

Proposed Nexus Facility. For the proposed Nexus Facility, almost the entire area will be constructed with impervious cover – either pavement or roof. The corresponding CN would be 98.

TR-55 – Time of Concentration

TR-55 methods of determining time of concentration require different assumptions and methodology from the Rational Method. TR-55 generally allows sheet flow up to a maximum distance of 300 feet and "shallow concentrated flow" thereafter.[19] Sheet flow is only applicable to that portion of the eastern drainage subarea upgradient of the Nexus facility.

Existing eastern drainage subarea. For the sheet flow segment, travel time, T_t can be calculated from

$$T_t = \frac{0.007\ (nL)^{0.8}}{(P_2)^{0.5}\ (s)^{0.4}}$$

where:

- T_t = travel time (hours or hr)
- n = Manning's roughness coefficient
- L = flow length (feet or ft)
- P_2 = 2-year, 24-hour rainfall (inches or in)
- s = slope of hydraulic grade line (land slope, feet/feet)

[17] *TR-55, Table 2-2a – Runoff curve numbers for urban areas,* NRCS, 1986
[18] *TR-55, Table 2-2a – Runoff curve numbers for urban areas,* NRCS, 1986
[19] *TR-55, Chapter 3 – Time of Concentration and Travel Time,* NRCS, 1986

The 2-year, 24-hour rainfall for Harris County is about 5 inches.[20] As previously noted under **General Surface Conditions**, slopes range from 0.3 to 0.35 %. For time of travel calculations, an average slope of 0.325 % (0.00325 feet/feet) will be assumed. Manning's n for the prevailing "short grass prairie" conditions in the eastern drainage subarea is 0.15. The resulting time of travel for 300 feet of sheet flow is 0.65077 hours.

Time of travel for the "shallow concentrated flow" segment can be calculated from the average flow length of 600 feet and the equation for average flow velocity for unpaved areas:

$$V = 16.1345\ (s)^{0.5}$$

where:

V = average velocity (feet per second or ft/sec)
s = slope of hydraulic grade line (land slope, feet/feet)

Based on an average slope of 0.325 % (0.00325 feet/feet), average velocity is 0.92 feet per second. Time of travel over 600 feet at that velocity is 652 seconds or 0.18116 hours.

The run-on time of concentration, T_c is simply the sum of the times of travel = 0.65077 + 0.18116 = 0.83193 hours (49.92 minutes).

The run-off time of concentration (for existing conditions) will include an additional 330 feet of unpaved shallow concentrated flow at the same average slope. The time of travel for this segment will be 359 seconds or 0.09964 hours. The runoff time of concentration, T_c is simply the sum of the times of travel = 0.65077 + 0.18116 + 0.09964 = 0.93157 hours (55.89 minutes).

Existing western drainage subarea. The western drainage subarea will be almost exclusively "shallow concentrated flow" over mostly paved areas. The equation for average flow velocity for paved areas:

$$V = 20.3282\ (s)^{0.5}$$

where:

V = average velocity (feet per second or ft/sec)
s = slope of hydraulic grade line (land slope, feet/feet)

Based on an average slope of 0.325 % (0.00325 feet/feet), average velocity is 1.16 feet per second. Time of travel over 900 feet at that velocity is 776 seconds or 0.21556 hours (12.93 minutes). Since there is only a single path segment, the run-on $T_c = T_t$ = 0.21556 hours (12.93

[20] *TP-40*, U.S. Department of Commerce, 1961

minutes). The western Nexus property will only add a few feet to the flow path and the run-on T_c will conservatively represent T_c for existing runoff conditions.

Proposed eastern drainage subarea. Proposed development of the eastern tract will segregate run-on from run-off generated within the facility. Run-on will be diverted via a constructed ditch along the north side of the facility. Facility runoff will be discharged through a constructed ditch or swale on-site. Both ditches will be approximately 660 feet in length at an average grade of 0.3 %. Again using

$$V = 20.3282\ (s)^{0.5}$$

where:

V = average velocity (feet per second or ft/sec)
s = slope of hydraulic grade line (land slope, feet/feet)

Based on an average slope of 0.3 % (0.003 feet/feet), average velocity is 1.1134 feet per second. Time of travel over 660 feet at that velocity is 593 seconds or 0.16472 hours. The runoff time of concentration, T_c for the diverted run-on will be 0.83193 hours + 0.16472 hours = 0.99665 hours. Facility runoff will travel 660 feet at that same velocity with a resulting travel time or time of concentration of 593 seconds or 0.16472 hours.

It should be noted that drainage from the remaining 1.4 acres of the Nexus-owned property along Thomas Road will combine with the drainage from the proposed facility for a total contributing watershed of 5 acres for run-off.

All of the flow from the eastern drainage subarea will ultimately be routed to a common discharge point in the Thomas Road ditch at the southeast corner of the Nexus property. For the entire subarea, travel time for an additional 330 feet to the southeast corner of the Nexus property at an average velocity of 1.16 feet per second (0.325 % average grade) will be 0.079023 hours (4.74 minutes) for a total time of concentration = 0.99665 + 0.078023 = 1.075673 hours.

Proposed western drainage subarea. Proposed development of the western tract will segregate run-on from run-off generated within the facility. Run-on will be diverted via a constructed ditch or swale along the north side of the facility entrance road. Facility runoff will be collected in a ditch or swale along the south side of the entrance road. Both ditches will be approximately 660 feet in length at an average grade of 0.3 %. Again using

$$V = 20.3282\ (s)^{0.5}$$

where:

V = average velocity (feet per second or ft/sec)

s = slope of hydraulic grade line (land slope, feet/feet)

Based on an average slope of 0.3 % (0.003 feet/feet), average velocity is 1.1134 feet per second. Time of travel over 660 feet at that velocity is 593 seconds or 0.16472 hours. The runoff time of concentration, T_c for the diverted run-on will be 0.21556 hours + 0.16472 hours = 0.38028 hours. The facility run-off time of concentration for the western part of the proposed Nexus Facility (access road) will be 0.16472 hours.

All of the flow from the western drainage subarea will ultimately be routed to a common discharge point in the Cunningham Road ditch at the southwest corner of the facility entrance.

TR-55 Method for Runoff Volume Estimation.

Procedures given in *TR-55*[21] can be used to generate storm runoff volumes. For a given rainfall event, the direct runoff can be calculated from equations in TR-55:

$$Q = \frac{(P - 0.2S)^2}{(P + 0.8S)} \qquad \text{(Equation 2-3)}$$

$$S = \frac{1000}{CN} - 10 \qquad \text{(Equation 2-4)}$$

where:

Q = runoff (inches)
P = rainfall (inches)
S = potential maximum retention after runoff begins (inches)

For the NEXUS site, the 25-year, 24-hour rainfall is approximately 9.5 inches[22]. For this rainfall amount, runoff volume calculations for each drainage subarea and condition are summarized in the following table:

[21] TR-55 – *Urban Hydrology for Small Watersheds* , NRCS, 1986
[22] *TP-40*, U.S. Department of Commerce, 1961

Table 8 – 25-year, 24-hour Storm Runoff (TR-55)

Condition	Area (acres)	Curve Number CN*	Max Retention S	Runoff (inches)	Runoff (Ac-ft)	Proposed Change (Ac-ft)
Run-on to East Tract (existing)	13.65	84	1.90	7.54	8.58	--
Eastern drainage subarea (existing)	18.65	84	1.90	7.54	11.72	--
Diverted run-on from East Tract (proposed)	13.65	84	1.90	7.54	8.58	--
Runoff from East Facility (proposed)	3.6	98	0.204	9.26	2.78	--
Runoff from east Nexus property (facility + existing)	5	94.1 (wt)	0.627	8.79	3.66	--
Total runoff from eastern drainage subarea (proposed)	18.65	86.7 (wt)	1.534	7.88	12.25	0.53
Run-on to West Tract (existing)	13.65	93	0.75	8.65	9.84	--
Western drainage subarea (existing)	14.56	93	0.75	8.65	10.50	--
Diverted run-on from West Tract (proposed)	13.65	93	0.75	8.65	9.84	--
Runoff from West Facility (proposed)	0.91	98	0.204	9.26	0.70	--
Total runoff from western drainage subarea (proposed)	14.56	93.3 (wt)	0.718	8.69	10.54	0.04

* **Abbreviation "wt" refers to area-weighted.**

The above calculations show that the proposed redevelopment will result in minor increases in total runoff volume of 0.53 acre-feet (4.5 %) (eastern subdrainage area) and 0.04 acre-feet (0.4%) (western subdrainage area) without any reliance on stormwater detention or retention. However, it should be noted that the City of Houston has specific detention volume requirements[23] depending on subarea size. For areas less than 1 acre, a detention volume of 0.20 acre-feet per acre of increased impervious cover is required.[24] For areas greater than 1 acre, a detention volume of 0.50 acre-feet per acre of increased impervious cover is required.[25] These detention volumes are based on 100-year storm requirements. For the 3.6-acre east tract, a maximum detention volume of 1.8 acre-feet is required. For the 0.91-acre west tract, a maximum detention volume of 0.182 acre-feet is required. It should be further noted that the required detention is larger than the increase in runoff from either tract.

Although TCEQ requirements for transfer stations are based on 25-year storms, runoff volume calculation for the 100-year storm is necessary for comparison to the City of Houston detention requirements. The 100-year, 24-hour rainfall is approximately 12.5 inches.[26] Runoff volume calculations for the 100-year storm are given in the following table:

[23] *Stormwater Design Requirements §9.05.H 3.* , City of Houston, 2009
[24] *Stormwater Design Requirements §9.05.H.3.b.* , City of Houston, 2009
[25] *Stormwater Design Requirements §9.05.H.3.c.* , City of Houston, 2009
[26] *TP-40*, U.S. Department of Commerce, 1961

Table 9 – 100-year, 24-hour Storm Runoff (TR-55)

Condition	Area (acres)	Curve Number CN*	Max Retention S	Runoff (inches)	Runoff (Ac-ft)	Proposed Change (Ac-ft)
Run-on to East Tract (existing)	13.65	84	1.90	10.47	11.91	--
Eastern drainage subarea (existing)	18.65	84	1.90	10.47	16.27	--
Diverted run-on from East Tract (proposed)	13.65	84	1.90	10.47	11.91	--
Runoff from East Facility (proposed)	3.6	98	0.204	12.26	3.68	--
Runoff from east Nexus property (facility + existing)	5	94.1 (wt)	0.627	11.78	4.91	--
Total runoff from eastern drainage subarea (proposed)	18.65	86.7 (wt)	1.534	10.83	16.83	0.56
Run-on to West Tract (existing)	13.65	93	0.75	11.64	13.24	--
Western drainage subarea (existing)	14.56	93	0.75	11.64	14.12	--
Diverted run-on from West Tract (proposed)	13.65	93	0.75	11.64	13.24	--
Runoff from West Facility (proposed)	0.91	98	0.204	12.26	0.93	--
Total runoff from western drainage subarea (proposed)	14.56	93.3 (wt)	0.718	11.67	14.16	0.04

*** Abbreviation "wt" refers to area-weighted.**

The above calculations show that the proposed redevelopment will result in minor increases in total runoff of 0.56 acre-feet (3.4 %) (eastern subdrainage area) and 0.04 acre-feet (0.3%) (western subdrainage area) without any reliance on stormwater detention or retention.

TR-55 Method for Peak Discharge

The "Graphical Peak Discharge Method"[27] will be used for estimating peak discharge. For this method, the appropriate rainfall distribution for Harris County is Type III.[28] The peak discharge equation is:

$$q_p = q_u A_m Q F_p$$

where:

q_p = peak discharge (cubic feet per second or cfs)
q_u = unit peak discharge (cubic feet per square mile per inch or csm/in) (Exhibit 4-III)
A_m = drainage area (square miles or mi^2)
Q = runoff (inches or in)
F_p = pond and swamp adjustment factor = 0

[27] *TR-55, Chapter 4 – Graphical Peak Discharge Method* , NRCS, 1986
[28] *TR-55, Figure B-2 – Approximate geographic boundaries for SCS rainfall distributions* , NRCS, 1986

Peak discharge has been calculated for both the 25-year and 100-year storm events using *TR-55* methods. The calculations are summarized in the following tables:

Table 10 – 25-year, 24-hour Storm Peak Discharge (TR-55 Method)

Condition	Area ($miles^2$)	Curve Number CN	I_a (inches)	P (inches)	I_a / P	Tc (hours)	Q (inches)	q_u (csm/in)	q_p (cfs)
Run-on to East Tract (existing)	0.0213	84	0.381	9.5	0.040	0.83	7.54	325	52.20
Eastern drainage subarea (existing)	0.0291	84	0.381	9.5	0.040	0.93	7.54	302	66.26
Diverted run-on from East Tract (proposed)	0.0213	84	0.381	9.5	0.040	1.00	7.54	295	47.38
East Facility (proposed)	0.0056	98	0.0408	9.5	0.0043	0.165	9.26	590	30.60
Runoff from east Nexus property (facility + existing)	0.0078	94.1 (wt)	0.125	9.5	0.0132	0.165	8.79	590	40.45
Total runoff from eastern drainage subarea (proposed)	0.0291	86.7 (wt)	0.3068	9.5	0.0323	1.076	7.88	280	64.21
Run-on to West Tract (existing)	0.0213	93	0.151	9.5	0.016	0.22	8.65	550	101.33
Western drainage subarea (existing)	0.0228	93	0.151	9.5	0.016	0.22	8.65	550	107.04
Diverted run-on from West Tract (proposed)	0.0213	93	0.151	9.5	0.016	0.38	8.65	450	82.91
Runoff from West Facility (proposed)	0.0014	98	.0408	9.5	0.0043	0.165	9.26	590	6.56
Total runoff from western drainage subarea (proposed)	0.0228	93.3 (wt)	0.144	9.5	0.0152	0.38	8.69	450	89.16

Table 11 – 100-year, 24-hour Storm Peak Discharge (TR-55 Method)

Condition	Area (miles^2)	Curve Number CN	I_a (inches)	P (inches)	I_a / P	Tc (hours)	Q (inches)	q_u (csm/in)	q_p (cfs)
Run-on to East Tract (existing)	0.0213	84	0.381	12.5	0.030	0.83	10.47	325	72.48
Eastern drainage subarea (existing)	0.0291	84	0.381	12.5	0.030	0.93	10.47	302	92.01
Diverted run-on from East Tract (proposed)	0.0213	84	0.381	12.5	0.030	1.00	10.47	295	65.79
Runoff from East Facility (proposed)	0.0056	98	0.0408	12.5	0.0033	0.165	12.26	590	40.51
Runoff from east Nexus property (facility + existing)	0.0078	94.1 (wt)	0.125	12.5	0.010	0.165	11.78	590	54.21
Total runoff from eastern drainage subarea (proposed)	0.0291	86.7 (wt)	0.3068	12.5	0.024	1.076	10.83	280	88.24
Run-on to West Tract (existing)	0.0213	93	0.151	12.5	0.012	0.22	11.64	550	136.36
Western drainage subarea (existing)	0.0228	93	0.151	12.5	0.012	0.22	11.64	550	145.96
Diverted run-on from West Tract (proposed)	0.0213	93	0.151	12.5	0.012	0.38	11.64	450	111.57
Runoff from West Facility (proposed)	0.0014	98	.0408	12.5	0.0033	0.165	12.26	590	10.13
Total runoff from western drainage subarea (proposed)	0.0228	93.3 (wt)	0.144	12.5	0.012	0.38	11.67	450	119.73

A comparison of existing to proposed peak discharge (TR-55 methodology) indicates the following:

- Peak discharge for both drainage subareas is reduced by the proposed development without considering any detention.
- The significant reduction in peak discharge from the western drainage subarea is the result of increased time of concentration resulting from diversion.

It should be noted that the City of Houston has specific detention volume requirements[29] depending on subarea size. For areas less than 1 acre, a detention volume of 0.20 acre-feet per acre of increased impervious cover is required.[30] For areas greater than 1 acre, a detention volume of 0.50 acre-feet per acre of increased impervious cover is required.[31] These detention volumes are based on 100-year storm requirements. For the 3.6-acre east tract, a maximum detention volume of 1.8 acre-feet is required. For the 0.91-acre west tract, a maximum detention volume of 0.182 acre-feet is required.

[29] *Stormwater Design Requirements §9.05.H.3.* , City of Houston, 2009
[30] *Stormwater Design Requirements §9.05.H.3.b.* , City of Houston, 2009
[31] *Stormwater Design Requirements §9.05.H.3.c.* , City of Houston, 2009

From the standpoint of the entire drainage subareas (upgradient areas and on-site areas), the Houston-required detention will have an effect. TR-55 has a procedure for estimating the effect of detention volume on maximum discharge.[32] Using previously calculated information for runoff volume, required detention storage volume, and unadjusted peak discharge and a Type III rainfall distribution, the effect of detention can be calculated.[33] Calculations are summarized in the following table:

Table 12 – Detention Storage Effect On 25-year, 24-hour Peak Discharge (TR-55 Method)

Condition	Runoff Volume (ac-ft)	Detention Storage Volume (ac-ft)	Storage / Runoff Volume Ratio	Outflow/ Inflow Discharge Ratio	Peak Inflow (cfs)	Detention Outflow (cfs)
Run-on to East Tract (existing)	8.58	0	0	≈ 1.0	52.20	N/A
Eastern drainage subarea (existing)	11.72	0	0	≈ 1.0	66.26	N/A
Diverted run-on from East Tract (proposed)	8.58	0	0	≈ 1.0	52.20	47.38*
Runoff from East Facility (proposed)	2.78	1.80	0.6475	< 0.1	30.60	< 3.06
Runoff from east Nexus property (facility + existing)	3.66	1.80	0.4918	0.16	40.45	6.47
Total runoff from eastern drainage subarea (proposed)	12.25	1.80	0.1469	> 0.8	64.21	> 51.37
Run-on to West Tract (existing)	9.84	0	0	≈ 1.0	101.33	N/A
Western drainage subarea (existing)	10.50	0	0	≈ 1.0	107.04	N/A
Diverted run-on from West Tract (proposed)	9.84	0	0	≈ 1.0	101.33	82.91*
Runoff from West Facility (proposed)	0.70	0.182	0.26	0.54	6.56	3.54
Total runoff from western drainage subarea (proposed)	10.54	0.182	0.0173	> 0.8	89.16	> 71.33

***Note also that the proposed diversion of run-on acts as *de facto* detention by increasing time of concentration and consequently decreasing peak discharge.**

[32] *TR-55, Chapter 4 – Storage volume for detention basins*, NRCS, 1986
[33] *TR-55, Figure 6-1 – Approximate detention basin routing for rainfall types I, IA, II, and III*, NRCS, 1986

Table 13 – Detention Storage Effect On 100-year, 24-hour Peak Discharge (TR-55 Method)

Condition	Runoff Volume (ac-ft)	Detention Storage Volume (ac-ft)	Storage / Runoff Volume Ratio	Outflow/ Inflow Discharge Ratio	Peak Inflow (cfs)	Detention Outflow (cfs)
Run-on to East Tract (existing)	11.91	0	0	≈ 1.0	72.48	N/A
Eastern drainage subarea (existing)	16.27	0	0	≈ 1.0	92.01	N/A
Diverted run-on from East Tract (proposed)	11.91	0	0	≈ 1.0	72.48	65.79*
Runoff from East Facility (proposed)	3.68	1.80	0.4891	0.16	40.51	6.48
Runoff from east Nexus property (facility + existing)	4.91	1.80	0.3666	0.31	54.21	16.80
Total runoff from eastern drainage subarea (proposed)	16.83	1.80	0.107	> 0.8	88.24	> 70.59
Run-on to West Tract (existing)	13.24	0	0	≈ 1.0	136.36	N/A
Western drainage subarea (existing)	14.12	0	0	≈ 1.0	145.96	N/A
Diverted run-on from West Tract (proposed)	13.24	0	0	≈ 1.0	136.36	111.57*
Runoff from West Facility (proposed)	0.93	0.182	0.1957	0.73	10.13	7.39
Total runoff from western drainage subares (proposed)	14.16	0.182	0.0128	> 0.8	119.73	> 95.78

***Note also that the proposed diversion of run-on acts as *de facto* detention by increasing time of concentration and consequently decreasing peak discharge.**

Proposed detention and diversion (segregation) of run-on will significantly reduce peak discharge from the eastern and western portions of the Nexus Facility as well as peak discharge from the eastern and western drainage subareas.

CONCLUSIONS

The proposed Nexus Facility is at the bottom of an approximately 33-acre watershed that is divided between Cunningham and Thomas Roads. The existing eastern (Thomas Road) drainage subarea is primarily improved pasture / residential development. The existing western (Cunningham Road) drainage subarea is primarily industrial development. As a result of these differences in existing conditions between the two drainage subareas, higher discharges and runoff volumes are associated with the western drainage.

Run-on will be diverted to either road (road-side ditch) as part of the development. Run-off generated from the Facility will be routed through City-of-Houston required detention. **No change in drainage areas or patterns is proposed as part of the development.**

TCEQ-required Rational Method calculations show that post-development peak discharge increases for the eastern (Thomas Road) drainage subarea. This reflects the effect of development on a relatively undeveloped drainage area. The western (Cunningham Road)

drainage subarea discharge is relatively unaffected. Regardless, the Rational Method calculations do not allow for the effect of proposed detention.

NRCS TR-55 calculations for runoff volume indicate negligible increases for the western drainage subarea and increases of only a few percent for the eastern drainage subareas. TR-55 calculations show that the proposed facility will reduce peak discharge without considering any detention; however, detention is proposed in accordance with City of Houston requirements. The TR-55 calculations show proposed detention of runoff and diversion (segregation) of run-on will significantly reduce peak discharge from the eastern and western portions of the Nexus Facility as well as peak discharge from the eastern and western drainage subareas.

NEXUS's proposed development will not have an adverse impact on surface water drainage. A comparison of the proposed NEXUS Facility "developed conditions" with existing conditions illustrates the minimal impact to drainage:

- No change in drainage area or patterns.
- No significant changes in runoff volumes.
- Reduced peak discharges

The design of the Nexus Facility complies with the requirements of **30 TAC 330.303 – Surface Water Drainage for Municipal Solid Waste Facilities**.

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U.S. Department of Commerce, *Rainfall Frequency Atlas of the United States*, Technical Paper No. 40, 1961.

ATTACHMENT

11 x 17 **Drainage Area Map**

PETROPARK

REAGAN

EXISTING RUN-ON DRAINAGE AREA (APPROX. 27.3 ACRES)

CUNNINGHAM

THOMAS

UNNAMED DRAINAGE CHANNEL

OVERLOOK

SITE LOCATION

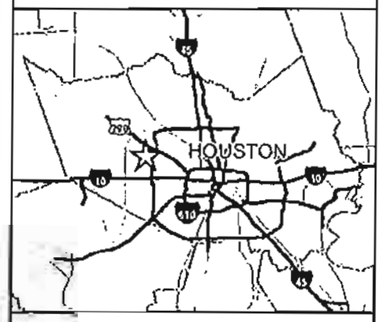
DRAINAGE AREA MAP

NEXUS MATERIAL RECOVERY & TRANSFER STATION

TYPE V MSW REGISTRATION

NEXUS CONTINUUM LLC

HARRIS CO, TX



LEGEND

- REGISTRATION BOUNDARY
- PROPERTY BOUNDARY
- DRAINAGE AREA
- DRAINAGE CHANNEL
- 1-FOOT INDEX CONTOUR
- 1-FOOT INTERMEDIATE CONTOUR

STATE OF TEXAS
PIERCE L. CHANDLER, JR.
33368
LICENSED
PROFESSIONAL ENGINEER

Oct 10, 2011

Texas Registered Engineering Firm F-566

SOURCE: 2008, HOUSTON-GALVESTON AREA COUNCIL

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NEXUS CONTINUUM

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Part IV

Nexus Continuum, LLC

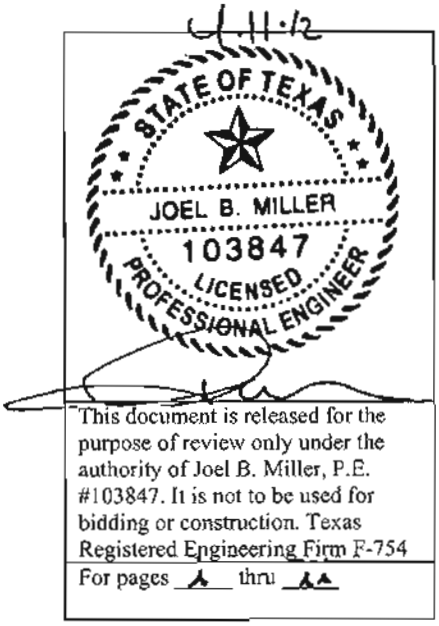
Type V- Municipal Solid Waste Facility

Nexus Material Recovery and Transfer Station

MSW Registration No. XXXXX

Harris County
Houston, Texas

April 2012



Nexus Material Recovery and Transfer Station
Part IV
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4.11.12

STATE OF TEXAS
JOEL B. MILLER
103847
LICENSED
PROFESSIONAL ENGINEER

This document is released for the purpose of review only under the authority of Joel B. Miller, P.E. #103847. It is not to be used for bidding or construction. Texas Registered Engineering Firm F-754

For pages 1 thru 99

1.0 SITE OPERATING PLAN

The Site Operating Plan (SOP) contains information about how Nexus Continuum, LLC (Nexus) will conduct operations at the Nexus Material Recovery and Transfer Station, but is not intended to be a comprehensive operating manual. The SOP represents the general instruction for facility management and personnel to operate the facility in a manner consistent with the approved design and the commission's rules to protect human health and the environment and prevent nuisances. The SOP will be maintained onsite throughout the life of the facility.

This SOP consists of the information required by Title 30, Texas Administrative Code (TAC), Chapter 330, Subchapter E: Operational Standards for Municipal Solid Waste Storage and Processing Units, 30 TAC §330.201–§330.249. This SOP (sometimes called Part IV) includes provisions for facility management and operating personnel to meet the general and site-specific requirements of these rules.

2.0 TRANSFER STATION PERSONNEL

Table IV-1 summarizes personnel types and descriptions at the Nexus Material Recovery and Transfer Station.

Table IV-1: Personnel Types and Descriptions

Position	Training	Responsibilities
Site Supervisor	Must hold and maintain MSW Supervisor Occupational license Class B*, experience in material recovery/transfer station management and operations	Managing daily work operations; ensure all waste entering facility is taken and maintained in proper location in accordance with the SOP; initiate emergency procedures; watch trucks unloading, lock facility gates after closing hours, check fire extinguishers, check batteries in smoke detectors
Screener	Waste screening training	Responsible for visually observing unloading activities to detect unacceptable wastes and for directing vehicles to the appropriate unloading location
Equipment Operator/ Sorter	6 months minimum experience in equipment operation or on the job training by supervisor in SOP requirements for prohibited waste	Waste movement and loading, sorting and compacting recyclables, general facility road maintenance, watch the sorters working on the tipping floor, lock facility gates after closing hours, check fire extinguishers, check batteries in smoke detectors Also responsible for screening for prohibited or unauthorized waste during truck unloading.
Gate Personnel	Training by supervisor in the SOP, record keeping requirements, and waste screening	Controls facility access, inspect loads as outlined in the SOP, and provide general hauler direction and information, and lock facility gates after closing hours.
Laborer	Waste screening by supervisor	Litter control, waste screening, sorting recyclables, site maintenance. These responsibilities may be designated to other personnel.

*30 TAC §30.213(a) relating to Occupational Licensing for Municipal Solid Waste Facility Supervisors requires license level Class B and Class A for a Type V Storage and Processing facility.

A sufficient number of employees will be maintained to keep the site in compliance with all applicable rules and regulations. All personnel will have sufficient training and experience to perform their specific duties. Other personnel include material sorters and truck drivers.

More detailed job descriptions along with written descriptions of the type and amount of introductory and continued training provided to each employee will be maintained in the facility operating record.

Sorters will work on the tipping floor to separate incoming materials. Recyclable material will be sorted and placed in appropriate bins for later transport to a recycling facility. Material not able to be recycled will be loaded in transfer trailers for transport to a permitted MSW disposal facility.

3.0 PERSONNEL TRAINING

Personnel training records will be maintained in accordance with §330.219(b) (2).

Personnel operator licenses issued in accordance with 30 TAC Chapter 30, Subchapter F, Municipal Solid Waste Facility Supervisors, will be maintained as required.

3.1 Training Requirements

The owner or operator will ensure that the transfer station Site Supervisor at the facility is knowledgeable in the proper operation of a municipal solid waste facility and the current operational standards required by the TCEQ. The Site Supervisor will be experienced and will maintain a Class B or Class A license as defined in 30 TAC §30.213(a) The required license may also be held by the Supervisor's designee. The Site Supervisor will ensure that all personnel are properly trained and are operating the transfer station in accordance with this SOP and operational standards required by the registration and the TCEQ municipal solid waste regulations.

The Site Supervisor will be responsible for executing the safety program requirements of the facility. The Site Supervisor's responsibility includes providing training of personnel at the facility and documenting and maintaining training records. Site specific training will be provided to all personnel by the Site Supervisor or his designee. The training will address activities, procedures, monitoring and equipment associated with the activities at this facility. Each employee upon hiring will be instructed by management as to proper procedures for performing the specific job for which they were hired. The first day on the job each employee will be given a tour of the entire facility to familiarize themselves with the location of fire extinguishers, telephones, emergency telephone number, and the location of safety equipment and Material Safety Data Sheets (MSDS).

4.0 EQUIPMENT

Table IV-2 summarizes the equipment used at the facility. The equipment type, size and function are also included. Equipment requirements for MSW acceptance and site support will vary in accordance with the method and scope of activities on site at any given time. Additional, or different units of equipment, may be provided as necessary to enhance operational efficiency. Sizes will vary with types and amounts of waste and work conducted on-site.

The following generally describes the functions of the heavy equipment listed below.

- Front-end Loader – loading of containers for transport
- Transfer trailers – consolidates waste to be hauled to the landfill and recyclable materials to be hauled to market
- Trailer Mule – used to jockey trailers around the site
- Roll-off Mule – used to jockey roll-off boxes around the site
- Roll-off containers – storage of waste or recyclable materials
- Recycling containers – storage of recyclable materials
- Truck scale – weighs in-bound and out-bound vehicles to determine amount of waste delivered/recyclables removed or loaded
- Water Truck – used for dust suppression
- Excavator – used for moving and loading waste and recyclables, as well as for facility maintenance as necessary

Table IV-2: Facility Equipment List

Equipment Type	Typical Size	Function
Rubber Tire Bucket Loader	2 yard	The front end loader will be used to load waste from the processing floor and recyclables
Tarpable Transfer Trailers	80-125 yards	Waste and recyclables are transferred from the processing floor and hauled off-site
Recycling Containers	8-40 yards	These containers will be located in the recycling storage area. The purpose will be clearly designated on each container. May be roll-off boxes or other storage bins
Truck Scale	70 feet	Weighs Waste and Recyclables
Water Truck	varies	Dust Control (as needed)
Excavator		Used for moving and loading waste and recyclables. Also used for facility maintenance as necessary
Trailer Mule		Used to move transfer trailers around within the site boundaries
Roll-off Mule		Used to move roll-off boxes around within the site boundaries

Equipment may change, as necessary, to adequately maintain the facility and meet the operational standards required by the regulations in accordance with federal, state and local agencies. Equipment and vehicles may be owned, rented, leased or loaned. In addition to the equipment listed in Table 2, a variety of other operations, service and support vehicles and equipment may be used at the facility to conduct the day-to-day operations. These may include miscellaneous pickups, vans, and other light utility vehicles, as well as, various pumps and instruments. Safety and training equipment will be available at the facility as necessary to support the various operations.

5.0 FACILITY INSPECTIONS AND MAINTENANCE

Table IV-3 outlines the facility inspection and maintenance list. The Site Supervisor or a designee will perform the task (inspection of the fences, facility signs, drainage ditches, etc). The inspection documentation will be retained in the operating record. Equipment maintenance, facility inspection and corrective action, if required, will be performed monthly, or more often if necessary. Maintenance reports, inspection logs, and corrective action reports will be placed in the site's operating record. Sanitation and litter control procedures will be followed on a daily basis. All working surfaces that come in contact with waste will be washed at least weekly at the completion of processing period (end of the working day).

Table IV-3: Facility Inspection and Maintenance List

ITEM	TASK	Frequency
Fence/Gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Monthly
Litter and Windblown Waste	Police working area, wind fences (if any), access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Roads minimum once a day as part of the scheduled daily routine on days the site is in operation
Waste Spilled on Route to the Facility	Nexus will use its own forces or contract labor for litter removal, collect litter around the entire site perimeter and for a distance from the site entrance for 2 miles along Cunningham Road.	Daily on days the facility receives wastes
Facility Access Road	Inspect internal facility access road for damage from vehicle traffic or erosion. Maintain as needed.	Weekly - more often during wet weather or extended dry weather periods
Facility Signs	Inspect all facility signs for damage, general location, and accuracy of posted information.	Weekly
Drainage Ditches	Inspect and restore if necessary, maintain to prevent tracking mud onto the public access roads.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more
Odor	Inspect the perimeter of the facility to assess the performance of facility operations to control odor.	Daily

6.0 WASTE ACCEPTANCE AND ANALYSIS

30 TAC §330.203

The amount of material that will be received at the facility is estimated to be a maximum of 5,000 cubic yards per day (CY/d). Based on an average incoming density of 400 pounds per cubic yard, the anticipated maximum material to be received is expected to be 1,000 tons per day (TPD). The facility will have the capacity to transfer up to 5,000 CY/d. This is based on the ability to load two 125 CY transfer trailers in an hour (250 CY/hr x 20 hours – assumes 4 hours of down time). This reflects an average waste processing time of 250 CY/hr (0.24 min/CY) at full capacity. If smaller capacity trailers are utilized, the maximum amount of material that can be processed may be less than the stated 5,000 CY/d. With smaller trailers and/or less incoming waste, the waste processing time could increase up to an expected maximum waste processing time of 120 CY/hr (0.50 min/CY) at lower (initial) capacity. It is anticipated that 2,400 cubic yards per day will be received initially. The maximum amount of waste and recyclable material to be received is 5,000 CY per day, of which a minimum of 500 cubic yards per day will be recovered and sent for reuse or recycling.

The facility proposes to operate up to 24 hours per day seven days per week and expects to receive a maximum of about 365,000 tons per calendar year. The population equivalent (based on 5 pounds per capita per day) of 365,000 tons per year is 400,000. The following Table IV-4 shows the maximum amount of solid waste to be received daily and annually for the next five years. These projections are not intended to limit the receipt to less than the maximum of 5,000 cubic yards per day.

Table IV-4: Projected Waste Acceptance

Year	Daily (CY)	Annually (CY)
1	2,400	876,000
2	2,640	963,600
3	2,904	1,059,960
4	3,194	1,165,956
5	3,514	1,282,552

Note: Increase is assumed at 10% per year.

The maximum amount of solid waste and recyclables to be stored at the facility is based on 43 transfer trailers loaded with an average of 125 cubic yards of material each. Therefore, a maximum of 5,375 cubic yards may be stored. Once this storage volume has been received, no additional material will be accepted until an equal volume is removed. If smaller trailers are utilized for storage, the maximum storage volume may be reduced.

The average length of time that solid waste will be stored at the facility is expected to be 24 hours with a maximum length of 72 hours. Solid waste will be delivered to a permitted area landfill. The average length of time that recyclable materials will be stored at the facility is expected to be two days with a maximum length of 180 days, depending on the market at the time. Recyclable material will be delivered to local commodity markets.

6.1 Authorized Wastes

The transfer station will receive the following materials for storage and processing:

- Residential or household municipal solid waste and recyclable material
- Commercial municipal solid waste and recyclable material

The Nexus facility will receive both recyclable and non-recyclable materials. The materials that typically can be sent for reuse or recycling include brush, yard and wood waste, Construction and Demolition (C&D) debris, and inert materials (including aggregates), white goods and other metals. Non-recyclable materials could include MSW, tramp materials or any of the materials described above should a market not be available, the material deemed unacceptable and require disposal or reuse/recycling is not cost effective.

C&D material is a result of construction or demolition projects and it includes all materials that are directly or indirectly the by-products of construction work or that result from demolition of buildings

and other structures, including, but not limited to, paper, cartons, gypsum board, wood, excelsior, rubber, plastics, metal, and aggregates. The majority of this material is recyclable, and recycled material markets are well-established for materials typically found in this waste stream in the area (see Part I, Figure 1). Processing (sorting, consolidating, etc.) is necessary to produce commodities that achieve certain quality standards for reuse/recyclint. Based on the experience of Nexus in collecting and processing C&D materials, only 10 to 20 percent of the C&D material received is not recyclable. This material will be separated from the marketable commodities and transferred to a Houston-area permitted landfill once deemed unacceptable for reuse or recycling.

The facility will not accept the following for processing or disposal:

- Items containing chlorinated fluorocarbons (CFC's), such as refrigerators, freezers, and air conditioners, will only be accepted at the site if the generator or transporter provides written certification that the CFC has been evacuated from the unit and that it was not knowingly allowed to escape into the atmosphere
- Liquid waste (any waste material that is determined to contain "free liquids" as deemed by EPA Method 9095 (Paint Filter Test), as described in "Test Methods for Evaluating Solid Wastes, Physical Chemical Methods" (EPA Publication Number SW-846)) shall not be accepted unless it is:
    - Bulk or noncontainerized liquid waste that is:
        - Household waste other than septic waste; or
        - Contained liquid waste and the container is a small container similar in size to that normally found in the household waste;
        - The container is designated to hold liquids for use other than storage; or the waste is a household waste.
- Regulated Asbestos Containing Materials
- Hazardous waste from conditionally exempt small-quantity generators that may be exempt from full controls under 30 TAC 335, Subchapter N, Household Materials Which Could Be Classified as Hazardous Wastes
- Class 1 industrial nonhazardous waste

- Untreated medical waste
- Municipal wastewater treatment plant sludges, other types of domestic sewage treatment plant sludges, and water-supply treatment plant sludges
- Septic tank pumping
- Grease and grit trap wastes
- Wastes from commercial or industrial wastewater treatment plants; air pollution control facilities; and tanks, drums, or containers used for shipping or storing any material that has been listed as a hazardous constituent in 40 Code of Federal Regulations (CFR) Part 261, Appendix VIII but has not been listed as a commercial chemical product in 40 CFR §261.33(e) or (f)
- Slaughterhouse wastes
- Dead animals
- Drugs, contaminated foods, or contaminated beverages, other than those contained in normal household waste
- Pesticide (insecticide, herbicide, fungicide, or rodenticide) containers
- Discarded materials containing asbestos
- Incinerator ash
- Soil contaminated by petroleum products, crude oils, or chemicals in concentrations of greater than 1,500 milligrams per kilogram total petroleum hydrocarbons; or contaminated by constituents of concern that exceed the concentrations listed in Table 1 of §335.521(a)(1) (relating to Appendices)
- Waste from oil, gas, and geothermal activities subject to regulation by the Railroad Commission of Texas when those wastes are to be processed, treated, or disposed of at a solid waste management facility authorized under this chapter
- Waste generated outside the boundaries of Texas that contains:
    - Any industrial waste;
    - Any waste associated with oil, gas, and geothermal exploration, production, or development activities; or
    - Any item listed as a special waste in this paragraph;

- Lead acid storage batteries
- Used-oil filters from internal combustion engines

6.1.1 Measures for Controlling Prohibited Wastes

Procedures to detect and control the receipt of prohibited wastes include:

1. Informing facility customers of prohibited wastes by posting one or more signs at the facility entrance listing prohibited wastes.
2. Providing customers (regular, one-time or occasional) with a written list of prohibited wastes.
3. Informing all drivers of incoming waste hauling vehicles that have indicated they will deliver waste to the facility by:
    - Posting one or more signs at the facility entrance listing prohibited wastes.
    - Providing all vehicle drivers and transfer station operators with a written list of prohibited wastes.
4. Facility personnel training and activities
    - Training for appropriate facility personnel responsible for inspecting or observing incoming loads to recognize regulated hazardous waste and polychlorinated biphenyl (PCB) waste.
    - Maintaining records of all inspections.
    - Notification of the TCEQ of any incident involving a regulated hazardous waste or a PCB waste.
    - Remediation of any regulated hazardous waste or PCB waste discovered at the facility in accordance with §335.349.

Random visual inspections of incoming waste will be conducted. The following summarizes the inspection process:

6.1.2 Inspection Procedures

Facility personnel will be trained to inspect vehicles and identify regulated hazardous waste, PCB waste, and other prohibited wastes. At a minimum, Equipment Operators will be trained in inspection procedures for prohibited waste. The personnel will be trained on an on-the-job basis by their supervisors. Records of employee training on prohibited waste control procedures will be maintained in the site operating record. The personnel will be trained to look for the following indications of prohibited waste:

- Yellow hazardous waste or PCB labels
- DOT hazard placards or markings
- Liquids
- 55-gallon drums
- 85-gallon overpack drums
- Powders or dusts
- Odors or chemical fumes
- Bright or unusual colored wastes
- Sludges

If facility personnel identify any of the above indications with an incoming load, then that load will be directed to an area out of the flow of traffic, and the personnel will further assess the load. If the load is determined to contain prohibited waste or if there is any possibility that it may be prohibited waste, the load will be rejected and directed back to the generator. All employees will be diligent in looking for trucks bringing in waste loads from potential sources of prohibited waste such as industrial facilities, microelectronics manufacturers, electronic companies, metal plating industry, automotive and vehicle repair service companies, and dry cleaning establishments.

6.1.3 Health and Safety

Safety precautions and personal protective equipment shall be part of the random inspection process to allow for safe inspections. The supervisor shall provide recommendations in the written protocol for the site safety precautions to be taken during the inspection. Inspector(s) shall wear personal

protective equipment that is appropriate to the waste being inspected. At a minimum the inspector(s) shall wear:

- gloves,
- work boots, and
- clothing which
- minimizes contact of waste with the skin (i.e., long sleeve shirt).

Additional personal protective equipment may be required if hazardous material are identified. These may include:

- eye protection,
- respirator with appropriate cartridge filters (i.e., organic vapor or particulate),
- uniform or cloth coveralls,
- head cover,
- spotter (safety) vest, and
- hearing protection.

6.1.4 Record-Keeping

All inspection records, training procedures, and notification procedures and records relating to prohibited waste will be maintained in the facility's operating record.

6.2 Special Waste Receipt

No special wastes will be accepted at the facility.

6.3 Facility-Generated Wastes

30 TAC §330.205

Wastes generated by the facility will be limited to: (1) liquid waste resulting from occasional washing of the tipping floor and operating equipment; and (2) minor solid waste generated from facility personnel and visitors collected in waste receptacles.

Liquid waste generated by the facility will be managed as described in the following section, Section 7.0 Contaminated Water Management. Solid waste generated at the facility will be processed or disposed at an authorized solid waste management facility.

7.0 CONTAMINATED WATER MANAGEMENT

30 TAC §330.207

All liquids resulting from the operation of the Transfer Station will be disposed of in a manner that will not cause surface water or groundwater pollution. Contaminated water will be collected and contained until properly managed. Contaminated water from received waste and from tipping floor washdown will be collected and stored onsite in a storage tank with either built-in or external secondary containment. The storage tank will be manufactured for liquid storage and will have a minimum capacity of 5,000 gallons. The tank will be coated per manufacturer instructions as an aid against corrosion. Off-site discharge of contaminated waters will be made only after approval under the Texas Pollutant Discharge Elimination System authority.

This Transfer Station does not use leachate or gas condensate for mining processes, nor does it process grease trap waste, grit trap waste, septage, or mobile liquid waste, therefore §330.207(c) and (d) do not apply.

Wastewaters discharged to a treatment facility permitted under Texas Water Code, Chapter 26 will not:

1. interfere with or pass-through the treatment facility processes or operations
2. interfere with or pass-through its sludge processes, use, or disposal
3. otherwise be inconsistent with the prohibited discharge standards, including 40 Code of Federal Regulations Part 403, General Pretreatment Regulations for Existing and New Source Pollution

Upon receipt of a discharge authorization by the receiving treatment plant owner/operator, a sampling plan will be developed according to the applicable requirements of the discharge authorization. At a minimum, effluent from the facility will be analyzed annually for TPH, fats, oil and grease, and pH. Records of each analysis shall be maintained at the facility for a minimum of three years. All sampling and analysis shall be done according to EPA-approved methods.

Final disposition of the contaminated water will be by permitted discharge into an existing sanitary sewer line at the site, for treatment at an authorized wastewater treatment plant. As a contingency, Nexus will have the ability to truck-haul wastewater to a permitted waste-water treatment plant. The daily effluent design standard for oil and grease concentration leaving the facility and entering the public sewer system will not exceed the concentration established in the wastewater discharge authorization pretreatment limit.

8.0 STORAGE REQUIREMENTS

30 TAC §330.209

All solid waste will be stored in such a manner that it does not constitute a fire, safety, or health hazard or provide food or harborage for animals and vectors, and shall be contained or bundled so as not to result in litter.

An on-site storage area for source-separated or recyclable materials will be provided that is separate from the tipping floor or process area. These materials will be stored in separate bins, roll-off boxes or transfer-trailers. Control of odors, vectors, and windblown waste from the storage area will be maintained.

9.0 RECEIPT OF LARGE ITEMS

Items classified as large, heavy, or bulky will not be accepted for disposal but may be recycled. These items include, but are not limited to, air conditioner units, metal tanks, large metal pieces, and automobiles which cannot be incorporated in the regular transfer trailer. If specifically destined for recycling, these items as well as white goods and other used appliances will be accepted and consolidated in an area adjacent to the processing building. The owner or operator will remove the items from the facility often enough to prevent these items from becoming a nuisance and to preclude the discharge of any pollutants from the area.

Appliances, which once contained CFCs, will be visually inspected to confirm that they have been drained of CFCs prior to being processed for recycling (in accordance with 40 Code of Federal Regulations §82.156(f), as amended.

10.0 APPROVED CONTAINERS

30 TAC §330.211

On-site storage of recyclables and municipal solid waste will be in covered or closed odor-retaining containers constructed of metal and are leak proof, durable, and designed for safe handling and easy cleaning. Reusable containers will be maintained in a clean condition so that they do not constitute a nuisance and to retard the harborage, feeding, and propagation of vectors. Non-reusable containers will not be used. Containers will be covered by metal or plastic attached covers, or polyvinyl tarp covers. These covers will be water, weather and abrasion resistant; and will provide coverage of the container contents to limit exposure to precipitation. Containers that are emptied manually will be capable of being serviced without the collector coming into physical contact with the waste. Containers that are mechanically emptied will be designed to prevent spillage or leakage during storage, handling, and transport.

11.0 RECORDKEEPING AND REPORTING REQUIREMENTS

30 TAC §330.219

A copy of the registration, the approved registration application and all other related or required plans or documents will be maintained at the facility during construction and throughout the active life of the site and shall be considered a part of the operating record of this facility. In addition, information and data shall be recorded, as appropriate, in the operating record to be retained at the site during the active life of the site. Upon request by the TCEQ or other interested parties, all such documents will be made available for inspection.

The following records will be kept, maintained and filed as part of the facility operating record. Log books and schedules may be used.

- Access Control Inspection and Maintenance
- Waste Screening Records
- Daily Litter Inspection and Pickup (including adjacent roadways)
- Windblown Waste and Litter Control Operations
- Dust Nuisance Control Efforts
- Access Roadway Regrading
- Salvaged Material Storage Nuisance Control Efforts
- Fire Occurrence Notices

In addition to the plans and documents listed above, the information in Table IV-5 will be recorded and retained in the operating record. This information will be placed in the operating record within seven working days of completion or upon receipt of analytical data, as appropriate.

Table IV-5: Operating Record

Records To Be Maintained	Rule Citation
1. All location-restriction demonstrations	§330.219(b)(1)
2. Inspection records, training procedures and notification procedures relating to excluding the receipt of regulated hazardous waste and PCB waste	§330.219(b)(2)
3. Closure plans and any monitoring, testing, or analytical data relating to closure requirements	§330.219(b)(3)
4. All cost estimates and financial assurance documentation relating to financial assurance for closure	§330.219(b)(4)
5. Copies of all correspondence and responses relating to the operation of the facility, modifications to the permit/registration, approvals, and other matters pertaining to technical assistance	§330.219(b)(5)
6. All documents, manifests, trip tickets, etc. involving Class 2 or 3 non-hazardous industrial waste	§330.219(b)(6)
7. Any other document(s) as specified by the approved registration or by the TCEQ	§330.219(b)(7)
8. Alternative schedules and notification requirements if applicable	§330.219(g)
9. Records on a monthly basis to document the relevant recycling percentage of incoming processed waste, quarterly solid waste summary reports and the annual solid waste summary reports by March 1st summarizing recycling activities and percent of recycled incoming waste for past calendar year	§330.219(b)(9)
10. Inspection records and training procedures relating to fire prevention and facility safety	§330.221
11. Access control breach and repair notices	§330.223
12. Record of alternative operating hours if applicable	§330.229(b)

The signatories to any reports submitted to the TCEQ will be in compliance with the conditions listed in §330.219(c). All information contained in the operating record shall be furnished upon request to the TCEQ and will be made available for inspection at any time, as required in §330.219(e). The owner will retain all information contained within the operating record and any required plans for the life of the facility, in accordance with §330.219(f).

12.0 FIRE PROTECTION

30 TAC §330.221

Fire Protection Plan

The following steps are taken regularly at the facility by designated personnel to prevent fires:

- Operators will be alert for signs of burning waste such as smoke, steam, or heat being released from incoming waste loads.
- Equipment used to move waste will be routinely cleaned through the use of high pressure water or steam cleaners. The high pressure water or steam cleaning will remove combustible waste and caked material which can cause equipment overheating and increase fire potential.
- Smoking is not permitted near the tipping floor.

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 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 fire fighting 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.

Fire Fighting Methods

Fire fighting methods for burning solid waste include smothering the waste, separating burning material from other waste, or spraying with water if available from an on-site source. Small fires might be controlled with hand-held extinguishers.

If a fire occurs on a vehicle or piece of equipment, the equipment operator will bring the vehicle or equipment to a safe stop. If safety of personnel will allow, the vehicle will be parked away from fuel supplies, uncovered solid wastes, and other vehicles. The engine will be shut off and the brake engaged to prevent movement of the vehicle or piece of equipment.

Water Supply

A pressurized water supply will be maintained on-site.

Fire Equipment

The facility will be equipped with fire extinguishers of a type, size, location, and number as recommended by the local fire department. Each fire extinguisher will be fully charged and ready for use at all times. Each extinguisher will be inspected on an annual basis and recharged as necessary. A qualified service company will perform these inspections, and all extinguishers will display a current inspection tag. Inspection and recharging will be performed following each use. All waste management equipment and vehicles will be equipped with fully charged fire extinguishers.

Fire Protection Training

Training of on-site personnel in firefighting techniques, fire prevention, response, and the fire protection aspects of the SOP will be provided, by established professionals, on an annual basis. Personnel will be familiar with the use and limitations of firefighting equipment available onsite. Records of this training will be included in the operating record for the facility.

TCEQ Notification

After any fire (related to waste management activities that cannot be extinguished within 10 minutes of discovery) occurs, the TCEQ regional office will be contacted. The notification to the regional office will include:

- Contacting by telephone as soon as possible, but no later than 4 hours following fire discovery, and
- Providing a written description of the cause and extent of the fire and the resulting fire response within 14 days of fire detection.

The facility will provide to the appropriate regional office as much information as possible regarding the fire and fire-fighting efforts, as soon as possible after the fire occurs.

The fire prevention and fire control procedures for the facility will be revisited following the occurrence of a significant fire to determine if modifications are warranted.

13.0 ACCESS CONTROL

30 TAC §330.223

Public access will be controlled to minimize unauthorized vehicular traffic, unauthorized and illegal dumping, and public exposure to hazards associated with waste management. Controlled access will be obtained by chainlink and metal screening fences and gates.

The main point of access to the site by vehicular traffic is by means of the main entrance on Cunningham Road. A fence with a lockable gate will be installed, and truck traffic will be physically routed through the currently existing roof structure for entrance processing. The exterior gate will be closed and locked during non-operating hours. The remainder of the site will be enclosed by chainlink and metal screening fence that connects to the Cunningham Road frontage fence. The chainlink and metal screening fence will be at least eight feet in height throughout. When the main entrance gate is opened, any person or vehicle entering the site will be within view of Nexus personnel at the check-in facility. Nexus personnel will not allow any unauthorized entry or deposition of solid waste or hazardous materials. A sign, indicating the type of site, the hours and days of operation, and the registration number will be located at the entrance through which wastes are received. An administrative entrance will be located on the eastern boundary with vehicular access to Thomas Road. This entrance will be available for small vehicle traffic for Nexus personnel and will not include waste delivery. The exterior gate will be closed and locked during non-operating hours, and when it is opened, any person or vehicle entering the site will be within view of Nexus personnel at the administrative office. The entrance gates and the type and location of the perimeter fencing are shown on the Facility Layout (Part III, Figure 1). Perimeter fences will be inspected at least on a quarterly basis. Records of these inspections are required maintenance and will be kept in the site's operating record.

When there is an access breach, the commission's regional office, and any local pollution agency with jurisdiction that has requested to be notified, must be notified within 24 hours of detection. The breach must be temporarily repaired within 24 hours of detection and must be permanently repaired by the time specified to the commission's regional office when it was reported in the initial breach

report. If a permanent repair can be made within eight hours of detection, no notice to the commission's regional office is required. Otherwise, notification is required to the commission's regional office when a permanent access control breach repair is completed.

The existing site entrance is a paved asphalt driveway. The entrance road, and all interior access roads leading to the unloading areas, will be all-weather roads able to accommodate the expected traffic flow. Only vehicles authorized by the manager, personnel vehicles, and authorized haul vehicles will have access beyond the facility entrance. Signage will direct users to the entrance of the facility. Additional signage within the facility will provide direction to unloading areas.

Access roads are two-way roads designed to accommodate the turning radii of all vehicles entering the site. Parking areas for employees and users of the facility will be provided. Equipment will be parked adjacent to the unloading areas. Waste will be unloaded directly onto the tipping floor of the processing building by the collection vehicles. If the load contains mostly one type of material, it may be unloaded directly to the appropriate storage bin or transfer trailer onsite. Once the roll-off containers have unloaded on the tipping floor, the loads will be sorted by hand by sorting personnel. All unauthorized waste will be returned to the generator. If an item is too contaminated or deteriorated to have value for recycling or if the material has no economic value as a recyclable commodity or has no practical reuse potential, the material will then become MSW, and will be placed in a transfer trailer and hauled to the nearest properly permitted landfill when the transfer trailer reaches capacity. The selectively separated recyclable commodities will be stored temporarily in separate storage bins, transfer trailers or roll-off containers onsite. When a sufficient quantity of a particular commodity has accumulated, it will be hauled to market. The Process Flow Diagram (Part III Figure 2) provides a graphical overview of the proposed process.

Dust will be controlled as needed by spraying the haul roads and frequent equipment routes with water using the on-site water truck or water hoses. Any mud that may accumulate will be removed as soon as is practicable.

14.0 UNLOADING OF WASTE

The process area for the unloading of solid waste will be confined to as small an area as practical within the processing building in order to maintain the appearance of the site, minimize windblown litter, and minimize stormwater contamination. The minimum building size will be 150 feet in length by 100 feet in width. The maximum size of the building will be 200 feet in length by 100 feet in width. The building may be constructed in one or more phases.

The unloading of waste in unauthorized areas is prohibited. Any waste deposited in an unauthorized area will be removed immediately and managed properly. The Equipment Operators will monitor all incoming loads of waste. The supervisor and/or his designated representative will be on duty during regular operating hours to direct unloading of waste. Appropriate signs will be used to indicate where vehicles are authorized to unload. The facility is not required to accept any solid waste that may cause problems in maintaining full and continuous compliance with the registration.

The Equipment Operators will be familiar with the rules and regulations governing the various types of waste that can or cannot be accepted into the facility. All site personnel will also have a basic understanding of both industrial and hazardous waste and their transportation and management requirements.

Certain wastes are prohibited from management at the facility. Prohibited wastes are described in Waste Acceptance and Analysis section (Section 8.0) of this plan. The unloading of prohibited wastes at the facility will not be allowed. The operator will take necessary steps to ensure compliance. Personnel have the authority and responsibility to reject unauthorized loads, have unauthorized material removed by the transporter, and/or assess appropriate surcharges, or have the unauthorized material removed by on-site personnel and otherwise properly managed by the facility. Any prohibited waste not discovered until after unloading will be placed back in the offending transporter's vehicle, if possible, or otherwise returned promptly to the transporter or generator of the waste. The driver may be advised where the waste may be managed or disposed of legally and will be responsible for the proper handling of this rejected waste.

In the event the unauthorized waste is not discovered until after the delivery vehicle is gone, the waste will be segregated and controlled as necessary. The supervisor will make an effort to identify the entity that deposited the prohibited waste and have them return to the facility and properly dispose of the waste. In the event that identification is not possible, the supervisor will notify the TCEQ and seek guidance on how to remove and dispose of the waste as soon as practical. A record of unauthorized material removal will be maintained in the operating record.

Only those persons operating vehicles that comply with the following requirements will be authorized by the supervisor to transport waste to and from this facility:

1. All vehicles and equipment used for the collection and transportation of waste will be operated, and maintained to prevent loss of waste material and to limit health and safety hazards to facility personnel and the public.
2. Collection vehicles and equipment will be maintained in a sanitary condition to preclude odors and fly breeding.
3. Collection vehicles not equipped with an enclosed transport body will use other devices such as nets or tarpaulins to preclude accidental spillage and wind blown litter.

Facility personnel will keep vigilant watch for compliance with operating requirements. Signs with directional arrows and/or portable traffic barricades will help to restrict traffic to designated unloading locations. In addition, rules for waste receipt and prohibited waste will be prominently displayed on signs at the facility entrance.

15.0 SPILL PREVENTION AND CONTROL

30 TAC §330.227

Storage and processing areas are designed to control and contain spills and contaminated water from leaving the facility. All storage and processing areas are covered and are therefore not subject to runoff from direct rainfall. The only contaminated water is wash water. The wash water is controlled within the building and the transfer-trailer loading area with sloped floors that drain to a contaminated water storage tank onsite. In addition, the cleaning of waste processing equipment and vehicles will be performed within the processing facility so that the contaminated wash water will be captured. The contaminated water will be pumped to the sanitary sewer line onsite for disposal, or hauled by truck to a permitted wastewater treatment plant. In all cases final disposal of the contaminated water will take place prior to the tank reaching 70% capacity.

A worst-case spill condition can be estimated by assuming complete rupture of the contaminated water tank. The tank will be dual contained, and will have a minimum capacity of 5,000 gallons. Secondary containment will be provided by berms or dikes as shown on Part III, Figure 6; and the capacity of the secondary containment (if open to precipitation) will be a minimum of 10,000 gallons, in order to hold the largest tank volume plus the 25-year, 24-hour storm (precipitation event of 11 inches per the TxDOT Hydraulic Design Manual). Therefore, the worst-case spill of tank rupture during the 25-year event will be able to be contained in the secondary containment berm.

16.0 FACILITY OPERATING HOURS

30 TAC §330.229

The facility will be authorized to accept waste and operate equipment and transport vehicles 24 hours a day, 7 days a week. Since the facility will be permitted to operate 24 hours a day, no alternate or emergency operating hours need to be specified.

17.0 FACILITY SIGN

30 TAC §330.231

A conspicuous sign measuring a minimum four feet by four feet will be maintained at the public entrance to the facility. The sign states, in letters at least three inches high, the following information:

- Name of Facility
- Type of MSW Facility: Type V Transfer Station
- Authorized by TCEQ Registration Number: MSW-xxxxx
- Hours of Operation: 24 hours per day, 7 days a week

The posted hours of operation may differ from the authorized hours based on requirements set by facility management.

The sign will be visible and readable from the facility entrance. The sign, or other signs meeting the requirements listed above, will state that the following wastes are prohibited from receipt at the facility: liquid waste, hazardous waste and Class 1 industrial waste. It will also include a 24-hour contact number and an instruction to call 911 in case of an emergency. In addition, the sign will indicate what types of wastes are accepted for transfer and for recycling.

Facility rules will be posted on the site signs. Facility rules will include, but are not limited to, the following:

- All loads must be covered prior to entering the facility.
- Loading/unloading in designated areas only.
- Follow all posted signs.
- Park in designated areas only.

18.0 CONTROL OF WINDBLOWN MATERIAL AND LITTER

30 TAC §330.233

Windblown material and litter will be controlled through several methods, including proper unloading procedures, perimeter fences, facility fencing, the orientation of the facility to the prevailing wind direction, and adequate staffing. Personnel will police the facility, including fences, access roads, and the entrance gate, every operating day to pick up and return windblown material and litter to the facility and perform such other litter control measures, as necessary. The entrance signs will advise that all vehicles hauling waste must be covered.

Litter control fences may be placed as necessary around the tipping floor or other areas to contain blowing trash. Other litter control methods will be used if necessary to control excessive blowing litter.

Perimeter fences will provide additional safeguards against litter leaving the facility. Perimeter fences are located around the registration boundary.

19.0 MATERIALS ALONG THE ROUTE TO THE FACILITY

30 TAC §330.235

The Gate Personnel will take steps to encourage that vehicles hauling waste to the facility are enclosed or provided with a tarpaulin, net, or other means to effectively secure the load in order to prevent the escape of any part of the load by blowing or spilling. The Gate Personnel or Site Supervisor will take actions such as posting signs, reporting offenders to proper law enforcement officers, adding surcharges, or similar measures.

The Nexus Material Recovery and Transfer Station will use its own forces or contract labor for litter removal. Waste material will only be accepted from the facility entrance on Cunningham Road. Therefore, Nexus will collect spilled materials within the right of way of public access roads serving the facility for a distance from the site entrance for 2.0 miles in any direction on days the transfer station is in operation. These public access roads will include portions of Cunningham Road, Little York Road, Tanner Road, and the Sam Houston Tollway. All vehicles will be required to ensure their loads are covered in compliance with vehicle laws.

19.1 Facility Access Roads

30 TAC §330.237

On-site roads will be all-weather surfaced (gravel, asphalt or concrete) to provide wet-weather operation capability. The roads will be free draining and passable in two directions, and free of excessive ruts. Tracked mud and associated debris at the entrance to the facility and on the public roadway at the entrance to the facility and trash on public roadways will be removed at least once per day on days when mud and associated debris are being tracked onto the public roadway, to the extent that mud can be reasonably considered to be associated with facility operations.

Dust from on-site and other access roadways will not become a nuisance to surrounding areas. A water source and necessary equipment will be provided to prevent nuisance dust. All on-site and other access roadways will be maintained on a regular basis to minimize depressions, ruts, and potholes.

20.0 NOISE POLLUTION AND VISUAL SCREENING

30 TAC §330.239

Conducting the waste separation/recycling and transfer operations within a partially enclosed building will provide noise pollution control. The walls on the three sides of the building will direct noise from operations to the interior of the site. The building is located on an industrial site, and is immediately surrounded by other industrial sites, as well as Nexus-owned property to the north, west and east. In addition, the tree and brush covered terrain at the property boundaries will provide additional mitigation of any noise that may emanate from the operation. Nexus operations have never generated any noise complaints in the past.

Visual screening of the proposed facility will be provided by the three walls of the processing building and perimeter screening fencing that will be constructed at the property boundaries. All operations dealing with municipal solid waste are to take place in the processing building that is enclosed on three sides. Perimeter fencing will be a combination of 8-foot tall chain link fencing and 8-foot tall metal screening fencing.

These features along with the use of mufflers on equipment and proximity to other adjacent land uses, provides adequate visual screening and control of noise pollution.

21.0 OVERLOADING AND BREAKDOWN

30 TAC §330.241

The design capacity of the solid waste facility will not be exceeded during operation. The facility will not accumulate solid waste in quantities that cannot be processed within such time as will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional solid waste will not be received until the adverse conditions are abated. The facility does not accept grease trap waste, grit trap waste, septage, or liquid waste, therefore §330.241(a)(1) and (2) do not apply.

The facility is sized to accept 5,000 cubic yards per day with a maximum temporary storage of 5,375 cubic yards based upon 43 transfer trailers loaded with an average of 125 cubic yards of material each. Once this storage volume has been received, no additional material will be accepted until an equal volume is removed. The anticipated amounts of waste to be accepted during normal operations will be significantly less than this amount (refer to the Waste Acceptance Plan). The operation is an open-top load facility, which limits the amount of equipment that would affect operations at capacity. Front-end loaders will be used to move waste and recyclables to the appropriate transfer trailers, storage bins or roll-off containers. If a front-end loader does break down, waste will either be stored until it is repaired or until the remaining loader catches up with material removal or the facility will obtain other equipment.

If a significant work stoppage should occur, the owner or operator will restrict additional solid waste receipt. In the event that the facility becomes inoperable for periods longer than 24 hours, waste acceptance will stop and waste haulers will be directed to the disposal facilities shown on Part I, Figure 1. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated solid waste from the facility to an approved backup storage, processing, or disposal facility within 72 hours.

22.0 SANITATION

30 TAC §330.243

The waste separation/recycling facility and transfer station will receive MSW, C&D and recyclable material and is designed to facilitate appropriate cleaning. Litter and wind-blown materials will be contained by the site fencing and picked up for disposal as necessary. Surface water run-on will be prevented by a raised tipping floor surface and storage areas. In addition, all material stored onsite will be stored in roll-off boxes or transfer trailers and covered, which will further prevent surface water run-on. Floors shall be constructed of reinforced concrete to facilitate cleaning and scrubbing, and will be swept and cleaned with pressure hoses as necessary to maintain a reasonably clean environment. Water will be available at various locations to allow for use of pressure hoses. Working surfaces that have come into contact with waste will be washed down once per week, at the completion of processing activities. During times that the facility is in continuous operation, the floor will be swept daily and washed down at least two times per week.

After cleaning in designated processing areas, the water will be collected in floor drains located both on the tipping floor and in the transfer-trailer loading area. The collected water will be stored in a contaminated water storage tank onsite or discharged directly to a sanitary sewer. Stored contaminated water will be pumped to the sanitary sewer line onsite for disposal, or hauled by truck to a permitted wastewater treatment plant. In all cases final disposal of the contaminated water will take place prior to the tank reaching 70% storage capacity. Wash waters shall not be allowed to accumulate on site without proper treatment to prevent the creation of odors or an attraction to vectors. All wash waters shall be collected and disposed of in an authorized manner.

23.0 VENTILATION AND AIR POLLUTION CONTROL

30 TAC §330.245

Air emissions from the facility will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act. The facility will obtain authorization, under Subchapter U of 30 TAC 330 (relating to Standard Air Permits for Municipal Solid Waste Landfill Facilities and Transfer Stations).

No burning of wastes is proposed for this processing facility. This facility will be operated in a manner that includes routine waste removal and facility cleaning to avoid the generation of objectionable odors becoming a nuisance.

The facility will be designed and operated to provide adequate ventilation for odor control and employee safety. The operator will prevent nuisance odors from leaving the boundary of the facility. If nuisance odors are found to be passing the facility boundary, the facility operator will suspend operations until the nuisance is abated or immediately take action to abate the nuisance.

The owner or operator will employ the following measures for odor control:

- on-site buffer zones (minimum 50-ft – as shown on Part II, Figure 2 and related drawings) will separate the processing facility from the Registration boundary,
- building ventilation measures,
- extremely odorous or dusty material will not be accepted for processing, and
- liquid waste and putrescible waste will not be accepted and solid waste will be stored in odor-retaining containers.

Ventilation of the proposed processing building will be accomplished by the fact that the building will not be a fully enclosed structure. The building will be open on the south side for truck access from the access ramp. In addition, the other three sides will have various doors, windows and ridge vents that will remain open during operations. The building will be a commercially produced metal building of the type sometimes referred to as "pre-engineered". If necessary, additional ventilation

can be provided by ventilation fans designed and installed into the building walls. Building design will ensure a minimum of eight air changes per hour. As a conservative example, at maximum building size, with no other ventilation (not the case, as the structure will not be fully enclosed), the facility would require the following ventilation flow rate:

$$\frac{600{,}000\ cubic\ feet}{1\ air\ change\ volume} * \frac{8\ air\ changes}{1\ hour} * \frac{1\ hour}{60\ minutes} = 80{,}000\ cubic\ feet\ per\ minute$$

This could be accomplished with up to 6 commercially available ventilation fans rated at 13,500 cubic feet per minute. As stated, this is a conservative example and ventilation fans will be utilized if building design warrants their use.

Roll-offs, transfer trailers, and other containers will be kept covered to the extent possible to minimize odors. In addition, the site is surrounded by other industrial facilities. Prevailing winds at the site are from the southeast (see wind rose – Part II, Figure 1), which will direct odor into the barrier on the north side of the tipping floor, thereby keeping odor to the interior of the site. As noted previously, Nexus owns property directly to the north, west and east of the building. All odorous material will be processed quickly on the tipping floor to minimize the amount of time that the odorous material is exposed. The material will be stored onsite for a maximum period of 72 hours in storage bins, roll-offs, or trailers, which will be covered in order to minimize odor. Extremely odorous material and putrescible waste will not be accepted for processing.

Any ponded water at the facility will be controlled to avoid becoming a nuisance. In the event that objectionable odors do occur as a result of ponding, appropriate measures will be taken to alleviate the condition. These measures may include elimination of the ponded water and regrading of the area to prevent future ponding.

Other measures that will be taken to control air pollution at the facility include:

- No open burning will occur at the site except as approved by TCEQ.
- Accidental fires are controlled as outlined in the Fire Protection Plan.
- Weekly wash down of all surfaces that have come into contact with waste.
- Waste materials that contain strong, objectionable odors will not be accepted at the facility.

Emissions events and scheduled maintenance activities shall be reported as they occur and as required by applicable regulations.

24.0 HEALTH AND SAFETY

30 TAC §330.247

Facility personnel will be trained in the proper procedures for maintaining health and safety at the Material Recovery and Transfer Station.

25.0 EMPLOYEE SANITATION FACILITIES

30 TAC §330.249

Potable water and sanitary facilities will be provided for all employees and visitors. Potable water is available from two water wells on adjacent property owned by Nexus. Portable toilets will be provided and sanitary facilities in the adjacent buildings will be made available.

26.0 DISEASE VECTOR CONTROL

The need for extensive vector control (control of rodents, birds, flies, and mosquitoes) will be minimized through proper site operation, including prompt removal of loaded transfer trailers, roll-off and other storage containers. If insects or rodents become a problem, insecticides and/or pesticides will be used to eliminate the vector problem. If necessary, a licensed pest control professional will be utilized to apply pesticides for control of vectors, ensuring that proper chemicals are used and that they are properly applied. Any ponded water at the site shall be controlled to avoid its becoming a nuisance and attracting vectors.

27.0 SALVAGING AND SCAVENGING

Scavenging shall not be authorized. (30 TAC 330.3 (135) defines scavenging as the uncontrolled and unauthorized removal of materials at any point in the solid waste management system.)

For the purposes of this SOP, salvaging would be considered the controlled and authorized removal of materials from the working floor of the transfer station as potential recycled materials. However, as previously stated, "salvaging" will only be allowed insofar as Nexus will be recovering at least 10% of the total incoming waste stream for reuse or recycling and it does not jeopardize safety nor create public health nuisances at the site. Recyclable materials will be temporarily stored on site in storage containers such as roll-off boxes or transfer trailers and will be removed from the site in a timely manner to prevent becoming a nuisance, to preclude the discharge of any pollutants from the area and to prevent excessive accumulation of the material at the site. Materials that will neither be collected for reuse/recycling nor salvaged include all Class I Industrial or Special wastes as they will not be accepted. Pesticide, fungicide, rodenticide, and herbicide containers will not be salvaged unless being salvaged through a State supported recycling program.