

Smith, George

From: Restrepo, Carlos <CRestrepo@scsengineers.com>
Sent: Friday, April 28, 2017 4:32 PM
To: Dilmore, Cory
Cc: Cooper, Dan; Morgan, Steve
Subject: RE: Manatee Lena Road Landfill - Remaining Capacity Report
Attachments: Lena Road Site Life Report_April 28 2017.pdf

Please use the attached signed/sealed report.
Thank you

Carlos A. Restrepo, PE
SCS Engineers-Tampa, FL
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From: Restrepo, Carlos
Sent: Friday, April 28, 2017 3:40 PM
To: 'cory.dilmore@dep.state.fl.us'
Cc: Cooper, Dan ; 'steve.morgan@dep.state.fl.us'
Subject: Manatee Lena Road Landfill - Remaining Capacity Report

Cory,

Please find attached the Remaining Capacity and Site Life Report for the Lena Road Landfill.
A hardcopy of the report will be mailed to you and Steve Morgan for your records.
Please let us know if you have any questions.

Thank you

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April 28, 2017
File No. 09217088.01

Mr. Cory Dilmore, P.E.
Environmental Administrator
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 4565
Tallahassee, Florida 32399

Subject: Remaining Disposal Capacity and Site Life – Reporting Year 2017
Lena Road Landfill - Manatee County
Permit No.: 39884-021-SO-01

Dear Mr. Dilmore,

On behalf of the Manatee County, Solid Waste Division (SWD), SCS Engineers (SCS) has prepared the remaining disposal capacity and site life estimate for the Lena Road Landfill, Manatee County, Florida, in accordance with Rule 62-701.500(13)(c) and Specific Condition Part C.15.b of the facility's solid waste operations permit.

ANNUAL TOPOGRAPHIC SURVEY AND REMAINING CAPACITY ANALYSIS

The aerial topographic survey performed by I.F. Rooks and Associates, Inc. (I.F. Rooks) on March 8, 2017 (see attachments) demonstrates that Stages I, II, and III have been filled in general accordance with the permitted operations sequence plans including that the side slopes are no greater than 4H to 1V. In addition, the top elevations do not exceed the permitted maximum design height elevation of 130 feet NVGD for both Stages I and II and 118 feet NGVD for Stage III. Waste has not been placed outside the permitted limits of waste/liner in Stages I, II, and III.

Using AutoCAD software, the gross airspace consumed during this reporting period was calculated by comparing the surfaces between the previously reported topographic survey dated February 27, 2016 to the March 8, 2017 topographic survey (refer to attachments for volume summary). Note that specific site surveys, provided by Atkins North America, Inc., for Stage II bottom liner system in Sequence 1A, dated May 9, 2016 and Sequence 1B dated and December 5, 2016, were also used as reference.

The estimated gross airspace consumed in Stages I, II, and III, during this reporting period, is 464,664 cubic yards (CY) based on the airspace analyses performed using AutoCAD. Based on the information provided by the SWD, 321,923 tons of municipal solid waste (MSW) was disposed of at the Lena Road Landfill between February 29, 2016 and March 7, 2017. Based on the calculated volume consumed and tonnages disposed, an apparent waste density of 1,385

pounds per cubic yard was achieved during this reporting period. The apparent waste density is defined as the actual waste tonnage disposed divided by the volume of airspace consumed by both waste and daily cover soil.

REMAINING DISPOSAL CAPACITY AND SITE LIFE

The estimated remaining disposal capacity (remaining airspace) for the Lena Road Landfill, based on the last site life report "Estimate of Remaining Life and Capacity Report", by Jones Edmunds, dated April 26, 2016, is approximately 13,786,525 CY (as of February 27, 2016). This remaining disposal capacity was used by SCS to subtract the volume consumed between the February 27, 2016 and the March 8, 2017 topographic surveys to determine the remaining disposal capacity.

The remaining site life for the Lena Road Landfill was calculated utilizing the apparent density of 0.60 tons/CY, as reported in the "Estimate of Remaining Life and Capacity Report", by Jones Edmunds, dated April 26, 2016 and the apparent density calculated by SCS for this reporting year. The average disposal rate calculated for the last five years is 491,730 CY/Year. The remaining disposal capacity was divided by the average disposal rate to obtain the estimated site life. Table 1, Projected Remaining Capacity and Site Life, includes references used as part of the calculations. Using these assumptions, the remaining site life for Lena Road Landfill was estimated to be approximately 28 years from March 8, 2017. The estimated remaining site life will fluctuate depending on the future waste composition, disposal rates, and in-situ waste density.

Please call us if you require any clarifications or additional information.

Sincerely,


Carlos A. Restrepo, P.E.
Sr. Project Professional
SCS ENGINEERS



Daniel R. Cooper, P.E.
Project Director
SCS ENGINEERS

car/drc

cc Bryan White, SWD
Steve Morgan, FDEP

Attachments: Table 1 – Projected Capacity and Site Life
Volume Report
Topographic Survey

Table 1
Projected Remaining Capacity and Site Life
Lena Road Landfill
Manatee County, Florida

Stage I Permitted Capacity = 13,179,520 CY
 Stage II Permitted Capacity = 12,705,440 CY
 Stage III Permitted Capacity = 6,751,640 CY
 Total Permitted Capacity¹ = 32,636,600 CY

Remaining Capacity Volume
 As of February 27, 2016² = 13,786,525 CY

Month	Year	Waste Received (Tons/Month) ³
March	2016	30,856.15
April	2016	28,999.42
May	2016	26,164.37
June	2016	28,601.93
July	2016	25,674.15
August	2016	28,373.48
September	2016	26,484.89
October	2016	25,333.40
November	2016	24,553.28
December	2016	25,617.02
January	2017	26,756.33
February	2017	24,508.86

Total Waste Received
 During Reporting Year = 321,923.28 Tons

Year	Historical Tonnages (Tons/Yr) ⁵	Apparent Density (Tons/CY) ⁶	Volume (CY/Yr)
2012	275,969	0.60	459,948
2013	280,488	0.60	467,480
2014	296,084	0.60	493,473
2015	303,024	0.60	505,040
2016	322,433	0.60	537,389
2017	51,265	0.69	73,996

Average volume consumed
 During Last 5 Years = 491,730 CY / Yr

Volume Consumed

Between Feb 27, 2016 and Mar 8, 2017⁴ = 464,664 CY

Apparent Density

Tons (reporting year) / Volume Consumed = 0.69 Tons / CY
 = 1,385.62 Lbs / CY

Remaining Capacity as of March 8, 2017

Remaining Capacity Volume / Average Volume = 28.04 Years

Remaining Volume

As of March 8, 2017 = 13,321,861 CY

Notes:

- 1 Permitted capacity data provided by Manatee County and reported in previous site life report "Estimate of Remaining Site Life and Capacity Report" by Jones Edmunds, dated April 26, 2016.
- 2 Remaining capacity volume as of February 27, 2016 as reported in previous site life report "Estimate of Remaining Site Life and Capacity Report" by Jones Edmunds, dated April 26, 2016.
- 3 Waste received as reported by Manatee County from scale data reports. Includes tonnage data starting from date of last survey date February 27, 2016.
- 4 Volume consumed obtained by calculating airspace consumed between February 27, 2016 and March 8, 2017 topographic surveys using AutoCAD 3D. Refer to attached volume report. Note that calculations also use base grades for Stage II based on topographic surveys by Atkins dated May 9, 2016 (Sequence 1A), and dated December 5, 2016 (Sequence 1B).
- 5 Historical tonnages as reported by Manatee County. 2017 data includes January and February only.
- 6 Apparent density for 2012 thru 2016 as reported in previous site life report "Estimate of Remaining Site Life and Capacity Report" by Jones Edmunds, dated April 26, 2016. Apparent density for 2017 as calculated by SCS.

SCS ENGINEERS

April 27, 2017
File No. 09217088.01

MEMORANDUM

TO: Carlos Restrepo

FROM: Kimberly Cox

SUBJECT: **Lena Road Landfill - Capacity and Site Life Volume Report**

Stages I and III

Below I have included the change in volume for Stages I and III. This analysis includes 3D surfaces and volume calculations using the February 27, 2016 topographic survey as the base grade and the March 8, 2017 topographic survey as the comparing surface. The waste boundary limits used for Stages I and III are based on location of the slurry wall dividing the two Stages. Refer to attached figure for waste boundaries.

CAD File – 2016-2017 comparison surfaces

Volume Surface: Stage I-volume 2016-2017

Description: Cut/fill comparison surface

Volume Cut: 92,933.92 cu. yd. ** Represents settlement

Volume Fill: 112,843.94 cu. yd.

Compare Surface: 2017-Stage I

Base Surface: 2016-Stage I

Volume Surface: Stage III-volume 2016-2017

Description: Cut/fill comparison surface

Volume Cut: 136,384.87 cu. yd. ** Represents settlement

Volume Fill: 7,234.11 cu. yd.

Compare Surface: 2017-Stage II

Base Surface: 2016-Stage II



Total for Stages I and III

Volume Cut: 229,318.79 cu. yd. ** Represents settlement

Volume Fill: 120,078.05 cu. yd.

Volume Net: 109,240.74 cu. yd. (Cut)

Note: For site life calculation purposes, only the total “fill” volume is used. The “cut” volume is not included in calculation since it is settlement and will not provide enough airspace for additional fill.

Stage II

Below I have included the change in volume for Stage II. This analysis includes 3D surfaces and volume calculations using the Specific site surveys for Sequences 1A and 1B to create a single bottom grade layer and the March 8, 2017 topographic survey as the comparing surface. Refer to attached figure for waste boundaries.

CAD File – 2016-2017 comparison surfaces

Volume Surface: Stage II-volume 2016-2017

Description: Cut/fill comparison surface

Volume Cut: 8,246.74 cu. yd. ** Represents settlement

Volume Fill: 352,832.73 cu. yd.

Compare Surface: 2017-Stage II

Base Surface: 2016-Stage II (Specific Site Surveys – Sequences 1A and 1B)

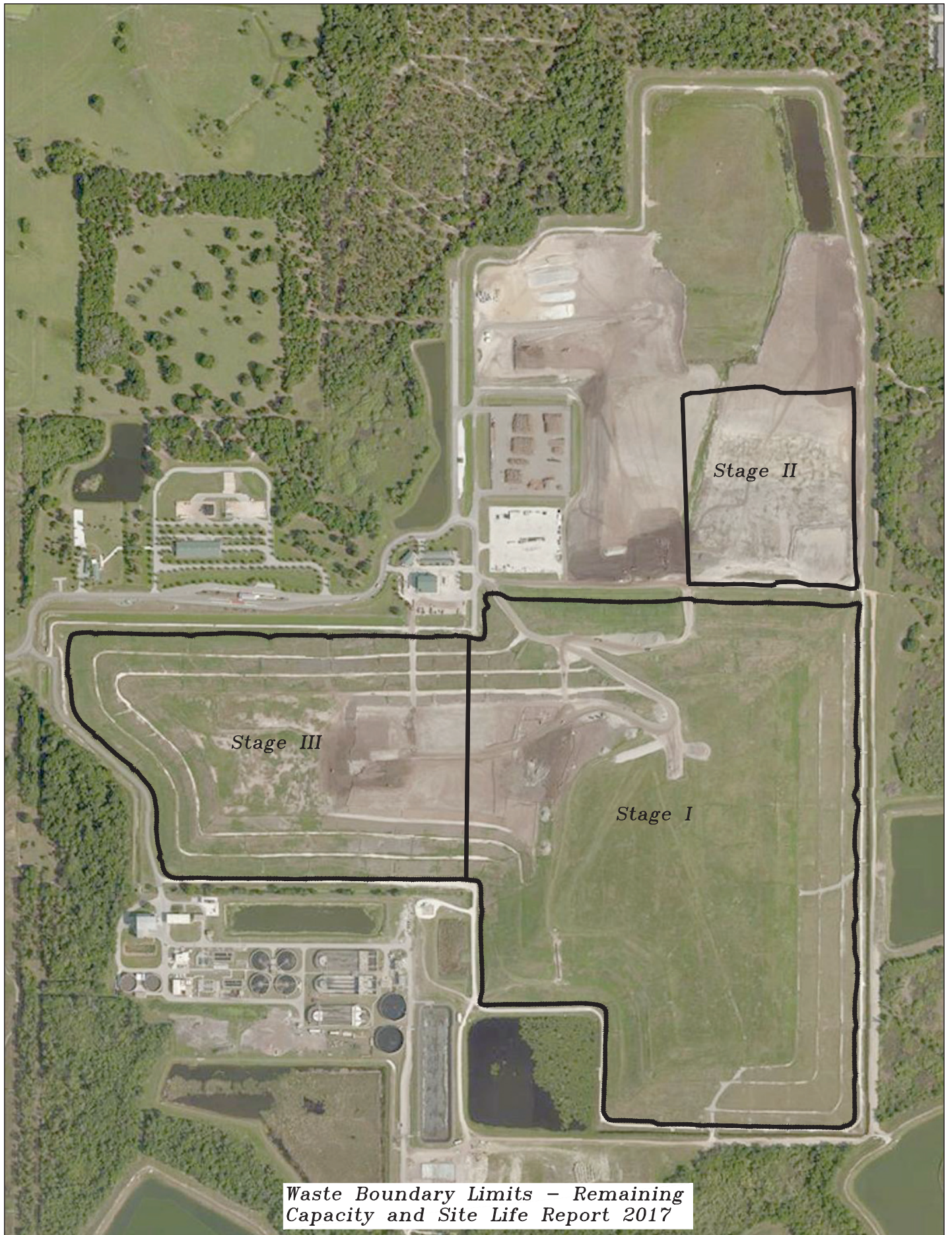
Total for Stage II

Volume Cut: 8,246.74 cu. yd. ** Represents settlement

Volume Fill: 352,832.73 cu. yd.

Volume Net: 344,585.99 cu. yd. (Fill)

Note: For site life calculation purposes, the “net” volume is used. Since there is additional available airspace, the “cut” volume, due to settlement, will provide for additional airspace.



Waste Boundary Limits – Remaining Capacity and Site Life Report 2017

