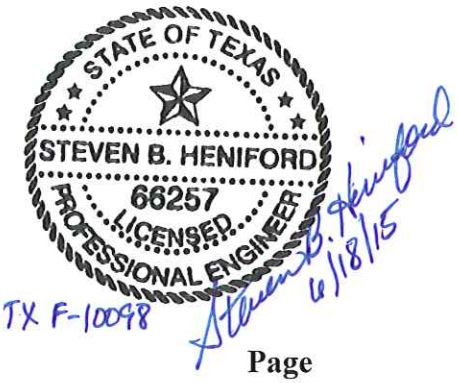
City of Laredo Landfill Permit Amendment 1693B
City of Laredo, Texas
Permit Amendment MSW Permit 1693B
Laredo, Texas
Webb County, Texas
August 2014
Revised June 2015

PART II

LAREDO LANDFILL
PART II
Permit Amendment



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1.0 Introduction and Existing Conditions 30 TAC § 330.61(a)

The following Part II of the Permit Amendment provides information on the City's waste acceptance plan, land use, transportation, geology, and location restrictions.

2.0 Waste Acceptance Plan

2.1 Sources of Waste - City of Laredo, Laredo SMSA and Surrounding Area

The City of Laredo is located along the Rio Grande River in Webb County, Texas. It is part of the South Texas Development Council (STDC). The STDC includes Webb, Starr, Jim Hogg and Zapata Counties. Combined, these counties have a total 2010 population of 340,320. The City of Laredo had a 2010 population of 250,304, representing 73 percent of the STDC region. Laredo's 2010 population was 33.7 percent greater than its 2000 population of 193,117. This growth rate represented the highest growth rate of all Texas Metropolitan Statistical Areas (MSA) in the last census. The Laredo MSA is projected to increase to a population of 545,292 in 2040 (refer to Table II.1).

Table II.1
Laredo MSA Historic & Projected Population

Year	Population
2000	193,117
2005	226,862
2010	263,727
2015	302,631
2020	344,135
2025	388,515
2030	437,726
2035	490,418
2040	545,292

Source: Texas Real Estate Center – Texas A&M University; 2011 Metro Market Overview – City of Laredo. 2011

The primary sources of waste are from residents and businesses in the Laredo SMSA, and communities in Webb County in surrounding counties. Assuming a Laredo SMSA 2012 population of approximately 279,000 people and a reported disposal rate of 334,502 tons for that year, the equivalent per capita generation rate is 1.2 tons per capita per year, or 6.6 pounds per capita per day. According to the TCEQ's annual report "2012 MSW in Texas – A Year in Review", the 2012 state-wide generation rate was 6.37 pounds per capita per day. The City's 6.6 pounds per capita per day may be stated slightly higher as waste outside the Laredo SMSA is also accepted at the City's landfill.

In 2012, there were three landfills in the STDC region reporting waste quantities disposed. Other than the City of Laredo's Type 1 Landfill (334,502 tons per year (tpy)), the landfills include the City of Roma's Type 1AE Landfill in Starr County (4,137 tpy); and the San Ygnacio Landfill in Zapata County, a Type 1AE and 4AE landfill (2,503 tpy). The total waste disposed by the three landfills was 341,242 tons per year. The City of Laredo's landfill accounted for 98

percent of the total waste disposed in the STDC. Another landfill- the Ponderosa (Type 1) Regional Landfill- became operational in 2013. No data on waste acceptance are available for it at this time.

The STDC overall waste generation rate is estimated to be approximately 5.4 pounds per capita per day (total region generation 341,242 tons and a total regional population of 347,000). The range of regional and Laredo SMSA generation rates is approximately the same as the overall state rate.

2.2 Types of Waste Accepted 30 TAC § 330.61(b)

The landfill is authorized to accept municipal solid waste ("MSW") resulting from or incidental to municipal, community, commercial, institutional and recreational activities; MSW resulting from construction or demolition projects; Class 2 nonhazardous industrial solid waste; Class 3 nonhazardous industrial solid waste; and special waste that has been properly identified and approved for disposal by the TCEQ. The acceptance of Class 2 industrial solid waste and/or special waste is contingent upon such waste being handled in accordance with the Landfill's Site Operating Plan (SOP).

The annual quantities of waste received and reported by the City to TCEQ have ranged between 315,000 tons to 377,000 tons for the period 2003 to 2012 (Table II.2). As is shown in Table II.2, the rate of disposal has remained relatively constant. Factors that may affect future disposal quantities include the success of the City's recycling program, the amount of housing development planned in the area, and economic development and population growth. In determining future landfill needs, a constant per capita generation rate will be assumed.

Table II.2
MSW Quantities Disposed 2003-2012

Year	Tons/Year Disposed	Remaining Cubic Yards (millions)	Remaining Tons (millions)
2003	316,554	11.2	6.41
2004	343,950	10.1	6.06
2005	345,303	9.5	5.72
2006	370,845	8.9	5.35
2007	363,916	8.3	4.98
2008	377,504	7.7	4.60
2009	346,504	6.6	4.26
2010	326,554	6.1	3.94
2011	335,024	6.0*	3.93
2012	334,502	5.6	3.60

Source: TCEQ. Municipal Solid Waste in Texas: A Year in Review. (2003-2012Reports)
**an updated aerial survey of the landfill showed that the City's remaining cubic yards were 6.0 million cubic yards.*

The City collects brush material separately from the solid waste. The brush material is stored and processed in an area located outside the Landfill permit boundary. Brush is chipped and used for mulch or sold to the public.

Laredo also has a recycling program for residents and businesses. Materials that are collected from this program are processed at a material recovery facility that is located south of the Landfill, outside of the permit boundary. The City contracts with a private contractor who is responsible for (i) processing materials, (ii) properly disposing unacceptable wastes, and (iii) marketing recovered materials.

The City has in the past processed scrap tires at the Landfill. Scrap tires were accepted, stored and shredded. Annually, it is estimated that approximately 2000 tons per year of tires are accepted and diverted from disposal in the Landfill. On average, the City accepts approximately 6 tons of tires per day at the facility. Quantities accepted per day may exceed this average depending on deliveries for waste tire generators. The City will maintain a waste tire storage area that will have the capacity of up to 300 tons of tires. The City may or may not have shredding equipment on-site for processing tires.

The City does accept certain non-hazardous industrial wastes complying with its approved Site Operating Plan. The City requires that generators of these wastes submit a written form prior to delivering the waste to the Landfill. The generator must identify the types of materials, chemical characteristics and a description of the process by which they were generated. The City reserves the right to accept or reject any loads of special wastes. These special waste deliveries also undergo additional screening, as described in the Site Operating Plan when they are delivered to the Landfill. The Landfill Manager also evaluates if any special handling at the working face is required for the special wastes which are described in the Site Operating Plan.

Wastes that are ***prohibited*** at the site include Class 1 Industrial Solid Waste until it complies with the requirements of §30 TAC 330.171. Regulated hazardous waste, except for waste from conditionally exempt small quantity generators, are not accepted at the facility. PCB wastes as defined in §30 TAC 330.2, Class 2 and Class 3 industrial solid waste that interferes with the site operations, radioactive wastes, lead-acid batteries, CFC-containing equipment, whole tires, and used oil and oil filters are not accepted at the facility.

2.3 Waste Quantity Projections TAC § 30330.61(b)(1)(C)

For the purposes of determining waste generation quantities for the near-term, a waste generation rate of 6.6 pounds per capita per day is used and applied to population forecasts developed by the State of Texas Real Estate Center – Texas A&M University. Table II.3 presents the forecasted annual, average daily tons and peak daily tons for the period 2013 – 2020. The average daily tons per day (tpd) is derived by dividing annual tons by 312 days (52 weeks times 6 days per week operation). The Landfill is authorized to operate seven days per week, however, the City typically only operates on a six day per week schedule.

The City provides twice per week solid waste collection. Typically, a significantly larger quantity of waste is collected on Monday and Tuesday, versus Thursday and Friday collections.

Also, there are seasonal variations in the amount of waste generated. A review of historic records of daily waste logs for the year 2011-12, shows that the daily peak was approximately 50% higher than the average accepted, excluding Saturday when there is minimal residential waste taken to the Landfill. To forecast daily peaks, the average daily waste acceptance rate is multiplied times 1.50. Table II.3 presents projected waste generation through the year 2036.

Table II.3
Projected Waste Generation

Year	Population Estimate	Gen Rate Lbs./Capita/Day	Tons/Year*	Average Daily tpd*	Daily Peak tpd*
2014	294,416	6.6	354,620	1140	1700
2015	302,631	6.6	364,520	1170	1750
2016	318,136	6.6	383,200	1230	1840
2017	334,435	6.6	402,830	1290	1940
2018	351,569	6.6	423,460	1360	2040
2019	369,580	6.6	445,160	1430	2140
2020	388,515	6.6	467,970	1500	2250
2021	398,055	6.6	479,458	1537	2305
2022	407,830	6.6	491,231	1574	2362
2023	417,845	6.6	503,294	1613	2420
2024	428,106	6.6	515,653	1653	2479
2025	438,618	6.6	528,316	1693	2540
2026	449,206	6.6	541,069	1734	2601
2027	460,049	6.6	554,130	1776	2664
2028	471,155	6.6	567,506	1819	2728
2029	482,528	6.6	581,205	1863	2794
2030	494,176	6.6	595,234	1908	2862
2031	505,538	6.6	608,921	1952	2928
2032	517,162	6.6	622,922	1997	2995
2033	529,054	6.6	637,245	2042	3064
2034	541,218	6.6	651,898	2089	3134
2035	553,663	6.6	666,887	2137	3206
2036	566,393	6.6	682,221	2187	3280

3.0 Maps

Drawings and maps illustrating requirements for Part II are found in Attachment II-1.

3.1 General Location Map 30 TAC § 330.61(c)

The Landfill is located adjacent to SH 359, 2.5 miles east of downtown Laredo (Figure II-1.1) and 2.0 miles from the intersection of SH 359 and Loop 20. The Landfill is located within the City limits. The site is depicted on the attached TxDOT County Roadway Map (Figure II-1.1).

Winds: Winds are predominantly from the Southeast (Source Laredo International Airport).

Water Wells & Springs: A review of data from the Texas Water Development Board shows that there are no recorded water wells located within 500' of the permit boundary (330.61(c)(2). A total of 17 water wells are located within one mile of the site. Water well records are referenced in Attachment II-3. No springs are identified within one mile of the Landfill.

Oil & Gas Wells: There are a total of three gas wells within one mile of the site; none is within 500' of the permit boundary. There are also three plugged gas wells within one mile of the permit boundary; none of these plugged wells is within 500'. (Source Texas Railroad Commission – Refer to Attachment II-4).

Buildings: Buildings that are located within 500' of the permit boundary include facilities associated with the management of the landfill and municipal solid waste processing. Buildings that are located within the permit boundary include the scale house and a landfill gas flare housing structure. Buildings that are located on City property outside the permit boundary include the City of Laredo's solid waste administrative building, an open garage for fleet maintenance, and a material recovery facility for processing recyclable materials. There are two commercial establishments with buildings that are located within 500' toward the southeast of the landfill. (Source: December 2012 area visual survey)

Hospitals, day care & churches: No hospitals, day care facilities or churches were identified within one mile of the Landfill permit boundary. (Source: area visual survey – December 2012)

Schools: The Larga Vista Head Start facility is located 0.9 miles to the northwest of the Landfill. No other schools were identified within one mile of the Landfill. Two future schools that are one-third of a mile south of the Landfill were approved under the 2013 Unified Independent School District Bond Program. One is an elementary school and the other is a middle school. These are located south of the Landfill boundary and the locations are shown on Figure II-1.2. (Source: December 2012 area visual survey and Unified Independent School District)

Roads used for access: The entrance road to the Landfill is located on SH 359. This is an asphalt-paved, four-lane road, with an additional left turn lane at the location of the Landfill entrance. TxDOT is responsible for maintenance of this roadway. All vehicles using the facility must use this roadway. The only other roadways that are within one mile of the Landfill that are used for waste management purposes are streets that are used for residential and commercial solid waste collection service.

Longitude & Latitude: The longitude and latitude for the Landfill are:

Longitude: 99°24'17.57"
Latitude: 27°29'55.90"

Elevation: 469.59

Area streams: There is an unnamed tributary of the Tex-Mex Tributary of Chacon Creek located on the north and east sides of the Landfill. Drainage channels are located along the west, north and east boundaries of the Landfill (refer to Figure II-2.5 Topographic Map).

Airports: The Laredo International Airport (LIA) is owned and operated by the City of Laredo. The LIA is located 18,000' to the northwest of the Landfill boundary. The Landfill is located within a six mile radius of the airport; therefore, the City has coordinated permitting efforts with the FAA and the airport. The orientation of the runways at the Laredo International Airport is north and south.

Property Boundary: The property boundary for the site is shown in the General Location Map. The site is currently 200 acres with a proposed additional 3.12 acres under this amendment for a total of 203.12 acres. To accommodate space for the leachate collection storage tank, tire shredding/storage operation, and other maintenance facilities, a total of 3.12 acres is being added to the permit boundary from the property south of the landfill as a part of this permit amendment. The City is the owner of the property directly south of the permit boundary which extends to SH 359.

Easements: There is a 70-foot wide electric power line easement that is located on-site that runs north and south through the middle of the permitted area. This easement is owned by:

Electric Power Easement:
AEP Central Power & Light
PO Box 1258
Laredo, TX 78042

Information on the electric easement is found in Part I.

The City of Laredo has rights to drainage easements that are located along the west, north and east boundaries of the permitted area. These easements are located outside the permit boundary; however, they are held by the City in perpetuity and these easements are factored into the compliance with buffer zone requirements (refer to Attachment II-5). The City secured the easements from the Hurd Ranch Company (March 21, 2003).

Drainage Easement:
Carlos R. Villarreal
City Manager
City of Laredo
1110 Houston Street
Laredo, TX 78040

Access Control Features: The Landfill's entrance road is located on the north side of SH 359. Access is limited to the landfill via a lockable gate that is located at the entrance to the facility. There is a sign at the entrance to the facility that indicates the name of the facility, hours of

operation and other requirements for the Landfill sign (refer to Site Operating Plan). The entrance road is visible from the City's solid waste offices, where staff can periodically monitor incoming traffic into the Landfill. Within the permit boundary, there is a scale house with scales.

The scale facility is staffed whenever waste is being accepted at the landfill. Scale house personnel are trained to identify acceptable and unacceptable waste streams.

To further control access, there is a barb-wire fence located on the western, northern and southern boundary of the permitted area. There is a nine-foot tall metal panel fence that is located along the eastern boundary of the permitted area.

Archaeology & Historical: There are no known archaeological or historic sites on or near the Landfill (refer to correspondence with Texas Historical Commission – Attachment II-2).

3.2 Facility Layout Map 30 TAC § 330.61(d)

The Landfill site is shown in Figure II-1.2, "Landfill Layout" and Figure II-1.3 – "Aerial View of Landfill Layout." These exhibits shows features of the site including the boundary, the various fill phases and structures located on the property.

The Landfill is currently divided into four distinct phases, separated by the electric power lines that intersect the Landfill north and south and the abandoned natural gas pipeline easement that ran east and west. Phases 1, 2 and 3 were permitted as Type 1 landfill operations; Phase 4 was permitted as a Type 4 landfill operation. Phase 4 will be converted from a Type 4 landfill to a Type 1 landfill under this permit amendment.

The proposed site layout will have two phases – East Phase (consisting of Phases 2 and the expanded Phase 3 of the current permitted design) and a West Phase (consisting of Phases 1 and 4 of the current permitted design and a new Phase 5). The Landfill Layout Map (Figure II-1.2) illustrates the location of interior roads, monitoring wells, buildings, fencing, windbreaks and visual screening, and site entrance roads.

Interior roads: The interior roads include perimeter access roads located around the entire Landfill. These are unpaved roads and the City maintains the quality of these roads on a periodic basis per the SOP. A site access road also is located between the East Phase and the West Phase.

Groundwater Monitoring wells: There are a total of 17 monitoring wells located on-site. The Groundwater Monitoring Plan –March 2008 illustrates the location of the groundwater monitoring wells to be in compliance with Subchapter J Rules. These monitoring wells are shown in Attachment II.1 (Figure II-1.12). A revised GWSAP is included in Part III of this application.

Location of Buildings: Within the permitted area of the Landfill, there is a scale house located at the entrance. The scale house is manned whenever waste is being accepted at the Landfill. The only other on-site building is a small structure for the landfill gas flare.

Sequence of Fill & Construction: As of 2014, waste is disposed in Phase 2 on the east side of the Landfill. Cell 1 of Phase 3, also on the east side, is being constructed in 2014. Once Cell 1 of Phase 3 is constructed, waste operations will take place in this Cell. (Refer to Attachment II-6-Sequence of Development Plan.)

After the permit amendment has been approved, the sequence of development will include final development of Phase 3, including the excavation of the area already permitted and newly permitted areas located between Phase 2 and 3. Fill operations will then proceed from the center of the East Phase and proceed south to fill the entire East Phase according to the final contours.

Once the East Phase has reached capacity, fill operations will begin at the southern end of the West Phase. Phase 4 is the previously designed Type IV Landfill. The middle of this phase has received construction and demolition debris in the past. Areas to the east and west of this area have been excavated for borrow soil. Final excavation will take place and a liner will be constructed where no waste has been received. A leachate collection system will be installed in both these areas. An engineered fill and liner will be constructed over the previously filled area and this liner will be designed to drain any leachate into the newly constructed Phase 4 cells. Two previously excavated areas of Phase 4 (West Phase) will require excavation, construction of a liner, and the installation of a leachate collection system in the area previously designated as Cells 2 and 3 of Phase 4.

Following construction of Phase 4, Phase 5 will be constructed as the next area to be filled. This is the area that was located over the previously abandoned natural gas pipeline. Construction will include excavation of any remaining segments of the pipeline, plugging the remaining pipeline ends and subgrade preparation. A liner and leachate collection system will be installed in this area and the liner system will connect to the liners for Phase 4 and Phase 1.

A liner will be placed over areas of the West Phase that were constructed prior to Subtitle D liner requirements. This liner and leachate collection system will be designed in a manner that directs any leachate generated over new waste to flow to a leachate collection system, specifically, over Phase 1 – Cells 17 and 18 which have liners and leachate collection systems or to the new Phase 5 which will also have a liner and leachate collection system. The liner will include a geosynthetic composite liner (gcl) and a geotextile layer with a leachate collection system. Interim and final cover will be placed over the Phases in accordance with the SOP and the Final Closure Plan.

Facility Fencing: A perimeter fence is located along the western, northern and southern boundaries of the site. A nine-foot high metal panel fence with barbed wire is located along the

eastern side of the landfill (Photo II.1). This fence was installed per an agreement between the City and Hurd Ranch Company as part of an agreement for the adjacent drainage easement.

Photo II.1
Eastern Buffer Zone and Fence

Windbreaks: There is a 25' high wind fence that is located along the southeast boundary and a section of the northern boundary of the Landfill to capture blowing waste that could be blown in the direction of SH 359. A metal fence is also located along SH 359.

To further prevent material from being blown off-site, the City maintains buffer zones along the perimeter of the Landfill. The buffer is maintained by Landfill staff on a daily basis when the Landfill is operating. These buffers include the perimeter drainage easement and the City-owned property between the Landfill and SH 359.

Dimensions of the Cells: Table II.4 presents the size of each of the cells and the type of construction used for the liner.

Phase 1 is located on the western portion of the Landfill. Portions of Phase 1 have pre-subtitle D liner. Phase 2 has one cell constructed with a pre-subtitle D liner. The majority of Phase 2 has a subtitle D or equivalent liner. Phase 3 has been modified from the previous design to include additional acreage where the abandoned pipeline was located.

Phase 4 is the area previously permitted as a Type IV Landfill. Portions of this phase (approximately 6.5 acres) have been partially filled with construction/demolition waste. As part of the design for a subtitle D liner and LCS system, stability analysis of this area was performed and is included in Part III of this application. Prior to placement of waste in Phase 4, engineered fill will be placed over previously filled areas to provide positive leachate flow. A GCL liner and 60 mil HDPE membrane with a leachate collection system will also be installed.

Phase 5 is the area that is located between Phase 4 and Phase 1. This area will be lined with either 2' of clay or GCL with a leachate collection system. Cells 17 and 18 of Phase 1 were constructed with a subtitle D liner. There are areas of Phase 1 that will be vertically expanded over pre-subtitle D areas. A liner will be constructed over existing waste in this area, prior to waste placement above the 1999 permitted elevation that will direct leachate movement to lined Subtitle D areas.

The entire East Phase (Phases 2 and 3) will include 77.60 acres; the entire West Phase (Phases 1, 4 and 5) will include 85.56 acres.

Table II.4
Cell Dimensions

Cell Identification	Size (square acres)	Liner Design	Status (2013)
Phase 1			
Cell 1	3.91	In-situ compacted clay	Constructed
Cell 2	3.2	In-situ compacted clay	Constructed
Cell 3	2.96	In-situ compacted clay	Constructed
Cell 4	2.62	In-situ compacted clay	Constructed
Cell 5	2.15	In-situ compacted clay	Constructed
Cell 6	2.15	In-situ compacted clay	Constructed
Cell 7	2.15	In-situ compacted clay	Constructed
Cell 8	2.15	In-situ compacted clay	Constructed
Cell 9	2.15	In-situ compacted clay	Constructed
Cell 10	2.15	In-situ compacted clay	Constructed
Cell 11	2.15	In-situ compacted clay	Constructed
Cell 12	2.15	In-situ compacted clay	Constructed
Cell 13	2.90	In-situ compacted clay	Constructed
Cell 14	2.75	In-situ compacted clay	Constructed
Cell 15	2.69	In-situ compacted clay	Constructed
Cell 16	2.58	In-situ compacted clay	Constructed
Cell 17	7.90	GCL, 60 mil HDPE	Constructed
Cell 18	9.86	GCL, 60 mil HDPE	Constructed
Phase 2			
Cell 1	5.24	In-situ compacted clay	Constructed
Cell 2	5.24	GCL, 60 mil HDPE	Constructed
Cell 3	3.58	2' clay, 60 mil HDPE	Constructed
Cell 4	2.75	2' clay, GCL, 60 mil HDPE	Constructed
Cell 5/6	7.94	GCL, 60 mil HDPE	Constructed
Cell 7/8	6.25	GCL, 60 mil HDPE	Constructed
Cell 9/10	6.42	GCL, 60 mil HDPE	Constructed
Cell 11/12	6.48	GCL, 60 mil HDPE	Constructed
Cell 13/14	18.90	GCL, 60 mil HDPE	Constructed
Phase 3			
Cell 1	9.2	GCL, 60 mil HDPE	Not constructed – anticipated construction 2014
Cell 2	13.56	GCL, 60 mil HDPE	Not constructed – construction will be initiated after permit amendment
Phase 4			
Cell 1	6.56	GCL (existing waste cell to be overlain with GCL, HDPE and a LCS)	Type IV liner constructed to be modified for Type I waste
Cell Dimensions (cont)			
Cell 2	2.51	GCL, 60 mil HDPE	Not constructed

Cell 3	6.19	GCL, 60 mil HDPE	Not constructed
Phase 5			
Cell 1	3.77	GCL, 60 mil HDPE	Not constructed

Minimum/ Maximum Waste Elevations & Final Cover: Under the current 1999 permit, the minimum permitted waste elevations (top of liner elevations) are 445' msl for Phase 1 (NW), 445' msl for Phase 2 (NE), 445' msl for Phase 3 (SE), and 490' msl for Phase 4 (SW). The minimum top of liner elevations for the proposed amendment will remain the same for Phases 1, 2 and 3. The minimum elevation will be lowered to 467' msl for Phase 4 and the new Phase 5 will have a minimum elevation of 503' msl.

The current permit set the maximum final cover elevations as 640.5' msl for Phase 1 (NW), 637' msl for Phase 2 (NE), 546.5' msl for Phase 3 (SE) and 576.5' msl for Phase 4 (SW). Based on a two-foot thickness for the typical standard final cover, the maximum waste placement elevations would be 638.5' msl for Phase 1 (NW), 635' msl for Phase 2 (NE), 544.5' msl for Phase 3 (SE) and 574.5'. Development of the landfill per the proposed amendment will create one west side hill with its peak over the Phase 1 area and one east side hill with its peak over the Phase 2 area.

The elevation of the landfill is proposed to be increased from 640.5' msl to 664.5' msl on the west side and from 637' msl to 654.5' msl on the east side. The final cover proposed for the landfill will include a GCL and Flexible Membrane Liner (FML) cover or an alternative final cover that will utilize the "water balance design" per TCEQ guidelines. If a standard GCL and FML cover design are incorporated, then final elevation of the waste is 662.5' msl on the west side and 652.5' msl on the east side. The currently permitted and proposed elevation limits for waste placement are shown on the cross section exhibits provided as Figures III-2.3 through III-2.6 of Part III, Attachment 2.

3.3 Topographic Map 30 TAC § 330.61(e)

Figure II-1.5 - "Topographic Map" shows the landfill boundary on a United States Geological Survey (USGS) 7 ½ minute quadrangle map of the area.

3.4 Aerial Photograph 30 TAC § 330.61(f)

An aerial photograph of the Landfill and surrounding area from Texas Natural Resources Information Systems is attached as Figure II-1.6. The photo presents an aerial view of the site and the area one mile outside of the permit boundary.

3.5 Land Use Map 30 TAC § 330.61(g)

Figures II-1.7, II-1.8, and II-1.8A show the various land uses within a one mile radius of the landfill boundary.

Land Uses within one mile of the Landfill include the following:

Residential Areas: The closest residential property is located approximately 800' to the west of the landfill. Two residential subdivisions with low population densities are located west of the landfill and include Western Hide and Salina Cantu. The areas around the Landfill have low density residential characteristics. A windshield survey of streets and a review of aerial photographs identified approximately 630 residential buildings located within one mile of the Landfill. The majority of these residential buildings are located approximately 0.7 miles to the west of the Landfill. According to the City's GIS Department, the region around the landfill has a population density of between 6 to 258 persons per acre, the lowest density rating used by the Laredo GIS Department. Refer to Attachment II-7 (City GIS Maps).

Schools: The Larga Vista Head Start, a preschool with a maximum capacity of 20 children, is located 0.9 miles to the west of the Landfill. Two new schools are anticipated to be constructed in the near-term following approval of bond funds. One is a middle school and the other is an elementary school. These are both located approximately one-third of a mile south of the Landfill. A traffic signal is being installed at the intersection of Hwy 359 and EG Ranch Road (the road the schools are located on) to improve safety at the intersection of EG Ranch Road, Hwy 359 and the Landfill entrance. No other schools have been identified within one mile of the permit boundary. The J. Zaffirini Elementary School and the Bill Johnson Student Activity Center are located over a mile away to the west of the landfill on SH 359.

Churches: No churches have been identified within one mile of the Landfill.

Hospitals: No hospitals are located within a one mile radius of the Landfill. The Laredo Medical Center is approximately 4.2 miles northwest of the Landfill.

Daycare facilities: No daycare facilities have been identified within one mile of the Landfill.

Oil and gas development: There are two oil and/or gas production facilities located to the north and south of the Landfill within 500'. The Texas Railroad Commission has identified these facilities and their information is provided in Attachment II-4.

Supplemental Information: Refer to Attachment II-7 – City GIS Information for supplemental data on land uses within one mile of the Landfill.

3.6 Impact on Surrounding Area 30 TAC § 330.61(h)

The City has been operating the Landfill since the initial 1986 permitting. A review of historical photographs of the region around the Landfill shows that the area was primarily undeveloped, with the exception of commercial development to the south. Since that time, there has been primarily commercial development around the area of the Landfill. The City's projected land use around the area of the Landfill is planned to remain primarily light industrial, light commercial and light residential development. Since 1986, there has been an increase in the number of businesses surrounding the Landfill. The Landfill is located on a City-designated truck route and its continued use will not adversely impact future capacity of SH 359.

The expected impact to the surrounding area is anticipated to be limited to the continuation of landfill related traffic for the additional period of approximately 18 to 20 years.

Land uses in proximity to the Landfill are primarily commercial and light industrial in nature. Commercial/Industrial businesses are located to the west, east and south of the site. To the immediate south of the permitted area, the City owns maintenance facilities, as well as an administrative office, a material recovery facility (MRF), a brush storage area and undeveloped property. The properties immediately adjacent to the west, north and east of the site are drainage easements.

Figures II-1.7 and II-1.8 illustrate land uses within a one-mile radius of the permit boundary. A rail yard owned by Tex-Mex Railroad is located north of the permitted area. Five residences are located approximately 0.5 miles west of the permit boundary. The closest major residential neighborhood is located 0.7 miles to the west of the permit boundary.

An assessment of structures located within one mile of the Landfill was conducted by evaluating aerial photography for the area and a visual survey of residents and businesses within the one mile area. The data are proximate and may change due to new construction since the time of the survey. Table II.5 presents a summary of residential and commercial structures located within one mile of the Landfill. The evaluation examined structures in four quadrants: north and west of SH 359; north and east of SH 359; south and west of SH 359; and south and east of SH 359. The centerline of the Landfill was used as the east/west dividing line. SH 359 was used as the north/south dividing line.

Table II.5
Residential & Commercial Structures within One Mile

Quadrant	Residential	Commercial	Other
Northwest	343	38	1 (Larga Vista Head Start)
Southwest	276	53	
Northeast	10	17	
Southeast	3	10	
Total	632	118	1

Zoning: Figure II-1.9 provided by the City of Laredo displays the zoning districts in the vicinity of the landfill site. The Landfill is located within the boundaries of the City of Laredo and is zoned as M-2 – Heavy Manufacturing District. The Landfill complies with M-2 zoning. Requirements for this zoning classification Section 24.65.16 M,2 HEAVY MANUFACTURING DISTRICT, includes:

1. All manufacturing activities shall be not less than 200' from any R-District.
2. All manufacturing uses requiring a special use permit for flammable products shall be at least 600' from any R-District and 200' from any B-District.
3. Manufacturing or warehousing activities, including storage and handling of hazardous materials.

The City's zoning map defines land uses within one mile of the Landfill to include the following.

1. R-1 Single family residential district
2. R-1-MH Single family manufactured housing district
3. R-1A Single family reduced area district
4. M-2 Light Manufacturing

Growth Trends: The City of Laredo's long-term comprehensive land use plan, as illustrated in Attachment II-7, illustrates that eventually, the land around the Landfill will include residential development and light manufacturing. The majority of this type of development will take place to the west and south of the Landfill. There is some commercial development currently located to the south and east of the Landfill, however only modest growth is anticipated for the area within 5 miles from the Landfill to the north, east and south of the Landfill.

The Laredo – Webb County Metropolitan Planning Organization completed a Texas Urban Mobility Plan entitled "Breaking the Gridlock Report". The Mobility Plan used 2003 data as its base year for demographic information. Findings from its report concluded: "In 2003, the population of the MPO's Urban Area Boundary was approximately 205,081 people. That figure is expected to increase to 441,412 by 2035.

Employment figures show the areas with a workforce of 76,398. That number is expected to grow to approximately 178,629 individuals by 2035. The Mobility Plan provides growth trend assessments by location within the Laredo area. Household growth in the area north of the landfill is anticipated to increase between 1-7%, while households in areas south of the Landfill are anticipated to increase 8-15% (period 2003-2035). According to the same Mobility Report, employment north and west of the landfill are anticipated to increase 1-5%, while areas east of the landfill area anticipated to increase 6-10% for the same time frame.

3.7 Transportation 30 TAC § 330.61(i)

3.7.1 Site Access and Traffic Study

The Landfill accepts an average of 1140 tons per day of MSW. The tonnage accepted in 2012 was 334,502 tons.

Photo II.2- State Hwy 359 at landfill entrance

The 1999 permit amendment reported a total of 312 vehicles entering the facility per day, including all pickups and residential traffic. For the TCEQ fiscal year from 9/1/2011 to 8/31/2012, the average number of vehicles entering the landfill was 355 customers (vehicles) per day open. This included vehicles ranging from semi-trailers to pick-up trucks (Source: City of Laredo). Other

traffic associated with the site includes maintenance vehicles, 125 employee autos, 20 material recovery facility employee vehicles, and 25 trucks associated with brush delivery and recycling. These other vehicles account for 20% of traffic at the Landfill by vehicle number.

The entrance road includes two paved incoming lanes and one paved exit lane. A separate entrance is maintained west of the Landfill entrance for City of Laredo staff and is primarily used for the solid waste collection fleet when they are not transporting waste to the Landfill. Both entrances are secured with lockable gates.

A traffic signal is being constructed at the site's entrance and EG Ranch Road in 2014, thereby improving safety at the entrance to the Landfill and the road that leads to the two planned schools that will be constructed by the Unified Independent School District (UISD).

The only route for solid waste vehicles to access the site is SH 359. SH 359 is a designated City of Laredo Truck Route (refer to map in Attachment II-8). This is a five lane asphalt road that includes a left turn lane into the landfill's entrance road. According to TxDOT Highway Traffic Maps for 2010, the estimated total vehicles using SH 359 is 12,400 vehicles per day.

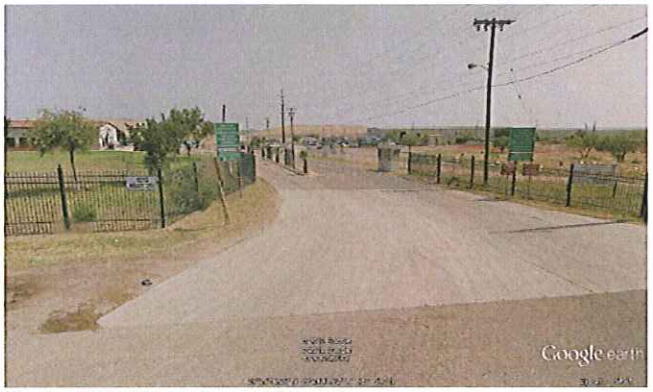


Photo II.3- Main Landfill Entrance

Table II.6
Landfill Traffic

Traffic Data (vehicles per day)	
Total Vehicles Per Day on SH 359	12,400
Solid Waste Vehicles	295
Employees Traffic and Facility Vehicles	170
Incidental Traffic to Facility – Resident and Small Business Use	355
Total Vehicle Site Use	720
Percent of Total Traffic	5.8%

Landfill traffic therefore accounts for less than six percent of total traffic on SH 359. Figure II-1.10 illustrates traffic volumes at and near the landfill (Source: TxDOT Highway Maps for 2010 – Webb County).

The projected traffic volumes accessing the Landfill are anticipated to increase by approximately 30% by 2020 due to projected increases in waste volumes. Total vehicle use by that time may increase to approximately 950 vehicles per day. It is anticipated that with increases in

population, the number of vehicles using SH 359 will also increase by 2020. Even without an increase in other traffic using SH 359, the percentage of vehicles using the site would represent 7.6% of the 12,400 vehicles per day.

Correspondence with the TxDOT was undertaken as part of the permitting effort. Letters from TxDOT are included in Attachment II-8. The Laredo District Administrator indicated that any proposed work to SH 359 is anticipated to consist of normal pavement maintenance projects. TxDOT does not have any comments on the proposed expansion of the Landfill.

3.7.2 Airport Safety 30 TAC § 330.61(i)(5)

The Laredo International Airport (owned by the City of Laredo) is located 18,000' to the northwest of the Landfill boundary (Figure II-1.1). The Landfill is located within a six mile radius of the airport; therefore the City is required to coordinate permitting efforts with the FAA and the airport. The orientation of the runways at the Laredo International Airport is north and south.

In 2013, the FAA and airport administration did not express opposition to the landfill changes proposed. The correspondence with the FAA and the City's airport management are presented in Attachment II-9 – Airport Location Restrictions.

The Landfill's construction will not exceed 200' above grade. This exempts the Landfill from consideration as an obstruction by the FAA per 14 CFR 77.9.

3.8 General Geology and Soils 30 TAC § 330.61(j)

Laredo lies within the Rio Grande embayment of the Gulf Coastal Plain. The Gulf Coastal Plain is characterized by a relatively flat, low-lying surface which slopes gradually to the Gulf of Mexico. The Gulf Coastal Plain sediments and alluvial sediments are composed of complex interbedded sediments of gravel, sand, silt and clays formed in a fluvial deltaic environment. Depositional sediments of the Tertiary system are present at the surface as outcrops throughout the general area surrounding the facility. The Tertiary is divided into the Eocene Series with one major group division within the region, the Claiborne Group. The Carrizo Sand is the lowermost formation of the Claiborne Group. The Carrizo is composed of a very permeable, massive, cross-bedded, medium-grained sand which ranges in thickness from 150' to 1,200'. Above the Carrizo Sand, the Biford, El Pico Clay, Laredo, and Yegua Formations occur in areas southwest of the Frio River which is located approximately 75 miles northwest of Laredo. These differ litho-logically and by fossil content from their equivalent counterparts northeast of the Frio River known as the Reklaw, Queen City Sand, Weches and Sparta Sand.

The predominantly sandy units, the Bigford Formation, the Queen City Sand and the Laredo formation and the Sparta Sand interfinger in the vicinity of the Frio River. The Bigford Formation consists of sand, silt and thin beds of shale, with shale making up about 25 percent of the formation in the outcrop. The Queen City Sand is a thick unit of sand, clay and sandy clay. The Queen City Bigford unit ranges in thickness from approximately 200' in Zavala County to 1,400' in Frio County. The Sparta Sand ranges from 40' to 200' in thickness and consists of sand with minor amounts of clay. The El Pico Clay outcrops in the northwestern corner of Webb

County interfingering with the Queen City Sand to the east near the Frio River. The El Pico Clay consists mostly of clay with sandstone and coal. The clay is in part gypsiferous, medium gray to brown. The sandstone in this unit is mostly fine-grained with some medium to coarse-grained material, argillaceous, silty, in part gauconitic with thin to massive bedding. The sandstone is friable to indurated and attains a thickness of 900' to 1,150'. The Laredo Formation consists of sand at its base grading upward to sandy clay and clay at the top. The Laredo Formation has a maximum thickness of 600' to 700'. The uppermost formation of the Claiborne Group is the Yeuga which consists mostly of sandy, silty, lignitic, chocolate- to reddish-brown clay with sandstone. The sandstone is a quartz, fine –grained, indurated to friable, massive, calcareous, glaconitic sand which weathers to a loose ferruginous yellow-orange and reddish-brown soil. The clay produces a dark-gray soil.

Information concerning the regional geology in the general area is documented in the Huntingdon Report in Attachment II-10.

3.8.1 Site Geology 30 TAC § 330.61(j)(1)

The facility is located on an outcrop of the Laredo Formation. The Laredo Formation is a geologic unit occurring in the Claibome Group of the Eocene Series within the Tertiary System (Table II.7). The Laredo Formation is characterized as sandstone and clay with thick sandstone members in the upper and lower part which are very fine to fine-grained and are in part glauconitic, micaceous, ferruginous, cross-bedded, and dominantly red and brown in color. A clay stratum occupies the middle of the formation. The formation weathers to an orange-yellow color. Dark gray limestone concretions are common; some of which are fossiliferous. The average thickness beneath the site facility is about 620'.

Table II.7
Geologic Column

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT	APPROXIMATE THICKNESS (FT)
Tertiary	Eocene	Claiborne	Yegua Formation	700-1,000+
			Laredo Formation	600-700
			El Pico Clay	700-1,500
			Bigford Formation	200-900
			Carrizo Sand	150-1,200

Source: Modified from Texas Water development Board Report 210

That part of the Laredo Formation that has been investigated beneath the facility has been divided into four layers (Table II.8).

Table II.8
Geologic Lithology

Layer Name	Dominant Lithology	Comments
Layer I	Sand and clay to sandy clay	Surficial unit
Layer II	Shaley sand/sandstone	Groundwater monitoring unit
Layer III	Shale	Aquiclude
Layer IV	Shaley sandstone	Non-water bearing unit

The site geology has been previously described in various site investigation reports, Huntingdon, 1994, F.G. Bryant, 1983, Rust E&I (REI), 1997, and in Volume II of IV of the Vertical Expansion Permit Application No. MSW-1693A dated June 14, 1999 by Earth Tech.
The facility is located on an outcrop of the Laredo Formation (Figure II-1.11). The Laredo Formation is a geologic unit occurring in the Claiborne Group of the Eocene Series within the Tertiary System. The Geologic Atlas of Texas, Laredo Sheet, 1976 characterizes the Laredo Formation as sandstone and clay with thick sandstone members in the upper and lower part. The formation is described as very fine to fine grained, in part glauconitic, micaceous, ferruginous, cross-bedded, dominantly red and brown with clay in the middle. It weathers to an orange-yellow color with dark gray limestone layers and concretions are common; some of which are fossiliferous with abundant marine megafossils. The average thickness beneath the site facility is about 620'. The site geology has been previously described in various site investigation reports, Huntingdon, 1994, F.G. Bryant, 1983, and Rust E&I (REI), 1997.

3.8.2 Fault Zones 30 TAC § 330.61(j)(2)

There were no "fault zones" located on the site according to the geologic assessment of the site performed for the initial permit application and confirmed in the 1999 amendment. Attachment II-11 provides the demonstration that the site is in compliance with Fault Zone Location Restrictions.

3.8.3 Seismic Impact Zones 30 TAC § 330.61(j)(1)

There were no "seismic impact zones" identified in the geologic assessment of the site performed for the initial permit application and confirmed in the 1999 amendment. Attachment II-12 provides the demonstration that the site is in compliance with Seismic Impact Zone Location Restrictions.

3.8.4 Unstable Conditions 30 TAC § 330.61(j)(1)

There were no "unstable conditions" reported in the geologic assessment of the site performed for the initial permit application and confirmed in the 1999 amendment. Attachment II-13 provides the demonstration that the site is in compliance with Unstable Conditions.

3.9 Groundwater and Surface Water 30 TAC § 330.61(k)

3.9.1 Groundwater 30 TAC § 330.61(k)(1)

The site is not located on the outcrop of or above any recognized Texas major or minor aquifer as presented in Attachment II-14. The uppermost water-bearing unit at the facility is found in Layer II, a layer of greenish-gray sandstone. This sandstone is micaceous, glauconitic containing scattered fossils with occasional highly cemented calcareous layers. A water-bearing zone has been identified in this unit. Layer II thickness ranges from 40' near the northwestern portion of the facility to 63' thick near the southeastern portion of the facility with the thickest section near the center at 70'. Previous in-situ slug testing of the monitored groundwater interval produced hydraulic conductivities ranging up to 4 x $I0^{-4}$ cm/sec with a median value of 3.0 x 10^{-6} cm/sec. Groundwater flow velocity in Layer II is about 2'/year.

Groundwater elevations measured in the 17 monitoring wells at the facility ranged from a high of 483.05' above mean sea level (msl) in MW-4R1 (the background well) to a low of 429.14' msl in MW-11 during the November 2012 groundwater sampling event. A series of groundwater flow maps prepared by SCS Engineers using groundwater data from October 2004, 2006, and 2007 indicate flow from the southwestern corner (MW-4R1) toward the north, northeast, and east (Attachment II-14). Groundwater elevations from more recent data (November 2011 and November 2012) substantiate the same directions. Attachment II-14 presents the groundwater elevations for the 2007, 2011, and 2012 dates.

No metals have been detected in the groundwater from any of the monitoring well samples at concentrations exceeding federally-promulgated maximum concentration levels (MCLs). No volatile organic compounds (VOCs) have been detected in the groundwater from any of the monitoring well samples or in QA/QC samples. There are 17 groundwater monitoring wells located at the landfill.

Table II.9
Groundwater Elevations

Location	June 2007	November 2011	November 2012
	Elevations in feet (MSL)		
MW-1	435.64	Plugged	
MW-2	435.96	Plugged	
MW-3R2	435.88	Plugged	
MW-4R1 (U)	479.61	483.00	483.05
MW-5 (D)	426.51	436.32	437.67
MW-6 (D)	424.60	429.92	431.04
MW-7 (D)	425.44	430.69	431.84
MW-8	427.65	Plugged	
MW-9	428.36	Plugged	
MW-10	429.03	Plugged	
MW-11 (D)	424.52	428.09	429.14
MW-12 (U)	466.72	471.78	451.18
MW-13 (D)		436.57	439.07
MW-14 (D)		438.90	440.10
MW-15 (D)		440.31	441.94
MW-16 (D)		436.61	437.41
MW-17 (D)		433.03	433.74
MW-18 (D)		432.60	433.35
MW-19 (D)		431.98	432.58
MW-20 (D)		432.00	432.66
MW-21 (D)		431.61	432.33
MW-22 (D)		436.91	437.31
MW-23 (D)		437.63	438.23

3.9.2 Surface Water 30 TAC § 330.61(k)(2)

3.9.2.1 Drainage Analyses

The following provides a brief description of current and proposed site drainage. A more thorough presentation of on-site drainage is presented in Part III, Attachment 6. Figure II-1.13 presents a drainage map for the site. The City will continue to comply with its current TPDES permit.

Current Pre-Development Drainage Condition

The landfill site is bounded on the west, north and east sides by drainage easements of varying width that contain existing earthen drainage channels. These offsite channels were designed and constructed to convey stormwater originating from off-site drainage areas bordering the Landfill as well as stormwater generated south of SH 359. As represented on Part III, Attachment 6, Figure III-6.1– Existing Drainage Area Map, a large watershed of approximately 984.32 acres generates surface water flow directed to the channel adjacent to the east boundary. A small watershed of approximately 42.88

acres to the west of the site flows into the existing channel adjacent to the west boundary, and a small watershed of approximately 151.17 acres southeast of the site and across the state highway currently flows onto the site across the south facility boundary. Stormwater which crosses under SH 359 flows northward to just west of the Landfill maintenance building and travels via ditches along the southern and eastern portions of the Landfill, directed to a discharge point at the northeast corner of the Landfill. The stormwater drainage system has been redesigned to accommodate the new landfill cells and improve the conveyance by providing channels and culverts to an existing retention pond (Pond "C") before eventually leaving the site near the northeast corner of the landfill perimeter.

For the pre-development on-site flows the site can be divided into four separate major drainage areas and multiple sub-areas. One area, 37.87 acres, discharges from the site generally as sheet flow along the northern boundary. The second, 35.89 acres, passes through retention/detention Pond A and discharges from the site near the northwest corner of the landfill site. The third area contains 17.33 acres, passes through retention/detention Pond B and discharges to the drainage channel located off of the northern boundary near the center of the site. The fourth drainage area contains 107.64 acres and is passed through retention/detention Pond C and is discharged offsite at the site's northeast corner in the lined channel conveying the run-on from the 151.17 acre offsite basin mentioned above. A major drainage feature in the currently permitted design is a ditch identified as Ditch 2S-2/3. This ditch flows west to east along the north side of the natural gas pipeline easement (between Phases 2 and 3) and conveys runoff from a large portion of the site's interior to Pond C.

Proposed Post-Development Drainage Design

The surface water management system design for the post-development condition is presented on Part III, Attachments 6A2 and 6A3. The proposed vertical expansion will result in two hills (West Phase and East Phase) containing three individual phases each. Proposed drainage areas were delineated based upon this final landfill configuration. To analyze the proposed post-development condition with the current pre-development condition, the resulting discharge rates will be compared for the two conditions at the most downstream point in the adjacent drainage channel near the landfill's northwest corner. As required in the regulations, the analysis will include the 25-year, 24-hour storm event and the 100-year, 24-hour storm event.

There is no change to the current pre-development offsite drainage areas or patterns with the proposed modifications within the landfill drainage design. The current discharge locations into the surrounding offsite drainage channels will remain the same for the proposed post-development condition. For the post-development on-site flows, as shown on Part III, Attachment 6A1 – Post-development Onsite Drainage Area map, the site is still divided into four separate major drainage areas and multiple sub-areas as in the pre-development condition. One area sheet flows off the north boundary lines and the remaining three areas each drain to retention ponds A, B and C-1/2. To accommodate the joining together of Phases 1 and 4 and Phases 2 and 3 into two hills,

the aforementioned lined ditch 2S-2/3 will be eliminated. To accomplish the conveyance of drainage formerly handled by this ditch, a HDPE pipe storm drain will be constructed from a point near the center of the site around the south end of Phase 3. This storm drain will discharge into retention Pond C-1, the upstream pond of a two-stage retention facility designed to replace the existing stormwater storage capacity of the current Pond C. The second, downstream pond of the two-stage facility is identified as Pond C-2. Due to the topography's slope, Ponds C-1 and C-2 are separated to have differing water surface elevations, thus maximizing the available storage volume. Discharge from Pond C-1 directly drains into Pond C-2.

Surface water run-off from the final cover of each phase will sheet flow across the top surface of the landfill and a short distance down the 4(H):1(V) landfill sideslope. Berms will be constructed at 40 vertical-foot intervals down the sideslope to form drainage terraces which intercept runoff and convey it laterally across the hillside to rundown channels. These are lined, flat-bottom channels which route runoff down the side slope to the landfill toe. Once the runoff is conveyed to the base of the landfill, it is carried in surface ditches to sedimentation basins located west of Phase 1 (sedimentation Pond A), northeast of Phase 1 (sedimentation Pond B), and east of Phase 3 (sedimentation Ponds C-1 and C-2). Culverts will be used at locations where drainage ditches cross access roads and easements as well as for sedimentation basin outlet structures.

3.10 Abandoned Oil, Gas, and Water Wells 30 TAC § 330.61(l)

3.10.1 Water Wells 30 TAC § 330.61(l)(1)

A review of water wells located within one mile of the Landfill is presented in Figure II-1.14. The water well information was derived from the Texas Water Development Board (TWDB) 2012 Report. There are a total of 15 water wells located within one mile of the Landfill based on the TWDB information. There are no known abandoned water wells located within the permit boundary. Water well records are presented in Attachment II-3.

3.10.2 Crude Oil and Gas Wells 30 TAC § 330.61(l)(2)

A review of the Railroad Commission of Texas Public GIS Map Viewer has identified known oil and gas wells within a one mile radius of the landfill site. These are displayed on Figure II-1.14, "Water, Oil and Natural Gas Well Locations". There are no known abandoned oil or gas wells located within the permit boundary. Attachment II-4 includes oil and gas well information from the Texas Railroad Commission.

3.11 Floodplain and Wetlands 30 TAC § 330.61(m)

3.11.1 Floodplains 30 TAC § 330.61(m)(1)

Since the 1999 amendment, there have been no major changes in land use or traffic patterns surrounding the landfill. However, since the 1999 amendment, the City's floodplain map has been updated. The revised Federal Emergency Management Administration (FEMA) flood study shows portions of the landfill located in an area identified as Zone A Floodplain within the

perimeter of the landfill permit boundary. Zone A is defined as: "No Base Flood Elevations Determined." AZ&B undertook a detailed evaluation of the area, including use of current (October 2012) aerial survey data. This evaluation demonstrated that the Landfill is not currently located in the floodplain. A letter of map revision (LOMR) had been filed by a third party for areas that included the Landfill. A review of that request was conducted, and the City filed an appeal to the findings of this map in July 2013. FEMA reviewed this appeal, and requested the City submit a new LOMR to revise the third party LOMR. The revised LOMR submitted by the City demonstrates that the Landfill is located outside the floodplain. This LOMR was formally adopted by FEMA on July 3, 2014.

Attachment II-15 presents information on floodplain location restrictions compliance.

3.11.2 Wetlands 30 TAC § 330.61(m)(2)

A review of the site was conducted in March 7, 2013, by Dr. Margaret Forbes, PhD, a certified wetlands specialist, to evaluate potential wetlands located on the site. Based on a review of site conditions, hydrology, and other conditions such as plant species, it was concluded that there are no jurisdictional wetlands located on the Landfill. Refer to Attachment II-16 for the wetlands demonstration report concluding that there are no wetlands currently located within the permit boundary.

3.12 Endangered or Threatened Species 30 TAC § 330.61(n)

There are four federally listed species that are believed to occur in Webb County. During a March 7, 2013 site visit conducted by Dr. Margaret Forbes, none of these species were encountered. The following is a list of the species, a brief description of their preferred habitat, and a comparison of that habitat to habitat observed at the landfill. Correspondence regarding endangered and threatened species is provided in Attachment II-16.

Ashy Dogweed (*Thymophylla tephroleuca*) – federal endangered
Ashy dogweed is a perennial wildflower restricted to unique soils found in South Texas. Known populations of ashy dogweed are located on sandy pockets of Maverick-Catarina, Copita-Zapata, and Nueces-Comita soils of southern Webb and northern Zapata counties. It occurs on both disturbed and undisturbed sites.

Maverick-Catarina soils are mapped within the center area of the landfill, where no vegetation is present, and just south of the additional 3.12 acres added to the permit boundary. Copita-Zapata and Neces-Comita soils are not present. It is very unlikely that Ashy dogweed is present at the site in vegetated areas.

Johnston's Frankenia (*Frankenia johnstonii*) – federal endangered
Johnston's frankenia is a salt-loving shrub that produces salt crystals on the underside of the leaves. Its leaves turn crimson red from November through February, making it easy to identify. It has small white flowers and, like ashy dogweed, blooms following rain events. It occurs within openings in the blackbrush dominated brushlands on pockets of highly saline soils, often in association with saladillo (*Varilla texana*), another salt-loving plant. It is restricted to specific soil types in the Maverick series.

This shrub was not observed during the site visit and is unlikely to be present on site due to the limited occurrence of Maverick soils in vegetated areas. Some Maverick soils are mapped just south of the 3.12-acre parcel.

Least tern (*Sterna antillarum*) – federal endangered
Least terns are small white terns with black markings and a forked tail. They nest along sand and gravel bars within braided streams and rivers. They may also nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc). They eat small fish and crustaceans.

The length of stream outside the 3.12-acre parcel did not contain sand or gravel bars, or appropriate food for the Least tern. No other potential habitat suitable for this species was observed within the landfill. Therefore, it is extremely unlikely that this species utilizes the site.

Texas hornshell (*Popenaias popeii*) – federal candidate species
The Texas hornshell is a freshwater mussel that occurs where fine substrata collect in undercut riverbanks, crevices, shelves, and at the base of large boulders. This type of habitat was not present on-site. Therefore, it is extremely unlikely that this species utilizes the site.

3.13 Easements and Buffer Zones

3.13.1 Easements

There is a 70' wide electric easement which is located in the central part of the Landfill that runs North/South and divides the West and East phases of the Landfill. The easement is owned by AED Central Power and Light (P.O. Box 1258, Laredo, Texas, 78042). A 50' natural gas pipeline easement running east to west through the landfill has been abandoned with a portion of the pipeline having been removed. No waste activities will occur within easements, buffer zones, or right-of-ways within 25' of the centerline of the utility easement.

3.13.2 Buffer Zones

Buffer Zones: The Laredo Landfill currently meets the buffer zone requirements as defined in MSW Permit 1693A.

TCEQ regulations require a minimum 125' for buffer zones for new applications and for permit amendments involving vertical or horizontal expansions. The regulations state: *"For vertical expansion, the owner or operator shall establish and maintain a 125-foot buffer zone. A vertical expansion is any height increase that exceeds the maximum permitted final contour for any cell or unit for which an increase is requested. For a vertical expansion, the buffer distance must be measured from the outermost edge of the newly permitted solid waste disposal airspace." "For vertical or lateral expansions of existing landfills, the new buffer zone requirements shall apply only to newly permitted airspace, regardless of whether or not the previously permitted airspace has been*

constructed or filled with solid waste. The new buffer zone may include any previously permitted airspace."

The landfill has buffer zones located along each side of the landfill. The widths of the buffer zones vary considerably across the site, but meet the minimum required 50' distance requirement as previously approved in the 1999 Permit Amendment.

In addition to buffer zones that are located within the Landfill permit, the City has drainage easements that border the Landfill along the west, east and northern boundaries. These easements were negotiated between the City and Hurd Ranch Company. The terms of the easements state that the City controls the easements "in perpetuity" and the City has the responsibility to maintain these easements. As part of the easement agreements, the City constructed a nine foot tall metal panel fence along the eastern border of the site, with the intent of providing additional screening between the Landfill and the industrial property owned by Hurd. It is the intention of the City to continue to maintain this easement as long as the Landfill is in operation and throughout the closure and post-closure care periods. The drainage easements vary in width between 100' and 200'.

In addition to the buffer along the southern border of the site, the City owns the property where administrative and fleet maintenance vehicles are located and represents an additional 700' of buffer between the Landfill permit boundary and SH 359.The City commits to maintaining ownership of this property throughout the life of the Landfill, and through the post-closure care period.

The City will maintain a 125' buffer zone from new waste. "New Waste" is defined as any waste that is placed above the currently permitted elevation or in areas not previously authorized, including the area where the abandoned natural gas pipeline is located. The buffer zone along the northern boundary will remain unchanged. The boundaries of new waste are presented in Figure II-1.4. Figure II-1.4 also illustrates that the landfill meets the distance requirement within the currently permitted boundary, with the exception of two feet along the western side of the Landfill. In this area, the City will extend the buffer zone into the City-owned drainage easement. Table II.10 presents the Buffer Zone distances from both the toe of the fill and the New Waste.

Table II.10
Buffer Zones

	Buffer from Toe of Fill	Buffer from New Waste
North	55' – 66'	648' – 662'
East	125' – 289'	141' – 698'
West*	106' – 147'	125' – 686'
South	76' – 308'	227' – 396'

*The easement along the west side will include approximately 2 foot of the drainage easement.

The buffer zones include access roads that are routinely maintained providing access for vehicles to perform periodic monitoring as well as emergency vehicles.

The drainage design presented in Part III, Attachment 6 demonstrates that the facility will comply with drainage and sediment control within the perimeter of the permitted boundary.

3.14 Historical and Archaeological Review 30 TAC § 330.61(o)

Coordination with the Texas Historical Commission regarding historically significant sites and structures, as well as known archaeological sites was undertaken. The Historical Commission reviewed information provided by the City. Based on the evaluation of site conditions, the Texas Historical Commission responded that the project may proceed – no significant sites were identified. Copies of Correspondence letters are included in Attachment II-2.

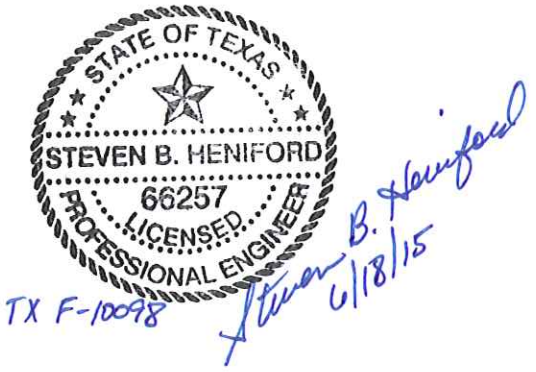
3.15 Council of Governments and Local Government 30 TAC § 330.61(p)

Correspondence with the South Texas Development Council and local government agencies including the City of Laredo has been initiated and a copy of the correspondence is included in Attachment II-2.

City of Laredo Landfill Permit Amendment 1693B
City of Laredo, Texas
Permit Amendment MSW Permit 1693B
Laredo, Texas
Webb County, Texas
August 2014

Revised June 2015

PART II
Attachment 1
Figures



LAREDO LANDFILL
PART II
Attachment 1
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Figure II.1.12: Groundwater Contour Map
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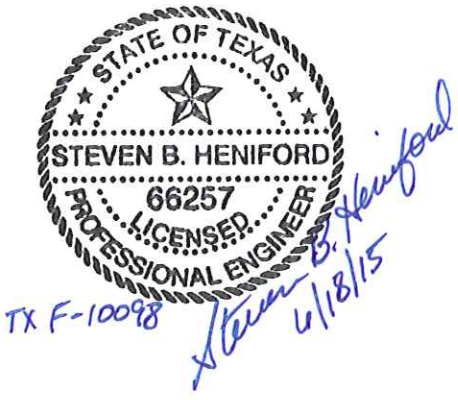
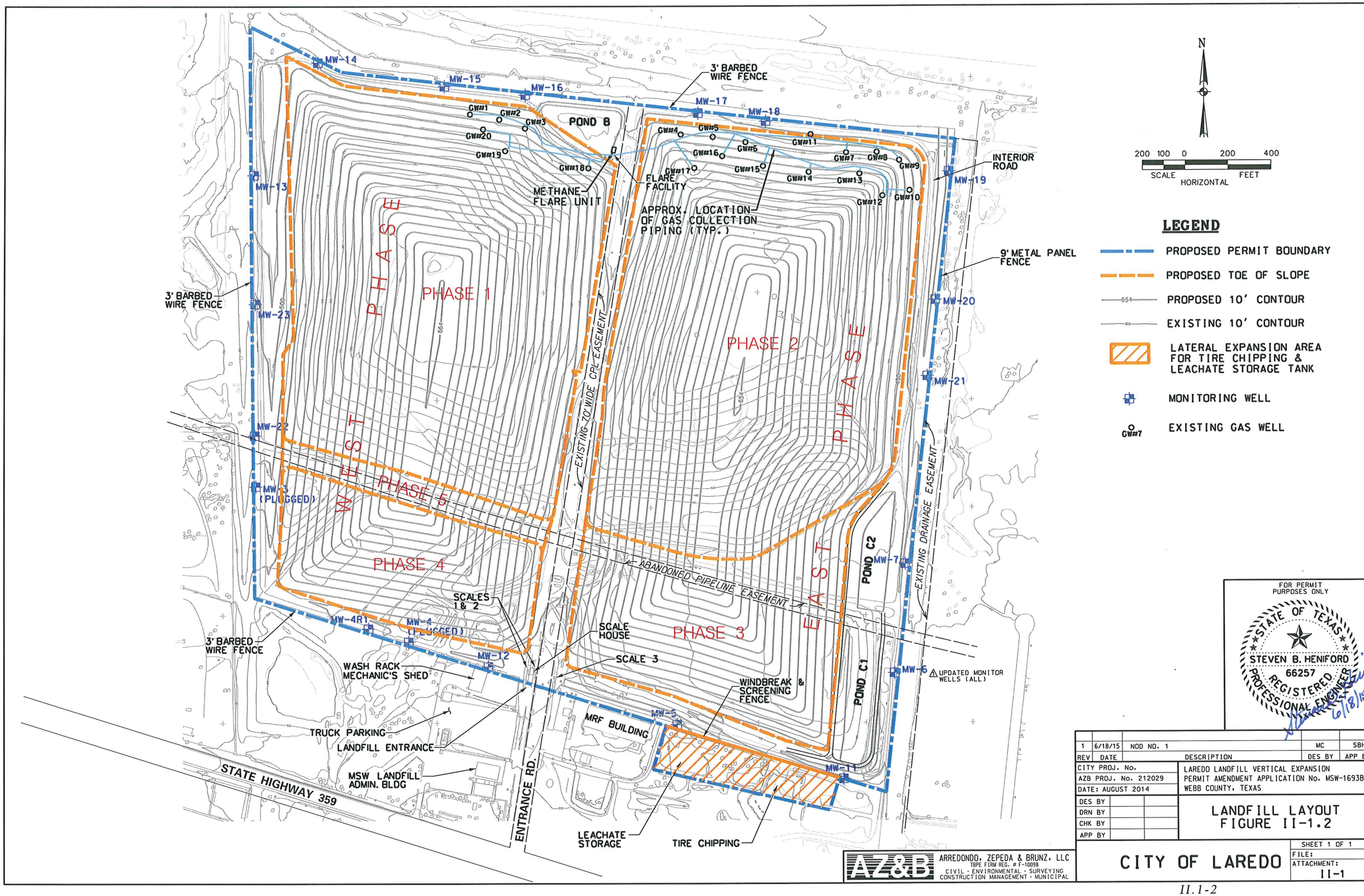
Figure II.1.14: Water, Oil and Natural Gas Wells
Figure II.1.15: Floodplains

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SCALE FEET
HORIZONTAL
MW-14
MW-15
MW-16
MW-17
MW-18
MW-19
MW-20
MW-21
MW-13
MW-23
MW-22
MW-3 (PLUGGED)
MW-4R1
MW-4 (PLUGGED)
MW-12
MW-5
MW-11
MW-6
MW-7
3' BARBED WIRE FENCE
POND B
POND C2
POND C1
METHANE FLARE UNIT
FLARE FACILITY
APPROX. LOCATION OF GAS COLLECTION PIPING (TYP.)
INTERIOR ROAD
9' METAL PANEL FENCE
PHASE 1
PHASE 2
PHASE 3
PHASE 4
PHASE 5
WEST PH
EAST PH
EXISTING 70' WIDE CPL EASEMENT
ABANDONED PIPELINE EASEMENT
EXISTING DRAINAGE EASEMENT
SCALES 1 & 2
SCALE HOUSE
SCALE 3
WASH RACK
MECHANIC'S SHED
TRUCK PARKING
LANDFILL ENTRANCE
MSW LANDFILL ADMIN. BLDG
MRF BUILDING
WINDBREAK & SCREENING FENCE
LEACHATE STORAGE
TIRE CHIPPING
STATE HIGHWAY 359
ENTRANCE RD.
UPDATED MONITOR WELLS (ALL)
LEGEND
PROPOSED PERMIT BOUNDARY
PROPOSED TOE OF SLOPE
PROPOSED 10' CONTOUR
EXISTING 10' CONTOUR
LATERAL EXPANSION AREA FOR TIRE CHIPPING & LEACHATE STORAGE TANK
MONITORING WELL
EXISTING GAS WELL
FOR PERMIT PURPOSES ONLY
STATE OF TEXAS
STEVEN B. HENIFORD
66257
REGISTERED
PROFESSIONAL ENGINEER
6/18/15
1 6/18/15 NOD NO. 1 MC SBH
REV DATE DESCRIPTION DES BY APP BY
CITY PROJ. No.
AZB PROJ. No. 212029
DATE: AUGUST 2014
LAREDO LANDFILL VERTICAL EXPANSION
PERMIT AMENDMENT APPLICATION No. MSW-1693B
WEBB COUNTY, TEXAS
DES BY
DRN BY
CHK BY
APP BY
LANDFILL LAYOUT
FIGURE II-1.2
CITY OF LAREDO
SHEET 1 OF 1
FILE:
ATTACHMENT: II-1
AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL

N

200 100 0 200 400

SCALE HORIZONTAL FEET

LEGEND

- PROPOSED PERMIT BOUNDARY
- PROPOSED TOE OF SLOPE
- LATERAL EXPANSION AREA FOR TIRE CHIPPING & LEACHATE STORAGE TANK
- MONITORING WELL

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
STEVEN B. HENIFORD
66257
REGISTERED PROFESSIONAL ENGINEER
6/18/15

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD NO. 1	MC	SBH

CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
AZB PROJ. No. 212029	PERMIT AMENDMENT APPLICATION No. MSW-1693B
DATE:	WEBB COUNTY, TEXAS
DES BY	AERIAL VIEW
DRN BY	LANDFILL LAYOUT
CHK BY	FIGURE II-1.3
APP BY	

CITY OF LAREDO

SHEET 1 OF 1
FILE:
ATTACHMENT: II-1

AZ&B ARREDONDO, ZEPEDA & BRUNZ, LLC
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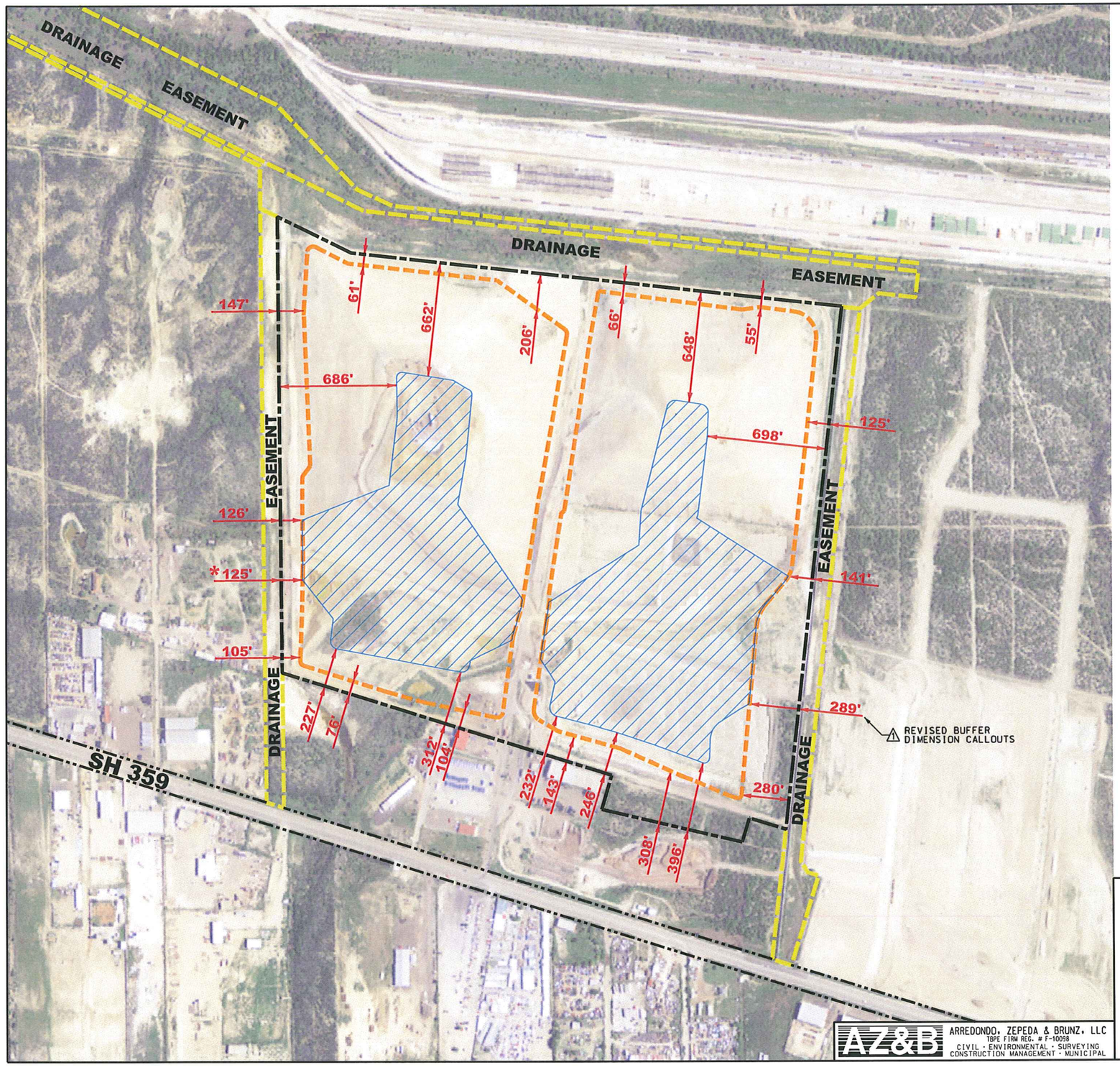

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300 150 0 300 600

SCALE HORIZONTAL FEET

LEGEND

- PERMIT / BUFFER ZONE BOUNDARY
- FILL LIMIT
- EXISTING DRAINAGE EASMENTS
- LIMITS OF NEW FILL

NOTE:
PROPERTY LINES AND EASEMENT INFORMATION WERE OBTAINED FROM HISTORICAL RECORDS, AND IS DEPICTED HERE SOLELY FOR PLANNING PURPOSES AND NOT FOR CONSTRUCTION.

* BUFFER WILL INCLUDE APPROXIMATELY 2' OF THE CITY-OWNED DRAINAGE EASEMENT.

SOURCE: AERIAL MAP, TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)

AZ&B ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
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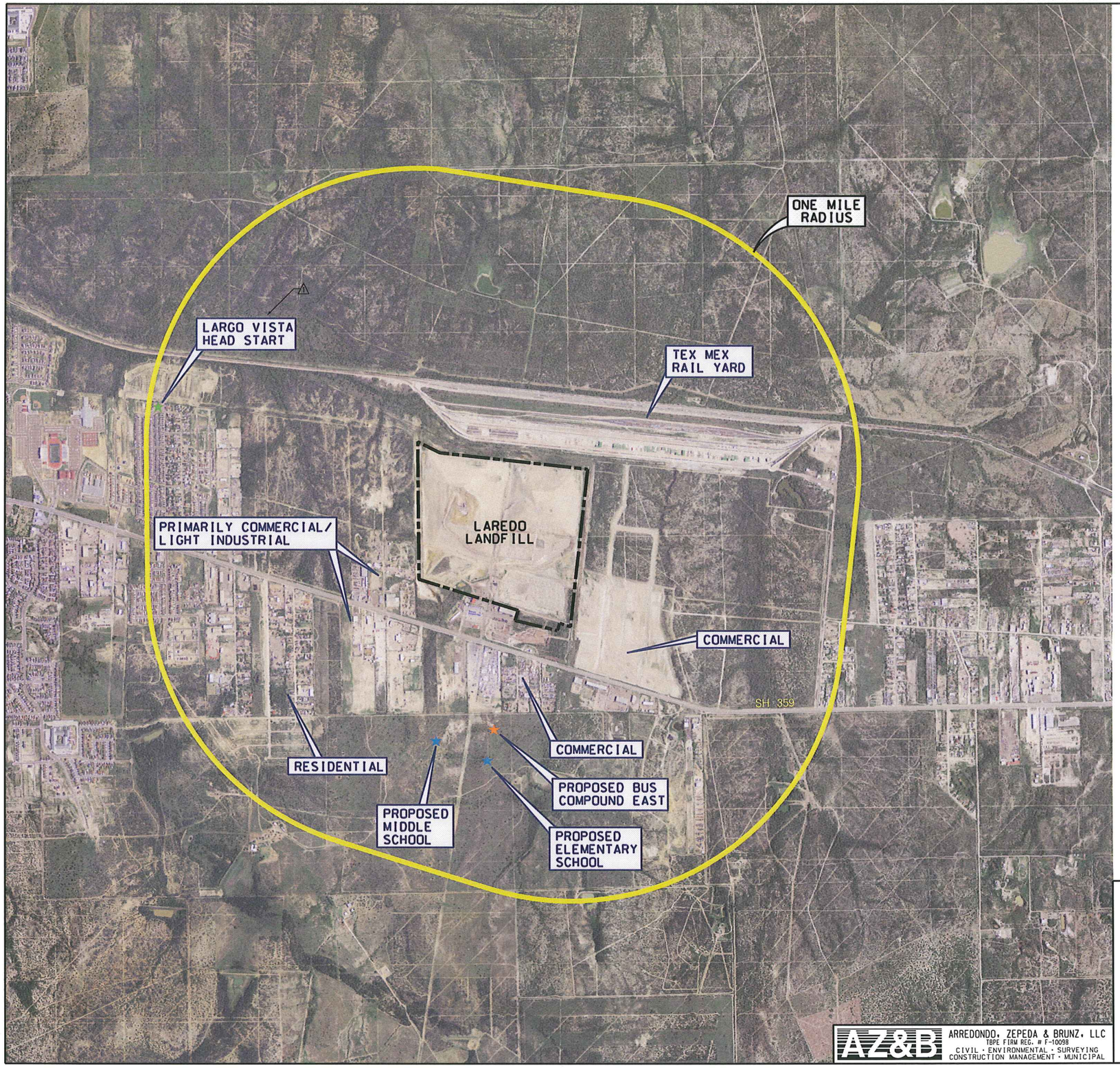
STATE OF TEXAS
STEVEN B. HENIFORD
66257
REGISTERED
PROFESSIONAL ENGINEER
6/18/15

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD NO. 1	SBH	SBH
0	11/15/13		MC	SH

CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
AZB PROJ. No. 212029	PERMIT AMENDMENT APPLICATION No. MSW-1693B
DATE: AUGUST 2014	WEBB COUNTY, TEXAS
DES BY SH	BUFFER ZONE & DRAINAGE EASEMENT FIGURE II-1.4
DRN BY AZB	
CHK BY SH	
APP BY MC	

CITY OF LAREDO

SHEET OF
FILE:
ATTACHMENT: II-1



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SCALE HORIZONTAL FEET

LEGEND

AMENDED PERMIT BOUNDARY

SOURCE: TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD NO. 1	SBH	SBH

CITY PROJ. No.
AZB PROJ. No. 212029
DATE: AUGUST 2014

DES BY	SH
DRN BY	AZB
CHK BY	SH
APP BY	MC

LAREDO LANDFILL VERTICAL EXPANSION
PERMIT AMENDMENT APPLICATION No. MSW-1693B
WEBB COUNTY, TEXAS

AERIAL VIEW OF LAND USE
FIGURE II-1.8

CITY OF LAREDO

SHEET OF
FILE:
ATTACHMENT: II-1

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ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL

N

300 150 0 300 600

SCALE HORIZONTAL FEET

LEGEND

AMENDED PERMIT BOUNDARY

SOURCE: GOOGLE EARTH 2015

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD NO. 1	MC	SBH

CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
AZB PROJ. No. 212029	PERMIT AMENDMENT APPLICATION No. MSW-1693B
DATE: AUGUST 2014	WEBB COUNTY, TEXAS

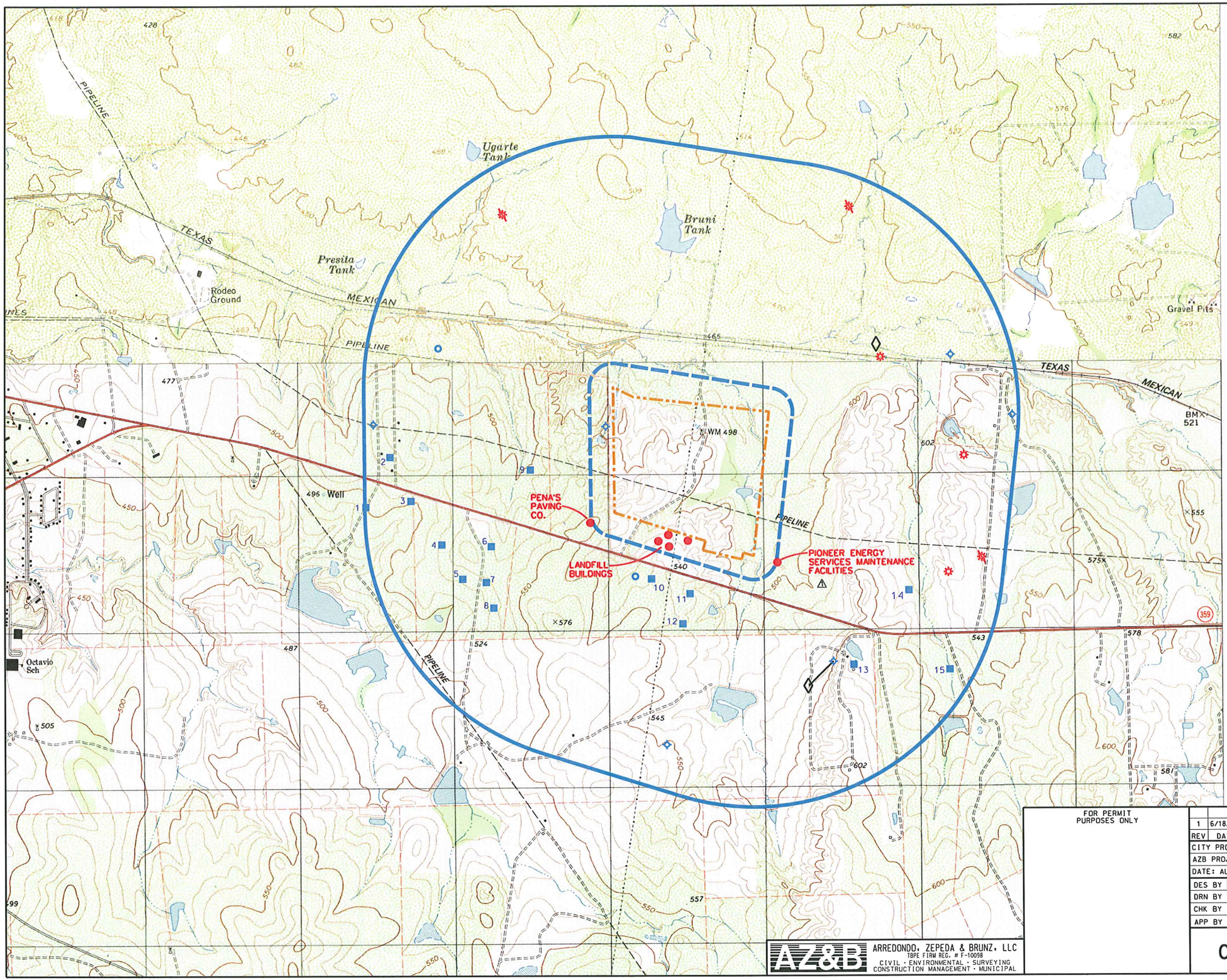
DES BY	SH
DRN BY	AZB
CHK BY	SH
APP BY	MC

LAND USE WITHIN 500' OF PERMIT BOUNDARY
FIGURE II-1.8A ⚠1

CITY OF LAREDO

SHEET OF
FILE:
ATTACHMENT: II-1

AZ&B ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL



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1000 500 0 1000 2000

SCALE FEET

HORIZONTAL

LEGEND

- PERMIT BOUNDARY
- 500' RADIUS FROM PERMIT BOUNDARY
- 1 MILE RADIUS FROM PERMIT BOUNDARY
- OIL/GAS DRY HOLE
- GAS WELL
- PLUGGED GAS WELL
- OIL/GAS PERMITTED LOCATION
- DIRECTIONAL WELL SURFACE LOCATION
- WATER WELL LOCATION
- STRUCTURE OUTSIDE OF PERMIT BOUNDARY AND WITHIN 500 FEET OF BOUNDARY

FOR BASE MAP LEGEND REFER TO THE TOPOGRAPHICAL MAP SYMBOLS, DEPARTMENT OF THE INTERIOR, U.S. GEOLOGICAL SURVEY. NATIONAL MAPPING DIVISION.

NOTES:
THE TWO STREAMS WITHIN THE PERMIT BOUNDARY FLOW INTO AN UNNAMED TRIBUTARY OF CHACON CREEK, WHICH LIES APPROXIMATELY 2.5 MILES WEST OF THE LANDFILL'S NORTHWEST CORNER.

THE PIPELINE INTERSECTING THE LANDFILL,WHICH RUNS EAST/WEST, HAS BEEN ABANDONED.

SOURCES:

BASE MAP SOURCE IS LAREDO EAST, 1980 AND LAREDO SOUTH, 1979. USGS 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS.

TEXAS WATER DEVELOPMENT BOARD, WATER WELL REPORTS 2012.

RAILROAD COMMISSION OF TEXAS PUBLIC GIS MAP VIEWER, 2013.

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD #1	MC	SBH

CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
AZB PROJ. No. 212029	PERMIT AMENDMENT APPLICATION No. MSW-1693B
DATE: AUGUST 2014	WEBB COUNTY, TEXAS
DES BY SH	WATER, OIL & NATURAL GAS WELL LOCATIONS
DRN BY AZB	FIGURE II-1.14
CHK BY SH	
APP BY MC	

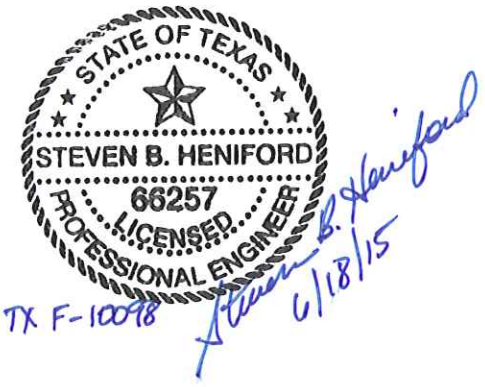
AZ&B ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL

CITY OF LAREDO

SHEET OF
FILE:
ATTACHMENT: II-1

City of Laredo Landfill Permit Amendment 1693B
City of Laredo, Texas
Permit Amendment MSW Permit 1693B
Laredo, Texas
Webb County, Texas
August 2014
Revised June 2015

PART II
Attachment 2
Correspondence



LAREDO LANDFILL
PART II
Attachment 2
Correspondence

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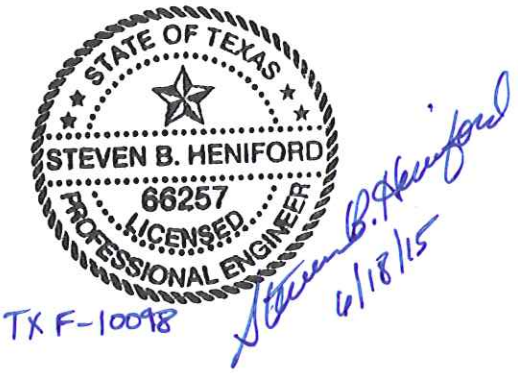
List of Attachments

Letter to Texas Historical Commission from Arredondo, Zepeda & Brunz (6/21/2013)
Letter to South Texas Development Council from City of Laredo (10/21/2013)
Texas Commission on Environment Quality Texas Pollutant Discharge Elimination System Storm Water Multi-Sector General Permit #TXR05AZ35 for City of Laredo (3/29/2012)



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Texas Pollutant Discharge Elimination System
Storm Water Multi-Sector General Permit

The Notice of Intent (NOI) for the facility listed below was received on November 18, 2011. The intent to discharge storm water associated with industrial activity under the terms and conditions imposed by the Texas Pollutant Discharge Elimination System (TPDES) storm water multi-sector general permit TXR050000 is acknowledged. Your facility's TPDES multi-sector storm water general permit number is:

TXR05AZ35
Coverage Effective: November 21, 2011

TCEQ's storm water multi-sector general permit requires certain storm water pollution prevention and control measures, possible monitoring and reporting, and periodic inspections. Among the conditions and requirements of this permit, you must have prepared and implemented a storm water pollution prevention plan (SWP3) that is tailored to your industrial site. As a facility authorized to discharge under the storm water multi-sector general permit, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

Project/Site Information:
RN102327582
CITY OF LAREDO LANDFILL
6912 HWY 359
LAREDO, TX 78043-4787
WEBB COUNTY

Operator:
CN600131908
CITY OF LAREDO
PO BOX 1965
LAREDO, TX 78044-1965

This permit expires on August 14, 2016, unless otherwise amended. If you have any questions related to processing you may contact the Storm Water Processing Center by **email at SWPERMIT@tceq.texas.gov or by telephone at (512) 239-3700.** For technical issues, you may contact the storm water technical staff by email at swgp@tceq.texas.gov or by telephone at (512) 239-4671. Also, you may obtain information on the storm water web site at http://www5.tceq.texas.gov/wq_dpa/. A copy of this document should be kept with your SWP3.

Issued Date: March 29, 2012

FOR THE COMMISSION

City of Laredo Landfill Permit Amendment 1693B
City of Laredo, Texas
Permit Amendment MSW Permit 1693B
Laredo, Texas
Webb County, Texas
August 2014

Revised June 2015

PART II
Attachment 6
Sequence of Development Plan

TX F-10098

6/18/15

LAREDO LANDFILL
PART II
Attachment 6
Sequence of Development Plan

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Figure II.6.4: Site Development Plan Stage 2
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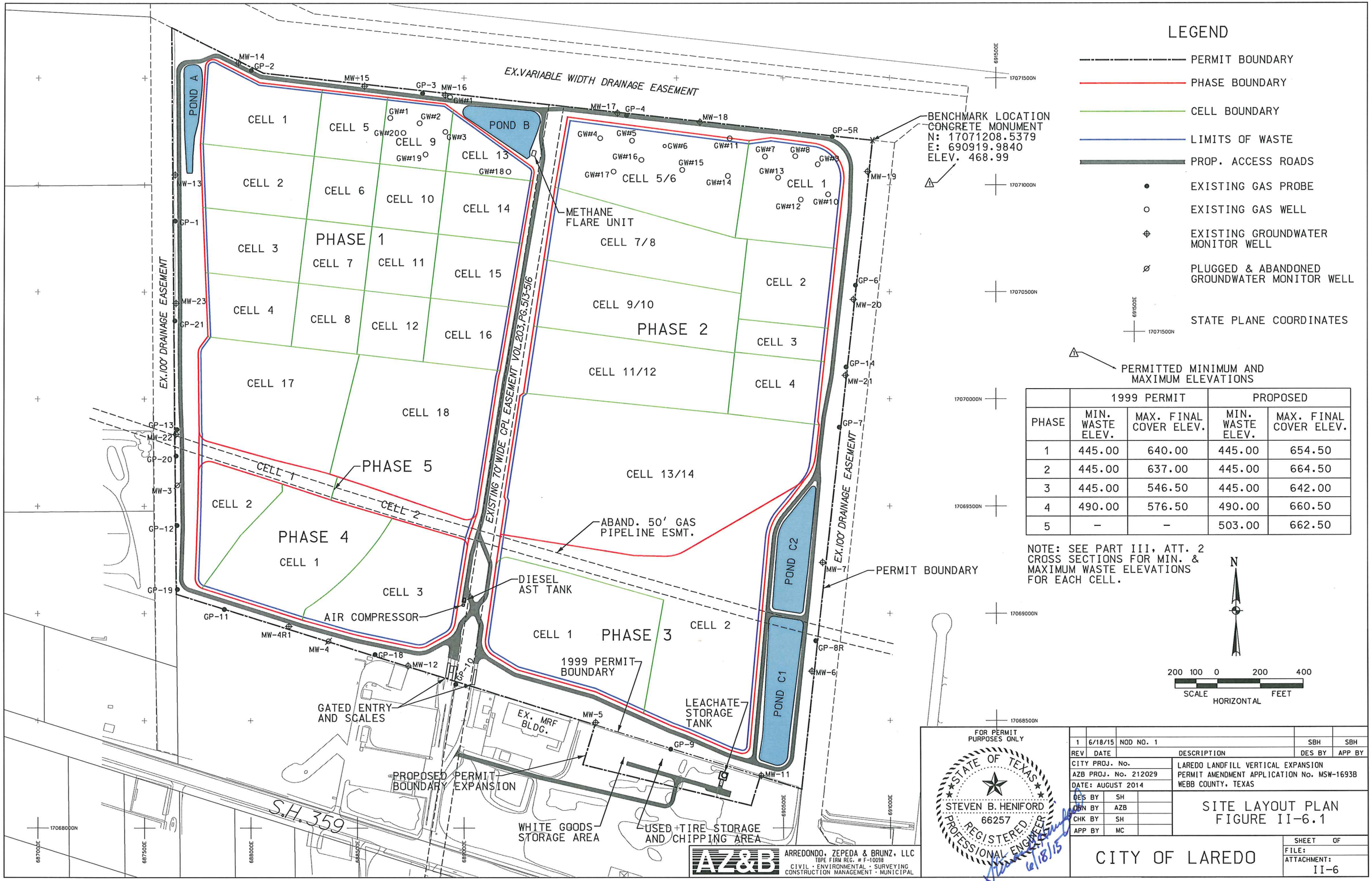
Figure II.6.6: Site Development Plan Stage 4
Figure II.6.7: Site Development Plan Stage 5
Figure II.6.8: Site Development Plan Stage 6
Figure II.6.9: Site Development Plan Stage 7



LEGEND

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- LIMITS OF WASTE
- PROP. ACCESS ROADS
- EXISTING GAS PROBE
- EXISTING GAS WELL
- EXISTING GROUNDWATER MONITOR WELL
- PLUGGED & ABANDONED GROUNDWATER MONITOR WELL
- STATE PLANE COORDINATES (691500E / 17071500N)
- PERMITTED MINIMUM AND MAXIMUM ELEVATIONS

PHASE	1999 PERMIT MIN. WASTE ELEV.	1999 PERMIT MAX. FINAL COVER ELEV.	PROPOSED MIN. WASTE ELEV.	PROPOSED MAX. FINAL COVER ELEV.
1	445.00	640.00	445.00	654.50
2	445.00	637.00	445.00	664.50
3	445.00	546.50	445.00	642.00
4	490.00	576.50	490.00	660.50
5	–	–	503.00	662.50

NOTE: SEE PART III, ATT. 2 CROSS SECTIONS FOR MIN. & MAXIMUM WASTE ELEVATIONS FOR EACH CELL.

N

200 100 0 200 400
SCALE HORIZONTAL FEET

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
STEVEN B. HENIFORD
66257
REGISTERED
PROFESSIONAL ENGINEER
6/18/15

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD NO. 1	SBH	SBH

CITY PROJ. No.
AZB PROJ. No. 212029
DATE: AUGUST 2014
DES BY SH
DRN BY AZB
CHK BY SH
APP BY MC

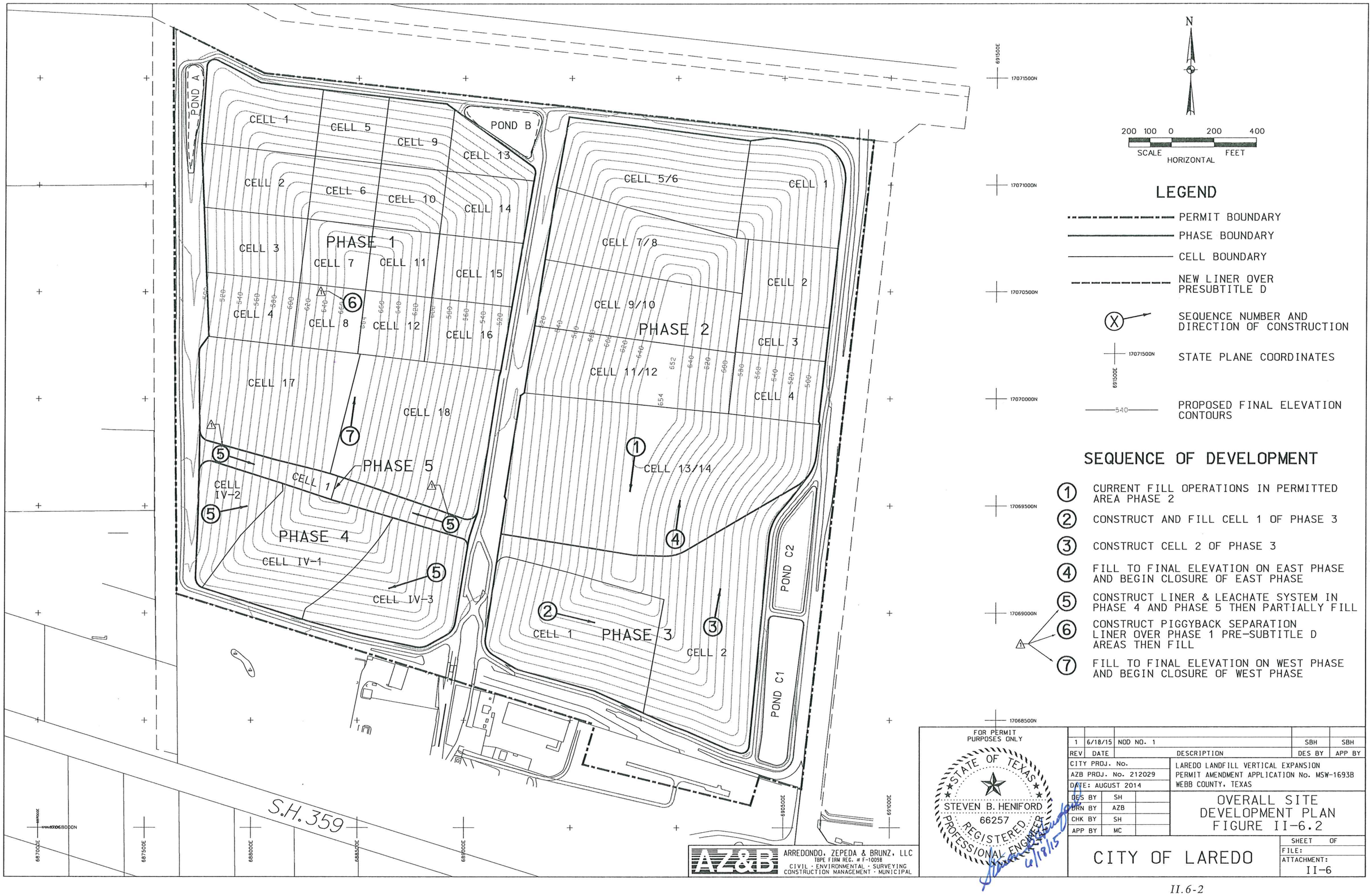
LAREDO LANDFILL VERTICAL EXPANSION
PERMIT AMENDMENT APPLICATION No. MSW-1693B
WEBB COUNTY, TEXAS

SITE LAYOUT PLAN
FIGURE II-6.1

CITY OF LAREDO

SHEET OF
FILE:
ATTACHMENT: II-6

AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL



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SCALE HORIZONTAL FEET

LEGEND

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- NEW LINER OVER PRESUBTITLE D
- (X) SEQUENCE NUMBER AND DIRECTION OF CONSTRUCTION
- 17071500N / 691500E — STATE PLANE COORDINATES
- 540 — PROPOSED FINAL ELEVATION CONTOURS

SEQUENCE OF DEVELOPMENT

1. CURRENT FILL OPERATIONS IN PERMITTED AREA PHASE 2
2. CONSTRUCT AND FILL CELL 1 OF PHASE 3
3. CONSTRUCT CELL 2 OF PHASE 3
4. FILL TO FINAL ELEVATION ON EAST PHASE AND BEGIN CLOSURE OF EAST PHASE
5. CONSTRUCT LINER & LEACHATE SYSTEM IN PHASE 4 AND PHASE 5 THEN PARTIALLY FILL
6. CONSTRUCT PIGGYBACK SEPARATION LINER OVER PHASE 1 PRE-SUBTITLE D AREAS THEN FILL
7. FILL TO FINAL ELEVATION ON WEST PHASE AND BEGIN CLOSURE OF WEST PHASE

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
STEVEN B. HENIFORD
66257
REGISTERED PROFESSIONAL ENGINEER
6/18/15

ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10058
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL

REV	DATE	DESCRIPTION	DES BY	APP BY
1	6/18/15	NOD NO. 1	SBH	SBH

CITY PROJ. No.	
AZB PROJ. No. 212029	
DATE: AUGUST 2014	
DES BY	SH
DRN BY	AZB
CHK BY	SH
APP BY	MC

LAREDO LANDFILL VERTICAL EXPANSION
PERMIT AMENDMENT APPLICATION No. MSW-1693B
WEBB COUNTY, TEXAS

OVERALL SITE DEVELOPMENT PLAN FIGURE II-6.2

CITY OF LAREDO

SHEET OF
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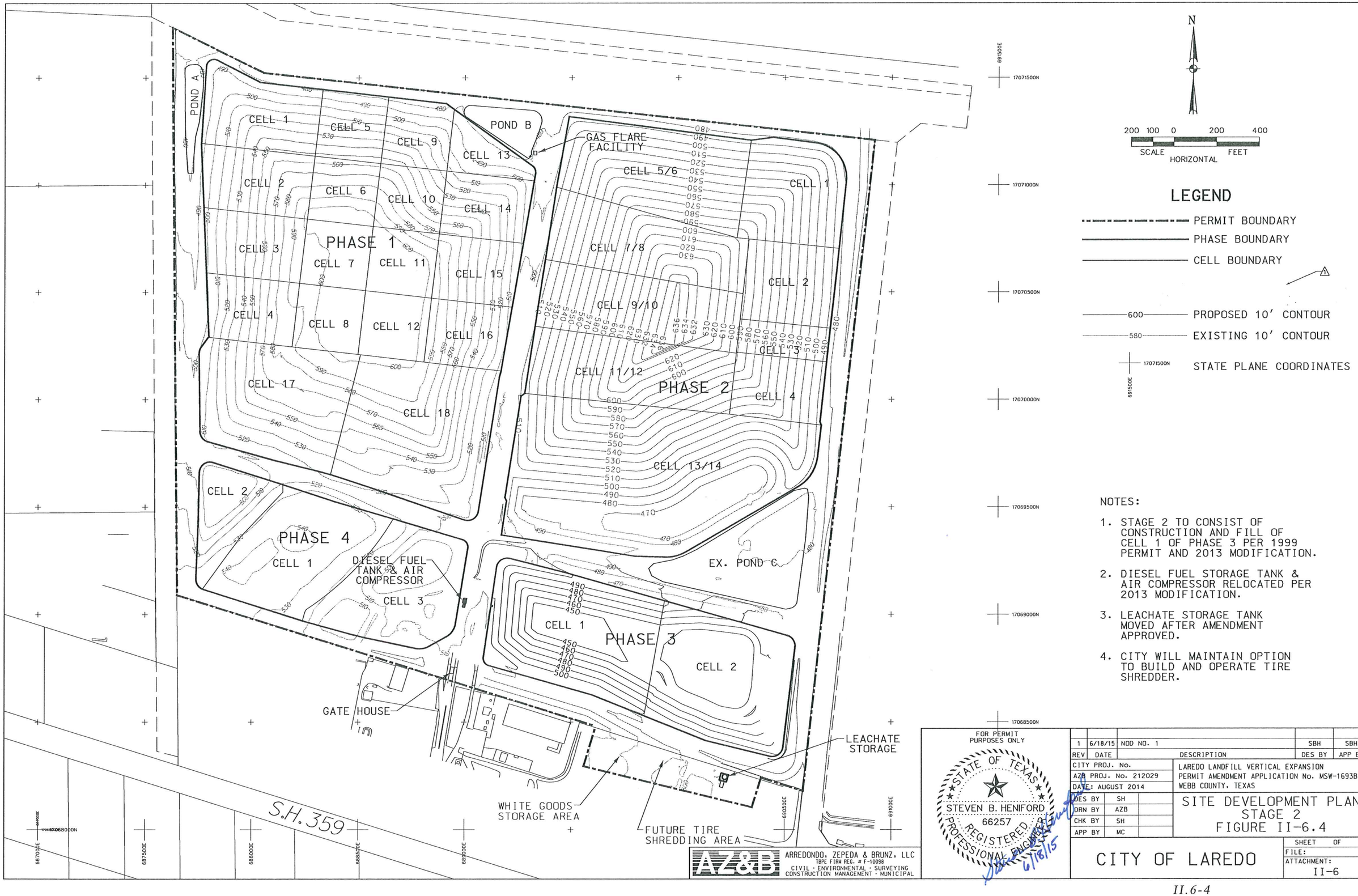
ATTACHMENT: II-6



NOTES:

1. STAGE 2 TO CONSIST OF CONSTRUCTION AND FILL OF CELL 1 OF PHASE 3 PER 1999 PERMIT AND 2013 MODIFICATION.
2. DIESEL FUEL STORAGE TANK & AIR COMPRESSOR RELOCATED PER 2013 MODIFICATION.
3. LEACHATE STORAGE TANK MOVED AFTER AMENDMENT APPROVED.
4. CITY WILL MAINTAIN OPTION TO BUILD AND OPERATE TIRE SHREDDER.

FOR PERMIT PURPOSES ONLY

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SITE DEVELOPMENT PLAN
STAGE 2
FIGURE II-6.4

CITY OF LAREDO

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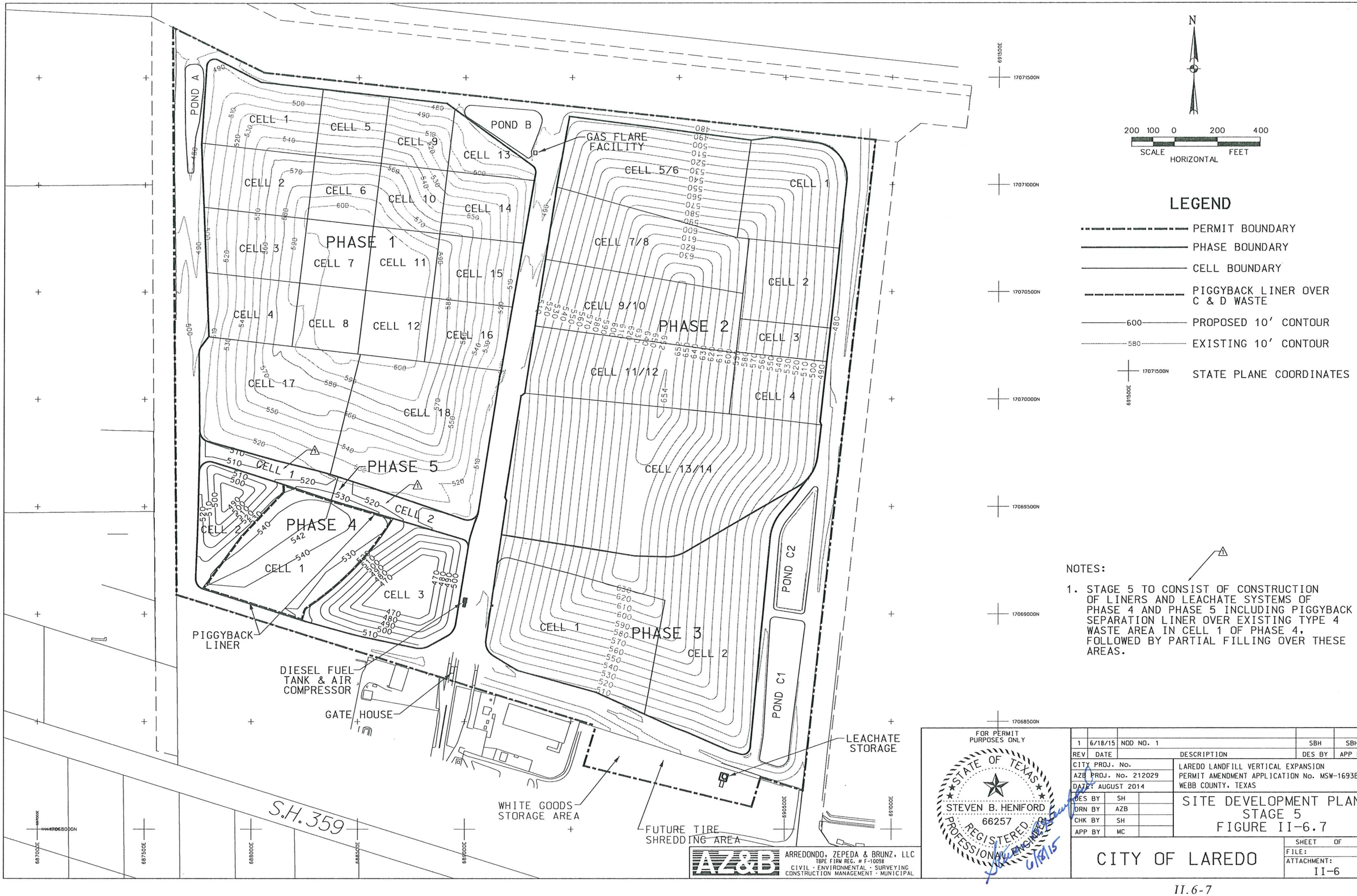
ATTACHMENT:
II-6



LEGEND

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- PIGGYBACK LINER OVER C & D WASTE
- 600 PROPOSED 10′ CONTOUR
- 580 EXISTING 10′ CONTOUR
- 17071500N / 6915500E STATE PLANE COORDINATES

NOTES:

1. STAGE 5 TO CONSIST OF CONSTRUCTION OF LINERS AND LEACHATE SYSTEMS OF PHASE 4 AND PHASE 5 INCLUDING PIGGYBACK SEPARATION LINER OVER EXISTING TYPE 4 WASTE AREA IN CELL 1 OF PHASE 4, FOLLOWED BY PARTIAL FILLING OVER THESE AREAS.

FOR PERMIT PURPOSES ONLY

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LAREDO LANDFILL VERTICAL EXPANSION
PERMIT AMENDMENT APPLICATION No. MSW-1693B
WEBB COUNTY, TEXAS

SITE DEVELOPMENT PLAN
STAGE 5
FIGURE II-6.7

CITY OF LAREDO

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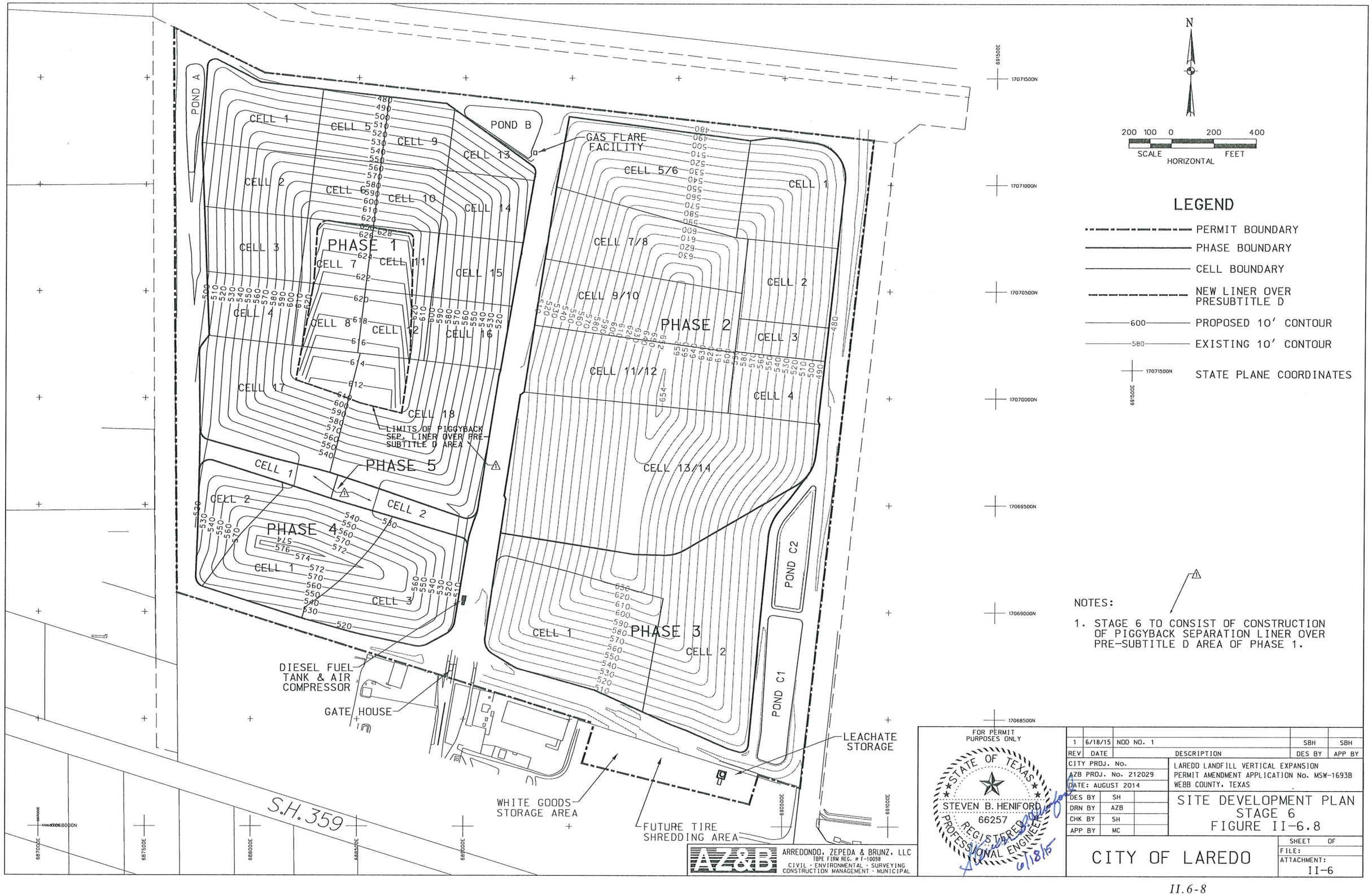
ATTACHMENT: II-6

AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10058
CIVIL · ENVIRONMENTAL · SURVEYING
CONSTRUCTION MANAGEMENT · MUNICIPAL



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SCALE HORIZONTAL FEET

LEGEND

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- NEW LINER OVER PRESUBTITLE D
- 600 PROPOSED 10' CONTOUR
- 580 EXISTING 10' CONTOUR
- 17071500N STATE PLANE COORDINATES

NOTES:

1. STAGE 6 TO CONSIST OF CONSTRUCTION OF PIGGYBACK SEPARATION LINER OVER PRE-SUBTITLE D AREA OF PHASE 1.

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ARREDONDO, ZEPEDA & BRUNZ, LLC
TBPE FIRM REG. # F-10098
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LAREDO LANDFILL VERTICAL EXPANSION
PERMIT AMENDMENT APPLICATION No. MSW-1693B
WEBB COUNTY, TEXAS

SITE DEVELOPMENT PLAN
STAGE 6
FIGURE II-6.8

CITY OF LAREDO

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ATTACHMENT: II-6