



DeSoto
COUNTY FL

JonesEdmunds



DESOTO COUNTY SECTION 16 LANDFILL MASTER PLAN REPORT

DeSoto County Landfill and Environmental Services Department | September 2025

**DESOTO COUNTY SECTION 16 LANDFILL
MASTER PLAN REPORT**

Prepared for:

DeSoto County Landfill and Environmental Services Department
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Arcadia, Florida 34266

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Jones Edmunds Project No.: 04185-004-01

September 2025

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EXECUTIVE SUMMARY

The DeSoto County Landfill and Environmental Services Department provides municipal solid waste management and disposal services for residential and commercial customers in DeSoto County, Florida. The DeSoto County Section 16 Landfill is owned and operated by the DeSoto County Board of County Commissioners. The currently permitted and constructed disposal zones are expected to reach capacity as early as September 2028, and the County seeks to have a Master Plan Report with recommendations for immediate development of the next zone (landfill cell) and alternative concept plans for future landfill buildout.

Jones Edmunds prepared this Master Plan Report to accomplish the following objectives:

- Provide recommendations for immediate zone development to allow for expansion of disposal capacity before September 2028.
- Develop concept plans for alternative landfill expansion scenarios. This examines the cost and capacity impacts of relocating existing site infrastructure for future zones versus not relocating it.

To accomplish this, this report:

- Summarizes historical data.
- Reviews site conditions.
- Projects future population growth.
- Estimates future waste disposal rates.
- Reviews regulatory constraints.
- Provides recommendations for future landfill expansion.

Two alternative concept plans were developed:

- Alternative #1 maximizes waste airspace available at the site but requires additional cost and complexity to demolish and reconstruct site infrastructure.
- Alternative #2 reduces the costs and challenges by allowing most of the site infrastructure to remain in place, although significantly less landfill airspace and lifespan are gained.

Regardless of which alternative is chosen, Jones Edmunds recommends the following to meet the worst-case projected consumption of airspace by September 2028:

- Begin the consultant selection process for design and permitting for Zones 6 and 7. As an added value component to this Master Plan Report, Jones Edmunds is preparing a 30% drawing set for the Zones 6 and 7 expansion. This will shorten the design and permitting process by approximately 1 month and allows for expediting the site geotechnical exploration recommendation below.
- Begin geotechnical site investigations as soon as possible (within the next 60 days) to shorten the design and permitting process by up to 2 months. This work can be accomplished as part of the development of this Master Plan Report by modifying the scope of services to cover this additional effort.

- Reduce or eliminate the acceptance of out-of-County waste. This is expected to increase the worst-case life expectancy by at least 3 months.
- During Zones 6 and 7 design and permitting, perform a technical evaluation to determine if a vertical expansion above the existing landfill Zones 1 through 5 is feasible. This approach could provide airspace for waste disposal operations at a relatively small cost as Zones 6 and 7 are constructed.

1 INTRODUCTION

This Master Plan Report was developed with DeSoto County stakeholders for the DeSoto County Section 16 Landfill. The Landfill is owned and operated by the DeSoto County Board of County Commissioners and is the only Class I landfill in DeSoto County. The County's goal is to identify the future landfill zone most suitable for immediate development that meets the County's time constraints and allows for efficient use of the south parcel. Additionally, this report identifies two full build-out alternatives for the south parcel that focus on maximizing the south parcel capacity or minimizing modification and relocation of existing site infrastructure.

The recommendations are based on an assessment of existing facility conditions, review of historical site investigations, population and waste projections, analysis of leachate generation, and concept plans for future landfill expansion. Generally, the landfill cells in the south parcel have been arranged to maximize the disposal capacity by locating all site infrastructure and stormwater management areas at the perimeter of the expansion area or elsewhere on site. However, this report does not provide a comprehensive assessment of site conditions. It does, however, generally evaluate the suitability of the proposed expansion area. Our review of the available site information does not indicate any conditions that would prevent the continued development of the site. A 30% drawing set for the Zone 6 and Zone 7 expansion will be provided following the finalization of this Master Plan Report.

Zone 5 is the current active zone at the site. Construction of Zone 5 was completed in October 2019, and the zone began operating soon after the Florida Department of Environmental Protection (FDEP) construction certification was obtained. Initial estimates of the Zone 5 lifespan performed by SCS Engineers during Zone 5 permitting indicated a lifespan through 2032. However, because of increases in the County's population, waste disposal rates, and impacts from severe weather events such as hurricanes, the projected lifespan has been decreased and now the existing disposal capacity may be exhausted as soon as September 2028 in a worst-case scenario. This emphasizes the importance of evaluating the alternative development plans for the south parcel and identifying the best approach for locating and developing Zones 6 and 7.

During Zone 4 construction, the disposal capacity at the site was consumed before construction was completed, and transfer of waste out of County for disposal was required at significant expense to the County. To avoid repeating that scenario, this evaluation examines construction costs and disposal capacity for potential landfill cells in the south parcel and the permitting, design, and construction complexity of the options to provide the construction and certification of the next landfill cell before the estimated exhaustion of the Zone 5 disposal capacity in 2028.

In addition to the current landfill disposal and operations area, the County also owns land parcels south and north of the facility. The south and north parcels were acquired by the County for developing future landfill operations and disposal. The south parcel is adjacent to the existing landfill cells and presents fewer engineering challenges for developing and maximizing the disposal capacity in this area as described later in this report.

The north parcel presents additional engineering and infrastructure challenges such as existing infrastructure along its south boundary (pump stations, scale house/administration

building, site access roads) and is partially slated for development of leachate management at the site. For these reasons, this report focuses on the south parcel, which will provide the most immediate disposal area with less disruption to on-site operations.

2 LANDFILL SITE

2.1 LOCATION

The DeSoto County Landfill is at 3268 SW Dishong Avenue, Arcadia, Florida 34266, and has been operating since 1981. This property is approximately 158 acres, including the County-owned undeveloped parcels to the south and north. The neighboring properties are owned by land developers or individual residents and have been used for agriculture or mining. Most of the surrounding property is minimally developed or undeveloped. The ground surface of the site is generally between 45 and 50 feet National Geodetic Vertical Datum of 1929 (NGVD29). The seasonal high groundwater table is approximately 40 to 44 feet NGVD29 in the vicinity of the active Class I landfill, although it is lower on the east side of the property. Groundwater flows generally to the southeast across the site; the Peace River is approximately 0.7 mile east of the edge of the property.

2.2 SITE DEVELOPMENT HISTORY

The site includes an active lined Class I landfill, closed unlined landfill cells, a yard waste processing area, stormwater retention basins, lined leachate ponds, a scale house, an administration building, and other ancillary facilities. The landfill is operating under Permit No. 0042079-011-SO/01, issued by FDEP on June 6, 2013, and modified by Permit Modification No. 0042079-015-SO-MM. The permit will expire on June 6, 2033.

The closed unlined landfill cells are on the east portion of the property. Although developing this area is feasible and Jones Edmunds has assisted other clients with similar projects, these cells are not included in the report because the County does not currently plan to pursue these options.

The active Class I landfill includes Zones 1 through 5 totaling approximately 28 acres. Figure 1 in Appendix A presents a Facility Site Plan showing the existing infrastructure. Figure 2 shows the existing site conditions based on a recent topographic survey.

- Zone 1—This landfill cell is single-lined and covers approximately 4.5 acres. Zones 1, 2, and 3 share a common leachate lift station, Leachate Pump Station No. 1, south of these zones. This infrastructure presents complications for a future expansion to the south. Although the infrastructure can be relocated, the design, permitting, and construction of the relocated infrastructure could present challenges and slow the development of the next landfill cell. Due to the time constraints for developing the next disposal area, avoiding relocating this infrastructure is recommended. This area has reached its maximum disposal elevation, and a closure system has been permitted and constructed. This zone is no longer available for waste disposal operations except those that will occur during a future landfill expansion to the south in the south parcel.
- Zone 2—This landfill cell is double-lined and covers approximately 3.8 acres. As previously discussed, Zones 1, 2, and 3 share a common leachate lift station south of these zones, and relocating the infrastructure could present complications. Due to time constraints for developing the next disposal area, avoiding relocating this infrastructure is recommended. This area has reached its maximum disposal elevation, and a closure system has been permitted and constructed. This zone is no longer available for waste

disposal operations except those that will occur during a future landfill expansion to the south in the south parcel.

- Zone 3—This landfill cell is double-lined and covers approximately 5.2 acres. As previously discussed, Zones 1, 2, and 3 share a common leachate lift station south of these zones, and relocating the infrastructure could present complications. This area has reached its maximum disposal elevation. Approximately 3.6 acres of the 5.2 acres have been closed. The remaining 1.6 acres are active for waste filling and available for filling on the south slope when a future landfill expansion is constructed to the south.
- Zone 4—This landfill cell is double-lined and covers approximately 7.3 acres. The pump station for Zone 4 is on the north side of Zone 4, directly south of the scale house and administration building. Leachate storage ponds are south of this zone. Minimal complications are expected while relocating these storage ponds; however, relocating the ponds would probably increase the construction time of the new landfill cell by approximately 9 months because they would have to be constructed and brought online before construction of the new landfill cell begins. For this reason, developing the new landfill cell directly south of Zone 4 is not recommended. This area has not reached its maximum disposal elevation and is available for continued waste disposal operations.
- Zone 5—This active landfill cell is double-lined and covers approximately 7.5 acres. The leachate pump station for this cell is on the west side. This cell is near the west property boundary; therefore, constructing a landfill expansion west of Zone 5 is unlikely. As previously mentioned, the capacity of Zone 5 is expected to be consumed during 2028 in a worst-case scenario.

2.3 RELEVANT REGULATIONS

Landfill expansions are subject to Rule 62-701, Florida Administrative Code (FAC). This rule includes siting criteria that must be met to build a new landfill or expand an existing landfill (Rule 62-701.300(2), FAC). Table 2-1 summarizes the relevant prohibitions on landfill siting and how these prohibitions are addressed during the design and planning process. All potential zones within the south parcel meet the requirements of the regulatory siting restrictions.

Table 2-1 Relevant Siting Restrictions

Solid Waste May Not Be Stored or Disposed Of...	How the Design Process Accounts for This Restriction
<i>In an area where geological formations or other subsurface features will not provide support for the solid waste.</i>	New or historical geotechnical evaluations are reviewed by a professional geologist or engineer. An engineer familiar with geotechnical design considerations provides an analysis. Figure 3 provides a vicinity geological map. A review of historical geotechnical and geological data does not indicate any complications with continued development of waste disposal capacity at the site.
<i>Within 500 feet of an existing or approved potable water well unless storage or disposal takes place at a facility for which a complete permit application was filed or which was originally permitted before the potable water well was in existence.</i>	A geographic information system (GIS) evaluation is performed to collect well data in the vicinity of the proposed landfill expansion. Figure 4 shows wells in the vicinity of the landfill. Two of the wells may be listed as potable in error: ▪ Domestic Supply Well (507350-1): This well supplies non-potable water to the scale house and surrounding facilities. ▪ Public Supply Well (594650-4): Discussions with landfill personnel indicate that this well is only used for non-potable applications.
<i>In a dewatered pit unless the pit is lined and permanent leachate containment and special design techniques are used to ensure the integrity of the liner.</i>	The initial cell layout evaluation avoids dewatered pits unless the geotechnical evaluation demonstrates that it is feasible and reasonable design techniques can be used to protect the liner. All zones proposed within the south parcel and east of the existing lined cells can meet this requirement.
<i>In any natural or artificial body of water including ground water and wetlands within the jurisdiction of the Department.</i>	The permit application for a landfill expansion includes evaluating site wetlands and water bodies to demonstrate compliance with this rule. All zones proposed within the south parcel and east of the existing lined cells can meet this requirement. Zone 6 will impact existing wetlands. However, proper mitigation during the environmental resource permitting process enables this zone to satisfy this requirement. Figure 5 shows wetlands in the vicinity of the landfill, and Figure 6 indicates the 100-year flood area. These figures indicate wetlands in or near the leachate storage basins; this is an error in the wetland database that can be addressed during permitting.

Solid Waste May Not Be Stored or Disposed Of...	How the Design Process Accounts for This Restriction
<i>Within 200 feet of any natural or artificial body of water unless storage or disposal takes place at a facility for which a complete permit application was filed or which was originally permitted before the water body was in existence.</i>	The permit application for a landfill expansion includes evaluating nearby bodies of water showing the buffer distance between the proposed landfill cell and the water body to demonstrate compliance with this rule. All zones proposed within the south parcel and to the east of the existing lined cells can meet this requirement.
<i>On the right of way of any public highway, road, or alley.</i>	The drawing set for a proposed landfill expansion includes a site plan and vicinity information that shows nearby highways, roads, or alleys. None of the zones would be developed with any existing right-of-way. All zones proposed within the south parcel and to the east of the existing lined cells can meet this requirement. Figure 7 shows the land use surrounding the landfill.
<i>Solid waste management facilities where waste is stored, disposed, or processed outdoors, shall not be located within 10,000 feet of any licensed and operating airport runway used by turbine powered aircraft, or within 5,000 feet of any licensed and operating airport runway used only by piston engine aircraft, unless the applicant demonstrates that the facility is designed and will be operated so that it does not pose a bird hazard to aircraft.</i>	The permit application for a landfill expansion includes reviewing nearby airports to determine the distance from the site. One small private airport is less than 10,000 feet but greater than 5,000 feet from the landfill property. This airport was identified during previous landfill expansions and did not pose a problem for permitting, though it will be evaluated as part of the next expansion. Figure 8 shows airports in the vicinity of the landfill.

Rules related to Environmental Resource Permits (ERPs) are also relevant to the landfill expansion. ERPs govern land development activities that affect surface water flows, including stormwater runoff, wetlands, and other water bodies. ERPs are regulated by Rule 62-330, FAC. An ERP modification will be required to address the proposed landfill expansion.

3 PERMITTING AND SITE INVESTIGATION SUMMARY

3.1 REVIEW OF SITE HISTORICAL DOCUMENTS

3.1.1 ENVIRONMENTAL RESOURCE PERMITTING HISTORY

A Management of Surface Water Permit was issued by the Southwest Florida Water Management District on November 24, 1987 (Permit 402202), for the construction of the stormwater management system at the landfill in the Zones 1 through 5 area. The landfill maintains a stormwater system that consists of several dry retention basins and swales. Stormwater is discharged off site near surface-water monitoring point SW-1, northeast of Zone 1, and near surface-water monitoring point SW-2 on the southeast corner of the property.

FDEP issued an ERP for the site on July 19, 2004 (Permit/Authorization Number 14-223606-001). This permit modified the previously issued Permit No. 14-284272-3 by including the excavation of an additional dry retention pond connected to the existing stormwater management system. The landfill obtained an additional ERP modification in November 2017 (Permit No.: 223606-002-EI) as part of the design and construction of Zone 5. This modification increased the size of stormwater retention basin BP-1 but made no other substantial changes to the site's existing stormwater system.

During design and permitting, a modification to the site ERP will be required to address changes to the stormwater system and wetland impacts resulting from the continued site buildout. The ERP permitting process is performed concurrently with the solid waste permitting process and is not expected to impact the schedule for permitting and constructing the expansion area.

The wetland mitigation process involves identifying wetland impacts, determining the offset credits required to compensate for any impacts, and purchasing mitigation credits from a mitigation bank within the watershed. The cost per credit at several private wetland mitigation banks that serve the Desoto County Landfill area is estimated to be approximately \$250,000/acre. Credits are readily available for purchase and are expected to be available at the time of development.

3.1.2 SOLID WASTE PERMITTING HISTORY

Table 3-1 summarizes the permitting history of Zones 1 through 5.

Table 3-1 DeSoto County Landfill Solid Waste Permitting History 1989–2025

Permit No.	Permit Type	Permit Modification No.	Issue Date	Expiration Date	Notes
SO14-162529	Operations	NA	May 17, 1989	April 15, 1994	Zones 1 and 2 operations permit
SC14-219356	Construction	NA	February 12, 1993	July 15, 1993	Zone 2 construction permit
SF14-222343	Closure	NA	October 20, 1995	July 1, 2000	Zone 1 closure permit
SO14-243814	Operations Renewal	NAS	May 6, 1996	March 1, 2001	Operations of Zones 1 and 2 renewal
SC14-289829	Construction	NA	December 6, 1996	June 1, 2001	Zone 3 construction permit
0042079-004-SO	Operations Renewal	NA	August 29, 2001	August 29, 2006	Operations permit renewal
0042079-005-SC/01	Construction	NA	November 10, 2004	November 10, 2009	Zone 4 construction permit
0042079-004-SO	Operations Modification	0042079-006-SO	March 25, 2005	August 29, 2006	Minor modification for adding Zone 4
0042079-008-SO/01	Operations Renewal	NA	April 22, 2008	April 22, 2013	Operations renewal
0042079-009-SF/01	Closure	NA	September 15, 2009	September 15, 2014	Zone 2 and partial Zone 3 closure
0042079-008-SO/01	Operations Modification	0042079-010-	April 23, 2010	April 22, 2013	Florida Solid Waste Rule updates
0042079-011-SO/01	Operations Renewal	NA	June 6, 2013	June 6, 2033	Operations renewal
0042079-011-SO/01	Operations Modification	0042079-013-SO-MM	October 20, 2016	June 6, 2033	Change in filling sequence
0042079-014-SC-01	Construction	NA	April 16, 2018	February 14, 2023	Zone 5 expansion permit
0042079-011-SO/01	Operation Modification	0042079-015-SO-MM	April 16, 2018	June 6, 2033	Minor modification for adding Zone 5

3.1.3 GROUNDWATER MONITORING

The groundwater monitoring network at the Landfill includes 22 groundwater monitoring wells and 2 piezometers. The groundwater monitoring wells are sampled and semi-annually in May and November. All wells are drilled into the surficial aquifer and are within the original Landfill property boundary. Four wells are designated background (MW-1ar, MW-7R, MW-4R, and MW-9), located west or north of the landfill to intercept groundwater before it flows under the Landfill. Three compliance monitoring wells (CMW-12, CMW-13, and CMW-14) are along the south and east boundaries of the original Landfill parcel. The remaining wells are designated as detection or piezometer. Figures 1 and 2 in Appendix A show the locations of the groundwater monitoring wells.

During development of additional landfill capacity at a site, existing monitoring wells within the new cell footprint will be abandoned and additional monitoring wells will be installed. The abandonment and installation of additional monitoring wells are addressed during the solid waste permitting process. These are standard procedures and will not impact the schedule for developing future landfill zones.

3.2 REVIEW OF GEOTECHNICAL AND SURVEY INVESTIGATIONS

Previous geotechnical investigations at this site since 2003 are summarized as follows:

- Universal Engineering Testing Company. August 1986. *Hydrologic and Geologic Data for Proposed Section 16 Landfill Expansion*. April 21, 1987.
- SCS Engineers and Driggers Engineering Services. March 1996. *Part H Investigation for Proposed Zone 3 Expansion*.
- Ardaman & Associates, Inc. 2003. *Subsurface Soil Exploration and Geotechnical Engineering Evaluation for Proposed Zone 4 Expansion*. October 29, 2003; revised March 31, 2004.
- Tierra, Inc. 2016. *Report of Geotechnical Testing Services, DeSoto County Landfill, Geotechnical Borings and Testing – Section 16 Expansion*. July 11, 2016.
- Madrid CPWG. 2023. *Geotechnical Engineering Report: DeSoto Leachate Engineering Services, DeSoto County, Florida*. January 2023.

Based on these investigations, a few general observations are summarized as follows:

- The US Geological Survey (USGS) Soil Survey identifies three primary soil-mapping units within the bounds of the landfill and surrounding County-owned properties. The soil survey information is limited to the upper 5 feet of the soil profile.
 - Immokalee.
 - Tavares.
 - Zolfo.
- Soil under the landfill and the surrounding areas is fine sand with some silt at greater depths.
- Several borings on the south portion of the property, performed in 2016 by Tierra, show that some soils could be suitable for drainage sand.
- Although public data regarding subsidence and karst activity for DeSoto County is limited, the entire County lies in an area classified as *least favorable* for sinkhole

formation by FDEP Maps Direct records. Figure 3 in Appendix A shows geological conditions.

- All soil materials appear suitable for developing the future landfill zones.

Table 3-2 from the 2016 Tierra report summarizes the basic characteristics of the soil-survey soils found in the area.

The 2016 Tierra report states that six standard penetration test (SPT) borings were collected, two of which are in the footprint of the future Zone 7 expansion (described in greater detail in Section 6). These borings, B-5 and B-6, taken at approximately 14.5 and 8 feet below land surface (bls) respectively, show that in the first 5 to 10 feet bls the soil profile is gray to brown sand to sand with silt, USCS classification SP/SP-SM. The USGS soil-survey report reflects this. Although the soil could be suitable for use as drainage sand, variability is probable, and further geotechnical investigations should be performed before deciding on that course. For cost-estimating purposes, Jones Edmunds assumed that 100 percent of the drainage sand would be imported from off-site. However, we recommend that the Construction Documents (Technical Specifications and the Measurement and Payment section) for the next zone development include the use of off-site and on-site material, which can result in significant cost savings to the County if during construction onsite sands are identified as suitable to use in the sand drainage layer above the liner system.

Additional geotechnical investigations will be required in the footprint of a proposed landfill expansion before permitting in compliance with Chapter 62-701.410, FAC. These investigations can be initiated relatively quickly if performed as a part of this Master Plan Report development by modifying the existing scope of services to include the additional effort.

Table 3-2 Results of USGS Soil Survey

USDA Map Symbol and Soil Name	Soil Classification					pH	Seasonal High Water Table	
	Depth (in)	USCS	AASHTO	Permeability (in/hour)	Permeability (cm/sec)		Depth (feet)	Months
(20) Immokalee	0-5	SP, SP-SM	A-3	6.0-20.0	0.0021-0.0071	3.5-6.0	0.5-1.5	June-Nov
	5-43	SP, SP-SM	A-3	6.0-20.0	0.0021-0.0071			
	43-65	SM, SP-SM	A-2-4, A-3	0.6-20.0	0.0002-0.0071			
	65-80	SP, SP-SM	A-3	6.0-20.0	0.0021-0.0071			
(37) Tavares	0-6	SP, SP-SM	A-3	6.0-20.0	0.0021-0.0071	3.5-6.5	3.5-6.0	June- Dec
	6-80	SP, SP-SM	A-3	6.0-20.0	0.0021-0.0071			
(42) Zolfo	0-5	SP-SM	A-2-4, A-3	6.0-20.0	0.0021-0.0071	4.5-7.3	2.0-3.5	June-Nov
	5-59	SM, SP-SM	A-2-4, A-3	6.0-20.0	0.0021-0.0071			
	59-80	SM, SP-SM	A-2-4, A-3	0.6-20.0	0.0002-0.0071	3.5-6.5		

4 EXPANSION DESIGN CONSIDERATIONS

4.1 POPULATION TRENDS

In general, landfill waste acceptance is correlated to population growth. For that reason, accounting for future population trends is useful for estimating waste generation growth.

The University of Florida's Bureau of Economic and Business Research (BEBR) provides annual updates to population projections for all Florida counties. These estimates include Low, Medium, and High growth-rate projections of future population every 5 years until 2050.

For DeSoto County, the High growth-rate projections were chosen because a 2024 population estimate from the US Census Bureau indicated a population close to BEBR's High projection for 2025. Population between BEBR projection years were estimated by linear interpolation, and population past 2050 was estimated using BEBR's population growth rate from 2045 to 2050. Using these assumptions, the population of DeSoto County is expected to increase from 36,900 in 2025 to 44,400 in 2055. Table 4-1 provides population estimates. Appendix B provides the population and waste projections.

Table 4-1 DeSoto County Population Projections

Year	Population	Annual Rate of Change (%)
2024	36,744	–
2025	36,900	0.42
2026	37,215	0.85
2027	37,532	0.85
2028	37,852	0.85
2029	38,175	0.85
2030	38,500	0.85
2031	38,795	0.77
2032	39,093	0.77
2033	39,393	0.77
2034	39,695	0.77
2035	40,000	0.77
2036	40,257	0.64
2037	40,515	0.64
2038	40,775	0.64
2039	41,037	0.64
2040	41,300	0.64
2041	41,518	0.53
2042	41,737	0.53
2043	41,957	0.53
2044	42,178	0.53

Year	Population	Annual Rate of Change (%)
2045	42,400	0.53
2046	42,598	0.47
2047	42,797	0.47
2048	42,997	0.47
2049	43,198	0.47
2050	43,400	0.47
2051	43,603	0.47
2052	43,807	0.47
2053	44,011	0.47
2054	44,217	0.47
2055	44,424	0.47

Note: The 2024 population is based on US Census Bureau estimate. The population estimates for 2025, 2030, 2035, 2040, 2045, and 2050 are from BEBR projections. Populations from 2051 to 2055 are based on the BEBR projected growth rate from 2045 to 2050. All other years are interpolated.

4.2 WASTE GENERATION GROWTH

The annual waste acceptance at the landfill in 2015 was 25,217 tons, which increased to 52,067 tons in 2024. During this period, the waste tonnage acceptance rate at the landfill increased by an average of 8.4 percent annually. Waste generation increased faster than expected based on population growth alone, which increased by an average of 1 percent per year from 2015 to 2024.

Future waste generation from 2025 through 2030 was projected to have a growth rate of 8.4 percent annually as a worst-case scenario. Waste generation from 2031 through 2056 was projected to have a growth rate of 1 percent, matching the population growth rate from 2015 to 2024. This assumption was made because an 8.4 percent annual growth rate is unlikely to continue in perpetuity but represents recent trends.

Section 4.3 provides greater detail and discusses hurricane-related increases in waste generation, although other reasons may exist for the increase in waste generation from 2015 to 2024. Appendix B includes figures that show historical waste tonnages and future waste projections.

4.3 HURRICANE-RELATED WASTE GENERATION

Gradual increases in waste acceptance are expected as population grows. However, the waste acceptance rate at the landfill increased significantly from 2015 to 2024. In 2017, the waste acceptance increased modestly more than expected based on population growth alone, likely due to impacts from Hurricane Irma in September 2017. The tonnage acceptance continued to be high in 2018 before decreasing in 2019.

The largest year-to-year increase occurred from 2021 to 2022, likely due to increases in waste disposal after Hurricane Ian in September 2022. The increased waste acceptance continued in 2023, and in 2024 Hurricanes Helene and Milton impacted areas in South

Florida. The significant waste generation growth from 2015 to 2024 may not represent a true baseline waste acceptance rate in future years without major hurricanes. However, large storm events will periodically continue to occur, and the related waste generation often affects disposal during subsequent years.

To account for hurricane-related waste generation, the average waste generation rate from 2015 to 2024 was used to project annual waste generation until 2030. This estimate of future waste acceptance is conservative due to the uncertainty associated with hurricane debris. Please refer to Appendix B for additional details.

5 LEACHATE

Predicting leachate generation quantities for landfill sites is a difficult task and requires constant reevaluation due to changing site conditions. Leachate generation rates vary seasonally due to changes in weather and over longer periods as site operations evolve. For example, as site conditions change and new zones are opened, significant spikes in leachate generation rates can occur as a result of the stormwater management design and how stormwater management practices are implemented by the operators.

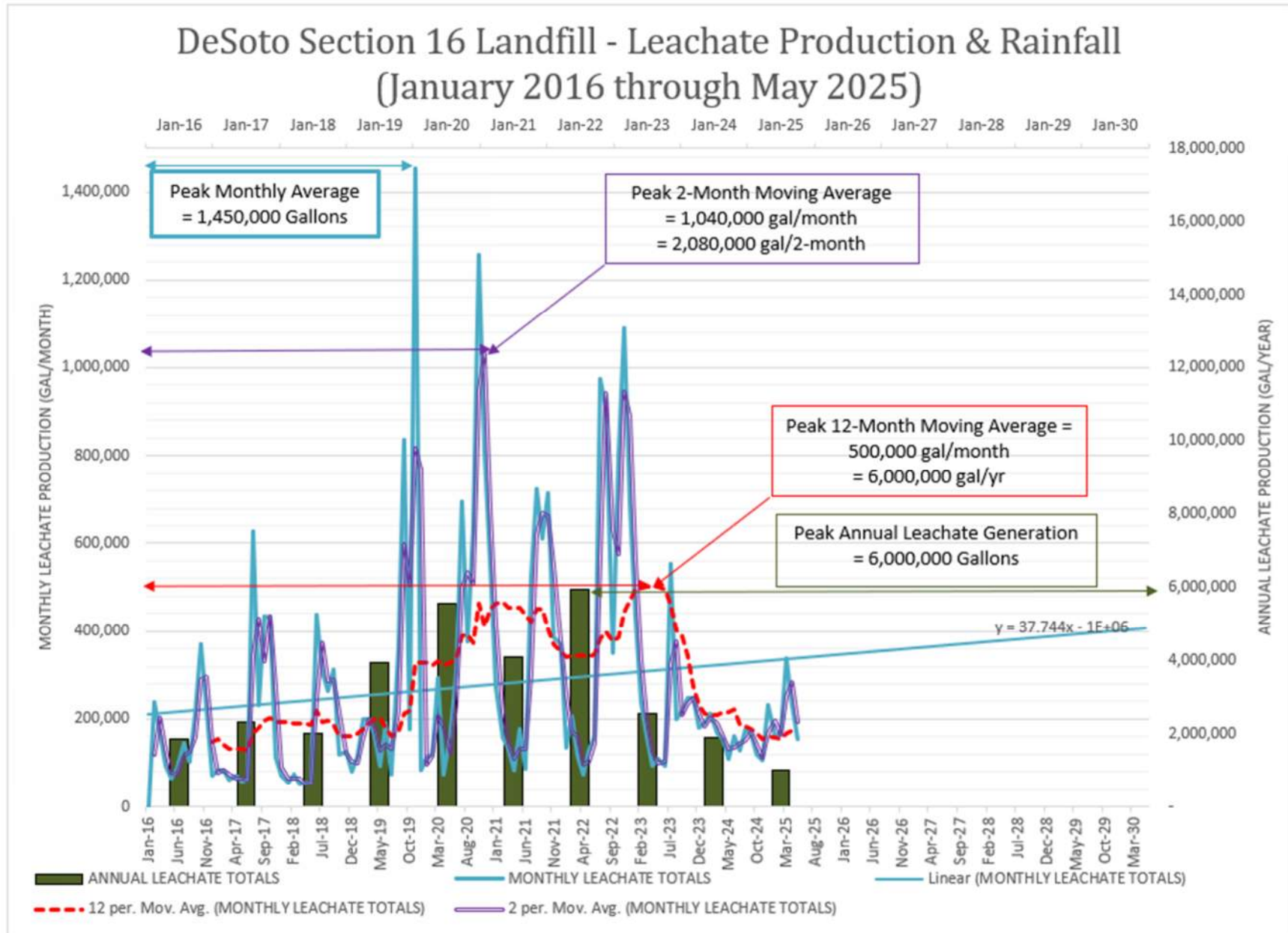
During landfill design and permitting, the US Environmental Protection Agency's Hydrologic Evaluation of Landfill Performance (HELP) Model is used to estimate peak leachate generation for the zone being permitted. However, the HELP Model notoriously overpredicts leachate generation rates. It is a good tool to ensure that the leachate collection systems are designed to handle worst-case conditions. However, using this tool to evaluate leachate from daily operations results in significant over-design of infrastructure such as pumping and treatment systems. For this evaluation, we evaluated historical leachate production from January 2016 through May 2025 to discern leachate generation trends and use these trends as a predictive tool to generate a reasonable estimate of future leachate generation. Figure 5-1 presents the data in graphical form.

Evaluation of the data indicates that the site has experienced a peak monthly flow rate of 1,450,000 gallons, or approximately 50,000 gallons per day. The proposed leachate treatment system (part of a separate project) will be designed to handle this quantity of leachate. This peak monthly leachate flow occurred during the construction of Zone 5 before the initial placement of waste. The source of this leachate is unclear but most likely related to stormwater management or stormwater impacted by leachate during construction. With proactive project design, stormwater diversion, and use of stormwater liners, this value is unlikely to be exceeded during future zone expansions at the site.

From 2016 to 2025, the peak annual leachate production of 6,000,000 gallons per year occurred in 2022 during the initial flooring out of Zone 5. Over the life of the facility, the 12-month running average leachate production peaked at 6,000,000 gallons in 2023. We can reasonably assume that these are the peak long-term annual values that the facility is likely to experience, provided that sound engineering design of the stormwater management system occurs to prevent the infiltration of stormwater into the leachate collection systems.

The Landfill has two 734,000-gallons leachate surface impoundments south of Zones 4 and 5, for a total of 1,468,000 gallons of storage capacity. Each pond is approximately 25,000 square feet. The ponds are doubled-lined systems similar to a Class I landfill in accordance with the required of Rule 62-701.400, FAC.

Figure 5-1 Leachate Generation Evaluation



The current pond sizing will provide 1 month of the peak historical leachate storage without requiring off-site disposal under worst-case conditions as occurred in 2019 when 1,450,000 gallons of leachate were produced during the peak flow month. The 2-month running average generated a total 2 months of total leachate flow of 2,080,000 gallons, which slightly exceeds the current storage capacity.

Jones Edmunds recommends that when the storage ponds are re-located, their size should be increased to allow for a minimum of 2 months of peak storage capacity without off-site discharge, approximately 2,000,000 gallons of storage.

This will require constructing two approximately 35,000-square-foot ponds. The sizing equivalent storage capacity is an estimate based on the current ponds' size and capacity. However, conditions such as depth to groundwater will impact this calculation, so the ponds will need to be sized during design. With infrastructure, the approximate cost for the new leachate storage ponds is \$2,400,000 in 2025 dollars based on a recent similar project.

6 LANDFILL EXPANSION OPTIONS AND RECOMMENDATIONS

A plan for future landfill expansion will assist in scheduling and allocating funding to meet the County's solid waste disposal needs. The landfill expansion options have been divided into two parts:

- The first part evaluates the critical need for immediate expansion options and makes recommendations concerning the next zone to develop. This evaluation considers the practicality of the development (infrastructure relocation, schedule, etc.), total development cost, development cost per ton of disposal capacity, etc.
- The second part evaluates longer-term site build-out options and further develops the costs, disposal capacities, etc.

6.1 NEXT LANDFILL CELL DEVELOPMENT AND RECOMMENDATIONS

Zones 6 through 9B within the south parcel, including the area immediately west of Zone 1, were evaluated to determine the ideal approach to developing the next landfill cell at the landfill. Zones 6 through 9B were evaluated to optimize the disposal capacity of the south parcel by locating the proposed infrastructure on the site boundary. Zone 6 is identified as the feasible expansion alternative for the next expansion area within the schedule time constraints. The location of Zone 6 is shown in Figures 9 and 10 in Appendix A.

ZONE 6

Our analysis regarding development feasibility within the available time and cost identifies Zone 6 as the ideal option for the next expansion area. Jones Edmunds is preparing a 30% drawing set for this proposed option as well as for Zone 7; refer to the next section for details on Zone 7.

Zone 6 is directly south of Zones 1 and 2. The boundary of the proposed Zone 6 will avoid relocating the infrastructure at this time, which, although feasible, could present permitting and construction complications.

This location is recommended since relocation or demolition of onsite infrastructure is minimal; however, the stormwater management pond in its north half will require relocation. Modifying and/or relocating stormwater management infrastructure is a standard component of most landfill development projects and does not present any regulatory or engineering difficulties that could delay the project.

Approximately 2.5 acres of wetlands will need to be mitigated to construct Zone 6. As previously discussed, mitigation is a standard permitting process involved in many landfill development projects. The wetlands that will be impacted are not in a conservation easement, which could, if they were in such an easement, present problems and delays.

The conceptual layout of Zone 6 will provide approximately 3.8 years of disposal capacity under current waste generation scenarios and waste growth rate predictions and could provide longer disposal capacity depending on changes in waste flow rates. Constructing approximately 5 years of landfill disposal capacity at one time is typical in the solid waste

industry. This quantity of disposal capacity balances capital outlays for construction against the costs associated with the design and permitting processes. Designing, permitting, and constructing Zone 7 simultaneously with Zone 6 is an option to provide approximately 6.3 years of disposal capacity. The design and permitting of Zone 7 simultaneously with Zone 6 would not be expected to have any significant impact on the cost of the development process, other than the costs associated with the actual construction of the zone.

ZONE 7

Zone 7 is west of Zone 6 and south of the existing leachate storage basins. Zone 7 will provide approximately 2.5 years of disposal capacity following the development of Zone 6. No infrastructure demolition or relocation is required for this cell. Zone 7 could be designed, permitted, and constructed at the same time as Zone 6. As previously stated, Jones Edmunds is including Zone 7 in the 30% drawing set.

ZONE 8

Zone 8 is in the footprint of the existing leachate storage basins. This zone requires these basins to be demolished and reconstructed. Leachate Pump Station No. 1 will require relocation during design, permitting, and construction. We recommend that design, permitting, and construction of the replacement leachate storage basins begin as soon as Zones 6 and 7 are constructed.

ZONES 9A AND 9B

Zones 9A and 9B are east of Zones 1 and 6. These zones require the west stormwater retention basin to be filled and a new stormwater retention basin to be constructed on the south edge of the property. The Yard Trash Storage Area and Cover Material Storage Area will need to be relocated.

6.1.1 CAPACITY AND DEVELOPMENT COSTS – ZONES 6 THROUGH 9B (ALTERNATE #1)

Capacity and development costs for Zones 6 to 9B as presented in the development recommendations above based on the Alternative #1 site development are presented in Section 6.2.1.

6.1.2 DEVELOPMENT SCHEDULE – ZONES 6 AND 7

Table 6-1 is a schedule for developing Zones 6 and 7. No schedule impacts are expected if Zone 7 is developed simultaneously with Zone 6. Construction schedules were prepared by estimating the rough order-of-magnitude duration for completing each milestone based on previous design, permitting, and construction projects.

Ideally, the Zone 6 expansion should be constructed and certified to receive waste at least 6 months before Zone 5's operating life is exhausted, which may occur as early as September 2028. The schedule below includes the impacts of development recommendations presented in this report.

Table 6-1 Zones 6 and 7 Design, Permitting, and Construction Schedule

Item	Schedule		Expedited Schedule	
	Total Days Elapsed	Date	Total Days Elapsed	Date
Completion of Updated Master Plan		9/1/2025		9/1/2025
Preliminary 30% Design	30	10/1/2025	30	10/1/2025
Master Plan Contract Modification for Geotechnical Investigations Additional Services	NA	NA	31	11/1/2025
Geotechnical Design, Contracting, and Site Investigation	NA	NA	90	1/30/2026
RFP for Landfill Expansion, BOCC issues NTP for Zone 6 and 7 Expansion		2/1/2026		2/1/2026
Prepare Design and Submit Permit Applications	270	10/29/2026	210	8/30/2026
Finalize Construction Documents	120	2/26/2027	120	12/28/2026
Bidding Assistance/Contractor NTP	90	5/27/2027	90	3/28/2027
Construction Completion	360	5/21/2028	360	3/22/2028
Submit Construction Certification Report	30	6/20/2028	30	4/21/2028
FDEP Certifies Construction and Approval for Operations	30	7/20/2028	30	5/21/2028
Existing Disposal Capacity Consumed – Current Waste Acceptance Requirement		9/21/2028		9/21/2028
Existing Disposal Capacity Consumed – Stop Accepting Out-of-County Waste		12/21/2028		12/21/2028

6.2 LANDFILL EXPANSION ALTERNATIVES

Two landfill expansion alternatives were analyzed and compared based on the following:

- Expansion concept plans.
- Impacts on existing site infrastructure.
- Costs.
- Construction timelines.

The alternatives are conceptual and are presented to provide the County with a general idea of the advantages and disadvantages, which are compared in Section 6.4.

Alternative #1 maximizes the potential landfill airspace surrounding Zones 1 through 5, requiring a significant portion of onsite infrastructure to be relocated. Alternative #2 maximizes site capacity to the extent possible while minimizing the relocation of site infrastructure. Zone 6 is identified as the best zone for developing the next landfill cell. Developing Zone 6 will be the next step regardless of which alternative is chosen.

Zone 6 is south of Zones 1 and 2. Cell construction in this location avoids needing to immediately relocate on-site infrastructure such as the leachate storage ponds. However, this area does include up to 2.5 acres of wetlands that will need to be mitigated. The extents of the wetlands need to be delineated in the field early in the design and permitting

phases. Both alternatives displace all or portions of the dry retention pond east of the leachate storage basins.

Regardless of which alternative is chosen, several groundwater monitoring wells will be demolished and abandoned. New groundwater monitoring detection wells will be drilled within 50 feet of the edge-of-liner and no greater than 500 feet apart. A new background monitoring well will be constructed near the west property boundary of the south parcel to intercept offsite groundwater that is not intercepted by the existing background wells. As discussed previously, this procedure is typical of developing new landfill capacity at disposal facilities.

6.2.1 EXPANSION ALTERNATIVE #1

To maximize the available land for waste disposal, Alternative #1 requires demolishing and reconstructing on-site infrastructure and ancillary facilities. The order of the cells may vary, although the proposed layout delays needing costly and time-consuming infrastructure relocation (e.g., the leachate storage basins are relocated before Zone 8 instead of immediately after Zone 6). A new stormwater retention area south of Zones 6, 7, and 9B would replace the existing stormwater retention basins. The new stormwater retention area is shown at a conceptual level of development; the shape, size, and depth would be determined during the design and permitting of the next cell. Figure 9 in Appendix A shows the conceptual site plan of Alternative #1.

- Zone 6 is directly south of Zones 1 and 2. This location is recommended since no relocation or demolition of onsite infrastructure is required. Approximately 2.5 acres of wetlands would need to be mitigated to construct Zone 6.
- Zone 7 is west of Zone 6 and south of the existing leachate storage basins. No infrastructure demolition or relocation is required for this cell, although it will have a relatively short operational life before a new cell is needed.
- Zone 8 is in the footprint of the existing leachate storage basins. This zone requires demolishing and reconstructing these basins. Leachate Pump Station No. 1 will be buried by waste during Zone 8 filling. Special measures would be needed to continue to remove leachate from this point. However, a large landfill airspace could be gained from developing this area.
- Zones 9A and 9B are east of Zones 1 and 6. These zones require the west stormwater retention basin to be filled and a new stormwater retention basin to be constructed on the south edge of the property. The Yard Trash Storage Area and Cover Material Storage Area will be relocated.

Zones 1 and 2 are permitted to a maximum elevation of 99 feet NGVD29, Zones 3 and 4 are permitted to a maximum elevation of 128 feet NGVD29, and Zone 5 is permitted to a maximum elevation of 128.5 feet NGVD29. During the design and permitting processes for Zone 6, an engineering analysis may be performed to determine if a vertical expansion over the existing cells is feasible. However, the volumes and lifespans for future zones in this report assume no vertical expansion over the existing zones.

An additional consideration with Alternative #1 is the ERP, which covers stormwater and surface-water flows at the site. Filling in and relocating the existing west stormwater

retention basin will incur a significant change to the site hydrology and will need to be approved through an ERP modification.

Table 6-2 summarizes the Alternative #1 concept plan.

Table 6-2 Alternative #1 Capacity and Lifespan

Zone	Footprint (acres)	Volume (cy)	Tonnage (tons)	Lifespan (years)
Zone 6	8.9	440,000	310,000	3.8
Zone 7	4.8	300,000	210,000	2.5
Zone 8	7.5	1,200,000	860,000	9.2
Zone 9A	9.8	550,000	390,000	4.0
Zone 9B	3.3	250,000	180,000	1.8
Total	34.5	2,740,000	1,950,000	21.3

Note: cy = cubic yards.

6.2.2 EXPANSION ALTERNATIVE #2

Alternative #2 minimizes expensive relocations of onsite infrastructure, such as the west stormwater retention basin and the leachate storage basins. Alternative #2 is designed similarly to Alternative #1. A new stormwater retention area south of Zones 6, 7, and 9B would replace the existing stormwater retention basin. The new stormwater retention area is shown at a conceptual level of development; the shape, size, and depth would be determined during the design and permitting phases of the next cell. Figure 10 in Appendix A shows the conceptual site plan of Alternative #2.

- Zone 6 is directly south of Zones 1 and 2. This location is recommended because no relocation or demolition of onsite infrastructure is required. Approximately 2.5 acres of wetlands would need to be mitigated to construct Zone 6.
- Zone 7 is west of Zone 6 and south of the existing leachate storage basins. No infrastructure demolition or relocation is required for this cell.
- Zone 8 is directly east of Zone 6 and south of the west stormwater retention basin. Zone 8 does not require relocating existing infrastructure but would not have a long operational life due to its relatively small footprint. Because of its small size, Zone 8 could be constructed at the same time as either Zone 6 or Zone 7.

Alternative #2 may be easier to permit because it does not relocate the borrow pit stormwater pond, which is part of the existing stormwater system. However, an ERP modification will be needed since the dry retention basins will be displaced by Zones 6 and 7.

Table 6-3 Alternative #2 Capacity and Lifespan

Zone	Footprint (acres)	Volume (cy)	Tonnage (tons)	Lifespan (years)
Zone 6	8.9	440,000	310,000	3.8
Zone 7	4.8	300,000	210,000	2.5
Zone 8	2.0	90,000	60,000	0.7
Total	15.8	830,000	580,000	7.0

6.3 ENGINEER'S OPINION OF PROBABLE COST

Appendix C provides the Engineer's Opinion of Probable Cost calculations. The total cost includes Design, Construction, and Other Costs (i.e., demolition/reconstruction of site facilities). Operation costs are not included in this analysis.

The following assumptions were used to develop the Engineer's Opinion of Probable Cost:

- Design, Permitting, and Construction Assistance were estimated based on Jones Edmunds's experience with similar projects.
- Construction Cost was estimated by averaging bid prices for recent landfill construction projects in Florida, adjusted for inflation.
- Other Costs were estimated based on similar projects and typical unit costs for reconstruction activities.

The cost per ton varies for each zone based on the airspace that is gained within a given footprint and the required Other Costs. The airspace and cost per ton will change depending on the order of construction. For example, if Zone 8 is constructed before Zones 6 and 7, a smaller volume would be filled with waste because Zone 8 includes valley fill above previously filled zones.

6.3.1 ALTERNATIVE #1 COST ANALYSIS

In addition to the Design and Construction Costs previously described, Alternative #1 includes the following Other Costs:

- Wetland mitigation (before Zone 6)—Estimated \$630,000 based on typical costs in this area.
- Demolition and reconstruction of the existing leachate storage ponds (before Zone 8)—Estimated \$2.4 million based on a recent similar project.
- Filling the borrow pit pond (before Zones 9A and 9B)—Estimated \$3.1 million based on a conservative estimate of the amount of soil fill that is required.

Appendix C provides a more detailed breakdown of the Engineer's Opinion of Probable Cost. Table 6-4 summarizes the Engineer's Opinion of Probable Cost for Alternative #1.

Table 6-4 Alternative #1 Cost Summary

Zone	Total Cost	Cost/Ton
Zone 6	\$9,380,000	\$30
Zone 7	\$5,550,000	\$26
Zone 8	\$10,050,000	\$12
Zone 9A	\$12,550,000	\$32
Zone 9B	\$4,350,000	\$24
Total	\$41,880,000	\$21

Note: Total Cost and Cost/Ton only include Design, Construction, and Other Costs. Operation costs are not included.

6.3.2 ALTERNATIVE #2 COST ANALYSIS

In addition to the Design and Construction Costs previously described, Alternative #2 includes the following Other Costs:

- Wetland mitigation (before Zone 6)—Estimated \$630,000 based on typical costs in this area.

Appendix C provides a more detailed breakdown of the Engineer's Opinion of Probable Cost. Table 6-5 summarizes the Engineer's Opinion of Probable Cost for Alternative #2.

Table 6-5 Alternative #2 Cost Summary

Zone	Total Cost	Cost/Ton
Zone 6	\$9,380,000	\$30
Zone 7	\$5,550,000	\$26
Zone 8	\$3,350,000	\$56
Total	\$18,280,000	\$32

Note: Total Cost and Cost/Ton only include Design, Construction, and Other Costs. Operational costs are not included.

6.4 SUMMARY OF ALTERNATIVES

Both landfill expansion alternatives begin with Zone 6 located directly south of the existing Zones 1 and 2. Alternative #1 provides greater capacity long-term but involves more expensive, complex reconstruction compared to Alternative #2.

Table 6-6 summarizes costs and lifespan of Alternative #1.

Table 6-6 Alternative #1 Summary

Zone	Footprint (acres)	Volume (cy)	Tonnage (tons)	Lifespan (years)	Total Cost	Cost/Ton
Zone 6	8.9	440,000	310,000	3.8	\$9,380,000	\$30
Zone 7	4.8	300,000	210,000	2.5	\$5,550,000	\$26
Zone 8	7.5	1,200,000	860,000	9.2	\$10,050,000	\$12
Zone 9A	9.8	550,000	390,000	4.0	\$12,550,000	\$32
Zone 9B	3.3	250,000	180,000	1.8	\$4,350,000	\$24
Total	34.5	2,740,000	1,950,000	21.3	\$41,880,000	\$21

Note: Total Cost and Cost/Ton only include Design, Construction, and Other Costs. Operational costs are not included.

Table 6-7 summarizes costs and lifespans of Alternative #2.

Table 6-7 Alternative #2 Summary

Zone	Footprint (acres)	Volume (cy)	Tonnage (tons)	Lifespan	Total Cost	Cost/Ton
Zone 6	8.9	440,000	310,000	3.8	\$9,380,000	\$30
Zone 7	4.8	300,000	210,000	2.5	\$5,550,000	\$26
Zone 8	2.0	90,000	60,000	0.7	\$3,350,000	\$56
Total	15.8	830,000	580,000	7.0	\$18,280,000	\$32

Note: Total Cost and Cost/Ton only include Design, Construction, and Other Costs. Operational costs are not included.

Table 6-8 compares the total values for each alternative.

Table 6-8 Alternatives Comparison

	Alternative #1	Alternative #2
Footprint	34.5 acres	15.8 acres
Volume	2.7 million cubic yards	0.8 million cubic yards
Tonnage	2.0 million tons	0.6 million tons
Lifespan	21.2 years	7.0 years
Total Cost	\$41.9 million	\$18.2 million
Cost per Ton	\$21/ton	\$32/ton

Notes:

Lifespan is based on a conservative waste generation growth rate of 8.4% annually from 2025 to 2030 followed by a moderate 1% growth rate.

Total Cost and Cost/Ton only include Design, Construction, and Other Costs. Operational costs are not included.

7 SUMMARY AND RECOMMENDATIONS

Two scenarios for future landfill expansion were evaluated, Alternative #1 and Alternative #2. This evaluation considered the following factors:

- Total construction costs and cost per ton.
- Waste capacity.
- Landfill lifespan.
- Population growth.
- Hurricane-related waste generation.
- Existing site infrastructure and requirements for reconstruction.
- Future landfill construction schedule.

Alternative #1 maximizes the airspace and lifespan available on the current property, though it requires additional expenses and challenges associated with reconstruction of existing infrastructure. Alternative #2 reduces the costs and complexity by allowing most site infrastructure to remain as-is but does not provide as much landfill capacity.

Under each alternative, Zones 6 and 7 is identified as the most feasible next zone for developing to meet the County's schedule and near future disposal capacity needs.

7.1 RECOMMENDATION OF ALTERNATIVE CONCEPT PLAN

Based on our preliminary evaluation, Jones Edmunds recommends Alternative #1 because it provides the most long-term landfill airspace. Waste generation is projected to continue to increase, in part due to population growth and land development. Alternative #1 maximizes the waste disposal potential of the property by efficiently using the existing land, which will delay the need for buying additional landfill property or constructing a transfer station. Alternative #1 eventually incurs additional costs involved in reconstructing displaced infrastructure. These costs are significant in some cases but are not required immediately. In the long term, this alternative has the potential to save the County money by making the most of their current investment in this site.

In order to reduce the design, permitting, and construction schedule, Jones Edmunds recommends beginning geotechnical site investigations as soon as possible (within the next 60 days) to shorten the design and permitting process by up to 2 months. This work can be accomplished as part of the development of this Master Plan Report by modifying the scope of services to cover this additional effort.

7.2 RECOMMENDATION TO INCREASE EXISTING LANDFILL LIFE

An approach to increase the lifespan of the existing landfill is a permit modification to allow a height increase. Currently, the permitted final cover elevation ranges from 99 feet NGVD to 128.5 feet NGVD in Zones 1 to 5. An engineer's evaluation would be needed to determine if filling waste above these elevations while maintaining the integrity of the bottom liner system is technically feasible. However, if it is feasible and FDEP approves the associated permit modification, additional waste volume could be gained for a relatively small cost over Zones 2 to 5. (Zone 1 has a single liner, and filling waste higher in this area may require construction of another liner system above the existing waste.) Jones Edmunds

recommends performing a technical evaluation of Zones 1 to 5 to determine if a vertical expansion is feasible in this area. However, such a technical evaluation should only be performed if it will not delay the design, permitting, and construction of Zone 6.

Additionally, reducing or eliminating the acceptance of out-of-County waste could add lifespan to the active Class I landfill. If this is done immediately, it is expected to increase the worst-case life expectancy by at least 3 months.

7.3 RECOMMENDATION FOR NEXT CAPACITY DEVELOPMENT

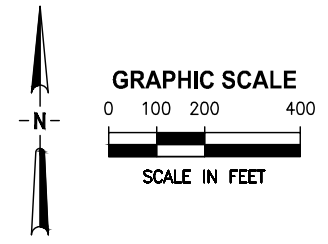
Based on the Design, Permitting, and Construction Schedule presented in Table 6-1 and the discussions presented in the report, we recommend proceeding with the development of the following as described below:

- Retain an engineering firm to provide design, permitting, and construction phase services for developing Zones 6 and 7 simultaneously. The project will additionally involve:
 - Relocating Leachate Pump Station No. 1 to the west out the footprint for the proposed future Zone 8 landfill cell.
 - Relocating the leachate storage ponds to the north of Landfill Street.

Appendix A

Figures

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- LEGEND**
- PROPERTY LINE
 - - - CLASS I LANDFILL LIMITS
 - SW-2 △ SURFACE WATER SAMPLING POINT
 - PZ-1 ● EXISTING PIEZOMETER
 - MW-5 ⊕ EXISTING GROUNDWATER MONITORING WELL
 - GMW-1 ⊞ EXISTING GAS MONITORING WELL

FIGURE 1
SITE PLAN
DESOTO COUNTY SECTION 16 LANDFILL
DESOTO COUNTY, FLORIDA

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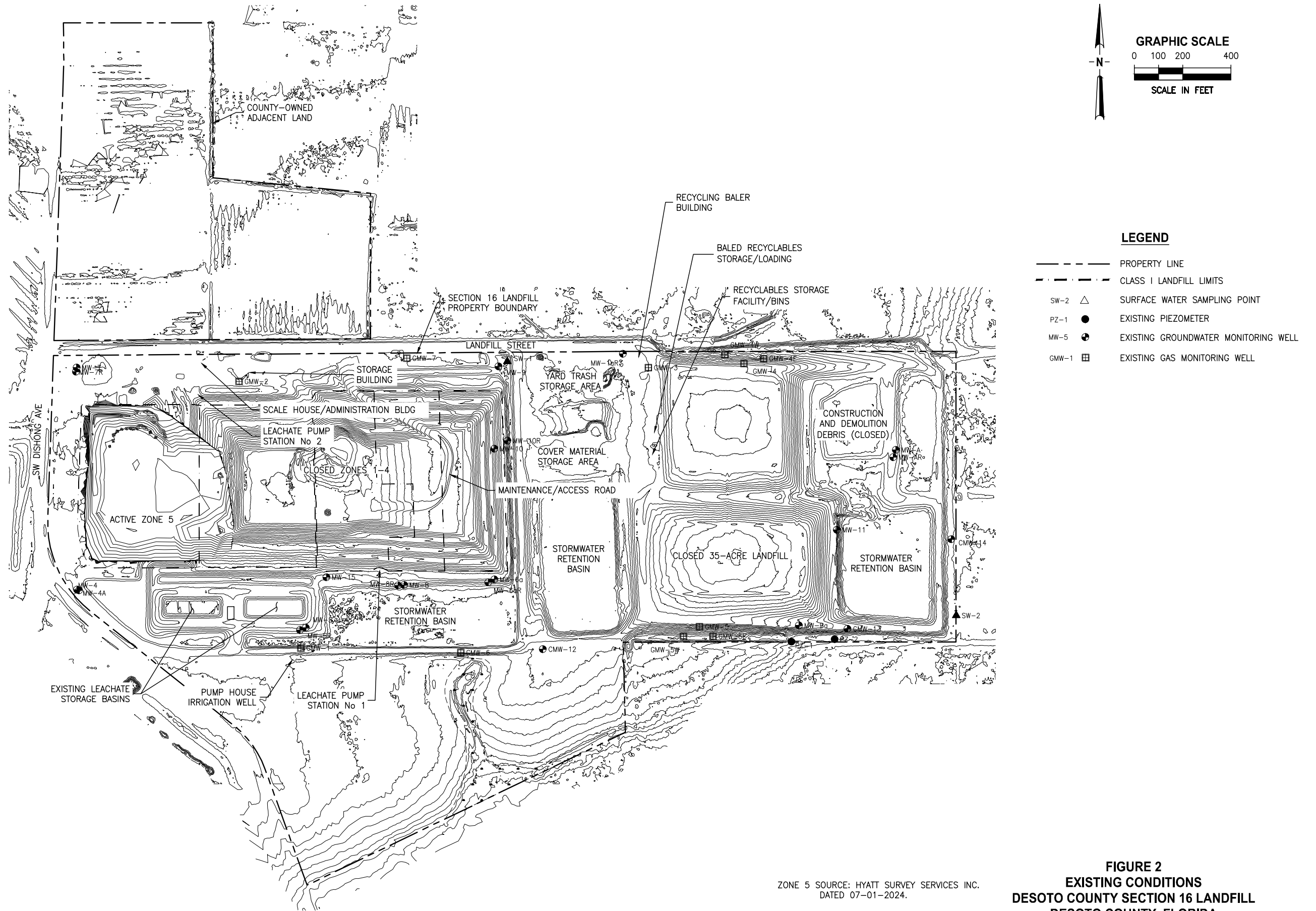


Figure 3

Geological Conditions Map

DeSoto County Section 16 Landfill

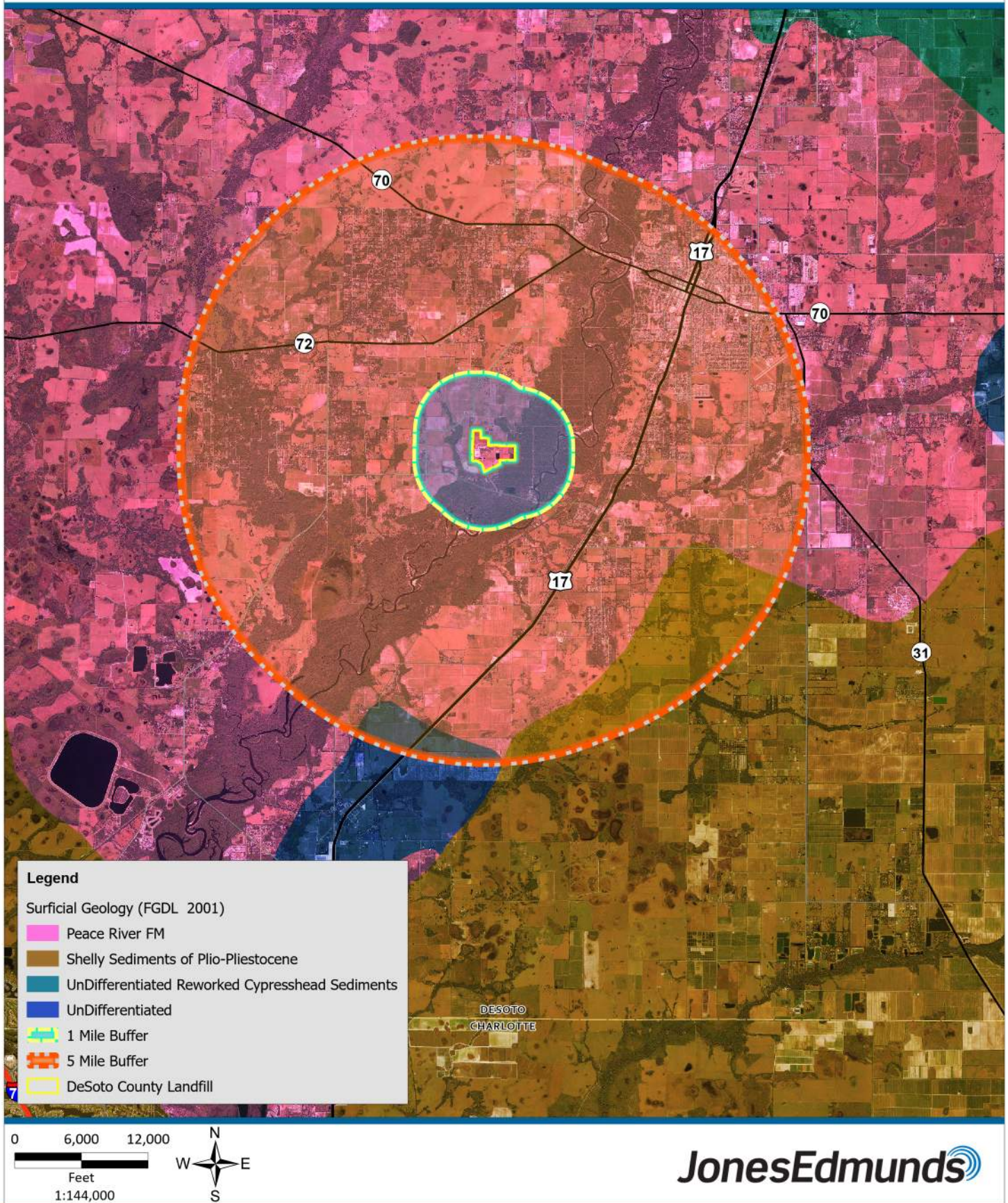


Figure 4

Well Inventory

DeSoto County Section 16 Landfill

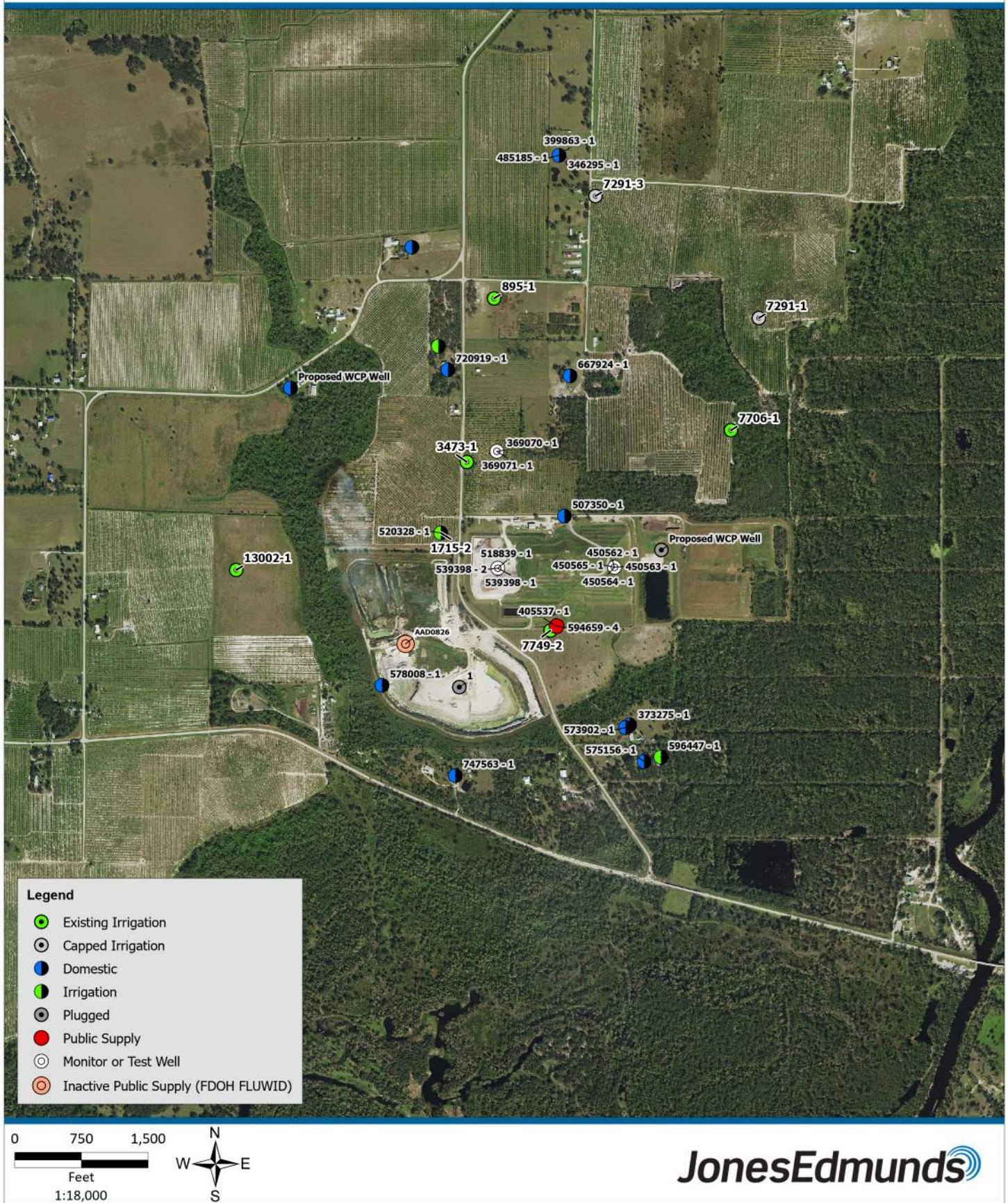


Figure 5

Wetlands Map

DeSoto County Section 16 Landfill

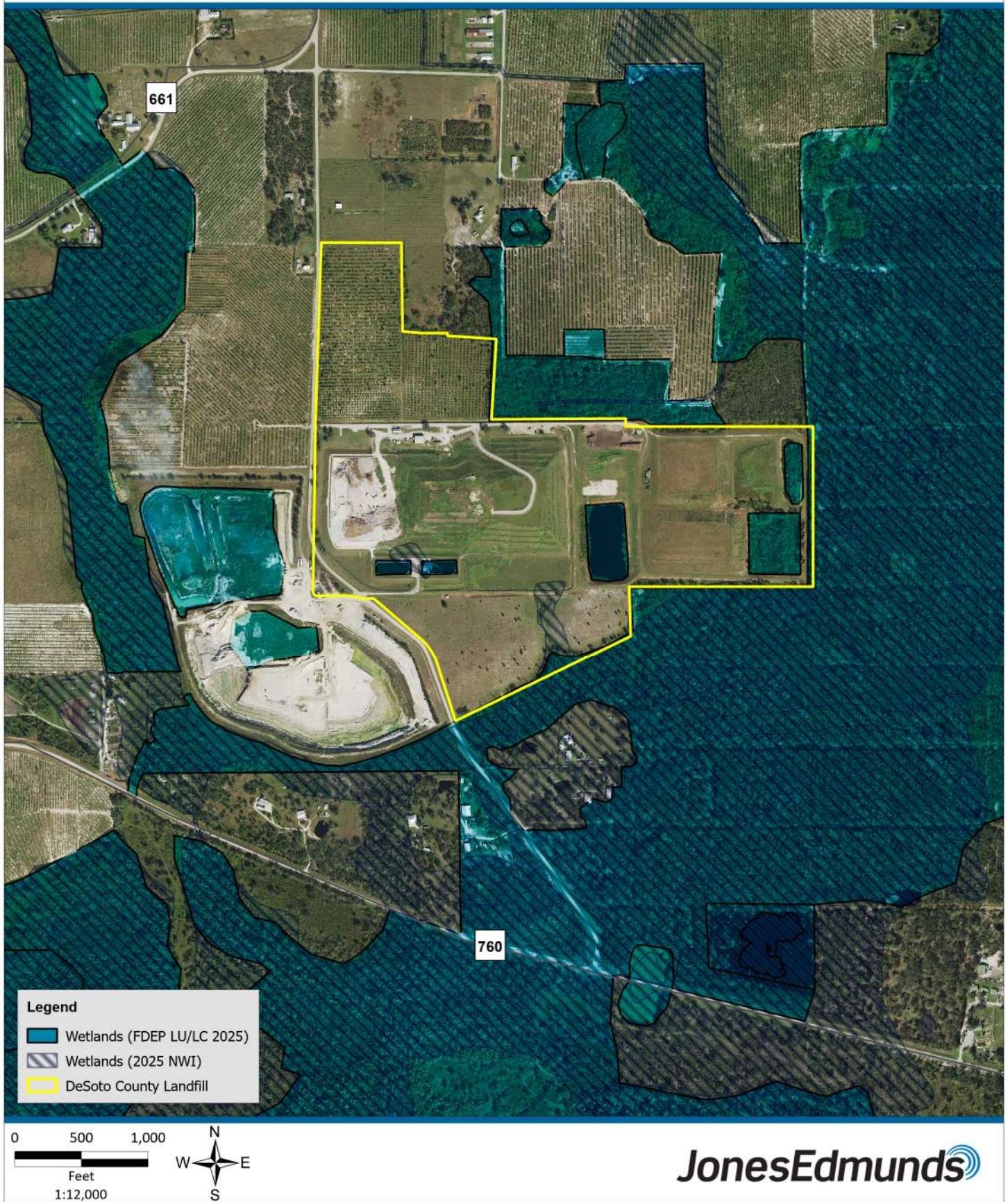


Figure 6

Flood Hazard Map

DeSoto County Section 16 Landfill

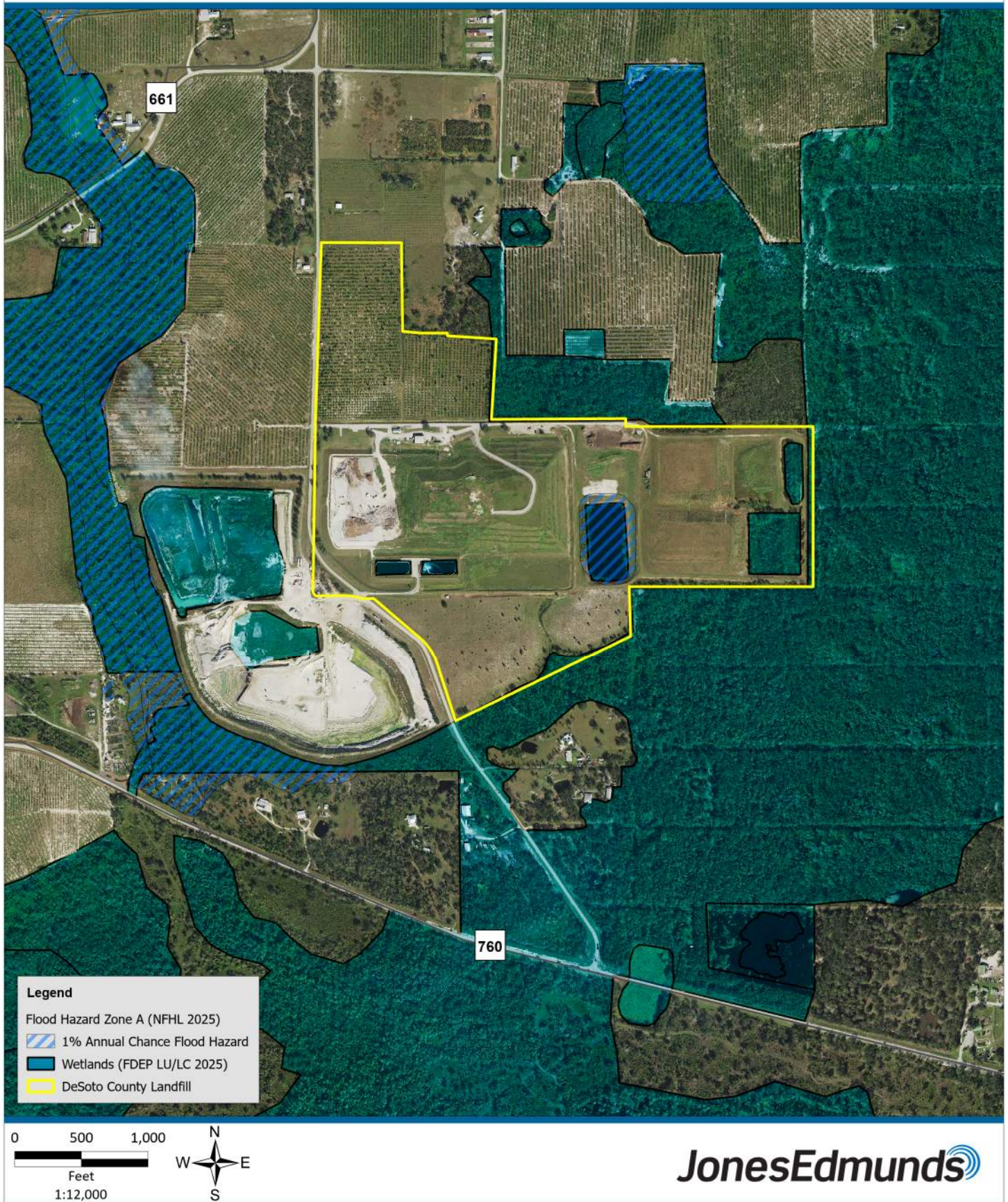
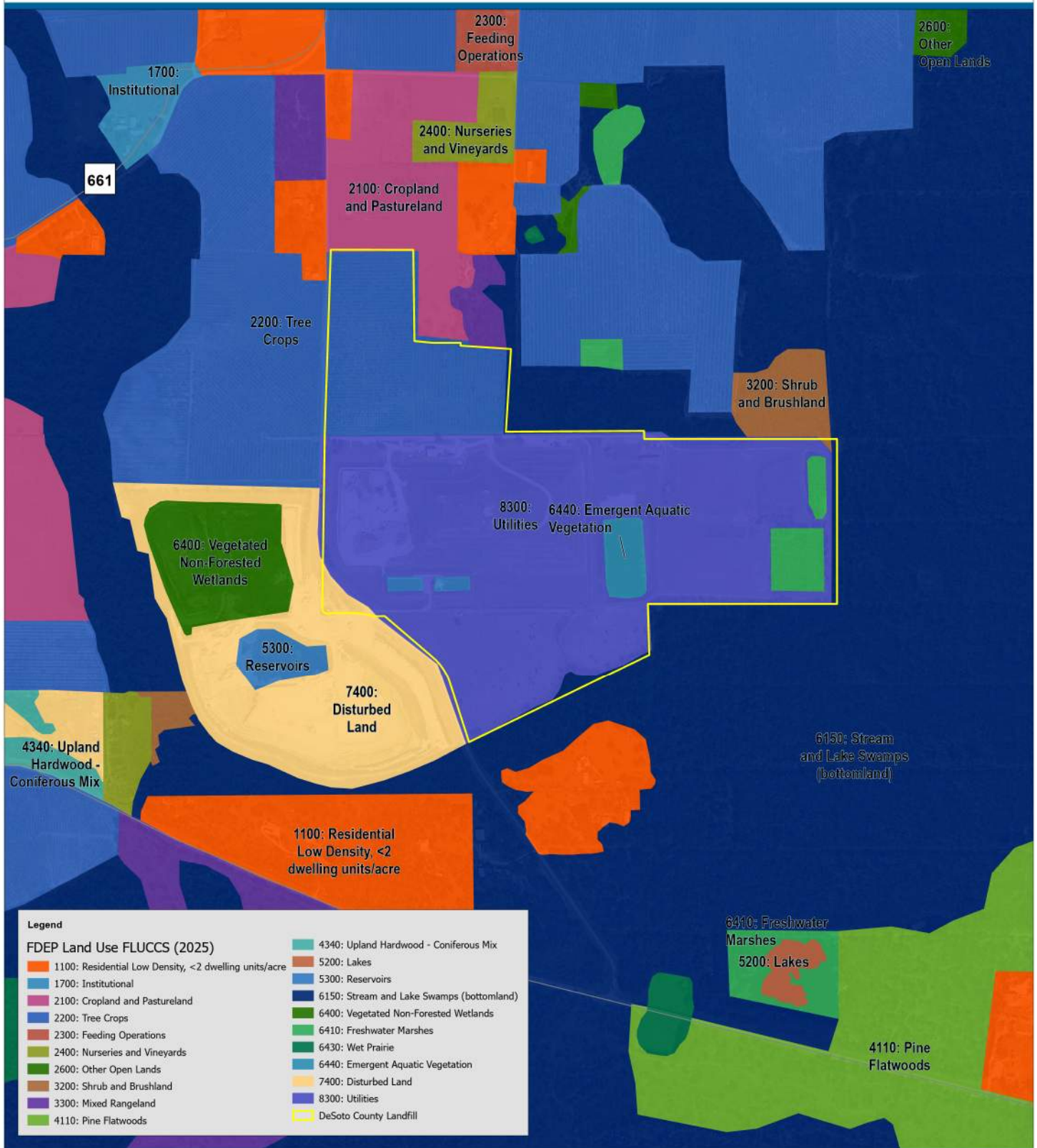


Figure 7

Land Use Map

DeSoto County Section 16 Landfill

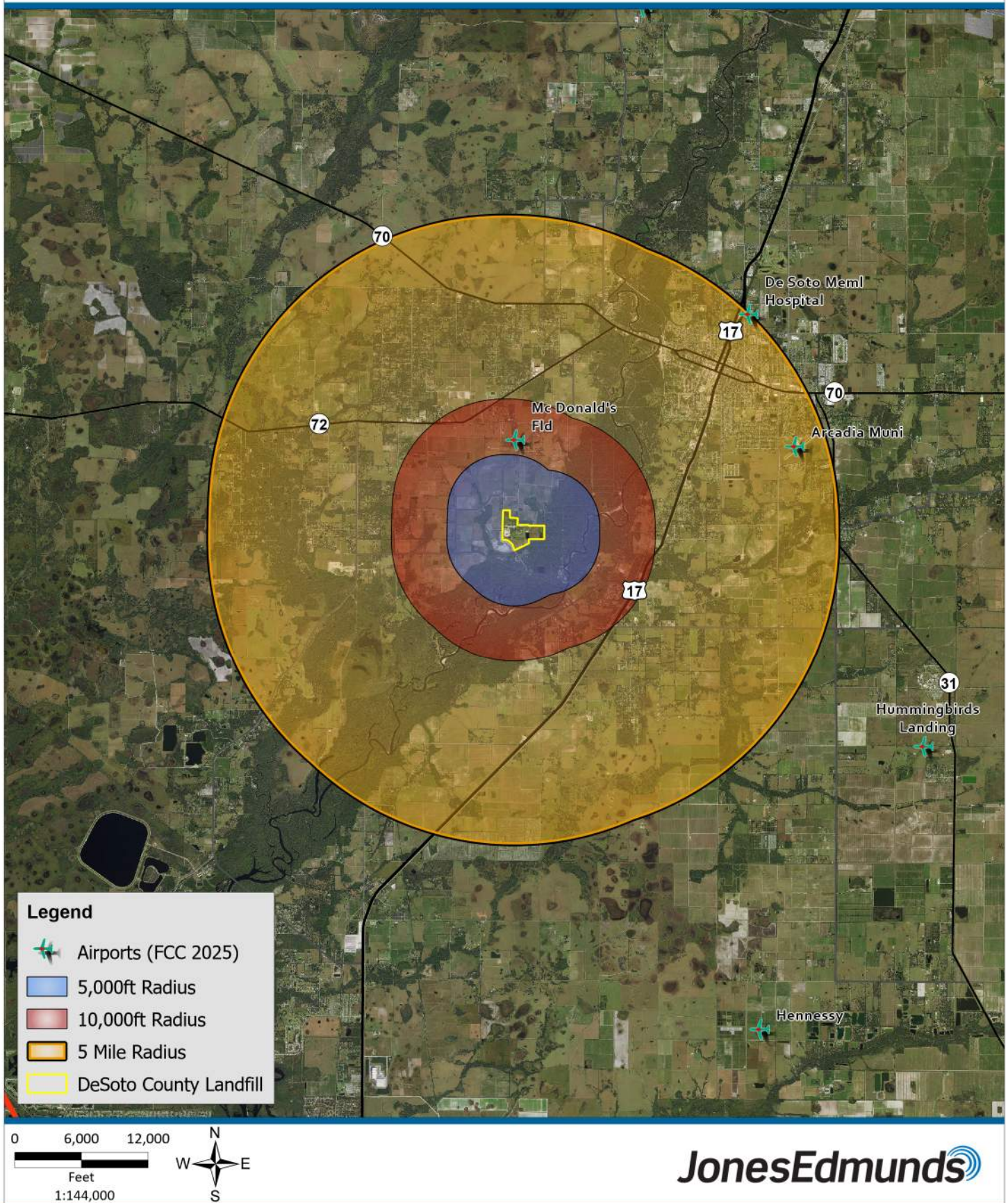


JonesEdmunds

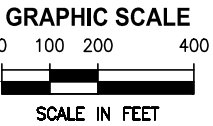
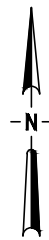
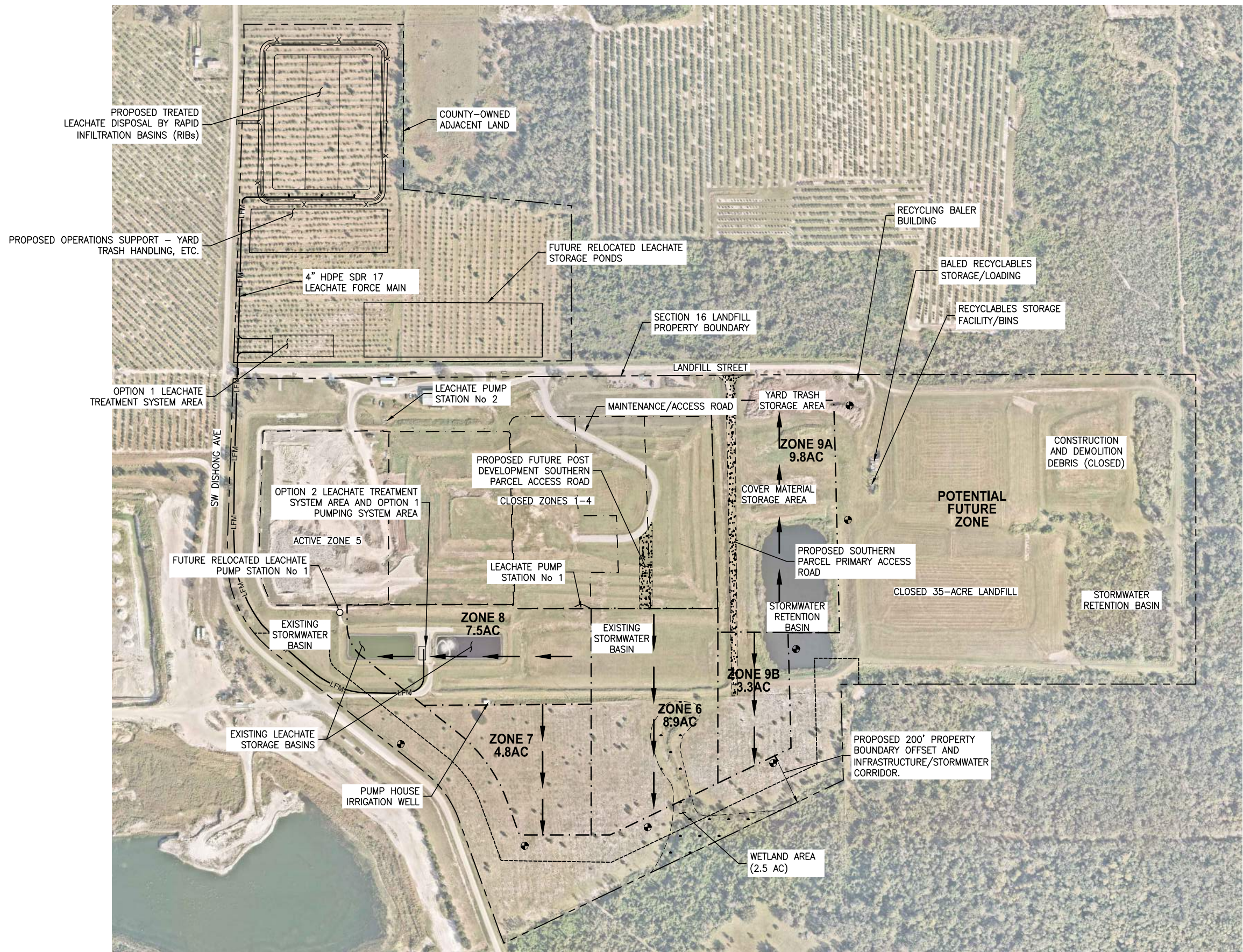
Figure 8

Airport Map

DeSoto County Section 16 Landfill



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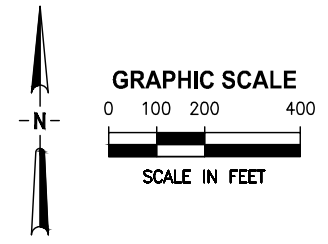


LEGEND

- PROPERTY LINE
- - - - - WETLAND LINE
- · - · - EDGE OF LINER LINE
- - - - - FUTURE STORMWATER RETENTION BASIN
- ← LEACHATE COLLECTION TRENCH
- ⊕ GROUNDWATER MONITORING WELL

FIGURE 9
LANDFILL EXPANSION ALTERNATIVE #1
CONCEPTUAL CELL LAYOUT
DESOTO COUNTY SECTION 16 LANDFILL
DESOTO COUNTY, FLORIDA

LAST SAVED: 7/31/2025 5:35 PM BY: ATOSI PATH: Y:\04185-DESOTO COUNTY\PROJECTS\004-01 - DESOTO LANDFILL MASTER PLAN\CAD\FIGURES VOLUMES\04185004-FG-10.DWG PLOTTED: 7/31/2025 05:36 PM BY: ALI\MO TOSI



- LEGEND**
- PROPERTY LINE
 - - - WETLAND LINE
 - . - . - . EDGE OF LINER LINE
 - - - - - FUTURE STORMWATER RETENTION BASIN
 - ← LEACHATE COLLECTION TRENCH
 - ⊙ GROUNDWATER MONITORING WELL

FIGURE 10
LANDFILL EXPANSION ALTERNATIVE #2
CONCEPTUAL CELL LAYOUT
DESOTO COUNTY SECTION 16 LANDFILL
DESOTO COUNTY, FLORIDA

Appendix B

**Population and Waste Generation
Projections**



PROJECT NUMBER: 04185-004-01
PROJECT NAME: DeSoto County's Landfill Master Plan
SUBJECT: Capacity Analysis
BY: M.Morse & M.Deaderick
CHECKED BY: M.Deaderick

SHEET: 1 of 5

Date: 7/14/2025
Date: 7/31/2025

Objectives:

- 1) To determine the remaining capacity of the existing Zone 5 at the DeSoto County Section 16 Landfill.

Assumptions:

- 1) Waste generation growth rates are directly proportional to population growth rates.
- 2) Waste apparent density is 1425 lb/CY, based on 2015-2024 average apparent waste density from County and annual surveys.

Waste Density:

$$\rho_i = \frac{\text{Class I Materials Received (tons)}}{\text{Volume Consumed (CY)}} * (2000 \frac{\text{lbs}}{\text{ton}}) \quad \frac{1,425 \text{ lbs/CY}}{0.71 \text{ tons/CY}} \quad (\text{Reference 1})$$

Population Projections for Citrus County

Data:

Population Projections for DeSoto County					
Year	Population ^{1,2}	Annual Rate of Change	Year	Population	Annual Rate of Change
(yr)		(%/yr)	(yr)		(%/yr)
2023	34,974	-	2040	41,300	0.64%
2024	36,744	5.06%	2041	41,518	0.53%
2025	36,900	0.42%	2042	41,737	0.53%
2026	37,215	0.85%	2043	41,957	0.53%
2027	37,532	0.85%	2044	42,178	0.53%
2028	37,852	0.85%	2045	42,400	0.53%
2029	38,175	0.85%	2046	42,598	0.47%
2030	38,500	0.85%	2047	42,797	0.47%
2031	38,795	0.77%	2048	42,997	0.47%
2032	39,093	0.77%	2049	43,198	0.47%
2033	39,393	0.77%	2050	43,400	0.47%
2034	39,695	0.77%	2051	43,603	0.47%
2035	40,000	0.77%	2052	43,807	0.47%
2036	40,257	0.64%	2053	44,011	0.47%
2037	40,515	0.64%	2054	44,217	0.47%
2038	40,775	0.64%	2055	44,424	0.47%
2039	41,037	0.64%	2056	44,631	0.47%
Average Growth Rate ³			1.0%		

¹ Population projection data retrieved from Florida Estimates of Population by the University of Florida's Bureau of Economic and Business Research (BEER) and is based on "High" projections of population.

(Reference 2)

² Estimated populations from 2051-2056 are extrapolated based on Average Growth Rate calculated based on Years 2045-2050 due to unavailability of BEBR estimates for this year range.

³ The Average population Growth Rate was rounded up to conservatively estimate remaining lifespan.



PROJECT NUMBER: 04185-004-01
 PROJECT NAME: DeSoto County's Landfill Master Plan
 SUBJECT: Capacity Analysis
 BY: M.Morse & M.Deaderick
 CHECKED BY: M.Morse

SHEET: 2 of 5
 Date: 7/14/2025
 Date: 7/15/2025

Waste Acceptance Projections for the DeSoto County Section 16 Landfill

Data:

Waste Acceptance Projections for the DeSoto County Section 16 Landfill					
Year (yr)	Waste Acceptance ¹ (tons/year)	Tons per Day (tpd)	Annual Rate of Waste Acceptance Change (%)	Volume of Waste (cy/year)	Waste per Capita per Year (tons/person/year)
2015	25,217	82	-	41,792	0.7
2016	26,776	87	6.2%	37,847	0.8
2017	32,678	106	22.0%	41,646	0.9
2018	31,294	102	-4.2%	42,794	0.9
2019	28,413	93	-9.2%	32,640	0.8
2020	31,095	101	9.4%	41,893	0.8
2021	34,962	114	12.4%	58,374	1.0
2022	44,776	146	28.1%	63,699	1.3
2023	59,915	195	33.8%	101,367	1.7
2024	52,067	170	-13.1%	53,288	1.4
2025	56,441	184	8.4%	40,216	1.5
2026	61,182	199	8.4%	43,594	1.6
2027	66,321	216	8.4%	47,256	1.8
2028	71,892	234	8.4%	51,225	1.9
2029	77,931	254	8.4%	55,528	2.0
2030	84,478	275	8.4%	60,193	2.2
2031	85,322	278	1.0%	60,795	2.2
2032	86,176	281	1.0%	61,402	2.2
2033	87,037	284	1.0%	62,016	2.2
2034	87,908	286	1.0%	62,637	2.2
2035	88,787	289	1.0%	63,263	2.2
2036	89,675	292	1.0%	63,896	2.2
2037	90,571	295	1.0%	64,535	2.2
2038	91,477	298	1.0%	65,180	2.2
2039	92,392	301	1.0%	65,832	2.3
2040	93,316	304	1.0%	66,490	1.6
2041	94,249	307	1.0%	67,155	1.6
2042	95,191	310	1.0%	67,827	1.6
2043	96,143	313	1.0%	68,505	1.6
2044	97,105	316	1.0%	69,190	1.6
2045	98,076	319	1.0%	69,882	1.6
2046	99,057	323	1.0%	70,581	1.7
2047	100,047	326	1.0%	71,286	1.7
2048	101,048	329	1.0%	71,999	1.7
2049	102,058	332	1.0%	72,719	1.7
2050	103,079	336	1.0%	73,446	1.7
2051	104,109	339	1.0%	74,181	1.7
2052	105,151	343	1.0%	74,923	1.7
2053	106,202	346	1.0%	75,672	1.7
2054	107,264	349	1.0%	76,429	1.7
2055	108,337	353	1.0%	77,193	1.7
2056	109,420	356	1.0%	77,965	1.7
Average Historical Waste Acceptance Growth Rate ¹ (Between 2015 - 2024)				8.4%	

1) Waste Acceptance growth rate was varied based on reasonable assumptions. A higher short-term growth rate was used for the next 5 years of operation (10% Annually), which is based on an average of the annual waste growth rate from 2015 through 2024. A smaller annual growth rate was assumed for the remainder of the estimates, 1% was used to mirror average population growth (based on BEBR high growth population estimates).



PROJECT NUMBER: 04185-004-01
PROJECT NAME: DeSoto County's Landfill Master Plan
SUBJECT: Capacity Analysis
BY: M.Morse & M.Deaderick
CHECKED BY: M.Morse

SHEET: 3 of 5
Date: 7/14/2025
Date: 7/15/2025

Projected Lifespan of Zone 5

Data:

Apparent Density	0.71 tons/CY
Remaining Capacity of Existing Site (Zone 5)	331,372 CY
Current Annual Waste Growth Rate	8.4%
Lifespan Projection Start Date	1/1/2025

Calculations:

Projected Lifespan of Active Site and Future Expansion			
Year	Waste Acceptance Rate ¹		Remaining Volume
	(tons/yr)	(CY/yr)	Existing Zones 1 - 5 (CY)
2024	52,067	53,288	331,372
2025	56,441	79,212	252,160
2026	61,182	85,866	166,293
2027	66,321	93,079	73,214
2028	71,892	100,898	(27,684)
Zone 5 Projected Lifespan (Years)			3.7
Anticipated Closure Date:			Sep-2028

- 1) Waste Acceptance Rate in (tons/yr) based on a 8.4% growth from the previous year. Waste Acceptance Rate in (CY/yr). based on an apparent density of 1425 lbs/CY.

Conclusion:

The expected closure date of Zone 5 is approximately 3.7 years from January 01, 2025, in September 2028.

References:

- 2019 and 2024 "Remaining Site Life Reports" submitted by the DeSoto County Engineer
- "Projects of Florida Population by County, 2025-2050, with Estimates for 2023" released by the University of Florida Bureau of Economic and Business Research (UF BEBR)



PROJECT NUMBER: 04185-004-01
PROJECT NAME: DeSoto County's Landfill Master Plan
SUBJECT: Capacity Analysis - Alternative #2
BY: M.Morse
CHECKED BY: M.Deaderick

SHEET: 5 of 5

Date: 7/30/2025
Date: 7/31/2025

Projected Lifespan of Alternative #2

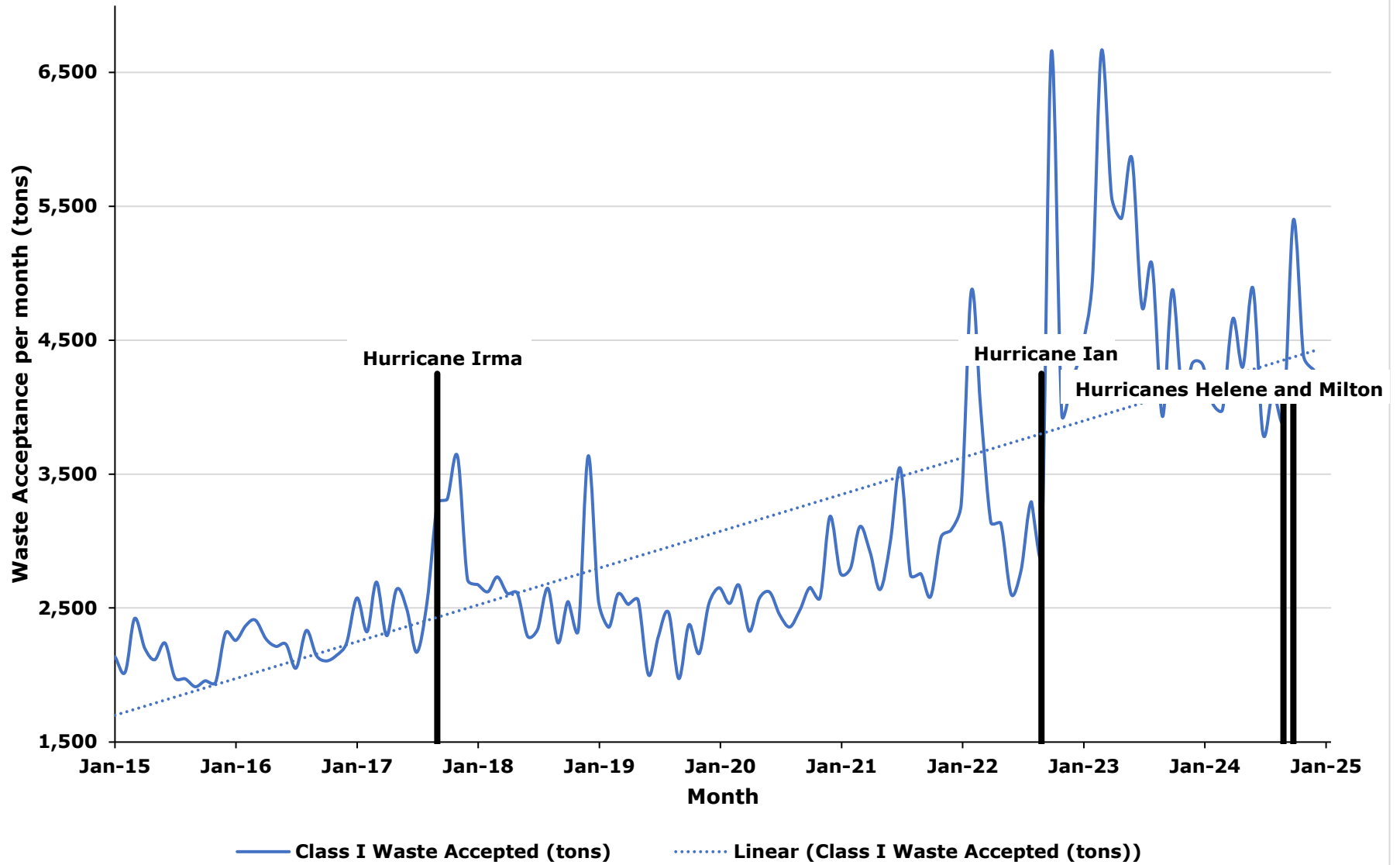
Data:

Apparent Density	0.71 tons/CY
Zone 6 Volume	440,000 cY
Zone 7 Volume	300,000 cY
Zone 8 Volume	90,000 cY
Assumed Annual Waste Growth Rate, 2025-2030	8.4%
Assumed Annual Waste Growth Rate, 2031-2056	1.0%
Zone 5 End of Operating Life	Sep-2028

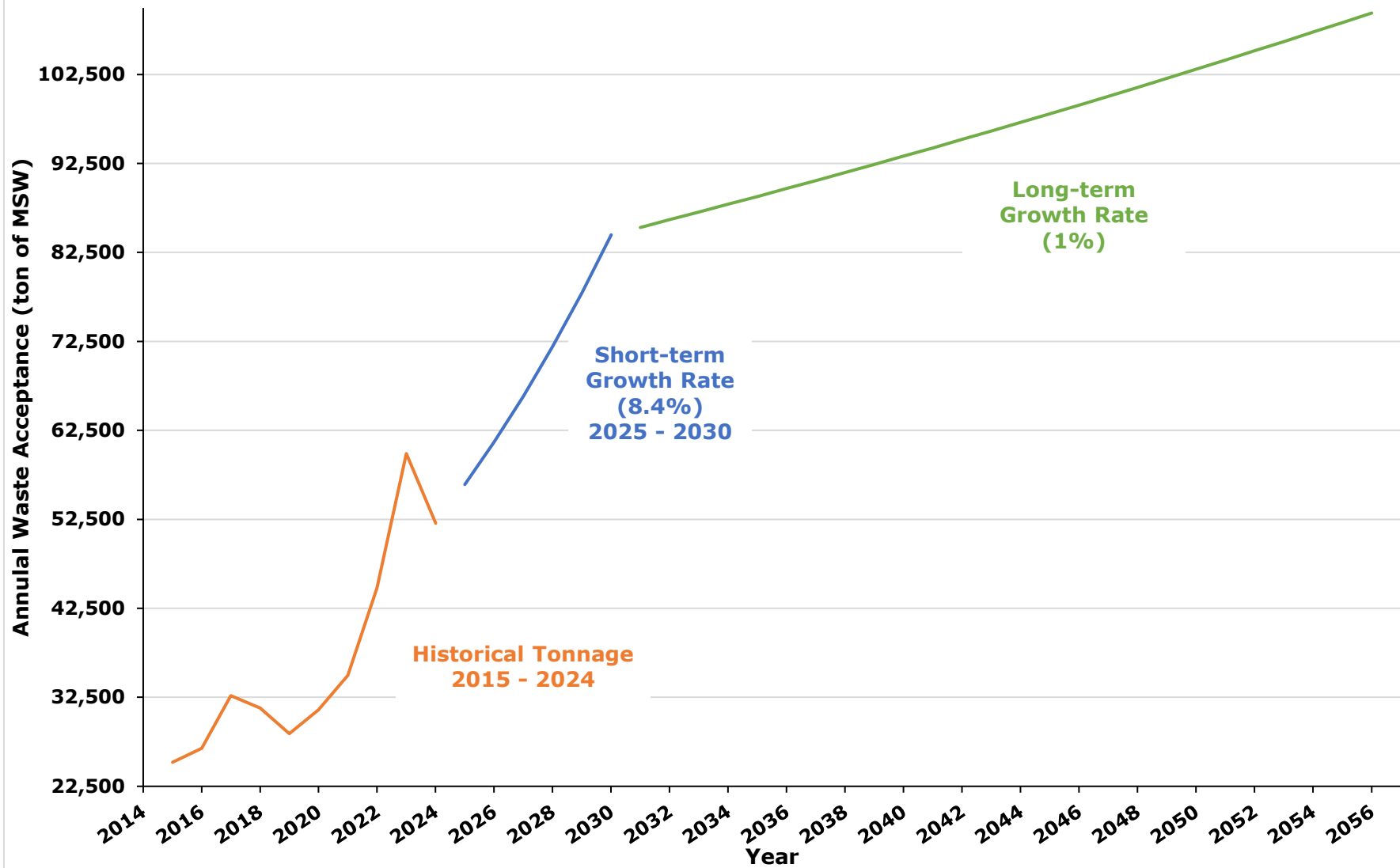
Calculations:

Projected Lifespan of Future Expansion					
Year	Waste Acceptance Rate ¹		Remaining Volume	Remaining Volume	Remaining Volume
	(tons/yr)	(CY/yr)	Zone 6 (CY)	Zone 7 (CY)	Zone 8 (CY)
2027	66,321	93,079	440,000		
2028	71,892	100,898	412,316		
2029	77,931	109,373	302,943		
2030	84,478	118,561	184,383		
2031	85,322	119,746	64,637	300,000	
2032	86,176	120,944	(56,307)	243,693	
2033	87,037	122,153		121,540	90,000
2034	87,908	123,375		-1,835	88,165
2035	88,787	124,608			(36,443)
Zone 6 Projected Lifespan (Years) =			3.8		
Zone 6 Anticipated Closure Date =			Jul-2032		
Zone 7 Projected Lifespan (Years) =			2.5		
Zone 7 Anticipated Closure Date =			Dec-2034		
Zone 8 Projected Lifespan (Years) =			0.7		
Zone 8 Anticipated Closure Date =			Sep-2035		

**DeSoto County Section 16 Class I Landfill
Waste Acceptance per month (in tons)
January 2015 through December 2024**



**DeSoto County Section 16 Class I Landfill
Annual Waste Acceptance (in tons of MSW)
2015 - 2056**





**Desoto County
Board of County Commissioners
Engineering Department
201 East Oak Street; Suite 204
Arcadia, Florida 34266**

**Reference #1
(excerpt)**

Memorandum

To: Tiffany Mangold, CPA, Audit Manager, Purvis Grey

From: Michael Giardullo, P.E., DeSoto County Engineer, Weiler Engineering

Date: March 9, 2020

Re: DeSoto County Landfill – Zone 4

The DeSoto County Engineering Division has performed survey and engineering work for Zone 4 of the landfill as of January 2, 2020 as shown in the attached report and survey. A digital surface analysis was completed to determine the total available volume remaining within Zone 4 as this portion of the facility approaches the design capacity. The digital surface was created from the design plans which yielded a value of 430,000 CY for the capacity of Zone 4. This capacity is consistent with the permitted capacity of FDEP Permit 42079-004-SO/01. The completed computer analysis showed a total of 11,884 CY remaining in Zone 4. As of January 21, 2020, it is estimated that the landfill is currently at 97.2% capacity.

The attached Landfill Report shows that a total of 32,640 CY of solid waste and cover material has been added to the landfill from January 2019 through December 2019. Based on waste collection trends, a conservative estimate of the Zone 4 remaining useful life is approximately 2-3 months.

Cell 5 of the DeSoto County Landfill began accepting waste in the end of the 2019 calendar year with a minimal amount of waste accepted. This cell has a design useful life of 12.3 years. Based on this information, the DeSoto County Landfill is anticipated to receive waste for the next 12.5 years (+/-) or until another expansion occurs. Cell 5 will be included in the next (2020) useful life update.



Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656

Zone 4 of the DeSoto County Section 16 landfill was constructed in September 2006 and began operation in April 2007. The landfill is open from 7:30am to 4:00pm Monday-Saturday. All loads are weighed at the scale house upon entrance to the facility. It is anticipated that this zone will reach the permitted capacity of 430,000 CY within the next 2-3 months if the waste collection trend continues. From January 2019 to December 2019, a total of 32,640 CY of solid waste and cover material was added to Zone 4. Zone 5 of the landfill is now open and accepting waste; however, the volume of waste added in Zone 5 in 2019 was minimal and was not included into the Design Life report for 2019.

As required as part of permit condition #13c, topographic information is gathered on a yearly basis to determine the amount of solid waste and cover material that has been placed within Zone 4 during that year. In past years, a summary of design life calculations has been provided. The previously shown table depicted the calculated volume (CY), cumulative calculated volume (CY), remaining Zone 4 volume (CY), report period (Yr), waste collection trend (CY/Yr), and estimated design life (Yr) were shown. Survey field work for this report was completed on January 21, 2020. As the life of this zone is coming to an end, the method of calculating the remaining life was altered. The estimated remaining life of Zone 4 was determined through a comparison of 3D profiles of the current and final conditions as opposed to a cumulative approach of waste added each year as in previous remaining useful life estimates.

Table 1: Summary of Design Life

Volume Utilized in 2018 (CY)	Permitted Zone Capacity (CY)	Available Capacity (CY)	Estimated Design Life (Yr)
32,640	430,000	11,884	0.16-0.25



Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656

Based on the annual trend of waste and cover material added over recent years, it is anticipated that Zone 4 will reach capacity in the next few months depending on how much waste is placed in Zone 4 vs Zone 5. In addition, minor field adjustments such as a relocation of the shelf on the west slope from the design elevation 85 to approximately elevation 75 as shown in Section A-A of the survey reduce the available capacity. As such a range in estimated design life is provided. Finally, there have been discussions of relocating solid waste from the extents of Zone 4 as part of the ongoing Zone 5 liner construction. This waste material may be relocated within Zone 4. Best available information at the time of this report indicates that this volume of cover and solid waste may be upwards of 5,000 CY. The exact volume of solid waste which may be relocated is undetermined. The County should be aware that if material is relocated within Zone 4, the available capacity of Zone 4 will be further reduced beyond the normal waste collection trend.



Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656

N:\c.gates\38-24-16-0000-0023-0000 LANDFILL\ANNUAL REPORTS\16-38-24 0000-0023-0000 2020 SITE ASBUILT SURVEY C3D EXP 010620.dwg (2020 11X17 ASBUILT SURVEY) c.gates

Reference #1



THIS MAP IS INTENDED TO
BE DISPLAYED AT A SCALE OF
1" = 100' OR SMALLER

LEGEND:

- MAJOR CONTOUR
- MINOR CONTOUR

NOTES:

1. DATE OF LAST FIELD WORK: JANUARY 02, 2020
2. THE ASBUILT SURVEY INTENT IS TO SHOW THE CONFIGURATION OF THE LANDFILL AT TIME OF ASBUILT SURVEY.
3. THE ASBUILT SURVEY WAS PERFORMED USING TRIMBLE R8 RTK GLOBAL POSITIONING SYSTEM UTILIZING THE TRIMBLE VRS NETWORK, STATE PLANE FLORIDA WEST ZONE COORDINATE GRID. THE REFERENCE NGS BENCHMARKS ARE LISTED IN THE BENCHMARK INFORMATION TABLE. FIELD RECOVERED AS PART OF THE ASBUILT SURVEY PROCESS.
4. THE ASBUILT SURVEY USES FOR A BACKGROUND A AERIAL PHOTOGRAPH BY OTHERS.
5. THIS SURVEY WAS PERFORMED FOR THE PURPOSE SHOWN HEREON AND DOES NOT MAKE ANY REPRESENTATION AS TO THE DELINEATION OF ANY JURISDICTIONAL LINES.
6. ELEVATIONS SHOWN ARE NGVD 1929 DATUM.

BENCHMARK INFORMATION TABLE

NGS L 639 - DJ6103	NGS K 639 - DJ6100
TOP BRASS DISK IN	TOP OF STAINLESS STEEL ROD IN
CONCRETE MONUMENT	IN CAPPED WELL
ELEV. 14.27 NAVD 1988 DATUM	ELEV. 11.21 NAVD 1988 DATUM
ELEV. 15.40 NGVD 1929 DATUM	ELEV. 12.34 NGVD 1929 DATUM

LEGEND:

- NGS - NATIONAL GEODETIC SURVEY
- NGVD - NATIONAL GEODETIC VERTICAL DATUM
- NAVD - NORTH AMERICAN VERTICAL DATUM
- ELEV. - ELEVATION
- RTK - REAL TIME KINEMATIC

THIS SURVEY IS ONLY FOR THE BENEFIT OF:
DESOTO COUNTY DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

NO OTHER PERSON OR ENTITY MAY RELY ON THIS SURVEY.

IN MY PROFESSIONAL OPINION, AS A LICENSED FLORIDA PROFESSIONAL SURVEYOR AND MAPPER, THIS PLAT IS A TRUE AND CORRECT REPRESENTATION OF A SURVEY MADE AND PLATTED UNDER MY DIRECTION, BASED AS SHOWN IN NOTE 1 ABOVE AND MADE IN ACCORDANCE WITH CHAPTER 472.027, FLORIDA STATUTES.

Leland Clayton Gates
LELAND CLAYTON GATES, III
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATE NO. LS5710
DATE SIGNED: 08/10/20
NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. THIS CERTIFICATION IS TO THE DATE OF LAST FIELD WORK AS SHOWN AND NOT THE SIGNATURE DATE.

DATE OF PHOTOGRAPHY 02/2017

DESOTO COUNTY - LANDFILL



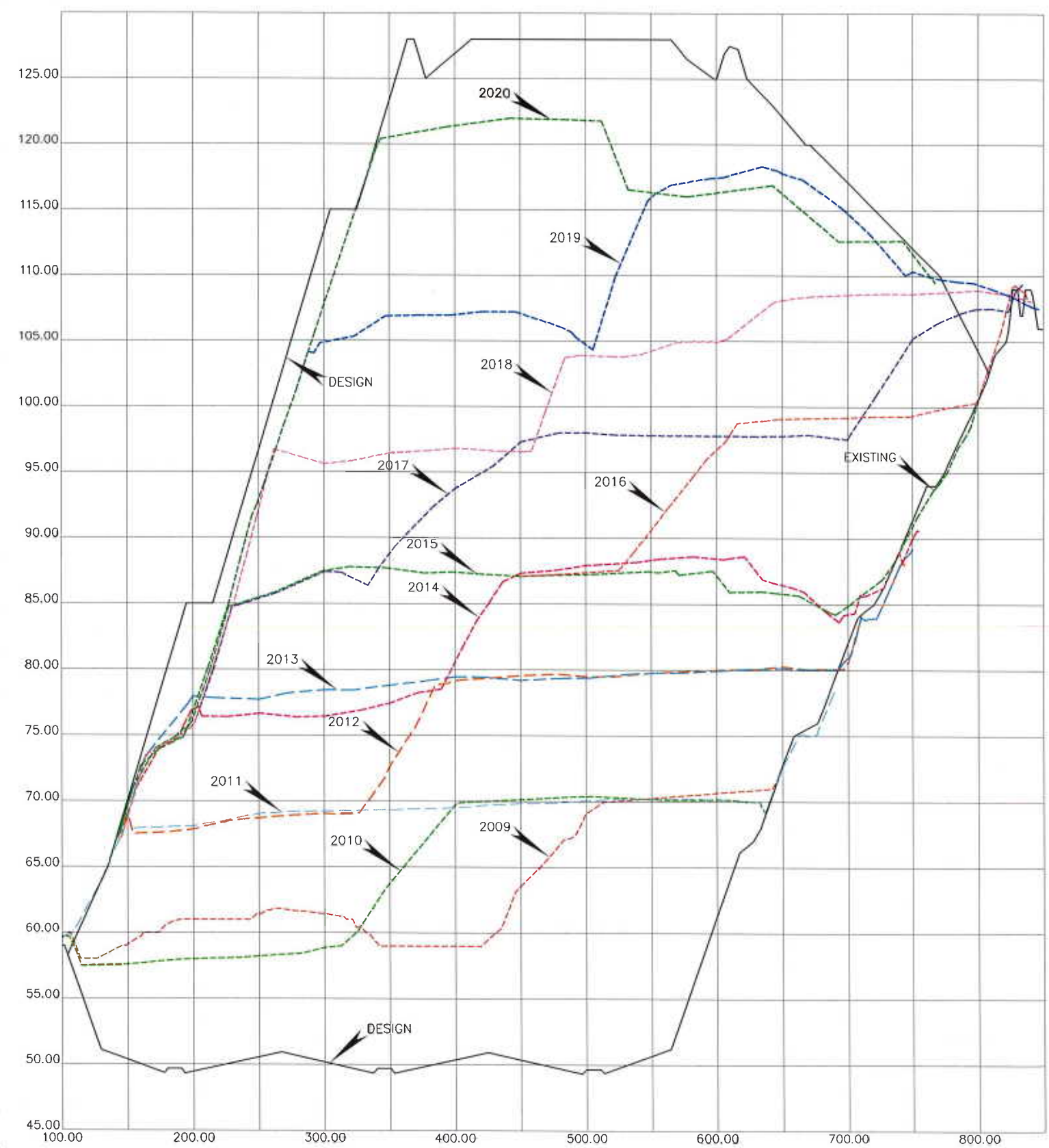
DESOTO COUNTY
DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

201 EAST OAK STREET, SUITE 201 OFFICE 863-491-7543
ARCADIA, FLORIDA 34266 FAX 863-491-6163

ASBUILT SURVEY - EXISTING CONDITIONS

DATE	FILE NO.	SCALE	SHEET
03/06/2020	16-38-24-0000-0023-0000	1" = 100'	1 OF 1

N:\c:\gates\38-24-16-0000-0023-0000 LANDFILL\ANNUAL REPORTS\16-38-24 0000-0023-0000 2020 REPORT C3D 011620.dwg (PERMIT 11X17 REPORT 2020) c.gates Mar 10, 2020 - 8:03z



SECTION A-A
SCALE: HORZ. 1" = 100'
VERT. 1" = 10'

DESOTO COUNTY - LANDFILL



- LEGEND:
- 2020 MAJOR CONTOUR
 - 2020 MINOR CONTOUR
 - 2019 MAJOR CONTOUR
 - 2019 MINOR CONTOUR

0 50 100
SCALE IN FEET

DATE OF PHOTOGRAPHY 2017



DESOTO COUNTY
DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION
201 EAST OAK STREET, SUITE 201 OFFICE 863-491-7543
ARCADIA, FLORIDA 34266 FAX 863-491-6163

2019 AND 2020 AND COMPARISON

DATE	FILE NO.	SCALE	SHEET
01/24/2020	16-38-24-0000-0023-0000	AS SHOWN	1 OF 1



**Desoto County
Board of County Commissioners
Engineering Department
201 East Oak Street; Suite 204
Arcadia, Florida 34266**

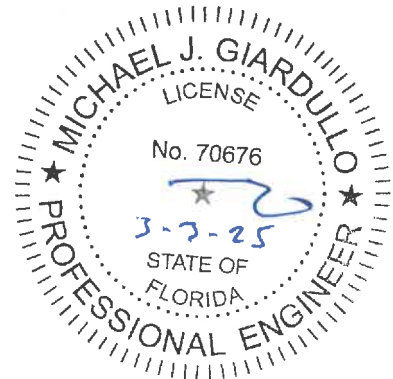
**Reference #1
(excerpt)**

Memorandum

To: Tiffany Mangold, CPA, Audit Manager, Purvis Grey
From: Michael Giardullo, P.E., DeSoto County Engineer, Weiler Engineering
Date: March 3, 2025
Re: DeSoto County Landfill – Zone 5

The DeSoto County Engineering Division has performed survey and engineering work for Zone 5 of the landfill as of December 16, 2024, as shown in the attached report and survey. A digital surface analysis was completed to determine the total available volume remaining within Zone 5. The digital surface was created from the design plans which yielded a value of 649,993 CY for the capacity of Zone 5. This capacity is consistent with the permitted capacity of FDEP Permit 42079-014-SC-01. The completed computer analysis showed a total of 318,621 CY remaining in Zone 5. As of December 2024, it is estimated that the landfill is currently at 49.02% capacity.

The attached landfill report shows that a total of 53,288 CY of solid waste and cover material has been added to the landfill from January 2024 to December 2024. This volume results in a remaining estimated volume of 318,621 CY. Based on the waste collection trends, the landfill has a remaining design life estimate of 5.20 years.



**Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656**

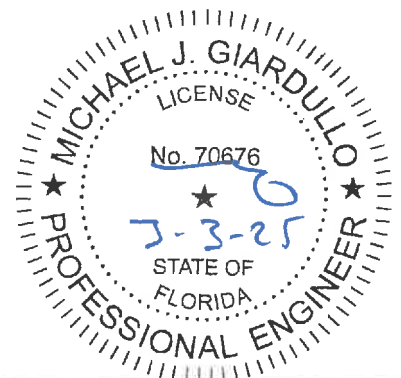
Executive Summary

Based on recent topographic survey and records from the DeSoto County Landfill, Zone 5 was placed into operation in December 2019 and has significant volume remaining. Zone 4 of the landfill was the section used for waste disposal and previously summarized in the past reports until 2020. In 2019, Zone 4 had approximately 2-3 months remaining before it reached capacity just as Zone 5 was nearing construction completion. With the construction of Zone 5 complete, this zone is now the primary area receiving waste. Zone 4 has not been completely filled to date; however, this zone is not actively being used.

Background

Zone 4 of the landfill has been the sole zone used since 2007 when the construction of Zone 5 was completed and cleared for use. Zone 4 was approaching capacity as of 2019 with only 2-3 months of remaining life. Since this time, no waste has been added to Zone 4 and therefore it has not yet reached its permitted capacity. Zone 5 of the DeSoto County Landfill began accepting waste in the beginning of the 2020 calendar year and is the primary disposal cell. As such, the focus of this report will be on the waste placed in Zone 5. The engineering design of Zone 5 estimated a design useful life of 12.3 years based on permitting documents with a waste collection trend of 52,234 CY/Year. During the first year of operation, the actual waste added to Zone 5 was under the yearly trend, which added additional years to the useful life. The remaining life calculation was based off the trends from Zone 5. The remaining life will be revised on an annual basis showing the yearly updates based on the most recent disposal trends.

In preparation for meeting condition #13.c. of the landfill permit, topographic data was gathered by survey grade GPS on December 16, 2024 for Zone 5. This provided a snapshot in time as to the solid waste and cover material that has been placed in Zone 5 to that date. No survey for Zone 4 was completed as the amount of waste added to Zone 4 in 2024 was negligible.



Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656

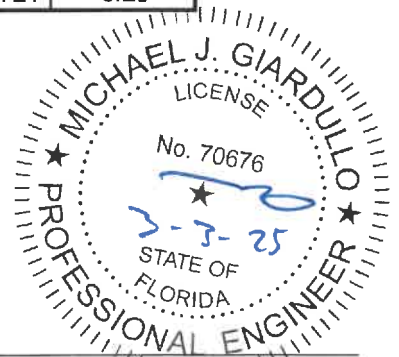
Operation

Zone 5 of the DeSoto County Section 16 landfill was constructed in late 2019 and began accepting solid waste in January 2020. The landfill is open from 7:30am to 4:00pm Monday-Saturday. All loads are weighed at the scale house upon entrance to the facility.

According to landfill records, Zone 5 received a total of 52,067 tons of waste from January 2024 through December 2024. Per the permitting documents for the landfill, Zone 5 would reach the permitted capacity of 649,993 CY by 2032 if the waste collection trend was approximately 52,234 CY/Year. From January 2024 through December 2024, a total of 53,288 CY of solid waste and cover material was added to Zone 5. This shows that approximately 49.02% of Zone 5 has been filled as of December 2024. The intake volume decreased from 2023, which was unusually large likely due to an increase in development within DeSoto County and post Hurricane Ian construction activity. If the current waste collection trend continues it appears that the remaining 331,372 CY will be used in 5.20 years. Table 1 summarizes this data below.

Table 1: Summary of Design Life Calculations for Zone 5

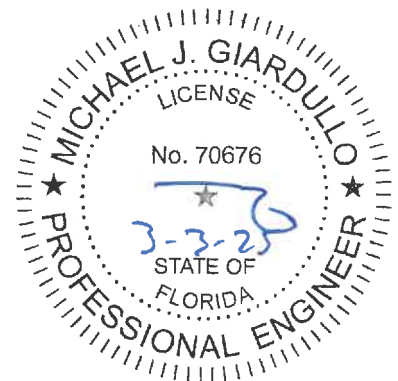
	Calculated Volume In (CY)	Cumulative Calculated Volume In (CY)	Remaining Zone 5 Volume In (CY)	Report Period (YR)	Waste Collection Trend (CY/YR)	Estimated Design Life (YR)
Jan-20			649,993			
	41,893					
Nov-20		41,893	608,100	0.92	45,701	13.31
	58,374					
Dec-21		100,267	549,726	2.00	50,134	10.97
	63,699					
Dec-22		163,966	486,027	3.00	54,655	8.89
	101,367					
Dec-23		265,333	384,660	4.00	66,333	5.80
	53,288					
Dec-24		318,621	331,372	5.00	63,724	5.20



Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656

Basis of Calculation

A three-dimensional surface was created from topographic data gathered on December 16, 2024. The survey was completed using a Trimble R12 GPS Base & Rover Receiver and Trimble Survey Controller software running in Real Time Kinematic (RTK) GPS mode. The volume was calculated using AutoCAD surface comparison with the landfill as-built file. Please see the attached Survey's Report from Hyatt Survey, dated February 18, 2025 for additional information.



Michael J. Giardullo, P.E., DeSoto County Engineer
Florida Registration No. 70676
The Weiler Engineering Corporation
EB #6656

Projections of Florida Population by County, 2025–2050, with Estimates for 2023

Stefan Rayer, Population Program Director
Conor Comfort, Research Demographer

The Bureau of Economic and Business Research (BEBR) at the University of Florida has produced population projections for Florida and its counties since the 1970s. This report presents our 2024 set of projections and describes the methodology used to construct those projections. To account for uncertainty regarding future population growth, we publish three series of projections – low, medium, and high. We recommend using the medium series for most purposes; this series has historically provided the most accurate forecasts for Florida counties. It should be noted that these projections refer solely to the resident population of Florida; they do not include temporary or seasonal residents whose usual place of residence is in another jurisdiction.

State Projections

The starting point for the state-level projections was the decennial census count for April 1, 2020. Projections were made in one-year intervals using a cohort-component methodology in which births, deaths, and migration are projected separately for each age-sex cohort in Florida.

Survival rates were applied by single year of age and sex to project future deaths in the population. These rates were based on Florida Life Tables for 2012–2018, using mortality data published by the Office of Vital Statistics in the Florida Department of Health. We adjusted the survival rates for 2020–2028 to make them consistent with recent mortality trends, and to align

the projected deaths with those from the State of Florida’s Demographic Estimating Conference (DEC) held November 28, 2023. After 2028, we made small adjustments to the survival rates based on projected changes in survival rates released by the U.S. Census Bureau.

Domestic migration rates by age and sex were based on Public Use Microdata Sample (PUMS) files from the 2011–2019 American Community Survey (ACS) 1-year estimates and 2015–2019 ACS 5-year estimates. We calculated an average of those two sets of migration estimates; projections based on input data from more than one period tend to be more accurate than those based on a single period. By combining 1-year ACS estimates, which are more current, with 5-year ACS estimates, which are more stable, we make use of the different strengths of each type of ACS data.

We applied smoothing techniques to the migration rates by single year of age and sex to adjust for data irregularities caused by small sample sizes. The smoothed in- and out-migration rates were weighted to account for recent changes in Florida’s population growth rates. Projections of domestic in-migration were made by applying weighted in-migration rates to the projected population of the United States (minus Florida), using the most recent set of national projections produced by the U.S. Census Bureau. Projections of out-migration were made by applying weighted out-migration rates to the Florida population. In both instances, rates were calculated separately for males and females for each age up to 90 and over.

Projections of Florida Population by County, 2025–2050, with Estimates for 2023

County and State	Estimates April 1, 2023	Projections, April 1					
		2025	2030	2035	2040	2045	2050
ALACHUA	293,040						
Low		282,700	285,300	284,000	280,000	274,800	269,300
Medium		300,800	317,000	329,300	338,400	345,600	352,000
High		318,800	348,700	374,600	396,800	416,500	434,700
BAKER	28,339						
Low		26,900	26,700	26,400	25,800	25,200	24,500
Medium		28,900	30,200	31,300	32,200	32,900	33,600
High		31,000	33,700	36,200	38,500	40,700	42,700
BAY	187,545						
Low		179,600	178,800	176,900	174,100	171,000	167,800
Medium		191,000	198,600	205,100	210,400	215,100	219,400
High		202,500	218,500	233,300	246,700	259,200	270,900
BRADFORD	27,389						
Low		26,000	25,400	24,700	23,900	23,200	22,600
Medium		27,700	28,200	28,600	28,900	29,200	29,500
High		29,300	31,100	32,500	33,900	35,200	36,400
BREVARD	640,773						
Low		618,800	625,100	625,000	619,200	610,400	600,100
Medium		658,300	694,600	724,600	748,300	767,700	784,500
High		697,700	764,100	824,300	877,400	925,100	968,800
BROWARD	1,973,579						
Low		1,906,400	1,899,700	1,876,000	1,842,400	1,806,200	1,771,100
Medium		2,006,700	2,076,200	2,125,800	2,161,100	2,189,300	2,213,800
High		2,107,000	2,252,700	2,375,600	2,479,900	2,572,400	2,656,600
CALHOUN	13,816						
Low		13,000	12,500	12,000	11,500	11,100	10,700
Medium		13,800	13,900	13,900	13,900	13,900	14,000
High		14,700	15,300	15,800	16,300	16,800	17,200
CHARLOTTE	204,126						
Low		198,700	204,200	207,000	207,900	208,000	206,900
Medium		211,300	226,900	240,000	251,300	261,600	270,500
High		224,000	249,600	273,000	294,600	315,300	334,000
CITRUS	162,240						
Low		156,400	157,800	157,300	155,400	152,900	150,400
Medium		166,400	175,400	182,400	187,800	192,300	196,500
High		176,400	192,900	207,500	220,200	231,800	242,700
CLAY	231,042						
Low		224,200	229,100	231,000	229,200	225,900	222,300
Medium		238,500	254,500	267,900	276,900	284,200	290,600
High		252,800	280,000	304,700	324,700	342,400	358,900
COLLIER	399,480						
Low		388,500	398,700	402,000	400,600	396,900	392,200
Medium		413,300	443,000	466,000	484,100	499,300	512,700
High		438,100	487,300	530,100	567,600	601,700	633,200
COLUMBIA	72,191						
Low		69,600	69,000	68,100	67,000	65,800	64,700
Medium		73,300	75,400	77,100	78,600	79,800	80,900
High		76,900	81,800	86,200	90,200	93,700	97,000
DESOTO	34,974						
Low		33,400	32,500	31,600	30,700	29,700	28,900
Medium		35,200	35,500	35,800	36,000	36,100	36,200
High		36,900	38,500	40,000	41,300	42,400	43,400
DIXIE	17,271						
Low		16,500	16,200	15,900	15,500	15,000	14,700
Medium		17,500	18,000	18,400	18,700	18,900	19,200
High		18,600	19,800	20,900	21,900	22,800	23,700

Appendix C

Cost Estimates



PROJECT NUMBER: _04185-004-01
PROJECT NAME: _DeSoto County Section 16 Landfill Master Planning_
SUBJECT: _Alternative #1 Cost Estimate_
BY: M.Morse
CHECKED: M.Deaderick

SHEET _1_ of _2_

DATE: 8/22/2025
DATE: 8/22/2025

**DeSoto County Section 16 Landfill
Master Plan Report: Landfill Expansion Alternative #1**

Future Landfill Zone	Area (acres)	Waste Volume (CY)	Cell Capacity (tons)	Lifespan (years)	Design, Permitting, and Construction Assistance (\$)	Construction Cost (\$)	Other Costs (\$)	Total Development Cost (\$)	Development Cost per Ton (\$/ton Disposal Capacity)	Comments
Zone 6	8.9	440,000	310,000	3.8	\$1,750,000	\$7,000,000	\$ 630,000	\$9,380,000	\$30	Other Cost: Wetland mitigation credit purchase.
Zone 7	4.8	300,000	210,000	2.5	\$1,750,000	\$3,800,000		\$5,550,000	\$26	Development Cost per Ton: Only applicable to development of Zone 7 after Zone 6 due to ability to place waste over Zone 6.
Zone 8	7.5	1,200,000	860,000	9.2	\$1,750,000	\$5,900,000	\$2,400,000	\$10,050,000	\$12	Other Cost: Leachate Storage Pond Relocation
Zone 9A	9.8	550,000	390,000	4.0	\$1,750,000	\$7,700,000	\$3,100,000	\$12,550,000	\$32	Other Cost: Borrow pit dewatering infrastructure, operation, and soil fill importation/installation. Also includes relocation of some site operations.
Zone 9B	3.3	250,000	180,000	1.8	\$1,750,000	\$2,600,000		\$4,350,000	\$24	Development Cost per Ton: Only applicable to development of Zone 9 after Zone 8. Cost for pond backfilling included in Zone 8.
Total, All Zones	34.5	2,740,000	1,950,000	21.3	\$8,750,000	\$27,000,000	\$6,130,000	\$41,880,000	\$21	



PROJECT NUMBER: _04185-004-01
PROJECT NAME: _DeSoto County Section 16 Landfill Master Planning_
SUBJECT: _Alternative #2 Cost Estimate_
BY: M. Morse
CHECKED: G. Reinhart

SHEET 2 of 2

DATE: 7/19/2025
DATE: 7/30/2025

**DeSoto County Section 16 Landfill
Master Plan Report: Landfill Expansion Alternative #2**

Future Landfill Zone	Area (acres)	Waste Volume (CY)	Cell Capacity (tons)	Lifespan (years)	Design, Permitting, and Construction Assistance (\$)	Construction Cost (\$)	Other Costs (\$)	Total Development Cost (\$)	Development Cost per Ton (\$/ton Disposal Capacity)	Comments
Zone 6	8.9	440,000	310,000	3.8	\$1,750,000	\$7,000,000	\$ 630,000	\$9,380,000	\$30	Other Cost: Wetland mitigation credit purchase.
Zone 7	4.8	300,000	210,000	2.5	\$1,750,000	\$3,800,000		\$5,550,000	\$26	Development Cost per Ton: Only applicable to development of Zone 7 after Zone 6 due to ability to place waste over Zone 6.
Zone 8	2.0	90,000	60,000	0.7	\$1,750,000	\$1,600,000		\$3,350,000	\$56	Development Cost per Ton: Only applicable to development of Zone 8 after Zone 6 due to ability to place waste over Zone 6.
Total, All Zones	15.8	830,000	580,000	7.0	\$5,250,000	\$12,400,000	\$630,000	\$18,280,000	\$32	