Environmental Consultants
and Contractors

3922 Coconut Palm Drive
Suite 102
Tampa, FL 33619-1394

813 621-0080
FAX 813 623-6757
www.scsengineers.com

SCS ENGINEERS

May 29, 2018
File No. 09217088.05

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

Subject: Remaining Disposal Capacity and Site Life – Reporting Year 2018
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. As required by Specific Condition No. C.15.b, an aerial topographic survey of the landfill was conducted on March 22, 2018 by Pickett Surveying & Engineering (Pickett) and was used in the preparation of the calculations. Please refer to Attachment A for a copy of the Pickett Survey Report.

Based on the attached calculations, there is roughly 12,169,278 cubic yards of remaining capacity in Stages I-III and approximately 26.3 years of disposal capacity as of the survey date. Please refer to Attachment B for the remaining life and capacity calculations. If you have any questions regarding the information contained herein, please contact the undersigned at (813) 621-0080.

Sincerely,

Shane R. Fischer, P.E.
Project Director
SCS ENGINEERS

Ian U. Spurlock, P.E.
Project Professional
SCS ENGINEERS

SRF/IUS

cc: Bryan White, SWD
Steve Morgan, FDEP

SHANE R. FISCHER
58026
5/29/18

Attachment A

Pickett Aerial Topographic Survey Flown March 22, 2018 and Survey Report

SURVEYOR'S REPORT

Lena Road Landfill

Prepared for:

SCS ENGINEERS

Prepared by:

PICKETT
SURVEYING • ENGINEERING

PICKETT AND ASSOCIATES PROJECT NO.: 18600
TITLE/TYPE OF SURVEY: TOPOGRAPHIC SURVEY
DATE OF SURVEY: 3/22/18

NOTE: THIS REPORT AND ACCOMPANYING MAP TITLED LENA ROAD LANDFILL, ARE NOT FULL AND COMPLETE WITHOUT THE OTHER AND ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

Pickett and Associates, Inc. • 475 South First Avenue • Bartow, FL 33830 • (863) 533-9095

ACCURACY STATEMENT:
The following stated plus or minus tolerances encompass a minimum of 90% of the difference between photogrammetrically measured values and any ground truth of all well-identified features. Mapped features will meet or exceed the Florida Standards of Practice.

VERTICAL:
Contours may be measured to an estimated vertical positional accuracy of 0.5'. Spot elevations and well-identified features have been measured to an estimated vertical positional accuracy of 0.25'.

HORIZONTAL:
Well-identified features have been measured to an estimated horizontal positional accuracy of 1.66'. All measurements are in U.S. Survey Feet.

MAP PLOTTING:
This map is intended to be displayed at a scale of 1" = 50' (1:600) or smaller.

DATUM:
HORIZONTAL:
Coordinates are referenced to the West Zone of the Florida State Plane Coordinate System, North American Datum of 1983 (NAD'83) 1990 adjustment.

VERTICAL:
Elevations are to National Geodetic Vertical Datum of 1929.

Control Points Used for mapping:

Pt#	Northing	Easting	Elevation
109	1141545.95	509165.88	33.96
122	1138428.30	511092.73	38.90
135	1138562.79	513590.75	40.93
168	1144330.79	512336.06	39.12
194	1146038.75	508797.91	22.80
205	1145790.59	514071.03	30.64

Measurement Methods:
The planimetrics shown are limited to those features visible on aerial imagery. Color digital imagery was acquired at an average altitude of 3300' using a metric precision digital camera whose focal length is 70.3mm. Mapping was performed using LiDAR and softcopy photogrammetric techniques. The LiDAR data has an estimated point sample distance of 0.698 foot and a density of 2.05 points per square foot (±22.066 points per

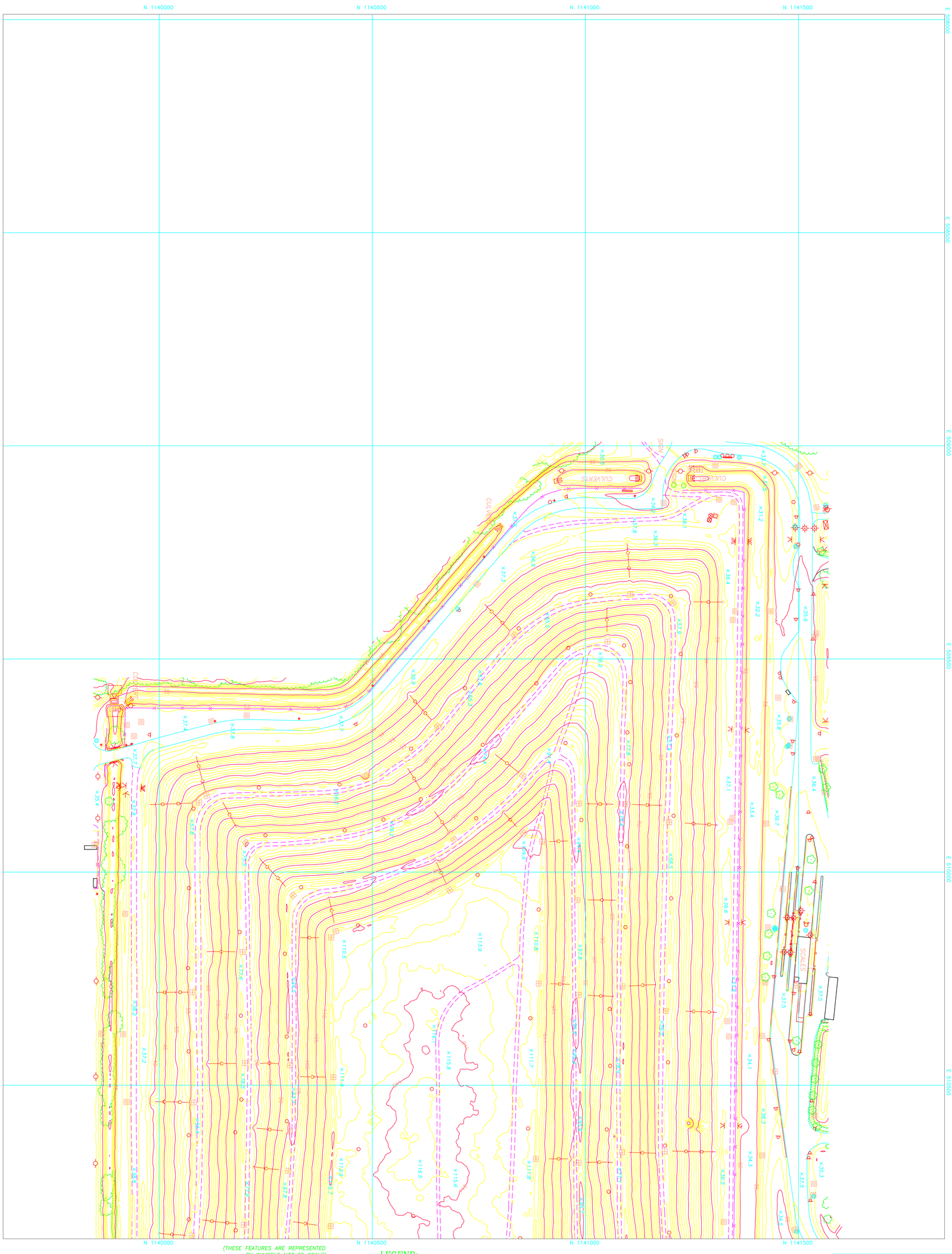
square meter). For a vertical accuracy check, the LiDAR data was compared to 6 (six) points used as targets for aerial imagery and 54 ground surveyed points. The Root Mean Square Error of the Elevations (RMSEZ) is 0.121 foot, being the equivalent of 0.236' FGDC/NSSDA Vertical Accuracy. All measurements are in U.S. Survey Feet.

Limitations: This mapping should be used for preliminary design work only and should not replace an actual field survey where the required accuracy is greater than the accuracy stated in this report. No responsibility is assumed for areas outside the contracted scope.

T. Jeffrey Young 3/22/18

T. JEFFREY YOUNG, PSM, CP
FLORIDA REGISTRATION NO. 5440
PICKETT AND ASSOCIATES, INC.
FLORIDA REGISTRATION NO. 364

SURVEY DATE



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 using photogrammetric and LIDAR 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.

(THESE FEATURES ARE REPRESENTED BY SYMBOLS NOT TO SCALE)

- CONTROL
- PT# TARGET NUMBER
- N NORTHING
- E EASTING
- EL ELEVATION
- UTILITY POLE
- LIGHT POLE
- TRAFFIC LIGHT
- SIGN
- POST
- FLAG
- MAIL BOX
- GUYWIRE
- CATCH BASIN
- VALVE
- ELECTRICAL
- AIR CONDITIONER
- MISCELLANEOUS SYMBOL
- CULVERT
- MANHOLE
- HYDRANT
- TREE
- PALM
- SHRUB

LEGEND:

(THESE FEATURES ARE TO SCALE)

- CURB
- PAVED ROAD
- CONCRETE SURFACE
- UNPAVED ROAD
- FENCE
- GUARDRAIL
- WALL
- RAILROAD
- STRUCTURE
- TREE LINE
- SHRUB LINE
- PIPELINE
- RECREATION
- EDGE OF GROVE
- EDGE OF WATER

(THESE INFORMATIVE LABELS ARE NOT SCALE DEPENDENT)

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

NORTH

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

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TOPOGRAPHIC SURVEY

LENA ROAD LANDFILL
LOCATED IN SECS 1,6,&31, TWNP 34&35S, RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

PROJECT No. 18600
DRAWING No. LD-6249
No. 1
OF 4

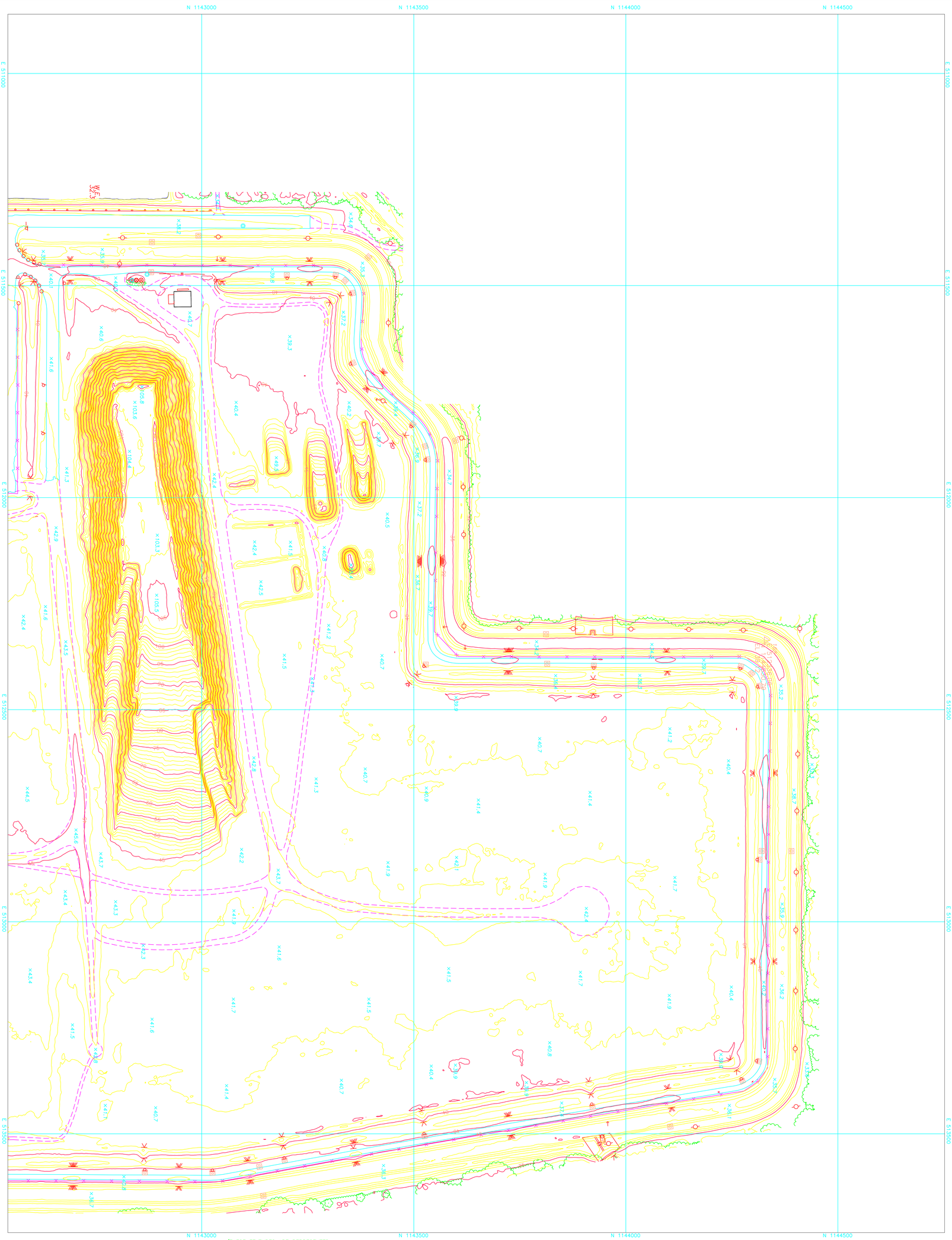
PICKETT
SURVEYING • ENGINEERING

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" =100' | Edited by: RP | Compiled by: BF | Flight Date: 3/22/18
Contour Interval: 1' | Drawing Number: 18600.DWG

No.	DATE	APPROVED	REVISION
O.R.	4/10/18	TJY	ORIGINAL RELEASE

3/22/18
T. JEFFREY YOUNG, PSM, CP — SURVEY DATE
FLORIDA REGISTRATION NO. 5440
surveyor.tjy.young@gmail.com



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SEE PAGE 1 FOR THE SIGNATURE AND THE ORIGINAL RAISED SEAL

TOPOGRAPHIC SURVEY

LENA ROAD LANDFILL
LOCATED IN SECS 1,6,&31, TWNP 34&35S, RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

PROJECT No. LD-6249

DRAWING No. 18600

SHT No. 2 OF 4

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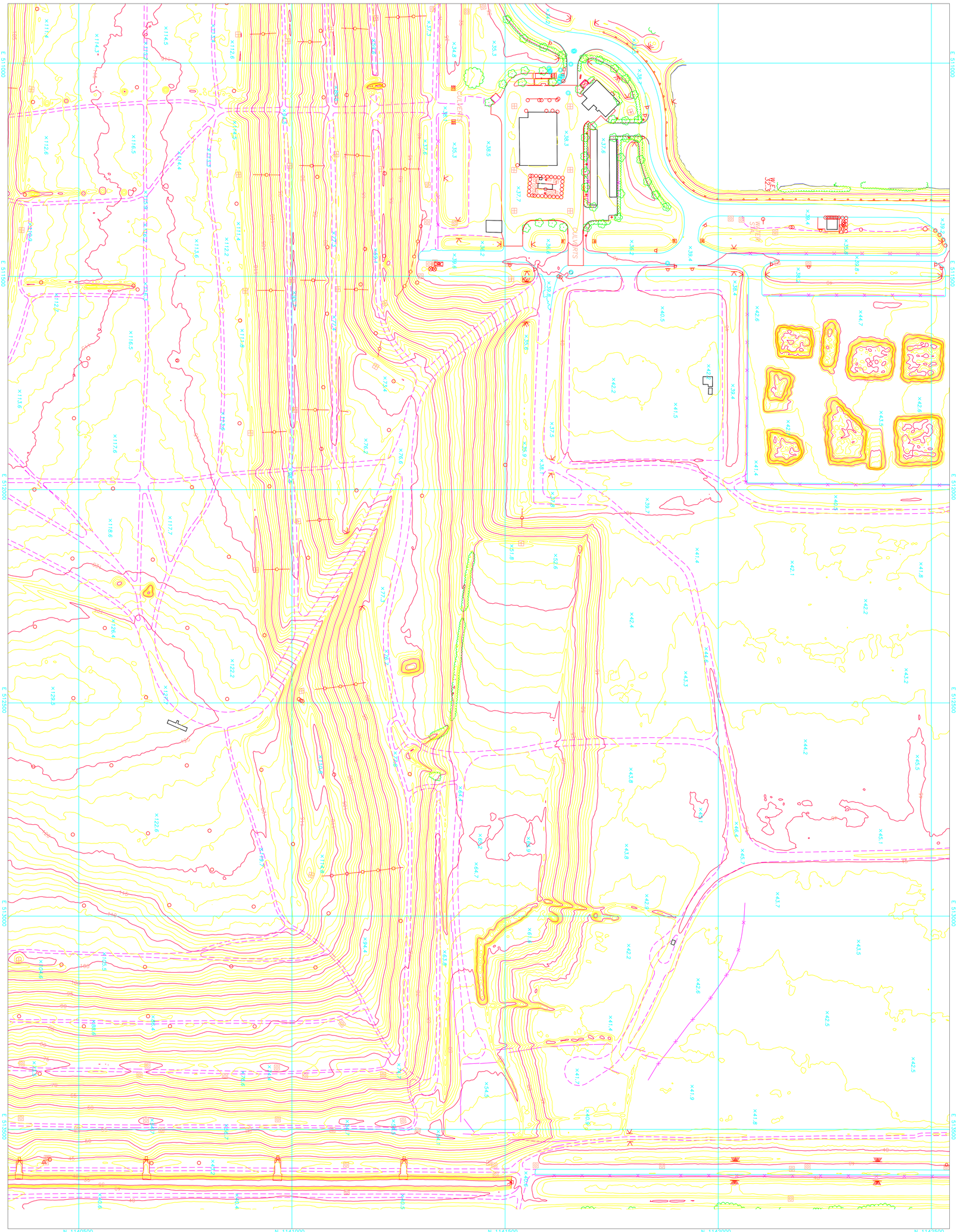
Contour Interval: 1'
Edited by: RP
Compiled by: BF
Flight Date: 3/22/18
Drawing Name: 18600.DWG

No.	DATE	APPROVED	REVISION
O.R.	4/10/18	TJY	ORIGINAL RELEASE



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LENA ROAD LANDFILL
LOCATED IN SECS 1,6,&31, TWNP 34&35S, RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

PROJECT No. 18600
DRAWING No. LD-6249
SHT. No. 3 of 4

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Contour Interval: 1'			Drawing Name: 18600.DWG

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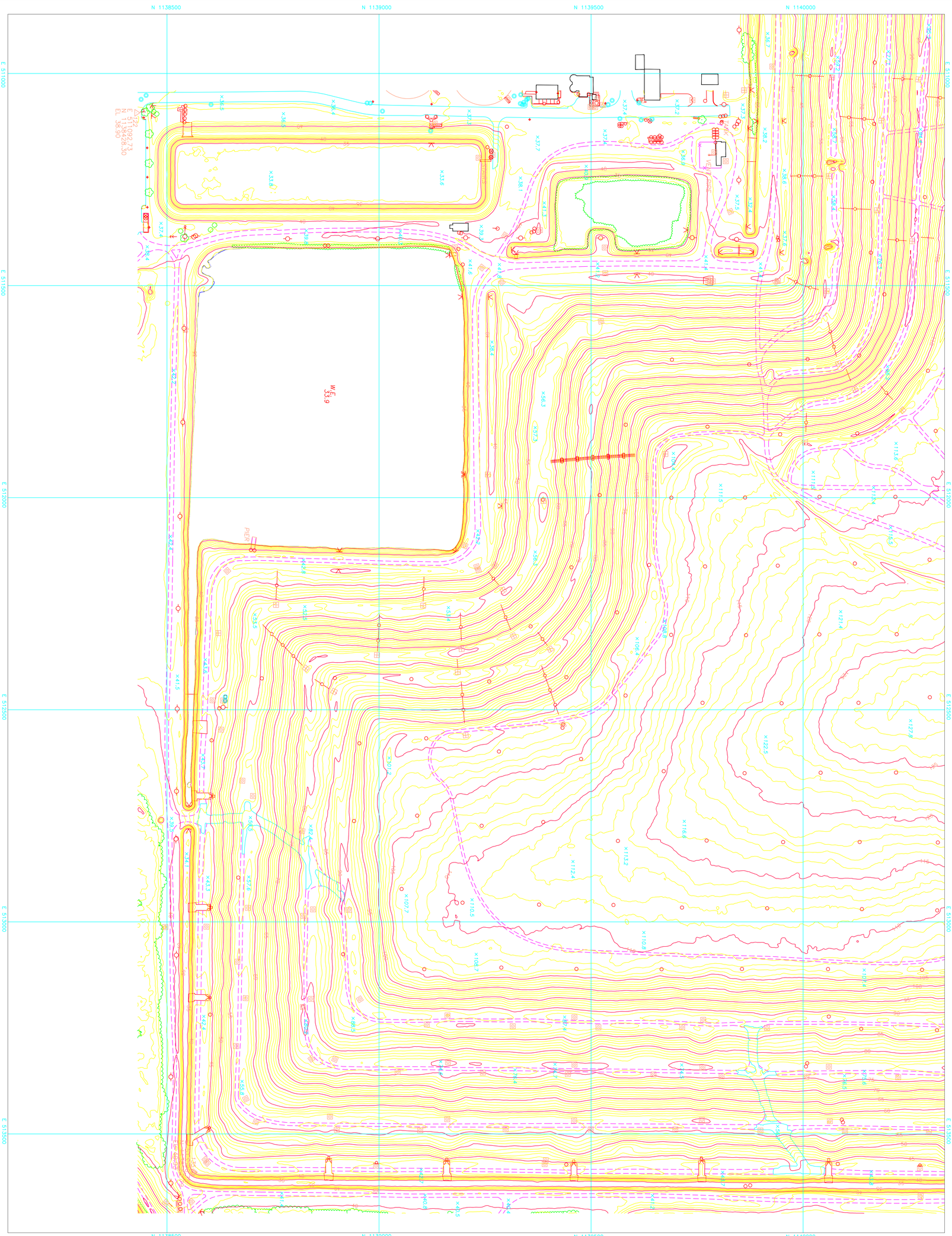

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LOCATED IN SECS 1,6,&31, TWNP 34&35S, RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

PROJECT No. 18600
DRAWING No. LD-6249
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Attachment B

Remaining Life and Capacity Calculations

SCS ENGINEERS

SHEET 1 OF 1

CLIENT	PROJECT	JOB NO.
Manatee County	Lena Road Landfill Annual Site Life Calculations	09217088.05

SUBJECT	BY	DATE
Projected Remaining Capacity and Site Life	SRF	5/26/2018
Lena Road Landfill	CHECKED	DATE
	CFL	5/26/2018

Reporting Year	Historical Tonnages (Tons)[1]	Volume Used (CY/Yr)	Apparent Density (lbs/CY)
1999	338,745.37	465,300	1,456.03
2000	339,357.16	589,000	1,152.32
2001	363,924.34	550,700	1,321.68
2002	340,976.45	504,700	1,351.20
2003	343,499.64	485,772	1,414.24
2004	363,386.41	417,900	1,739.11
2005	389,257.63	569,200	1,367.74
2006	376,492.88	659,200	1,142.27
2007	350,071.61	351,000	1,994.71
2008	329,054.97	531,300	1,238.68
2009	302,373.55	287,700	2,102.01
2010	274,482.91	307,700	1,784.09
2011	254,848.56	465,400	1,095.18
2012	273,770.81	390,900	1,400.72
2013	280,488.47	384,000	1,460.88
2014	296,083.99	486,700	1,216.70
2015	303,023.69	314,373	1,927.80
2016	300,067.64	516,500	1,161.93
2017	330,724.56	470,000	1,407.34
2018	335,607.40	490,000	1,369.83

Average Density = 1,455.22 Lbs / CY

Volume Consumed

Between 3/8/17 and 3/22/18 = 490,000 CY

Average Volume Consumed = 461,867 CY / Yr

Remaining Volume For Waste Placement
(Final Closure Cap System Removed)

Remaining Volume as of 3/22/18[2] = 12,169,278 CY

Remaining Capacity as of March 22, 2018

Remaining Years of Life From 3/22/18[3] = 26.3 Years

Year of Closure = 2044

Notes:

1 Waste received for this reporting year is the amount reported by Manatee County from scale data reports for full months, estimated by SCS for partial months.

2 Volume remaining based on calculating airspace between top of waste elevation and March 22, 2018 topographic survey using AutoCAD 3D.

3 Remaining life is calculated by dividing the average volume consumed per year into remaining volume for waste placement.