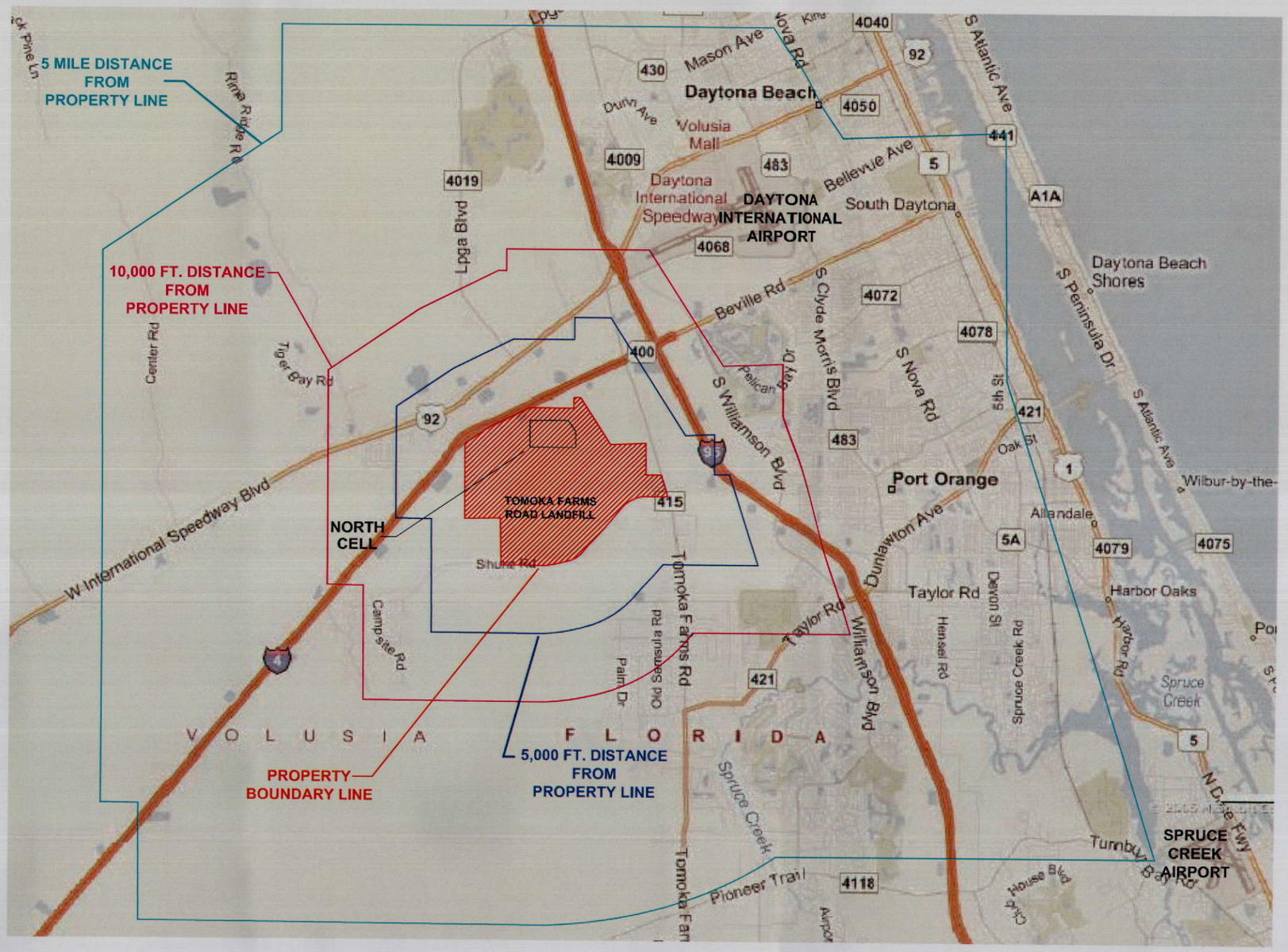
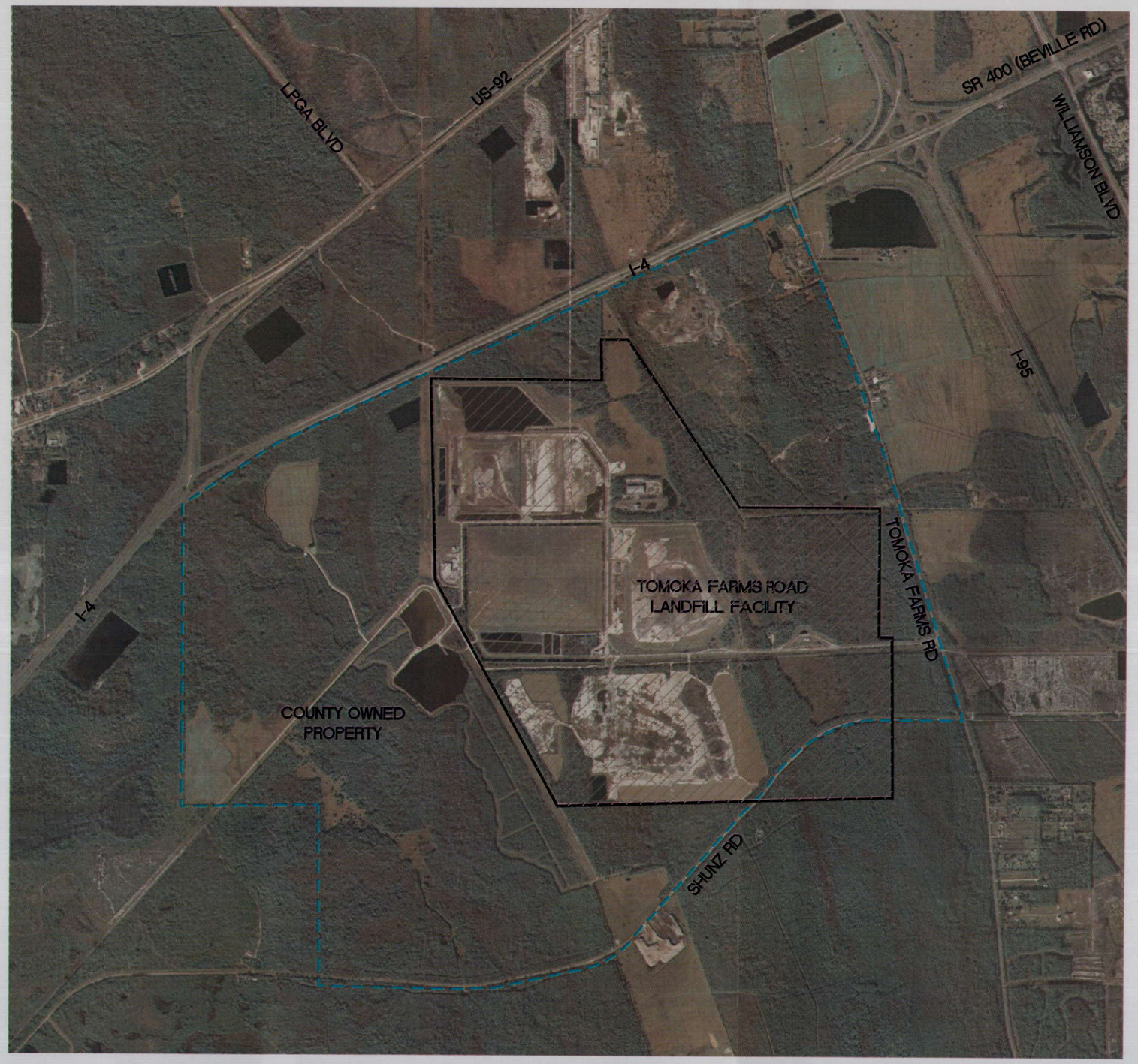


GRAPHIC SCALE
0 4000 8000
SCALE IN FEET
N

VERIFY SCALE	REUSE OF DOCUMENTS	NO.	BY	REVISIONS	DATE	CADD FILE NAME	DESIGNED	DATE 12/2012	OPERATIONS PERMIT RENEWAL NORTH CELL CLASS I LANDFILL TOMOKA FARMS ROAD LANDFILL FACILITY VOLUSIA COUNTY, FLORIDA	NEEL-SCHAFFER SOLUTIONS YOU CAN BUILD UPON	AIRPORT LOCATION MAP	SHEET NO. B-1
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF NEEL SCHAFFER INC. AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF NEEL SCHAFFER INC.						DRAWN	DATE 12/2012		2301 Lucien Way, Suite 300 Maitland, Florida 32751 PH: (407) 647-6623 / FAX: (407) 539-0575 CAB556		SCALE:
	NOT TO BE USED FOR CONSTRUCTION UNTIL APPROVED.						CHECKED	DATE				PROJ. NO. NS.08607.004
							APPROVED	DATE				



GRAPHIC SCALE

0 1000 2000

SCALE IN FEET

-N-

LEGEND

- - - - - COUNTY OWNED PROPERTY BOUNDARY

AERIAL IMAGERY WAS TAKEN FROM AERIAL SURVEY PERFORMED BY AERIAL CARTOGRAPHICS OF AMERICA ON APRIL 27, 2012.

VERIFY SCALE	REUSE OF DOCUMENTS									
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						DRAWN		DATE	10/2012	
						CHECKED		DATE		
						APPROVED		DATE		
	NOT TO BE USED FOR CONSTRUCTION UNTIL APPROVED.	NO.	BY	REVISIONS	DATE	CADD FILE NAME				

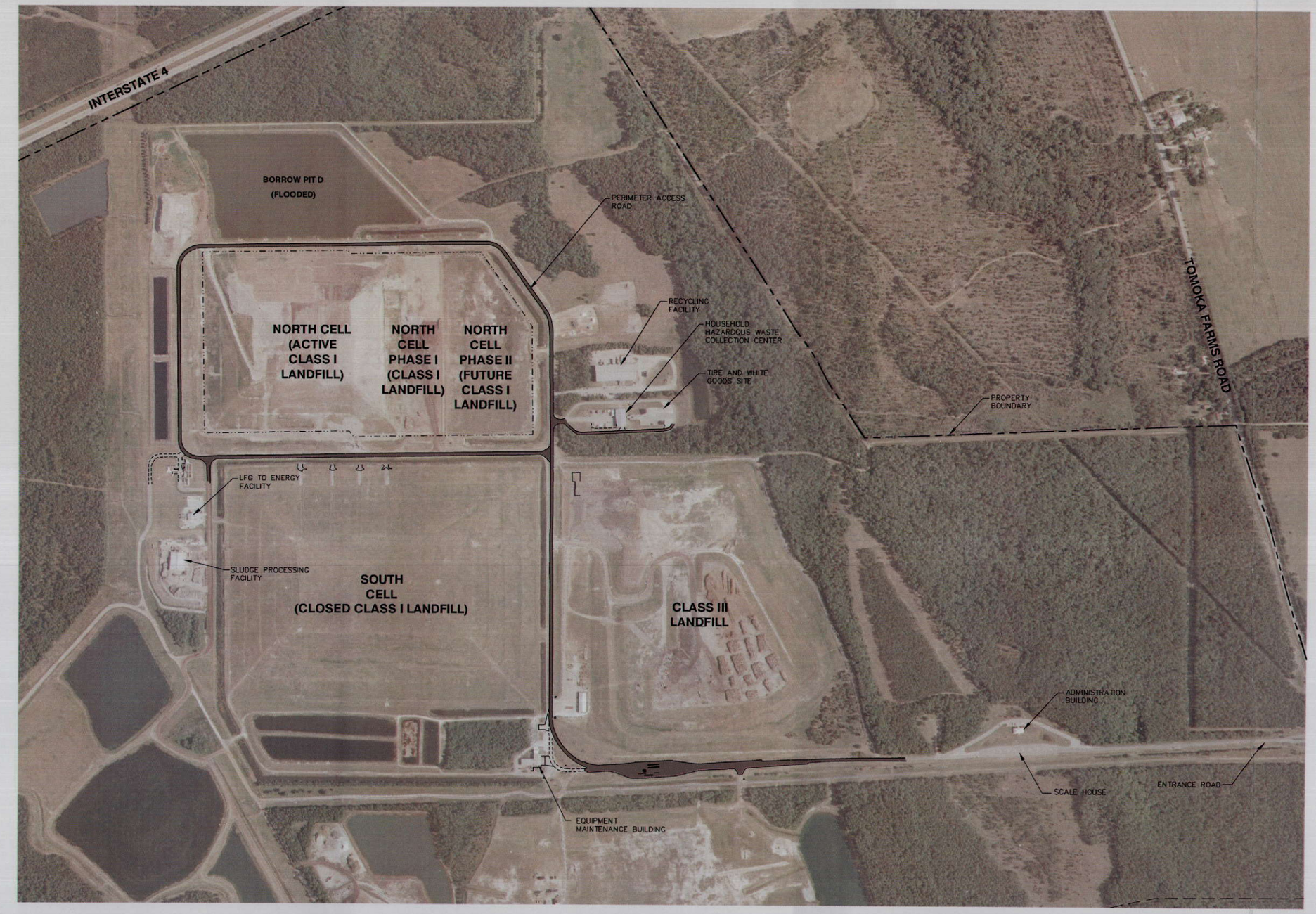
NEEL-SCHAFFER
SOLUTIONS YOU CAN BUILD UPON
2301 Lucien Way, Suite 300
Maitland, Florida 32751
PH: (407) 647-8623 / FAX: (407) 539-0575
CAB556

AERIAL VICINITY MAP

SHEET NO. B-2

SCALE:

PROJ. NO. NS.08607.004



GRAPHIC SCALE

0 200 400 800

SCALE IN FEET

-N-

LEGEND

PROPERTY BOUNDARY

LIMITS OF LINER

NOTES:

1. AERIAL IMAGERY WAS TAKEN FROM AERIAL SURVEY PERFORMED BY AERIAL CARTOGRAPHICS OF AMERICA ON APRIL 27, 2012.
2. PROPERTY BOUNDARY WAS OBTAINED FROM VOLUSIA COUNTY PROPERTY APPRAISERS FOR YEAR 2008.
3. MONITORING LOCATIONS SHOWN ARE APPROXIMATE AND WERE DIGITIZED FROM "FIGURE 1" OF 2009 BIENNIAL WATER QUALITY MONITORING REPORT PREPARED BY SCS ENGINEERS.

NOTE: DRAWING FROM CLOSURE PERMIT APPLICATION 2011, BY HDR ENGINEERING INC.

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
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REUSE OF DOCUMENTS
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NOT TO BE USED FOR CONSTRUCTION UNTIL APPROVED.

NO.	BY	REVISIONS	DATE

DESIGNED		DATE	12/2012
DRAWN		DATE	12/2012
CHECKED		DATE	
APPROVED		DATE	
CADD FILE NAME			

OPERATIONS PERMIT RENEWAL
NORTH CELL CLASS I LANDFILL
TOMOKA FARMS ROAD LANDFILL FACILITY
VOLUSIA COUNTY, FLORIDA

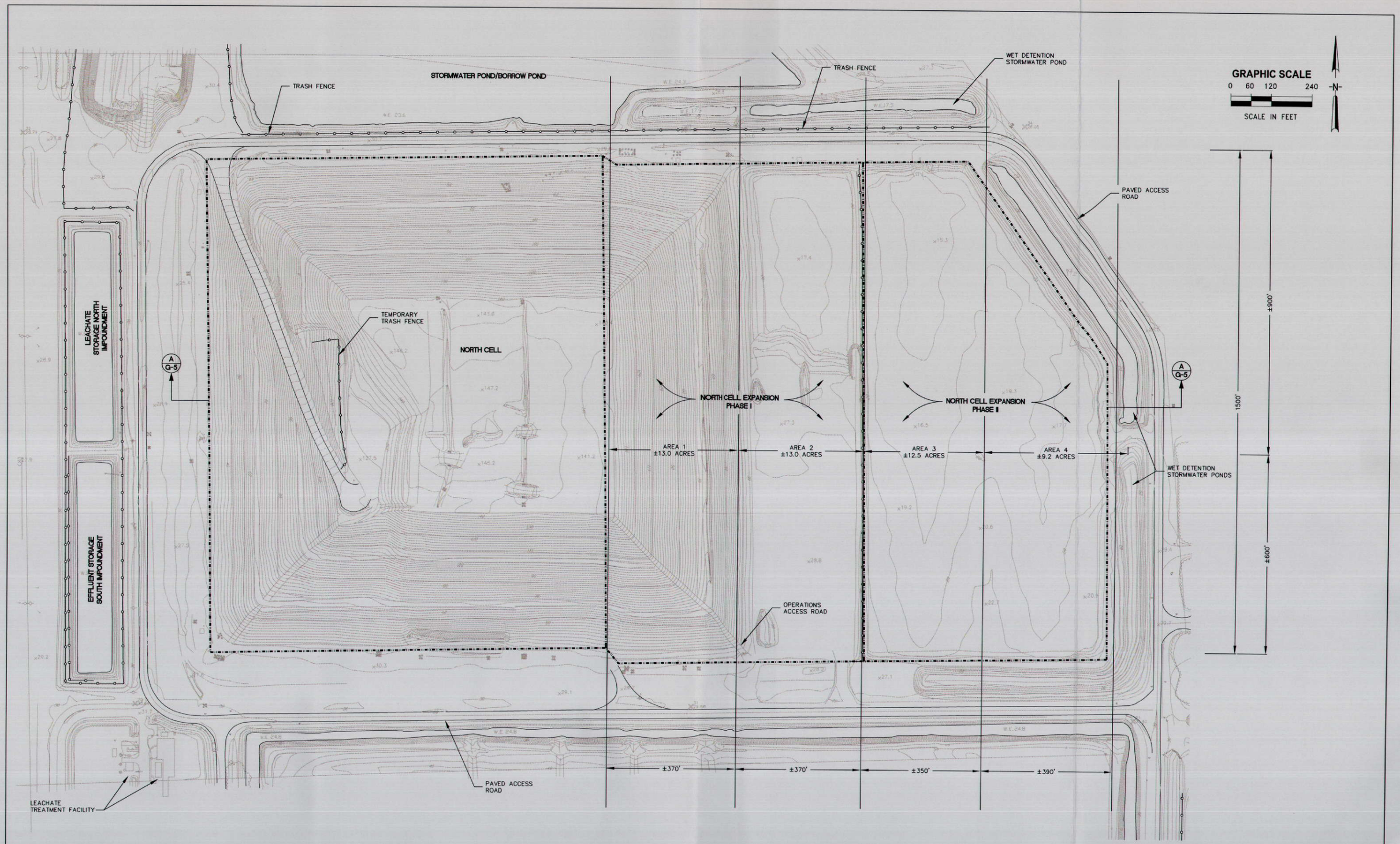
NEEL-SCHAFFER
SOLUTIONS YOU CAN BUILD UPON
8301 Lucien Way, Suite 300
Maitland, Florida 32751
PH: (407) 647-6623 / FAX: (407) 539-0575
CA8556

AERIAL SITE MAP

SHEET NO. B-3

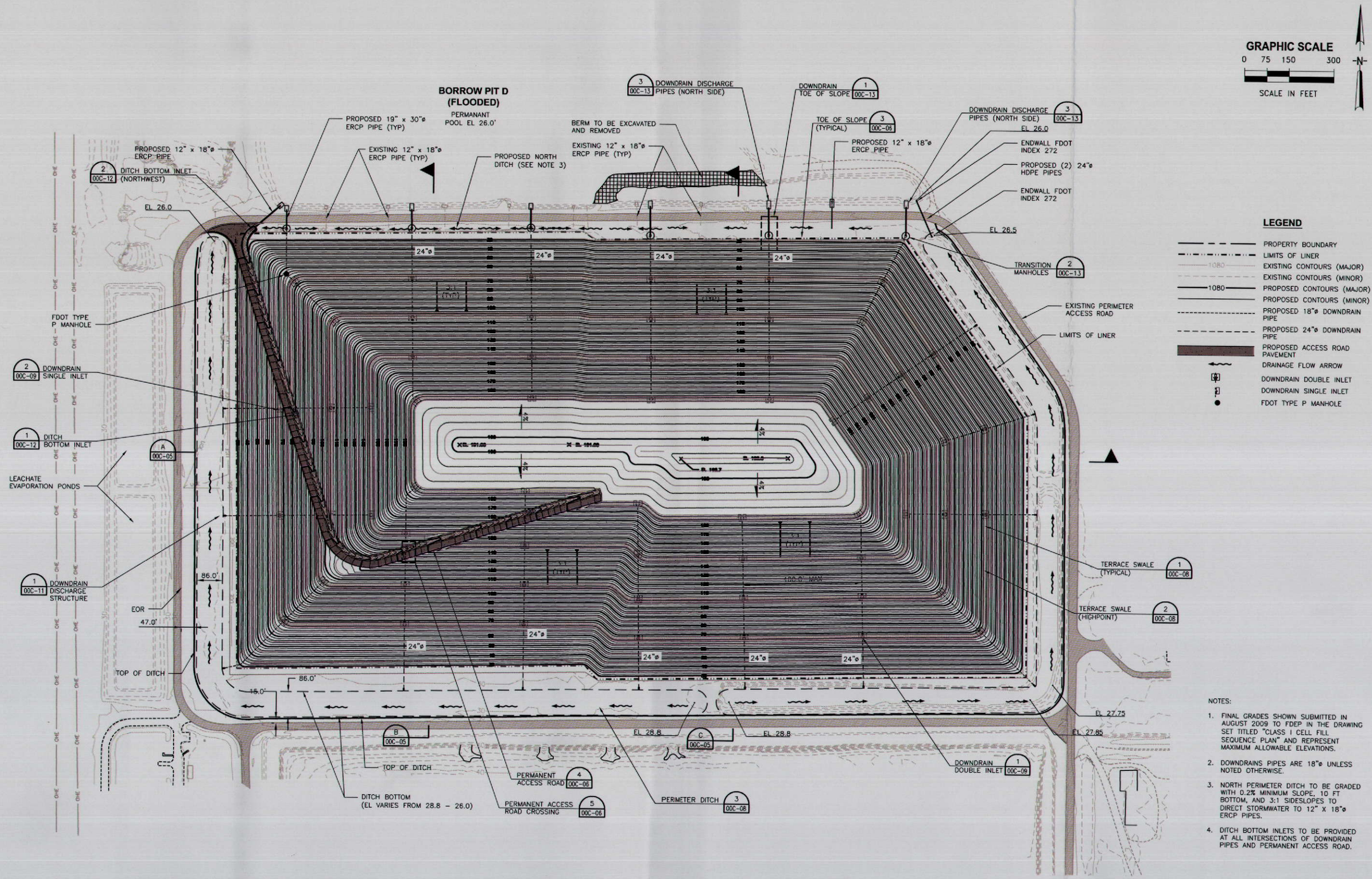
SCALE:

PROJ. NO. NS.08607.004



DATE OF SURVEY: APRIL, 2012

VERIFY SCALE	REUSE OF DOCUMENTS										
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 ■ 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF NEEL SCHAFFER INC. AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF NEEL SCHAFFER INC.					DESIGNED		DATE	12/2012	OPERATIONS PERMIT RENEWAL NORTH CELL CLASS I LANDFILL TOMOKA FARMS ROAD LANDFILL FACILITY VOLUSIA COUNTY, FLORIDA	NEEL-SCHAFFER SOLUTIONS YOU CAN BUILD UPON 2301 Lucien Way, Suite 300 Maitland, Florida 32751 PH: (407) 647-8623 / FAX: (407) 539-0575 CA8556	NORTH CELL TOPOGRAPHY AND SITE PLAN	SHEET NO.
						DRAWN		DATE	12/2012				B-4
						CHECKED		DATE					SCALE:
						APPROVED		DATE					PROJ. NO. NS.08607.004
	NOT TO BE USED FOR CONSTRUCTION UNTIL APPROVED.	NO.	BY	REVISIONS	DATE	CADD FILE NAME							



NOTES:

1. FINAL GRADES SHOWN SUBMITTED IN AUGUST 2009 TO FDEP IN THE DRAWING SET TITLED "CLASS I CELL FILL SEQUENCE PLAN" AND REPRESENT MAXIMUM ALLOWABLE ELEVATIONS.
2. DOWNDRAINS PIPES ARE 18"ø UNLESS NOTED OTHERWISE.
3. NORTH PERIMETER DITCH TO BE GRADED WITH 0.2% MINIMUM SLOPE, 10 FT BOTTOM, AND 3:1 SIDESLOPES TO DIRECT STORMWATER TO 12" X 18"ø ERCP PIPES.
4. DITCH BOTTOM INLETS TO BE PROVIDED AT ALL INTERSECTIONS OF DOWNDRAIN PIPES AND PERMANENT ACCESS ROAD.

VERIFY SCALE	REUSE OF DOCUMENTS									OPERATIONS PERMIT RENEWAL NORTH CELL CLASS I LANDFILL TOMOKA FARMS ROAD LANDFILL FACILITY VOLUSIA COUNTY, FLORIDA	NEEL-SCHAFFER SOLUTIONS YOU CAN BUILD UPON 2301 Lucien Way, Suite 300 Maitland, Florida 32751 PH: (407) 647-6623 / FAX: (407) 539-0575 CA8556	FINAL GRADING PLAN	SHEET NO.
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF NEEL SCHAFFER INC. AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF NEEL SCHAFFER INC.					DESIGNED		DATE	12/2012				B-5
						DRAWN		DATE	12/2012				SCALE:
						CHECKED		DATE					PROJ. NO. NS.08607.004
						APPROVED		DATE					
	NOT TO BE USED FOR CONSTRUCTION UNTIL APPROVED.	NO.	BY	REVISIONS	DATE	CADD FILE NAME							

GRAPHIC SCALE

0 200 400 800

SCALE IN FEET

-N-

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
- LS-1 LEACHATE SAMPLING LOCATION
- B-65 GROUNDWATER WELL
- SW-3 SURFACE WATER MONITORING LOCATION

NOTES:

1. AERIAL IMAGERY WAS TAKEN FROM AERIAL SURVEY PERFORMED BY AERIAL CARTOGRAPHICS OF AMERICA ON APRIL 27, 2012.
2. PROPERTY BOUNDARY WAS OBTAINED FROM VOLUSIA COUNTY PROPERTY APPRAISERS FOR YEAR 2008.
3. MONITORING LOCATIONS SHOWN ARE APPROXIMATE AND WERE DIGITIZED FROM "FIGURE 1" OF 2009 BIENNIAL WATER QUALITY MONITORING REPORT PREPARED BY SCS ENGINEERS.

NOTE: DRAWING FROM CLOSURE PERMIT APPLICATION 2011, BY HDR ENGINEERING INC.

VERIFY SCALE	REUSE OF DOCUMENTS								
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						DRAWN		DATE	12/2012
						CHECKED		DATE	
						APPROVED		DATE	
	NOT TO BE USED FOR CONSTRUCTION UNTIL APPROVED.	NO.	BY	REVISIONS	DATE	CADD FILE NAME			

OPERATIONS PERMIT RENEWAL
NORTH CELL CLASS I LANDFILL
TOMOKA FARMS ROAD LANDFILL FACILITY
VOLUSIA COUNTY, FLORIDA

NEEL-SCHAFFER
SOLUTIONS YOU CAN BUILD UPON
2301 Lucien Way, Suite 300
Maitland, Florida 32751
PH: (407) 647-6623 / FAX: (407) 539-0575
CA8558

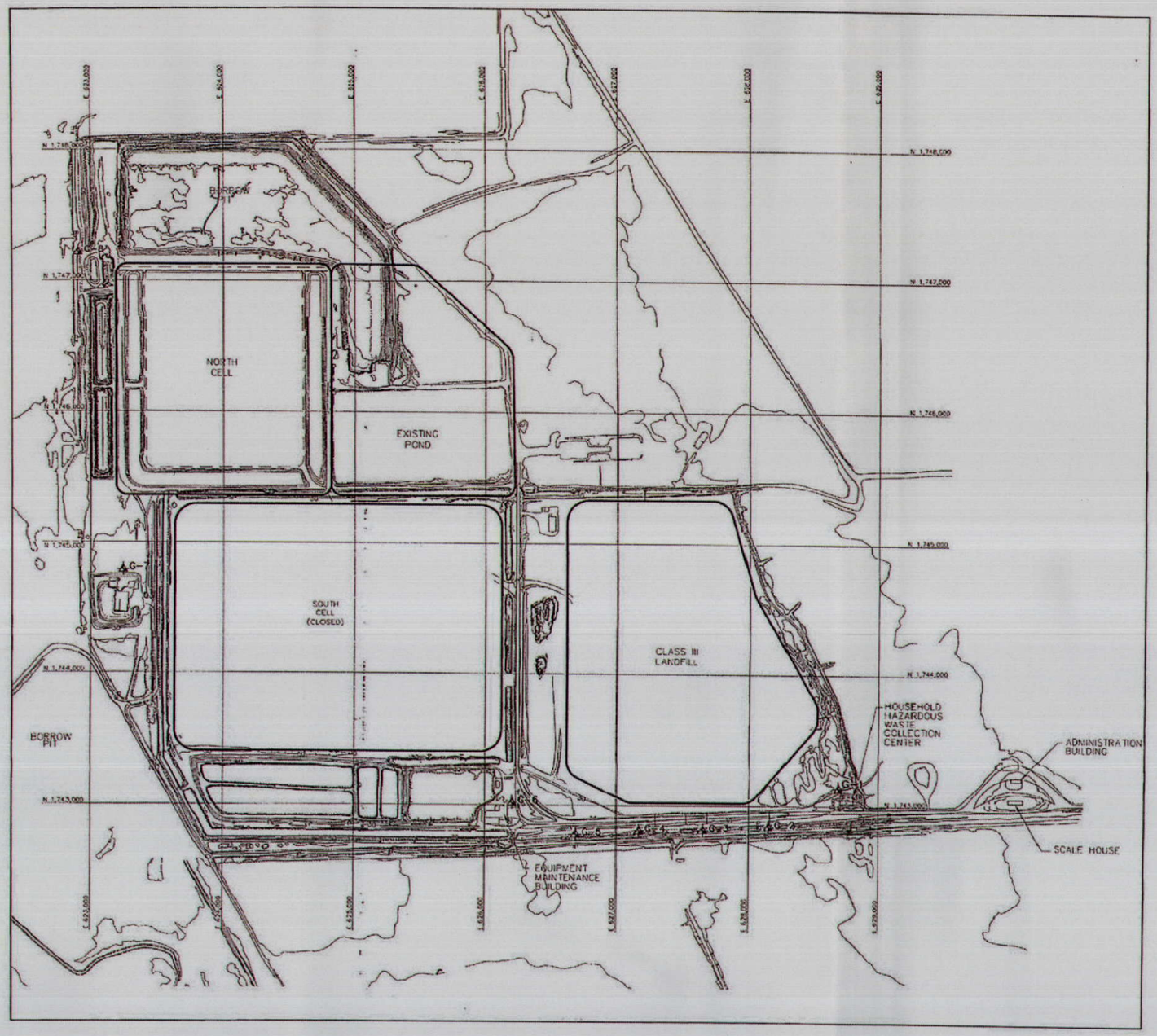
MONITORING WELL LOCATIONS

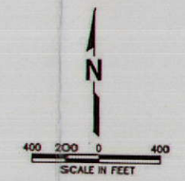
SHEET NO. B-6

SCALE:

PROJ. NO. NS.08607.004

B-7

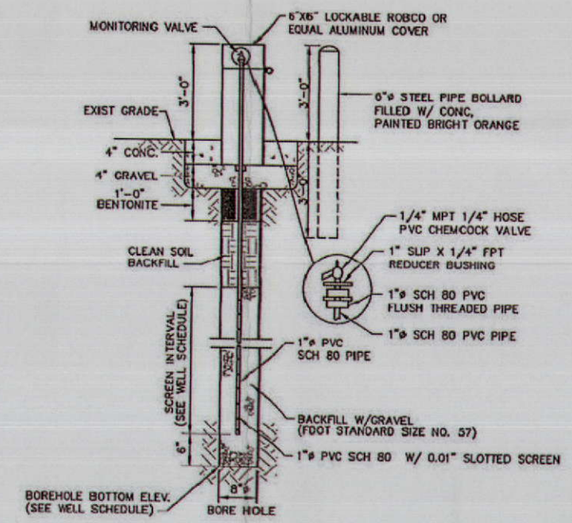




LEGEND:

G-1 PROPOSED LFG MONITORING PROBE LOCATIONS

NOTE:
TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY DATED NOVEMBER 19, 1996. GROUND ELEVATIONS AT EACH PROPOSED PROBE LOCATION WILL BE CONFIRMED PRIOR TO INSTALLATION. PROBE DEPTHS MAY BE ADJUSTED TO ACCOMODATE GROUND ELEVATIONS DIFFERENT FROM THOSE SHOWN IN THE WELL SCHEDULE PROVIDED BELOW.



LANDFILL GAS MONITORING WELL SCHEDULE

WELL NO.	EXISTING SURFACE ELEVATION (NGVD)	BOREHOLE BOTTOM ELEVATION (NGVD)	BOREHOLE DEPTH (FEET)	SCREEN INTERVAL (NGVD)	LOCATION	
					NORTHING	EASTING
G-1	26.6	16.6	10	16.6 - 23.6	1743134	628678
G-2	28.0	18.0	10	18.0 - 25.0	1742884	628150
G-3	27.5	17.5	10	17.5 - 24.5	1742855	627650
G-4	28.0	18.0	10	18.0 - 26.0	1742607	627159
G-5	28.0	18.0	10	18.0 - 26.0	1742777	626688
G-6	32.0	19.0	13	19.0 - 29.0	1743018	626204
G-7	31.0	18.0	13	18.0 - 28.0	1744790	623240
G-8	28.0	15.0	13	15.0 - 25.0	1747215	622901

LANDFILL GAS MONITORING PROBE DETAIL (1/1)
NOT TO SCALE

REV.	DATE	DESCRIPTION	CK. BY

DRAWING TITLE: LFG MONITORING PROBE SITE PLAN

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL LANDFILL GAS MONITORING PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF SOLID WASTE SERVICES DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
3900 SCHOOLHOUSE LANE, TAMPA, FL 33619
PH (813) 621-4008 FAX NO. (813) 623-6232

PROJ. NO. 02198052.08 | DSG. BY: MDO | DWN. BY: DVP | CHK. BY: DVP | QA/QC BY: RJL | APP. BY: RJL

CADD FILE: SITE-E

DATE: APRIL 20, 2001

SCALE: AS SHOWN

DRAWING NO. 1 of 1

VOLUSIA COUNTY
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE DIVISION

TOMOKA FARMS ROAD LANDFILL

CLASS I CELL
FILL SEQUENCE PLAN

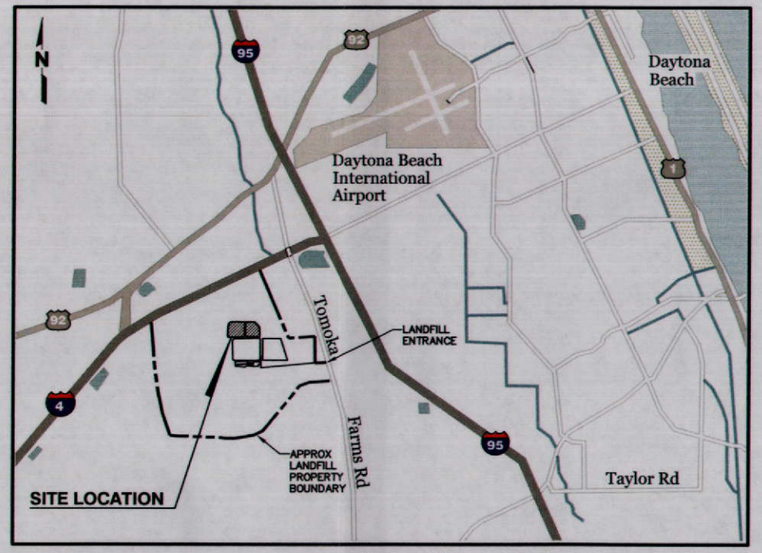
VOLUSIA COUNTY, FLORIDA

AUGUST 2009

Volusia County
FLORIDA

Volusia County Council Members

Frank Bruno Jr., County Chair
Joie Alexander, At-Large, Vice Chair
Andy Kelly, District 1
Josh Wagner, District 2
Jack Hayman, District 3
Carl G. Persis, District 4
Pat Northey, District 5



0 1 MILE 2 MILES
APPROX SCALE

LOCATION MAP

DRAWING INDEX

DRAWING NO.		DRAWING TITLE
1	-	COVER SHEET
2	-	EXISTING AERIAL AND TOPOGRAPHIC SITE PLAN
3	-	FINAL COVER/CLOSURE - SITE PLAN
4	-	SECTIONS
5	-	FILL SEQUENCE PLAN - STAGES 1 THRU 4
6	-	FILL SEQUENCE PLAN - STAGES 5 THRU 8
7	-	FILL SEQUENCE PLAN - STAGES 9 THRU 12
8	-	FILL SEQUENCE PLAN - STAGES 13 THRU 15
9	-	DETAILS

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4041 PARK OAKS BLVD, SUITE 100
TAMPA, FLORIDA 33610
PH (813) 621-0080 FAX NO. (813) 623-6757
Florida Certificate of Authorization No. 00004892
WWW.SCSENGINEERS.COM
SCS PROJECT NO. 09208007.09

CHARLES E. HILTON, P.E.
LICENSE NO. 46916

SURVEY SOURCE NOTES:

1. TOPOGRAPHIC SURVEY SHOWN PRODUCED BY PHOTOGRAMMETRIC METHODS AND PERFORMED BY: AERIAL CARTOGRAPHICS OF AMERICA, P.O. BOX 593846, ORLANDO FLORIDA, 32859-3846 (1722 W. OAK RIDGE ROAD, ORLANDO FLORIDA, 32809), LB # 0006748.
2. AERIAL PHOTO DATE: APRIL 7, 2009
3. SURVEYOR AND MAPPER IN RESPONSIBLE CHARGE: MARK DETRICK, PSM # 5433.
4. MAPPING COORDINATES ARE BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM 1983 (1990 ADJUSTMENT).
5. FIELD SURVEY CONTROL ELEVATIONS AND RESULTING MAPPING ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.

LEGEND

35 — EXISTING ELEVATIONAL CONTOUR (5 FOOT INTERVAL) – 04/07/09 SURVEY

— EXISTING ELEVATIONAL CONTOUR (1 FOOT INTERVAL) – 04/07/09 SURVEY

43.7 — EXISTING SPOT ELEVATION – 04/07/09 SURVEY

— — — CLASS I AREA DESIGNATION/BOUNDARY (APPROXIMATE)

REV	DATE	DESCRIPTION	BY

CHARLES E. HILTON, P.E.
LICENSE NO. 46916

DRAWING TITLE: EXISTING AERIAL AND TOPOGRAPHIC SITE PLAN

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
813 621-4080 FAX 813 623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892

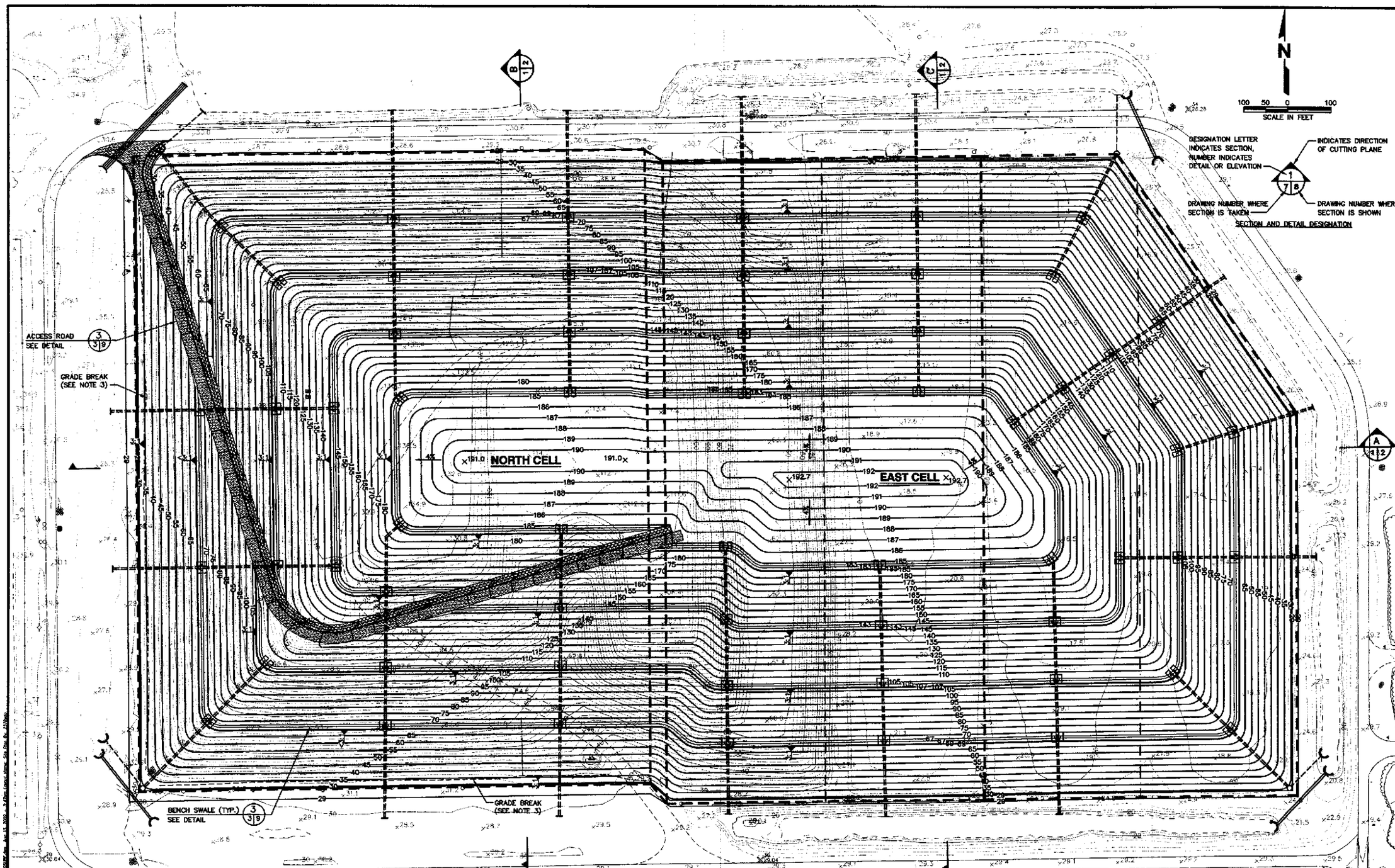
PROJ. NO. 09208007.09 | DWN. BY: SDA | Q/A RVW BY: RJD
DSN. BY: CEH | CHK. BY: CEH | APP. BY: CEH

CADD FILE: 080709ETOPO

DATE: AUGUST 2009

SCALE: AS SHOWN

DRAWING NO. 2 of 9



SURVEY SOURCE NOTES:

1. TOPOGRAPHIC SURVEY SHOWN PRODUCED BY PHOTOGRAMMETRIC METHODS AND PERFORMED BY: AERIAL CARTOGRAPHICS OF AMERICA, P.O. BOX 593846, ORLANDO FLORIDA, 32859-3846 (1722 W. OAK RIDGE ROAD, ORLANDO FLORIDA, 32809), LB # 0006748.
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5. FIELD SURVEY CONTROL ELEVATIONS AND RESULTING MAPPING ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.

NOTES:

1. DESIGN CONTOURS SHOWN REPRESENT TOP OF FINAL COVER/CLOSURE GRADES PRIOR TO PLACEMENT OF SOD OR GFFR. ACCESS ROAD GRADES SHOWN INCLUDE 12" THICK SHELL LAYER. SEE FINAL COVER DETAILS 1 AND 3, DRAWING NO. 9 OF 9.
2. PERIMETER GRADES/CONTOURS SHOWN AROUND TOE OF SLOPE AT ELEVATION 29.0 REPRESENT ORIGINAL BOTTOM CELL PROJECT DESIGN ELEVATIONS.
3. GRADE BREAK LINE SHOWN IS APPROXIMATE AND REPRESENTS A HORIZONTAL LOCATION WHERE THE BOTTOM 3:1 SLOPE TRANSITIONS INTO A MORE SHALLOW (LESS THAN 3:1) SLOPE. THIS ONLY OCCURS ON THE WEST AND SOUTH SIDES OF THE NORTH CELL AREA UP TO ELEVATION 69.0.
4. SEQUENCE MAY BE TEMPORARILY ALTERED TO ADDRESS WEATHER ISSUES OR OUTSIDE INFLUENCES. FDEP WILL BE NOTIFIED OF THESE OCCURANCES.

LEGEND

- EXISTING GRADE ELEVATIONAL CONTOUR (10 FOOT INTERVAL – 04/07/09 SURVEY)
- EXISTING GRADE ELEVATIONAL CONTOUR (2 FOOT INTERVAL – 04/07/09 SURVEY)
- 26.8 EXISTING GRADE SPOT ELEVATION (04/07/09 SURVEY)
- EXISTING EDGE OF LINER (MAPTECH, INC., LINER AS-BUILT SURVEY 10/04/2006)
- FUTURE EDGE OF LINER
- 45 TOP OF FINAL COVER/CLOSURE ELEVATIONAL CONTOUR (5 FOOT INTERVAL)
- 69-68 67-67 TERRACE SWALE ELEVATIONAL CONTOUR (PRIOR TO FINAL SWALE GRADING)
- 133.0 TOP OF FINAL COVER/CLOSURE SPOT ELEVATION
- 24' SHELL ACCESS ROAD
- ACCESS ROAD SWALE GFFR LIMITS
- STORMWATER DOWNCHUTE PIPE
- PERIMETER SWALE STORMWATER CULVERT PIPE
- TERRACE SWALE STORMWATER LATERAL CHUTE INLET
- DITCH BOTTOM INLET
- STORMWATER MANHOLE
- STORMWATER HEADWALL STRUCTURE (FDOT INDEX NO. 272)

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: FINAL COVER/CLOSURE SITE PLAN

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA

SCS ENGINEERS
STEVENS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4915 PRIMEDIA BLVD., SUITE 100, TAMPA, FL 33610
(813) 621-9691 FAX (813) 621-9692
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 0000666

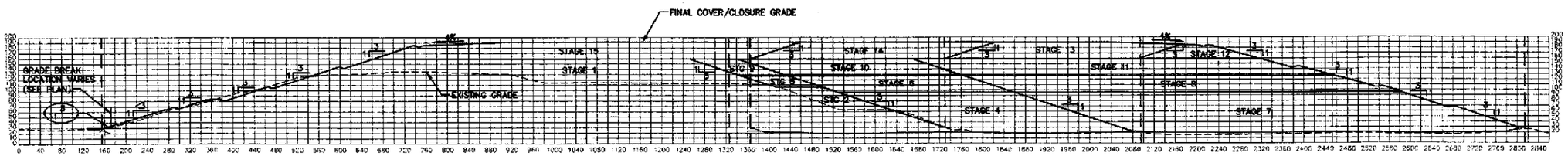
PROJ. NO. 092039007.09
DSGN. BY: CEH
DWN. BY: SDA
CHK. BY: CEH
Q/A RVW BY: RJD
APP. BY: CEH

CADD FILE: 080709CL1CLOSURE

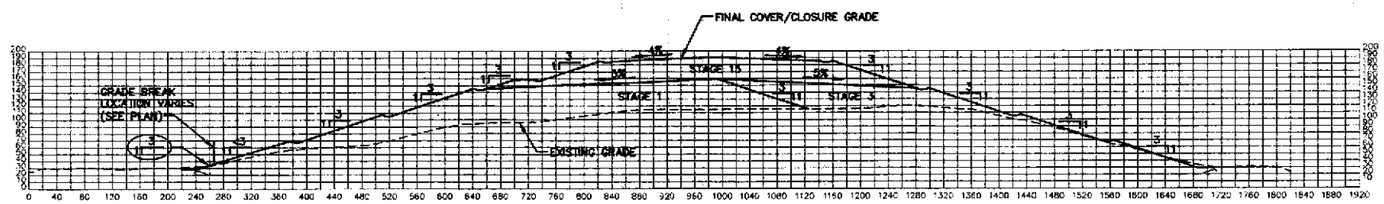
DATE: AUGUST 2009

SCALE: AS SHOWN.

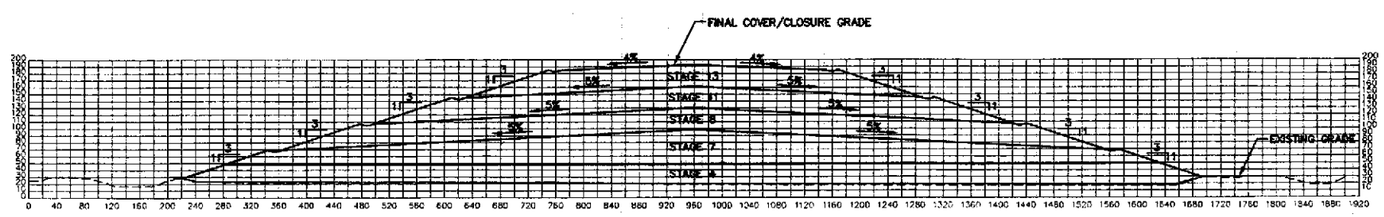
DRAWING NO. 3 of 9



SECTION A/4
SCALE: 1" = 100' HORIZ.
1" = 100' VERT.
3,5,6,7,8



SECTION B/4
SCALE: 1" = 100' HORIZ.
1" = 100' VERT.
3,5,6,7,8



SECTION C/4
SCALE: 1" = 100' HORIZ.
1" = 100' VERT.
3,5,6,7,8

SECTION NOTES (TYP.):

1. INSIDE GRADE LINES SHOWN BETWEEN FILL SEQUENCE STAGES REPRESENT TOP OF WASTE.
2. OUTSIDE GRADE LINES SHOWN REPRESENT TOP OF FINAL COVER SYSTEM, SEE DETAIL 1, DRAWING NO. 9 OF 9.

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: SECTIONS

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL
CLASS I CELL
FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE DIVISION
DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
CONSULTING ENGINEERS, SURVEYORS
813 871-4900 FAX 813 855-8797
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00000692

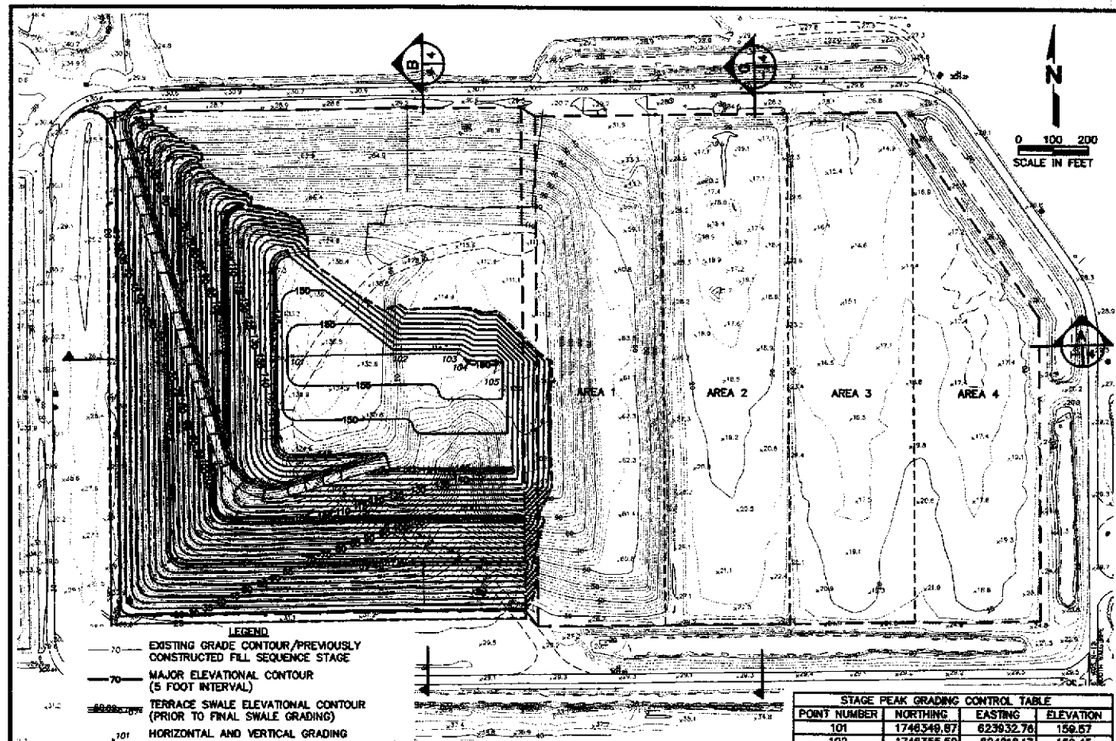
PROJ. NO. 09208007.09
DSN. BY: CEH
DWN. BY: SDA
CHK. BY: CEH
Q/A REVIEW BY: RJD
APP. BY: CEH

CADD FILE: 080709CL1CLOSURE

DATE: AUGUST 2009

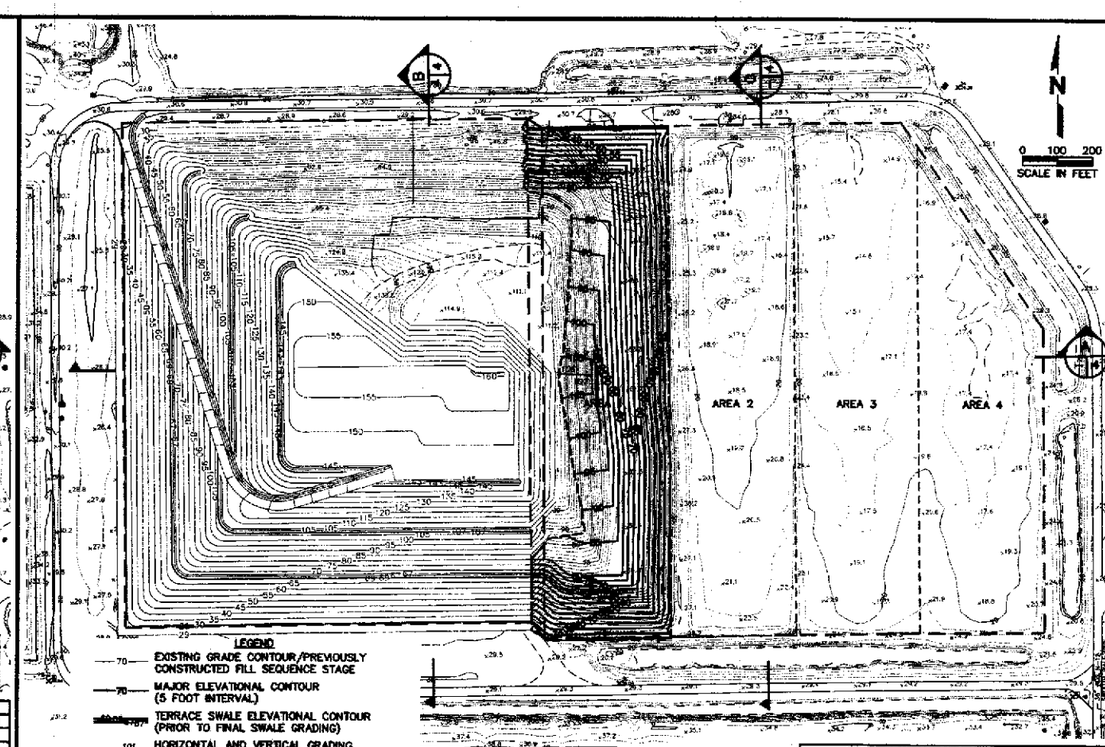
SCALE: AS SHOWN

DRAWING NO. 4 of 9



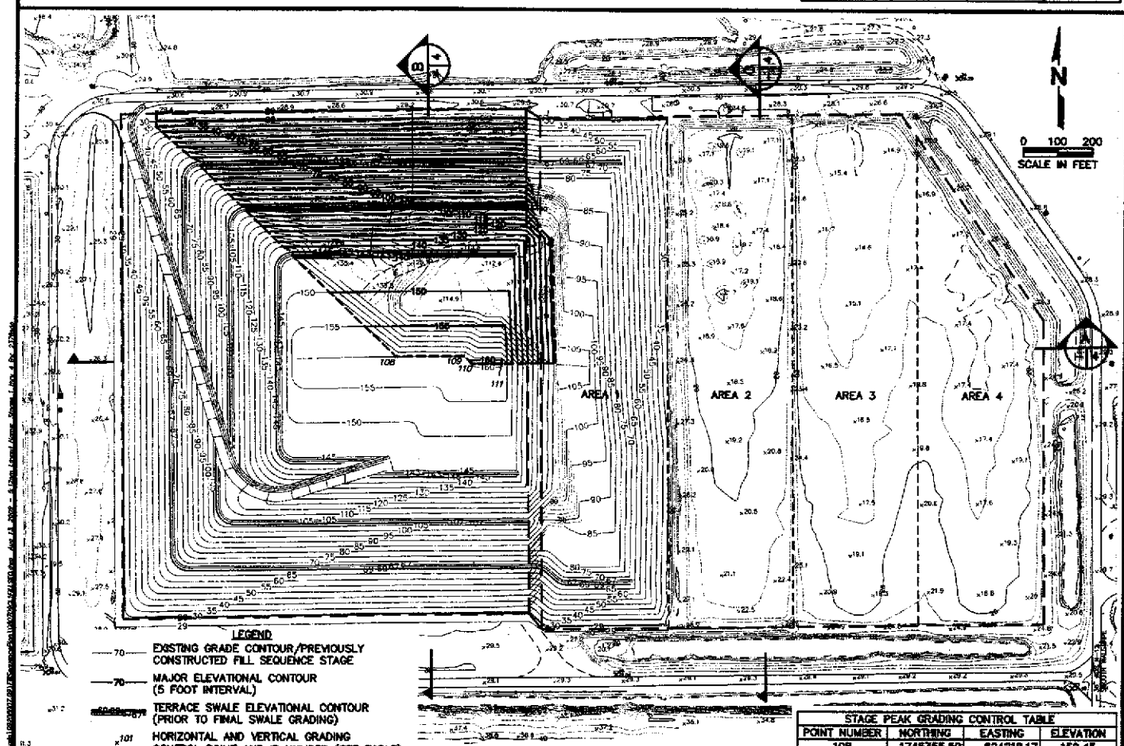
FILL SEQUENCE PLAN - STAGE 1

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
101	1746349.87	623932.76	159.57
102	1746355.59	624218.17	159.45
103	1746358.93	624411.70	159.40
104	1746336.93	624441.91	160.52
105	1746337.87	624522.97	160.52



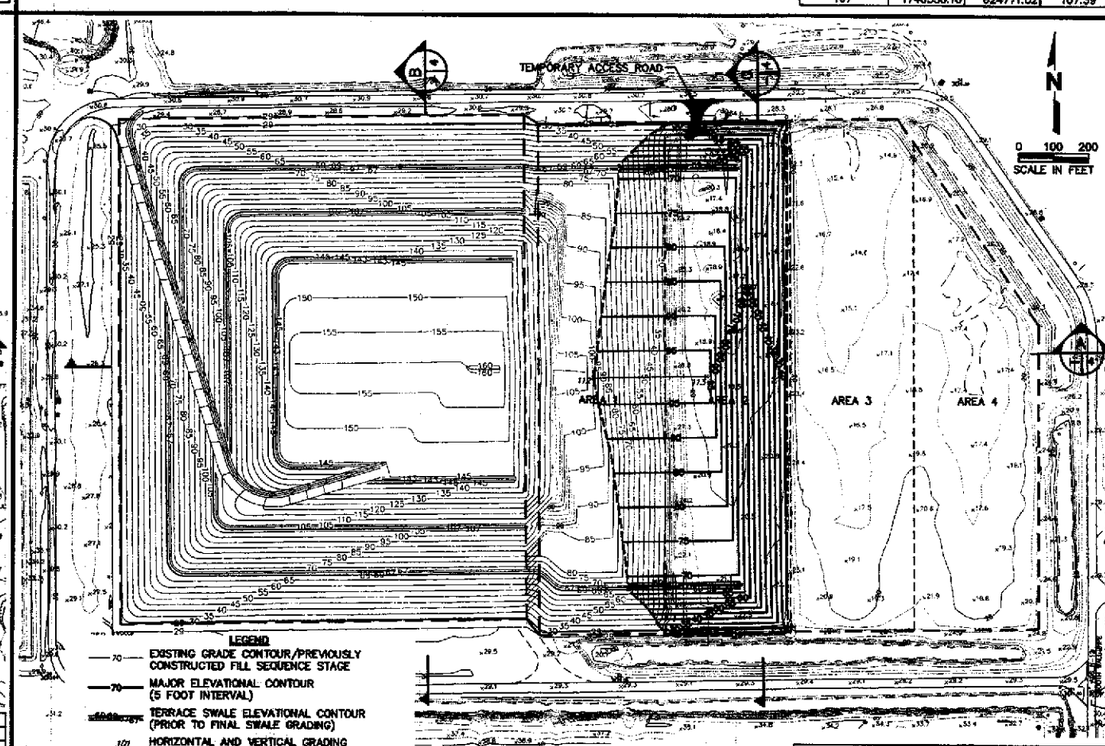
FILL SEQUENCE PLAN - STAGE 2

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
106	1746335.72	624683.24	107.38
107	1746330.10	624771.02	107.39



FILL SEQUENCE PLAN - STAGE 3

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
108	1746355.59	624218.17	159.45
109	1746358.93	624411.70	159.40
110	1746336.93	624441.91	160.52
111	1746337.87	624522.91	160.52



FILL SEQUENCE PLAN - STAGE 4

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
112	1746313.67	624796.92	98.68
113	1746318.46	625123.70	98.82

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: FILL SEQUENCE PLAN STAGES 1 THRU 4

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4919 PARK CROSS BLVD., SUITE 100, TAMPA, FL 33610
PHONE: 813-621-7460
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00000691

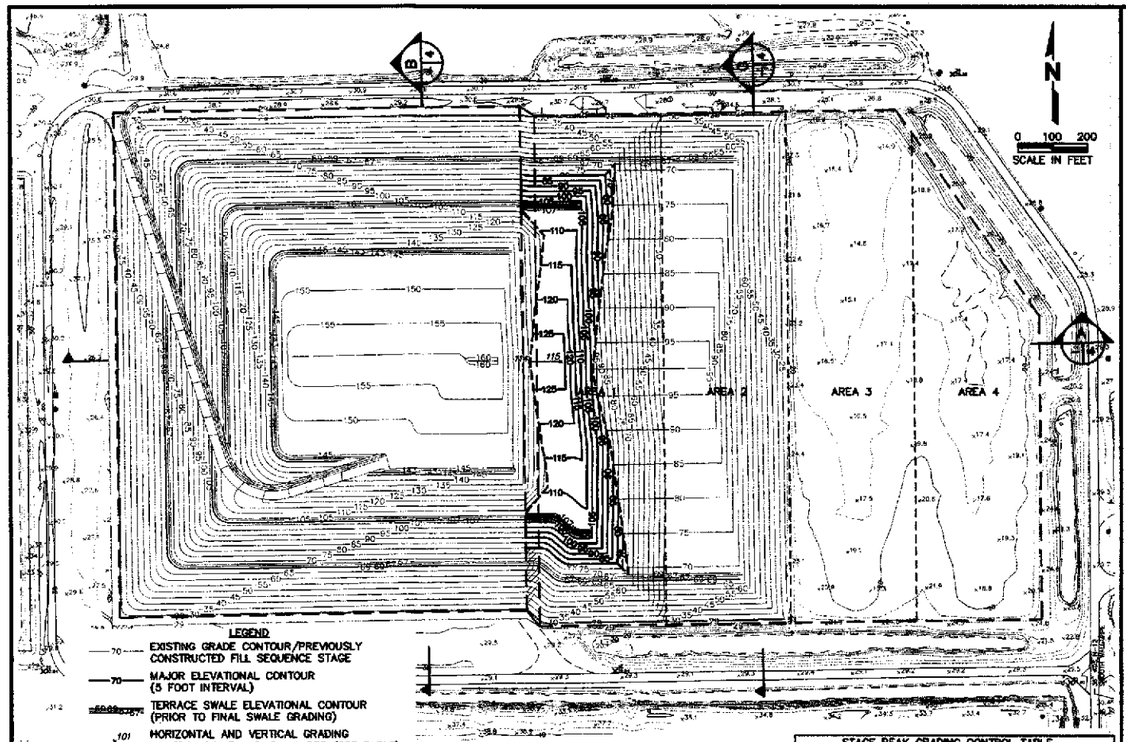
PROJ. NO.	DSN. BY	Q/A RVW BY	
09206007.09	SDA	RJD	
DWN. BY	CHK. BY	APP. BY	
CEH	CEH	CEH	

CADD FILE: 080709CL1FILLSEQ

DATE: AUGUST 2009

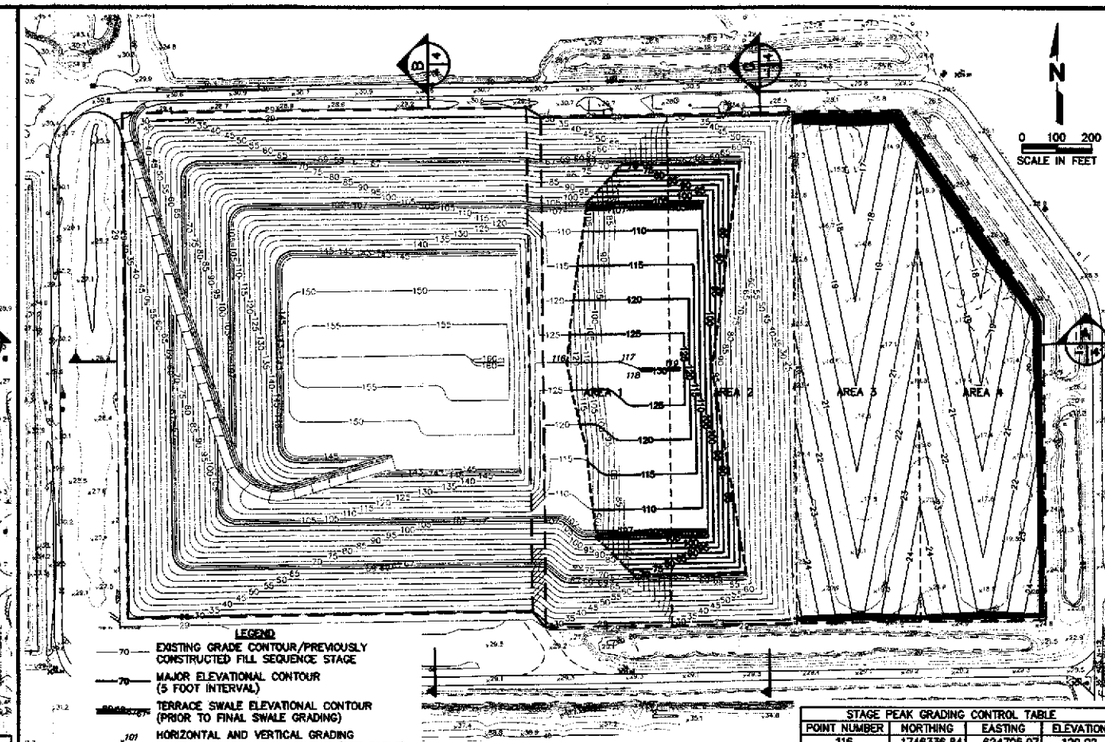
SCALE: AS SHOWN

DRAWING NO. 5 of 9



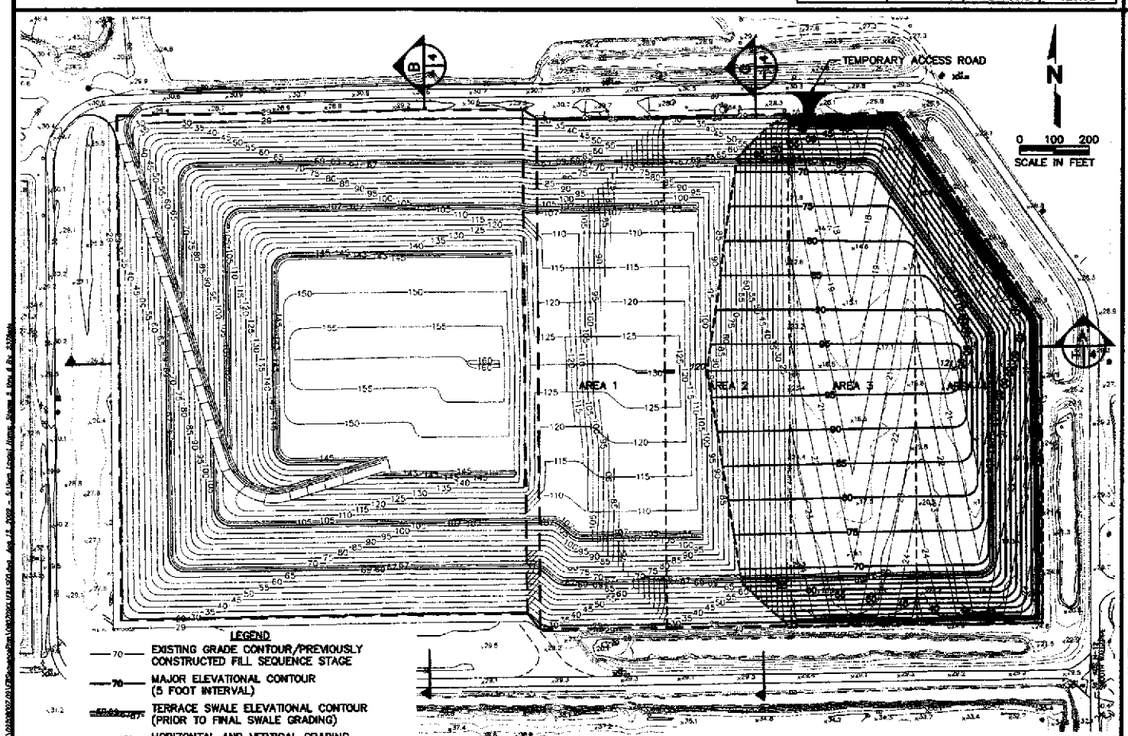
FILL SEQUENCE PLAN - STAGE 5

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
114	1746335.81	624617.53	129.01
115	1746336.84	624705.97	129.02



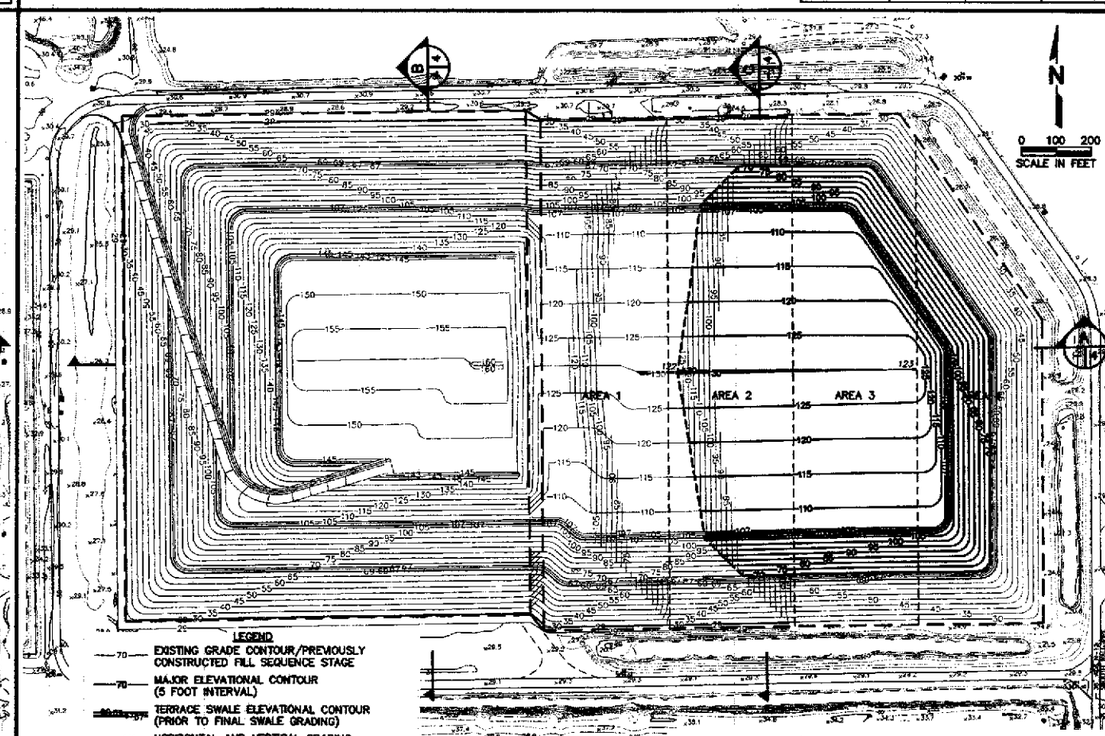
FILL SEQUENCE PLAN - STAGE 6

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
116	1746336.84	624705.97	129.02
117	1746338.64	624860.80	129.02
118	1746315.57	624923.41	130.21
119	1746317.19	625029.61	130.20



FILL SEQUENCE PLAN - STAGE 7

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
120	1746318.46	625123.70	98.82
121	1746328.29	625836.26	98.63



FILL SEQUENCE PLAN - STAGE 8

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
122	1746317.19	625029.61	130.20
123	1746328.26	625717.72	129.96

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: FILL SEQUENCE PLAN STAGES 5 THRU 8

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4041 PARK OAKS BLVD., SUITE 140, TAMPA, FL 33610
813 621-4960 FAX 813 623-8757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00000696

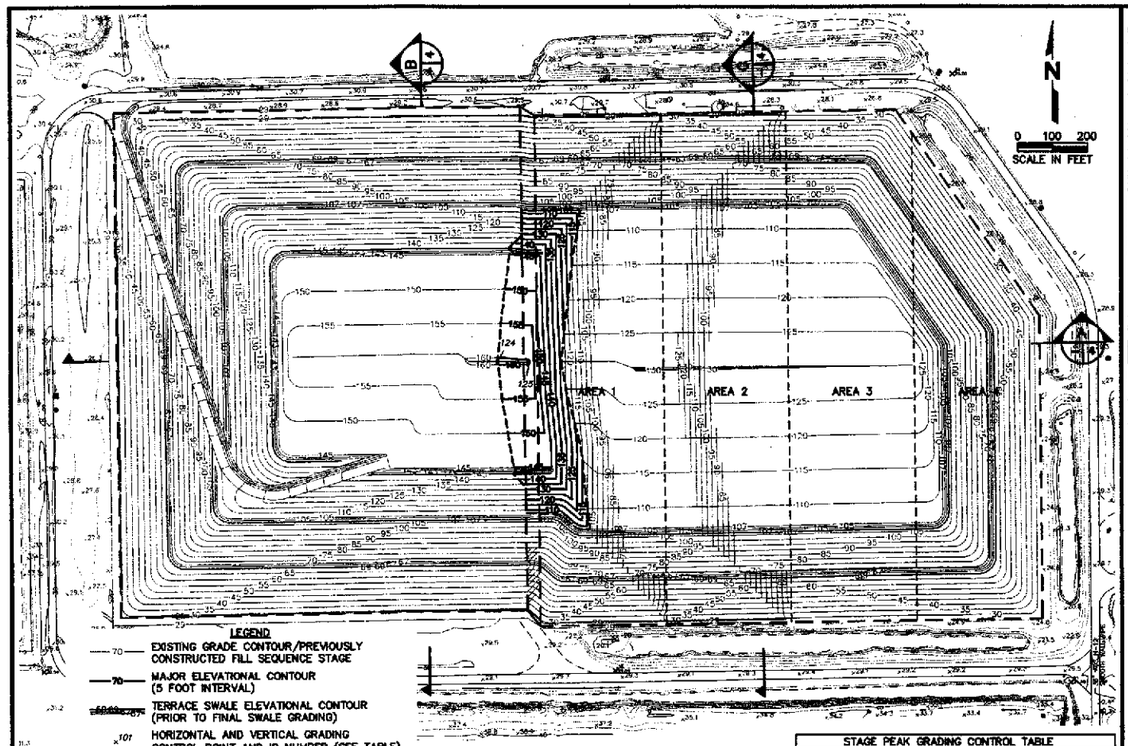
PROJ. NO. 25206007.09 | DWN. BY SDA | D/A REVIEW BY RJD | DSN. BY CEH | CHK. BY CEH | APP. BY CEH

CADD FILE: 080709CL1FILLSEQ

DATE: AUGUST 2009

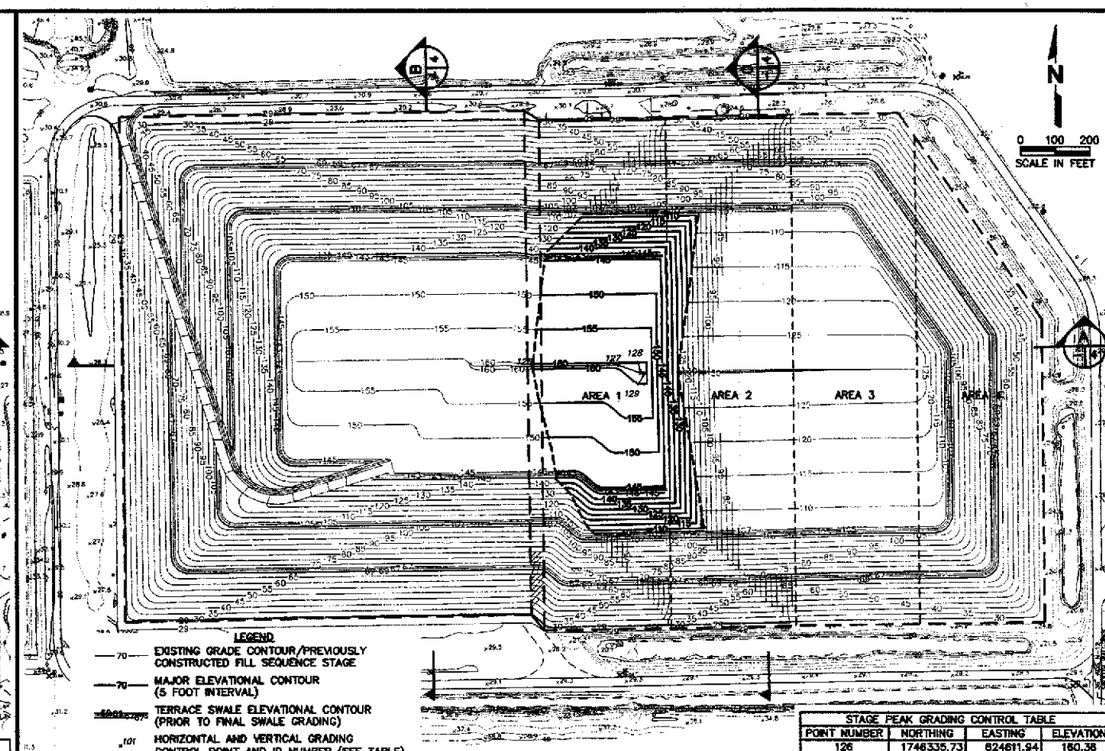
SCALE: AS SHOWN

DRAWING NO. 6 of 9



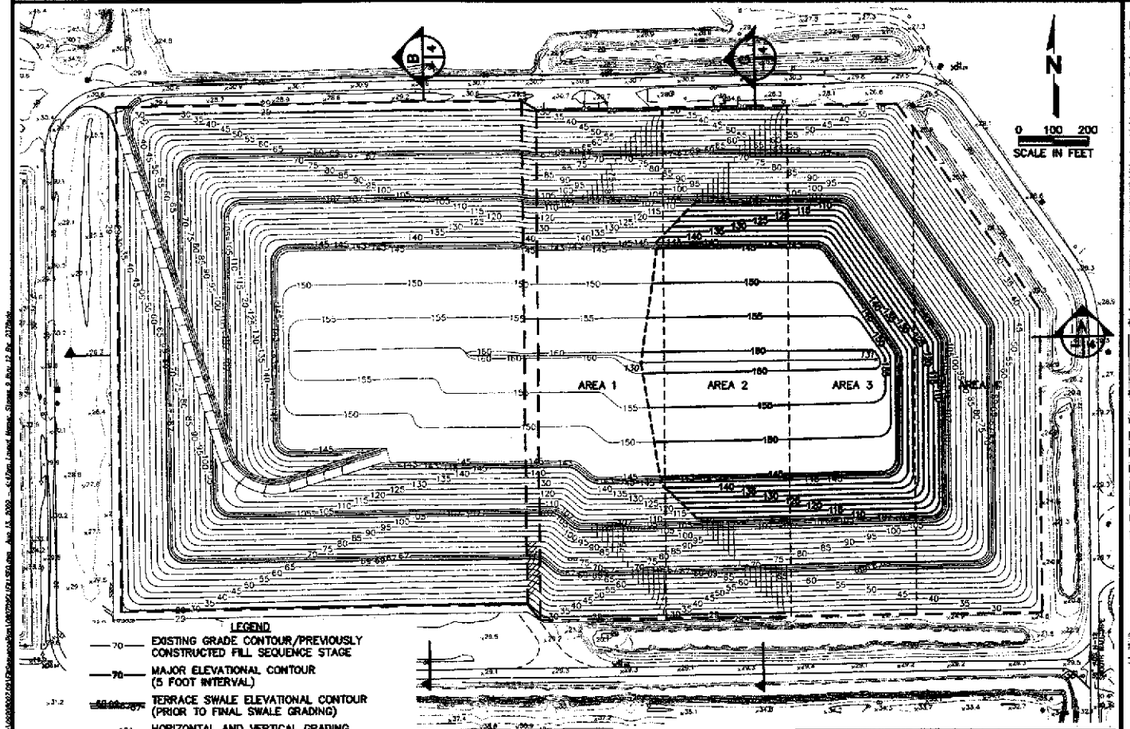
FILL SEQUENCE PLAN - STAGE 9

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
124	1746337.87	624522.97	160.52
125	1746338.73	624611.94	160.36



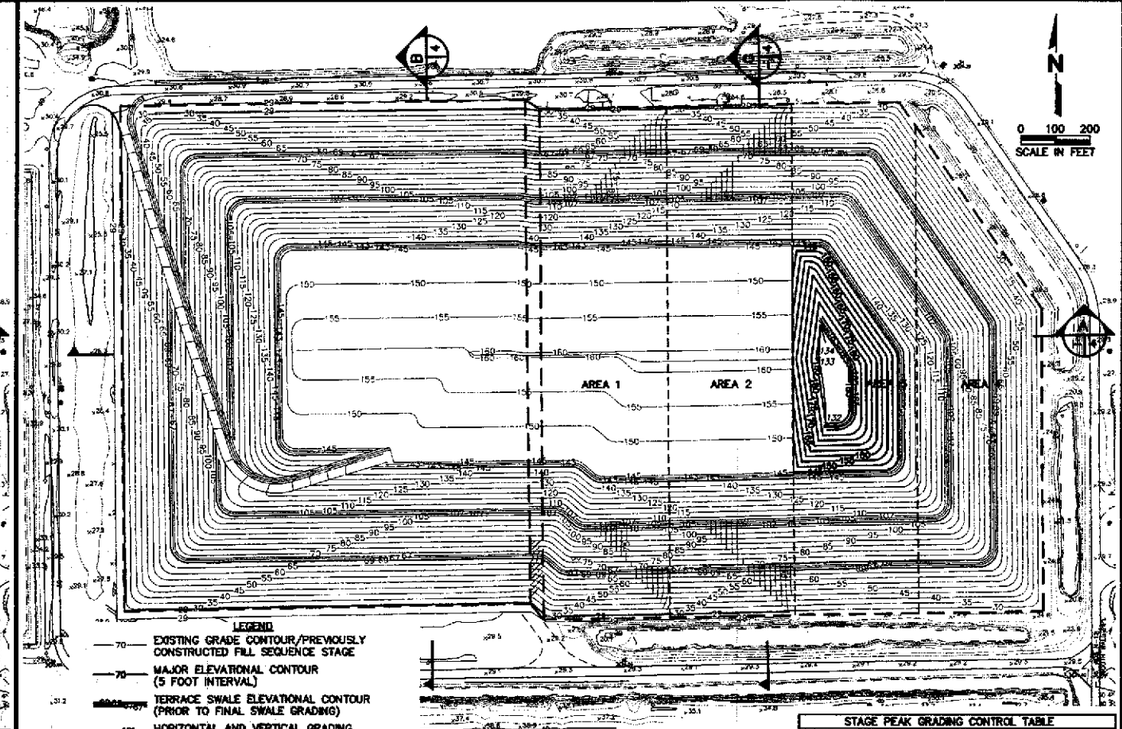
FILL SEQUENCE PLAN - STAGE 10

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
126	1746335.73	624611.94	160.38
127	1746338.64	624860.62	160.37
128	1746315.57	624923.41	161.56
129	1746315.75	624935.55	161.56



FILL SEQUENCE PLAN - STAGE 11

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
130	1746315.75	624935.55	161.56
131	1746324.95	625613.67	161.36



FILL SEQUENCE PLAN - STAGE 12

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
132	1746134.40	625462.84	185.00
133	1746322.43	625440.04	187.41
134	1746419.10	625446.35	185.00

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: FILL SEQUENCE PLAN STAGES 9 THRU 12

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
4901 PARK CARES BLVD., SUITE 100, TAMPA, FL 33610
PH 813-621-9000 FAX 813-623-6757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00026666

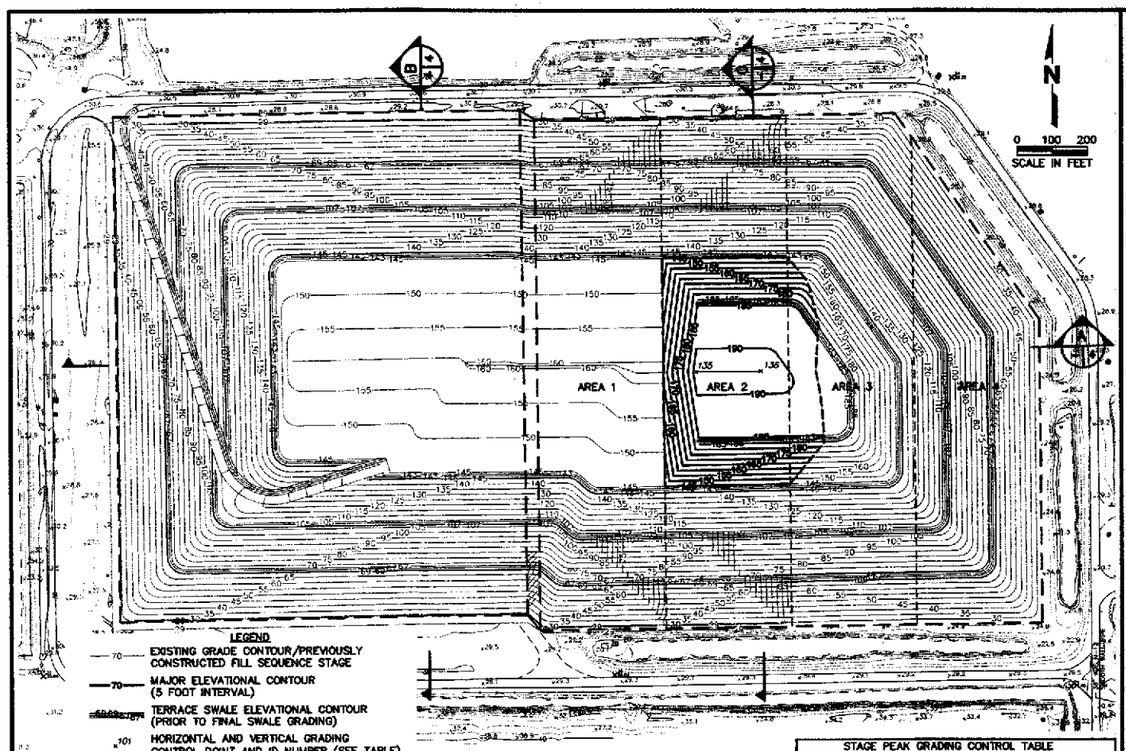
PROJ. NO. 080709 DATE 08/20/07 DSN. BY CEH DWN. BY SDA CHK. BY CEH QA/QC BY RJD APP. BY CEH

CADD FILE: 080709CL1FILLSEQ

DATE: AUGUST 2009

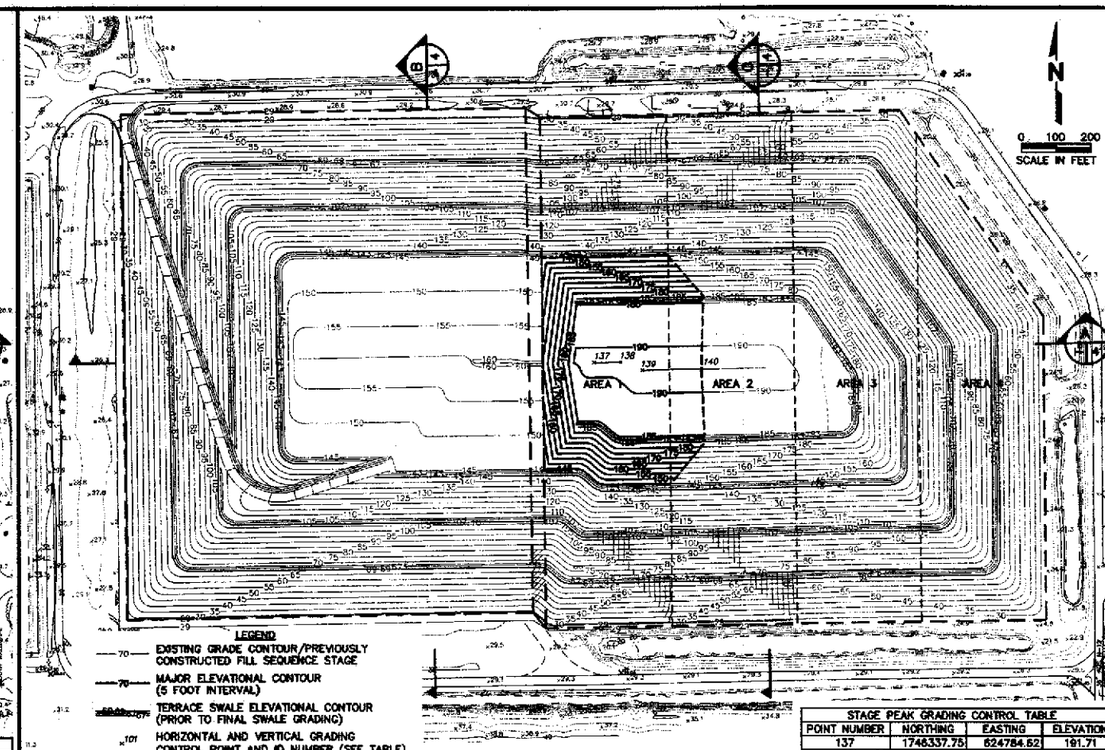
SCALE: AS SHOWN

DRAWING NO. 7 of 9



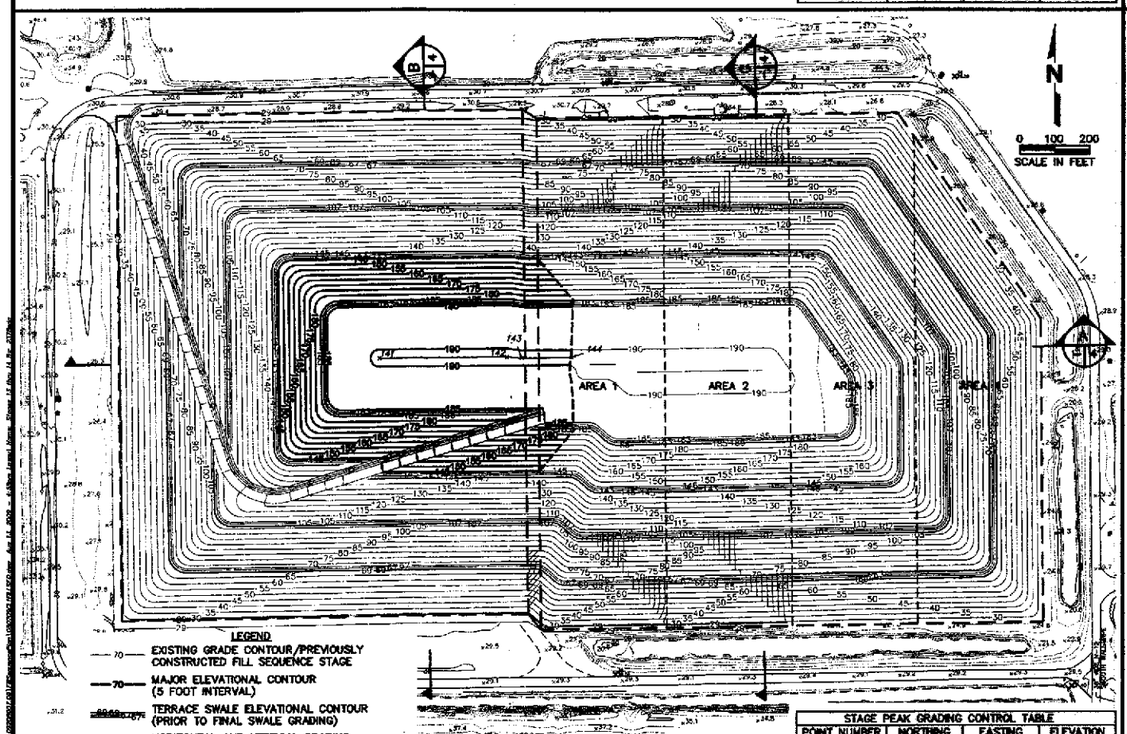
FILL SEQUENCE PLAN - STAGE 13

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
135	1746318.07	625095.66	192.67
136	1746320.77	625282.20	192.64



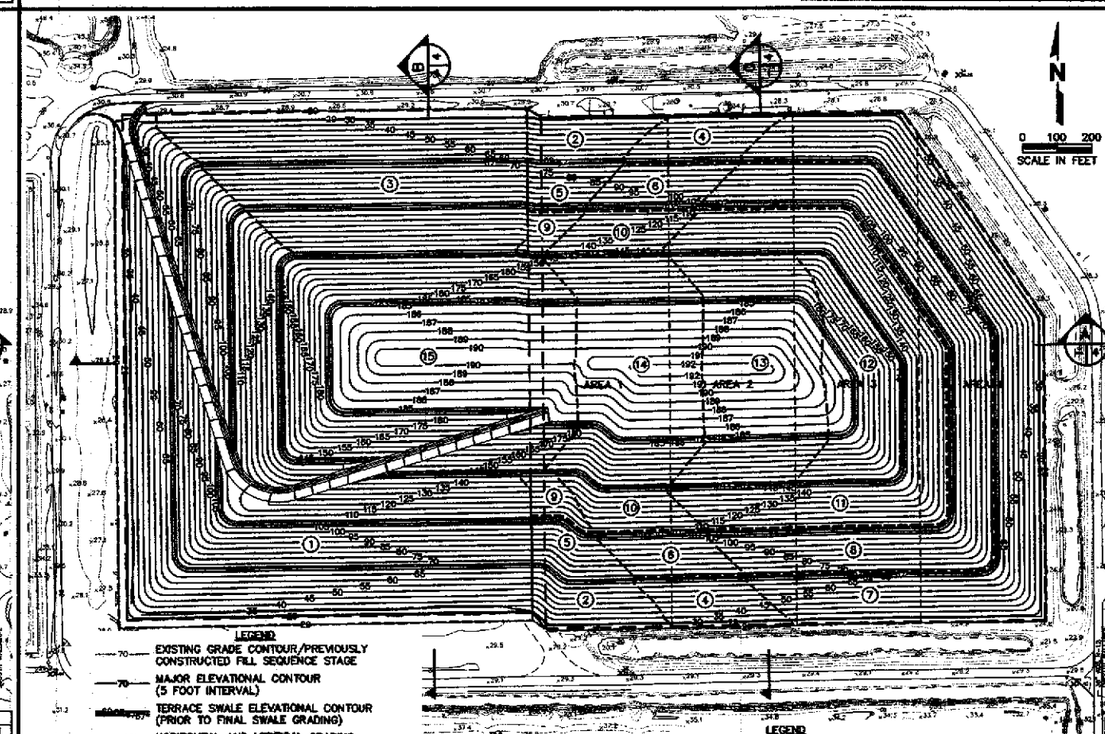
FILL SEQUENCE PLAN - STAGE 14

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
137	1746337.75	624784.52	191.71
138	1746338.64	624860.52	191.73
139	1746315.57	624923.41	192.69
140	1746318.07	625095.66	192.67



FILL SEQUENCE PLAN - STAGE 15

STAGE PEAK GRADING CONTROL TABLE			
POINT NUMBER	NORTHING	EASTING	ELEVATION
141	1746355.37	624177.80	190.99
142	1746359.82	624545.15	191.00
143	1746356.95	624587.37	190.87
144	1746358.52	624731.68	190.87



FILL SEQUENCE PLAN - FINAL

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: FILL SEQUENCE PLAN STAGES 13 THRU 15

PROJECT TITLE: TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN

CLIENT: VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
813.621.9051 FAX 813.621.9677
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00000692

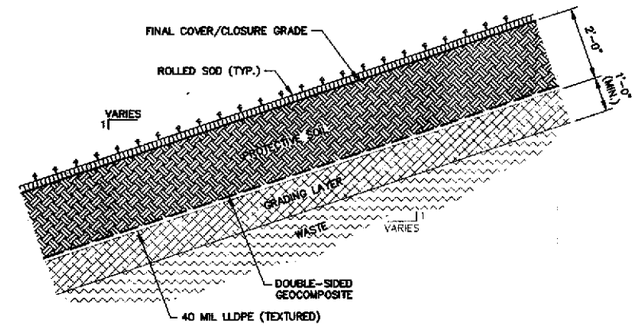
PROJ. NO.	DWN. BY	DATE	REV. BY
09208007.09	SDA	07/14/09	RJD
DSN. BY	CHK. BY	APP. BY	
CEH	CEH	CEH	

CADD FILE: 080709CL1FILLSEQ

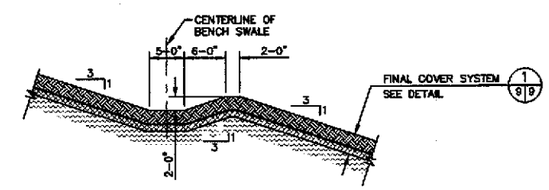
DATE: AUGUST 2009

SCALE: AS SHOWN

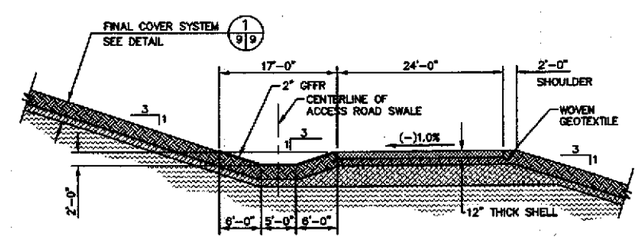
DRAWING NO. 8 of 9



FINAL COVER DETAIL (1 / 3 9)
SCALE: 1" = 2'



BENCH SWALE DETAIL (2 / 3 9)
SCALE: 1" = 10'



ACCESS ROAD DETAIL (3 / 3 9)
SCALE: 1" = 10'

REV	DATE	DESCRIPTION	BY

DRAWING TITLE: **DETAILS**

PROJECT TITLE: **TOMOKA FARMS ROAD LANDFILL CLASS I CELL FILL SEQUENCE PLAN**

CLIENT: **VOLUSIA COUNTY DEPARTMENT OF PUBLIC WORKS SOLID WASTE DIVISION DELAND, FLORIDA**

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
813 621-4846 FAX 813 623-0457
FIRM CERT. OF AUTHORIZATION NO. 00000693

PROJ. NO. 09209027.09 | DWN. BY SDA | 0/4 R/W 3/31 RJD
DSN. BY CEH | CHK. BY CEH | 2009 BY CEH

CADD FILE: 080709DETAILS

DATE: AUGUST 2009

SCALE: AS SHOWN

DRAWING NO. **9** of 9

				Wildfire Training															
265 FDEP HHW & Conditional Exempts SQG (5)										156 4-Hr Spotter Refresher for Class I, II and III Landfills	157 Landfill Design & Construction	356 Haz Mat Incident & Waste Training (8 Hr Refresher)	### Hazardous/Chemical Safety Trg (4 Hrs)	170 Heath & Safety Issues for Solid Waste Mgmt. Facilities	484 Fires at Landfills and Other Solid Waste Mgmt. Facilities	442 Initial Training for Landfill Operators	357 CPR/Basic First Aid	0 Refresher Trg Course for Experienced SW Operation - 4 Hours	0 Refresher Trg Course for Experienced SW Operation - 16 Hours
265 Fundamentals of Emergency Response and Construction																			
Control Inspector Trg and Cert Program ((12) (12) (8)		03/10/04													9/17/2008			8/19/2011	
295 Heavy Equipment Operator Training (4)								12/10/2010										8/19/2011	
274 Fundamentals of Slope Stability (16)		03/10/04							02/09/07			2/20/2009							
281 Health & Safety for Solid Waste Workers (8)		03/11/04												8/27/2008				8/19/2011	
104 Permit Required Confined Space (8)																			
263 Spotter Refresher (4)		03/10/04												8/27/2008					
S-190 Intro to Woodland Fire Behavior												2/20/2009							
421 HazWoper 40 Hour Course (8) (4)																	8/5/2009	8/19/2011	
167 HazWoper OSHA Refresher 8 hours (4)																	2/28/2011	8/19/2011	
		03/10/04							02/09/07			2/20/2009	2/22/2008		9/17/2008				8/19/2011
										3/12/2008			2/22/2008				8/5/2009		
						03/31/06												8/19/2011	
		03/10/04					05/11/05							8/27/2008					8/19/2011
										3/12/2008									
								12/10/2010					2/22/2008		9/17/2008		2/28/2011		8/19/2011
		03/11/04													9/17/2008			8/19/2011	
								12/10/2010											
		03/10/04													9/17/2008		2/28/2011		
													2/22/2008		9/17/2008				
				03/16/10															
										3/12/2008			2/22/2008	8/27/2008					8/19/2011
																		8/19/2011	
					03/02/07												2/28/2011		
								04/27/07				2/20/2009							
					03/02/07			04/27/07				2/20/2009					8/5/2009		
										3/12/2008							2/28/2011		
																		8/19/2011	
		03/11/04																	
					02/09/07				02/09/07			2/20/2009					8/5/2009	8/19/2011	
																	2/20/2011		
		03/10/04					5/11/2005										2/28/2011		8/19/2011
																	8/5/2009	8/19/2011	
										3/12/2008									
						03/31/06									9/17/2008			8/19/2011	
														8/27/2008				8/19/2011	
												2/20/2009		8/27/2008	9/17/2008				
		03/10/04															8/5/2009		
					03/02/07													8/19/2011	
										3/12/2008				8/27/2008				8/19/2011	
		03/11/04															8/5/2009	8/19/2011	
		03/10/04																8/19/2011	

PROPERTY OWNER

VOLUSIA COUNTY - SOLID WASTE DIVISION
3151 EAST NEW YORK AVENUE
DELAND, FLORIDA 32724

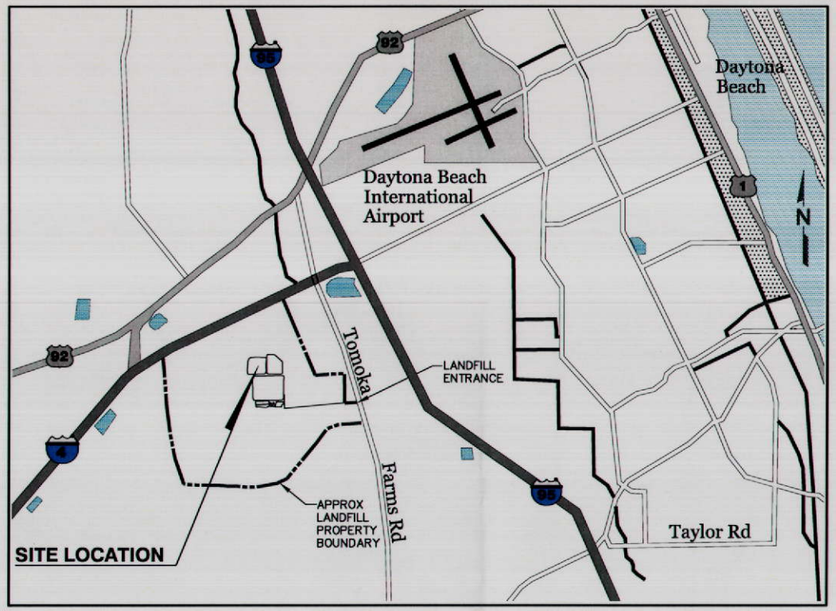
PROPERTY ADDRESS

TOMOKA FARMS ROAD LANDFILL
1990 TOMOKA FARMS ROAD
PORT ORANGE, FL 32128

Volusia County
FLORIDA

HDR

HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202



0 1 MILE 2 MILES
APPROX SCALE

LOCATION MAP

Drawings For

Volusia County Tomoka Farms Road Landfill

Landfill Gas Master Plan

Project No.
000000000139929

December, 2012

INDEX OF DRAWINGS

GENERAL

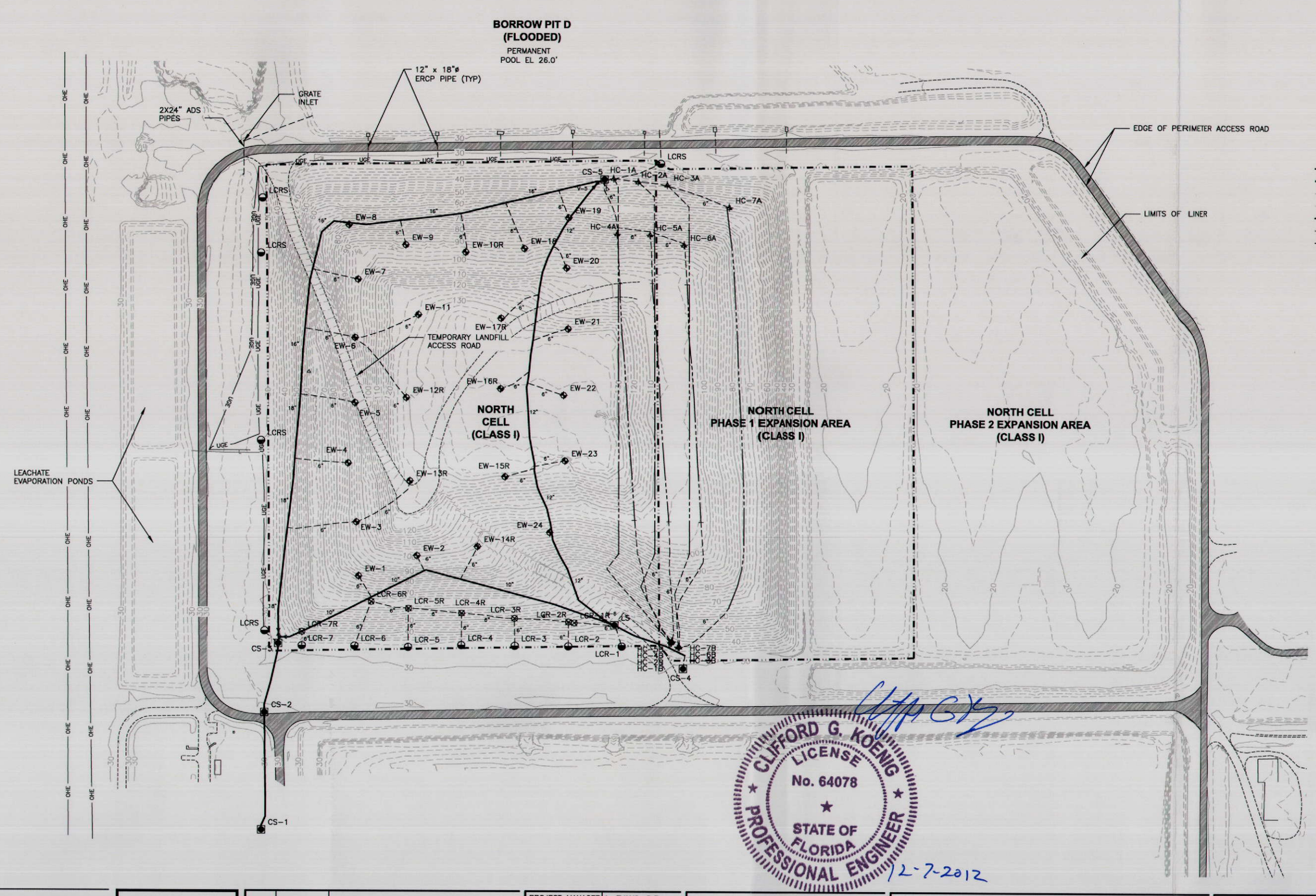
00G-00	COVER SHEET AND INDEX

Landfill Gas Master Plan

00LFG-01	EXISTING CONDITIONS
00LFG-02	PHASE 1 - FILL SEQUENCE-4
00LFG-03	PHASE 2 - FILL SEQUENCE-5,6
00LFG-04	PHASE 3 - FILL SEQUENCE-7
00LFG-05	PHASE 4 - FILL SEQUENCE-8
00LFG-06	PHASE 5 - FILL SEQUENCE-9,10,11
00LFG-07	PHASE 6 - FILL SEQUENCE-12,13,14,15
01LFG-01	LANDFILL GAS DETAILS (1 OF 6)
01LFG-02	LANDFILL GAS DETAILS (2 OF 6)
01LFG-03	LANDFILL GAS DETAILS (3 OF 6)
01LFG-04	LANDFILL GAS DETAILS (4 OF 6)
01LFG-05	LANDFILL GAS DETAILS (5 OF 6)
01LFG-06	LANDFILL GAS DETAILS (6 OF 6)

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

12-7-2012



LEGEND

	PROPERTY BOUNDARY
	LIMITS OF LINER
1080	EXISTING CONTOURS (MAJOR)
	EXISTING CONTOURS (MINOR)
	EXISTING HEADER (SIZE VARIES)
	EXISTING 6" LATERAL
	EXISTING HORIZONTAL WELL
LCR-1	EXISTING LEACHATE CLEANOUT RISER
HC-7B	EXISTING HORIZONTAL LFG WELLHEAD
EW-1	EXISTING LFG WELL
LCRS	EXISTING LEACHATE CLEANOUT
CS-2	EXISTING CONDENSATE SUMP
LCR-3R	EXISTING ABANDONED LEACHATE CLEANOUT

NOTES:

1. LIMITS OF LINER OBTAINED FROM THE TOMOKA LANDFILL LINER AS-BUILT DRAWING BY MAPTECH, INC. ON OCTOBER 4, 2005 AND FROM THE CLASS I CELL FILL SEQUENCING PLAN DRAWING PREPARED BY SCS ENGINEERS AND SUBMITTED TO FDEP ON AUGUST 14, 2009.
2. UTILITY INFORMATION OBTAINED FROM THE SPECIFIC PURPOSE SURVEY GAS LINE AS-BUILTS TOMOKA FARMS ROAD LANDFILL PREPARED BY SLIGER & ASSOCIATES, INC. ON MARCH 1, 2010.
3. TEMPORARY JUMPERS ARE NOT SHOWN FOR CLARITY.

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

12-7-2012

HDR
HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION
C	12/12	UPDATED FINAL SUBMITTAL
B	08/11	FINAL SUBMITTAL
A	07/11	DRAFT FOR CLIENT REVIEW

PROJECT MANAGER	A. EVANS, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	A. EVANS, P.E.
DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	0000000000139929

Volusia County
FLORIDA

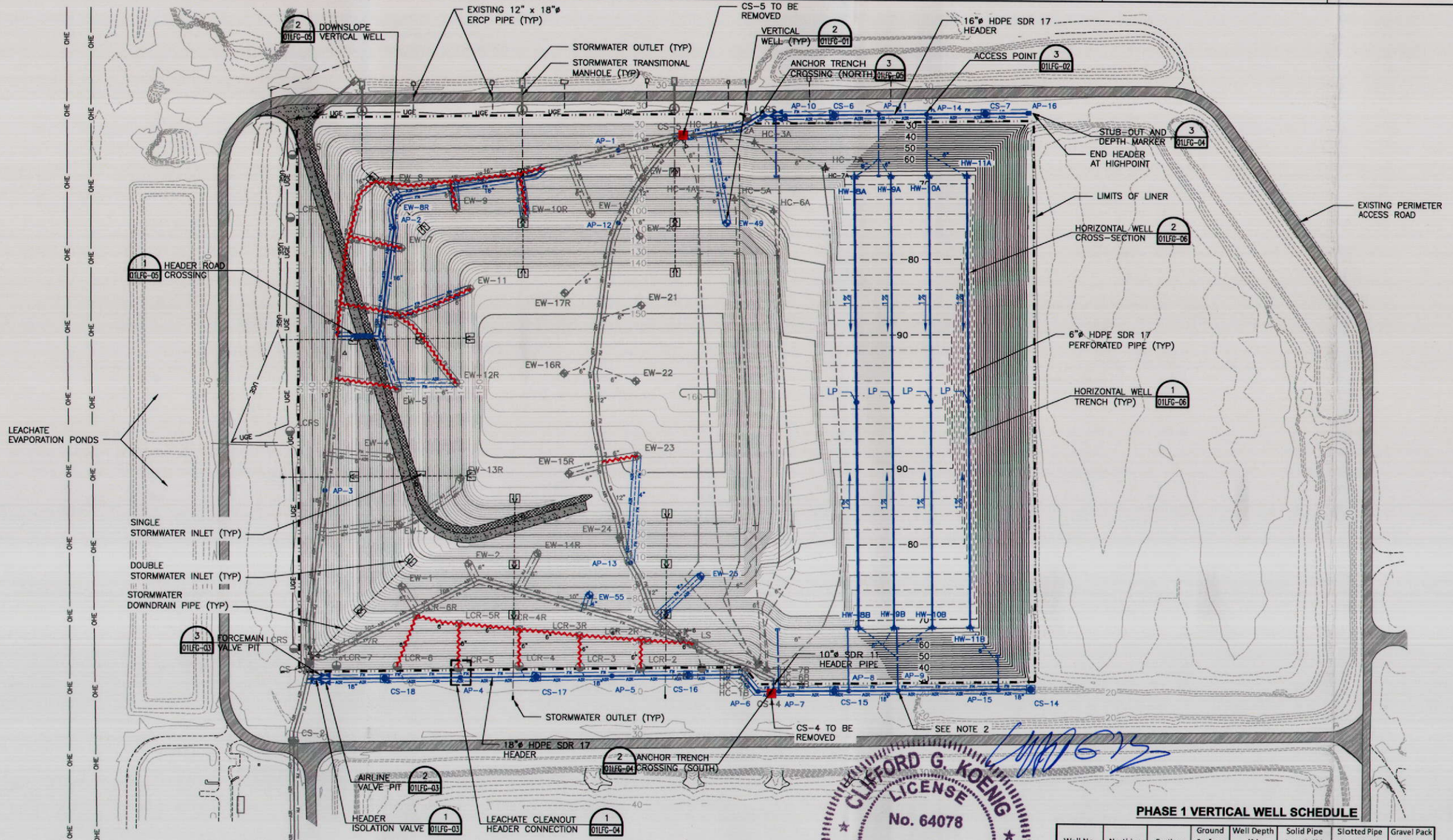
LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

EXISTING CONDITIONS

0 1" 2"

FILENAME	00LFG-01.dwg
SCALE	AS SHOWN

SHEET
00LFG-01



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SCALE IN FEET

150 75 0 150 300

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
- 1080 — EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- 1080 — PROPOSED CONTOURS (MAJOR)
- PROPOSED CONTOURS (MINOR)
- 1080 — TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- STORMWATER DOWNDRAIN PIPE
- LFG COMPONENTS TO BE ABANDONED
- EXISTING HORIZONTAL WELL
- EXISTING LATERAL
- EXISTING HEADER (SIZE VARIES)
- PROPOSED ACCESS ROAD PAVEMENT
- LCR-1 EXISTING LEACHATE CLEANOUT RISER
- HC-7B EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 EXISTING LFG WELL
- LCRS EXISTING LEACHATE CLEANOUT
- CS-2 EXISTING CONDENSATE SUMP

LFG COMPONENTS (CURRENT PHASE)

- CS-14 CONDENSATE SUMP
- LFG VALVES
- HW-8B HORIZONTAL LFG WELLHEAD
- EW-1 LFG WELL
- AP-1 ACCESS POINT
- LP LOW POINT
- HDPE SDR 11 LATERAL (SIZE VARIES)
- 10"ø HDPE SDR 11 SUB-HEADER
- 8"ø SDR 11 HORIZONTAL WELL
- HDPE SDR 17 HEADER (SIZE VARIES)
- 2" HDPE SDR 9 AIR LINE
- 4" HDPE SDR 11 FORCEMAIN LINE

PHASE 1 CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
VERTICAL LFG WELLHEAD	EA	3
HORIZONTAL LFG WELLHEAD	EA	8
ACCESS POINT	EA	16
CONDENSATE SUMP	EA	7
2"ø HDPE SDR 9 AIRLINE	LF	5,280
4"ø HDPE SDR 9 CONDENSATE FORCEMAIN	LF	5,280
4"ø HDPE SDR 11 LATERAL	LF	900
6"ø HDPE SDR 11 LATERAL	LF	1,620
6"ø HDPE SDR 11 HORIZONTAL WELL	LF	4,775
10"ø HDPE SDR 11 SUB-HEADER	LF	1,085
16"ø HDPE SDR 17 HEADER	LF	1,835
18"ø HDPE SDR 17 HEADER	LF	1,930

PHASE 1 VERTICAL WELL SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-25	1745852.30	624470.44	99.5	95.0	10.0	85.0	88.0
EW-49	1746787.35	624552.87	105.1	100.6	10.0	90.6	93.6
EW-55	1745806.70	624734.42	83.2	80.2	10.0	70.2	73.2
EW-5	1746343.03	623688.15	WELL TO BE LOWERED				
EW-6	1746539.50	623687.49	WELL TO BE LOWERED				
EW-7	1746715.78	623696.01	WELL TO BE LOWERED				
EW-8	1746880.57	623668.08	INSTALL REMOTE WELLHEAD EW-8R				

Estimated Date Phase 1 is complete: April 2012. (+2.00 yrs after Existing Conditions)

PHASE 1 HORIZONTAL WELL SCHEDULE

WELL ID	WELLHEAD A			LOW POINT			WELLHEAD B			SOLID PIPE	PERFORATED PIPE
	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION		
HW-8	1746911.80	624886.06	68	1746315.27	624894.61	62	1745718.74	624903.15	68	320	886
HW-9	1746913.23	624986.05	68	1746316.70	624994.60	62	1745720.17	625003.14	68	320	886
HW-10	1746914.67	625086.04	68	1746318.13	625094.59	62	1745721.60	625103.13	68	320	886
HW-11	1746916.10	625186.03	68	1746319.57	625194.58	62	1745723.03	625203.12	68	320	886

NOTES:

1. HORIZONTAL WELLS TO PLACED PRIOR TO FILLING OF TOP DECK AREA WITHIN THE LIMITS AS SHOWN. TOP DECK GRADES SHOWN FOR REFERENCE ONLY.
2. 10"ø HDPE SDR 11 SUB-HEADER SHALL CONNECT TO HEADER DIRECTLY VIA TEE FITTING, ADJACENT TO CONDENSATE SUMPS AND ACCESS POINTS.
3. QUANTITIES IN PHASE 1 CONSTRUCTION TABLE ARE APPROXIMATE.

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-7-2012

HDR

HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION
C	12/12	UPDATED FINAL SUBMITTAL
B	08/11	FINAL SUBMITTAL
A	07/11	DRAFT FOR CLIENT REVIEW

PROJECT MANAGER	A. EVANS, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	A. EVANS, P.E.
DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS MASTERPLAN PHASE 1 EXPANSION FILL SEQUENCE PLAN- STAGE 4

0 1" 2"

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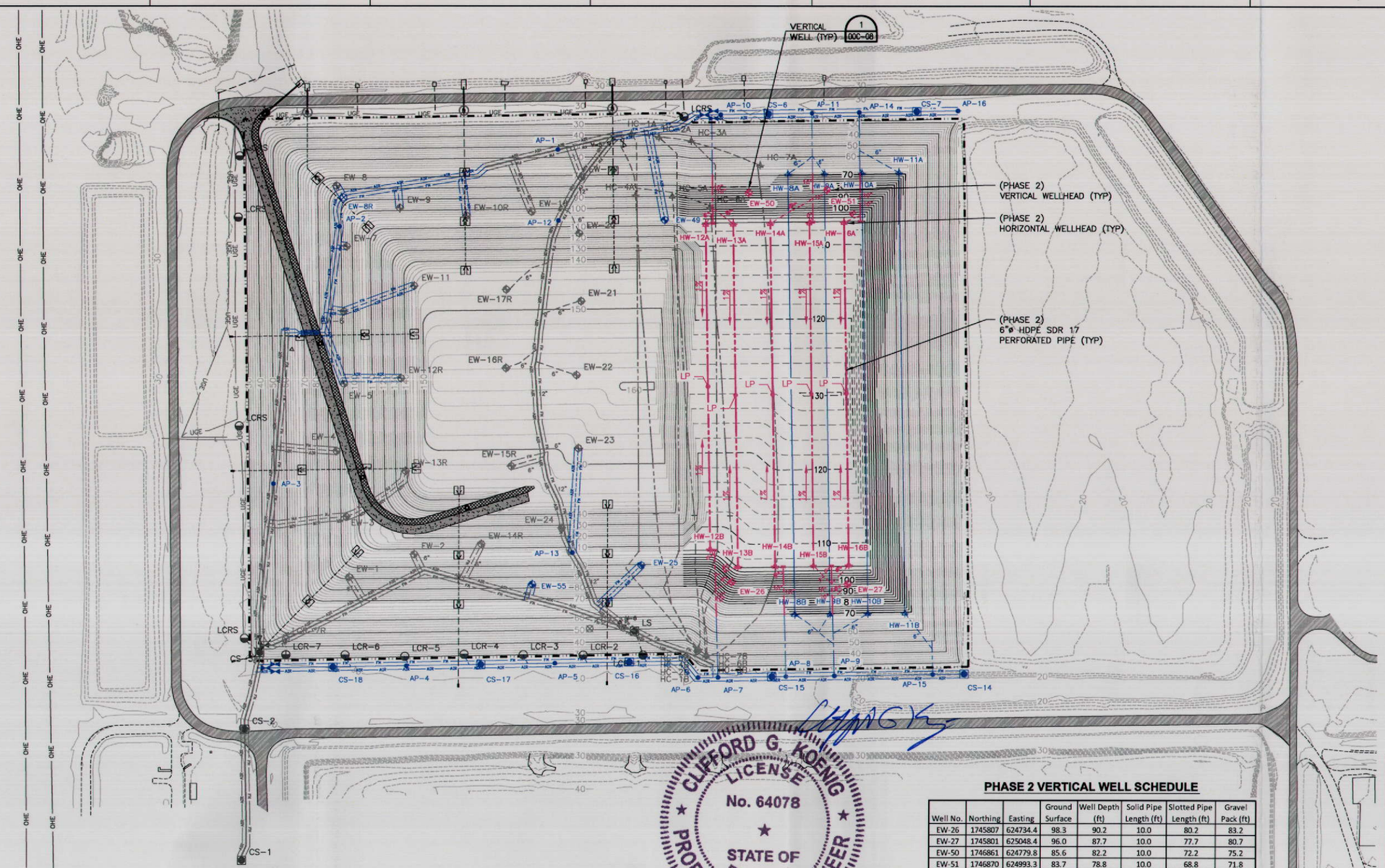
SCALE	AS SHOWN

SHEET 00LFG-02



N

SCALE IN FEET

150 75 0 150 300

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
- 1080 EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- 1080 PROPOSED CONTOURS (MAJOR)
- PROPOSED CONTOURS (MINOR)
- 1080 TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- STORMWATER DOWNDRAIN PIPE
- LFG COMPONENTS TO BE ABANDONED
- EXISTING HORIZONTAL WELL
- EXISTING LATERAL
- EXISTING HEADER (SIZE VARIES)
- PROPOSED ACCESS ROAD PAVEMENT
- LCR-1 EXISTING LEACHATE CLEANOUT RISER
- HC-7B EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 EXISTING LFG WELL
- LCRS EXISTING LEACHATE CLEANOUT
- CS-2 EXISTING CONDENSATE SUMP

LFG COMPONENTS (CURRENT PHASE)

- CS-14 CONDENSATE SUMP
- LFG VALVES
- HW-8B HORIZONTAL LFG WELLHEAD
- EW-1 LFG WELL
- AP-1 ACCESS POINT
- LP LOW POINT
- HDPE SDR 11 LATERAL (SIZE VARIES)
- 10"ø HDPE SDR 11 SUB-HEADER
- 8"ø SDR 11 HORIZONTAL WELL
- HDPE SDR 17 HEADER (SIZE VARIES)
- AIR 2" HDPE SDR 9 AIR LINE
- FM 4" HDPE SDR 11 FORCEMAIN LINE

PHASING COLOR LEGEND

- PHASE 1
- PHASE 2

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

2-7-2012

PHASE 2 VERTICAL WELL SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-26	1745807	624734.4	98.3	90.2	10.0	80.2	83.2
EW-27	1745801	625048.4	96.0	87.7	10.0	77.7	80.7
EW-50	1746861	624779.8	85.6	82.2	10.0	72.2	75.2
EW-51	1746870	624993.3	83.7	78.8	10.0	68.8	71.8

Estimated Date Phase 2 is complete: March 2013. (+1.00 yrs after Phase 1)

PHASE 2 HORIZONTAL WELL SCHEDULE

WELL ID	WELLHEAD A			LOW POINT			WELLHEAD B			SOLID PIPE	PERFORATED PIPE
	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION		
HW-12	1746775.83	624663.48	108	1746311.61	624670.13	102	1745896.16	624676.08	108	320	569
HW-13	1746776.65	624737.98	108	1746312.91	624744.63	102	1745848.36	624751.28	108	320	618
HW-14	1746777.91	624837.98	108	1746314.57	624844.61	102	1745850.06	624851.27	108	320	618
HW-15	1746780.06	624937.96	108	1746316.01	624944.60	102	1745851.77	624951.25	108	320	618
HW-16	1746781.40	625037.95	108	1746317.44	625044.59	102	1745853.48	625051.24	108	320	618

PHASE 2 CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
VERTICAL LFG WELLHEAD	EA	4
HORIZONTAL LFG WELLHEAD	EA	10
6"ø HDPE SDR 11 LATERAL	LF	675
6"ø HDPE SDR 11 HORIZONTAL WELL	LF	4,600
10"ø HDPE SDR 11 SUB-HEADER	LF	850

NOTES:

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DESIGNED BY	A. EVANS, P.E.
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DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
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PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS MASTERPLAN PHASE 2 EXPANSION FILL SEQUENCES PLAN-STAGES 5,6

0 1" 2"

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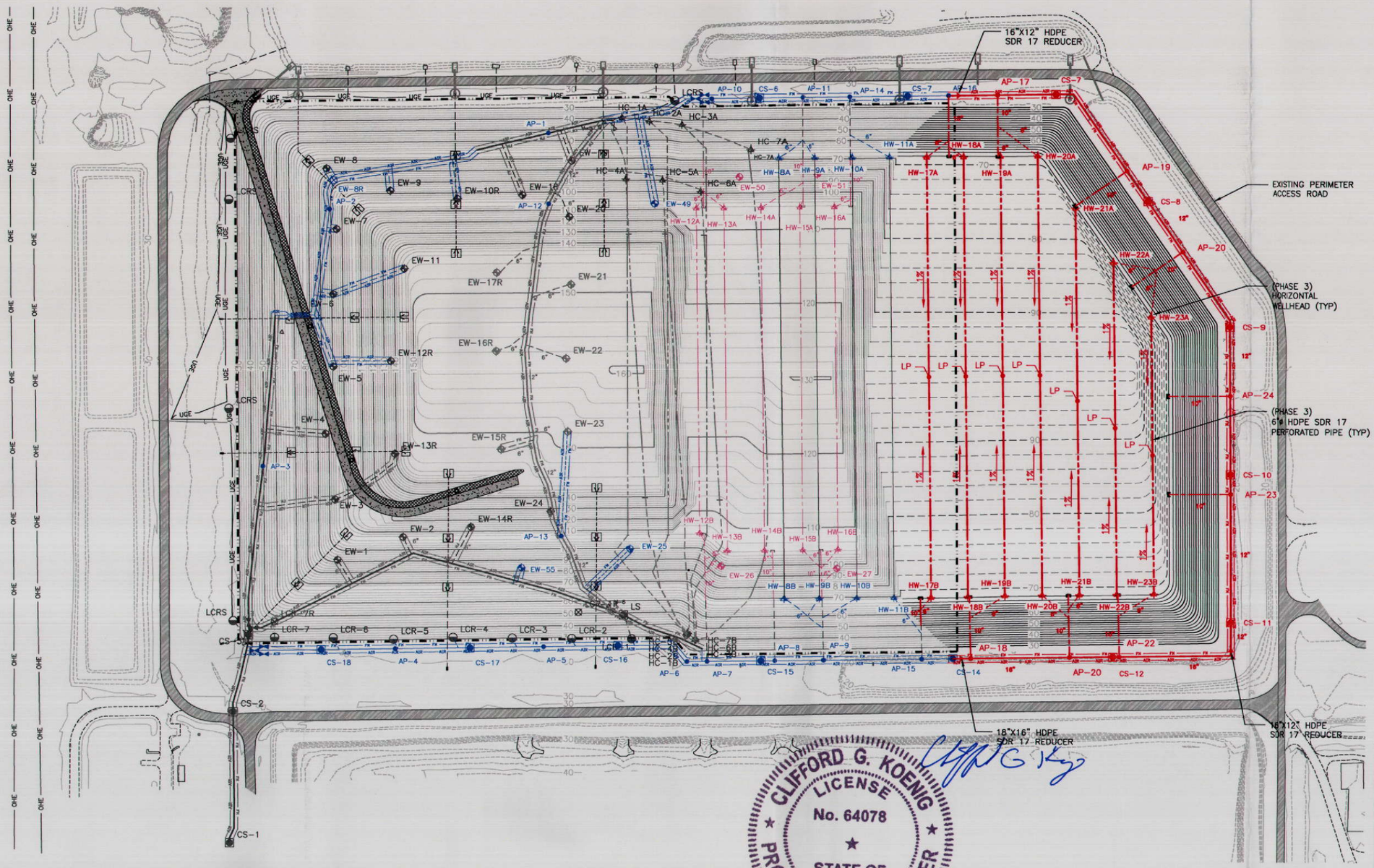

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SCALE IN FEET

150 75 0 150 300

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
- 1080 — EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- 1080 — PROPOSED CONTOURS (MAJOR)
- PROPOSED CONTOURS (MINOR)
- 1080 — TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- STORMWATER DOWNDRAIN PIPE
- LFG COMPONENTS TO BE ABANDONED
- EXISTING HORIZONTAL WELL
- EXISTING LATERAL
- EXISTING HEADER (SIZE VARIES)
- PROPOSED ACCESS ROAD PAVEMENT
- LCR-1 EXISTING LEACHATE CLEANOUT RISER
- HC-7B EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 EXISTING LFG WELL
- LCRS EXISTING LEACHATE CLEANOUT
- CS-2 EXISTING CONDENSATE SUMP

LFG COMPONENTS (CURRENT PHASE)

- CS-14 CONDENSATE SUMP
- LFG VALVES
- HW-BB HORIZONTAL LFG WELLHEAD
- EW-1 LFG WELL
- AP-1 ACCESS POINT
- LP LOW POINT
- HDPE SDR 11 LATERAL (SIZE VARIES)
- 10"ø HDPE SDR 11 SUB-HEADER
- 8"ø SDR 11 HORIZONTAL WELL
- HDPE SDR 17 HEADER (SIZE VARIES)
- 2" HDPE SDR 9 AIR LINE
- 4" HDPE SDR 11 FORCEMAIN LINE

PHASING COLOR LEGEND

- PHASE 1
- PHASE 2
- PHASE 3

PHASE 3 CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
HORIZONTAL LFG WELLHEAD	EA	14
ACCESS POINT	EA	8
CONDENSATE SUMP	EA	6
2"ø HDPE SDR 9 AIRLINE	LF	2,760
4"ø HDPE SDR 9 CONDENSATE FORCEMAIN	LF	2,760
6"ø HDPE SDR 11 LATERAL	LF	940
6"ø HDPE SDR 11 HORIZONTAL WELL	LF	7,465
10"ø HDPE SDR 11 SUB-HEADER	LF	1,605
12"ø HDPE SDR 17 HEADER	LF	1,985
16"ø HDPE SDR 17 HEADER	LF	750

PHASE 3 HORIZONTAL WELL SCHEDULE

WELL ID	WELLHEAD A			LOW POINT			WELLHEAD B			SOLID PIPE	PERFORATED PIPE
	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION		
HW-17	1746916.72	625286.03	68	1746321.34	625294.56	62	1745724.34	625303.12	68	320	885
HW-18	1746918.15	625386.02	68	1746323.24	625394.55	62	1745726.70	625403.09	68	320	884
HW-19	1746919.58	625486.01	68	1746325.39	625494.53	62	1745729.58	625503.06	68	320	883
HW-20	1746921.01	625586.00	68	1746327.01	625594.51	62	1745731.38	625603.05	68	320	882
HW-21	1746780.57	625688.03	68	1746257.57	625695.52	62	1745732.93	625703.03	68	320	739
HW-22	1746633.23	625790.15	68	1746184.67	625796.57	63	1745734.48	625803.02	68	320	588
HW-23	1746485.88	625892.27	68	1746111.77	625897.63	64	1745736.03	625903.01	68	320	438

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

12-7-2012

NOTES:

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2. 10"ø HDPE SDR 11 SUB-HEADER SHALL CONNECT TO HEADER DIRECTLY VIA TEE FITTING, ADJACENT TO CONDENSATE SUMPS AND ACCESS POINTS.
3. QUANTITIES IN PHASE 1 CONSTRUCTION TABLE ARE APPROXIMATE.

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PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS MASTERPLAN
PHASE 3 EXPANSION
FILL SEQUENCES PLAN-STAGES 5,6,7

0 1" 2"

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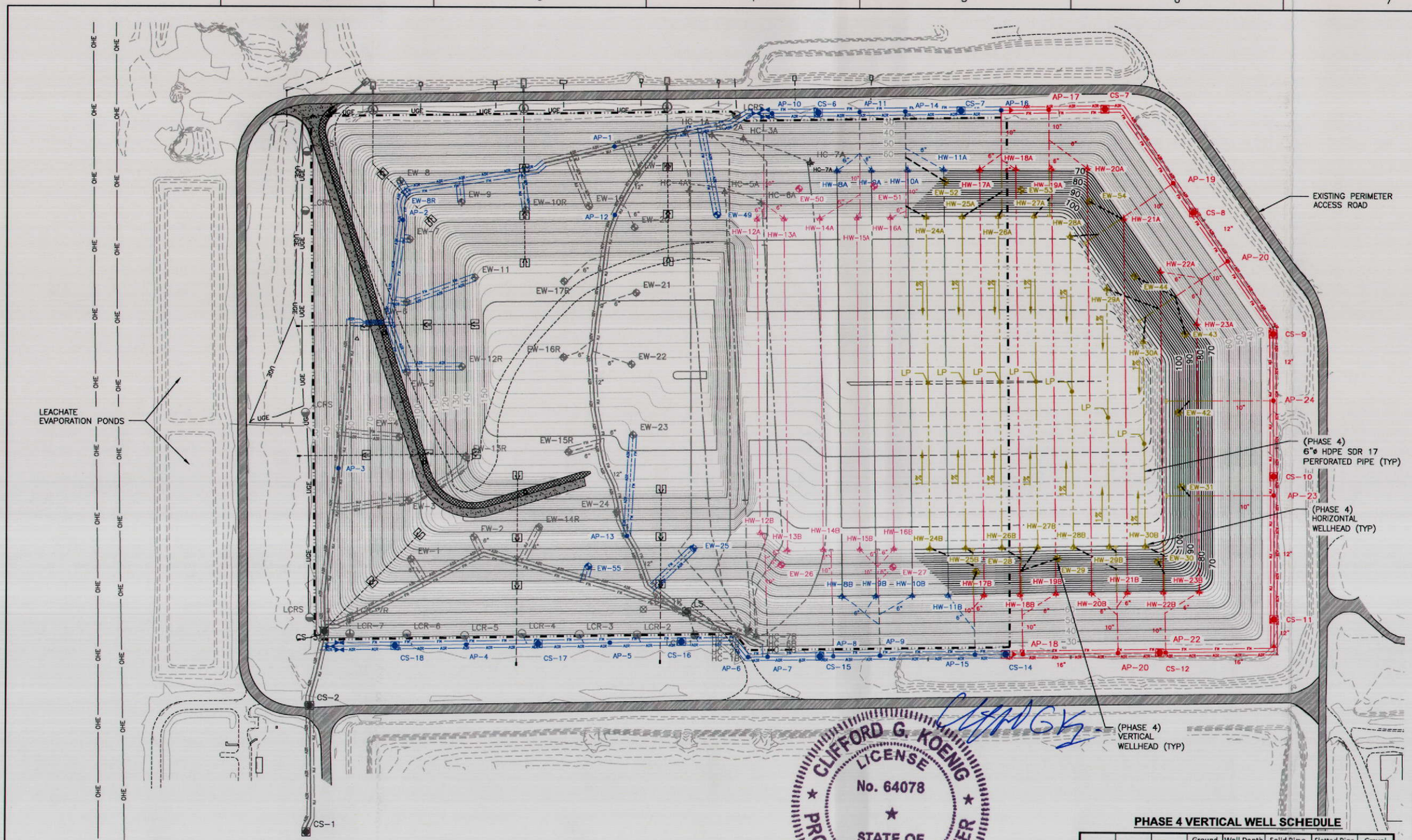
SCALE	AS SHOWN

SHEET 00LFG-04



N

SCALE IN FEET

150 75 0 150 300

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
- 1080 — EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- 1080 — PROPOSED CONTOURS (MAJOR)
- PROPOSED CONTOURS (MINOR)
- 1080 — TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- STORMWATER DOWNDRAIN PIPE
- LFG COMPONENTS TO BE ABANDONED
- EXISTING HORIZONTAL WELL
- EXISTING LATERAL
- EXISTING HEADER (SIZE VARIES)
- PROPOSED ACCESS ROAD PAVEMENT
- LCR-1 EXISTING LEACHATE CLEANOUT RISER
- HC-7B EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 EXISTING LFG WELL
- LCRS EXISTING LEACHATE CLEANOUT
- CS-2 EXISTING CONDENSATE SUMP

LFG COMPONENTS (CURRENT PHASE)

- CS-14 CONDENSATE SUMP
- LFG VALVES
- HW-8B HORIZONTAL LFG WELLHEAD
- EW-1 LFG WELL
- AP-1 ACCESS POINT
- HDPE SDR 11 LATERAL (SIZE VARIES)
- 10"ø HDPE SDR 11 SUB-HEADER
- 8"ø SDR 11 HORIZONTAL WELL
- HDPE SDR 17 HEADER (SIZE VARIES)
- 2" HDPE SDR 9 AIR LINE
- 4" HDPE SDR 11 FORCEMAIN LINE

PHASING COLOR LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4

PHASE 4 CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
HORIZONTAL LFG WELLHEAD	EA	14
VERTICAL LFG WELLHEAD	EA	10
6"ø HDPE SDR 11 LATERAL	LF	1,810
6"ø HDPE SDR 11 HORIZONTAL WELL	LF	5,880
10"ø HDPE SDR 11 SUB-HEADER	LF	1,320

NOTES:

1. HORIZONTAL WELLS TO PLACED PRIOR TO FILLING OF TOP DECK AREA WITHIN THE LIMITS AS SHOWN. TOP DECK GRADES SHOWN FOR REFERENCE ONLY.
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PHASE 4 HORIZONTAL WELL SCHEDULE

WELL ID	WELLHEAD A			LOW POINT			WELLHEAD B			SOLID PIPE	PERFORATED PIPE
	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION		
HW-24	1746782.83	625137.94	108	1746318.87	625144.58	103	1745854.91	625151.23	108	320	618
HW-25	1746784.27	625237.93	108	1746320.30	625244.57	103	1745856.34	625251.22	108	320	618
HW-26	1746785.70	625337.92	108	1746321.74	625344.56	103	1745857.77	625351.21	108	320	618
HW-27	1746787.13	625437.91	108	1746323.17	625444.55	103	1745859.21	625451.20	108	320	618
HW-28	1746731.27	625538.72	110	1746295.95	625544.95	103	1745860.64	625551.19	108	320	560
HW-29	1746583.92	625640.84	112	1746223.00	625646.01	104	1745862.07	625651.18	108	320	410
HW-30	1746436.57	625742.96	112	1746150.04	625747.06	105	1745863.50	625751.17	108	320	259

PHASE 4 VERTICAL WELL SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-28	1745789	625281.1	90.6	82.4	10.0	72.4	75.4
EW-29	1745828	625506.2	101.4	94.8	10.0	84.8	87.8
EW-30	1745820	625786.9	97.4	89.1	10.0	79.1	82.1
EW-31	1746030	625852	97.9	91.8	10.0	81.8	84.8
EW-42	1746238	625842.4	100.5	95.1	10.0	85.1	88.1
EW-43	1746458	625859.5	83.4	79.2	10.0	69.2	72.2
EW-44	1746619	625718.5	91.4	85.4	10.0	75.4	78.4
EW-52	1746883	625191	80.1	78.7	10.0	68.7	71.7
EW-53	1746861	625400.7	87.8	83.4	10.0	73.4	76.4
EW-54	1746829	625592.4	86.2	83.3	10.0	73.3	76.3

Estimated Date Phase 4 is complete: July 2018. (+1.5 yrs after Phase 3)

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-7-2012

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CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS MASTERPLAN PHASE 4 EXPANSION FILL SEQUENCES PLAN-STAGE 8

0 1" 2"

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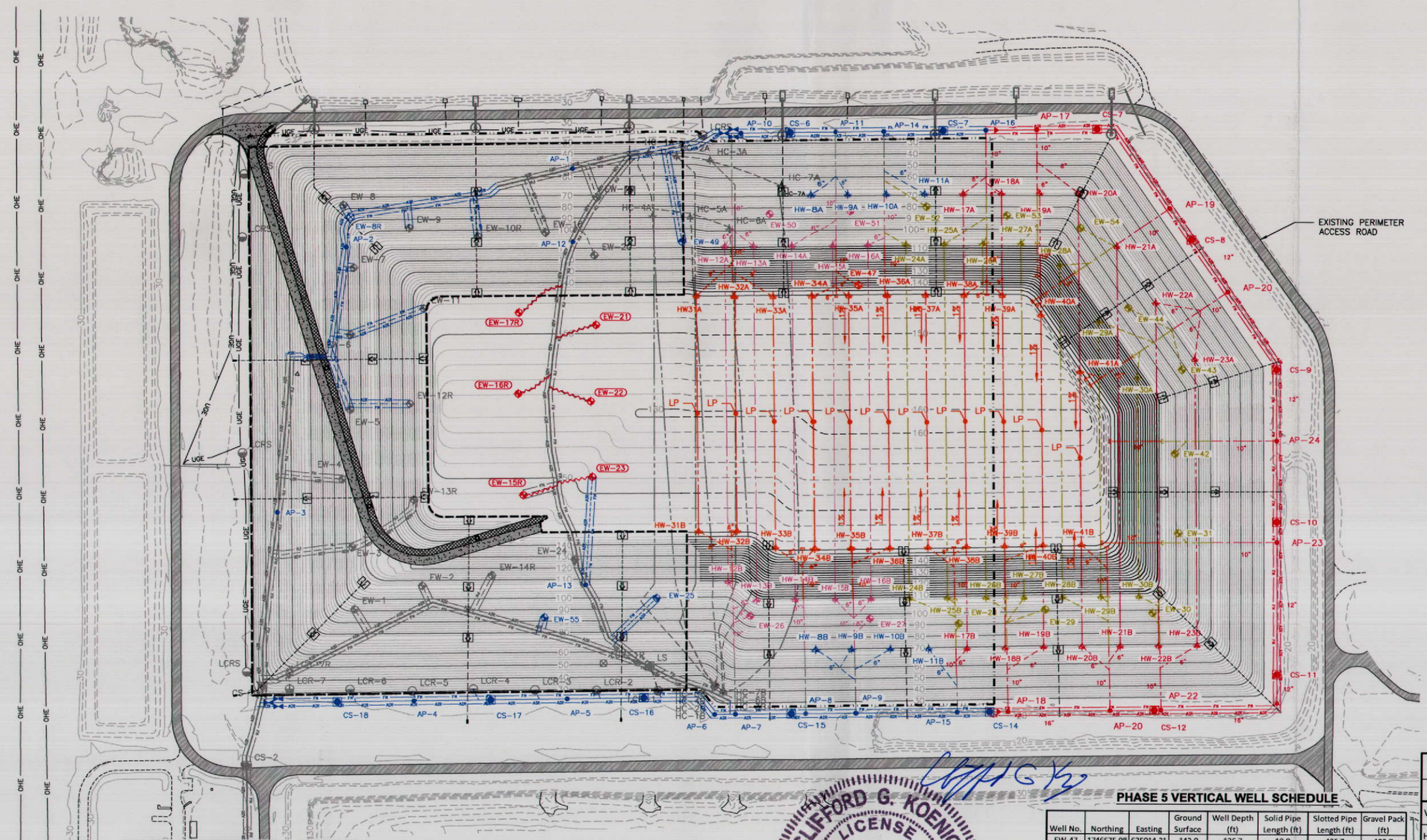
SHEET 00LFG-05



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SCALE IN FEET

150 75 0 150 300

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
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- CS-14 CONDENSATE SUMP
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PHASING COLOR LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5

PHASE 5 CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
VERTICAL LFG WELLHEAD	EA	1
HORIZONTALAL LFG WELLHEAD	EA	22
ACCESS POINT	EA	2
6"ø HDPE SDR 11 LATERAL	LF	1,395
6"ø HDPE SDR 11 HORIZONTAL WELL	LF	6,915
10"ø HDPE SDR 11 SUB-HEADER	LF	2,010

NOTES:

1. HORIZONTAL WELLS TO PLACED PRIOR TO FILLING OF TOP DECK AREA WITHIN THE LIMITS AS SHOWN. TOP DECK GRADES SHOWN FOR REFERENCE ONLY.
2. QUANTITIES IN PHASE 1 CONSTRUCTION TABLE ARE APPROXIMATE.

PHASE 5 VERTICAL WELL SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-47	1746675.98	625014.31	142.0	136.7	10.0	126.7	129.7

PHASE 5 VERTICAL WELL ABANDONMENT SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-15R	1746120.72	624140.1	WELL TO BE ABANDONED				
EW-16R	1746386.5	624125.9	WELL TO BE ABANDONED				
EW-17R	1746599.3	624126.8	WELL TO BE ABANDONED				
EW-21	1746567.9	624328.1	WELL TO BE ABANDONED				
EW-22	1746367.3	624315.3	WELL TO BE ABANDONED				
EW-23	1746169.1	624320.5	WELL TO BE ABANDONED				

Estimated Date Phase 5 is complete: December 2021. (+1.75 yrs after Phase 4)

PHASE 5 HORIZONTAL WELL SCHEDULE

WELL ID	WELLHEAD A			LOW POINT			WELLHEAD B			SOLID PIPE	PERFORATED PIPE
	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	ELEVATION		
HW-31	1746645.10	624589.85	145	1746336.70	624594.27	141	1746028.30	624598.69	145	320	304
HW-32	1746643.95	624689.88	145	1746336.69	624694.28	141	1746029.43	624698.68	145	320	301
HW-33	1746645.13	624789.87	145	1746316.65	624794.62	141	1745986.23	624799.31	145	320	346
HW-34	1746646.43	624889.86	145	1746315.29	624894.61	141	1745983.83	624899.36	145	320	350
HW-35	1746647.77	624989.86	145	1746316.72	624994.60	141	1745985.54	624999.34	145	320	349
HW-36	1746649.11	625089.85	145	1746316.72	625094.65	141	1745987.25	625099.33	145	320	349
HW-37	1746650.32	625189.84	145	1746316.72	625194.64	141	1745989.02	625199.31	145	320	348
HW-38	1746650.73	625289.84	145	1746319.59	625294.63	141	1745991.14	625299.29	145	320	347
HW-39	1746650.99	625389.85	145	1746319.59	625395.03	141	1745993.51	625399.27	145	320	345
HW-40	1746599.26	625490.60	145	1746297.83	625494.92	141	1745996.40	625499.24	145	320	289
HW-41	1746451.91	625592.72	145	1746225.04	625594.93	142	1745998.17	625599.22	145	320	139

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

12-7-2012

HDR

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Jacksonville, FL 32202

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PROJECT MANAGER	A. EVANS, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	A. EVANS, P.E.
DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

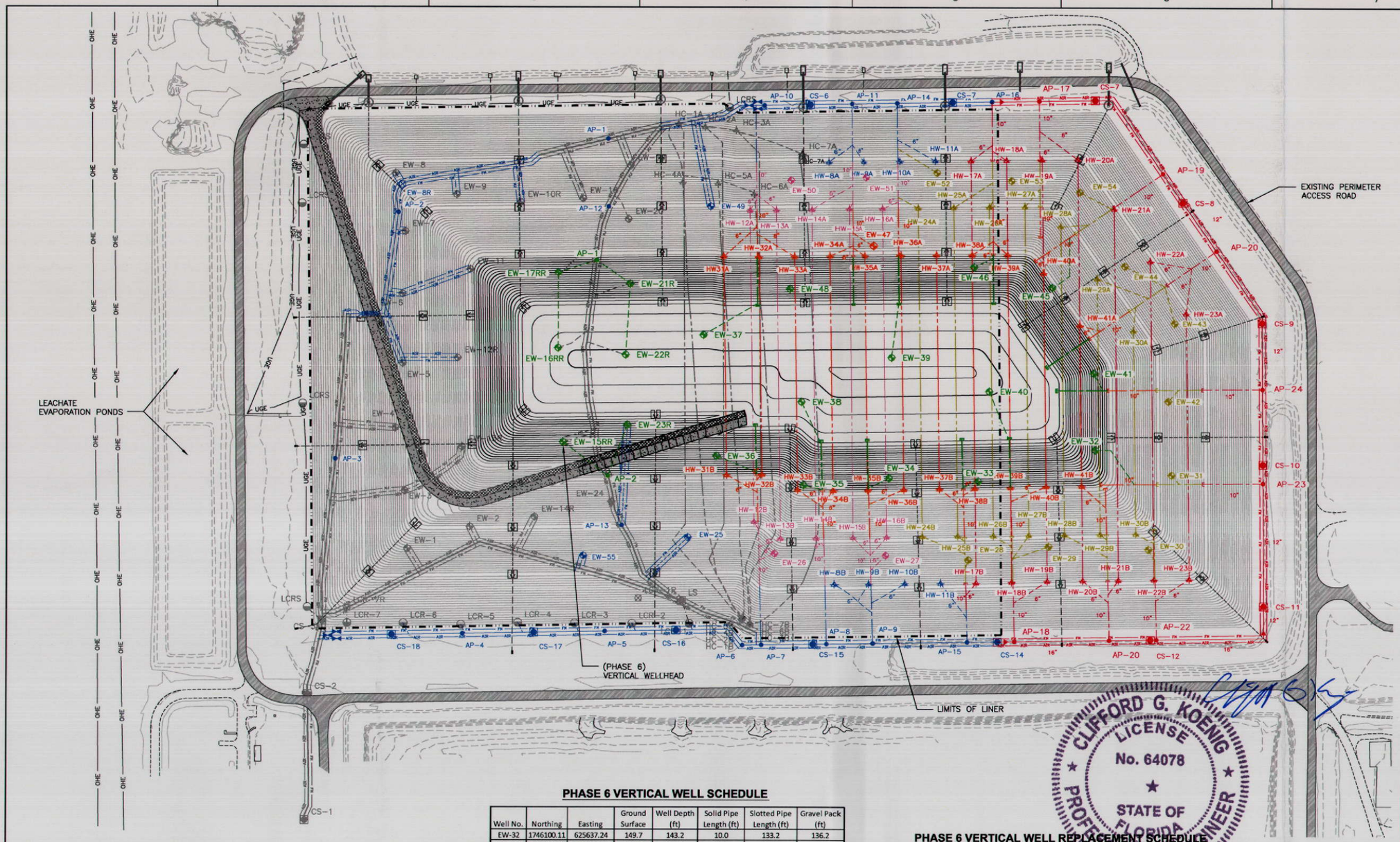
LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS MASTERPLAN
PHASE 5
FILL SEQUENCES PLAN - STAGES 9, 10, 11

0 1" 2"

FILENAME	00LFG-06.dwg
SCALE	AS SHOWN

SHEET 00LFG-06



N

SCALE IN FEET

150 75 0 150 300

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF LINER
- 1080 — EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- 1080 — PROPOSED CONTOURS (MAJOR)
- PROPOSED CONTOURS (MINOR)
- 1080 — TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- TOP DECK CONTOURS (MAJOR) (SEE NOTE 1)
- STORMWATER DOWNDRAIN PIPE
- LFG COMPONENTS TO BE ABANDONED
- EXISTING HORIZONTAL WELL
- EXISTING LATERAL
- EXISTING HEADER (SIZE VARIES)
- PROPOSED ACCESS ROAD PAVEMENT
- LCR-1 EXISTING LEACHATE CLEANOUT RISER
- HC-7B EXISTING HORIZONTAL LFG WELLHEAD
- EW-1 EXISTING LFG WELL
- LCRS EXISTING LEACHATE CLEANOUT
- CS-2 EXISTING CONDENSATE SUMP

LFG COMPONENTS (CURRENT PHASE)

- CS-14 CONDENSATE SUMP
- LFG VALVES
- HW-8B HORIZONTAL LFG WELLHEAD
- EW-1 LFG WELL
- AP-1 ACCESS POINT
- HDPE SDR 11 LATERAL (SIZE VARIES)
- 10"ø HDPE SDR 11 SUB-HEADER
- 8"ø SDR 11 HORIZONTAL WELL
- HDPE SDR 17 HEADER (SIZE VARIES)
- 2" HDPE SDR 9 AIR LINE
- 4" HDPE SDR 11 FORCEMAIN LINE

PHASING COLOR LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PHASE 6

PHASE 6 VERTICAL WELL SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-32	1746100.11	625637.24	149.7	143.2	10.0	133.2	136.2
EW-33	1746011.02	625308.48	146.0	138.3	10.0	128.3	131.3
EW-34	1746019.57	625058.35	146.7	139.4	10.0	129.4	132.4
EW-35	1745999.49	624815.89	145.8	141.1	10.0	131.1	134.1
EW-36	1746081.90	624570.43	147.7	143.0	10.0	133.0	136.0
EW-37	1746423.58	624533.33	156.2	151.4	10.0	141.4	144.4
EW-38	1746234.63	624809.81	155.2	150.3	10.0	140.3	143.3
EW-39	1746360.40	625064.60	159.4	153.8	10.0	143.8	146.8
EW-40	1746264.84	625338.98	158.6	151.4	10.0	141.4	144.4
EW-41	1746316.44	625632.53	157.5	151.9	10.0	141.9	144.9
EW-45	1746558.91	625515.63	145.8	142.5	10.0	132.5	135.5
EW-46	1746615.81	625295.69	146.7	141.5	10.0	131.5	134.5
EW-48	1746554.06	624777.46	149.5	145.3	10.0	135.3	138.3

PHASE 6 VERTICAL WELL REPLACEMENT SCHEDULE

Well No.	Northing	Easting	Ground Surface	Well Depth (ft)	Solid Pipe Length (ft)	Slotted Pipe Length (ft)	Gravel Pack (ft)
EW-15RR	1746120.7	624140.1056	147.8	144.3	10.0	134.3	137.3
EW-16RR	1746386.5	624125.8725	157.9	154.2	10.0	144.2	147.2
EW-17RR	1746599.3	624126.7707	147.2	144.0	10.0	134.0	137.0
EW-21R	1746567.9	624328.1007	148.9	145.7	10.0	135.7	138.7
EW-22R	1746367.3	624315.3379	158.9	155.7	10.0	145.7	148.7
EW-23R	1746169.1	624320.4648	152.0	149.0	10.0	139.0	142.0

Estimated Date Phase 6 is complete: December 2021. (+1.75 yrs after Phase 5)

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-7-2012

PHASE 6 CONSTRUCTION TABLE

ITEM DESCRIPTION	UNIT	QUANTITY
VERTICAL LFG WELLHEAD	EA	24
ACCESS POINT	EA	2
6"ø HDPE SDR 11 LATERAL	LF	2,885
10"ø HDPE SDR 11 SUB-HEADER	LF	1,929

NOTES:

1. FINAL GRADES SHOWN SUBMITTED IN AUGUST 2009 TO FDEP IN THE DRAWING SET TITLED "CLASS I CELL FILL SEQUENCE PLAN" AND REPRESENT MAXIMUM ALLOWABLE ELEVATIONS.
2. QUANTITIES IN PHASE 1 CONSTRUCTION TABLE ARE APPROXIMATE.

HDR

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200 W Forsyth St
Jacksonville, FL 32202

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PROJECT MANAGER	A. EVANS, P.E.
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DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS MASTERPLAN
PHASE 6 EXPANSION
FILL SEQUENCE PLAN - STAGES 12,13,14,15

0 1" 2"

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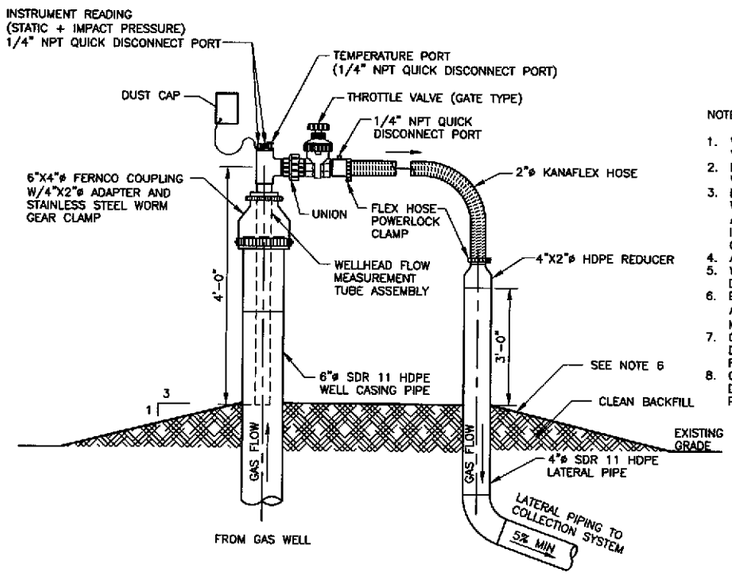
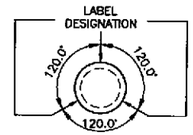
SCALE	AS SHOWN

SHEET 00LFG-07



NOTES:

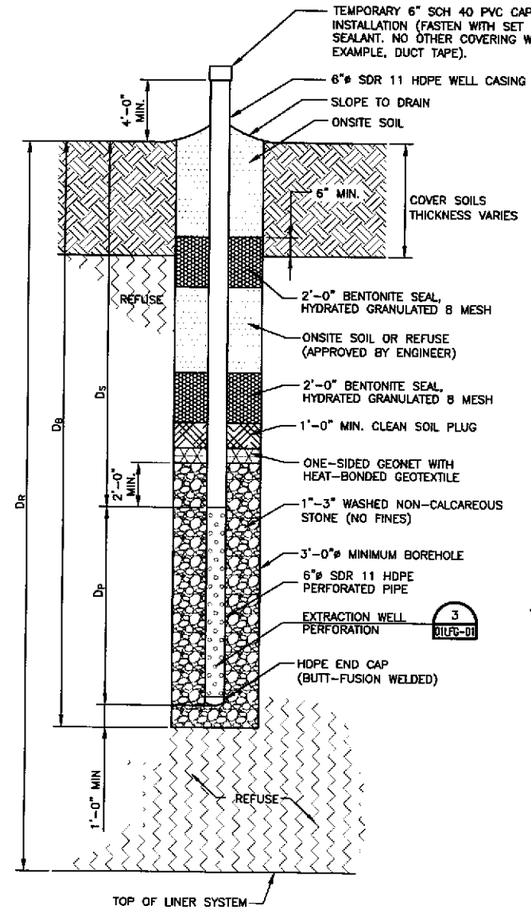
1. WELLHEAD ASSEMBLY SHOWN REPRESENTS 2"ø LANDTEC VERTICAL ACCU-FLO WELLHEAD ASSEMBLY.
2. PROVIDE HIGH VISIBILITY TAPE AROUND TOP 1-FOOT OF WELL CASING AND LATERAL PIPE.
3. LABEL ALL WELL RISERS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE ON 3 SIDES OFFSET BY APPROXIMATELY 120°.
4. AIR AND FORCEMAIN LINES NOT SHOWN FOR CLARITY.
5. WELLHEAD TO BE CONSTRUCTED TO ALLOW INSTALLATION OF DEWATERING PUMP.
6. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'-0"ø SURROUNDING SURFACE EXPRESSION WITH A MAXIMUM OF 6" ABOVE SURROUNDING GRADE.
7. QED PART NUMBER 40072 INCLUDED IN FLANGE PACKAGE DETAIL TO BE INSTALLED AT TERMINATING END OF FORCEMAIN PIPE AT THE WELLHEAD.
8. QED PART NUMBER 40070 INCLUDED IN FLANGE PACKAGE DETAIL TO BE INSTALLED AT TERMINATING END OF AIRLINE PIPE AT THE WELLHEAD.



LANDTEC WELLHEAD ASSEMBLY

NOT TO SCALE

1 / 01LFG-04



VERTICAL WELL

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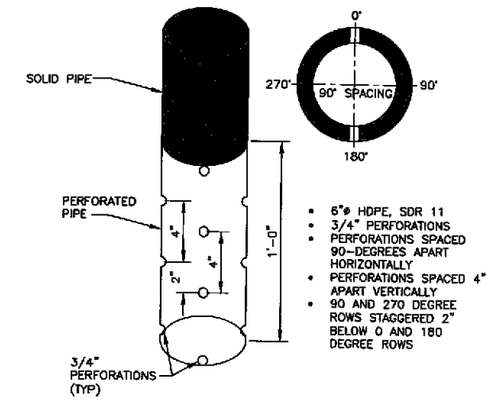
2 / 00LFG-02



- 6"ø HDPE, SDR 11
- 3/4" PERFORATIONS
- PERFORATIONS SPACED 90-DEGREES APART HORIZONTALLY
- PERFORATIONS SPACED 4" APART VERTICALLY
- 90 AND 270 DEGREE ROWS STAGGERED 2" BELOW 0 AND 180 DEGREE ROWS

EXTRACTION WELL PERFOROATIONS

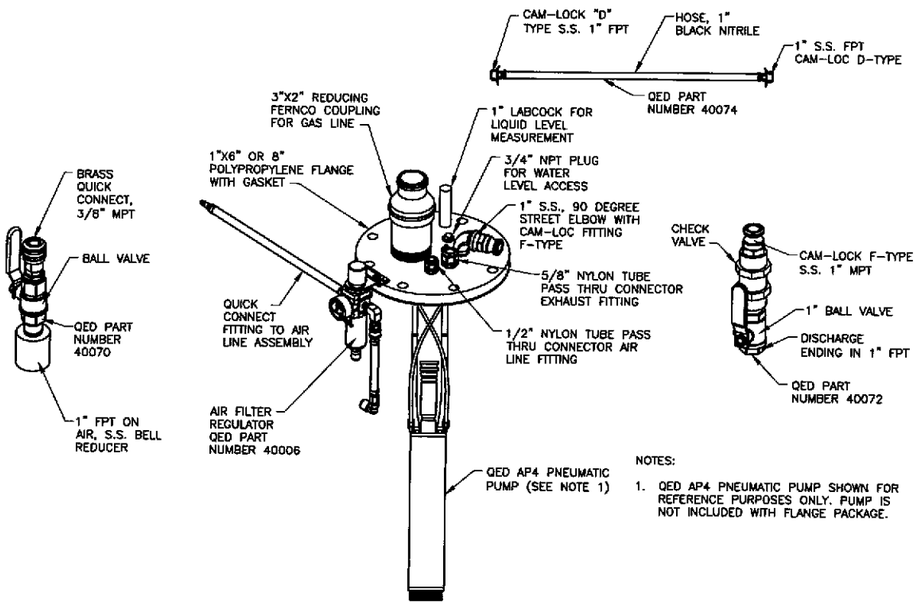
NOT TO SCALE

3 / 01LFG-01

NOTES:

1. D_R = DEPTH OF REFUSE
   D_B = DEPTH OF BORING
   D_S = DEPTH OF SOLID PIPE (BELOW GRADE) -10 FEET MINIMUM
   D_P = LENGTH OF PERFORATED PIPE

   SEE WELL SCHEDULES.
2. 1"-3" WASHED NON-CALCAREOUS STONE (NO FINES).
3. WELL DRILLING WILL NOT COMMENCE UNTIL EXISTING GRADE ELEVATIONS ARE IDENTIFIED AND VERIFIED BY PROJECT SURVEYOR, DESIGN ENGINEER, AND CQA REPRESENTATIVE.
4. WELL DRILLING TABLE WILL BE MANAGED BY OWNER OR DESIGNATED REPRESENTATIVE TO ENSURE ONLY THE VERIFIED WELL DEPTHS ARE PRESENT, AND THAT DRILLER AND CQA REPRESENTATIVE HAVE THE IDENTICAL INFORMATION PRIOR TO DRILLING.



NOTES:

1. QED AP4 PNEUMATIC PUMP SHOWN FOR REFERENCE PURPOSES ONLY. PUMP IS NOT INCLUDED WITH FLANGE PACKAGE.

FLANGE PACKAGE WITH PLUG

NOT TO SCALE

4 / 01LFG-01

CLIFFORD G. KOENIG
LICENSE
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STATE OF FLORIDA
PROFESSIONAL ENGINEER
12-7-2012

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PROJECT NUMBER	0000000000139929

Volusia County
FLORIDA

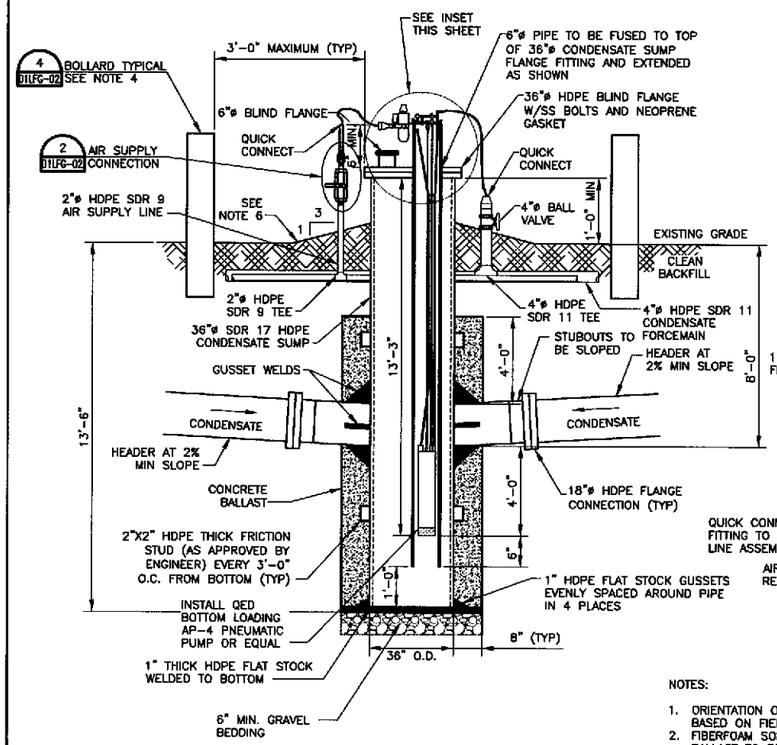
LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS DETAILS
(1 OF 6)

0 1" 2"

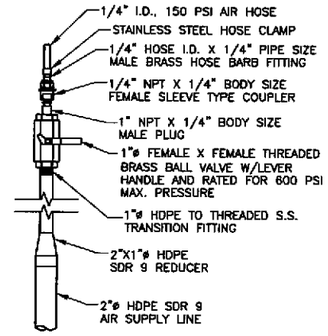
FILENAME	01LFG-01.dwg
SCALE	NOT TO SCALE

SHEET
01LFG-01



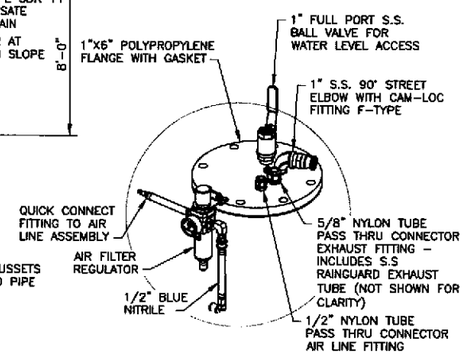
CONDENSATE SUMP

NOT TO SCALE — 1 / 00LFG-02



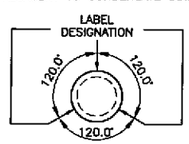
AIR SUPPLY CONNECTION

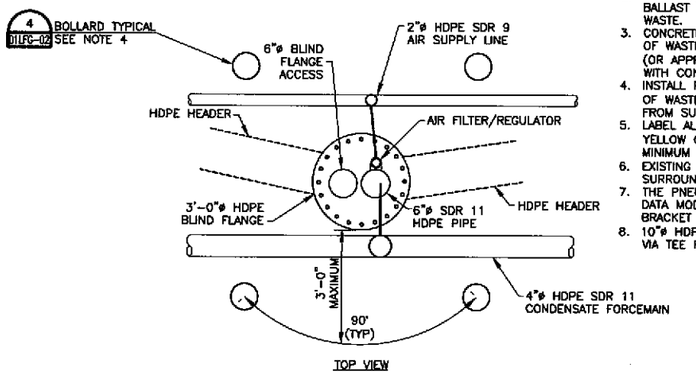
NOT TO SCALE — 2 / 01LFG-02



NOTES:

1. ORIENTATION OF HEADER LINES ENTERING CONDENSATE SUMP VARIES BASED ON FIELD CONDITIONS.
2. FIBERFOAM SONOTUBE FORM OR EQUAL AROUND SUMP FOR CONCRETE BALLAST TO BE CONSTRUCTED ON CONDENSATE SUMPS OUTSIDE OF WASTE.
3. CONCRETE SHALL BE POURED AS BALLAST FOR SUMPS LOCATED OUTSIDE OF WASTE. CONCRETE CAN FILL THE ENTIRE EXCAVATION, OR A SONOTUBE (OR APPROVED EQUAL) CAN BE PLACED AROUND THE SUMP AND FILLED WITH CONCRETE AS SHOWN.
4. INSTALL FOUR BOLLARDS AROUND CONDENSATE SUMPS LOCATED OUTSIDE OF WASTE. EACH BOLLARD TO BE 4'-0" TALL AND SPACED 3'-0" AWAY FROM SUMP. PAINT BOLLARDS SAFETY YELLOW.
5. LABEL ALL CONDENSATE SUMPS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
6. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
7. THE PNEUMATIC PUMP INSTALLATION SHALL ALSO INCLUDE A PUMP DATA MODULE. DATA MODULE SHALL BE INSTALLED TO SUMP FLANGE VIA BRACKET FITTING.
8. 10"ø HDPE SDR 11 SUB-HEADER SHALL CONNECT TO HEADER DIRECTLY VIA TEE FITTING, ADJACENT TO CONDENSATE SUMPS AND ACCESS POINTS.

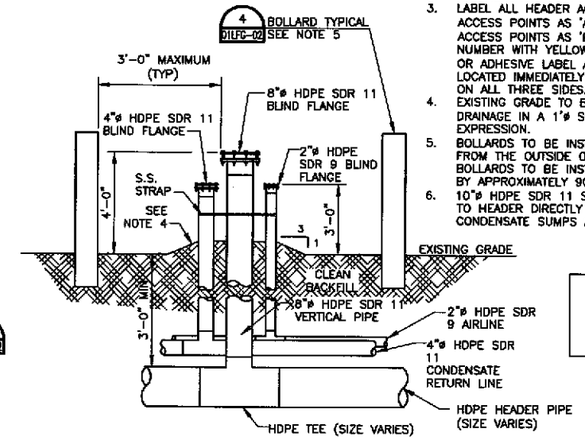


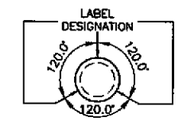


TOP VIEW

NOTES:

1. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS.
2. AIRLINE SHOWN OFFSET FOR CLARITY.
3. LABEL ALL HEADER ACCESS POINTS AS 'AP', AIRLINE ACCESS POINTS AS 'AIR AP' AND CONDENSATE ACCESS POINTS AS 'FM AP' WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE ON ALL THREE SIDES.
4. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
5. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE ACCESS POINT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.
6. 10"ø HDPE SDR 11 SUB-HEADER SHALL CONNECT TO HEADER DIRECTLY VIA TEE FITTING, ADJACENT TO CONDENSATE SUMPS AND ACCESS POINTS.



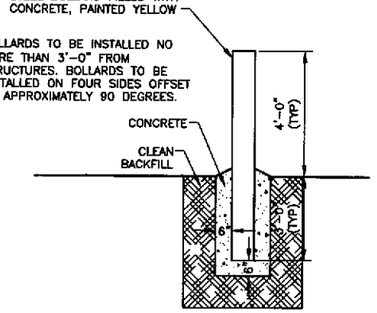


HEADER ACCESS POINT

NOT TO SCALE — 3 / 00LFG-02

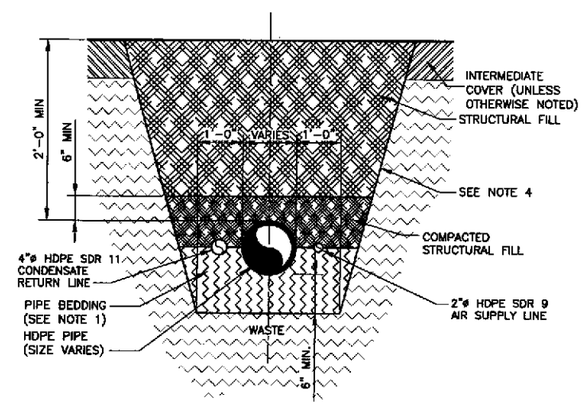
NOTES:

1. 6"ø GALVANIZED OR CARBON STEEL BOLLARD FILLED WITH CONCRETE, PAINTED YELLOW
2. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM STRUCTURES. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.



BOLLARD TYPICAL

NOT TO SCALE — 4 / 01LFG-02

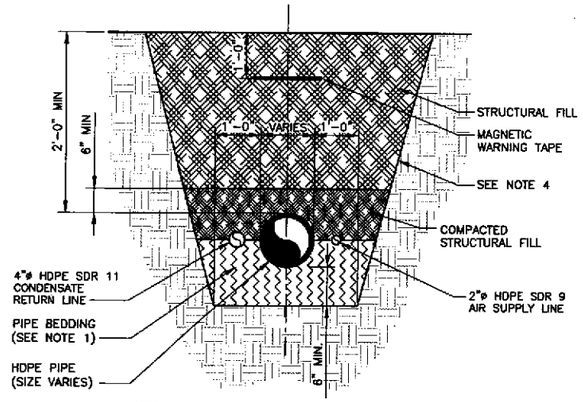


NOTES:

1. PIPE BEDDING TO BE COMPACTED BELOW AND TO THE MIDPOINT ON ALL PIPING.
2. ACTUAL DEPTH OF TRENCH MAY VARY BASED ON FIELD CONDITIONS.
3. ALL PIPES SHALL HAVE A MINIMUM OF 2' OF COVER UNLESS NOTED OTHERWISE.
4. TRENCH WALLS MUST BE SLOPED OR HAVE APPROPRIATE SHORING PROVIDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY STANDARDS.

TYPICAL LANDFILL GAS PIPE TRENCH (INSIDE WASTE)

NOT TO SCALE — 5 / 00LFG-02



NOTES:

1. PIPE BEDDING TO BE COMPACTED BELOW AND TO THE MIDPOINT ON ALL PIPING.
2. ACTUAL DEPTH OF TRENCH MAY VARY BASED ON FIELD CONDITIONS.
3. ALL PIPES SHALL HAVE A MINIMUM OF 2' OF COVER UNLESS NOTED OTHERWISE.
4. TRENCH WALLS MUST BE SLOPED OR HAVE APPROPRIATE SHORING PROVIDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY STANDARDS.

TYPICAL LANDFILL GAS PIPE TRENCH (OUTSIDE WASTE)

NOT TO SCALE — 6 / 00LFG-02

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PROJECT MANAGER	A. EVANS, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	A. EVANS, P.E.
DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	00000000000139929

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

12-7-2012

Volusia County FLORIDA

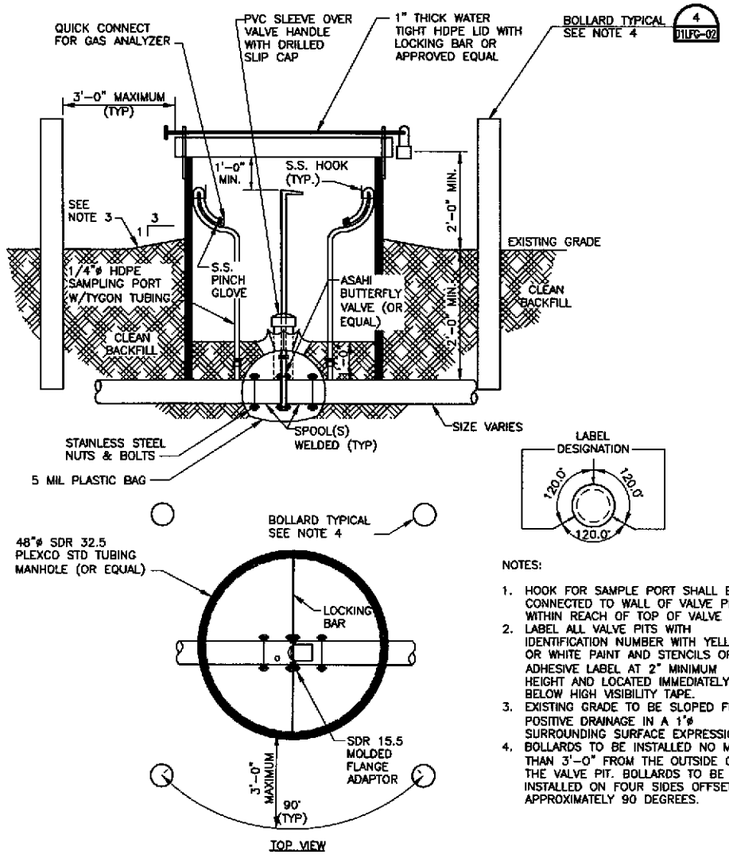
LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS DETAILS
(2 OF 6)

0 1" 2"

FILENAME	01LFG-02.dwg
SCALE	NOT TO SCALE

SHEET 01LFG-02



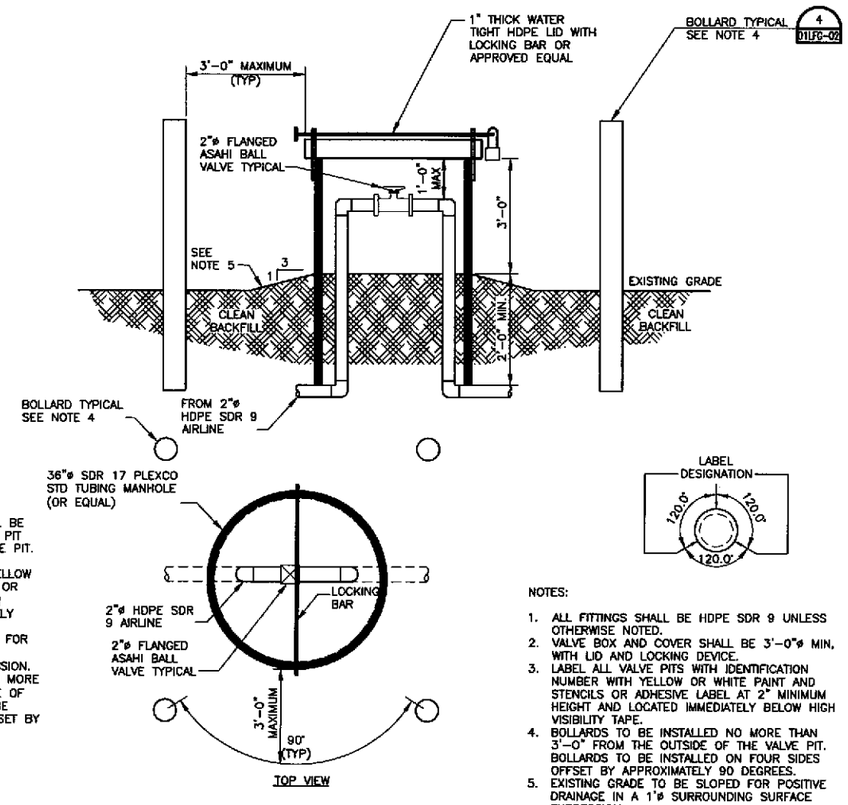
NOTES:

1. HOOK FOR SAMPLE PORT SHALL BE CONNECTED TO WALL OF VALVE PIT WITHIN REACH OF TOP OF VALVE PIT.
2. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
4. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.

HEADER LINE ISOLATION VALVE PIT

NOT TO SCALE

1 00LFG-02



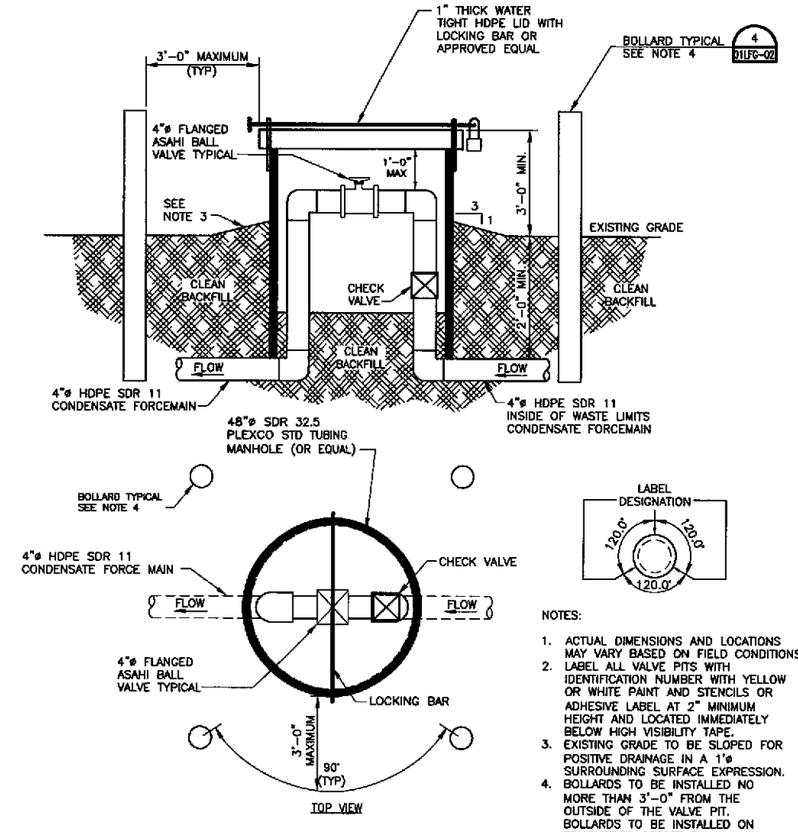
NOTES:

1. ALL FITTINGS SHALL BE HDPE SDR 9 UNLESS OTHERWISE NOTED.
2. VALVE BOX AND COVER SHALL BE 3'-0"ø MIN, WITH LID AND LOCKING DEVICE.
3. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
4. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.
5. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.

AIRLINE VALVE PIT

NOT TO SCALE

2 00LFG-02



NOTES:

1. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS
2. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
4. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.

FORCE MAIN VALVE PIT

NOT TO SCALE

3 00LFG-02

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

12-7-2012

HDR
HDR Engineering, Inc.
200 W Forsyth St
Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION
C	12/12	UPDATED FINAL SUBMITTAL
B	08/11	FINAL SUBMITTAL
A	07/11	DRAFT FOR CLIENT REVIEW

PROJECT MANAGER	A. EVANS, P.E.
DESIGNED BY	M. AUSTIN
DESIGNED BY	A. EVANS, P.E.
DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS DETAILS
(3 OF 6)

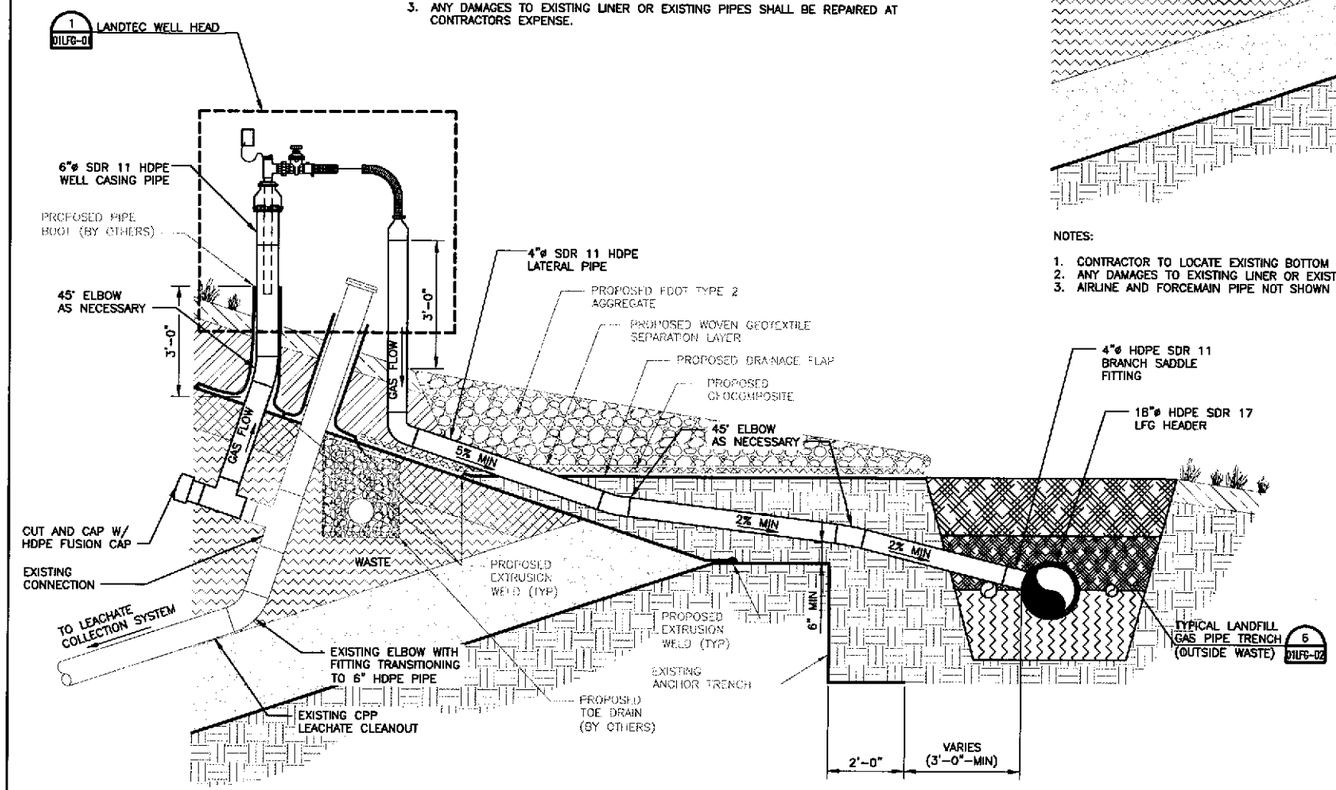
0 1" 2"

FILENAME	01LFG-03.dwg
SCALE	NOT TO SCALE

SHEET 01LFG-03

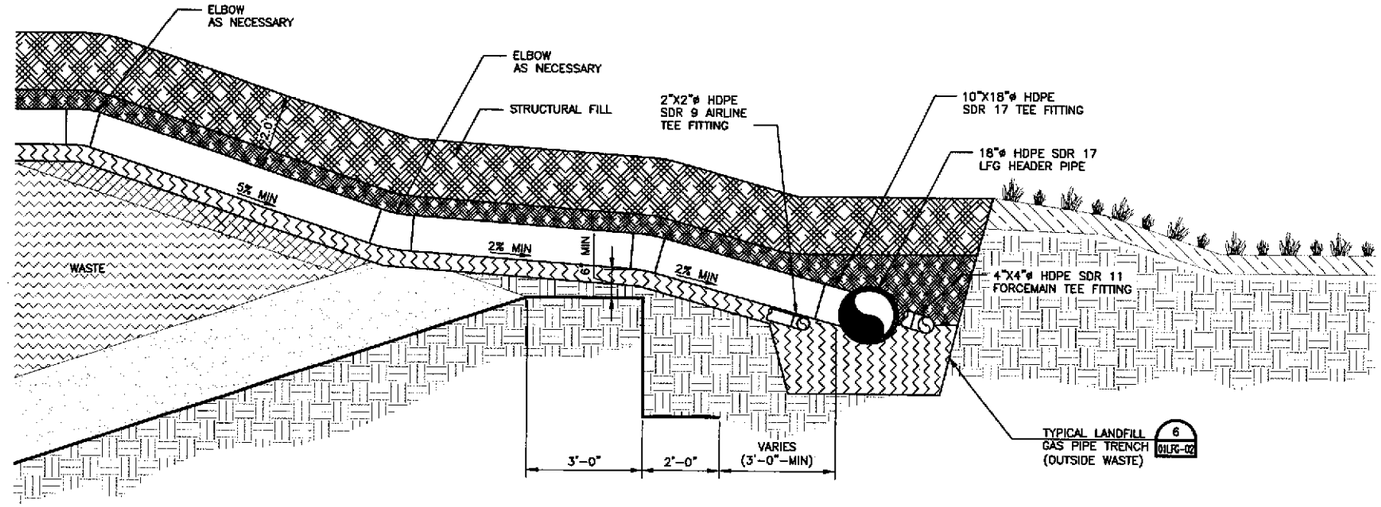
NOTES:

1. THE LFG HEADER AND COMPONENTS BETWEEN LANDTEC WELLHEAD AND EXISTING LEACHATE CLEANOUT ARE TO BE CONSTRUCTED PRIOR TO THE PLACEMENT OF THE LLDPE FINAL COVER. COMPONENTS BETWEEN THE LANDTEC WELLHEAD AND HEADER ARE TO BE CONSTRUCTED AFTER THE PLACEMENT OF THE LLDPE FINAL COVER.
2. CONTRACTOR TO LOCATE EXISTING BOTTOM LINER SYSTEM ANCHOR TRENCH PRIOR TO CONSTRUCTION.
3. ANY DAMAGES TO EXISTING LINER OR EXISTING PIPES SHALL BE REPAIRED AT CONTRACTORS EXPENSE.



LEACHATE CLEAN-OUT HEADER CONNECTION

NOT TO SCALE 1 00LFG-02

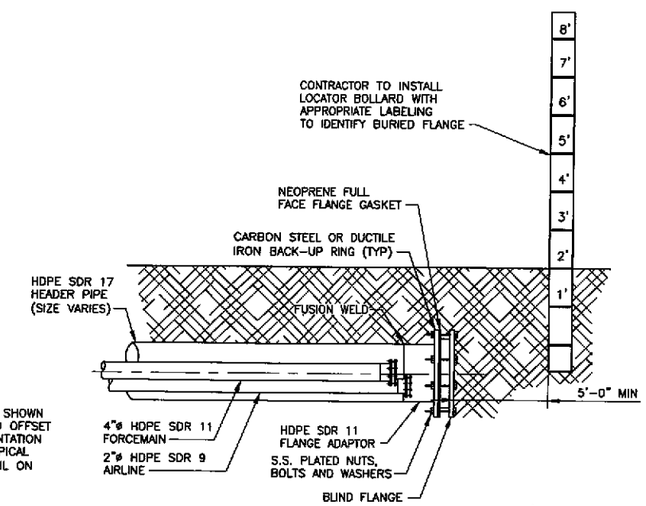


NOTES:

1. CONTRACTOR TO LOCATE EXISTING BOTTOM LINER SYSTEM ANCHOR TRENCH PRIOR TO CONSTRUCTION.
2. ANY DAMAGES TO EXISTING LINER OR EXISTING PIPES SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
3. AIRLINE AND FORCEMAIN PIPE NOT SHOWN CONTINUOUS IN SECTION FOR CLARITY.

ANCHOR TRENCH CROSSING (SOUTH)

NOT TO SCALE 2 00LFG-02



NOTES:

1. AIRLINE AND FORCEMAIN PIPES SHOWN ON SAME SIDE OF HEADER AND OFFSET FOR CLARITY. DEPTH AND ORIENTATION SHALL BE CONSISTENT WITH TYPICAL TRENCH (OUTSIDE WASTE) DETAIL ON SHEET 01LFG-02.

STUB-OUT AND DEPTH MARKER

NOT TO SCALE 3 00LFG-02

CLIFFORD G. KOENIG
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No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER
12-7-2012

HDR
HDR Engineering, Inc.
266 W Forsyth St
Jacksonville, FL 32202

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PROJECT NUMBER	00000000000139929

Volusia County FLORIDA

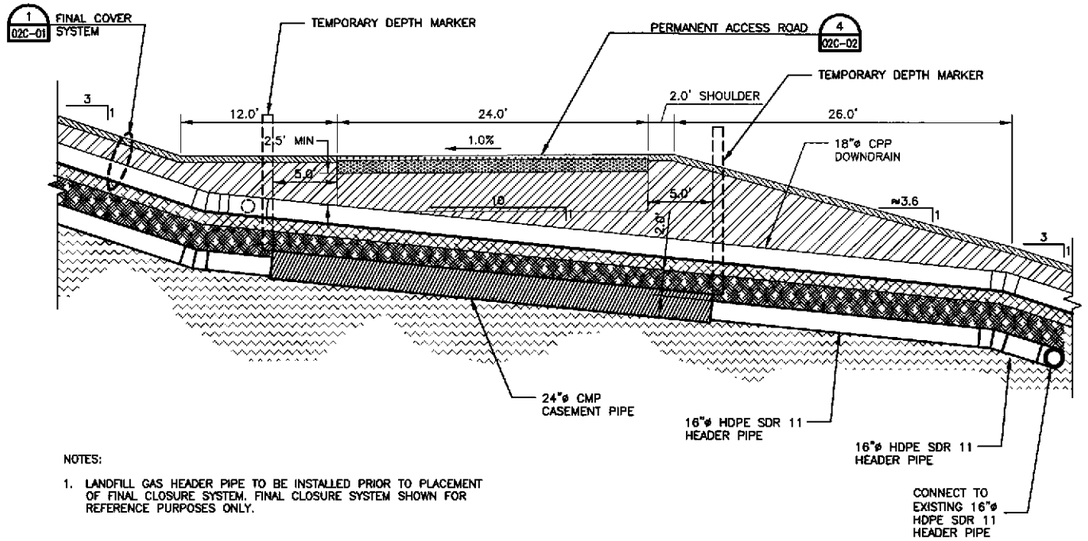
LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS DETAIL
(4 OF 6)

0 1" 2"

FILENAME	01LFG-04.dwg
SCALE	NOT TO SCALE

SHEET 01LFG-04

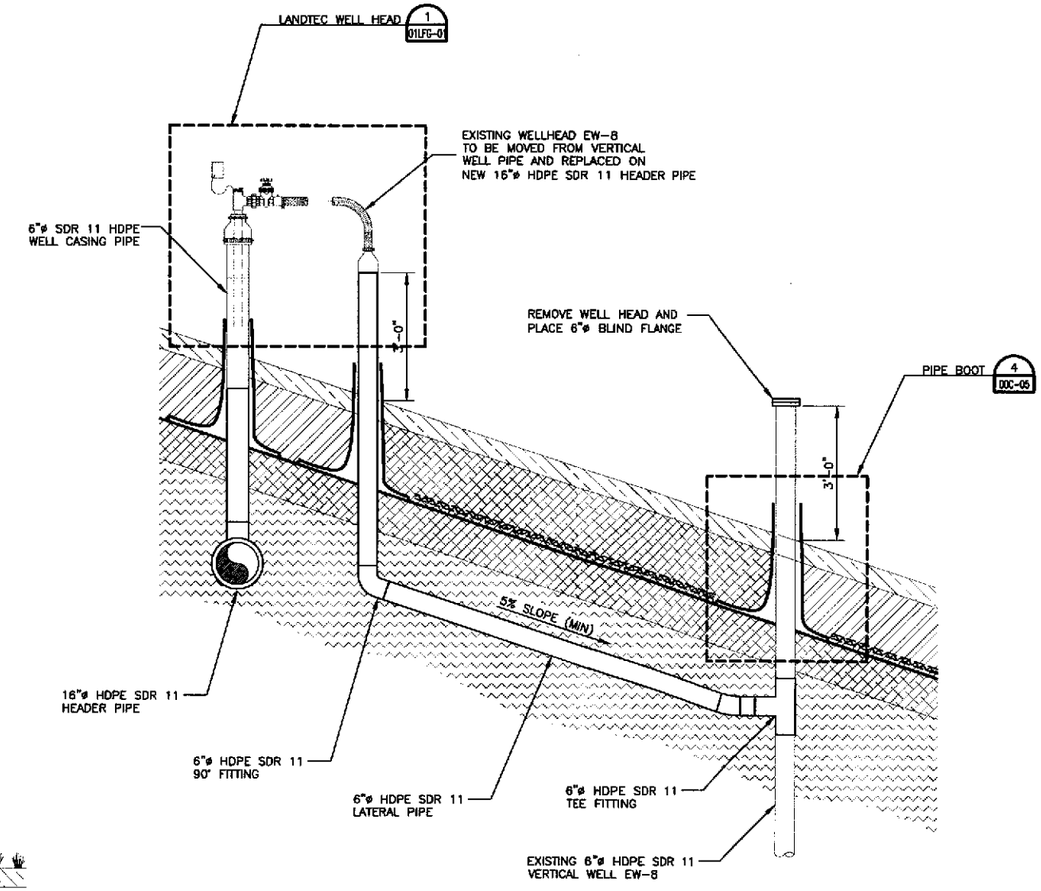


NOTES:

1. LANDFILL GAS HEADER PIPE TO BE INSTALLED PRIOR TO PLACEMENT OF FINAL CLOSURE SYSTEM. FINAL CLOSURE SYSTEM SHOWN FOR REFERENCE PURPOSES ONLY.

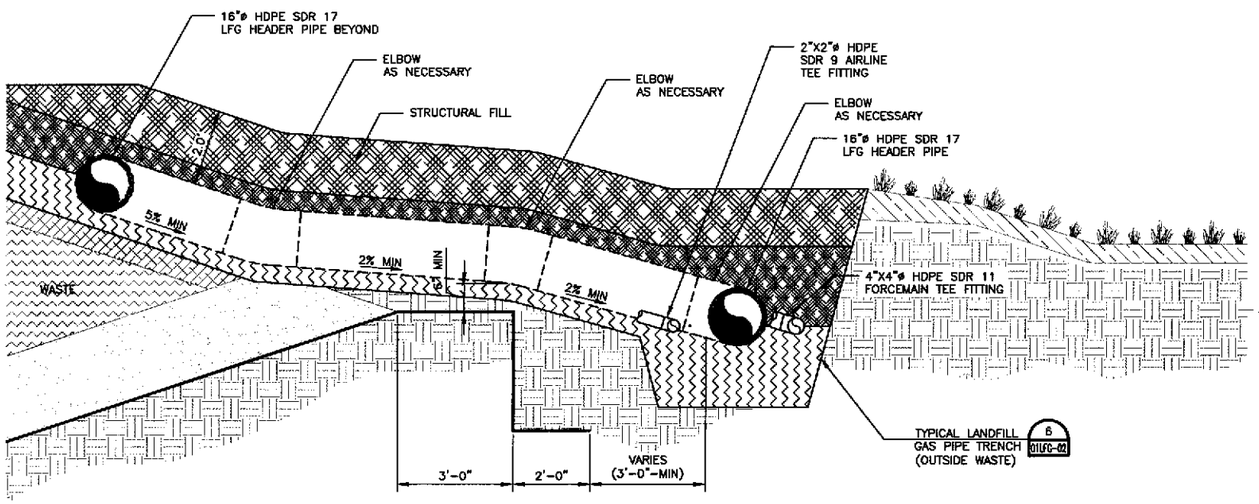
HEADER ROAD CROSSING

NOT TO SCALE 1 00LFG-02



DOWNSLOPE VERTICAL WELL

NOT TO SCALE 2 00LFG-02



NOTES:

1. CONTRACTOR TO LOCATE EXISTING BOTTOM LINER SYSTEM ANCHOR TRENCH PRIOR TO CONSTRUCTION.
2. ANY DAMAGES TO EXISTING LINER OR EXISTING PIPES SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
3. AIRLINE AND FORCEMAIN PIPE NOT SHOWN CONTINUOUS IN SECTION FOR CLARITY.

ANCHOR TRENCH CROSSING (NORTH)

NOT TO SCALE 3 00LFG-02

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-7-2012

HDR

HDR Engineering, Inc. 200 W Forsyth St Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION
C	12/12	UPDATED FINAL SUBMITTAL
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A	07/11	DRAFT FOR CLIENT REVIEW

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DESIGNED BY	A. EVANS, P.E.
DESIGNED BY	
DRAWN BY	M. AUSTIN
DRAWN BY	C. BREWER
CHECKED BY	C. LEBRON, P.E.
CHECKED BY	C. KOENIG, P.E.
PROJECT NUMBER	0000000000139929

Volusia County FLORIDA

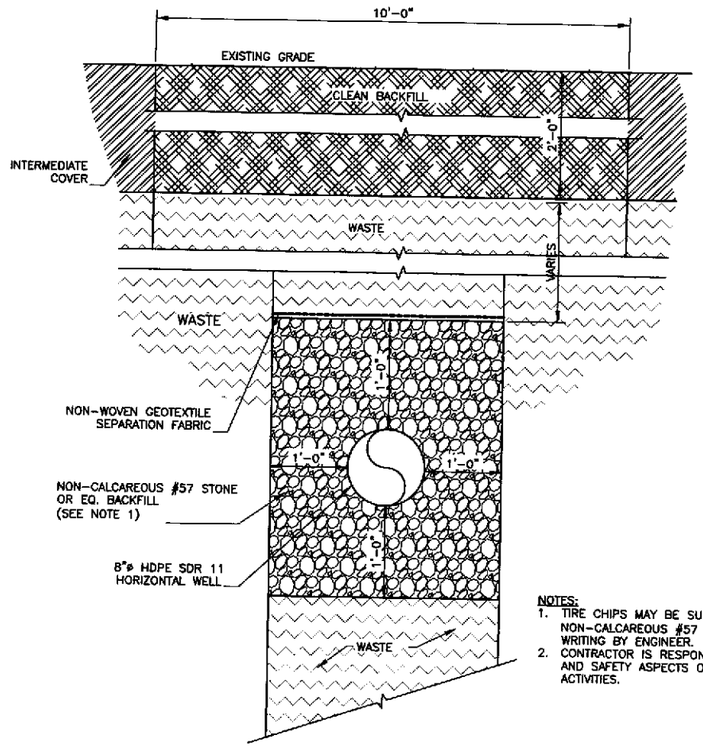
LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LFG DETAILS (5 of 5)

0 1" 2"

FILENAME	01LFG-05.dwg
SCALE	NOT TO SCALE

SHEET 01LFG-05

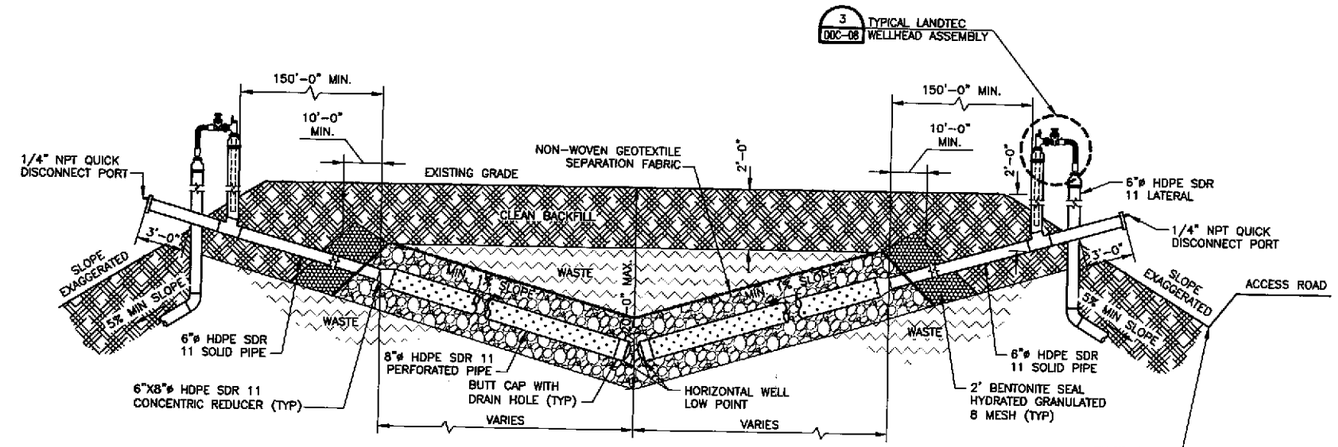


NOTES:
1. TIRE CHIPS MAY BE SUBSTITUTED FOR NON-CALCAREOUS #57 STONE IF APPROVED IN WRITING BY ENGINEER.
2. CONTRACTOR IS RESPONSIBLE FOR ALL HEALTH AND SAFETY ASPECTS OF ALL CONSTRUCTION ACTIVITIES.

TYP. HORIZONTAL WELL TRENCH (FRONT VIEW)

NOT TO SCALE

1 / 00LFG-02

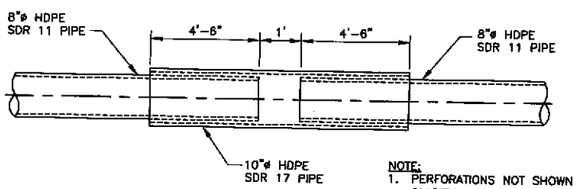


NOTES:
1. PROPOSED HORIZONTAL WELL LINER COVER TO BE EXTENDED A MINIMUM OF 10' BEYOND THE PERFORATED COLLECTION PIPING.
2. PROPOSED HORIZONTAL WELLHEADS TO BE CONSTRUCTED ON EDGE OF TOP DECK AREA.
3. SLIP JOINT LOCATIONS VARY AND ARE NOT SHOWN FOR CLARITY.
4. CONTRACTOR TO PLACE STONE 3H:1V AWAY FROM PERFORATED PIPE EXTENDING APPROXIMATELY 10' BEYOND PERFORATIONS.
5. HEADER AND/OR LATERAL PIPING MAY BE IN CLOSE PROXIMITY TO THE ANCHOR TRENCH AND/OR LINER. CONTRACTOR TO TAKE ADDITIONAL PRECAUTIONS DURING ANY CONSTRUCTION RELATED ACTIVITIES NEAR LINER. ANY DAMAGE CAUSED BY THE CONSTRUCTION ACTIVITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. CONDITIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY AND MUST BE VERIFIED DURING CONSTRUCTION BY THE CONTRACTOR.
7. LINER AND ANCHOR TRENCH HAVE BEEN OMITTED FROM THIS DETAIL FOR CLARITY.

HORIZONTAL WELL CROSS-SECTION

NOT TO SCALE

2 / 00LFG-02

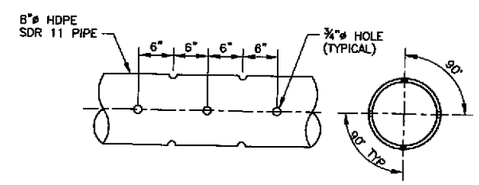


NOTE:
1. PERFORATIONS NOT SHOWN FOR CLARITY. SEE DETAIL 4/00C-08 FOR PERFORATED PIPE.

TYPICAL HORIZONTAL WELL SLIP JOINT

NOT TO SCALE

3 / 01LFG-06



TYPICAL PERFORATED PIPE

NOT TO SCALE

4 / 01LFG-06

HDR

HDR Engineering, Inc.
300 W Forsyth St
Jacksonville, FL 32202

ISSUE	DATE	DESCRIPTION
C	12/12	UPDATED FINAL SUBMITTAL
B	08/11	FINAL SUBMITTAL
A	07/11	DRAFT FOR CLIENT REVIEW

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DESIGNED BY	A. EVANS, P.E.
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PROJECT NUMBER	0000000000139929

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER
12-7-2012

Volusia County FLORIDA

LANDFILL GAS MASTER PLAN
CLASS I ACTIVE AREA
TOMOKA FARMS ROAD LANDFILL
VOLUSIA COUNTY, FLORIDA

LANDFILL GAS DETAILS
(6 OF 6)

0 1" 2"

FILENAME	01LFG-06.dwg
SCALE	NO TO SCALE

SHEET 01LFG-06

Volusia County Solid Waste Division- Operator and Spotter Training/Certifications

	Class I, II, III Landfill Operator				C&D Operator			Transfer Station			MRF		SPOTTERS				
NAME	30 SWANA - Mgr of Landfill Ops Trg Course [MOLO] (30)	160 SWANA - Mgr of Landfill Ops [MOLO] (30)	195 24-Hour Initial Trg Course for Landfill Operators (Class I, II, III and C&D Sites)	21 Solid Waste Landfill Operator's Short School (No longer offered) (20)	200 C&D Demo Debris Landfills (24)	195 24-Hour Initial Trg Course for Landfill Ops (Class I, II, III and C&D Sites)	444 SWANA Transfer Station Design & Operations (8)	196 16 Hr. Initial Trg Course for Transfer Sta Operators	225 19 Hr. Initial Trg for Transfer Sta and MRF Operators	42 Transfer Sta Design & Ops (16)	222 SWANA - Managing MSW Transfer Sta Systems (16)	225 19 Hr Initial Trg for Transfer Sta & MRF Operators	197 16 Hr Initial Trg Course for MRFs	36 Waste Screening & Identification for Landfill Ops and Spotters (8)	203 8 Hr Initial Trg for Spotters, Class I, II, III Landfills, Waste Processing Faculties, C& D	248 SPOTTER Training for Solid Waste Facilities (8)	111 Landfill Ops and Waste Screening for Class I, II & III Sites (8)	147 Training for Spotters at Landfills, C&D Sites and Transfer Stations (8)
BAILEY, WALLACE																	3/25/2009
BAKER, CHARLES DAVID															08/06/03		
BUNCH, BRETT															03/12/08		
CLEMENT, CHARLES															08/06/03	03/17/10	
CSERNAI, MICHAEL			12/08/06												08/07/03		03/25/09
DANIELS, DUANE															08/07/03		
ELLIS, CHRIS			11/18/05	11/17/95										10/22/97	08/07/03		04/20/99	03/25/09
FAIRCLOTH, JEFFERY															08/06/03		
GILL, STEVEN																	03/25/09
GOMBOZ, RICHARD																	03/25/09
HARRIS, RICHARD															08/07/03		
HASTINGS, HERMAN																	03/25/09
HILL, ERIC				11/16/90 10/18/94					07/24/02			07/24/02		04/29/97	08/06/03	03/31/06	04/20/99	03/25/09
HOPTON, TROY															08/06/03	03/31/06		03/21/02
HUBBARD, RANDY		12/08/06																03/25/09
HUFFMAN, RONALD																		11/17/08
HUNTER, RANDAL															08/06/03		
JONES, JEFFREY S.												11/19/03			08/07/03		
JONES, RICHARD															08/06/03			03/21/02
KELLY, DAVID		12/08/06		11/16/90 05/20/94								07/24/02 10/31/03		05/20/96	08/06/03		04/20/99	03/25/09
LAWSON, DAVID															03/12/08		
LOPEZ NIEVES, VICTOR M															08/07/03		
LYONS, ROBERT																	03/25/09
MCCONNELL, MICHAEL															08/06/03		
MCCORMACK, PATRICK	09/15/00											10/31/03			08/07/03	03/31/06	
MCCORMICK, DAN		05/21/04										10/31/03				03/31/06	
MONTGOMERY, REGINA									11/17/05			10/31/03				03/31/06	
MOORE, SANDRA																03/17/10	
MOREHOUSE, ED																	03/25/09
NORMAN, WILLIE															03/12/08		
PALMER, VICTOR LOUIE															03/12/08		
PETERSON, JERRY																03/31/06	
PETERSON, SAMUEL																02/28/07	
PHILIBERT, SUSAN																	11/18/05
POWERS, GREGORY				05/19/95										10/22/97	08/07/03		04/20/99
QUINN, CHARLES				11/17/95						07/22/97					08/07/03		04/20/99
RICHARDSON, REYNOLDS																02/28/07	
REED, JUNOS						11/16/12											
ROBINSON, BOBBY		12/08/06							04/15/08						08/07/03		
SAWYER, COLLEEN															08/07/03		
SOUSA, MICHAEL															08/06/03		
STAUFFER, JON															08/07/03		
STEWART, ANDREW															08/07/03		
STIRK, JENNIFER									11/17/05								
STONE, PETER J															08/06/03		
TABOR, JON															03/07/12		
TRUSSELL, WILLIE																03/31/06	
WEBER, JENNIE																02/27/10	
WILLIAMS, DENNIS															08/07/03		
WOULARD, KOREY															08/06/03		
ZOW, S. DEXTER						11/16/2012											

	CONTINUING EDUCATION																				
NAME	5 Landfill Design: Leachate & Gas Mgmt. (15)	34 Hazardous s Waste & Emergency Response (3)	39 Stormwater Mgmt. for Landfills (8)	49 Landfill Gas & Leachate Systems (8)	61 Successfully Contracting Solid Waste Svcs (4)	62 Health & Safety Trg for Haz Mat Activities (8)	63 Hazardous Waste Regs for Generators (4)	72 Bird & Wildlife Mgmt. at Solid Waste Mgmt. Facilities (7)	80 C&D Debris Landfills: A short Course for Operators (20)	102 Hazardous Materials in C&D Waste (4)	118 Landfill Wildlife Training Course (4)	121 Trg for Personnel at C&D Demo Materials Recovery Facilities (8)	122 Waste Screening 7 Operation Orient for Transfer Sta Personnel (8)	124 Landfill Compaction Training School (5)	125 Mgmt. of Leachate, Gas, Stormwater and Odor at Class I, II, III Landfills (8)	149 Health & Safety Trg for Landfill Ops (5)	152 Groundwater Issues for Landfill Ops (6)	216 (444) SWANA-Transfer Sta Design & Ops (8) (4)	225 Heavy Equipment Operator Training (4)	259 SWANA-Waste Red, Recycle, and Composting 14th Annula Symposium (7)
BAILEY, WALLACE																				
BAKER, CHARLES DAVID																				
BUNCH, BRETT																				
CLEMENT, CHARLES																				
CSERNAI, MICHAEL																				
DANIELS, DUANE																				
ELLIS, CHRIS				10/21/97																
FAIRCLOTH, JEFFERY			04/19/99	11/20/03														03/15/10	
GILL, STEVEN																				
GOMBOZ, RICHARD																				
HARRIS, RICHARD																				
HASTINGS, HERMAN																				
HILL, ERIC			04/19/99	11/20/03																
HOPTON, TROY								04/30/97												03/11/04
HUBBARD, RANDY							03/19/03													
HUFFMAN, RONALD																				
HUNTER, RANDAL																				
JONES, JEFFREY S.																				
JONES, RICHARD																				
KELLY, DAVID			04/19/99		06/26/96			04/30/97												
LAWSON, DAVID																				
LOPEZ NIEVES, VICTOR M																				
LYONS, ROBERT																				
MCCONNELL, MICHAEL																				
MCCORMACK, PATRICK		10/23/02																		
MCCORMICK, DAN														03/20/02						
MONTGOMERY, REGINA																		03/15/10		
MOORE, SANDRA																				
MOREHOUSE, ED																				
NORMAN, WILLIE																				
PALMER, VICTOR LOUIE																				
PETERSON, JERRY																		03/15/10		
PETERSON, SAMUEL																				
PHILIBERT, SUSAN																				
POWERS, GREGORY			04/19/99	10/21/97 11/20/03																
QUINN, CHARLES				01/09/97			03/19/03	10/20/97			03/27/00			03/20/02	03/27/00					
RICHARDSON, REYNOLDS																				
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SAWYER, COLLEEN																				
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STIRK, JENNIFER																				
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TABOR, JON																				
TRUSSELL, WILLIE																				
WEBER, JENNIE																				
WILLIAMS, DENNIS																				
WOULARD, KOREY																		03/11/04		
ZOW, S. DEXTER																				