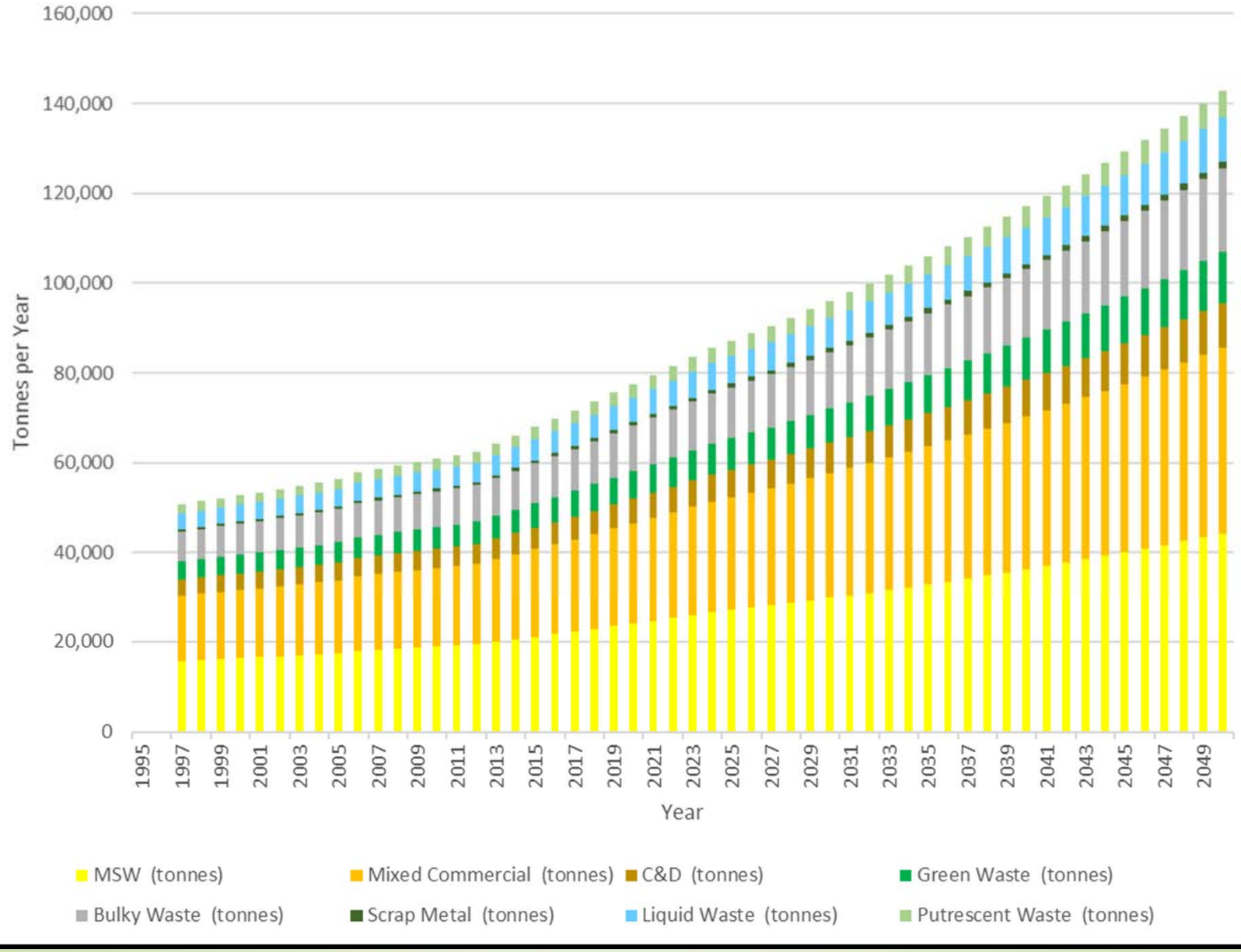
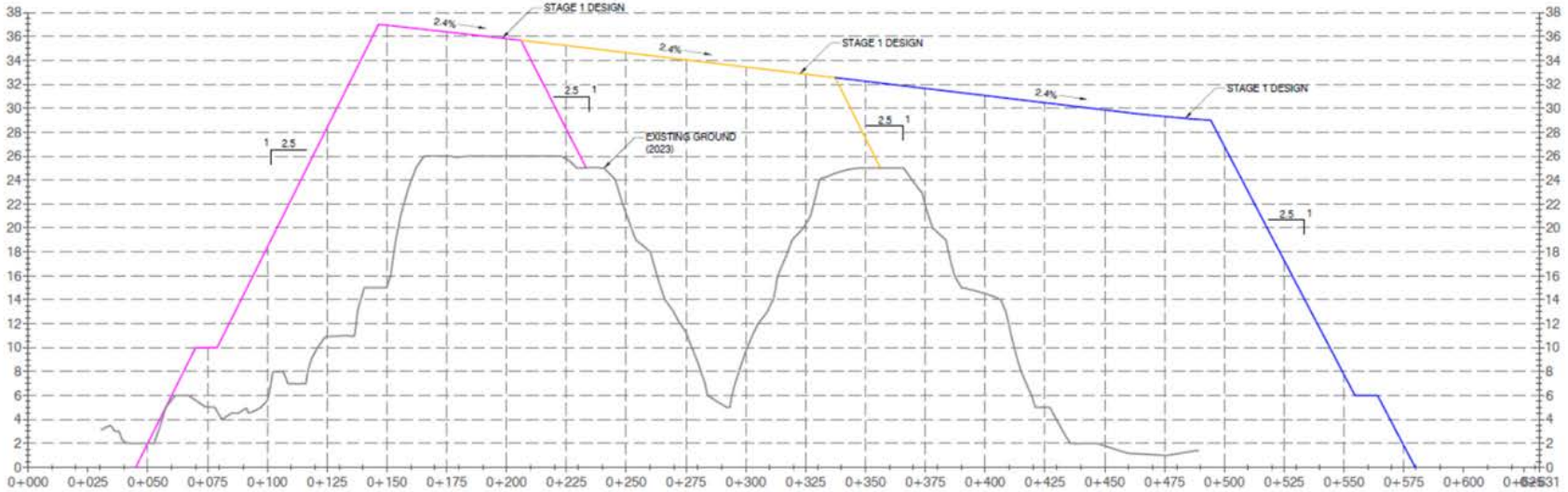
Waste Generation Projection

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1																
2	YEAR	POPULATION	GROWTH	POPULATION	MAHE/TOTAL	TOTAL	MSW	Mixed	C&D	Green	Bulky	Scrap	Liquid	Putrescent	Total	Total
3		SEYCHELLES	RATE	MAHE	Pop. Ratio	TONNES		Commercial		Waste	Waste	Metal	Waste	Waste	Check Sum	Organics
4						(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
5	% Total						31%	29%	7%	8%	13%	1%	7%	4%	100%	
6	% Organic						28%	36%	0%	100%	0%	0%	100%	100%	0.01	
36	2024	130,418	1.8%	109,551	0.84	**88,919**	27,565	25,786	6,224	7,114	11,559	889	6,224	3,557	88,919	19,118
37	2025	132,779	2.0%	111,534	0.84	**90,529**	28,064	26,253	6,337	7,242	11,769	905	6,337	3,621	90,529	19,464
38	2026	135,435	2.0%	113,765	0.84	**92,339**	28,625	26,778	6,464	7,387	12,004	923	6,464	3,694	92,339	19,853
39	2027	138,143	2.0%	116,040	0.84	**94,186**	29,198	27,314	6,593	7,535	12,244	942	6,593	3,767	94,186	20,250
40	2028	140,906	2.0%	118,361	0.84	**96,070**	29,782	27,860	6,725	7,686	12,489	961	6,725	3,843	96,070	20,655
41	2029	143,724	2.0%	120,728	0.84	**97,991**	30,377	28,417	6,859	7,839	12,739	980	6,859	3,920	97,991	21,068
42	2030	146,599	2.0%	123,143	0.84	**99,951**	30,985	28,986	6,997	7,996	12,994	1,000	6,997	3,998	99,951	21,489
43	2031	149,531	2.0%	125,606	0.84	**101,950**	31,604	29,565	7,136	8,156	13,253	1,019	7,136	4,078	101,950	21,919
44	2032	152,521	2.0%	128,118	0.84	**103,989**	32,237	30,157	7,279	8,319	13,519	1,040	7,279	4,160	103,989	22,358
45	2033	155,572	2.0%	130,680	0.84	**106,069**	32,881	30,760	7,425	8,485	13,789	1,061	7,425	4,243	106,069	22,805
46	2034	158,683	2.0%	133,294	0.84	**108,190**	33,539	31,375	7,573	8,655	14,065	1,082	7,573	4,328	108,190	23,261
47	2035	161,857	2.0%	135,960	0.84	**110,354**	34,210	32,003	7,725	8,828	14,346	1,104	7,725	4,414	110,354	23,726
48	2036	165,094	2.0%	138,679	0.84	**112,561**	34,894	32,643	7,879	9,005	14,633	1,126	7,879	4,502	112,561	24,201
49	2037	168,396	2.0%	141,453	0.84	**114,812**	35,592	33,296	8,037	9,185	14,926	1,148	8,037	4,592	114,812	24,685
50	2038	171,764	2.0%	144,282	0.84	**117,108**	36,304	33,961	8,198	9,369	15,224	1,171	8,198	4,684	117,108	25,178
51	2039	175,199	2.0%	147,167	0.84	**119,451**	37,030	34,641	8,362	9,556	15,529	1,195	8,362	4,778	119,451	25,682
52	2040	178,703	2.0%	150,111	0.84	**121,840**	37,770	35,333	8,529	9,747	15,839	1,218	8,529	4,874	121,840	26,195
53	2041	182,277	2.0%	153,113	0.84	**124,276**	38,526	36,040	8,699	9,942	16,156	1,243	8,699	4,971	124,276	26,719
54	2042	185,923	2.0%	156,175	0.84	**126,762**	39,296	36,761	8,873	10,141	16,479	1,268	8,873	5,070	126,762	27,254

- Projections based on:
  - census population
  - Historic population growth (2%)
  - 2023 Scale data
  - LWMA Waste Composition

Waste Composition and Quantity





FILLING PLAN PROFILE PROFILE
H - 1:2000
V - 1:400

NOTES:

1. EXISTING GROUND CONTOURS PROVIDED BY CLIENT (2023 SURVEY)

100 0 100m
SCALE = 1:2000

SPERLING HANSEN ASSOCIATES

Landfill Services Group
- Landfill Siting
- Design & Operations Plans
- Landfill Closure
- Environmental Monitoring

#9 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J3
Phone: (604) 986-7723

LEGEND:
- (EXISTING GROUND PROFILE - 2023
- STAGE 1 - DESIGN PROFILE
- STAGE 2 - DESIGN PROFILE
- STAGE 3 - DESIGN PROFILE

CLIENT: SEYCHELLES LANDFILL

PROJECT: SEYCHELLES LANDFILL

TITLE: FILLING PLAN PROFILE

SCALE:	DATE:	PROJECT NO:
1:2000	2025/01/27 yyyy/mm/dd	PRJ -
DESIGNED TS	DRAWING NO:	
DRAWN EP	FIGURE 08	
CHECKED TS		

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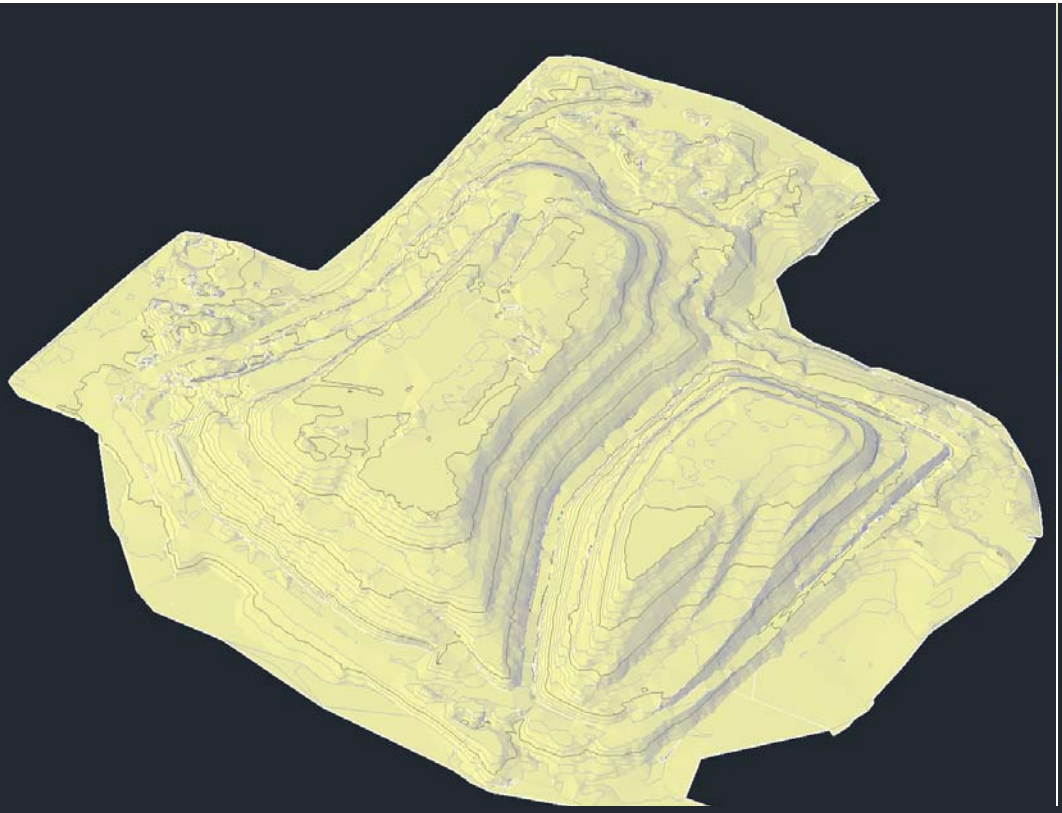

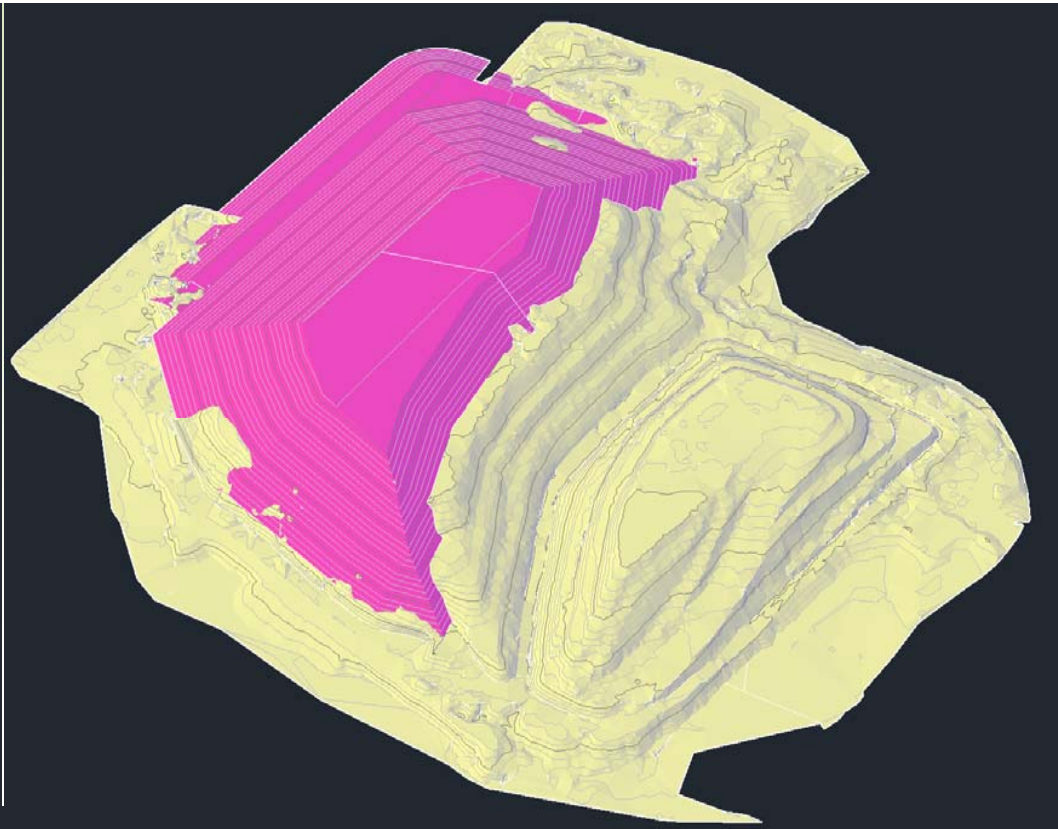

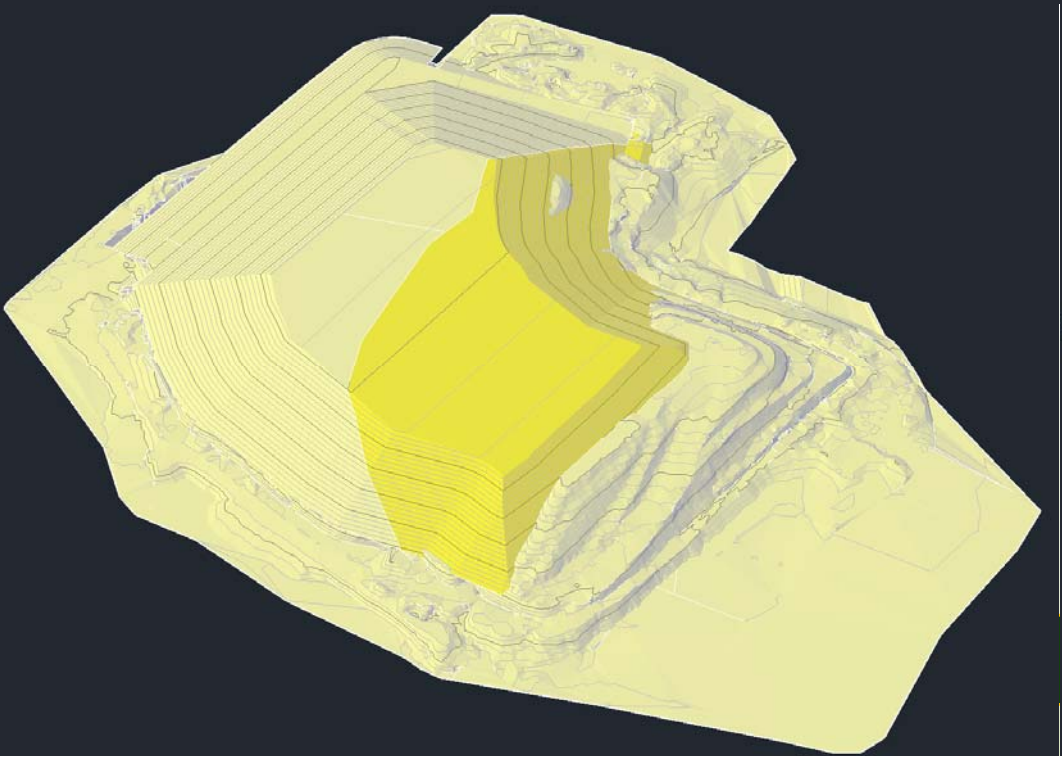

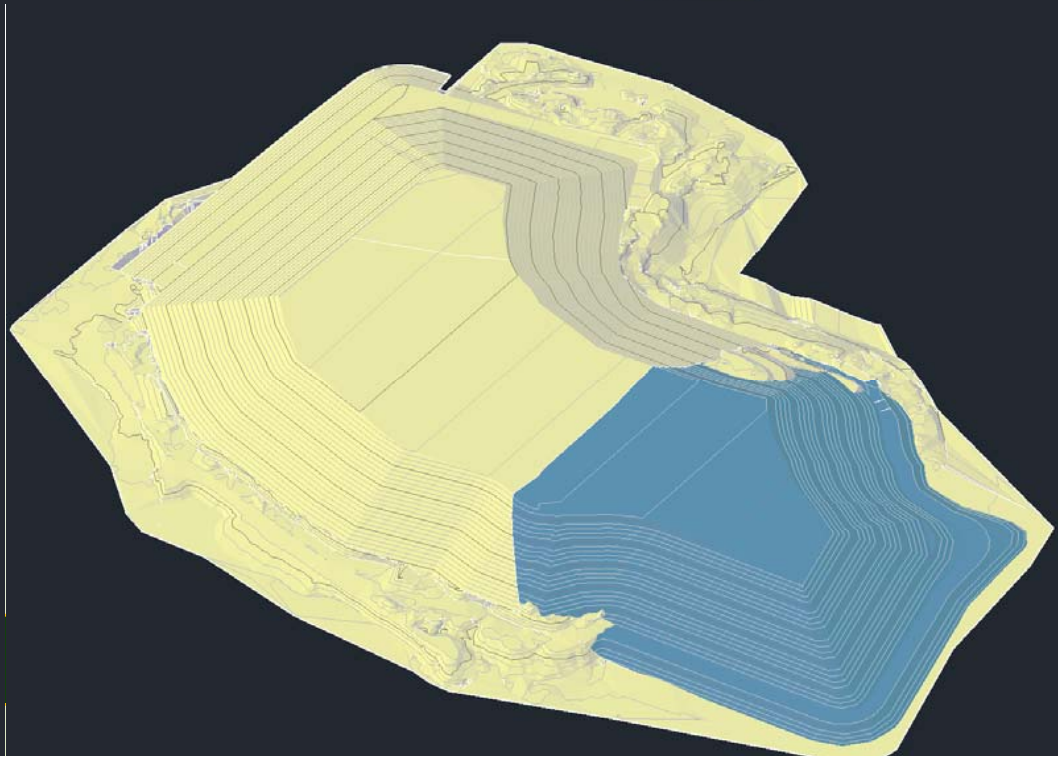

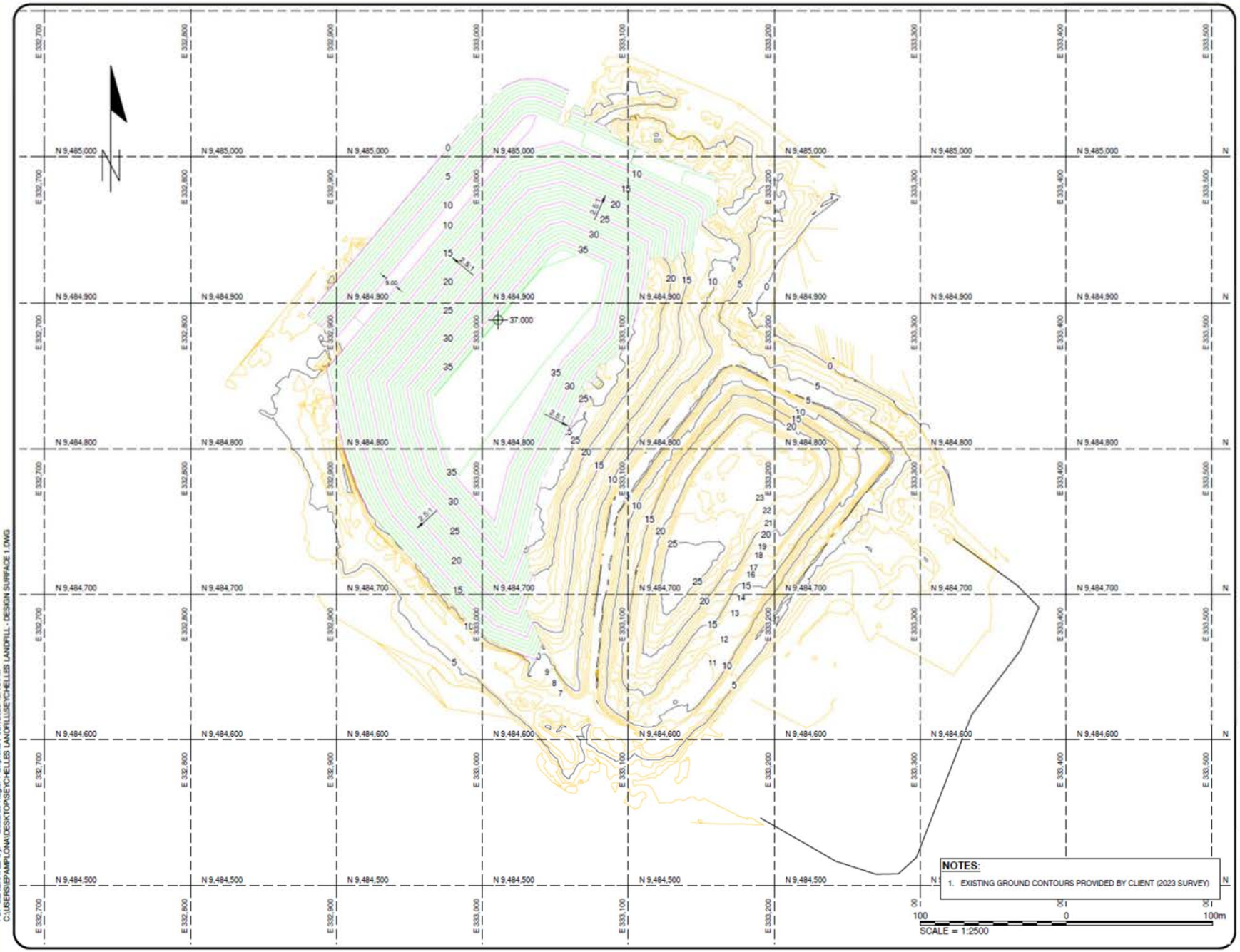

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SPERLING HANSEN ASSOCIATES

Landfill Services Group
- Landfill Siting
- Design & Operations Plans
- Landfill Closure
- Environmental Monitoring

#8 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J3
Phone: (604) 986-7723

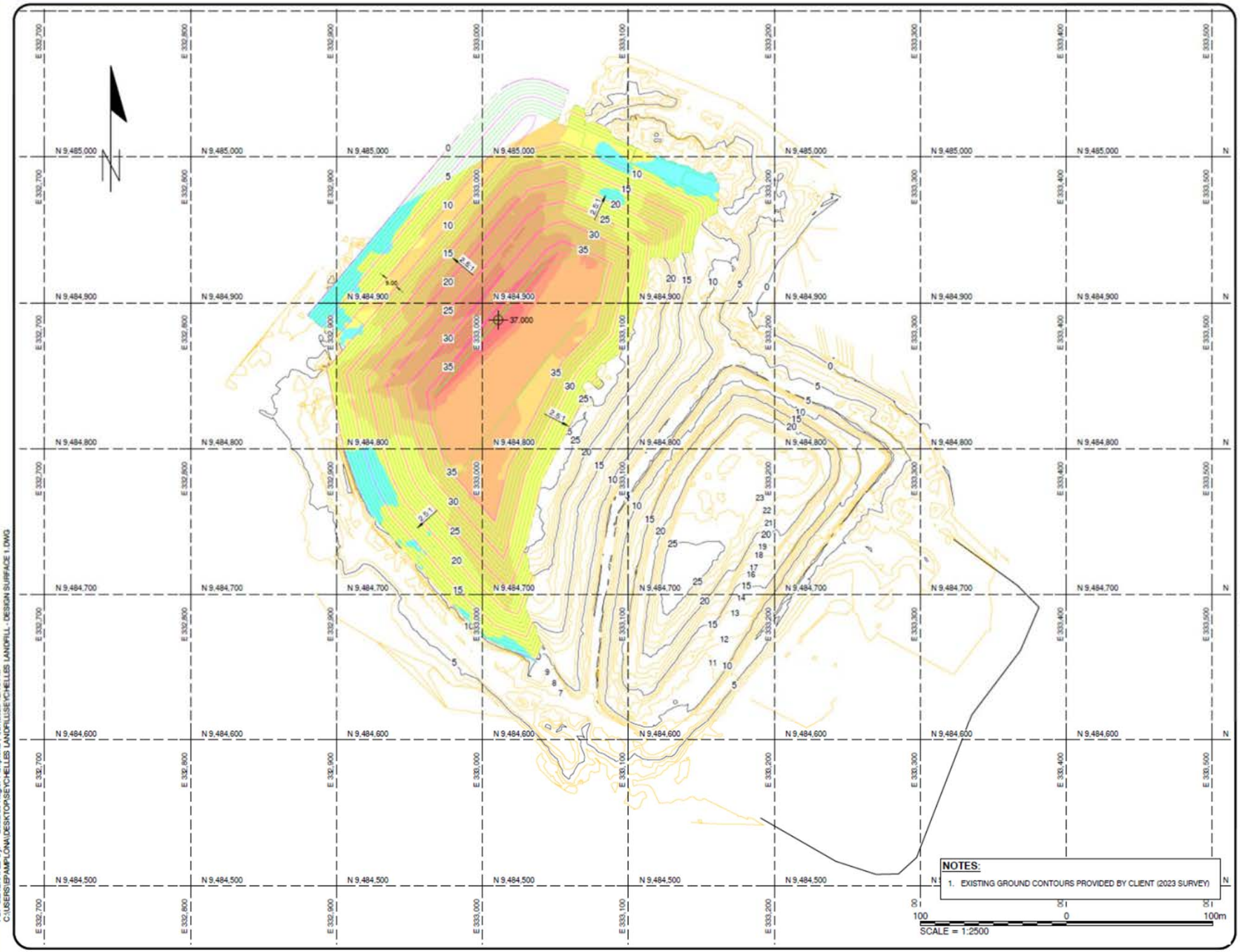
LEGEND:
- (1m) EXISTING GROUND MINOR CONTOUR - 2023
- (5m) EXISTING GROUND MAJOR CONTOUR - 2023
- (1m) DESIGN MINOR CONTOUR
- (5m) DESIGN MAJOR CONTOUR

CLIENT: SEYCHELLES LANDFILL

PROJECT: SEYCHELLES LANDFILL

TITLE: DRAFT DESIGN SURFACE - LANDFILL EXPANSION STAGE 1

SCALE:	DATE:	PROJECT NO:
1:2500	2025/01/27 yyyy/mm/dd	PRJ -
DESIGNED	TS	DRAWING NO:
DRAWN	EP	FIGURE 02
CHECKED	TS	



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SPERLING HANSEN ASSOCIATES

Landfill Services Group
- Landfill Siting
- Design & Operations Plans
- Landfill Closure
- Environmental Monitoring

#8 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J8
Phone: (604) 986-7723

LEGEND:
- (1m) EXISTING GROUND MINOR CONTOUR - 2023
- (5m) EXISTING GROUND MAJOR CONTOUR - 2023
- (1m) DESIGN MINOR CONTOUR
- (5m) DESIGN MAJOR CONTOUR

Elevations Table

No.	Min. Elevation	Max. Elevation	Color
1	-5.000	0.000	
2	0.000	5.000	
3	5.000	10.000	
4	10.000	15.000	
5	15.000	20.000	
6	20.000	24.559	

VOLUMETRIC ANALYSIS
CUT&FILL

EG: SEYCHELLES 2023
SG: DESIGN - STAGE 1

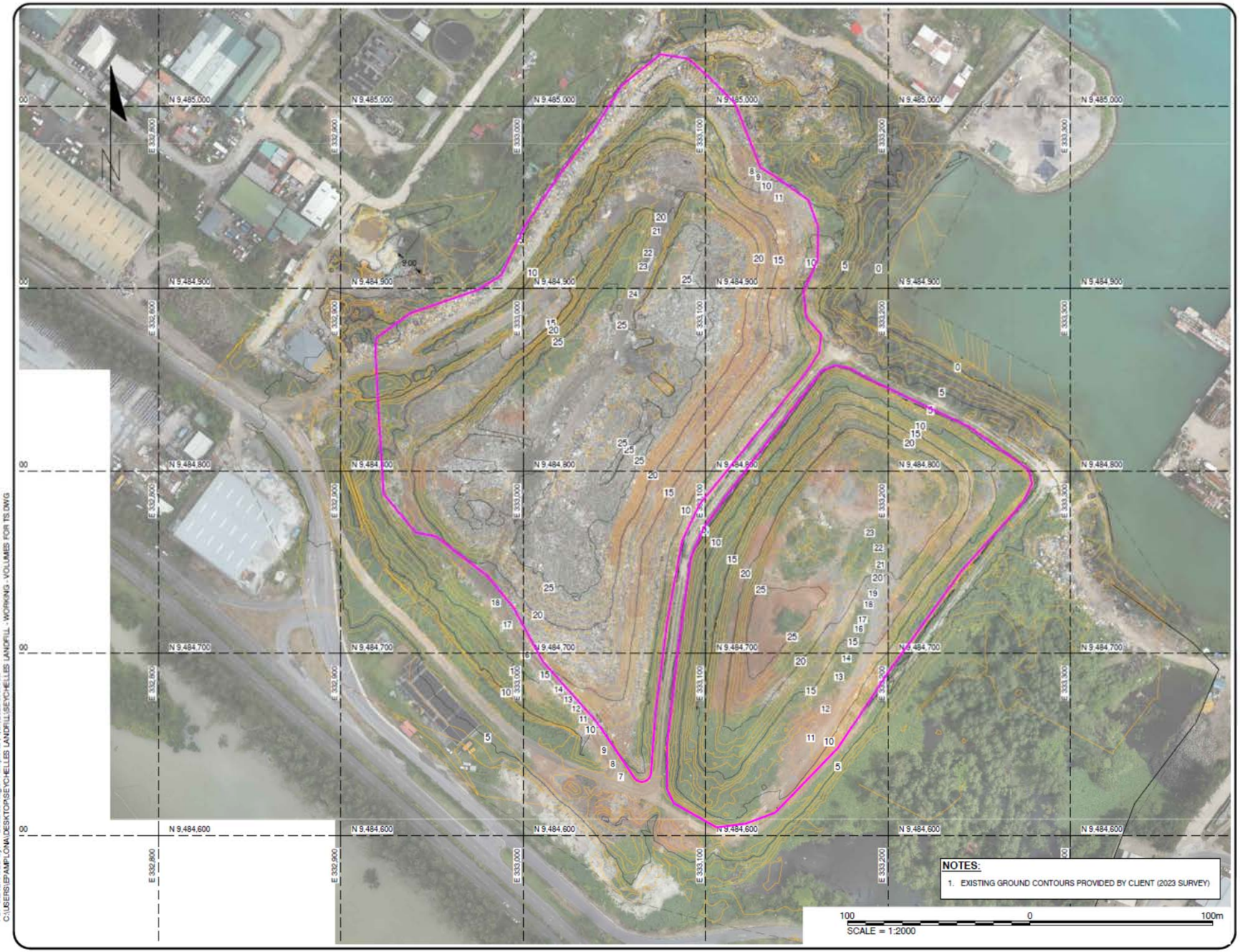
CUT:	4,970 m³
FILL:	421,800 m³
NET:	416,830 m³ (FILL)

CLIENT: SEYCHELLES LANDFILL

PROJECT: SEYCHELLES LANDFILL

TITLE: DRAFT DESIGN SURFACE - LANDFILL EXPANSION STAGE 1 (CUT AND FILL)

SCALE:	DATE:	PROJECT NO:
1:2500	2025/01/27 yyyy/mm/dd	PRJ -
DESIGNED	TS	DRAWING NO:
DRAWN	EP	FIGURE 03
CHECKED	TS	



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SPERLING HANSEN ASSOCIATES

Landfill Services Group
- Landfill Siting
- Design & Operations Plans
- Landfill Closure
- Environmental Monitoring

#8 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J3
Phone: (604) 998-7723

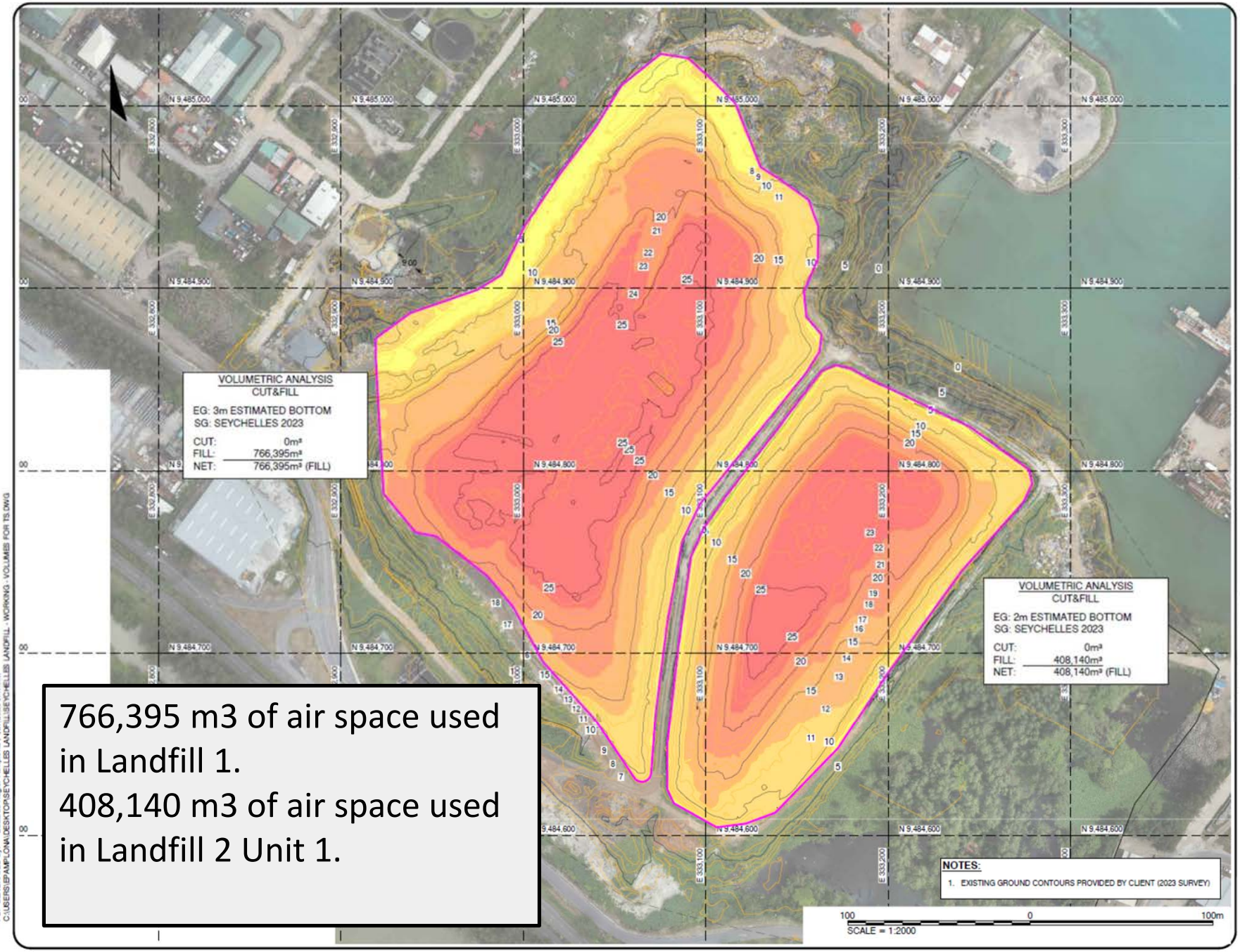
LEGEND:
- (1m) EXISTING GROUND MINOR CONTOUR - 2023
- (5m) EXISTING GROUND MAJOR CONTOUR - 2023
- (1m) DESIGN MINOR CONTOUR
- (5m) DESIGN MAJOR CONTOUR

CLIENT: SEYCHELLES LANDFILL

PROJECT: SEYCHELLES LANDFILL

TITLE: ESTIMATED EXISTING WASTE

SCALE:	DATE: (yyyy/mm/dd)	PROJECT NO:
1:2000	2025/01/22	PRJ XXXXX
DESIGNED	XX	DRAWING NO:
DRAWN	EP	FIGURE 01
CHECKED	XX	



766,395 m3 of air space used in Landfill 1.
408,140 m3 of air space used in Landfill 2 Unit 1.

SPERLING HANSEN ASSOCIATES
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• Landfill Closure
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Phone: (604) 986-7723

LEGEND:
(1m) EXISTING GROUND MINOR CONTOUR - 2023
(5m) EXISTING GROUND MAJOR CONTOUR - 2023

Elevations Table

No.	Min. Elevation	Max. Elevation	Color
1	-5.000	0.000	
2	0.000	5.000	
3	5.000	10.000	
4	10.000	15.000	
5	15.000	20.000	
6	20.000	24.559	

CLIENT: SEYCHELLES LANDFILL

PROJECT: SEYCHELLES LANDFILL

TITLE: ESTIMATED EXISTING WASTE (CUT AND FILL)

SCALE:	DATE:	PROJECT NO:
1:2000	2025/01/27 yyyy/mm/dd	PRJ XXXXX
DESIGNED	XX	DRAWING NO:
DRAWN	EP	FIGURE 01
CHECKED	XX	

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Remaining Air Space

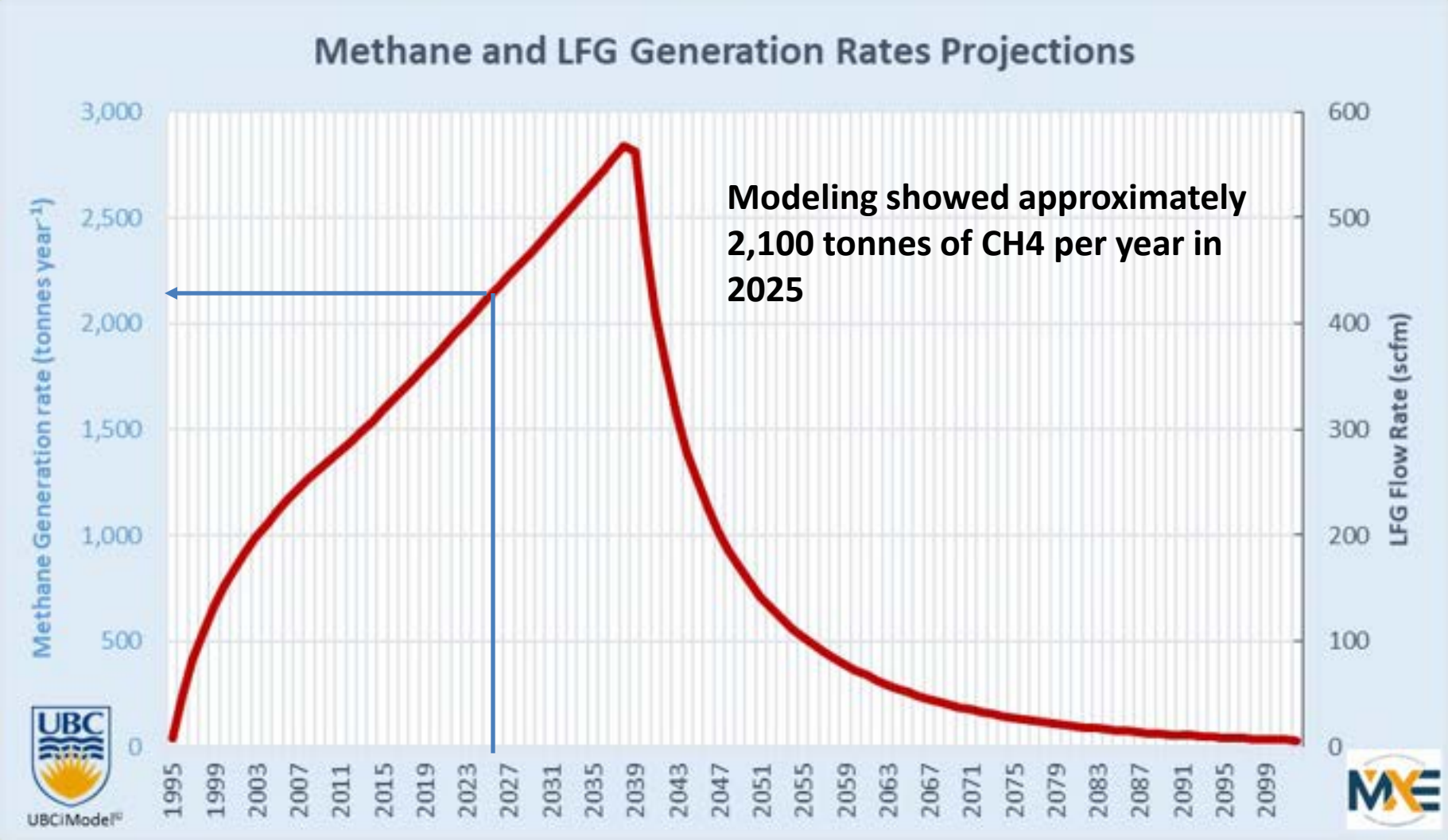
- Matched historic air space consumption.
- 56% settlement/ decomposition for old waste.
- 10% settlement for waste <10 years old.

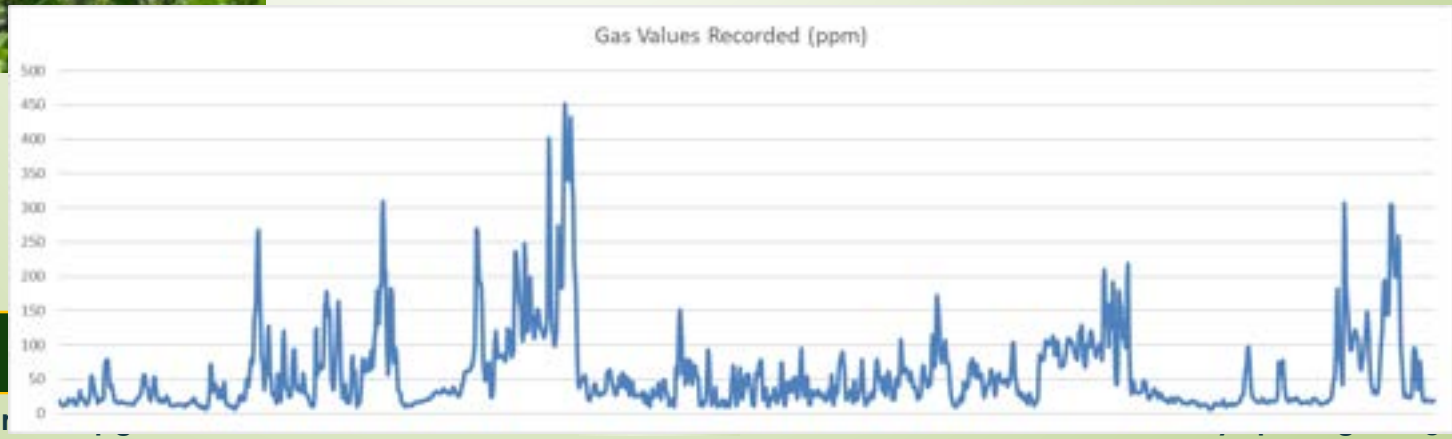
Total Landfill Air Space

	(m3)	Year
Landfill 1	766,395	2023
Landfill 2 Unit 1	408,140	2020
Landfill 1 West	416,830	2028
Landfill 2 Trench	357,935	2032
Landfill 2 Unit 2	571,085	2038
	2,520,385	

YEAR	Air Space Consumed (m3)	Settlement Factor	Cummul. Air Space (m3)	LF 1 Air Space (m3)	LF2 Unit 1 Air Space (m3)	LF1 West Air Space (m3)	LF2 Valley Air Space (m3)	LF2 Unit 2 Air Space (m3)	otal Cumulativ Space Used (m3)	Available Capacity (m3)
% Total										
% Organic										
1995	50,730	- 28,163	0	0	0	0	0	0	0	
1996	51,404	- 28,538	22,866	22,866	0	0	0	0	22,866	
1997	52,078	- 28,912	46,033	46,033	0	0	0	0	46,033	
1998	52,753	- 29,286	69,499	69,499	0	0	0	0	69,499	
1999	53,427	- 29,661	93,265	93,265	0	0	0	0	93,265	
2000	54,101	- 30,035	117,331	117,331	0	0	0	0	117,331	
2001	54,868	- 30,461	141,738	141,738	0	0	0	0	141,738	
2002	55,636	- 30,887	166,487	166,487	0	0	0	0	166,487	
2003	56,403	- 31,313	191,577	191,577	0	0	0	0	191,577	
2004	57,885	- 32,136	217,326	217,326	0	0	0	0	217,326	
2005	58,662	- 32,567	243,421	243,421	0	0	0	0	243,421	
2006	59,417	- 32,986	269,852	269,852	0	0	0	0	269,852	
2007	60,172	- 33,406	296,618	296,618	0	0	0	0	296,618	
2008	60,928	- 33,825	323,721	323,721	0	0	0	0	323,721	
2009	61,683	- 34,244	351,160	351,160	0	0	0	0	351,160	
2010	62,498	- 34,697	378,962	378,962	0	0	0	0	378,962	
2011	64,308	- 35,701	407,568	407,568	0	0	0	0	407,568	
2012	66,127	- 36,711	436,984	436,984	0	0	0	0	436,984	
2013	67,956	- 37,727	467,213	467,213	0	0	0	0	467,213	
2014	69,796	- 38,748	498,261	498,261	0	0	0	0	498,261	
2015	71,645	- 7,164	562,741	562,741	0	0	0	0	562,741	
2016	73,611	- 7,361	628,991	562,741	66,250	0	0	0	628,991	
2017	75,588	- 7,559	697,020	562,741	134,279	0	0	0	697,020	
2018	77,575	- 7,758	766,838	562,741	204,097	0	0	0	766,838	
2019	79,573	- 7,957	838,454	562,741	275,713	0	0	0	838,454	
2020	81,582	- 8,158	911,878	562,741	349,137	0	0	0	911,878	**408,140**
2021	83,603	- 8,360	987,120	637,984	349,137	0	0	0	987,120	
2022	85,635	- 8,563	1,064,192	715,055	349,137	0	0	0	1,064,192	
2023	87,237	- 8,724	1,142,705	793,568	349,137	0	0	0	**1,142,705**	**1,174,535**
2024	88,919	- 8,892	1,222,732	793,568	349,137	80,027	0	0	1,222,732	
2025	90,529	- 9,053	1,304,207	793,568	349,137	161,503	0	0	1,304,207	
2026	92,339	- 9,234	1,387,313	793,568	349,137	244,608	0	0	1,387,313	
2027	94,186	- 9,419	1,472,080	793,568	349,137	329,375	0	0	1,472,080	
2028	96,070	- 9,607	1,558,543	793,568	349,137	**415,838**	0	0	1,558,543	**416,830**
2029	97,991	- 9,799	1,646,734	793,568	349,137	415,838	88,191.92	0	1,646,734	
2030	99,951	- 9,995	1,736,690	793,568	349,137	415,838	178,147.69	0	1,736,690	
2031	101,950	- 10,195	1,828,445	793,568	349,137	415,838	269,902.56	0	1,828,445	
2032	103,989	- 10,399	1,922,035	793,568	349,137	415,838	**363,492.54**	0	1,922,035	**390,440**
2033	106,069	- 10,607	2,017,497	793,568	349,137	415,838	363,492.54	95,462	2,017,497	
2034	108,190	- 10,819	2,114,868	793,568	349,137	415,838	363,492.54	192,833	2,114,868	
2035	110,354	- 11,035	2,214,186	793,568	349,137	415,838	363,492.54	292,151	2,214,186	
2036	112,561	- 11,256	2,315,491	793,568	349,137	415,838	363,492.54	393,456	2,315,491	
2037	114,812	- 11,481	2,418,822	793,568	349,137	415,838	363,492.54	496,787	2,418,822	
2038	117,108	- 11,711	2,524,220	793,568	349,137	415,838	363,492.54	602,184	**2,524,220**	**589,450**

Landfill Gas Generation



Landfill Gas (LFG) Generation

- **Methane Emission Measurements showed emission rates ranging between 770 and 1,020 tonnes of CH_4/year**
- **Average Methane Emission Rate was 895 tonnes/year equivalent to 25,000 tonnes CO_2-e GHG Emission per year**
- **LFG Collection and Flaring is Advised**