

**NEW BOSTON LANDFILL
BOWIE COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW 576C**

PERMIT AMENDMENT APPLICATION

**PART III:
Attachment D – Waste Management Unit Design**

Volume 3

Prepared for



Waste Management of Texas

July 2013

Prepared by



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PART III FACILITY INVESTIGATION AND DESIGN

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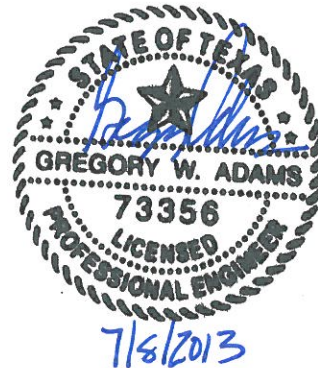
PERMIT AMENDMENT APPLICATION

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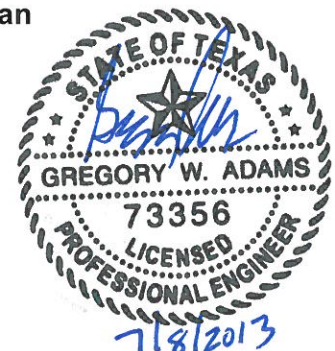
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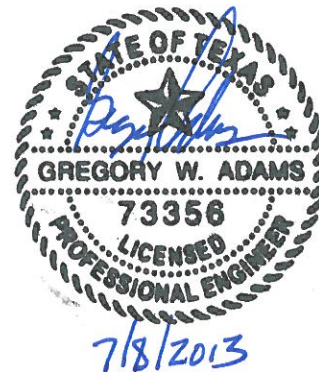
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1 WASTE MANAGEMENT UNIT DESIGN

30 TAC §330.63(d)

The New Boston Landfill is a Type I solid waste disposal facility (TCEQ MSW Permit No. 576B) located in Bowie County, Texas. The current permit boundary encompasses 97.1 acres of which 53.9 acres are approved for waste disposal. This permit amendment will expand the permit boundary to 331.9 acres and will add two new waste disposal areas which will cover a total of 78.6 acres. Throughout this permit amendment application, the currently approved waste disposal area is referred to as the West Disposal Area and the new waste disposal areas are referred to as the North Disposal Area and the South Disposal Area. The proposed permit boundary and limits of the existing and proposed disposal area footprints are shown on Attachment D1 – Site Layout Plans, Drawing D1.1.

2 PROCESSING AND/OR STORAGE UNITS

30 TAC §330.63(d)(1)

The processing and/or storage units have been designed for the rapid processing and minimum detention of solid waste at the facility. Solid waste capable of creating public health hazards or nuisances will be transferred promptly and will not be allowed to result in nuisances or public health hazards. The processing and/or storage units have been designed to control and contain a worst-case spill or release from the units and the unenclosed areas associated with the units, and account for precipitation from the 25-year, 24-hour rainfall event. The processing and/or storage units include the large item storage area, recyclable materials staging area, citizen's convenience area, leachate storage facility, and truck wheel wash as shown on Attachment D1, Drawing D1.2 .

2.1 Large Item Storage Area

A storage area for large items and white goods may be provided near the active working face. Large items and white goods include ovens, dishwashers, freezers, air conditioners, and other large items. Any rainfall runoff or runoff from the area will be contained within the active area and handled as contaminated water, as discussed Part IV – Site Operating Plan. These items will be recycled or disposed of at the active working face within 180 days of acceptance at the facility. The procedures for the acceptance, storage, processing, and disposal of large items, including items containing chlorinated fluorocarbons, are addressed in Part IV.

2.2 Recyclable Materials Staging Area

Inert materials such as brick, concrete, rubble and aggregate, and non-inert materials such as asphalt and shingles may be staged at the facility for use on facility access roads, staging areas, and drainage structures. Shingles will not be used on facility access roads. The recyclable materials staging area will be located within existing lined areas and will be relocated periodically as the active working face moves. The size of the stockpiles will vary depending on the amount of materials received. Since brick and concrete materials are inert, their storage will not create a public health hazard or nuisance, and runoff from rainfall will not be required. Asphalt and shingles are not inert, therefore they will be managed in a manner that will prevent runoff of contaminated water, discharge of waste, or the creation of nuisance conditions. Asphalt and shingles that contain asbestos will not be used and will be disposed as special wastes, as described in Part IV, Appendix IVB. Since these inert and non-inert materials will continuously be reused for site operations there is no time limit on the storage of these materials.

2.3 Citizen's Convenience Area

A citizen's convenience area for waste drop-off is located near the gate house. An additional citizen's convenience area may be installed north of the existing convenience

area as shown on Attachment D1, Drawing D1.2. Thirty to forty cubic yard roll-off containers as well as containers for recycled goods are provided. The containers sit on a concrete pad. Full roll-off containers will be emptied at the active working face at the end of each day. Containers that are not full will be covered with the tarp at the end of each day. The containers will also be covered with tarps to prevent rainfall from accumulating inside and to prevent generation of contaminated water. The prevention of contaminated water and removal of full containers will minimize odors.

Waste spilled within the citizen's convenience area will be picked up daily. The concrete pad and roll-off containers will be cleaned as needed with water and the wash water will be managed as contaminated water and disposed of in accordance with Attachment D6 – Leachate and Contaminated Water Plan. Operational procedures for the citizen's convenience area are provided in Part IV.

2.4 Leachate Storage Facility

Primary leachate storage is provided by the leachate sumps, which are located within the landfill cells. Leachate is pumped from the sumps through a leachate forcemain to the leachate storage facility. Leachate can be temporarily stored in the storage tank or can be discharged to the sanitary sewer connection which conveys the leachate to a publicly owned treatment works (POTW).

The leachate storage facility is located south of the West Disposal Area. The storage facility consists of one 23,000-gallon storage tank. Attachment D6, Appendix D6-D demonstrates that the secondary containment area provides containment, with six inches of freeboard, for the storage tank and precipitation from the 25-year, 24-hour storm event.

2.5 Truck Wheel Wash

The truck wheel wash facility is a concrete drive through structure that is located along the exit lane of the entrance road. The existing truck wheel wash will be removed and a new truck wheel wash will be installed along the entrance road as shown on Attachment D1, Drawing D1.2. Accumulated mud is periodically removed from the truck wheel wash and placed in the active working face. Water from the truck wheel wash facility will be managed as contaminated water in accordance with Attachment D6.

3 LANDFILL UNITS

30 TAC §330.63(d)(4)

The West Disposal Area is permitted to accept Type I and Type IV municipal solid waste and has both Subtitle D and pre-Subtitle D lined areas. All of the lined areas within the West Disposal Area have been constructed and approved by the TCEQ as shown on Attachment D1, Drawing D1.3. The West Disposal Area is currently active and will continue to be active during the initial development of the North Disposal Area. Final cover has been constructed over 18.1 acres of the West Disposal Area, as shown on Attachment D1, Drawing D1.3.

The North Disposal Area will be permitted to accept Type I and Type IV municipal solid waste and will have standard Subtitle D liners, leachate collection and cover systems for Type I waste facilities. The South Disposal Area will be permitted to accept only Type IV solid waste and will have standard Subtitle D liners and cover systems for Type IV waste facilities. The current and proposed permit conditions are summarized in Table D-1.

**Table D-1
New Boston Landfill
Permit Conditions**

	West Disposal Area	North Disposal Area	South Disposal Area
Waste Accepted	Type I and IV	Type I and IV	Type IV
Landfill Footprint (acres)	53.9	64.4	14.2
Airspace (cy)	6,500,000	9,208,000	1,126,000

The landfill units design includes all weather operation, landfilling methods, landfill design parameters, site life projection, landfill cross sections, and the liner and final cover quality control plans.

3.1 All Weather Operation

30 TAC §330.63(d)(4)(A)

The landfill access roads (shown on Attachment D1, Drawing D1.4) are constructed of crushed stone, gravel, concrete rubble, masonry rubble, wood chips, or other similar materials to provide access to the disposal areas during all weather conditions. To enhance operating efficiency, a disposal area close to the all weather roads may be reserved for wet weather operations. The wet weather area will move as operations progress.

Site personnel will maintain the landfill access roads for all weather access. Stockpiles of crushed stone, gravel, concrete rubble, masonry demolition debris, wood chips or other similar material will be available for use in maintaining passable access roads.

Grading equipment or other appropriate equipment will be used as necessary to control or remove mud accumulations on the landfill access roads around the landfill and the landfill entrance road.

Tracking of mud onto public access roads is minimized by the all weather surfaces of the interior access roads and the landfill entrance road. The landfill entrance road is an asphalt paved roadway that provides mud control for waste hauling vehicles prior to exiting the site and returning to public access roads. Additional mud control is provided by a truck wheel wash.

3.2 Landfilling Methods

30 TAC §330.63(d)(4)(B)

The development method for the landfill is a combination of area-excitation fill followed by aerial fill to the proposed landfill completion heights. Final cover placement will generally follow the sequence of development as shown in Part II, Appendix IIA - Maps and Drawings, Drawings IIA.16 through IIA.22, and will be ongoing as the site is developed. The landfill will be closed according to the closure plan provided in Attachment H – Closure Plan.

3.3 Landfill Design Parameters

30 TAC §330.63(d)(4)(C)

The 331.9 permitted acres will include a total of 132.5 acres for waste disposal and 199.4 acres of buffer and other non-waste fill areas. The deepest excavations, maximum waste and final cover heights are summarized in Table D-2.

Excavation side slopes will not exceed 3H:1V and waste side slopes will not exceed 4H:1V. Waste topslopes will have a 6 percent slope. Excavation and final completion plans are presented on Attachment D1, Drawings D1.5 through D1.9.

**Table D-2
New Boston Landfill
Landfill Design Parameters**

	West Disposal Area	North Disposal Area	South Disposal Area
Deepest Excavation Elevation (ft-msl)	335.0	330.0	340.0
Maximum Final Cover Elevation (ft-msl)	525.0	493.0	444.0
Maximum Waste Elevation (ft-msl)	520.5	488.5	439.5

3.4 Site Life Projection

30 TAC §330.63(d)(4)(D)

Once expanded, the total remaining landfill volume available for waste disposal will be almost 12 million cubic yards (waste and daily cover), which will provide an estimated 40 years of site life. Calculations and assumptions for the waste volume and site life estimate are included in Attachment D4 – Site Life.

3.5 Landfill Cross Sections

30 TAC §330.63(d)(4)(E) and (F)

Cross sections of the landfill unit are provided in Attachment D2 – Cross Sections. These sections show the top of the levee, top of the proposed fill (top of the final cover), maximum elevation of the proposed fill, top of the wastes, existing ground, bottom of the excavations, side slopes of excavations, gas vents, groundwater monitoring wells, and the initial and static levels of any water encountered. Soil borings, monitoring wells, and gas monitoring probes near the sections have been projected onto the sections. The section locations were selected to represent the conditions across the entire site.

3.6 Liner Quality Control Plan

30 TAC §330.63(d)(4)(G)

Quality control plans for liner systems prepared in accordance with §330.339 are provided in Attachment D7 – Liner Quality Control Plans. The components of the liner systems are listed from top to bottom in Table D-3. Details of the liner systems are provided in Attachment D3 – Construction Design Details.

**Table D-3
New Boston Landfill
Components of the Liner Systems**

Liner System Component	Description	Minimum Thickness
West and North Disposal Areas Liner System		
Protective Cover	General earthfill	24 inches
Leachate Collection Layer	Single-sided geocomposite on floor	0.25 inches nominal
	Double-sided geocomposite on side slopes	0.20 inches nominal
Geomembrane Liner	Smooth HDPE geomembrane on floor	60 mil nominal
	Textured HDPE geomembrane on side slopes	60 mil nominal
Compacted Soil Liner	Compacted soil with a coefficient of permeability less than or equal to 1×10^{-7} cm/sec	24 inches
South Disposal Area Liner System		
Protective Cover	General earthfill	12 inches
Compacted Soil Liner	Compacted soil with a coefficient of permeability less than or equal to 1×10^{-7} cm/sec	36 inches

3.7 Final Cover Quality Control Plan

30 TAC §330.457

Quality control plans for the final cover systems are provided in Attachment D8 – Final Cover Quality Control Plans. Details of the final cover systems are provided in Attachment D3. The components of the final cover systems are listed from top to bottom in Table D-4.

**Table D-4
New Boston Landfill
Components of the Final Cover Systems**

Cover System Component	Description	Minimum Thickness
West and North Disposal Areas Final Cover		
TOPSLOPE		
Erosion Layer	Soil that is capable of sustaining native plant growth	24 inches
Cushion Layer	Geotextile	8 oz
Flexible Membrane Cover	Smooth LLDPE geomembrane	40 mil nominal
Infiltration Layer	Compacted soil with a coefficient of permeability less than or equal to 1×10^{-5} cm/sec	18 inches
SIDESLOPE OPTION A		
Erosion Layer	Soil that is capable of sustaining native plant growth	24 inches
Drainage Layer	Double-sided geocomposite	0.2 inches nominal
Flexible Membrane Cover	Textured LLDPE geomembrane	40 mil nominal
Infiltration Layer	Compacted soil with a coefficient of permeability less than or equal to 1×10^{-5} cm/sec	18 inches
SIDESLOPE OPTION B		
Erosion Layer	Soil that is capable of sustaining native plant growth	24 inches
Drainage Layer	Geotextile over studded geomembrane	8 oz
Flexible Membrane Cover	Textured LLDPE geomembrane with studs on top	40 mil nominal
Infiltration Layer	Compacted soil with a coefficient of permeability less than or equal to 1×10^{-5} cm/sec	18 inches
South Disposal Area Final Cover		
Erosion Layer	Soil that is capable of sustaining native plant growth	24 inches
Infiltration Layer	Compacted soil with a coefficient of permeability less than or equal to 1×10^{-7} cm/sec	18 inches