Ramirez, Javier

From: Ramirez, Javier
Sent: Friday, September 09, 2016 8:56 AM
To: Ramirez, Javier
Subject: RE: Hillsborough Southeast County Landfill Permit #35435-023-SO-IM - Estimate of Remaining Site Life

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From: Curtis, Bob [mailto:BCurtis@scsengineers.com]
Sent: Thursday, September 1, 2016 1:06 PM
To: SWD_Waste (Shared Mailbox) <SWD_Waste@dep.state.fl.us>; Freedenberg, Henry <Henry.Freedenberg@dep.state.fl.us>
Cc: Clark, Bruce <BClark@SCSEngineers.com>; Ruiz, Larry <RuizLE@HillsboroughCounty.ORG>; byerk@hillsboroughcounty.org; coper@epchc.org; Urena, Laurel <LUrena@scsengineers.com>
Subject: Hillsborough Southeast County Landfill Permit #35435-023-SO-IM - Estimate of Remaining Site Life

Henry,

On behalf of the Hillsborough County Public Works Department, Solid Waste Management Division, please find attached a PDF of the remaining disposal capacity and site life estimates for Phases I-VI and the Capacity Expansion Area (Permit No 35435-023-SO/IM), Southeast County Landfill, Hillsborough 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. A hard copy will be mailed.

Please contact me if you have any questions or require additional information.

Regards,

Bob

Robert B. Curtis, P.E.
Project Manager
SCS Engineers
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Tampa, FL 33610

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August 31, 2016
File No. 09215600.02

Mr. Henry Freedenberg, P.E.
Solid Waste Section
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 4565
Tallahassee, Florida 32399

Subject: Remaining Disposal Capacity and Site Life – Reporting Year 2016
Phases I-VI and Capacity Expansion Area (Sections 7, 8, and 9)
Southeast County Landfill
Permit No.: 35435-023-SO/IM

Dear Mr. Freedenberg,

On behalf of the Hillsborough County Public Works Department, Solid Waste Management Division (SWMD), SCS Engineers (SCS) has prepared the remaining disposal capacity and site life estimates for Phases I-VI and the Capacity Expansion Area (CEA) (Permit No 35435-023-SO/IM), Southeast County Landfill (SCLF), Hillsborough 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 was performed by Pickett and Associates, Inc. (Pickett) on July 6, 2016 (see attachments) and demonstrates that Phases I-VI and the CEA Sections 7, 8, and 9 have been filled in general accordance with the permitted operations sequence plans including that the side slopes are no greater than 4H to 1V (Phases I-VI) and 3H to 1V (CEA Sections 7, 8, and 9). In addition, the top elevations do not exceed the permitted maximum design height elevation of 255 feet NVGD and 285 feet NGVD for Phases I-VI and the CEA Sections 7, 8, and 9, respectively. Waste has not been placed outside the permitted limits of waste/liner in both Phases I-VI and the CEA Sections 7, 8, and 9.

Using AutoCAD software, the gross remaining airspace volumes were calculated using the permitted conceptual final build-out contours for the Phases I-VI and the CEA Sections 7, 8, and 9, and comparing the surfaces to the July 6, 2016 topographic survey (refer to attachments for volume summaries). The estimated gross remaining airspace for the Phases I-VI and the CEA Sections 7, 8, and 9 is 8,630,901 cubic yards (CY) based on the airspace analyses performed using AutoCAD.

Based on the information provided by the SWMD, approximately 206,761 tons of municipal solid waste (MSW) was disposed of at the SCLF between July 1, 2015 and June 30, 2016. This is 5,047 tons less than reported during the same time period the previous year. All waste was placed in Phases I-VI. No waste was diverted to the CEA Sections 7, 8, and 9. Assuming an apparent waste density of 1,900 pounds per cubic yard (PCY), the estimated annual airspace consumed in cubic yards was 217,643 CY for Phases I-VI. 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 FOR THE CEA (SECTION 7, 8, AND 9)

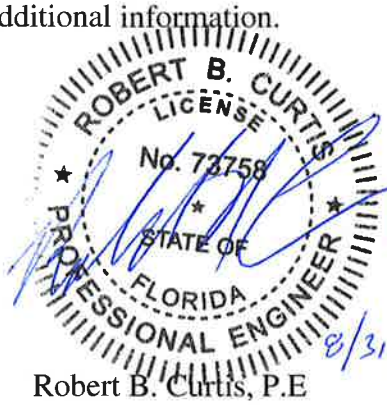
The estimated remaining disposal capacity (remaining airspace) of CEA Sections 7, 8, and 9 is 912,012 CY. This was calculated by subtracting the final cover soil volume of 145,600 CY from the gross remaining air space of 1,057,612 CY. The remaining site life of the CEA was calculated assuming the current disposal rate at the SLCF of 217,643 CY per year, the disposal rate will increase 1.5-percent annually, and half of the waste will be placed in the CEA Sections 7, 8, and 9. Using these assumptions the remaining site life for the CEA Sections 7, 8, and 9 was estimated to be approximately 7.7 years from July 6, 2016, as shown in Table 1. The estimated remaining site life will fluctuate depending on the future waste composition, disposal rates, and in-situ waste density.

REMAINING DISPOSAL CAPACITY AND SITE LIFE FOR PHASES I-VI

The estimated remaining disposal capacity (remaining airspace) of Phases I-VI is 6,907,420 CY which was calculated by subtracting the final cover soil volume of 665,869 CY from the gross remaining air space of 7,573,289 CY. The remaining site life of Phases I-VI was calculated assuming the current disposal rate at the SLCF of 217,643 CY per year, the disposal rate will increase 1.5-percent annually, and half of the waste will be placed in Phases I-VI while the CEA is accepting waste. Using these assumptions, the remaining site life for Phases I-VI was estimated to be approximately 28.8 years from July 6, 2016, as shown in Table 1. The estimated remaining site life will fluctuate depending on the future waste composition, disposal rates, and in-situ waste density.

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

Sincerely,



Laurel C. Ureña, E.I.T.
Project Professional
SCS ENGINEERS

Robert B. Curtis, P.E
Project Manager
SCS ENGINEERS

lcu/rbc

cc Kimberly Byer, SWMD
Larry Ruiz, SWMD
Ron Cope, EPC

Attachment: Topographic Survey and Volume Estimates

ATTACHMENTS

SITE LIFE TABLE

Table 1

Projected Remaining Capacity and Site Life
Phase I-VI and Capacity Expansion Area (Sections 7, 8, and 9)
Southeast County Landfill
Hillsborough County, Florida
July 6, 2016

Phases I - VI Remaining Gross Air Space[3] =	7,573,289	CY	Phases I - VI Estimated Final Cover Soils =	665,869	CY
CEA Sections 7-9 Remaining Gross Air Space[3] =	1,057,612	CY	CEA Section 7-9 Estimated Final Cover Soils =	145,600	CY
Total Gross Remaining Air Space =	8,630,901	CY			

Design Life Estimates from Table Below:			Total Remaining Net Air Space (Gross Air Space - Final Cover Soils) =	7,819,432	CY
CEA Sections 7-9 =	7.7	years	Annual Disposal Rate Increase =	1.5%	
Phases I-VI =	28.8	years	Apparent Waste Density =	1,900	lbs/CY

Year	Projected Disposal Rates[1,2]	Diversion to Section 7-9	Diversion to Phases I-VI	Waste to Phases I-VI	Waste to Phases I-VI	Waste to Sections 7-9	Waste to Sections 7-9	Remaining Capacity for Phases I-VI[5]	Remaining Capacity for Sections 7-9[5]
	Tons	%	%	Tons	CY[3]	Tons	CY[3]	CY	CY
							Beginning Capacity as of July 6, 2016	6,907,420	912,012
2016	103,380	50%	50%	51,690.19	54,410.73	51,690.19	54,410.73	6,853,009.59	857,601.13
2017	209,862	50%	50%	104,931.09	110,453.78	104,931.09	110,453.78	6,742,555.81	747,147.35
2018	213,010	50%	50%	106,505.06	112,110.59	106,505.06	112,110.59	6,630,445.22	635,036.76
2019	216,205	50%	50%	108,102.63	113,792.25	108,102.63	113,792.25	6,516,652.98	521,244.52
2020	219,448	50%	50%	109,724.17	115,499.13	109,724.17	115,499.13	6,401,153.85	405,745.39
2021	222,740	50%	50%	111,370.04	117,231.62	111,370.04	117,231.62	6,283,922.23	288,513.77
2022	226,081	50%	50%	113,040.59	118,990.09	113,040.59	118,990.09	6,164,932.14	169,523.68
2023	229,472	50%	50%	114,736.19	120,774.94	114,736.19	120,774.94	6,044,157.20	48,748.74
2024	232,914	20%	80%	186,680.95	196,506.26	46,233.52	48,666.87	5,847,650.94	0.00
2025	236,408	0%	100%	236,408.19	248,850.73	0.00	0.00	5,598,800.21	0.00
2026	239,954	0%	100%	239,954.31	252,583.49	0.00	0.00	5,346,216.72	0.00
2027	243,554	0%	100%	243,553.63	256,372.24	0.00	0.00	5,089,844.48	0.00
2028	247,207	0%	100%	247,206.93	260,217.83	0.00	0.00	4,829,626.66	0.00
2029	250,915	0%	100%	250,915.04	264,121.09	0.00	0.00	4,565,505.56	0.00
2030	254,679	0%	100%	254,678.76	268,082.91	0.00	0.00	4,297,422.65	0.00
2031	258,499	0%	100%	258,498.94	272,104.15	0.00	0.00	4,025,318.50	0.00
2032	262,376	0%	100%	262,376.43	276,185.71	0.00	0.00	3,749,132.79	0.00
2033	266,312	0%	100%	266,312.08	280,328.50	0.00	0.00	3,468,804.29	0.00
2034	270,307	0%	100%	270,306.76	284,533.43	0.00	0.00	3,184,270.86	0.00
2035	274,361	0%	100%	274,361.36	288,801.43	0.00	0.00	2,895,469.43	0.00
2036	278,477	0%	100%	278,476.78	293,133.45	0.00	0.00	2,602,335.98	0.00
2037	282,654	0%	100%	282,653.93	297,530.45	0.00	0.00	2,304,805.53	0.00
2038	286,894	0%	100%	286,893.74	301,993.41	0.00	0.00	2,002,812.12	0.00
2039	291,197	0%	100%	291,197.14	306,523.31	0.00	0.00	1,696,288.81	0.00
2040	295,565	0%	100%	295,565.10	311,121.16	0.00	0.00	1,385,167.65	0.00
2041	299,999	0%	100%	299,998.58	315,787.98	0.00	0.00	1,069,379.67	0.00
2042	304,499	0%	100%	304,498.56	320,524.80	0.00	0.00	748,854.87	0.00
2043	309,066	0%	100%	309,066.04	325,332.67	0.00	0.00	423,522.20	0.00
2044	313,702	0%	100%	313,702.03	330,212.66	0.00	0.00	93,309.54	0.00
2045	318,408	0%	27%	85,970.04	90,494.78	0.00	0.00	0.00	0.00

Notes:

1 Projected disposal rate tonnages based on historical tonnage received in 2015 (193,675 tons) and annual increase based on Hillsborough County Planning Commission Population Estimates of 1.5% average annual increases for 2004 - 2025.

2 Project disposal rate for 2016 based on approximately 6 months remaining in 2016 (July 1 - December 31) = 206,761 x 6 months / 12 months = 103,380 tons.

3 Cubic yard conversion from tons based on 1,900 lbs/cy apparent waste density based on typical waste densities calculated using monthly surveys and tonnage reports by the County.

4 Remaining estimated air space based on Pickett's July 6, 2016 aerial topographic survey and permitted final buildout contours.

5 Remaining volumes and site life calculations based on gross remaining air space. Final cover soil for Phases I-VI has been deducted from the available air space. The total remaining air space for Phases I-VI is 7,573,289 cubic yards. From the finanical assurance cost estimates, it was estimated that 665,869 cubic yards of final cover soil would be needed for closure of Phases I-VI. Therefore, the total available net remaining air space for waste and daily cover soil is 7,573,289 - 665,869 cubic yards = 6,907,420 cubic yards. Similarly, final cover soil for CEA has been deducted from the available air space. The total remaining air space for the CEA (Sections 7-9) is 1,057,612 cubic yards. From the finanical assurance cost estimates, it was estimated that 145,600 cubic yards of final cover soil would be needed for closure of the CEA (Sections 7-9). Therefore, the total available net remaining air space for waste and daily cover soil is 1,057,612 - 145,600 cubic yards = 912,012 cubic yards.

SCS VOLUME MEMO

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SCS ENGINEERS

August 18, 2016
File No. 09215600.01

MEMORANDUM

TO: Laurel Urena, Bob Curtis

FROM: Ian Spurlock

SUBJECT: **Semi-Annual Volume Calculations – July 2016**

Below I have included the available volume in Phases I-VI. The Lift 23 Permitted conceptual final build-out contours from HDR were compared to the July 6, 2016 semi-annual topographic survey by Pickett using AutoCAD Civil 3D 2016.

The results from Phase I-VI are as follows:

CAD File – PhaseVI vs Final

Volume Surface:2016 vs. Final I-VI
Description: Full Volume Remaining for Phases I-VI

Volume Fill: 7,573,289.32

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016

Gross Remaining Volume Per Phase:

CAD File – Phase1 vs Final1

Volume Surface: 2016 vs. Final PH-1
Description: Full Volume remaining for Phase I-VI (limited to Phase I Boundary)

Volume Fill: 1,140,574.25

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016

CAD File – Phase2 vs Final2

Volume Surface: 2016 vs. Final PH-2
Description: Full Volume remaining for Phase I-VI (limited to Phase II Boundary)

Volume Fill: 1,430,013.80

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016 (Survey 7-6-16)

CAD File – Phase3 vs Final3

Volume Surface: 2016 vs. Final PH-3
Description: Full Volume remaining for Phase I-VI (limited to Phase III Boundary)

Volume Fill: 1,339,708.38

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016 (Survey 7-6-16)

CAD File – Phase4 vs Final4

Volume Surface: 2016 vs. Final PH-4
Description: Full Volume remaining for Phase I-VI (limited to Phase IV Boundary)

Volume Fill: 981,381.25

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016 (Survey 7-6-16)

CAD File – Phase5 vs Final5

Volume Surface: 2016 vs. Final PH-5
Description: Full Volume remaining for Phase I-VI (limited to Phase V Boundary)

Volume Fill: 556,818.60

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016 (Survey 7-6-16)

CAD File – Phase6 vs Final6

Volume Surface: 2016 vs. Final PH-6
Description: Full Volume remaining for Phase I-VI (limited to Phase VI Boundary)

Volume Fill: 2,124,792.04

Compare Surface: Phase V and VI-(Final Lift)
Base Surface: Phase I-VI-2016 (Survey 7-6-16)

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August 18, 2016
File No. 09215600.01

MEMORANDUM

TO: Laurel Urena, Bob Curtis

FROM: Ian Spurlock

SUBJECT: **Semi-Annual Volume Calculations – July 2016**

Below I have included the available volume in Sections 7-9. Fill Sequence 18 conceptual final build-out contours from HDR were compared to the July 6, 2016 semi-annual topographic survey by Pickett (dated 7-6-16) using AutoCAD Civil 3D 2016.

The results from Section 7-9 are as follows:

CAD File – Section7-9 vs 2016

Volume Surface: Section7-9 vs 2016
Description: Full Volume Remaining for Sections 7-9

Volume Fill: 1,057,611.86

Compare Surface: CEA_SEQ-18_FULLBUILD
Base Surface: 2016 Survey 7-9

Gross Remaining Volume Per Phase:

CAD File – Section7vs.2016

Volume Surface: Section7-9 vs 2016
Description: Full Volume remaining for Sections 7-9 (limited to Section 7 Boundary)

Volume Fill: 464,198.08

Compare Surface: CEA_SEQ-18_FULLBUILD
Base Surface: 2016 Survey 7-9

CAD File – Section8vs.2016

Volume Surface: Section7-9 vs 2016
Description: Full Volume remaining for Sections 7-9 (limited to Section 8 Boundary)

Volume Fill: 146,888.58

Compare Surface: CEA_SEQ-18_FULLBUILD
Base Surface: 2016 Survey 7-9

CAD File – Section9vs.2016

Volume Surface: Section7-9 vs 2016
Description: Full Volume remaining for Sections 7-9 (limited to Section 9 Boundary)

Volume Fill: 446,525.20

Compare Surface: CEA_SEQ-18_FULLBUILD
Base Surface: 2016 Survey 7-9

PICKETT – SEMI-ANNUAL TOPOGRAPHIC SURVEY

NORTH

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

TOPOGRAPHIC SURVEY

SOUTHEAST LANDFILL
LOCATED IN SECS 14,15,22,&23 TWP 32S RNG 23E, HILLSBOROUGH COUNTY, FLORIDA

PREPARED FOR: WASTE MANAGEMENT

PROJECT No.	No.
11994-16	1
DRAWING No.	OF
LD-6049	1

SURVEYOR's NOTES:

1.) North, the grid, and the coordinates shown hereon are referenced to the West Zone of the Florida State Plane Coordinate System, NAD 83, 1990 adjustment

2.) Elevations are to National Geodetic Vertical Datum of 1929.

3.) This topographic survey was prepared by photogrammetric methods. See the attached report for map accuracy and surveyor's signature and seal. This map is limited to those features visible on aerial photography.

PICKETT SURVEYING • ENGINEERING

PICKETT AND ASSOCIATES, INC.
475 SOUTH FIRST AVENUE BARTOW, FLORIDA 33830
PHONE: (863)-533-9095
FAX: (863)-534-1464
LICENSED BUSINESS No. LB364

Horiz. Scale: 1" =200'	Edited by: LC	Compiled by: DT & BF	Flight Date: 7/6/16
Contour Interval: 1'			Drawing Name: 11994-16.DWG

THIS MAP AND ATTACHED REPORT ARE NOT FULL AND COMPLETE WITHOUT THE OTHER AND ARE NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

No.	DATE	APPROVED	REVISION
O.R.	8/2/2016	TJY	ORIGINAL RELEASE

LEGEND:

(THESE FEATURES ARE REPRESENTED BY SYMBOLS NOT TO SCALE)

- CONTROL
- PT# TARGET NUMBER
- N NORTHING
- E EASTING
- EL ELEVATION
- UTILITY POLE
- LIGHT POLE
- SIGN
- POST
- CATCH BASIN
- MISCELLANEOUS SYMBOL
- CULVERT
- SWAMP/MARSH
- MANHOLE
- HYDRANT
- TREE
- PALM
- SHRUB

(THESE FEATURES ARE TO SCALE)

- PAVED ROAD
- CONCRETE SURFACE
- UNPAVED ROAD
- FENCE
- GUARDRAIL
- WALL
- STRUCTURE
- TREE LINE
- SHRUB LINE
- PIPELINE
- EDGE OF WATER
- SWAMPLINE

(THESE INFORMATIVE LABELS ARE NOT SCALE DEPENDENT)

- W.E. WATER ELEVATION
- × 120.1 SPOT ELEVATION
- MISC MISCELLANEOUS