

2024 Landfill Annual Report (ME-15273)

Town of Osoyoos



March 2025

Project No. 302-708-012

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING

Distribution List

# of Hard Copies	PDF Required	Association / Company Name
0	1	Ministry of Environment and Climate Change Strategy
0	1	Town of Osoyoos
0	1	TRUE Consulting

Revision Log

Revision #	Revised by	Date	Issue / Revision Description
1	NA	03/12/2025	Final Report

Report Submission

Report Prepared By:

Report Reviewed By:



Anthony Martins, P. Eng.
Project Engineer



Natalie Alteen, P. Eng.
Project Engineer

R:\Clients\300-399\302\302-708-012\05 Reports\302-708-012-Osoyoos-2024 Landfill Annual Report-March 2025-R1.Docx

Table of Contents

1.0	Description and General Operation	1
2.0	Operational Certificate Authorization	3
3.0	Landfill Quantities (OC 4.6a).....	6
3.1	Current and Historical Landfill Quantities	6
3.1.1	Prohibited Wastes (OC 3.2)	11
3.2	Composting Operations	12
4.0	Service Population and Per Capita Generation Rates (OC 4.6b).....	12
5.0	Remaining Site Life and Capacity (OC 4.6c).....	15
6.0	Operation Plan for Next 12 Months (OC 4.6d)	17
7.0	Environmental Monitoring Data (OC 4.6e)	18
8.0	Review of Closure Plan (OC 4.6f)	20
9.0	Landfill Gas Management (OC 4.6g).....	21

APPENDICES

APPENDIX A – Operational Certificate MR 15273

APPENDIX B – Waste Quantities

APPENDIX C – Compost Operations

APPENDIX D – 2021 Financial Statement

APPENDIX E – 2024 Landfill Gas Generation Assessment

APPENDIX F – Groundwater Monitoring Records

APPENDIX G – 2022 Environmental Monitoring Plan

List of Tables

Table 3-1: Annual Landfill Waste From 2012-2024 (Tonnes)	8
Table 3-2: Summary of Monthly Landfill Quantities for 2024 (Tonnes)	9
Table 3-3: Landfill Quantities For 2024 With Tabulation Of Town Capital Projects (Tonnes)	10
Table 3-4: Town of Osoyoos Landfill Quantities	11
Table 4-1: Service Population and Landfill Quantity Summary	13
Table 5-1: Preliminary Stage 2 Area Lifespan Calculation.....	16
Table 7-1: Average Groundwater Table Elevations For Landfill Monitoring Wells.....	19

List of Figures

Figure 1-1: Osoyoos Landfill Overall Site Plan	2
Figure 2-1: Osoyoos Landfill Air Space Capacity Summary	4
Figure 2-2: Osoyoos Landfill Ortho Site Plan	5
Figure 4-1: Source Breakdown Of Landfilled Waste by Tonnage In 2024.....	14
Figure 7-1: Monitoring Well Groundwater Table Elevations.....	18

List of Acronyms

AO	Aesthetic Objective
DOCP	Design, Operations and Closure Plan
DLC	Demolition, land clearing and construction Waste
EPO	Environmental Protection Officer
GCDWQ	Guidelines for Canadian Drinking Water Quality
HDPE	High density polyethylene
LFG	Landfill gas
MAC	Maximum Allowable Concentration
MOE	Ministry of Environment and Climate Change Strategy
OMRR	Organic Matter Recycling Regulation
OC	Operational Certificate
RDOS	Regional District of Okanagan Similkameen
TRUE	TRUE Consulting

Units of Measure

ft	feet
lgpm	Imperial gallons per minute
km	kilometre
L/d	Litres per day
L/m	Litres per minute
L/s	Litres per second
lpcd	Litres per capita per day
m	metre
mg/L	milligrams per Litre
mm	millimetre
NTU	Nephelometric Turbidity Units
psi	pounds per square inch
USgpm	US gallon per minute

Referenced Reports

BC MoE	"Landfill Criteria for Municipal Solid Waste," June 2016
TRUE Consulting	Town of Osoyoos, "Landfill Design/Operation/Closure Plan," August 2018
TRUE Consulting	Town of Osoyoos, "Landfill Gas Generation Assessment Report for the Town of Osoyoos Landfill," April 2019
Dillon Consulting	Town of Osoyoos, "2023 District Sanitary Landfill Annual Report" May 2023

1.0 Description and General Operation

The Town of Osoyoos Landfill is located approximately 3 km north of the municipal boundary and 1.5 km west of Highway 97. This area is locally described as the Osoyoos West Bench and is located within the Regional District of the Okanagan-Similkameen. The Osoyoos landfill has been in operation for more than 60 years at this location.

During the 1950's and 1960's, the northwest corner of the landfill site was used for landfilling. The Town employed the trench and cover method for landfilling operations. Through the 1970's, 1980's and 1990's, landfilling was undertaken in the area legally described as DL829, extending east to the designated Stage 1 area. The landfill site plan can be seen in Figure 1-1.

In December 2010, the starter berm for Stage 2 was constructed along the eastern property line (see Figure 1-1). Five groundwater monitoring wells were constructed at the landfill site to enable more comprehensive groundwater analysis. Three of the five monitoring wells are placed down gradient of the Stage 2 landfill area (see Figure 1-1). In January of 2011, the Stage 1 area reached airspace capacity and the active landfilling area moved to Stage 2 where it has been since.

Figure 1-1 illustrates four receiving basins for hauled liquid waste located in the southeast corner of the landfill site. Waste quantities discharged to the hauled liquid waste basins are measured at the landfill scale and are presented on the waste summaries herein. The hauled liquid waste system is authorized by a separate waste management permit (Permit 14804) and described in a separate annual report.

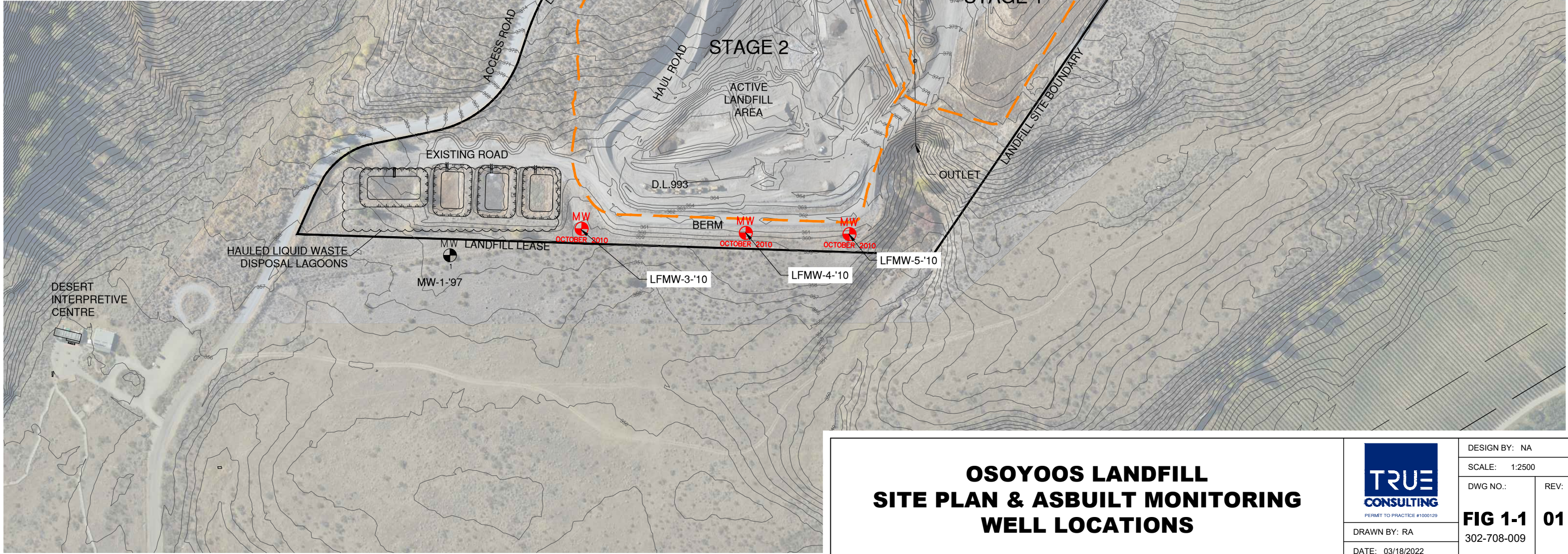
In 2008, a 100 mm diameter water service was constructed to the landfill site from Irrigation System No. 8. The water service is approximately 2 km in length, is designated as non-potable and is protected by a backflow prevention device approved by the Interior Health Authority. Since construction of the water service, organic wastes have been composted by the landfill operations contractor.

The operation of the landfill is contracted to the private sector by the Town of Osoyoos. B and B Wood Grinding Services had the operation and maintenance contract from 2005-2020. Whissell Waste Solutions (now Environmental 360 Solutions) was awarded this contract in January 2021. This operations contract includes overall management of the landfill aside from the scale and tip fee collection which is conducted by Town staff. The 40ft landfill scale is operated by Town staff using Autoscale data management software.

MONITORING WELLS
MW-1-'97: T.O.C.=359.577; GROUND=359.800
LFMW-3-'10: T.O.C.=359.859; GROUND=359.270
FMW-4-'10: T.O.C.=361.748; GROUND=361.100
LFMW-5-'10: T.O.C.=361.098; GROUND=360.408
LFMW-6-'10: T.O.C.=382.273; GROUND=381.563
LFMW-7-'10: T.O.C.=383.189; GROUND=382.600
NOTE: T.O.C.=TOP OF EXTERIOR COVER

UTM COORDINATES
MW-1-'97: N 5436715.552 E 315818.076
LFMW-3-'10: N 5436801.491 E 315800.68
LFMW-4-'10: N 5436908.687 E 315802.288
LFMW-5-'10: N 5436976.356 E 315804.245
LFMW-6-'10: N 5437174.161 E 315586.691
LFMW-7-'10: N 5436935.496 E 315464.741

NOTES
1) BACKGROUND IMAGERY WITHIN LANDFILL
SITE BOUNDARY FROM OCTOBER 27, 2017.
BACKGROUND IMAGERY OUTSIDE LANDFILL
SITE BOUNDARY FROM OCTOBER 23, 2015



**OSOYOOS LANDFILL
SITE PLAN & ASBUILT MONITORING
WELL LOCATIONS**



PERMIT TO PRACTICE #1000129
DRAWN BY: RA
DATE: 03/18/2022

DESIGN BY: NA	
SCALE: 1:2500	
DWG NO.:	REV:
FIG 1-1	01
302-708-009	

2.0 Operational Certificate Authorization

The operation of the Osoyoos Landfill is authorized by Operational Certificate (OC) No. MR 15273, dated March 26, 2002 (see Appendix A). The OC describes general operational requirements as well as requirements for the landfill's Operations and Closure Plan.

The Design, Operation, and Closure Plan (DOCP) for the Osoyoos Landfill was completed in August 2018. Referring to Figure 1-1, the DOCP envisions development of two separate stages:

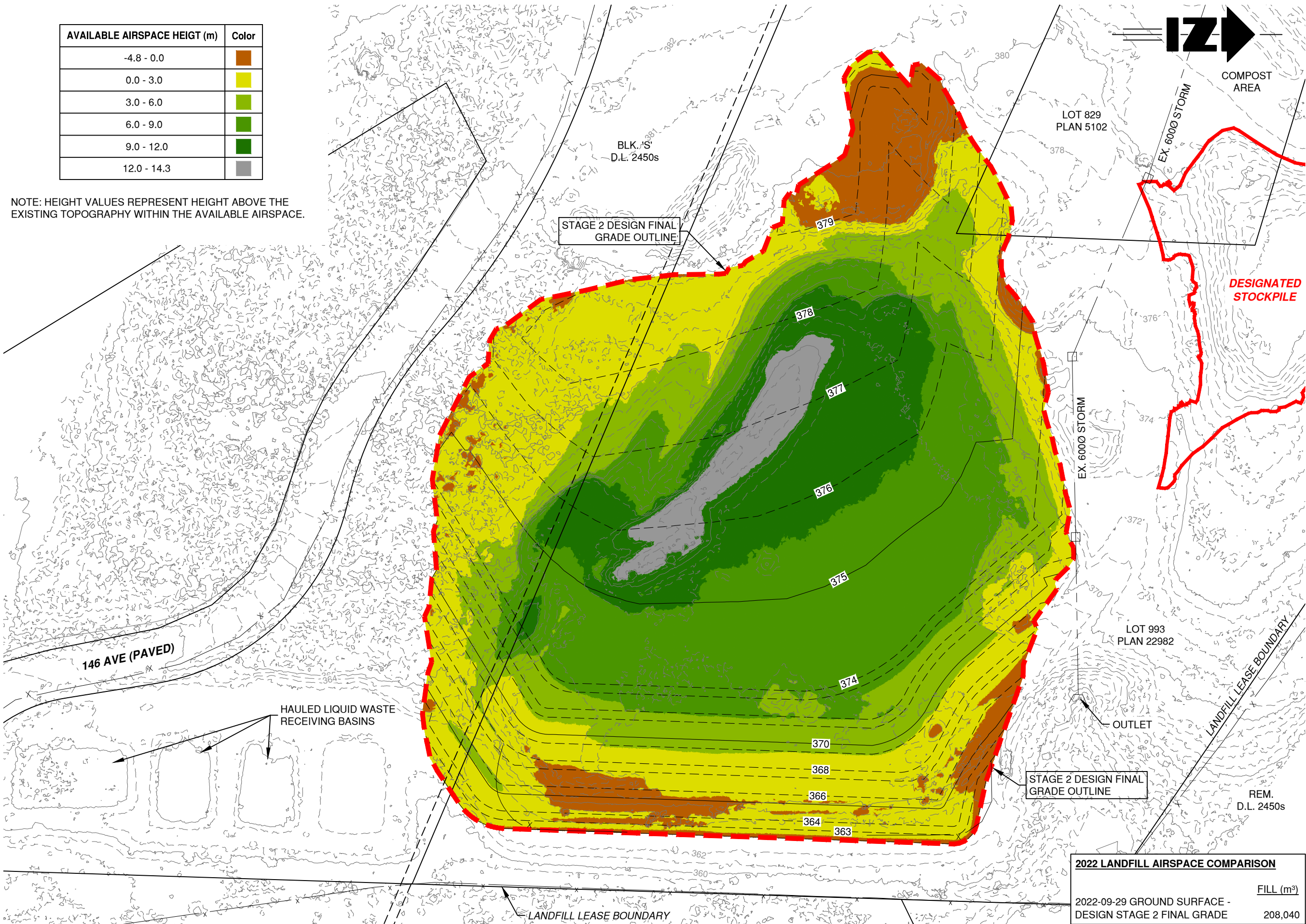
- Stage 1 represents the northern half of the landfill site. Landfilling in this area was discontinued in December 2011. Final cover is in place on Stage 1.
- Stage 2 represents the southern half of the landfill site and will be developed by landfilling from the eastern boundary to the west. The Stage 2 area was surveyed in 2022 to find the remaining airspace capacity. The remaining airspace available at the end of 2024 used the 2022 survey and using the recorded tonnage landfilled in 2023 and 2024 and estimated waste density of 0.65 tonnes/m³ to estimate the remaining airspace. It is noted that the volumetric analysis will be updated during the 2025 Design, Operations and Closure Plan update. Landfilling in the Stage 2 area was initiated in January 2011.

Final cover placement for Stage 1 proceeded on a phased basis, beginning in 2010. Completion of the cover occurred in 2013. The final cover is comprised of silt and clay, derived from a borrow area within the Stage 2 footprint area, and includes a 150 mm thick top cover of existing Class 'B' compost material available at the landfill. A site plan of the landfill is presented in Figure 2-2.

In 2016, removal of cover material from Stage 2 was initiated and stockpiled on Stage 1. This material will be used as future cover material for Stage 2. In 2016, approximately 5,000 m³ of material was removed from Stage 2. In 2017, an additional 20,000 m³ of material was removed and stockpiled on Stage 1.

AVAILABLE AIRSPACE HEIGHT (m)	Color
-4.8 - 0.0	
0.0 - 3.0	
3.0 - 6.0	
6.0 - 9.0	
9.0 - 12.0	
12.0 - 14.3	

NOTE: HEIGHT VALUES REPRESENT HEIGHT ABOVE THE EXISTING TOPOGRAPHY WITHIN THE AVAILABLE AIRSPACE.



2022 LANDFILL AIRSPACE COMPARISON	
2022-09-29 GROUND SURFACE - DESIGN STAGE 2 FINAL GRADE	FILL (m³) 208,040

2022 GROUND SURFACE
TELEMETRY CAPTURED BY
TRUE CONSULTING ON
SEPTEMBER 29, 2022
CONTOUR INTERVAL= 1.0m

CONSULTANT SEAL



TOWN OF
OSOYOOS
LANDFILL

2022 AIR SPACE
CAPACITY
SUMMARY

SCALE	1:1250
DESIGN BY	
DRAWN BY	DF
DATE	SEPTEMBER 2022
PROJECT REFERENCE No.	302-7010
DRAWING No.	302-712-001
SHEET	1 OF 1
ISSUE/REV.	-

FIG 2-1

FILE: F:\clients\300-399\302-712\03 drawings\caat\2 design drawings\302-712 am.dwg

3.0 Landfill Quantities (OC 4.6a)

3.1 Current and Historical Landfill Quantities

Quantity summaries for materials accepted at the Town of Osoyoos Landfill for the last twelve years (2012-2024) are summarized in Table 3-1. It is noted that the 2023 annual report was completed by Dillion Consulting with the 2023 material quantities referenced from that report. A complete historical record of quantities dating from 1996 - 2024 may be found in Appendix B. The classification of material is to some extent subjective and based on the judgement of the scale operator.

From the perspective of the landfill lifespan and expansion phasing, the important quantity is the actual total volume of material landfilled. This volume is referred to as consumed airspace in the solid waste management industry. Material streams which contribute to airspace include materials for operations and closure, and solid waste. Some examples of operations and closure materials include cover soils, fire breaks, containment berms, temporary roads, leachate management, and landfill gas (LFG) and cover system infrastructure. Whereas solid waste is limited to regulated materials as defined in the OC. For the Osoyoos landfill, solid waste materials are categorized in Table 3-1. The quantity of landfilled material derived from recorded data has the following sources of variation:

- The waste categories change from year to year as determined by the scale operator. The landfilled material quantity is a summation of these discrete categories and accounts for any operational changes to waste diversion streams.
- In 2007, the Town initiated composting. Since this time, the volume of wastes landfilled has decreased significantly.
- Recycled materials are not included in monthly totals as shown in Table 3-2. These materials include recycled demolition, land clearing, and construction waste (DLC), recycled metals and plastics, tires, white goods, clean wood, yard and garden waste, and compostable organics.
- There is uncertainty whether the category “Clean Cover Material” is recycled or landfilled. As of 2012, Clean Cover Material is not included in the actual total quantity of material landfilled but instead listed as a separate line item.
- The hauled liquid waste system is authorized by a separate Permit (PE 14804) under the provisions of Section 11 of the Environmental Management Act and described in a separate annual report. Therefore, hauled liquid waste is reported separate from actual total quantities.

A summary of the total and monthly quantities generated within each 2024 waste stream is presented in Table 3-2. In 2024, a total of 6,295 tonnes of material were weighed at the landfill facility. Of this quantity, 4,531 tonnes was solid waste was landfilled and 1,765 tonnes was diverted. These quantities show an approximate 6% increase in landfilled solid waste materials (when compared to 2023 totals). Of the total waste accepted at the landfill in 2024, 28% of weighed materials were diverted.

As seen in Table 3-3 capital projects produced a total of 158 tonnes of construction waste (e.g., concrete, rubble, asphalt, etc.) in 2024. The Town of Osoyoos implements a strict segregation policy for waste streams generated from construction to allow for recycling of materials such as clean wood, concrete, asphalt and clean soils. Corresponding waste categories are diverted from the landfill and recycled. For this reason, these materials are not included in the actual quantity of material landfilled.

In minor cases, recycled materials such as crushed concrete and asphalt millings are used as operational materials to maintain landfill roads. Impacts to airspace consumption from these materials are considered in the lifespan analysis during topographic survey analysis, typically completed every 2 years in the fall. This analysis will be updated with the actual remaining air space, determined by volumetric analysis, produced by aerial topographic survey of existing ground later this year for the 2025 DOCP update. Based on this, it will be determined if the projection is being significantly impacted. Historically this has not been the case with past surveys.

TABLE 3-1: ANNUAL LANDFILL WASTE QUANTITIES FROM 2012-2024 (TONNES)

WASTE CATEGORY	Total 2012	Total 2013	Total 2014	Total 2015	Total 2016	Total 2017	Total 2018	Total 2019	Total 2020	Total 2021	Total 2022	Total 2023	Total 2024
Batteries	0	0	0	0	0	0	0	0	0	0	0	0	0
Const Waste A (conc, asphalt, etc.)	2,575	2,155	1,037	239	595	3,199	4,635	582	1,757	1,143	489	255	232
Const Waste B (demolition)	527	194	238	357	67	43	55	29	48	58	50	97	128
Const Waste C (compostable)	470	224	159	190	193	226	169	214	256	128	72	115	138
Const Waste - Mixed	0	0	0	34	15	1	85	14	22	6	0	0	23
Metals - Type A (white goods)	0	0	21	25	27	27	33	31	33	26	16	18	74
Metals - Type B (scrap metal)	47	37	0	0	0	0	0	0	0	0	0	0	0
Tires	6	1	0	5	4	5	6	5	5	3	6	13	9
Commercial Waste	2,173	1,872	2,177	1,966	2,075	2,037	1,949	2,181	1,961	2,107	1,638	1,870	2,077
Municipal Waste	2,105	2,228	1,890	1,736	1,897	1,976	2,809	2,008	2,136	2,424	2,357	2,139	2,302
Yard Waste A (compostable garden)	300	835	849	866	1,058	1,043	969	916	928	1,090	1,062	1,392	1,257
Yard Waste B (chippable limbs, compost, etc.)	0	0	0	16	2	2	1	6	4	6	0	0	3
Yard Waste C	491	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerators	25	26	26	19	23	23	26	29	26	28	17	25	0
Propane Tanks													
Agricultural Plastics- Recycled	0	0	0	0	0	0	0	0	0	0	0	0	0
Recycled DLC	0	0	0	16	57	36	88	73	105	134	56		53
Biosolids	396	0	0	0	0	0	0	0	0	2	0		0
ANNUAL TOTALS	9,115	7,572	6,397	5,469	6,013	8,618	10,825	6,087	7,280	7,156	5,763	5,924	6,295

SUMMARY OF PROCESSING													
ORGANICS COMPOSTED	1,260	1,059	1,007	1,072	1,253	1,272	1,139	1,136	1,188	1,223	1,135	1,507	1,397
RECYCLED	78	64	48	65	112	91	153	138	168	192	94	55	314
CONSTRUCTION	2,575	2,155	1,037	239	595	3,199	4,635	582	1,757	1,143	489	255	53
LANDFILLED	5,201	4,293	4,305	4,093	4,054	4,056	4,898	4,231	4,167	4,598	4,045	4,118	4,531
ANNUAL TOTALS	9,115	7,572	6,397	5,469	6,013	8,618	10,825	6,087	7,280	7,156	5,763	5,935	6,295

CATEGORIES NOT INCLUDED IN SUMMARY													
HAULED LIQUID WASTE	5,225	2,622	2,084	1,920	2,021	2,352	2,119	2,680	3,160	4,579	5,108	2,802	2,042
COMPOST SALES									321	181	204	158	176
CLEAN COVER MATERIAL (CCMT & CGC)	5,664	320	1,531	175	1,430	1,718	8,116	2,040	3,451	836	1,096	1,415	1,620
ANNUAL TOTALS	10,889	2,942	3,616	2,095	3,451	4,070	10,235	4,720	6,932	5,597	6,409	4,375	3,839

- (1) Annual totals account for all waste brought to the landfill but do not include the hauled liquid waste and clean cover material.
Note that Annual Totals are equivalent to the summation of: Landfilled, Construction, Recycled, and Organics Composted.
- (2) Landfilled category refers to the materials deposited in active landfill face.
- (3) Recycled category refers to materials stored within the limits of the landfill site until such time that these materials are salvaged and/or recycled by others (Batteries, Type 'A' & 'B' Metals, Tires, Refrigerators, Propane Tanks and Agricultural Plastics).
- (4) Organic are materials which biodegrade naturally (Yard Waste 'A', 'B', and 'C').
- (5) Demolition materials may be salvageable and are kept separate from active landfill face (Construction Waste 'A' and 'C').
- (6) Refrigerators are counted by piece (of freon removal). An average mass of 75kg per piece is applied.
- (7) Propoane tanks are recycled and not included in annual totals.

TABLE 3-2: SUMMARY OF MONTHLY LANDFILL QUANTITIES FOR 2024 (TONNES)

2024 WASTE CATEGORY	2024 January	2024 February	2024 March	2024 April	2024 May	2024 June	2024 July	2024 August	2024 September	2024 October	2024 November	2024 December	Total to Date
Const Waste A (conc, rubble, asphalt, etc.)	15	5	17	104	20	12	12	28	2	9	2	6	232
Const Waste B (drywall or asphalt shingles)	1	4	10	4	6	8	10	1	7	32	27	17	128
Const Waste C (white wood, lumber, stump, compost, etc.)	5	5	4	13	22	17	9	16	7	16	17	8	138
Mixed Load Construction Waste	-	-	-	-	-	-	-	-	-	-	-	23	23
Mixed Load Commercial Waste	36.5	31.0	32.4	58.6	34.8	62.7	41.6	63.5	35.6	52.5	76.2	30.7	556
Mixed Load Residential Waste	43	42	51	60	91	54	57	58	51	120	47	30	704
Metals - (white goods, 80% metal or more)	0	3	1	5	2	2	5	8	2	11	34	0	74
Tires	0	1	0	2	1	1	1	0	0	2	0	1	9
Commercial Waste	84	74	101	120	130	132	200	181	150	152	105	91	1,521
Municipal Waste (Town & WSI pickup)	100	73	79	113	92	94	137	165	120	134	85	108	1,299
Gravel from Road Construction	-	-	-	-	-	-	-	-	-	-	-	-	-
Residential Waste	8	12	17	43	25	17	15	22	26	17	9	5	216
Yard Waste A (all green wood less than 5", compost)	7	1	0	24	12	3	5	3	7	22	9	8	101
Yard Waste B (white wood, lumber, compost, etc.) - PW	-	-	-	-	-	-	-	-	-	-	-	-	-
WSI Yard & Garden Waste - Curbside p/u (compost)	-	-	32	51	45	37	28	32	36	57	34	-	353
Free Chippable & Compostable	7	19	69	72	77	54	57	83	77	99	66	57	736
Free Compostable (fruit or vegetables)	33	13	-	-	0	0	4	0	1	15	-	0	66
Demolition and Land Clearing	-	0	-	-	-	-	-	19	18	-	-	26	64
Recycled DLC	3	3	4	5	5	6	7	5	4	4	4	4	53
Asbestos	1	-	0	4	9	0	1	0	-	0	1	3	19
Puncture Vine	-	-	-	0	0	0	1	1	0	1	-	-	3
Agricultural Plastics	-	-	-	-	-	-	-	-	-	-	-	-	-
Agricultural Plastics - Recycled	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigerators**	-	-	-	-	-	-	-	-	-	0	-	-	0
Bio Solids	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	343	287	419	679	572	500	591	685	545	741	517	417	6,295

** Refrigerators were counted by pieces therefore an average mass of 75kg per piece has been assumed

SUMMARY OF PROCESSING

Recycled and Composted													
- Organics, incl. White Wood, Yard & Garden Wastes, Compost	51	39	104	160	157	111	104	135	129	208	127	72	1,397
- Recycled Metals, Tires, Const. Waste 'A', Ag. Plastic, Refrigerators	15	8	19	111	23	16	18	36	4	22	35	7	315
- Recycled DLC	3	3	4	5	5	6	7	5	4	4	4	4	53
Landfilled	274	237	291	403	387	367	462	509	408	507	351	334	4,531
TOTALS	343	287	419	679	572	500	591	685	545	741	517	417	6,295

CATEGORIES NOT INCLUDED IN SUMMARY

Hauled Liquid Waste	158	82	228	334	263	212	139	146	90	179	122	91	2,042
Compost Sales	-	3	34	41	46	24	6	6	7	9	1	-	176
Clean Cover Material (CCMT & CGC)	117	38	180	302	83	196	132	157	80	313	4	19	1,620
TOTALS	275	123	442	677	392	432	276	310	177	500	126	110	3,839

*Tire rims are taken by the tire recyclers and not included in metal recycling. They are not included in the landfill summary.

**TABLE 3-3: LANDFILL QUANTITIES FOR 2024 WITH TABULATION OF TOWN PROJECTS
(TONNES)**

2024 WASTE CATEGORY	Gross at Scale	Town Waste Capital Projects	Net Waste Without Town Capital Projects
Const Waste A (conc, rubble, asphalt, etc.)	232	148	83
Const Waste B (drywall or asphalt shingles)	128	-	128
Const Waste C (white wood, lumber, stump, compost, etc.)	138	10	129
Mixed Load Construction Waste	23	-	23
Mixed Load Commercial Waste	556	-	556
Mixed Load Residential Waste	704	-	704
Metals - (White goods, 80% metal or more)	74	-	74
Tires	9	0	8
Commercial Waste	1,521	-	1,521
Municipal Waste (Town & Curbside pickup)	1,299	-	1,299
Gravel from Road Construction	-	-	-
Residential Waste	216	-	216
Yard Waste A (All green wood less than 5", compost)	101	-	101
Yard Waste B (white wood, lumber, compost, etc.) - PW	-	-	-
WSI Yard & Garden Waste - Curbside p/u (compost)	353	-	353
Free Chippable & Compostable	736	-	736
Free Compostable (Fruit or Vegetables)	66	-	66
Demolition and Land Clearing	64	-	64
Recycled DLC (subtract from the totals)	53	-	53
Asbestos	19	0	19
Puncture Vine	3	-	3
Agricultural Plastics	-	-	-
Agricultural Plastics - Recycled	-	-	-
Refrigerators**	0	-	0
Bio Solids	-	-	-
TOTALS	6,295	158	6,137

** Refrigerators were counted by pieces therefore an average mass of 75Kg per piece has been assumed.

SUMMARY OF PROCESSING

Recycled and Composted			
- Organics, incl. White Wood, Yard & Garden Wastes, Compost	1,397	10	1,388
- Recycled Metals, Tires, Const. Waste 'A', Ag. Plastic, Refrigerators	315	149	166
- Recycled DLC	53	-	53
Landfilled	4,531	0	4,531
TOTALS	6,295	158	6,137

CATEGORIES NOT INCLUDED IN SUMMARY

Hauled Liquid Waste (sludge)	2,042	36.24	2,005.91
Compost Sales	176	-	176.41
Clean Cover Material (CCMT & CGC)	1,620	676	944.71
TOTALS	3,839	712	3,127

With respect to long-term planning for the landfill site, the quantity actually landfilled is the most significant. The total quantity actually landfilled, and the total quantity recycled or composted for the last eight years is summarized in Table 3-4.

TABLE 3-4: TOWN OF OSOYOOS LANDFILL QUANTITIES

YEAR	LANDFILLED (TONNES)	RECYCLED AND COMPOSTED (TONNES)	TOTAL QUANTITY (TONNES)
2017	4,056	4,562	8,618
2018	4,898	5,927	10,825
2019	4,231	1,856	6,087
2020	4,167	3,113	7,280
2021	4,598	2,558	7,156
2022	4,045	1,717	5,763
2023	4,118	1,817	5,935
2024	4,531	1,765	6,295

3.1.1 [Prohibited Wastes \(OC 3.2\)](#)

In compliance with OC Section 3.2 Prohibited Wastes, the Town of Osoyoos does not accept Hazardous Waste. These types of waste include:

- a) Special Wastes other than those specifically authorized in the *Special Waste Regulation*,
- b) Biomedical waste as defined in the document *Guidelines for the Management of Biomedical Waste in Canada* (CCME, February 1992), and
- c) Liquids or semisolid wastes which contain free liquid, except as otherwise authorized by the Waste Management Act Permit PE-14804.

In addition to these prohibited wastes, the following wastes are also prohibited unless specifically authorized by the Regional Waste Manager:

- d) Automobiles, white goods, other large metallic objects (now diverted through recycling programs), and tires,
- e) Dead animals and slaughter house, fish hatchery and farming wastes or cannery wastes and by products.

3.2 Composting Operations

Per Table 3-2, composting operations accept Construction Waste C, Yard Waste A and B, and WSI Yard & Garden Waste to generate Class A compost which is sold to the public. The composting area of the landfill is comprised of a 3,800 m² compost pad. The pad includes a 150 mm subgrade layer of pit run sand, overlain by a 60 mil high density polyethylene (HDPE) geomembrane, 150 mm pitrun sand, filter fabric and 200 mm gravel travel surface. The site is serviced with a non-potable irrigation service and is graded so any leachate generated will collect in a sump located on the southwest corner of the pad. Leachate generation is minimal at the landfill site due to the arid climate. Any leachate generated is recycled back onto the compost pile, preventing seepage into the ground and solid waste under the compost pad area. The compost pad plan and details can be found in Appendix C.

In accordance with the Organic Matter Recycling Regulation (OMRR), the Town of Osoyoos submitted notification of composting operations at the municipal landfill. An Acknowledgment Letter was received from the Ministry of Environment and Climate Change Strategy (MOE) on December 10, 2018 (see Appendix C). The effective date of notification for the form submission was November 21, 2018. The Authorization Number for this facility is 109610.

4.0 Service Population and Per Capita Generation Rates (OC 4.6b)

Section 4.6 (b) of the OC requires reporting of the service population and waste discharge rates with a comparison and trend analysis in relation to the 1996 baseline rate of 1.20 tonnes per capita. Table 4-1 is a summary of the estimated landfill service population, with the Regional District of Okanagan Similkameen (“RDOS”) Electoral Area A and the Town of Osoyoos listed separately. The total quantity of solid waste, and per capita contributions are summarized from 1996-2024. This total does not include materials recycled, composted, clean cover material and hauled liquid waste.

TABLE 4-1: SERVICE POPULATION AND LANDFILL QUANTITY SUMMARY

YEAR	SERVICE POPULATION		TOTAL POPULATION	LANDFILLED QUANTITY (TONNES)	LANDFILLED QUANTITY (ANNUAL TONNES/CAPITA)
	TOWN	ELECTORAL AREA A			
1996	4,021	1,968	5,989	4,614	0.77
1997	4,076	1,954	6,030	4,311	0.71
1998	4,131	1,940	6,071	3,679	0.61
1999	4,188	1,926	6,113	3,306	0.54
2000	4,245	1,912	6,157	3,430	0.56
2001	4,295	1,897	6,192	3,980	0.64
2002	4,353	1,902	6,255	5,785	0.92
2003	4,466	1,907	6,373	4,799	0.75
2004	4,441	1,911	6,352	5,587	0.88
2005	4,623	1,916	6,539	5,285	0.81
2006	4,752	1,921	6,673	6,563	0.98
2007	4,848	1,915	6,763	6,049	0.89
2008	4,889	1,909	6,798	6,854	1.01
2009	4,965	1,904	6,869	6,616	0.96
2010	4,896	1,898	6,794	6,872	1.01
2011	4,845	1,892	6,737	6,538	0.97
2012	4,886	1,885	6,771	5,201	0.77
2013	4,927	1,878	6,805	4,293	0.63
2014	4,968	1,872	6,840	4,305	0.63
2015	5,009	1,865	6,874	4,093	0.60
2016	5,050	1,858	6,908	4,054	0.59
2017	5,151	1,914	7,065	4,056	0.57
2018	5,252	1,970	7,223	4,898	0.68
2019	5,354	2,027	7,380	4,231	0.57
2020	5,455	2,083	7,538	4,167	0.55
2021	5,556	2,139	7,695	4,598	0.60
2022	5,667	2,195	7,862	4,045	0.51
2023	5,780	2,251	8,032	4,118	0.51
2024	5,896	2,308	8,204	4,531	0.55

Source: BC Stats, Government of B.C.

Source: Statistics Canada Census Profile

Interpolated Values Between Know Years

Referring to Table 4-1:

- The service populations reflect population information as provided by BC Stats and Statistics Canada Census Profile. Sources for annual populations have been identified.
- The service populations listed for RDOS Electoral Area A are generated from census data for 1996, 2001, 2006, 2011, 2016, and 2021. Between census years, populations are extrapolated estimates.

- The annual per capita waste generation rate ranges between 0.52 tonnes/capita to a maximum value of 1.01 tonnes/capita. Since 2010, the landfilled quantity has decreased annually from 1.01 annual tonnes/capita in 2010, to 0.55 annual tonnes/capita in 2024. Which is slightly higher than previous years.
- With respect to the 1996 baseline of 1.2 tonnes per capita, referenced in the Operational Certificate, the per capita generation rate for the Osoyoos Landfill has been consistently less than this value. In 2024, the per capita rate was approximately 45% of the 1996 baseline value.

A summary of the waste generation by source is provided in Figure 4-1. The landfilled material has been grouped into four sub-categories: municipal waste excluding municipal projects, municipal projects, commercial waste, and other. The subcategory “other” consists of Construction Waste B (un-burnable demolition), Mixed Load Construction Waste and Bio Solids. Figure 4-1 shows the relative contributions of different waste generation sectors. This summary quantifies the total quantity of solid waste that is actually landfilled (approximately 4,531 tonnes).

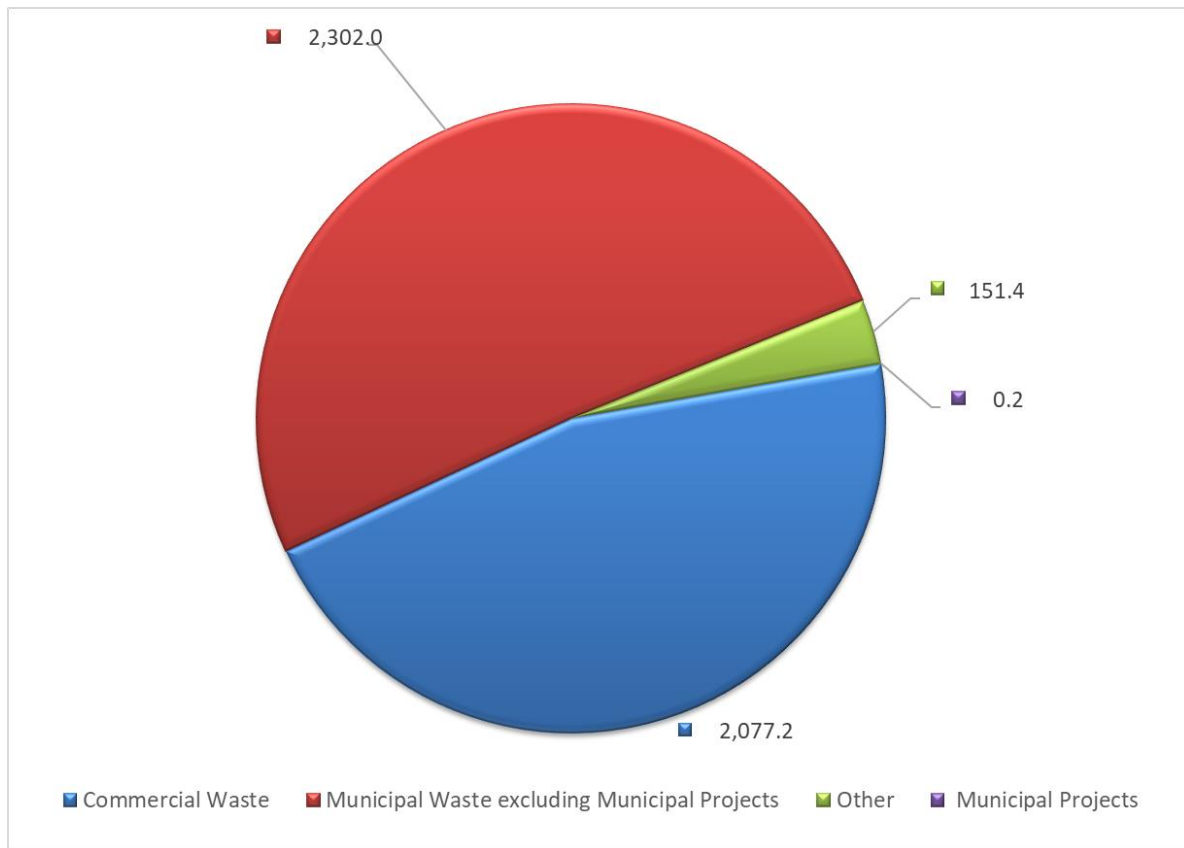


FIGURE 4-1: SOURCE BREAKDOWN OF LANDFILLED WASTE BY TONNAGE IN 2024

5.0 Remaining Site Life and Capacity (OC 4.6c)

The remaining lifetime of the Town's landfill is represented by the designated Stage 2 area as shown in Table 5-1. The total airspace available in the Stage 2 area was estimated by using an aerial survey completed by TRUE in 2022 and the total landfilled quantity from 2023 and 2024 to calculate the approximate total air space available of 196,715 m³ (see Table 5-1).

Generation Rate 0.6 tonnes/capita:

The estimated usable life of the landfill assuming a 0.6 tonnes/capita waste generation rate is approximately 23 years. This value is generated based on the following assumptions:

- The per capita waste generation rate will remain constant at approximately 0.6 tonnes/capita in the future.
- The annual growth rate of the contributing population to the landfill will be approximately 2% (combined Town and Electoral Area A growth rate).
- A solid waste in place compacted density of 650 kg/m³ and an assumed long-term settlement rate of 15% (in situ densification).

Generation Rate 0.8 tonnes/capita:

The estimated usable life of the landfill assuming a 0.8 tonnes/capita waste generation rate is approximately 18 years. This value is generated based on the following assumptions:

- The per capita waste generation rate will remain constant at approximately 0.8 tonnes/capita in the future.
- The annual growth rate of the contributing population to the landfill will be approximately 2% (combined Town and Electoral Area A growth rate).
- A solid waste in place compacted density of 650 kg/m³ and an assumed long-term settlement rate of 15% (in situ densification).

While the annual per capita generation rate has steadily decreased since 2012, the annual tonnes per capita has varied from 0.52 to 0.77 during this time. Therefore, two generation rate scenarios are displayed. As recycling and compost practices become more refined, the lifetime of the landfill can be increased.

TABLE 5-1: PRELIMINARY STAGE 2 AREA LIFESPAN CALCULATION

* Landfilling assumed to start in Stage 2 in January 2011

0.6 GENERATION RATE						0.8 GENERATION RATE				
YEAR AT DECEMBER 31ST	POPULATION	TOTAL LANDFILLED		ANNUAL SETTLEMENT REDUCTION OF 15% M³	AIRSPACE AVAILABLE M³	POPULATION	TOTAL LANDFILLED		SETTLEMENT REDUCTION OF 15% M³	CURRENT RESIDUAL AIRSPACE M³
		TONNES/ YEAR	M³/YEAR				TONNES/ YEAR	M³/YEAR		
2011	6,737	6,538	10,897	1,635	-	6,737	6,538	10,897	1,635	-
2012	6,771	5,201	8,668	1,300	-	6,771	5,201	8,668	1,300	-
2013	6,805	4,293	7,155	1,073	-	6,805	4,293	7,155	1,073	-
2014	6,840	4,305	7,175	1,076	-	6,840	4,305	7,175	1,076	-
2015	6,874	4,093	6,822	1,023	-	6,874	4,093	6,822	1,023	-
2016	6,908	4,054	6,757	1,014	-	6,908	4,054	6,757	1,014	-
2017	7,065	4,056	6,760	1,014	-	7,065	4,056	6,760	1,014	-
2018	7,223	4,898	8,163	1,225	-	7,223	4,898	8,163	1,225	-
2019	7,380	4,231	7,052	1,058	-	7,380	4,231	7,052	1,058	-
2020	7,108	4,167	6,945	1,042	-	7,108	4,167	6,945	1,042	-
2021	7,695	4,598	7,664	1,150	-	7,695	4,598	7,664	1,150	-
2022	7,849	4,045	6,742	1,011	207,641	7,849	4,045	6,742	1,011	207,641
2023	8,006	4,118	5,883	882	202,640	8,006	4,118	5,883	882	202,640
2024	8,166	4,531	6,473	971	197,138	8,166	4,531	6,970	1,046	196,715
2025	8,329	4,998	7,689	1,153	190,603	8,329	6,663	10,251	1,538	188,001
2026	8,496	5,098	7,842	1,176	183,937	8,496	6,797	10,456	1,568	179,113
2027	8,666	5,199	7,999	1,200	177,138	8,666	6,933	10,666	1,600	170,048
2028	8,839	5,303	8,159	1,224	170,202	8,839	7,071	10,879	1,632	160,801
2029	9,016	5,410	8,322	1,248	163,128	9,016	7,213	11,097	1,664	151,369
2030	9,196	5,518	8,489	1,273	155,913	9,196	7,357	11,318	1,698	141,748
2031	9,380	5,628	8,659	1,299	148,553	9,380	7,504	11,545	1,732	131,935
2032	9,568	5,741	8,832	1,325	141,046	9,568	7,654	11,776	1,766	121,925
2033	9,759	5,855	9,008	1,351	133,389	9,759	7,807	12,011	1,802	111,716
2034	9,954	5,973	9,189	1,378	125,579	9,954	7,963	12,251	1,838	101,302
2035	10,153	6,092	9,372	1,406	117,612	10,153	8,123	12,496	1,874	90,680
2036	10,356	6,214	9,560	1,434	109,486	10,356	8,285	12,746	1,912	79,846
2037	10,564	6,338	9,751	1,463	101,198	10,564	8,451	13,001	1,950	68,795
2038	10,775	6,465	9,946	1,492	92,744	10,775	8,620	13,261	1,989	57,522
2039	10,990	6,594	10,145	1,522	84,121	10,990	8,792	13,527	2,029	46,025
2040	11,210	6,726	10,348	1,552	75,325	11,210	8,968	13,797	2,070	34,297
2041	11,434	6,861	10,555	1,583	66,353	11,434	9,147	14,073	2,111	22,335
2042	11,663	6,998	10,766	1,615	57,202	11,663	9,330	14,355	2,153	10,134
2043	11,896	7,138	10,981	1,647	47,868	11,896	9,517	14,642	2,196	-2,312
2044	12,134	7,281	11,201	1,680	38,348	12,134	9,707	14,934	2,240	-15,006
2045	12,377	7,426	11,425	1,714	27,829					
2046	12,624	7,575	11,653	1,748	17,923					
2047	12,877	7,726	11,886	1,783	7,820					
2048	13,134	7,881	12,124	1,819	-2,486					
2049	13,397	8,038	12,367	1,855	-12,997					

This landfill lifespan projection assumes the following:

- Annual population growth of 2%
- Compacted landfill density of 0.65 tonnes per m³
- 15% settlement reduction
- Available airspace derived from Sept. 29, 2022 aerial survey by TRUE Consulting.



6.0 Operation Plan for Next 12 Months (OC 4.6d)

The Operational Certificate requires that the annual report describes the operation plan for the next 12-month period. Operation plans for 2025 included:

- i. Hydrogeological Review of the Town of Osoyoos Landfill Groundwater Monitoring Programme

A Hydrogeology and Hydrology Characterization Report will be undertaken in 2025. The Report will be conducted as per Section 10.1 of the BC Landfill Criteria. The work programme will include compilation and interpretation of existing background information and water level/water quality data, assessment of the adequacy of the current groundwater monitoring programme, and assessment the effect the landfill activity is having on groundwater. The assessment will also include a preliminary assessment of the impacts from the hauled liquid waste disposal and composting operations that occur on the property.

- ii. Design, Operations and Closure Plan (“DOCP”):

As per requirements in Section 10.3 of the BC Ministry of Environment Landfill Criteria for Municipal Solid Waste (June, 2016), it is recommended that the Landfill’s DOCP shall be reviewed and updated as needed at least once every five years. The last DOCP was completed in 2018 and an update has been budgeted for 2025. As part of the update, the 2018 landfill closure cost estimates will be reviewed for the purpose of establishing a closure and post-closure fund as per Section 8 of the BC Landfill Criteria.

- iii. Updated Site Topographic Survey

An updated topographic survey is scheduled in 2025 to provide updated contour data for the upcoming site designs and fill planning. It is anticipated that this survey will be completed by a drone survey.

7.0 Environmental Monitoring Data (OC 4.6e)

The Osoyoos Landfill has six groundwater monitoring wells located both up and down gradient of the landfill. This allows for determination of ambient water quality characteristics versus those which can be impacted from landfill operations. Dillon Consulting developed and Environmental Management Plan (EMP) for the Osoyoos Landfill in 2022. The EMP specifies the following monitoring requirements for the landfill:

- I. Annual vegetation monitoring
- II. Monthly water level monitoring for the six on-site groundwater wells
- III. Groundwater quality sampling to be completed in April and September for the following parameters.
 - General parameters:
 - Chloride
 - Sulfate
 - Nitrogen (as N)
 - Nitrate (as N)
 - Nitrite (as N)
 - Nitrate + Nitrite (as N)
 - Dissolved Organic Carbon (DOC)
 - Total Kjeldahl Nitrogen (TKN)
 - Total Dissolved Solids (TDS)
 - Dissolved Metals
 - Aluminum (Al)
 - Arsenic (As)
 - Boron (B)
 - Cadmium (Cd)
 - Chromium (Cr)
 - Cobalt (Co)
 - Iron (Fe)
 - Lead (Pb)
 - Manganese (Mn)
 - Mercury (Hg)
 - Molybdenum (Mo)
 - Potassium (K)
 - Selenium (Se)
 - Sodium (Na)
 - Zinc (Zn)
- IV. Data quality assurance in accordance with the terms and conditions of the *Environmental Data Quality Regulation* (EDQA)
- V. Comparison of groundwater results to the BC Approved and Working Water Quality Guidelines (BCWQG) and Guidelines for Canadian Drinking Water Quality (GCDWQ)
- VI. Annual reporting including compilation, interpretation and trend analysis of the receiving environmental monitoring data prepared by a qualified professional.

Items II, III, V, and VI are consistent with monitoring requirements in previous years. It is noted that the EMP states that the Landfill EMP is sufficient for monitoring Compost Operations.

The Town's public works staff measured the depth to groundwater for measurable wells monthly, as seen in Figure 7-1.

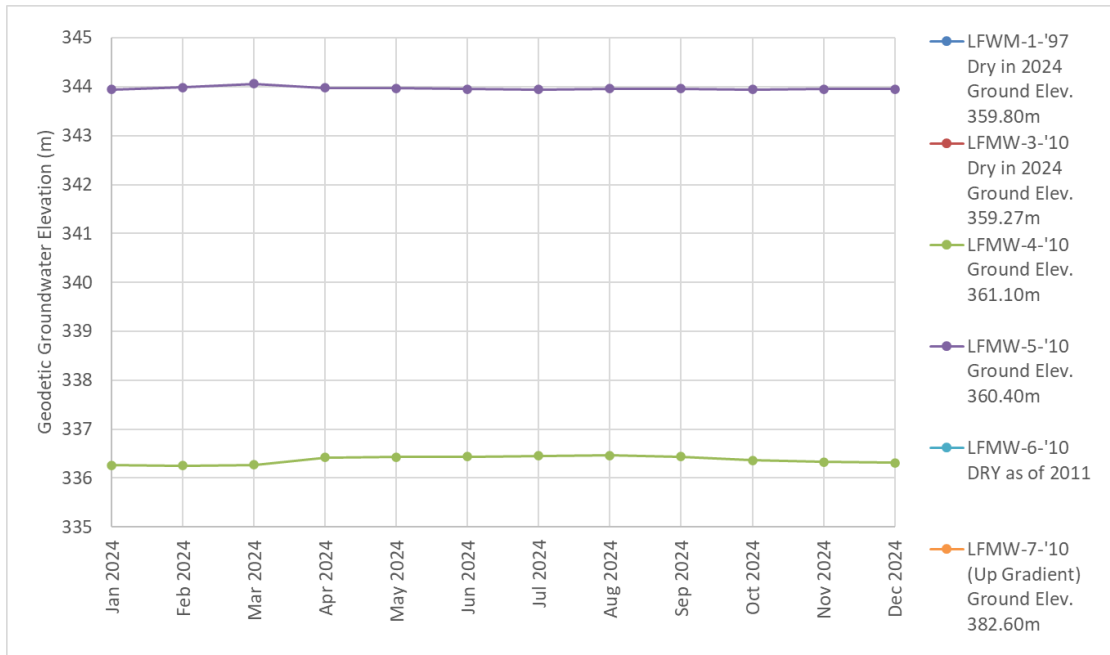


FIGURE 7-1: MONITORING WELL GROUNDWATER TABLE ELEVATIONS

The following is a summary of observed trends and site observations from Town staff in 2024:

- LFMW-1-'97 and LFMW-3-'10 -were dry all reported as dry in 2024. Historically this has not been the case, as documented in Table 7-1. It is recommended that the Town work with a hydrogeologist to assess the wells and sampling practices.
- The monitoring well water levels for those measured in 2024 remained relatively unchanged throughout the year.
- Water level monitoring was completed for all months in 2024. However, wells were reported as dry, which may be a sampling error.
- LFMW-6-'10 has been dry since 2011.
- LFMW-7-'10 was damaged in May 2022 and has not been accessible since then. It is recommended that the Town work with a hydrogeologist to discuss replacement of the well.

The average groundwater table elevations from 2012 to 2024 are summarized in Table 7-1. It should be noted that the 2023 values were taken from Dillon Consulting 2023 annual report and were not given the raw data.

TABLE 7-1: AVERAGE GROUNDWATER TABLE ELEVATIONS FOR LANDFILL MONITORING WELLS

WELL NO.	AVERAGE GROUNDWATER TABLE ELEVATION (M)											
	2013	2014	2015	2016	2017	2018*	2019	2020	2021	2022	2023	2024
MW-1-'97	344.01	343.51	343.37	343.33	343.87	344.50	343.89	343.88	343.29	343.07	DRY	DRY
LFMW-3-'10	338.10	338.73	337.74	338.17	340.72	345.71	344.82	343.40	341.47	338.41	334.95	DRY
LFMW-4-'10	336.18	305.68	336.21	336.29	337.83	341.63	341.06	340.13	338.07	336.27	339.55	336.37
LFMW-5-'10	343.91	344.41	344.27	344.17	344.79	345.50	345.14	344.70	344.32	344.08	345.69	343.97
LFMW-6-'10	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
LFMW-7-'10	380.34	378.51	377.82	377.93	379.81	379.98	378.42	377.56	378.55	377.69	No Access	No Access

Groundwater quality was sampled once during September at well LFMW-4-10. The analytic results can be viewed in Appendix F. Parameters regulated by the OC, as per the EMP, are listed as follows.

- Chloride: 37.1 mg/L
- Nitrate (as N): 0.014 mg/L
- Nitrite (as N): <0.010 mg/L
- Total Hardness (as CaCO₃): 754 mg/L
- Nitrate and Nitrite (as N): 0.0145 mg/L

The exclusion of analytical results for general parameters and dissolved metals, as specified by the EMP, is not compliant with Section 4.1, 4.3, 4.5, and 4.6 (e) of the OC. It is recommended that the Town engage in groundwater sampling in both the spring and fall 2025 to be compliant with the OC and with the Environmental Monitoring Plan in Appendix G.

8.0 Review of Closure Plan (OC 4.6f)

A Landfill Design, Operation, Closure Plan (DOCP) was prepared for the Osoyoos Landfill in August 2018. This document is an update to the previous plan that was approved in 1996 and presents the programs, services, infrastructure, and policies that will be implemented in future years. The DOCP includes the following:

- Location and Site Description
- Topography and Natural Drainage
- Subsurface Conditions
- Climate
- Adjacent Land Use
- Historical Use
- Regulatory Agency Authorization
- Historical Landfill Data and Future Projections
- Landfill Design, Filling Plan and Closure Plan
- Post Closure Operation and Maintenance
- Hauled Liquid Waste

Within the DOCP, a capital cost estimate for closure and post-closure operation and maintenance costs are provided. This includes suggested post-closure uses for the site. Currently, the Town of Osoyoos regularly contributes to a closure fund in compliance with Section 4.8 of the OC. 2021 Financial statements for the closure fund are presented in Appendix D.

As per the requirements of the BC Ministry of Environment's 2016 Landfill Criteria for Municipal Solid Waste, the DOCP demonstrates the planning, design, construction, operation, monitoring and closure plans in accordance with the criteria outlined. The plan shall be updated as needed at least once every five years. The last DOCP was completed in August 2018. The Town has budgeted an update in their 2025 capital budget.

9.0 Landfill Gas Management (OC 4.6g)

A Landfill Gas Generation Assessment Report for the Town of Osoyoos Landfill was prepared by TRUE in March 2011 in accordance with the Landfill Gas Generation Assessment Procedure Guidance Report (the Guidelines), prepared for the Ministry of Environment by Conestoga-Rovers & Associates (CRA) and in accordance with the requirements of the British Columbia Ministry of Environment's Landfill Gas Generation Management Regulation (the Regulation).

Subsequent updates to this report were prepared in March 2014, April 2019 and most recently May 2024 in accordance with the Guidelines and Regulation. The updated reports re-characterized the waste summaries to be more representative of the solid waste composition. The 2024 Landfill Gas Generation Assessment Report is included in Appendix E of this report. As per section 15(4) of the Regulation, a supplementary report is required by March 31st on the fifth calendar year (or March 31st of 2029).

As per section 12(3) of the Regulation, records for the quantity and sources for municipal solid waste received at the landfill are retained for a period of at least 10 years as seen in Table 3-1 of this report.

APPENDIX A

Certificate MR15273



MINISTRY OF WATER, LAND AND
AIR PROTECTION

**OPERATIONAL CERTIFICATE
MR 15273**

*Under the provisions of the Waste Management Act and in accordance with the Approved
Regional District of Okanagan-Similkameen Solid Waste Management Plan,*

Town of Osoyoos

PO Box 3010

Osoyoos, British Columbia

VOH 1VO

is authorized to manage municipal solid waste and to discharge residual solid waste to the ground at a sanitary landfill facility located on 146th Avenue, Osoyoos, approximately 7 km northwest of Osoyoos, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the ***Waste Management Act*** and may result in prosecution.

This Operational Certificate does not authorise entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorised by the owner of such lands or works. The responsibility for obtaining such authority shall rest with the Operational Certificate holder. This Operational Certificate is issued pursuant to the provisions of the ***Waste Management Act*** to ensure compliance with Section 54 of that statute, which makes it an offence to discharge waste without proper authorisation. It is also the responsibility of the Operational Certificate holder to ensure that all activities conducted under this authorisation are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This Operational Certificate supersedes all previous authorizations issued under the authority of the Waste Management Act.

A handwritten signature in black ink, appearing to read "T.R. Forty", written over a horizontal line.

T.R. Forty, P.Eng.
Assistant Regional Waste Manager

1. AUTHORIZED DISCHARGES

1.1 This authorization applies to the discharge of solid waste to a sanitary landfill known as the Osoyoos Landfill. The Environmental Monitoring System (EMS) reference number for this discharge is **E212323**.

1.1.1 The authorized discharge is municipal solid waste and other wastes as allowed by the Regional Waste Manager.

1.1.2 The works authorized are a sanitary landfill and related appurtenances located approximately as shown on the attached Site Plan A.

1.1.3 The discharge originates generally from the Osoyoos area of the Regional District of Okanagan-Similkameen.

1.1.4 The legal description of the location of the authorized landfill facility is Lot 993 Plan 22982 and Lot 829 Plan 5102, both in District Lot 2450s, and that portion of District Lot 2450s lying south of Lot 993 Plan 2298 to the Old Richter Pass Road, Similkameen Division of Yale District, as shown on Site Plan A.

1.2 The discharge of emissions to the air to which this Sub-Section is applicable is the burning of wood residues. The EMS reference number for this discharge is **E212325**.

The authorization to open burn shall expire on December 31, 2002, after which time open burning shall be strictly prohibited.

Prior to the expiration of the authorization to open burn, the following shall apply.

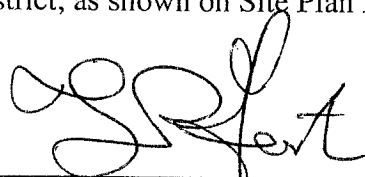
1.2.1 The type of wood residues which may be burned shall be from municipal sources and is restricted to brush and untreated wood, but excluding stumps.

1.2.2 The maximum duration of each open burn shall be limited to the period between dawn and dusk of a single day.

1.2.3 The maximum authorized volume of wood residues to be burned is that which can successfully be burned in a single dawn to dusk time period in any number of separate piles.

1.2.4 The location from which the wood residues discharge originates is generally the Osoyoos area.

1.2.5 The location of the source of discharge is legally described as Lot 993 Plan 22982 and Lot 829 Plan 5102, both in District Lot 2450s, and that portion of District Lot 2450s lying south of Lot 993 Plan 2298 to the Old Richter Pass Road, Similkameen Division of Yale District, as shown on Site Plan A.



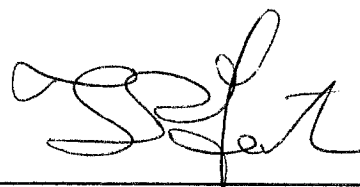
T.R. Forty, P.Eng.
Assistant Regional Waste Manager

2. DESIGN AND PERFORMANCE REQUIREMENTS

2.1 Operations and Closure Plan

An *Operations and Closure Plan* shall be submitted to the Regional Waste Manager. The *Operations and Closure Plan* shall be prepared by a qualified professional, knowledgeable in the field of landfill design, operation and closure and licensed to practice in British Columbia. The *Operations and Closure Plan* shall include at least the following:

- (a) Anticipated total waste volumes and tonnage and the estimated life of the landfill;
- (b) A landfill cell development and filling plan, outlining procedures for the placement, compaction and covering of wastes
- (c) Litter, odour, dust, rodent and nuisance wildlife control measures;
- (d) A screening plan, e.g.: vegetative or berm;
- (e) A perimeter fencing plan to control access;
- (f) Contingency plans & notification procedures in the event of an emergency;
- (g) Training procedures for operators
- (h) A final cover design including the thickness and permeability of barrier layers and drainage layers, topsoil requirements, vegetative cover and erosion prevention controls;
- (i) A topographic plan showing the final elevation contours of the landfill and surface water diversion and drainage controls;
- (j) A plan and implementation schedule for monitoring the receiving environment groundwater, surface water, landfill gas, erosion and settlement throughout the remaining life of the landfill and for a minimum post-closure period of 25 years;
- (k) A plan and implementation schedule for operation of any required pollution abatement engineering such as landfill gas or leachate collection, management and treatment works for the remaining life of the landfill and a minimum post-closure period of 25 years;
- (l) A forecast of the cost of completed closure and post-closure activities, plus a reasonable contingency, for the purposes of determining a schedule of reserve funds or security to be collected each year until landfill closure;
- (m) A proposed end use of the property after closure;
- (n) Procedures for notifying the public about the closure and about alternative waste disposal facilities; and
- (o) Any other site specific concerns as identified by the Regional Waste Manager.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

Operation of this landfill is to be in substantial accordance with the *Operations and Closure Plan*. If there should be any inconsistency between this Operational Certificate and the *Operations and Closure Plan*, this Operational Certificate shall take precedence.

Written notification shall be provided to the Regional Waste Manager prior to implementing any changes to the *Operations and Closure Plan*. Should circumstances warrant, a revision or addition to the *Operations and Closure Plan* may be required by the Regional Waste Manager.

2.2 Maintenance of Works, Emergency Procedures and Non-Compliance Reporting

2.2.1 The Operational Certificate holder shall regularly inspect the landfill and related pollution control works, designated areas for managing recyclable materials or controlled substances and maintain them in good working order.

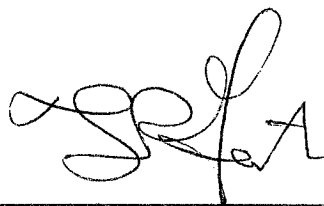
2.2.2 In the event of an emergency or condition beyond the control of the Operational Certificate holder that prevents the continued operation of the authorized works and/or continued performance of the prescribed methods of operation, the Operational Certificate holder shall immediately notify the Regional Waste Manager and take appropriate action.

Specific requirements of the Operational Certificate may be suspended for such time as the emergency exists or as otherwise directed by the Regional Waste Manager provided that:

- (a) The Operational Certificate holder can demonstrate the exercise of due diligence in relation to the process, operation or event which has caused the emergency, and that the emergency has occurred notwithstanding this exercise of due diligence;
- (b) The Regional Waste Manager has been immediately notified of the emergency; and
- (c) The Operational Certificate holder is proceeding with due diligence to correct the emergency condition.

2.3 Public Health Safety and Nuisance

The landfill shall be operated in a manner such that it will not become a significant threat to public health or safety, or a public nuisance is created with respect to, landfill gas, unauthorized access, roads, traffic, noise, dust, litter, vectors, or wildlife attraction.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

2.4 Surface Water Diversion

Discharge of municipal solid waste into water is prohibited. The Operational Certificate holder shall construct and maintain adequate surface water and groundwater diversion works to minimize surface water run-off and groundwater seepage from entering the landfill.

2.5 Property Boundary

The buffer zone between any municipal solid waste discharged and the property boundary is to be at least 50 metres, of which the 15 metres closest to the property boundary must be reserved for natural or landscaped screening (berms or vegetative screens). Depending on adjacent land use and environmental factors, buffer zones of less than 50 metres, but not less than 15 metres, may be authorised by the Regional Waste Manager.

2.6 Setbacks

The distance between the discharged municipal solid waste and the nearest surface water is to be a minimum of 100m. The distance between the discharged municipal solid waste and the nearest residence, water supply intake, hotel, restaurant, food-processing facility, school, church or public park is to be a minimum of 300 metres. Greater or lesser separation distances may be authorised by the Regional Waste Manager where justified.

Accordingly, the Operational Certificate holder shall initiate action immediately to obtain or reserve those lands within the buffer area, or otherwise negotiate an agreement with adjacent property owners, to ensure the buffer lands are adequately protected and reserved for the future.

2.7 Ground and Surface Water Quality Impairment

The landfill must be operated in a manner such that ground or surface water quality does not decrease beyond that specified by the British Columbia Water Quality Guidelines, or other appropriate criteria as may be specified by the Regional Waste Manager, at or beyond the landfill property boundary.

If excursions result to the specified water quality criteria, the Regional Waste Manager may require that leachate management control measures or works be undertaken. Terms of reference for any leachate management study and/or design work shall be subject to the authorization of the Regional Waste Manager.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

2.8 Landfill Gas Management

Combustible gas concentrations shall not exceed the lower explosive limit in soils at the property boundary or 25% of the lower explosive limit at or in on-site or off-site structures.

In accordance with the Provincial Landfill Criteria for Municipal Solid Waste, an assessment of the emissions of non-methane organic compounds (NMOCs) is required for landfills exceeding a total capacity of 100,000 tonnes. If NMOCs are determined to exceed 150 tonnes/year, landfill gas recovery and management systems will be required and shall be designed, installed and operational within 3 years. If NMOCs are projected to be less than 150 tonnes/year for the operating life of the landfill, an assessment for the need of passive gas venting will be required.

Accordingly, the Operational Certificate holder is directed to submit to the Regional Waste Manager a Landfill Gas Management Plan on or before October 1, 2003. The Landfill Gas Management Plan may consider actual site-specific measurements for determining the actual rate of NMOCs emissions. In the event that active gas recovery systems are not required, the Landfill Gas Management Plan shall evaluate the need for passive gas venting. The Landfill Gas Management Plan shall provide a design and an implementation schedule for any required works and measures for the management and recovery of landfill gas.

The Landfill Gas Management Plan is subject to the approval of the Regional Waste Manager. The Regional Waste Manager may require revisions to the Landfill Gas Management Plan where warranted.

2.9 Final Cover

Final cover for landfill sites is to consist of a minimum of 1 metre of low permeability ($<1 \times 10^{-5}$ cm/s) compacted soil plus a minimum of 0.15 metre of topsoil with suitable vegetation established. The depth of the topsoil layer should be related to the type of vegetation proposed (i.e. rooting depth). Soils of higher permeability may be authorized based on leachate generation potential at the landfill site. Final cover is to be constructed with slopes between 4% and 33% with appropriate run-on/run-off drainage controls and erosion controls. Additional design elements may be necessary due to site specific conditions and the presence of management systems for leachate and landfill gas. Completed portions of the landfill are to progressively receive final cover during the active life of the landfill.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

3. OPERATIONAL REQUIREMENTS

3.1 Landfill Supervision and Access

A suitably trained landfill operator shall be present on-site at all times during operating hours. The operator shall be familiar with the requirements of the Operational Certificate and the specifications of the approved *Operations and Closure Plan*.

Perimeter fencing, gates and/or barriers shall be installed where necessary to prevent unauthorized access to the site by vehicles. All access points are to have locking gates, and all gates are to be locked during non-operating hours to prevent unauthorized access. Properly designed and maintained public waste disposal and/or recyclable material bins situated outside the main gate may be provided for after hours use.

3.2 Prohibited Wastes

3.2.1 The disposal of the following types of wastes is strictly prohibited:

- a) Special Wastes other than those specifically authorized in the *Special Waste Regulation*
- b) Biomedical waste as defined in the document *Guidelines for the Management of Biomedical Waste in Canada* (CCME, February 1992)
- c) Liquids or semisolid wastes which contain free liquid, except as otherwise authorized by the Waste Management Act Permit PE-14804



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

3.2.2 The disposal of the following wastes is prohibited unless specifically authorized by the Regional Waste Manager:

- a) Automobiles, white goods, other large metallic objects and tires
- b) Dead animals and slaughter house, fish hatchery and farming wastes or cannery wastes and by-products

Burial of these wastes in dedicated locations (i.e. avoiding co-disposal) at a landfill site may be authorized by the Regional Waste Manager only if there is no other viable alternative such as treatment/disposal, recycling, reprocessing or composting. The specific location of the disposal shall be recorded to allow ready access to the waste should corrective or further action pertaining to the management of these wastes be required by the Ministry at some time in the future.

3.3 Hydrocarbon Contaminated Soils

The deposit of hydrocarbon contaminated soils below the *Special Waste Regulation* criteria is authorized at this landfill subject to the following conditions:

- 3.3.1** Soil contaminated with hydrocarbons shall be deposited in layers less than 0.3 meters; and
- 3.3.2** Soil contaminated with hydrocarbons shall be deposited a minimum of 1.2 meters above the seasonal high groundwater level and a minimum of 2.0 meters below the final grade of the landfill to prevent the impact on groundwater and any future vegetation on the site.

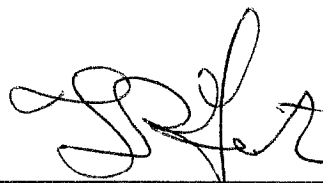
3.4 Ozone Depleting Substances

Release of ozone depleting substances from the storage, handling and disposal of used appliances, equipment, or any material containing ozone depleting substances is strictly prohibited in accordance with the requirements of the *Ozone Depleting Substances Regulation*.

3.5 Designated Areas

Maintain areas for the separation, handling and storage of recyclable or reusable materials where applicable.

When a separated recyclable material is a special waste it is to be stored and managed in accordance with the *Special Waste Regulation*.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

3.6 Scavenging

Scavenging of waste is to be prevented. The salvaging of wastes should be encouraged by providing areas and facilities for separation of recyclable or reusable materials.

3.7 Dust Control

Dust created within the landfill property is to be controlled, using methods and materials acceptable to the Regional Waste Manager, such that it does not cause a public nuisance.

3.8 Waste Compaction and Covering

Wastes are to be spread in thin layers (0.6 m or less) on the working face and compacted. The working face area should be minimized as much as possible. A compacted layer of cover material of at least 0.15 metre of soil or functionally equivalent depth of other cover material, as authorized by the Regional Waste Manager, is to be placed on all exposed solid waste at the end of each day of operation. If the landfill should operate continuously 24 hours per day, 0.15 m of cover material is to be applied at a frequency authorized by the Regional Waste Manager. Under specific circumstances, such as during bear season, the Regional Waste Manager may specify more stringent cover requirements. During periods of extreme weather conditions, such as those that cause the ground to freeze, an exemption to the normal cover requirements may be authorized by the Regional Waste Manager.

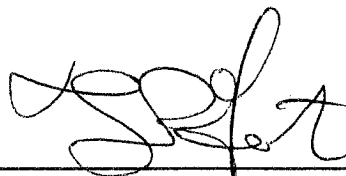
An intermediate cover consisting of a compacted layer of at least 0.30 metre of soil or functionally equivalent depth of other cover material is to be placed where no additional solid waste has been deposited or will be deposited within a period of 30 days.

3.9 Litter Control

Litter is to be controlled by compacting the waste, minimizing the working face area, applying cover, providing litter control fences and instituting a regular litter pickup and general good housekeeping program or any other measures required by the Regional Waste Manager.

3.10 Vectors

Vectors are to be controlled by the application of cover material at a specified frequency or by other control measures as required and authorized by the Regional Waste Manager.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

3.11 Wildlife

The landfill is to be operated so as to minimize the attraction of wildlife such as bears and birds by applying cover at required frequencies and instituting a good housekeeping program. Further control measures, such as bear control fences, and bird control devices, may be specified by the Regional Waste Manager.

3.12 Fire Protection

Adequate fire fighting equipment is to be available to extinguish surface or underground fires. Recyclables and reusable materials are to be stored in such a manner to not constitute a fire hazard.

3.13 Open Burning

The controlled open burning operation is authorized until December 31, 2002, at which time all open burning shall cease. The time limited authorization to open burn is subject to the following conditions:

- 3.13.1 The maximum duration of each open burn event shall be limited to the period between dawn to dusk of a single day, after which time the fire shall be extinguished. In order to limit the smoke that will be created from having to extinguish a fire, the wood residue to be burned shall be stacked in piles of a size that may be consumed by the fire in the dawn to dusk time frame.
- 3.13.2 The open burn shall not be initiated until the Venting Index for the Okanagan Valley is classified as "good". The Venting Index may be obtained from the information line at 250-861-7480.
- 3.13.3 Additional authorizations for open burning may be required from other government agencies. In particular, the Operational Certificate holder shall ensure that the necessary authorizations have been obtained from the British Columbia Forest Service and any applicable municipal authority.
- 3.13.4 The wood residues shall be segregated from the municipal solid waste and sorted to ensure that there are no unacceptable materials in the burn pile(s). Unacceptable materials are those that will produce unacceptable emissions or will not fully incinerate within the dawn to dusk time period of the burn and includes tires, plastics, insulation, asphalt shingles, putrescible waste, stumps, metal hulks, animal carcasses and the like. The wood waste shall be piled in a manner that will promote rapid and hot combustion.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

- 3.13.5** The open burn shall be conducted on ground that has not been previously landfilled, and a minimum 15 meter setback is to be maintained between the discharged municipal solid waste and burn area. A minimum 15 meter combustible free zone or firebreak shall be maintained around the burn area.
- 3.13.6** The Operational Certificate holder shall ensure that full time supervision shall be provided until the open burn is complete, that is, until there is no smoke and no further danger of fire exists). Suitable equipment is to be available to promote rapid and hot combustion of the wood residue pile(s).
- 3.13.7** Suitable equipment shall be available for extinguishing fires to prevent them from spreading to surrounding areas and to extinguish the fire at dusk. Such devices may include a pressurized water supply, chemical type fire extinguishers, or an earth stockpile. If an earth stockpile is used for fire control, earth-moving equipment shall be available at the site during the burning.
- 3.13.8** The residue of combustion shall be monitored to ensure it has cooled to ambient temperature prior to incorporating into the adjacent landfill.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

4. MONITORING AND REPORTING REQUIREMENTS

4.1 Receiving Environment Monitoring

The Operational Certificate holder shall submit for the approval of the Regional Waste Manager a monitoring program design. The monitoring program design shall be prepared by an engineer or geoscientist who is knowledgeable in the field of hydrogeology, experienced in modeling and evaluating the environmental impact from landfill sites, and licensed to practice in the province of BC. The monitoring program design shall recommend the location of monitoring wells and devices and a monitoring program sufficient to determine the environmental impact from the landfill, including groundwater contamination from landfill leachate and potential impacts from the generation of landfill gas.

Upon approval, the monitoring wells and devices specified in the monitoring program design shall be installed under the direction of the design professional and the monitoring program shall be undertaken as specified.

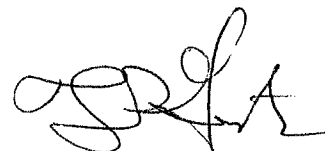
As-constructed drawings, sealed by the design professional, of the monitoring wells and devices shall be submitted to the Regional Waste Manager. The drawings shall include elevations relative to a common datum, and a scaled site location plan indicating the landfill footprint, associated works and all existing monitoring wells and devices.

The receiving environment monitoring devices shall be adequately secured and maintained, including provisions to ensure protection from damage due to vehicles or vandalism.

The Operational Certificate holder shall maintain records of all monitoring program data and analyses available for inspection. Data from monitoring and analyses shall be submitted to the Regional Waste Manager annually as part of the annual report required under **Section 4.6**. The adequacy of the monitoring program shall be reviewed at least annually and any revisions to the monitoring program shall be outlined in the annual report. On the basis of the information submitted in the annual report, routine inspections and any other information related to the effect of the discharge on the receiving environment, the Regional Waste Manager may vary the frequency, location, and/or analyses of any or all components of the receiving environment monitoring program.

4.2 Vegetation Monitoring

Inspect vegetation during the growing season in the vicinity of the landfill at least once per year to determine if any environmental impacts are occurring.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

4.3 Sampling and Analytical Procedures

The receiving environment sampling and monitoring shall be carried out in accordance with the appropriate procedures listed in the table below. Alternative test methods may be used only where authorized by the Regional Waste Manager. Test methods for parameters not listed below are subject to the approval of the Regional Waste Manager.

LIQUID EFFLUENTS, SURFACE WATER, GROUND WATER, SOILS, SEDIMENTS, VEGETATIVE MATTER:		
Parameter	Sampling Procedure	Analytical Procedure
Metals Nutrients Organics Toxicity	British Columbia Field Sampling Manual for Continuous Monitoring plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 1996 or most recent edition	British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials, 1994 or most recent edition and supplements

The above manuals are available from Queen's Printer Publications Centre, P.O. Box 9452, Stn. Prov. Govt, Victoria, BC, V8W 9V7 (1-800-663-6105 or (250)387-4609).

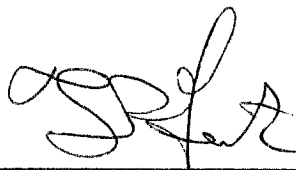
Proper care should be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination and breakage.

4.4 Environmental Monitoring System (EMS) Sites

The receiving environment monitoring program will take into consideration existing ground and surface water monitoring sites that were previously established by the Ministry. The Operational Certificate holder shall provide precise latitude and longitude values for each of the EMS sites monitored and for any additional sites that are required.

4.5 Data Quality Assurance

The Operational Certificate holder is required to follow the terms and conditions of the *Environmental Data Quality Assurance Regulation* (EQDA), or other legislation which may be in effect at the time. The EQDA specifies ten percent of the samples collected shall be duplicated to provide data quality assurance. Quality control information generated by the laboratory while analyzing parameters required by this Operational Certificate shall also be provided with the data required to be reported.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

4.6 Annual Report

The Operational Certificate holder shall submit an annual operations and monitoring report to the Regional Waste Manager by **March 1st** of each calendar year. The annual report shall include the following information:

- (a) Total volume and/or weight of waste discharged into the landfill for the year, along with documentation of the method used to quantify the waste discharged;
- (b) Service population and waste discharge rate for the year (in tonnes per capita per year) and a trend analysis with a comparison to the 1996 baseline waste discharge rate of 1.2 tonnes per capita per year;
- (c) Remaining site life and capacity;
- (d) Operational plan for next 12 months including any proposed changes to the ***Operations and Closure Plan***;
- (e) A compilation, interpretation and trend analysis of the receiving environment monitoring data prepared by a suitably qualified professional;
- (f) Review of the closure plan and associated estimated costs, for the purposes of establishing the closure fund required in **Section 4.8**; and
- (g) Any other data relevant to this Operational Certificate.

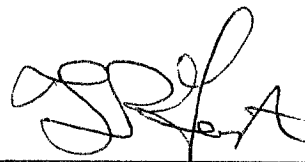
4.7 Format of Submission

Monitoring and/or reporting information shall be submitted in an electronic and/or printed format which is suitable for review by the public and/or other government agencies and is satisfactory to the Regional Waste Manager.

4.8 Closure Fund

The Operational Certificate holder shall provide for the funding of operations at and beyond closure by establishing a closure fund. The ultimate value of the closure fund shall meet or exceed the estimated closure and post-closure costs as outlined in the ***Operations and Closure Plan*** and updated in the annual report, plus a reasonable contingency for any remediation which may be required.

The Operational Certificate holder shall determine and ensure that the closure fund is adequate by preparing annually a financial statement of the fund which shall be made available to the Regional Waste Manager upon request. The financial statement shall report the accrued capital, interest and additions to the fund for the previous year, and shall review the sufficiency of the fund and the rate of accrual in consideration of the projected costs of closure and post-closure obligations.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

4.9 Declaration of Landfill

Landfills sited on titled land must register a covenant that the property was used for the purpose of waste disposal as a charge against the title to the property as provided for under Section 215.1 of the *Land Title Act*. Landfills located on crown land are to have a "notation on file" registered that the property was used for the purpose of waste disposal.

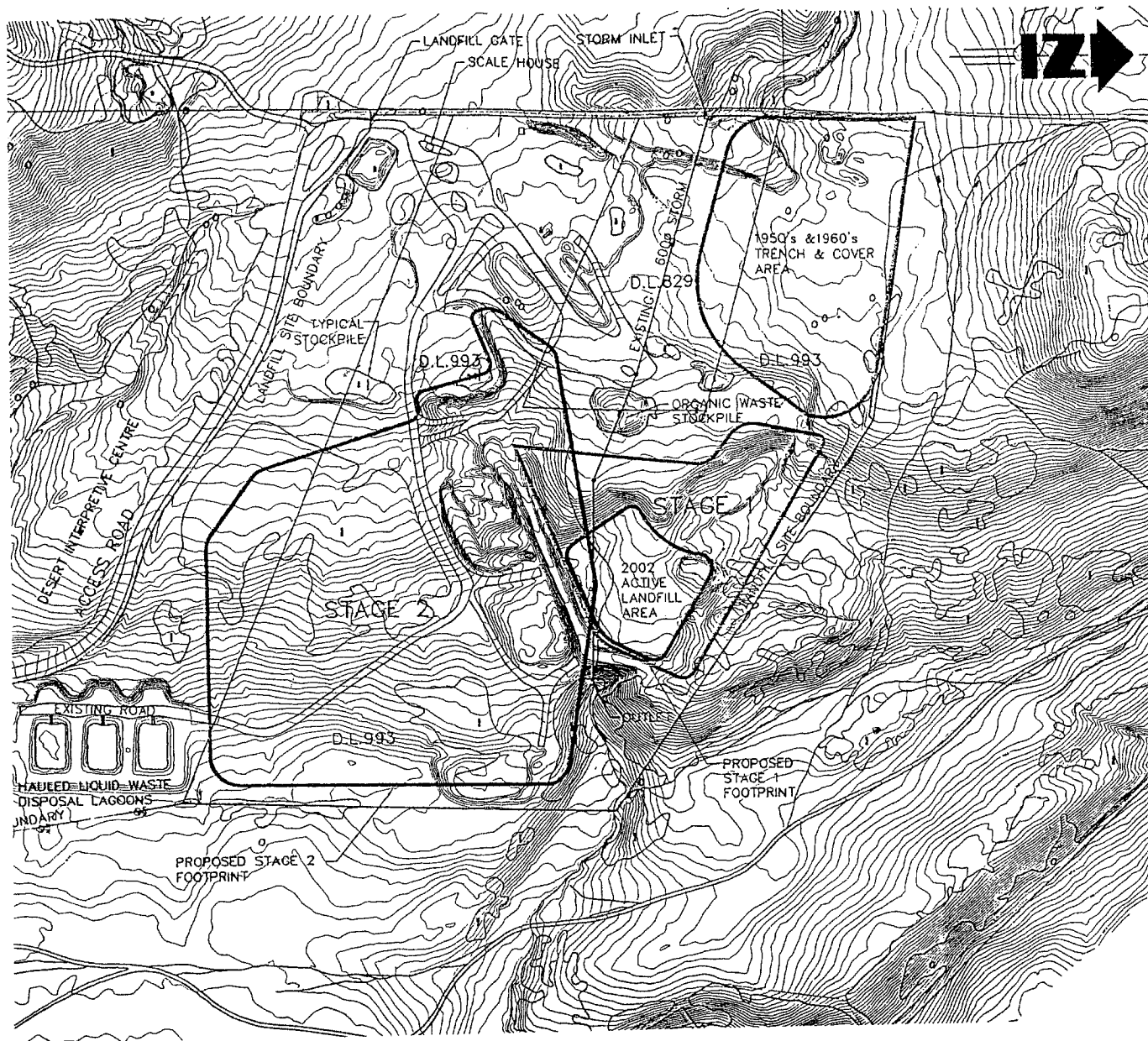
4.10 Buildings and Structures

The construction of buildings and other structures on landfills containing putrescible wastes is not recommended for a minimum period of 25 years after closure due to concerns about combustible gas and excessive settlement. Such activity will only be considered and /or authorized after an investigation and report by qualified persons. The report is to be submitted for authorization to the Regional Waste Manager prior to initiating construction activities.

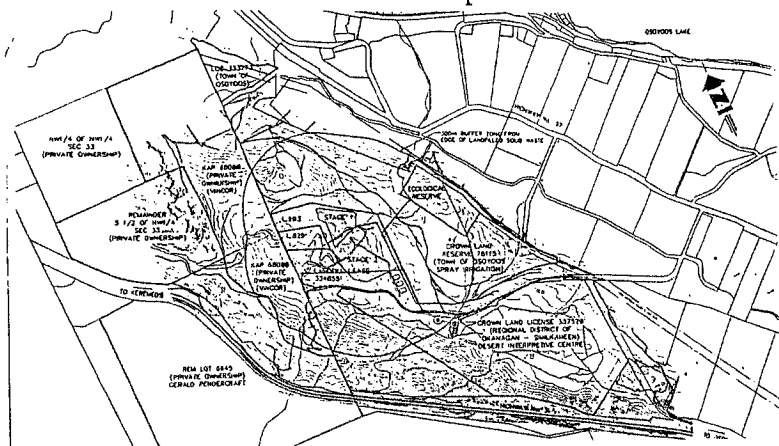


T.R. Forty, P.Eng.
Assistant Regional Waste Manager

SITE PLAN A



Location Map



Scale: NTS

Operational Certificate No.: MR-15273

Date:

March 26, 2007

T.R. Forty, P.Eng.

Assistant Regional Waste Manager

APPENDIX B

Waste Quantity Monthly Summaries 1996 to 2024

APPENDIX B: ANNUAL LANDFILL WASTE QUANTITIES FROM 1996-2024 (TONNES)

WASTE CATEGORY	Total 1996	Total 1997	Total 1998	Total 1999	Total 2000	Total 2001	Total 2002	Total 2003	Total 2004	Total 2005	Total 2006	Total 2007	Total 2009	Total 2010	Total 2011	Total 2012	Total 2013	Total 2014	Total 2015	Total 2016	Total 2017	Total 2018	Total 2019	Total 2020	Total 2021	Total 2022	Total 2023	Total 2024
Batteries	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Const Waste A (conc, asphalt, etc.)	458	282	266	880	26	716	80	131	271	709	169	1,051	894	413	2,888	2,575	2,155	1,037	239	595	3,199	4,635	582	1,757	1,143	232	255	232
Const Waste B (demolition)	668	311	94	0	148	199	323	291	366	191	429	387	970	1,886	418	527	194	238	357	67	43	55	29	48	58	128	97	128
Const Waste C (compostable)	40	437	179	233	592	517	572	502	620	936	905	312	787	392	455	470	224	159	190	193	228	169	214	256	128	138	115	138
Const Waste - Mixed																												
Metals - Type A (white goods)	8	7	9	4	41	37	23	19	0	0	0	0	0	0	0	0	21	25	27	34	15	1	85	14	22	6	23	0
Metals - Type B (scrap metal)	84	78	90	67	96	111	75	104	153	149	105	84	103	50	38	47	37	0	0	0	0	0	0	0	0	0	0	0
Tires	9	11	8	3	6	13	6	4	9	8	8	2	2	2	3	6	1	0	5	4	5	6	5	5	3	9	13	9
Commercial Waste	1,439	1,603	1,578	1,781	1,799	2,166	3,688	2,605	3,102	2,992	3,513	2,966	3,299	3,071	2,335	2,173	1,872	2,177	1,966	2,075	2,037	1,949	2,181	1,961	2,107	2,077	1,870	2,077
Municipal Waste	1,677	1,441	1,267	1,071	1,376	1,468	1,611	1,748	1,868	1,922	2,021	2,696	2,348	1,915	3,349	2,105	2,228	1,890	1,736	1,897	1,976	2,809	2,008	2,136	2,424	2,302	2,139	2,302
Yard Waste A (compostable garden)	71	74	120	107	60	102	122	146	210	145	578	634	862	974	762	300	835	849	866	1,058	1,043	969	916	928	1,090	1,257	1,392	1,257
Yard Waste B (chippable limbs, compost, puncture vine, etc.)	758	623	569	328	0	20	31	9	42	35	22	62	25	41	33	0	0	0	16	2	2	1	6	4	6	3	0	0
Yard Waste C		258		19	47	24	10	0	0	0	0	0	0	0	0	491	0	0	0	0	0	0	0	0	0	0	0	0
Invasive Weeds (puncture vine, tumbleweed, etc.)																												
Refrigerators							21	21	24	30	31	21	30	25	24	25	26	26	19	23	23	26	29	26	28	0	25	0
Propane Tanks																												
Agricultural Plastics- Recycled													10	9		0	0	0	0	0	0	0	0	0	0	0	0	0
Recycled DLC															2,182	0	0	0	16	57	36	88	73	105	134	53	53	53
Biosolids																396	0	0	0	0	0	0	0	0	2	0	0	0
ANNUAL TOTALS	5,214	5,126	4,232	4,493	4,191	5,374	6,562	5,580	6,664	7,117	7,780	8,216	9,329	8,777	12,486	9,115	7,572	6,397	5,469	6,013	8,618	10,825	6,087	7,280	7,156	6,295	5,936	6,295

SUMMARY OF PROCESSING

ORGANICS COMPOSTED	0	0	0	0	0	0	0	0	0	0	0	1,008	1,674	1,407	1,250	1,260	1,059	1,007	1,072	1,253	1,272	1,139	1,136	1,188	1,223	1,397	1,519	1,397
RECYCLED	102	97	108	74	143	161	125	149	186	187	144	108	145	85	2,247	78	64	48	65	112	91	153	138	168	192	136	56	135
CONSTRUCTION	498	718	445	1,113	618	1,233	652	633	891	1,645	1,074	1,051	894	413	2,888	2,575	2,155	1,037	239	595	3,199	4,635	582	1,757	1,143	232	255	232
LANDFILLED	4,614	4,311	3,679	3,306	3,430	3,980	5,785	4,799	5,587	5,285	6,563	6,049	6,616	6,872	6,102	4,805	4,293	4,305	4,093	4,054	4,056	4,898	4,231	4,167	4,598	4,531	4,106	4,531
ANNUAL TOTALS	5,214	5,126	4,232	4,493	4,191	5,374	6,562	5,580	6,664	7,117	7,780	8,216	9,329	8,777	12,486	9,115	7,572	6,397	5,469	6,013	8,618	10,825	6,087	7,280	7,156	6,295	5,936	6,295

CATEGORIES NOT INCLUDED IN SUMMARY

HAULED LIQUID WASTE			30	1,393	2,977	3,974	8,810	8,489	6,435	6,399	7,663	9,935	6,129	4,855	5,363	5,225	2,622	2,084	1,920	2,021	2,352	2,119	2,680	3,160	4,579	2,042	2,802	2,042
COMPOST SALES																								321	181	176	158	176
CLEAN COVER MATERIAL (CCMT & CGC)															5,664	320	1,531	175	1,430	1,718	8,116	2,040	3,451	836	1,620	1,415	1,620	1,620
ANNUAL TOTALS	0	0	30	1,393	2,977	3,974	8,810	8,489	6,435	6,399	7,663	9,935	6,129	4,855	5,363	10,889	2,942	3,616	2,095	3,451	4,070	10,235	4,720	6,932	5,597	3,839	4,375	3,839

(1) Annual totals account for all waste brought to the landfill but do not include the hauled liquid waste and clean cover material.

Note that Annual Totals are equivalent to the summation of: Landfilled, Recycled, Organic, and Demolition.

(2) Landfilled refers to the materials deposited in active landfill face.

(3) Recycled refers to materials stored within the limits of the landfill site until such time that these materials are salvaged and/or recycled by others (Batteries, Type 'A' & 'B' Metals, Tires, Refrigerators, Propane Tanks and Agricultural Plastics).

(4) Organic are materials which biodegrade naturally (Yard Waste 'A', 'B', and 'C').

(5) Demolition materials may be salvageable and are kept separate from active landfill face (Construction Waste 'A' and 'C').

(6) Refrigerators are counted by piece (of freon removal). An average mass of 75kg per piece is applied.

(7) Propane tanks are recycled and not included in annual totals.

Refuse Type Total

From 1/1/2024 to 1/31/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	1	0	915	915	\$192.25	\$192.25	\$192.25
ASPH	clean asphalt from Town of 0	1	0	4380	4380	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	11	17	0	0	\$255.07	\$255.07	\$255.07
CCMT	clean cover material - Town	54	0	117480	117480	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	3	0	7860	7860	\$903.75	\$903.75	\$903.75
CNCRTT	clean concrete from Town of 0	2	0	2590	2590	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	9	0	83805	83805	\$9,636.75	\$9,636.75	\$9,636.75
CWC	Clean White Wood	4	0	4995	4995	\$574.50	\$574.50	\$574.50
FYWA	Free Compostable Materials	60	0	6965	6965	\$208.25	\$208.25	\$208.25
FYWACW	clean fruit waste	3	0	13390	13390	\$790.00	\$790.00	\$790.00
FYWARW	Yard & Garden waste w Fruit or	3	0	19220	19220	\$1,135.25	\$1,135.25	\$1,135.25
GYPSM	Clean Gypsom/Drywall	3	0	1450	1450	\$168.00	\$168.00	\$168.00
HWL	Hauled Liquid Waste (sludge)	14	0	134370	134370	\$5,442.25	\$5,442.25	\$5,442.25
HWLT	Hauled Sewage Waste for Town	3	0	23330	23330	\$0.00	\$0.00	\$0.00
MB	All Metals	4	1	90	90	\$19.50	\$19.50	\$19.50
MIXEDCW	Mixed load commercial	41	0	36480	36480	\$4,195.25	\$4,195.25	\$4,195.25
MIXEDRW	Mixed Load Residential	109	0	43460	43460	\$5,083.87	\$5,083.87	\$5,083.87
MMBCFIBRE	MMBC fibre 40yard	4	0	2520	2520	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	37	0	93670	93670	\$10,771.50	\$10,771.50	\$10,771.50
MWT	Municipal Waste-Town	14	0	6740	6740	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	1	2	120	120	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	6	6	345	345	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	3	13	0	0	\$0.00	\$0.00	\$0.00
PT20-25LB	Regular Propane Tanks 20 to 25 lbs	1	1	10	10	\$0.00	\$0.00	\$0.00
RW	Residential Waste	111	0	7590	7590	\$1,079.26	\$1,079.26	\$1,079.26
T	Recyclable Tires	2	0	190	190	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	3	8	0	0	\$24.05	\$24.05	\$24.05
YWAT	Compostable Mat. - Town	10	0	6695	6695	\$0.00	\$0.00	\$0.00
		517	48	618660	618660	\$40,479.50	\$40,479.50	\$40,479.50

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 2/1/2024 to 2/29/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
BXMAT	Boxsprings & Mattresses for	25	115	0	0	\$1,724.85	\$1,724.85	\$1,724.85
CCMT	clean cover material - Town	8	0	37960	37960	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	3	0	2155	2155	\$247.50	\$247.50	\$247.50
CNCRTT	clean concrete from Town of O	1	0	2645	2645	\$0.00	\$0.00	\$0.00
CONTROLW	Controlled Waste	1	0	215	215	\$50.00	\$50.00	\$50.00
CW	Commercial Waste	8	0	73895	73895	\$8,497.00	\$8,497.00	\$8,497.00
CWC	Clean White Wood	4	0	3380	3380	\$389.00	\$389.00	\$389.00
CWCT	Wood Only - Town	2	0	1635	1635	\$0.00	\$0.00	\$0.00
FYWA	Free Compostable Materials	159	0	19330	19330	\$574.25	\$574.25	\$574.25
FYWACW	clean fruit waste	2	0	13270	13270	\$784.25	\$784.25	\$784.25
GYPSM	Clean Gypsom/Drywall	9	0	4265	4265	\$493.00	\$493.00	\$493.00
HWL	Hauled Liquid Waste (sludge)	8	0	81980	81980	\$3,320.25	\$3,320.25	\$3,320.25
INV	Invasive Insects	1	0	3505	3505	\$403.00	\$403.00	\$403.00
MB	All Metals	13	0	2695	2695	\$327.75	\$327.75	\$327.75
MIXEDCW	Mixed load commercial	45	0	30965	30965	\$3,576.17	\$3,576.17	\$3,576.17
MIXEDRW	Mixed Load Residential	200	0	42465	42465	\$4,975.66	\$4,975.66	\$4,975.66
MMBCFIBRE	MMBC fibre 40yard	4	0	3360	3360	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	30	0	71015	71015	\$8,166.50	\$8,166.50	\$8,166.50
MWT	Municipal Waste-Town	6	0	1840	1840	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	6	9	780	780	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	18	20	1355	1355	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	1	3	0	0	\$0.00	\$0.00	\$0.00
RW	Residential Waste	127	0	12235	12235	\$1,608.07	\$1,608.07	\$1,608.07
SOILAMND5	less than 5 tonnes	5	0	3405	3405	\$171.25	\$171.25	\$171.25
T	Recyclable Tires	8	0	690	690	\$0.00	\$0.00	\$0.00
YWAT	Compostable Mat. - Town	2	0	1185	1185	\$0.00	\$0.00	\$0.00
		696	147	416225	416225	\$35,308.50	\$35,308.50	\$35,308.50

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 3/1/2024 to 3/31/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	3	0	400	400	\$153.50	\$153.50	\$153.50
ASPHSH	clean asphalt shingles	2	0	2225	2225	\$256.00	\$256.00	\$256.00
BXMAT	Boxsprings & Mattresses for	21	32	0	0	\$479.86	\$479.86	\$479.86
CCM	Clean Cover Material	33	0	156100	156100	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	3	0	23550	23550	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	4	0	2605	2605	\$299.50	\$299.50	\$299.50
CNCRTT	clean concrete from Town of 0	3	0	14875	14875	\$0.00	\$0.00	\$0.00
CRBPUFYWA	yard and garden curbside pick up	3	0	31860	31860	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	11	0	101330	101330	\$11,652.00	\$11,652.00	\$11,652.00
CWC	Clean White Wood	12	0	3555	3555	\$409.00	\$409.00	\$409.00
FYWA	Free Compostable Materials	480	0	68755	68755	\$2,457.75	\$2,457.75	\$2,457.75
GYPSM	Clean Gypsom/Drywall	13	0	7815	7815	\$901.00	\$901.00	\$901.00
HWL	Hauled Liquid Waste (sludge)	29	0	227590	227590	\$9,218.00	\$9,218.00	\$9,218.00
MB	All Metals	14	0	1305	1305	\$161.50	\$161.50	\$161.50
MIXEDCW	Mixed load commercial	42	0	32400	32400	\$3,730.75	\$3,730.75	\$3,730.75
MIXEDRW	Mixed Load Residential	257	0	50515	50515	\$5,929.35	\$5,929.35	\$5,929.35
MMBCFIBRE	MMBC fibre 40yard	4	0	4080	4080	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	32	0	77825	77825	\$8,949.00	\$8,949.00	\$8,949.00
MWT	Municipal Waste-Town	8	0	1330	1330	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	2	3	280	280	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	24	27	4340	4340	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	1	3	0	0	\$0.00	\$0.00	\$0.00
PT20-25LB	Regular Propane Tanks 20 to 25 lbs	8	8	145	145	\$0.00	\$0.00	\$0.00
RW	Residential Waste	151	0	17460	17460	\$2,239.51	\$2,239.51	\$2,239.51
SOILAMMEND	greater than 5 tonnes	2	0	19345	19345	\$580.25	\$580.25	\$580.25
SOILAMND5	less than 5 tonnes	34	0	15000	15000	\$756.75	\$756.75	\$756.75
T	Recyclable Tires	3	8	270	270	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	4	13	0	0	\$39.03	\$39.03	\$39.03
YWAT	Compostable Mat. - Town	2	0	315	315	\$0.00	\$0.00	\$0.00
		1,213	94	865270	865270	\$48,212.75	\$48,212.75	\$48,212.75

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 4/1/2024 to 4/30/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	2	0	3665	3665	\$817.50	\$817.50	\$817.50
ABST	Asbestos Town	1	0	190	190	\$0.00	\$0.00	\$0.00
ASPH	clean asphalt from Town of 0	5	0	42420	42420	\$0.00	\$0.00	\$0.00
BATT	Batteries - Household, vehicle	12	0	-1790	-1790	\$0.00	\$0.00	\$0.00
BITEMT	Bulky Item Pick up for Town	16	0	26120	26120	\$0.00	\$0.00	\$0.00
BLKITFRN	freon bulky item - ODS	6	36	-60	-60	\$0.00	\$0.00	\$0.00
BLKITMMAT	Bulky item resi pick up mattrs	11	77	0	0	\$770.00	\$770.00	\$770.00
BXMAT	Boxsprings & Mattresses for	21	36	0	0	\$540.14	\$540.14	\$540.14
CCM	Clean Cover Material	33	0	140815	140815	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	21	0	157030	157030	\$0.00	\$0.00	\$0.00
CGC	clean gravel cover	1	0	4260	4260	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	8	0	14070	14070	\$1,618.25	\$1,618.25	\$1,618.25
CNCRTT	clean concrete from Town of 0	7	0	47130	47130	\$0.00	\$0.00	\$0.00
CRBPUFYWA	yard and garden curbside pick up	1	0	51475	51475	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	14	0	120465	120465	\$13,852.50	\$13,852.50	\$13,852.50
CWC	Clean White Wood	26	0	11405	11405	\$1,325.00	\$1,325.00	\$1,325.00
CWCT	Wood Only - Town	2	0	1355	1355	\$0.00	\$0.00	\$0.00
DRCT	Demolition, Renovation and	2	0	14535	14535	\$0.00	\$0.00	\$0.00
FINE	Double Charge for Contaminatin	1	0	0	0	\$10.03	\$10.03	\$10.03
FYWA	Free Compostable Materials	602	0	71735	71735	\$2,182.56	\$2,182.56	\$2,182.56
GYPSM	Clean Gypsom/Drywall	8	0	4445	4445	\$512.00	\$512.00	\$512.00
HWL	Hauled Liquid Waste (sludge)	46	0	334135	334135	\$13,533.00	\$13,533.00	\$13,533.00
INV	Invasive Insects	3	0	10760	10760	\$1,237.50	\$1,237.50	\$1,237.50
MB	All Metals	17	0	5400	5400	\$652.50	\$652.50	\$652.50
MIXEDCW	Mixed load commercial	81	0	58560	58560	\$6,749.40	\$6,749.40	\$6,749.40
MIXEDRW	Mixed Load Residential	350	0	60375	60375	\$7,133.58	\$7,133.58	\$7,133.58
MMBCFIBRE	MMBC fibre 40yard	5	0	4980	4980	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	41	0	105200	105200	\$12,096.75	\$12,096.75	\$12,096.75
MWT	Municipal Waste-Town	14	0	7390	7390	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	12	55	25765	25765	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	37	55	10630	10630	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	4	325	0	0	\$0.00	\$0.00	\$0.00
PT20-25LB	Regular Propane Tanks 20 to 25 lbs	4	15	15	15	\$0.00	\$0.00	\$0.00
PT30-40LB	Large Propane Tanks 30 to 40 lbs	2	0	0	0	\$0.00	\$0.00	\$0.00
PT5-10LB	Small Propane Tanks 5 to 10 lb	1	1	0	0	\$0.00	\$0.00	\$0.00
PTVIN	Puncture Vine - Noxious weeds	1	0	95	95	\$0.00	\$0.00	\$0.00
RW	Residential Waste	213	0	16735	16735	\$2,279.70	\$2,279.70	\$2,279.70
SOILAMMEND	greater than 5 tonnes	4	0	8060	8060	\$241.75	\$241.75	\$241.75
SOILAMND5	less than 5 tonnes	51	0	32440	32440	\$1,635.50	\$1,635.50	\$1,635.50

Void tickets have been excluded from report

Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 4/1/2024 to 4/30/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
T	Recyclable Tires	17	120	1845	1845	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	8	38	0	0	\$114.09	\$114.09	\$114.09
TWF	TOWN OF OSOY00S WAIVED FEES	1	0	185	185	\$0.00	\$0.00	\$0.00
YWAT	Compostable Mat. - Town	13	0	23625	23625	\$0.00	\$0.00	\$0.00
		1,739	761	1415460	1415460	\$67,301.75	\$67,301.75	\$67,301.75

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 5/1/2024 to 5/31/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	3	0	9160	9160	\$2,013.00	\$2,013.00	\$2,013.00
ASPH	clean Asphalt	1	0	3500	3500	\$402.50	\$402.50	\$402.50
ASPH	clean asphalt from Town of 0	2	0	8700	8700	\$0.00	\$0.00	\$0.00
BATT	Batteries - Household, vehicle	1	0	120	120	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	35	67	0	0	\$1,005.20	\$1,005.20	\$1,005.20
CCM	Clean Cover Material	30	0	45560	45560	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	5	0	37130	37130	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	5	0	7035	7035	\$809.00	\$809.00	\$809.00
CNCRTT	clean concrete from Town of 0	1	0	550	550	\$0.00	\$0.00	\$0.00
CRBPUFYWA	yard and garden curbside pick up	4	0	45450	45450	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	15	0	129505	129505	\$14,891.75	\$14,891.75	\$14,891.75
CWC	Clean White Wood	34	0	21790	21790	\$2,513.75	\$2,513.75	\$2,513.75
FYWA	Free Compostable Materials	634	0	77225	77225	\$2,497.45	\$2,497.45	\$2,497.45
FYWACW	clean fruit waste	1	0	20	20	\$0.00	\$0.00	\$0.00
GYPSM	Clean Gypsum/Drywall	8	0	6420	6420	\$735.75	\$735.75	\$735.75
HWL	Hauled Liquid Waste (sludge)	34	0	250450	250450	\$10,143.25	\$10,143.25	\$10,143.25
HWLT	Hauled Sewage Waste for Town	4	0	12905	12905	\$0.00	\$0.00	\$0.00
INV	Invasive Insects	4	0	17440	17440	\$2,005.50	\$2,005.50	\$2,005.50
MB	All Metals	25	0	1555	1555	\$249.75	\$249.75	\$249.75
MBT	All Metals - Town	1	0	200	200	\$0.00	\$0.00	\$0.00
MIXEDCW	Mixed load commercial	52	0	34840	34840	\$4,011.03	\$4,011.03	\$4,011.03
MIXEDRW	Mixed Load Residential	514	0	90655	90655	\$10,714.08	\$10,714.08	\$10,714.08
MMBCFIBRE	MMBC fibre 40yard	4	0	5480	5480	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	32	0	87820	87820	\$10,098.50	\$10,098.50	\$10,098.50
MWT	Municipal Waste-Town	15	0	3795	3795	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	9	13	410	410	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	41	62	7595	7595	\$0.00	\$0.00	\$0.00
PT100LB	Commercial Propane Tanks 100lbs	2	3	-20	-20	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	2	8	0	0	\$0.00	\$0.00	\$0.00
PT20-25LB	Regular Propane Tanks 20 to 25 lbs	10	47	795	795	\$0.00	\$0.00	\$0.00
PT30-40LB	Large Propane Tanks 30 to 40 lbs	3	8	0	0	\$0.00	\$0.00	\$0.00
PTVIN	Puncture Vine - Noxious weeds	2	0	15	15	\$0.00	\$0.00	\$0.00
RW	Residential Waste	261	0	24920	24920	\$3,332.79	\$3,332.79	\$3,332.79
SOILAMMEND	greater than 5 tonnes	2	0	8535	8535	\$256.00	\$256.00	\$256.00
SOILAMND5	less than 5 tonnes	67	0	37025	37025	\$1,864.50	\$1,864.50	\$1,864.50
T	Recyclable Tires	18	95	1290	1290	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	5	20	0	0	\$59.95	\$59.95	\$59.95
YWAT	Compostable Mat. - Town	6	0	12085	12085	\$0.00	\$0.00	\$0.00
		1,910	328	989955	989955	\$67,603.75	\$67,603.75	\$67,603.75

Void tickets have been excluded from report

Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 6/1/2024 to 6/30/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	3	0	340	340	\$169.25	\$169.25	\$169.25
ASPHSH	clean asphalt shingles	1	0	230	230	\$26.50	\$26.50	\$26.50
ASPH	clean asphalt from Town of 0	1	0	285	285	\$0.00	\$0.00	\$0.00
BATT	Batteries - Household, vehicle	1	0	65	65	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	16	24	0	0	\$360.09	\$360.09	\$360.09
CCM	Clean Cover Material	39	0	159900	159900	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	5	0	35990	35990	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	11	0	10535	10535	\$1,211.50	\$1,211.50	\$1,211.50
CNCRTT	clean concrete from Town of 0	1	0	1625	1625	\$0.00	\$0.00	\$0.00
CRBPUFYWA	yard and garden curbside pick up	2	0	36630	36630	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	20	0	132340	132340	\$15,217.75	\$15,217.75	\$15,217.75
CWC	Clean White Wood	37	0	17400	17400	\$2,007.25	\$2,007.25	\$2,007.25
FYWA	Free Compostable Materials	561	0	53575	53575	\$1,336.50	\$1,336.50	\$1,336.50
FYWACW	clean fruit waste	1	0	190	190	\$5.50	\$5.50	\$5.50
GYPSM	Clean Gypsom/Drywall	13	0	7290	7290	\$834.00	\$834.00	\$834.00
HWL	Hauled Liquid Waste (sludge)	24	0	212040	212040	\$8,588.25	\$8,588.25	\$8,588.25
INV	Invasive Insects	5	0	20285	20285	\$2,332.25	\$2,332.25	\$2,332.25
MB	All Metals	21	0	2260	2260	\$307.50	\$307.50	\$307.50
MIXEDCW	Mixed load commercial	84	0	62665	62665	\$7,208.31	\$7,208.31	\$7,208.31
MIXEDRW	Mixed Load Residential	352	0	53860	53860	\$6,408.41	\$6,408.41	\$6,408.41
MMBCFIBRE	MMBC fibre 40yard	4	0	5800	5800	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	33	0	89680	89680	\$10,313.00	\$10,313.00	\$10,313.00
MWT	Municipal Waste-Town	19	0	4365	4365	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	11	14	625	625	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	37	55	4130	4130	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	3	4	0	0	\$0.00	\$0.00	\$0.00
PT20-25LB	Regular Propane Tanks 20 to 25 lbs	13	13	110	110	\$0.00	\$0.00	\$0.00
PTVIN	Puncture Vine - Noxious weeds	5	0	350	350	\$0.00	\$0.00	\$0.00
RW	Residential Waste	244	0	16660	16660	\$2,337.00	\$2,337.00	\$2,337.00
SOILAMMEND	greater than 5 tonnes	9	0	10245	10245	\$307.50	\$307.50	\$307.50
SOILAMND5	less than 5 tonnes	35	0	13810	13810	\$695.25	\$695.25	\$695.25
T	Recyclable Tires	19	76	945	945	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	3	7	0	0	\$20.94	\$20.94	\$20.94
YWAT	Compostable Mat. - Town	12	0	3285	3285	\$0.00	\$0.00	\$0.00
		1,650	196	957510	957510	\$59,686.75	\$59,686.75	\$59,686.75

Void tickets have been excluded from report

Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 7/1/2024 to 7/31/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	3	0	660	660	\$168.55	\$168.55	\$168.55
ASPH	clean Asphalt	1	0	1965	1965	\$226.00	\$226.00	\$226.00
ASPHSH	clean asphalt shingles	2	0	4860	4860	\$559.00	\$559.00	\$559.00
ASPHT	clean asphalt from Town of O	1	0	4640	4640	\$0.00	\$0.00	\$0.00
BATT	Batteries - Household, vehicle	20	0	305	305	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	29	40	0	0	\$600.13	\$600.13	\$600.13
CCM	Clean Cover Material	21	0	39225	39225	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	11	0	92295	92295	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	4	0	1830	1830	\$210.51	\$210.51	\$210.51
CNCRTT	clean concrete from Town of O	1	0	3800	3800	\$0.00	\$0.00	\$0.00
CRBPUFYWA	yard and garden curbside pick up	1	0	28360	28360	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	21	0	200490	200490	\$23,055.75	\$23,055.75	\$23,055.75
CWC	Clean White Wood	25	0	8920	8920	\$1,032.00	\$1,032.00	\$1,032.00
WCCT	Wood Only - Town	2	0	355	355	\$0.00	\$0.00	\$0.00
FYWA	Free Compostable Materials	498	3	57065	57065	\$1,763.30	\$1,763.30	\$1,763.30
FYWACW	clean fruit waste	3	0	3810	3810	\$220.25	\$220.25	\$220.25
FYWARW	Yard & Garden waste w Fruit or	1	0	35	35	\$0.00	\$0.00	\$0.00
GYPSM	Clean Gypsum/Drywall	4	0	5505	5505	\$639.25	\$639.25	\$639.25
HWL	Hauled Liquid Waste (sludge)	23	0	138605	138605	\$5,613.75	\$5,613.75	\$5,613.75
INV	Invasive Insects	6	0	24860	24860	\$2,858.75	\$2,858.75	\$2,858.75
MB	All Metals	26	0	5275	5275	\$661.25	\$661.25	\$661.25
MIXEDCW	Mixed load commercial	56	0	41590	41590	\$4,782.79	\$4,782.79	\$4,782.79
MIXEDRW	Mixed Load Residential	360	0	56830	56830	\$6,770.62	\$6,770.62	\$6,770.62
MMBCFIBRE	MMBC fibre 40yard	5	0	6630	6630	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	42	0	129100	129100	\$14,845.50	\$14,845.50	\$14,845.50
MWT	Municipal Waste-Town	38	0	7885	7885	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	7	8	-70	-70	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	49	66	3700	3700	\$0.00	\$0.00	\$0.00
PT2-3LB	Camping Propane Tank 2 to 3 lb	2	4	0	0	\$0.00	\$0.00	\$0.00
PT20-25LB	Regular Propane Tanks 20 to 25 lbs	8	8	200	200	\$0.00	\$0.00	\$0.00
PTVIN	Puncture Vine - Noxious weeds	7	0	505	505	\$0.00	\$0.00	\$0.00
RW	Residential Waste	231	0	14805	14805	\$2,190.43	\$2,190.43	\$2,190.43
SOILAMND5	less than 5 tonnes	6	0	5610	5610	\$282.50	\$282.50	\$282.50
T	Recyclable Tires	16	77	925	925	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	7	44	0	0	\$131.92	\$131.92	\$131.92
YWAT	Compostable Mat. - Town	11	0	4930	4930	\$0.00	\$0.00	\$0.00
		1,543	270	895500	895500	\$66,612.25	\$66,612.25	\$66,612.25

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 8/1/2024 to 8/31/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	1	0	15	15	\$50.00	\$50.00	\$50.00
ASPH	clean Asphalt	1	0	1440	1440	\$165.50	\$165.50	\$165.50
ASPH	clean asphalt from Town of 0	2	0	7775	7775	\$0.00	\$0.00	\$0.00
BATT	Batteries - Household, vehicle	1	0	95	95	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	34	56	0	0	\$840.04	\$840.04	\$840.04
CCM	Clean Cover Material	39	0	101250	101250	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	7	0	56065	56065	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	7	0	18335	18335	\$2,108.00	\$2,108.00	\$2,108.00
CONTROLW	Controlled Waste	2	0	18720	18720	\$3,931.25	\$3,931.25	\$3,931.25
CRBPUFYWA	yard and garden curbside pick up	1	0	32285	32285	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	27	0	180990	180990	\$20,812.50	\$20,812.50	\$20,812.50
CWC	Clean White Wood	34	0	15670	15670	\$1,815.75	\$1,815.75	\$1,815.75
FYWA	Free Compostable Materials	552	1	83465	83465	\$3,082.00	\$3,082.00	\$3,082.00
FYWACW	clean fruit waste	2	0	55	55	\$0.00	\$0.00	\$0.00
FYWARW	Yard & Garden waste w Fruit or	1	0	25	25	\$0.00	\$0.00	\$0.00
GYPSM	Clean Gypsom/Drywall	5	0	795	795	\$96.75	\$96.75	\$96.75
HWL	Hauled Liquid Waste (sludge)	16	0	145950	145950	\$5,911.00	\$5,911.00	\$5,911.00
INV	Invasive Insects	4	0	17910	17910	\$2,059.25	\$2,059.25	\$2,059.25
MB	All Metals	36	0	8405	8405	\$1,023.25	\$1,023.25	\$1,023.25
MIXEDCW	Mixed load commercial	66	0	63510	63510	\$7,311.52	\$7,311.52	\$7,311.52
MIXEDRW	Mixed Load Residential	339	0	57590	57590	\$6,840.51	\$6,840.51	\$6,840.51
MMBCFIBRE	MMBC fibre 40yard	3	0	3915	3915	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	33	0	131250	131250	\$15,092.50	\$15,092.50	\$15,092.50
MWT	Municipal Waste-Town	43	0	33355	33355	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	11	18	665	665	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	27	45	3085	3085	\$0.00	\$0.00	\$0.00
PTVIN	Puncture Vine - Noxious weeds	6	0	735	735	\$0.00	\$0.00	\$0.00
RECRECV	Recovery of Recyclable	1	0	610	610	\$0.00	\$0.00	\$0.00
RW	Residential Waste	300	0	22385	22385	\$3,060.93	\$3,060.93	\$3,060.93
SOILAMND5	less than 5 tonnes	10	0	6290	6290	\$316.25	\$316.25	\$316.25
T	Recyclable Tires	7	45	445	445	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	2	6	0	0	\$18.00	\$18.00	\$18.00
YWAT	Compostable Mat. - Town	6	0	2785	2785	\$0.00	\$0.00	\$0.00
		1,637	179	1015865	1015865	\$74,535.00	\$74,535.00	\$74,535.00

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 9/1/2024 to 9/30/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ASDRC	Assessed DRC	10	0	18280	18280	\$9,597.50	\$9,597.50	\$9,597.50
ASPH	Clean Asphalt	3	0	1185	1185	\$136.25	\$136.25	\$136.25
ASPHSH	clean asphalt shingles	3	0	4440	4440	\$510.50	\$510.50	\$510.50
BXMAT	Boxsprings & Mattresses for	30	40	0	0	\$600.21	\$600.21	\$600.21
CCM	Clean Cover Material	23	0	79585	79585	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	3	0	1080	1080	\$128.00	\$128.00	\$128.00
CRBPUFYWA	yard and garden curbside pick up	1	0	36235	36235	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	26	0	150320	150320	\$17,284.75	\$17,284.75	\$17,284.75
CWC	Clean White Wood	18	0	6930	6930	\$798.75	\$798.75	\$798.75
FYWA	Free Compostable Materials	630	0	77080	77080	\$2,325.96	\$2,325.96	\$2,325.96
FYWACW	clean fruit waste	4	0	1375	1375	\$66.25	\$66.25	\$66.25
GYPSM	Clean Gypsom/Drywall	6	0	2550	2550	\$298.00	\$298.00	\$298.00
HWL	Hauled Liquid Waste (sludge)	12	0	89855	89855	\$3,639.25	\$3,639.25	\$3,639.25
INV	Invasive Insects	4	0	18860	18860	\$2,168.75	\$2,168.75	\$2,168.75
MB	All Metals	15	0	1500	1500	\$194.25	\$194.25	\$194.25
MIXEDCW	Mixed load commercial	52	0	35640	35640	\$4,099.50	\$4,099.50	\$4,099.50
MIXEDRW	Mixed Load Residential	311	0	50765	50765	\$6,009.81	\$6,009.81	\$6,009.81
MMBCFIBRE	MMBC fibre 40yard	4	0	3760	3760	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	36	0	104765	104765	\$12,047.50	\$12,047.50	\$12,047.50
MWT	Municipal Waste-Town	29	0	15060	15060	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	7	10	555	555	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	18	19	1190	1190	\$0.00	\$0.00	\$0.00
PTVIN	Puncture Vine - Noxious weeds	5	0	180	180	\$0.00	\$0.00	\$0.00
RW	Residential Waste	206	0	26425	26425	\$3,385.29	\$3,385.29	\$3,385.29
SOILAMND5	less than 5 tonnes	6	0	7215	7215	\$364.75	\$364.75	\$364.75
T	Recyclable Tires	3	9	180	180	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	3	11	0	0	\$32.98	\$32.98	\$32.98
YWAT	Compostable Mat. - Town	12	0	7280	7280	\$0.00	\$0.00	\$0.00
		1,490	89	742290	742290	\$63,688.25	\$63,688.25	\$63,688.25

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 10/1/2024 to 10/31/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	5	0	80	80	\$250.00	\$250.00	\$250.00
ASPH	Clean Asphalt	1	0	1450	1450	\$166.75	\$166.75	\$166.75
ASPHSH	clean asphalt shingles	10	0	16970	16970	\$1,951.75	\$1,951.75	\$1,951.75
BATT	Batteries - Household, vehicle	13	0	245	245	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	31	71	0	0	\$1,065.07	\$1,065.07	\$1,065.07
CCM	Clean Cover Material	31	0	212985	212985	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	16	0	99890	99890	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	7	0	5135	5135	\$590.25	\$590.25	\$590.25
CNCRTT	clean concrete from Town of O	1	0	2395	2395	\$0.00	\$0.00	\$0.00
CRBPUFYWA	yard and garden curbside pick up	6	0	56585	56585	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	21	0	151750	151750	\$17,449.75	\$17,449.75	\$17,449.75
CWC	Clean White Wood	25	0	10140	10140	\$1,179.00	\$1,179.00	\$1,179.00
CWCT	Wood Only - Town	5	0	5410	5410	\$0.00	\$0.00	\$0.00
FINE	Double Charge for Contaminatin	1	0	0	0	\$6.50	\$6.50	\$6.50
FREON	Freon Removal - Non M.A.R.R Item	5	0	0	0	\$74.99	\$74.99	\$74.99
FYWA	Free Compostable Materials	719	0	98585	98585	\$3,297.33	\$3,297.33	\$3,297.33
FYWACW	clean fruit waste	7	0	14845	14845	\$866.75	\$866.75	\$866.75
FYWARW	Yard & Garden waste w Fruit or	1	0	30	30	\$0.00	\$0.00	\$0.00
GYPSM	Clean Gypsom/Drywall	12	0	15220	15220	\$1,751.25	\$1,751.25	\$1,751.25
HWL	Hauled Liquid Waste (sludge)	23	0	178545	178545	\$7,231.25	\$7,231.25	\$7,231.25
INV	Invasive Insects	3	0	11545	11545	\$1,327.75	\$1,327.75	\$1,327.75
MB	All Metals	21	0	10940	10940	\$1,302.25	\$1,302.25	\$1,302.25
MIXEDCW	Mixed load commercial	66	0	52455	52455	\$6,045.64	\$6,045.64	\$6,045.64
MIXEDRW	Mixed Load Residential	431	0	119920	119920	\$14,047.50	\$14,047.50	\$14,047.50
MMBCFIBRE	MMBC fibre 40yard	5	0	3560	3560	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	40	0	109425	109425	\$12,583.75	\$12,583.75	\$12,583.75
MWT	Municipal Waste-Town	29	0	24215	24215	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	14	16	785	785	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	28	43	2655	2655	\$0.00	\$0.00	\$0.00
OT	Over size tires as per bylaw	1	0	-5	-5	(\$2.57)	(\$2.57)	(\$2.57)
PTVIN	Puncture Vine - Noxious weeds	1	0	820	820	\$0.00	\$0.00	\$0.00
RW	Residential Waste	223	0	16985	16985	\$2,308.83	\$2,308.83	\$2,308.83
SOILAMND5	less than 5 tonnes	18	0	8770	8770	\$446.50	\$446.50	\$446.50
T	Recyclable Tires	25	112	1510	1510	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	9	21	0	0	\$62.96	\$62.96	\$62.96
TIRET	tires from town	1	0	260	260	\$0.00	\$0.00	\$0.00
YWAT	Compostable Mat. - Town	40	0	21535	21535	\$0.00	\$0.00	\$0.00
		1,896	285	1255635	1255635	\$74,003.25	\$74,003.25	\$74,003.25

Void tickets have been excluded from report

Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 11/1/2024 to 11/30/2024

MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	9	0	530	530	\$456.75	\$456.75	\$456.75
ASPHSH	clean asphalt shingles	5	0	12750	12750	\$1,466.25	\$1,466.25	\$1,466.25
BXMAT	Boxsprings & Mattresses for	18	32	0	0	\$480.06	\$480.06	\$480.06
CCM	Clean Cover Material	7	0	4075	4075	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	3	0	1745	1745	\$200.50	\$200.50	\$200.50
CRBPUFYWA	yard and garden curbside pick up	1	0	34455	34455	\$0.00	\$0.00	\$0.00
CW	Commercial Waste	13	0	105035	105035	\$12,077.75	\$12,077.75	\$12,077.75
CWC	Clean White Wood	19	0	16685	16685	\$1,921.50	\$1,921.50	\$1,921.50
CWCT	Wood Only - Town	1	0	795	795	\$0.00	\$0.00	\$0.00
FYWA	Free Compostable Materials	406	0	65530	65530	\$2,336.99	\$2,336.99	\$2,336.99
GYPSM	Clean Gypsom/Drywall	11	0	14690	14690	\$1,686.25	\$1,686.25	\$1,686.25
HWL	Hauled Liquid Waste (sludge)	13	0	121750	121750	\$4,931.00	\$4,931.00	\$4,931.00
MB	All Metals	17	0	34100	34100	\$3,941.50	\$3,941.50	\$3,941.50
MIXEDCW	Mixed load commercial	55	0	76235	76235	\$8,767.95	\$8,767.95	\$8,767.95
MIXEDRW	Mixed Load Residential	260	0	47445	47445	\$5,560.22	\$5,560.22	\$5,560.22
MMBCFIBRE	MMBC fibre 40yard	4	0	4440	4440	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	33	0	82820	82820	\$9,523.25	\$9,523.25	\$9,523.25
MWT	Municipal Waste-Town	8	0	2155	2155	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	7	8	520	520	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	22	25	1580	1580	\$0.00	\$0.00	\$0.00
RW	Residential Waste	142	0	8855	8855	\$1,260.53	\$1,260.53	\$1,260.53
SOILAMND5	less than 5 tonnes	2	0	660	660	\$33.00	\$33.00	\$33.00
T	Recyclable Tires	14	62	-450	-450	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	3	5	0	0	\$15.00	\$15.00	\$15.00
TIRET	tires from town	1	0	65	65	\$0.00	\$0.00	\$0.00
TWF	TOWN OF OSOYOOS WAIVED FEES	1	0	195	195	\$0.00	\$0.00	\$0.00
YWAT	Compostable Mat. - Town	7	0	9175	9175	\$0.00	\$0.00	\$0.00
		1,092	132	645835	645835	\$54,658.50	\$54,658.50	\$54,658.50

Void tickets have been excluded from report
Includes all (Invoiced and Uninvoiced)

Refuse Type Total

From 12/1/2024 to 12/31/2024

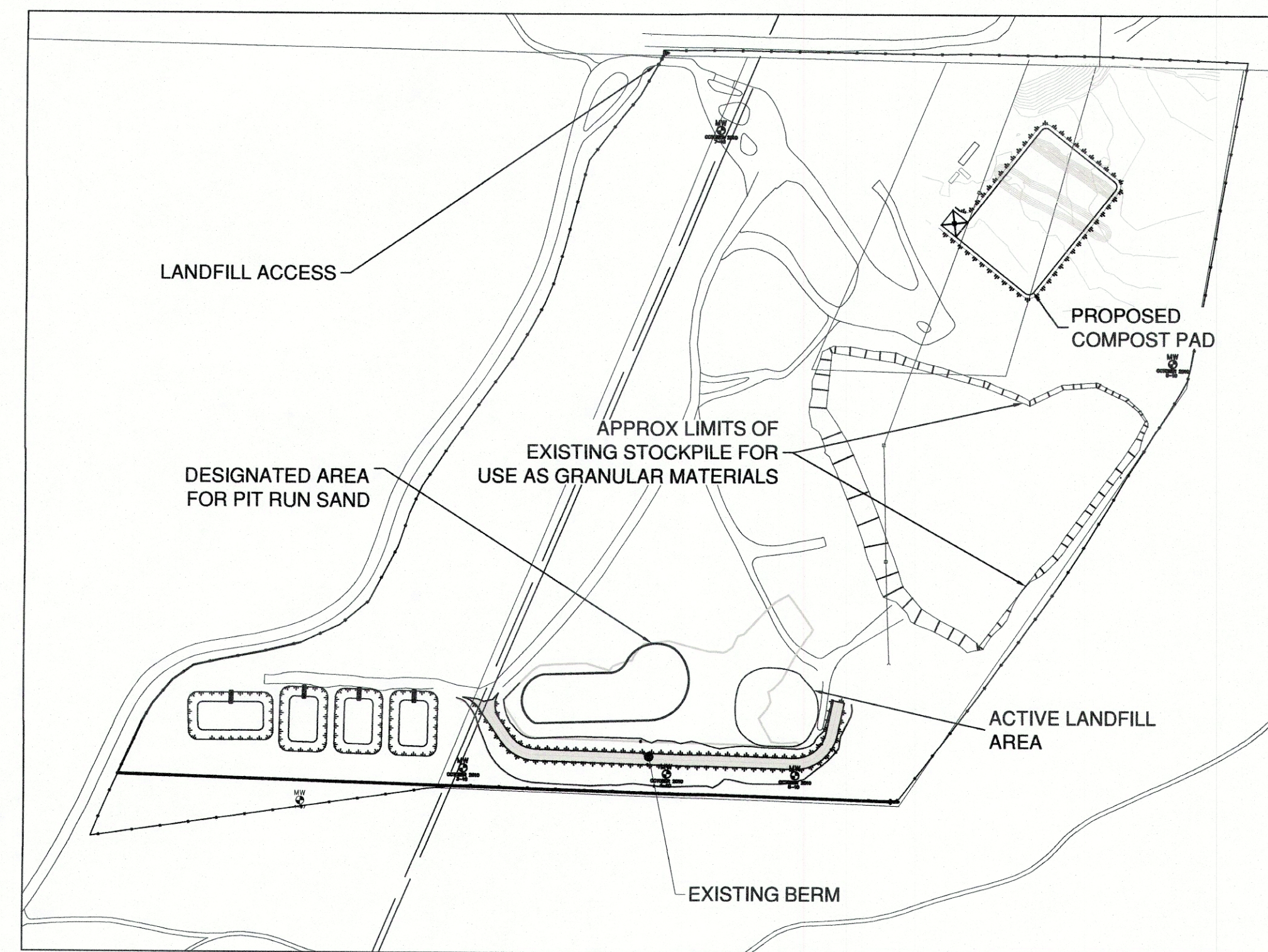
MATERIAL ID		Loads	Pcs In	Total Net Wt	Wt Sales	Ttl Sales	Ext Sale	Mat Ext Sale
ABS	Abestos	1	0	3015	3015	\$633.25	\$633.25	\$633.25
ASDRC	Assessed DRC	17	0	26450	26450	\$13,887.50	\$13,887.50	\$13,887.50
ASPH	clean asphalt from Town of O	1	0	2900	2900	\$0.00	\$0.00	\$0.00
BATT	Batteries - Household, vehicle	1	0	-10	-10	\$0.00	\$0.00	\$0.00
BXMAT	Boxsprings & Mattresses for	12	28	0	0	\$420.08	\$420.08	\$420.08
CCM	Clean Cover Material	1	0	955	955	\$0.00	\$0.00	\$0.00
CCMT	clean cover material - Town	3	0	18355	18355	\$0.00	\$0.00	\$0.00
CNCRT	clean concrete	2	0	1385	1385	\$159.25	\$159.25	\$159.25
CNCRTT	clean concrete from Town of O	1	0	1705	1705	\$0.00	\$0.00	\$0.00
CONSTMXD	Construction Mixed Load	7	0	22890	22890	\$16,709.75	\$16,709.75	\$16,709.75
CW	Commercial Waste	10	0	91255	91255	\$10,493.50	\$10,493.50	\$10,493.50
CWC	Clean White Wood	6	0	7740	7740	\$890.25	\$890.25	\$890.25
FYWA	Free Compostable Materials	191	0	56995	56995	\$2,719.30	\$2,719.30	\$2,719.30
FYWACW	clean fruit waste	1	0	15	15	\$0.00	\$0.00	\$0.00
GYPSM	Clean Gypsom/Drywall	12	0	16570	16570	\$1,903.00	\$1,903.00	\$1,903.00
HWL	Hauled Liquid Waste (sludge)	8	0	90635	90635	\$3,670.75	\$3,670.75	\$3,670.75
MB	All Metals	3	0	100	100	\$22.75	\$22.75	\$22.75
MIXEDCW	Mixed load commercial	26	0	30680	30680	\$3,528.00	\$3,528.00	\$3,528.00
MIXEDRW	Mixed Load Residential	159	0	30085	30085	\$3,568.89	\$3,568.89	\$3,568.89
MMBCFIBRE	MMBC fibre 40yard	4	0	2850	2850	\$0.00	\$0.00	\$0.00
MW	Municipal Waste Household Gar.	41	0	96900	96900	\$11,143.25	\$11,143.25	\$11,143.25
MWT	Municipal Waste-Town	12	0	11280	11280	\$0.00	\$0.00	\$0.00
NON-ODS	Non Ozone Depleting Recyling	4	5	295	295	\$0.00	\$0.00	\$0.00
ODS	Ozone Depleting Substances Rec.	7	10	705	705	\$0.00	\$0.00	\$0.00
RECRECV	Recovery of Recyclable	1	0	730	730	\$0.00	\$0.00	\$0.00
RW	Residential Waste	109	0	5165	5165	\$862.21	\$862.21	\$862.21
T	Recyclable Tires	8	32	545	545	\$0.00	\$0.00	\$0.00
TIRERIM	tire with rim	4	12	0	0	\$36.02	\$36.02	\$36.02
YWAT	Compostable Mat. - Town	7	0	7685	7685	\$0.00	\$0.00	\$0.00
		659	88	527875	527875	\$70,647.75	\$70,647.75	\$70,647.75

Void tickets have been excluded from report

Includes all (Invoiced and Uninvoiced)

APPENDIX C

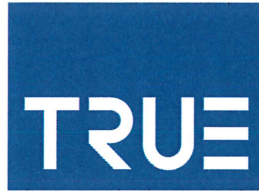
Composting Operations

[illegible]

200mm
150mm
150mm

GRANULAR TRAVEL SURFACE
FILTER FABRIC
GRANULAR MATERIAL FROM ON SITE STOCKPILE OR OFF SITE SOURCE
PIT RUN SAND
60mm HDPE L INFER

DRAWING No.	SHEET
	1 OF 1
302-706-01	REVISION
	3



February 10, 2021

Our File: 302-708-006

Ministry of Environment and Climate Change Strategy
Environmental Protection Division
#200-10470 152nd St.
Surrey, BC
V3R 0Y3

Attn: Regional Director

Dear Sir or Madam:

RE: *Authorization Number 109610 - Osoyoos Landfill Compost Facility Engineering Design*

This letter is to provide confirmation that the Professional Engineer of Record for design and construction of the Town of Osoyoos Compost Facility per TRUE drawing 302-706-01-R3 enclosed herein was Terry Underwood, P.Eng.

This letter also provides verification that the response provided to the Ministry of Environment and Climate Change Strategy on February 28, 2019 titled *Authorization Number 109610-Osoyoos Landfill Compost Facility* was prepared by Natalie Alteen, E.I.T. and reviewed by Terry Underwood, P.Eng. This letter has been amended with Mr. Underwood's seal affixed and is enclosed herein.

Should questions arise or for additional information, please do not hesitate to contact the undersigned.

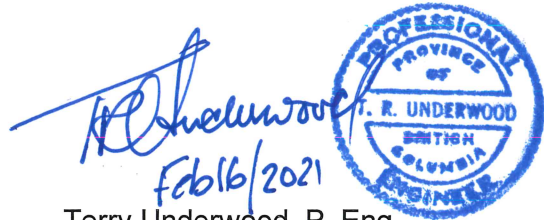
Yours truly,

TRUE CONSULTING



Natalie Alteen, P. Eng.

Feb. 16
2021



Terry Underwood, P. Eng.

NA/tu

Enclosures

cc: Town of Osoyoos

R:\Clients\300-399\302\302-708-006\02 Correspondence\Outgoing\To MoE- Sec24(2) OMRR\15273-Auth. No.109610-Osoyoos Compost Facility Engineering Design-2021 02

10.docx
201-2079 Falcon Road ■ Kamloops BC ■ V2C 4J2 ■ www.true.bc.ca ■ tel 250.828.0881 ■ fax 250.828.0717

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING



February 28, 2019

Our File: 302-708-006

Ministry of Environment and Climate Change Strategy
Environmental Protection Division
#200-10470 152nd St.
Surrey, BC
V3R 0Y3

Attn: Regional Director

Dear Sir or Madam:

RE: *Authorization Number 109610 - Osoyoos Landfill Compost Facility*

As required under section 24(2) of the Organic Matter Recycling Regulation and noted in the Acknowledgement letter received from the Ministry on December 10, 2018 (enclosed herein), the following subsections regarding construction and operation of a composting facility are addressed as follows:

24(2)(a): The Town of Osoyoos Compost Pad Plan and Detail Drawing (Dwg. No.302-706-01) is enclosed herein. The pad is 3800 m² and includes a pit-run sand base, 60 mil HDPE liner, filter fabric, pitrun gravel surface course and leachate collection sump.

24(2)(b): The design capacity of the compost facility is approximately 7000 m³/annum.

24(2)(c): Leachate generation on the compost pad is directed toward a collection sump. Leachate generation rates are minimal due to the arid climate. Any leachate generated is re-circulated onto the compost pile, preventing seepage into the ground and solid waste under the compost pad area.

24(2)(d): Composting material accepted at the landfill consists of white wood and yard and garden waste. Due to the compost material type, remote location of the compost pad and landfill facility as a whole, odor production is not an issue. As such, a comprehensive odor management plan has not been required.

24(2)(e): Operations of the compost facility will be ongoing. Closure of the composting area will require the Town to find an alternate disposal site for yard and garden waste at the landfill facility.

.../2

Should questions arise or for additional information, please do not hesitate to contact the undersigned.

Yours truly,

TRUE CONSULTING

Prepared By:

Natalie Alteen

Natalie Alteen, E.I.T.

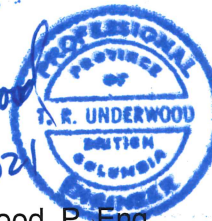
NA/tu

Enclosures

cc: Town of Osoyoos

Reviewed By:

Terry Underwood
Feb 16/2021



Terry Underwood, P. Eng.



December 10, 2018

Tracking Number: 375554
Authorization Number: 109610

TOWN OF OSOYOOS
BOX 3010
OSOYOOS, BC
V0H 1V0

Dear TOWN OF OSOYOOS,

Re: Notification under the Organic Matter Recycling Regulation

Receipt of your completed notification under the Organic Matter Recycling Regulation is acknowledged. The effective date of notification is November 21, 2018. Initial notification was received on August 31, 2018; however, the notification was incomplete in accordance with section 25(2)(b) of the Organic Matter Recycling Regulation. Ninety days following the effective date of notification you are exempt from section 6(2) and 6(3) of the Environmental Management Act so long as compost is produced and used only in accordance with the regulation.

Please indicate the ministry authorization number shown above on all future correspondence with the Ministry regarding this facility.

Please submit the plans and specifications required under section 24(2) of the Organic Matter Recycling Regulation once they have been finalized and before operation of the facility.

Your attention is respectfully directed to the terms and conditions specified in the regulation. Contravention of any of the conditions is a violation of the Environmental Management Act and may result in prosecution. If the regulation does not cover all waste streams at the site, additional authorizations may be required under the Environmental Management Act.

This acknowledgement of your notification should not be construed as a representation that the works are adequately designed or will satisfy the regulation requirements. It is the responsibility of the discharger to ensure that the facility is adequately designed, constructed and operated to ensure compliance.

Acknowledgement of your notification under the regulation is without prejudice to any additional requirements that may be specified by the Director. The Director may also issue Orders under the Environmental Management Act.

Acknowledgement of your notification under the regulation does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless

and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the operator. It is also the responsibility of the operator to ensure that all activities conducted under this regulation are carried out with regard to the rights of third parties and comply with other applicable legislation that may be in force. The operator must also obtain any necessary approvals from other agencies.

Administration of this regulation will be carried out by Ministry of Environment Compliance staff. Plans, data and reports pertinent to the regulation are to be submitted to the Regional Director, Environmental Protection, in accordance with the electronic data and reporting submissions requirements located at the following website: <http://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions>

Yours truly,



Jordan Tam, P.Ag
Environmental Protection Officer
Authorizations South
Email: Jordan.Tam@gov.bc.ca, Phone: (604) 930-7106

ENCL: None

APPENDIX D

2021 Financial Statement

9. Landfill closure and post-closure liability

The provincial Waste Management Act, as well as the B.C. Landfill Criteria for Municipal Solid Waste, sets out the regulatory requirements to properly close and maintain all active and inactive landfill sites. The Town is committed to ensuring that the landfill in its care is managed in a fiscally responsible manner, which has included setting aside funds to pay for landfill closure and post-closure activities in accordance with the Solid Waste Management Plan which was updated in 2018. Landfill closure and post-closure requirements have been defined in accordance with industry standards and remediation activities include final covering of the site, groundwater and surface water monitoring, maintenance of the drainage structure, site inspection and environmental monitoring. Post-closure care is estimated to continue for 30 years after final closure of the landfill site, which is planned for 2042. Based on current estimates, remaining capacity of the landfill is 75.0% (2020 – 77.1%).

This requirement is being provided for based on a number of factors including the percentage of landfill capacity already filled, usage based on tipping fees and consultant estimates, the projected closure dates, the regulated monitoring period, the estimated annual management costs and a present value discount rate. As at December 31, 2021, using the most recent closure plans and updated cost estimates for closure and post-closure care, the Town has estimated its liability for these costs at \$227,710 (2020 - \$210,062). The unspent reserves that were established towards funding the landfill closure and post-closure care costs form part of the accumulated surplus and had a balance of \$322,713 at December 31, 2021 (2020 - \$359,438).

The estimate for closure and post-closure liability in these financial statements has been calculated based on consultants' estimates in their preparation of the closure plans for the landfill and estimated timing of closure projects. The 2021 increase in closure and post-closure costs of \$17,648 (2020 - \$nil) has been included in the environmental health services repairs and maintenance expenses.

APPENDIX E

2024 Landfill Gas Generation Assessment Report



May 2, 2024

Town of Osoyoos
11500 115th St, Box 3010
Osoyoos, BC
V0H 1V0

Attention: Jared Brounstein
Director of Operations

Town of Osoyoos Landfill – 2024 Landfill Gas Assessment Report

Dear First Mr. Brounstein:

Dillon Consulting Limited (Dillon) is pleased to provide the Town of Osoyoos (Town) with a 2024 Landfill Gas Assessment Report for the Osoyoos Landfill (Landfill).

The 2024 Landfill Gas Assessment Report has been prepared in accordance with the BC Landfill Gas Management Regulation BC Reg. 391/2008, BC Landfill Criteria for Municipal Solid Waste (June 2016), Ministry of Environment Landfill Gas Generation Assessment, Procedure Guidelines, and the Landfill's Operational Certificate MR 15273.

Sincerely,

DILLON CONSULTING LIMITED

A handwritten signature in black ink that reads "Alyssa Hooge".

Alyssa Hooge, B.Sc.
Project Manager

Our file: 24-7727



Phillip Auclair, P.Eng.
Senior Review

EGBC Permit to Practice
1003422

555 Burrard Street
Suite 1055
Box 246
Vancouver
British Columbia
Canada
V7X 1M7
Telephone
604.278.7847
Fax
604.278.7894

Table of Contents

1.0	Introduction	1
1.1	LFG Assessment Requirements.....	1
1.2	Previous LFG Generation Assessment	1
2.0	LFG Generation Assessment	2
2.1	Landfill Information	2
2.1.1	Waste Generation	4
2.2	Model Input Parameters Used and Justification.....	4
2.2.1	Climate.....	4
2.2.2	Waste Characterization	5
2.2.3	Methane Potential	6
2.2.4	Methane Generation Rate	6
3.0	LFG Generation Model Results	7
3.1	LFG Tool Parameters	7
3.2	Model Results	7
4.0	Next Steps	10
	Figures	
	Figure 1: Site Plan.....	3

Tables

Table 1: Environment Canada Historic Climate Data 5

Table 2: Waste Characterization and Methane Potential 6

Table 3: Methane Generation Rate – Moisture Content Matrix 6

Table 4: T2-Calculator Landfill Gas Tool Calculation Parameters 7

Table 5: T1 Summary Results – 2024 to 2028 Future Methane Generation 8

Table 6: Methane Generation Results..... 9

Appendices

A Historical Waste Quantities

B Waste Characterization



1.0 Introduction

Dillon Consulting Limited (Dillon) has prepared a Landfill Gas (LFG) Generation Assessment Report (Report) for the Osoyoos Landfill (Landfill or Site) on behalf of the Town of Osoyoos (Town). This report has been prepared in accordance with Landfill Gas Generation Assessment Procedure Guidance Report prepared for the British Columbia (BC) Ministry of Environment by Conestoga-Rovers & Associates (CRA), dated March 2009 (LFG Guidelines), and in accordance with the requirements of the BC Ministry of Environment's Landfill Gas Management Regulation (the Regulation), approved and ordered on December 8, 2008.

The last LFG Generation Assessment Report was completed in 2019. As per Section 15(1)(ii) of the LFG Regulation, a 5-year LFG assessment renewal was required to be completed between January 1 and March 31, 2024. This Report fulfils the requirements of the Section 15 of the LFG Regulation.

1.1 LFG Assessment Requirements

In 2010, the cumulative waste in place at the Landfill was estimated be approximately 129,000 tonnages with an annual tonnage of 6,872 tonnes. As required by the Section 4(5) of the Regulation, the Landfill was required to submit an initial LFG generation assessment and report of the Site in accordance with Section 4(2).

The Report is a supplementary assessment to estimate annual methane generated at the Site and presents the information required by Section 15 and Section 4(3)(b) to (e) of the LFG Regulation.

1.2 Previous LFG Generation Assessment

An initial LFG Generation Assessment Report for the Town of Osoyoos Landfill was submitted to the Ministry of Environment in March 2011. The LFG generation assessment report was updated and submitted in March 2014 to reflect recommendations from the Ministry, which included re-categorizing waste, as the previous estimates were overly conservative. The Landfill's last LFG Generation Assessment was prepared by TRUE Consulting and submitted to the BC Ministry of Environment and Climate Change (MOECC) in April 2019.

A 5-year LFG assessment renewal is required to be completed in 2024 as per Section 15(1)(ii) of the LFG Regulation. The 2019 LFG Generation Assessment estimated a peak methane tonnage of 262 tonnages of annual methane for year 2023. This is less than 1,000 tonnes of annual methane production that requires a LFG Management Design Plan.

Data from the past LFG assessment has been reviewed and utilized in the updated 2024 assessment to provide historical continuity.

2.0

LFG Generation Assessment

2.1

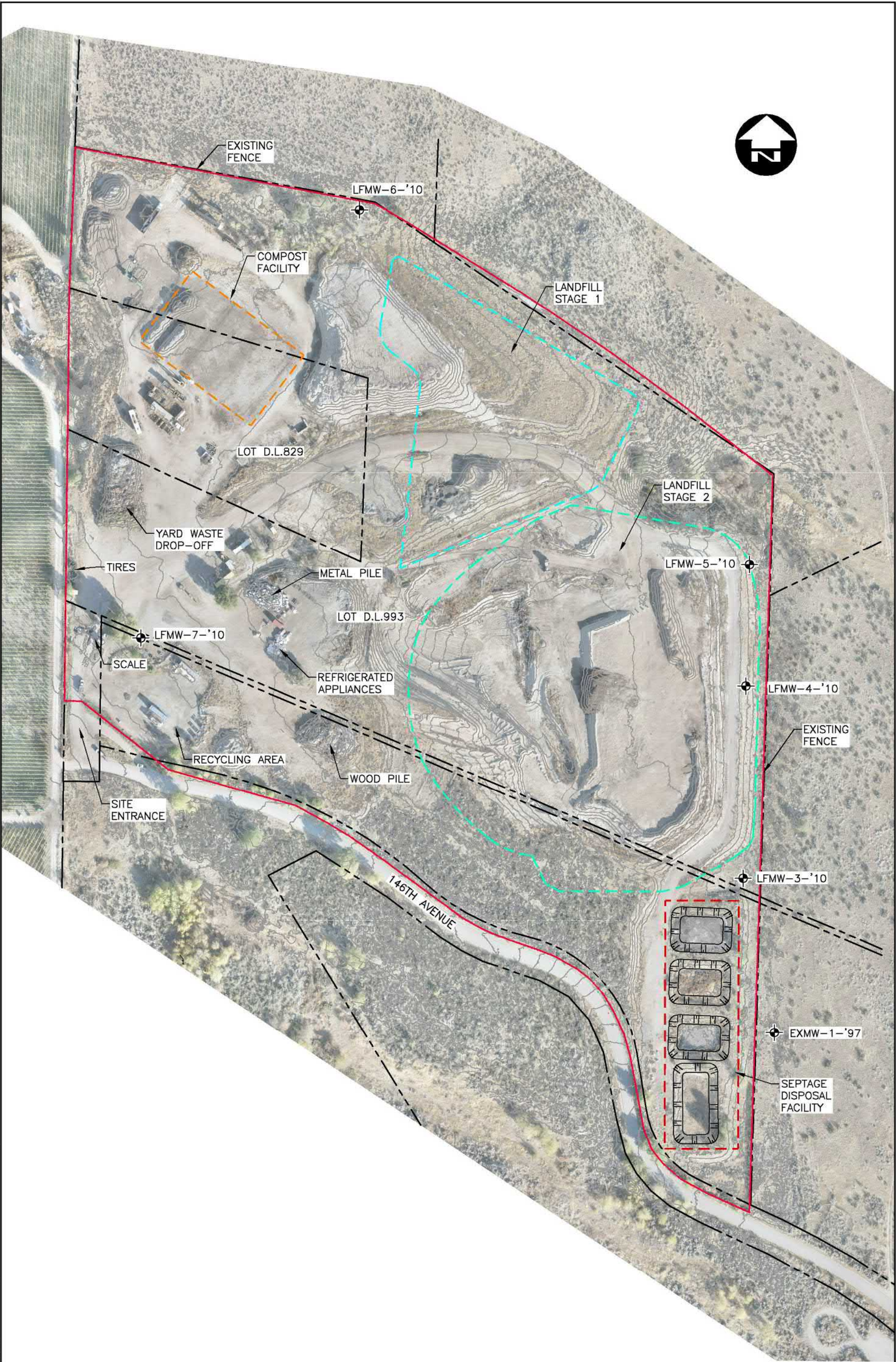
Landfill Information

The Landfill is owned by the Town and operated by a private contractor. The Site is located at 17250 146 Avenue, approximately 3 km north of the municipal boundary and 1.5 km west of Highway 97 in Osoyoos, BC. The Site is in the Regional District of the South Okanagan (RDOS).

The Site is comprised of a municipal solid waste (MSW) landfill and a hauled liquid waste facility. The hauled liquid waste facility is authorized under separate permit issued by the MOECC permit under the provisions of the *Environmental Management Act*.

The Landfill is situated on two parcels of land, Lot 993 Plan 22982 and Lot 829 Plan 5102, both located within District Lot 2450s. The Landfill has been in operation since the 1950's, at which time the landfilling area was restricted to land parcel DL829. In 1972, Lot 993 was leased from the Province for additional municipal waste landfilling services. The Landfill has an operational footprint of roughly 14 hectares. Since 2001, the Landfill has comprised of two stages. Stage 1 covers the northeast area of the Site and Stage 2 covers the southeast area of the Site. The Stage 1 filling area's airspace was completely utilized by December 2010 and Stage 2 was started the following month. Stage 2 has remained the active filling zone for the past 13 years. The existing site conditions are shown in Figure 1.

File Name: c:\pw working directory\projects 2024\dillon_33\ksidms\10193\247727-02-site-con.dwg



TOPOGRAPHIC AERIAL SURVEY
AS OF SEPTEMBER 2021



DATE
APRIL 2024

PROJECT
TOWN OF OSOYOOS 2023 ANNUAL REPORT

TITLE
SITE MAP

PROJECT NO.
24-7727

FIGURE NO.
1

2.1.1 Waste Generation

As per Section 5.1 of the LFG Guidance Report, this Report includes a table summarizing historical waste mass from the beginning of filling operations and 5-year projections (2024 to 2028).

A scale was constructed at the Osoyoos Landfill in 1995. Scale data was recorded from 1996 onwards. Prior to installation of the scale, waste quantities accepted at the landfill were not documented and waste quantities were estimated based on a per capita generation rate of 0.76 tonnes/capita. Scale data was used to determine landfill disposal quantities for years 1996 to 2023.

For years 2024 to 2028, estimated population growth rates from the BC Statistics Population Estimates & Projections for British Columbia were used to estimate the population¹. A 5-year average (2019 to 2023) was calculated to estimate waste disposal tonnages for years 2024 to 2028. The average per capita disposal rate was estimated to be 550 kg per capita (0.55 tonnes/capita).

Historic waste generation values dating back until 1981 were used to calculate the methane totals and are presented in Appendix A.

2.2 Model Input Parameters Used and Justification

2.2.1 Climate

Water infiltration is a critical factor in the production of methane gas within sanitary landfill. Moisture content assists with the anaerobic breakdown of buried organic matter into LFG. The Town is located in a semi-arid climatic zone and experiences low precipitation rates.

Average precipitation data from Environment Canada's historic climate database for weather station 'Osoyoos West'² (Climate ID 1125865) recorded an average annual precipitation recorded of 322.2 mm per year for years 1981 to 2010. This value was used to determine the methane generation rate values as per Section 4.4 of the LFG Guidelines. Monthly historical average precipitation values are provided in Table 1.

¹ BC Stats. Population Estimates and Projections for British Columbia BC(<https://www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/population-estimates>) Accessed on February 21, 2024.

² Data was sourced from:

(https://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnName&txtStationName=osoyoos&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=1043&disppBack=0)

Table 1: Environment Canada Historic Climate Data

1981 to 2010 Canadian Climate Normals Station Data - Osoyoos West													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
Rainfall (mm)	14.3	17.7	22.3	24.1	37.1	41.7	24.6	17.3	14.9	18.5	28.2	18.8	279.4
Snowfall (cm)	14.6	4.6	1.7	0.1	0	0	0	0	0	0.1	5.7	17	43.8
Precipitation (mm)	28.8	22.3	24	24.2	37.1	41.7	24.6	17.3	14.9	18.6	33.8	35.8	323.2

2.2.2 Waste Characterization

As per Section 5.1 of the LFG Guidelines, landfilled waste was categorized into the following three categories based on the decomposability of the materials:

- Relatively inert (RI);
- Moderately decomposable (MD); and
- Decomposable (D).

The Landfill does not have a historic waste composition data for landfilled waste to reference for categorization of the Landfill's waste. For years 2019 to 2023, proxy waste disposal composition data was used to approximate the landfilled waste composition for municipal waste and commercial waste. Commercial waste was assumed to have a similar waste composition to municipal waste for conservative methane generation estimates. Comparable landfills with a similar tonnage received and population serviced were selected. These comparable landfill sites were also identified to not have an active municipal organics collection program in alignment with the Town's current collections program.

Comparable neighboring municipalities included the Town of Golden, the Town of Oliver (RDOS) and the City of Kelowna (RDOS). These municipalities are comparable in municipal waste collections program, region, climatic zone, and population size (with the exception of Kelowna). The waste characterization studies from these comparable landfills were averaged to estimate the relative breakdown of decomposable waste within the Landfill. The waste categorization for municipal and commercial waste for are provided in Appendix B. Categorization of the remaining landfilled waste includes construction waste and biosolids. A summary of the waste categorization years 2019 to 2023 are provided in Appendix B.

For a conservative estimate, methane generation values for future years 2024 to 2028 were calculated assuming all waste was municipal waste. For years 1981 to 2018, waste quantities and decomposability

categorization were referenced from the 2019 Landfill Gas Generation Assessment Report for the Town of Osoyoos Landfill prepared by TRUE Consulting.

2.2.3 Methane Potential

The methane generation potential (L_0) projects the total amount of methane capable of being produced by a select volume of waste based on the inherent composition of organic matter. The L_0 for the waste characterization categories were assigned as per Table 5.1 in the LFG Guidelines and presented in Table 2. The L_0 values were applied to the waste characterization data.

Table 2: Waste Characterization and Methane Potential

Waste Characterization	Methane Generation Potential L_0 (m ³ methane/tonne)
Relatively Inert	20
Moderately Decomposable	120
Decomposable	160

2.2.4 Methane Generation Rate

The methane generation rate, k , represents the first-order biodegradation rate at which methane is generated following waste placement. This constant is influenced by moisture content, the availability of nutrients, pH, and temperature. The methane generation rate (k) value was selected using the table in Section 5.3 of the LFG Guidelines. Using an annual precipitation of 323.2 mm, methane generation rates were input into the MOECC LFG Calculation Tool as per Table 3.

The water addition factor accounts for outside moisture infiltration into a landfill cell from stormwater, leachate recirculation, or a “bioreactor” style landfill management model. The Landfill maintains a small active face with the remainder of the landfill area having received intermediate or final cover. A water addition factor of 1.0 was selected using Table 5.4 of the LFG Guidelines for a Site that has:

- Partially implemented stormwater management best practices;
- Sloped low permeability cover; and
- Absence of leachate recirculation and/or storm water injection.

All values generated from the Methane Generation Rate Selection Matrix (Table 5.2) in the LFG Guidelines were adjusted by the Water Addition Factor (Table 5.3) from the LFG Guidelines. The modified methane generation rate generated using these tables is presented in Table 3.

Table 3: Methane Generation Rate – Moisture Content Matrix

Waste Characterization	Methane Generation Rate (k) Value	Water Addition Factor	Modified Generation Rate (k)
Relatively Inert	0.01	1.0	0.01
Moderately Decomposable	0.02	1.0	0.02
Decomposable	0.05	1.0	0.05

3.0

LFG Generation Model Results

3.1

LFG Tool Parameters

The parameters set for the landfill gas calculator tool are provided in Table 4. These parameters include the standard densities for carbon dioxide and methane gas as typically found in landfill gas. The Landfill is operated under the dry anaerobic tomb sanitary landfill model. A landfill gas relative composition of 50% CO₂ and 50% CH₄ has been assumed. It is expected that passive methane release from the covered landfill cell would be composed of approximately 50% methane based on the pre-set values provided in the MOECC LFG tool.

Table 4: T2-Calculator Landfill Gas Tool Calculation Parameters

	Relatively Inert (RI)	Moderately Decomposable (MD)	Decomposable (D)
Gas Production potential, Lo =	20	120	160
lag time before start of gas production, lag	1 year		
Historical Data Used (years)	43		
1st Year of Historical Data Used	1981		
4 Years after Reporting Year	2028		
Methane (by volume)	50%		
Carbon dioxide (by volume)	50%		
Methane (density) - 1atm, 25C	0.6557 kg/m ³ (25C,SP)		
Carbon dioxide (density)	1.7988 kg/m ³ (25C,SP)		

3.2

Model Results

The calculated results for the Landfill's future methane generation have been included in Table 5 and Table 6 Results were calculated using the MOECC provided tool.

Table 5: T1 Summary Results – 2024 to 2028 Future Methane Generation

	Year of Estimate	Mass of Methane Produced (tonnes)
Estimated Quantity of Methane Produced in Year Preceding the Assessment	2023	244
Estimated Quantity of Methane Produced in Year of the Assessment	2024	243
Estimated Quantity of Methane Produced One Year after the Assessment	2025	244
Estimated Quantity of Methane Produced Two Years after the Assessment	2026	244
Estimated Quantity of Methane Produced Three Years after the Assessment	2027	245
Estimated Quantity of Methane Produced Four Years after the Assessment	2028	246

Gas Production potential, Lo =
lag time before start of gas production, lag =
Historical Data Used (years)
1st Year of Historical Data Used
4 Years after Reporting Year
methane (by volume)
carbon dioxide (by volume)
methane (density) - 1atm, 25C
carbon dioxide (density)

Relatively Inert
20
Moderately Decomposable
120
Decomposable
160
m³ CH₄/tonne
1 years
43
1981
2028
50%
50%
0.6557 kg / m³
1.7988 kg / m³
(25C,SP)
(25C,SP)

Year	Year Number	Annual Tonnage (tonnes)	Cumulative Waste-in-place (tonnes)	Waste Tonnage			Methane Generation Rate, k			Annual Methane Production (tonnes/yr)	Annual Landfill Gas Production (m ³ / hr)
				Relatively Inert (tonnes)	Moderately Decomposable (tonnes)	Decomposable (tonnes)	Relatively Inert (year ⁻¹)	Moderately Decomposable (year ⁻¹)	Decomposable (year ⁻¹)		
1981	1	2,672	2,671	534	1,069	1,069	0.01	0.02	0.05	0	0.0
1982	2	2,770	5,441	554	1,108	1,108	0.01	0.02	0.05	7	2.6
1983	3	2,852	8,293	570	1,141	1,141	0.01	0.02	0.05	15	5.1
1984	4	2,938	11,231	588	1,175	1,175	0.01	0.02	0.05	22	7.6
1985	5	3,025	14,256	605	1,210	1,210	0.01	0.02	0.05	29	10.1
1986	6	3,115	17,371	623	1,246	1,246	0.01	0.02	0.05	36	12.6
1987	7	3,235	20,606	647	1,294	1,294	0.01	0.02	0.05	43	15.1
1988	8	3,355	23,961	671	1,342	1,342	0.01	0.02	0.05	50	17.6
1989	9	3,483	27,444	697	1,393	1,393	0.01	0.02	0.05	58	20.0
1990	10	3,615	31,059	723	1,446	1,446	0.01	0.02	0.05	65	22.6
1991	11	3,752	34,811	750	1,501	1,501	0.01	0.02	0.05	72	25.1
1992	12	3,895	38,706	779	1,558	1,558	0.01	0.02	0.05	79	27.7
1993	13	4,042	42,748	808	1,617	1,617	0.01	0.02	0.05	87	30.3
1994	14	4,195	46,943	839	1,678	1,678	0.01	0.02	0.05	94	32.9
1995	15	4,353	51,296	871	1,741	1,741	0.01	0.02	0.05	102	35.6
1996	16	4,614	55,910	1,292	1,246	2,076	0.01	0.02	0.05	110	38.3
1997	17	4,311	60,221	920	1,218	2,173	0.01	0.02	0.05	119	41.3
1998	18	3,679	63,900	662	1,138	1,879	0.01	0.02	0.05	127	44.3
1999	19	3,306	67,206	570	1,141	1,595	0.01	0.02	0.05	134	46.5
2000	20	3,430	70,636	783	1,270	1,377	0.01	0.02	0.05	138	48.2
2001	21	3,980	74,616	926	1,454	1,600	0.01	0.02	0.05	142	49.4
2002	22	5,785	80,401	1,382	2,120	2,283	0.01	0.02	0.05	147	51.1
2003	23	4,800	85,201	1,162	1,741	1,897	0.01	0.02	0.05	156	54.4
2004	24	5,587	90,788	1,360	1,988	2,239	0.01	0.02	0.05	163	56.7
2005	25	5,286	96,074	1,174	1,966	2,146	0.01	0.02	0.05	171	59.6
2006	26	6,562	102,636	1,536	2,213	2,813	0.01	0.02	0.05	179	62.2
2007	27	6,049	108,685	1,519	2,265	2,265	0.01	0.02	0.05	190	66.1
2008	28	6,853	115,538	1,431	3,103	2,319	0.01	0.02	0.05	198	68.8
2009	29	6,616	122,154	1,512	2,848	2,256	0.01	0.02	0.05	207	72.0
2010	30	6,871	129,025	2,312	2,559	2,000	0.01	0.02	0.05	215	74.9
2011	31	6,103	135,128	1,137	2,692	2,274	0.01	0.02	0.05	221	77.0
2012	32	5,200	140,328	923	2,163	2,114	0.01	0.02	0.05	229	79.6
2013	33	4,292	144,620	910	1,737	1,645	0.01	0.02	0.05	234	81.5
2014	34	4,305	148,925	996	1,725	1,584	0.01	0.02	0.05	236	82.2
2015	35	4,094	153,019	833	1,807	1,454	0.01	0.02	0.05	238	82.8
2016	36	4,054	157,073	834	1,703	1,517	0.01	0.02	0.05	239	83.2
2017	37	4,056	161,129	807	1,733	1,516	0.01	0.02	0.05	240	83.7
2018	38	4,898	166,027	1,001	2,043	1,854	0.01	0.02	0.05	242	84.1
2019	39	4,232	170,259	1,415	1,571	1,246	0.01	0.02	0.05	245	85.4
2020	40	4,167	174,426	1,412	1,536	1,219	0.01	0.02	0.05	245	85.2
2021	41	4,597	179,023	1,548	1,699	1,350	0.01	0.02	0.05	244	85.0
2022	42	4,045	183,068	1,358	1,498	1,189	0.01	0.02	0.05	245	85.2
2023	43	4,118	187,186	1,413	1,507	1,198	0.01	0.02	0.05	244	84.9
2024	44	4,480	191,666	1,467	1,680	1,333	0.01	0.02	0.05	243	84.7
2025	45	4,538	196,204	1,486	1,702	1,350	0.01	0.02	0.05	244	84.9
2026	46	4,593	200,797	1,504	1,722	1,366	0.01	0.02	0.05	244	85.1
2027	47	4,657	205,454	1,525	1,746	1,385	0.01	0.02	0.05	245	85.3
2028	48	4,699	210,152	1,539	1,762	1,398	0.01	0.02	0.05	246	85.6

4.0

Next Steps

Section 7 of the LFG Regulation requires a landfill generating 1,000 tonnes or more of methane generated in the calendar year immediately preceding the calendar year of the assessment to prepare a landfill gas management facilities design plan. The Landfill's methane production tonnage for 2024 is estimated at 243 tonnes CH₄, below the LFG Regulation threshold. The Town will provide subsequent landfill gas assessment reports every 5-years as outlined in the LFG Regulations or earlier if requested by the MOECC. The next scheduled LFG generation assessment is due by March 31 of 2029.

It is recommended that a multi-season waste composition study be completed at the Landfill to determine actual disposal composition and methane generation rates.

References

- BC Ministry of Environment. Landfill Criteria for Municipal Solid Waste, Second Edition (2016).
- BC. Environmental Management Act. Landfill Gas Management Regulation, B.C Reg. 391 (2008).
- BC. Landfill Gas Generation Assessment Procedures Guidance Report (2009).
- BC. Landfill Gas Generation Estimate Tool, calculation tool (2009)
- BCStats, Population Estimates & Projections for British Columbia (2024). Sourced from <https://www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/population-estimates>
- Town of Osoyoos. Operational Certificate No. MR 15273
- Town of Osoyoos Bylaw No. 1370, “Waste Management Services and Regulation Bylaw” (2020).
- TRUE Consulting. 2019 Landfill Gas Generation Assessment Report for the Town of Osoyoos Landfill (2019).
- TRUE Consulting. Town of Osoyoos, 2022 Landfill Annual Report (ME-15273) (2023).
- TRUE Consulting. Osoyoos Landfill Design/Operations/Closure Plan (2018)
- GHD Consulting. CSRD 2017 Landfill Gas Generation Assessment Report for the Golden Landfill (2017)
- GHD Consulting. RDOS 2010 Landfill Gas Production Estimate for the Operations and Closure Plan Oliver Landfill Site (2010).
- Tetrattech Consulting, City of Kelowna 2022 Glenmore Landfill Annual Report (2022).

APPENDIX F

Groundwater Monitoring Records

Ground Monitoring Wells Landfill 2024

January

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	— NONE	—	—	—	—
LFMW-3-10	23.86	23.30	Clay Mud @ 23.3	Jan23	DH	14:10
LFMW-4-10	25.3	22.15	3.15 m	Jan23	DH	14:15
LFMW-5-10	15.75	15.33	0.42 m	Jan23	DH	14:22
LFMW-6-10	10.29	— NONE	—	—	—	—
LFMW-7-10	7.75	DESTROYED	—	—	—	—

SOUTH SIDE SCALE SHACK

February

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57					
LFMW-3-10	23.86	23.30	dry	FEB20	DH	10:45
LFMW-4-10	25.3	22.16	23.30	"	"	10:55
LFMW-5-10	15.75	15.28		"	"	11:00
LFMW-6-10	10.29					
LFMW-7-10	7.75					

March

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57					
LFMW-3-10	23.86	23.30	dry (mud)	MAR25	DH	09:20
LFMW-4-10	25.3	22.14				9:34
LFMW-5-10	15.75	15.21				9:41
LFMW-6-10	10.29					
LFMW-7-10	7.75					

Ground Monitoring Wells Landfill 2024

April

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	—				
LFMW-3-10	23.86	23.30 dry				
LFMW-4-10	25.3	21.99				
LFMW-5-10	15.75	15.29		APR 23	DH	13:01
LFMW-6-10	10.29	—				
LFMW-7-10	7.75	—				

May

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		22	DS	2:50PM
LFMW-3-10	23.86	Dry		22	DS	2:40PM
LFMW-4-10	25.3	21.98		22	DS	2:35PM
LFMW-5-10	15.75	15.30		22	DS	2:30PM
LFMW-6-10	10.29	Dry		22	DS	2:25PM
LFMW-7-10	7.75	Damaged		22	DS	2:20PM

June

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		19	DS	1:30PM
LFMW-3-10	23.86	Dry		19	DS	1:20PM
LFMW-4-10	25.3	21.97		19	DS	1:15PM
LFMW-5-10	15.75	15.32		19	DS	1:10PM
LFMW-6-10	10.29	Dry		19	DS	1:05PM
LFMW-7-10	7.75	Damaged		19	DS	1:00PM

Ground Monitoring Wells Landfill 2024

July

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		22	KF/GW	1:25pm
LFMW-3-10	23.86	Dry		22	KF/GW	1:20pm
LFMW-4-10	25.3	21.96		22	KF/GW	1:15pm
LFMW-5-10	15.75	15.33		22	KF/GW	1:10pm
LFMW-6-10	10.29	— Dry		22	KF/GW	1:00pm
LFMW-7-10	7.75	—				

Damaged

August

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		30	DS/MM	2:40PM
LFMW-3-10	23.86	Dry		30	DS/MM	2:30PM
LFMW-4-10	25.3	21.95		30	DS/MM	2:25PM
LFMW-5-10	15.75	15.31		30	DS/MM	2:20PM
LFMW-6-10	10.29	Dry		30	DS/MM	2:15PM
LFMW-7-10	7.75	— Damaged		30	DS/MM	2:10PM

September

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		24	KF/MM	11:40am
LFMW-3-10	23.86	Dry		24	KF/MM	11:35am
LFMW-4-10	25.3	21.97		24	KF/MM	11:20am
LFMW-5-10	15.75	15.31		24	KF/MM	11:15am
LFMW-6-10	10.29	Dry		24	KF/MM	11:10am
LFMW-7-10	7.75	Damaged		24	KF/MM	11:05am

Ground Monitoring Wells Landfill 2024

October

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		Oct 21	KF/KC	11:20am
LFMW-3-10	23.86	Dry		Oct 21	KF/KC	11:15am
LFMW-4-10	25.3	22.05		Oct 21	KF/KC	11:10am
LFMW-5-10	15.75	15.33		Oct 21	KF/KC	11:05am
LFMW-6-10	10.29	Dry		Oct 21	KF/KC	11:00am
LFMW-7-10	7.75	Damaged		Oct 21	KF/KC	10:55am

November

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		Nov 27	M.M.	2:59 PM
LFMW-3-10	23.86	Dry		Nov 27	M.M.	2:55 PM
LFMW-4-10	25.3	22.08		Nov 27	M.M.	2:49 PM
LFMW-5-10	15.75	15.32		Nov 27	M.M.	2:44 PM
LFMW-6-10	10.29	Dry		Nov 27	M.M.	2:30 PM
LFMW-7-10	7.75	Damaged	-	Nov 27	M.M.	2:10 PM

December

Ground Monitoring Wells Landfill Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
EXMVV-1-97	15.57	Dry		Dec 23	MM/KC	11:00 AM
LFMW-3-10	23.86	DRY		Dec 23	MM/KC	10:55
LFMW-4-10	25.3	22.10		Dec 23	MM/KC	10:48
LFMW-5-10	15.75	15.32		Dec 23	MM/KC	10:42 AM
LFMW-6-10	10.29	Dry		Dec 23	MM/KC	10:30 AM
LFMW-7-10	7.75	N/A		Dec 23	MM/KC	10:34 AM

CERTIFICATE OF ANALYSIS

REPORTED TO Osoyoos, Town of
PO Box 3010
OSOYOOS, BC V0H 1V0

ATTENTION Dave Stene

PO NUMBER WB Groundwater (Comp)

PROJECT WB Groundwater (Comp)

PROJECT INFO

WORK ORDER 2413435

RECEIVED / TEMP 2024-09-26 10:11 / 10.8°C

REPORTED 2024-10-03 10:35

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here:
<https://www.caro.ca/terms-conditions>

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager



1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 |
#108 4475 Wayburne Drive Burnaby, BC V5G 4X4

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW-8-10 GW Comp (2413435-01) Matrix: Water Sampled: 2024-09-25 07:50						FILT, PRES

Anions

Chloride	32.9	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	6.14	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	1380	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	6.14	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0229	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	713	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	442	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	66.1	None Required	0.010	mg/L	2024-10-01	
Sodium, total	41.1	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-9-10 GW Comp (2413435-02) | Matrix: Water | Sampled: 2024-09-25 08:15

FILT,
PRES

Anions

Chloride	2.80	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	0.395	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	150	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.395	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0607	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	122	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	43.0	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	10.2	None Required	0.010	mg/L	2024-10-01	
Sodium, total	15.9	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-1-01 GW Comp (2413435-03) | Matrix: Water | Sampled: 2024-09-25 08:25

FILT,
PRES

Anions

Chloride	18.1	AO ≤ 250	0.10	mg/L	2024-09-27	
----------	------	----------	------	------	------------	--

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW-1-01 GW Comp (2413435-03) Matrix: Water Sampled: 2024-09-25 08:25, Continued						FILT, PRES

Anions, Continued

Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	572	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0117	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	87.2	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	136	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	55.9	None Required	0.010	mg/L	2024-10-01	
Sodium, total	38.5	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-7-10 GW Comp (2413435-04) | Matrix: Water | Sampled: 2024-09-25 08:40

FILT,
PRES

Anions

Chloride	5.01	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	0.032	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	225	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0320	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0163	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	402	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	57.3	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	19.7	None Required	0.010	mg/L	2024-10-01	
Sodium, total	12.3	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-5-10 GW Comp (2413435-05) | Matrix: Water | Sampled: 2024-09-25 09:05

FILT,
PRES

Anions

Chloride	301	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	11.5	MAC = 10	0.010	mg/L	2024-09-27	

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW-5-10 GW Comp (2413435-05) Matrix: Water Sampled: 2024-09-25 09:05, Continued						FILT, PRES
Anions, Continued						
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	
Calculated Parameters						
Hardness, Total (as CaCO ₃)	644	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	11.5	N/A	0.250	mg/L	N/A	
General Parameters						
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0194	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	37.8	N/A	2.0	mg/L	2024-10-03	
Total Metals						
Calcium, total	180	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	47.4	None Required	0.010	mg/L	2024-10-01	
Sodium, total	139	AO ≤ 200	0.10	mg/L	2024-10-01	

LFMW-4-10 GW Comp (2413435-06) | Matrix: Water | Sampled: 2024-09-25 09:40

FILT,
PRES

Anions						
Chloride	37.1	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	0.014	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	
Calculated Parameters						
Hardness, Total (as CaCO ₃)	754	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0145	N/A	0.0100	mg/L	N/A	
General Parameters						
Ammonia, Total (as N)	0.102	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0099	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	4290	N/A	2.0	mg/L	2024-10-03	
Total Metals						
Calcium, total	192	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	66.4	None Required	0.010	mg/L	2024-10-01	
Sodium, total	35.9	AO ≤ 200	0.10	mg/L	2024-10-01	

Sample Qualifiers:

FILT The sample has been filtered for TDP in the laboratory. Results may not reflect conditions at the time of sampling.
PRES Sample has been preserved for TDP in the laboratory and the holding time has been extended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Phosphorus, Total Dissolved in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

[Guidelines for Canadian Drinking Water Quality \(Health Canada, September 2022\)](#)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT	Osoyoos, Town of WB Groundwater (Comp)	WORK ORDER REPORTED	2413435 2024-10-03 10:35
---------------------	---	---------------------	-----------------------------

General Comments:
The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX G

2022 Environmental Monitoring Plan



TOWN OF OSOYOOS

Environmental Monitoring Plan

Town of Osoyoos & District Sanitary Landfill



November 25, 2022

Town of Osoyoos
8707 Main Street, Box 3010
Osoyoos, British Columbia
V0H 1V0

Attention: Mr. Jared Brounstein
Director of Operations

Town of Osoyoos – Environmental Monitoring Plan

Dillon Consulting Limited (Dillon) is pleased to submit to the Town of Osoyoos (Town) the enclosed Report documenting the Town of Osoyoos Environmental Monitoring Plan to assist the Town in fulfilling their regulatory monitoring and reporting requirements.

The report summarizes the environmental monitoring and reporting requirements for the landfill, hauled liquid waste facility, and compost facility operating at the Site.

If you should have any questions or concerns regarding the contents of this report please direct them to Elisabeth Mance at emance@dillon.ca or by calling 902-450-5015, ext. 5063.

Sincerely,

DILLON CONSULTING LIMITED

Elisabeth Mance, P.Eng.
Environmental Engineer

EM:kk

Our file: 22-4376

3820 Cessna Drive
Suite 510
Richmond
British Columbia
Canada
V7B 0A2
Telephone
604.278.7847
Fax
604.278.7894

**Dillon Consulting
Limited**

Table of Contents

1.0	Introduction	1
1.1	Site Overview	1
2.0	Monitoring Protocols	2
3.0	Environmental Monitoring	3
3.1	Landfill.....	3
3.1.1	Vegetation Monitoring.....	3
3.1.2	Water Levels	3
3.1.3	Groundwater Quality	3
3.1.4	Data Quality Assurance.....	3
3.1.5	Criteria and Compliance.....	4
3.1.6	Annual Reporting	4
3.2	Hauled Liquid Waste Facility.....	4
3.2.1	Water Levels	4
3.2.2	Wastewater Quality	4
3.2.3	Groundwater Monitoring.....	4
3.2.4	Annual Reporting	4
3.3	Compost Facility.....	5

Figures

Figure 1: Town of Osoyoos and District Sanitary Landfill

Tables

Table 1: Monitoring Wells

Table 2: Monthly Monitoring Requirements

Appendices

- A Stratigraphic Logs
- B Operational Certificate MR 15273
- C Permit PE 14804

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by the Town of Osoyoos (the Town) to develop an Environmental Monitoring Plan (EMP) for the Town of Osoyoos and District Sanitary Landfill (Site). The EMP summarizes the environmental monitoring and reporting requirements for the three facilities operating at the Site, as follows:

- Landfill, operating under Operational Certificate MR 15273 (OC);
- Hauled liquid waste facility, operating under Permit 14804; and
- Compost facility, operating under Registration 109610.

The EMP is intended as a tool to assist the Town in fulfilling their regulatory monitoring and reporting requirements for the three facilities by summarizing monitoring protocols, schedule, and details in one reference document.

Any changes to the environmental monitoring programs or infrastructure for the three facilities should prompt an update of this plan.

1.1 Site Overview

The Site is located approximately 3 km north of the municipal boundary and 1.5 km west of Highway 97 in Osoyoos, BC (**Figure 1**). Environmental monitoring infrastructure at the Site comprises six groundwater monitoring wells, as summarized in **Table 1** and as illustrated on **Figure 1**.

Table 1: Monitoring Wells

Monitoring Well	Top of Casing	Base	Northing	Easting
EXMW-1-'97	359.577	359.800	5436715.552	315818.076
LFWM-3-'10	359.871	359.201	5436801.491	315800.680
LFMW-4-'10	358.411	357.741	5436908.687	315802.288
LFWM-5-'10	359.270	358.600	5436976.356	315804.245
LFMW-6-'10	382.419	381.499	5437174.161	315586.691
LFMW-7-'10	383.197	382.557	5436935.496	315464.741

Stratigraphic logs for the monitoring wells are included as **Appendix A**.

2.0

Monitoring Protocols

The following British Columbia Ministry of Environment and Climate Change Strategy (BC MOECCS) documents provide sampling protocols for environmental monitoring:

- “Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills” (1996);
- “British Columbia Field Sampling Manual: 2013 - For Continuous Monitoring and the Collection of Air, Air Emission, Water, Wastewater, Soil, Sediment and Biological Samples” (2013); and
- “British Columbia Environmental Laboratory Manual” (2015).

In order to ensure that representative groundwater samples are obtained from the monitoring wells, the following sampling protocols should be applied:

- Record the static water level of each monitoring well;
- Prior to the collection of the groundwater sample, purge each well of the standing volume of water. The objective of purging is to remove groundwater from the well until a representative sample of the formation groundwater is obtained. This is generally achieved by the removal of three to five times the volume of standing water in the well [United States Environmental Protection Act (USEPA) Convention]. In general, purging is considered complete once sediment-free groundwater is obtained and the specific conductance, temperature, and pH of the groundwater is stabilized;
- Collect groundwater in the appropriate laboratory-supplied sample containers and preserve as required; and
- Samples are to be packed on ice and submitted under a chain of custody to an accredited analytical laboratory certified for environmental analysis by the BC MOECCS, respecting sample hold times.

3.0

Environmental Monitoring

The following section outlines the environmental monitoring requirements for the three on-site facilities: the landfill, the hauled liquid waste facility, and the compost facility. An “at-a-glance” summary of the monthly monitoring requirements is included as **Table 2** following the text.

3.1

Landfill

A monitoring program for the landfill is required under Section 4 of the OC (**Appendix B**). The program includes annual vegetation monitoring, monthly water levels, biannual groundwater sampling, and reporting.

3.1.1

Vegetation Monitoring

Vegetation in the vicinity of the landfill is to be inspected at least once per year to determine if any environmental impacts are occurring.

3.1.2

Water Levels

Water levels in the six on-site monitoring wells are to be recorded on a monthly basis.

3.1.3

Groundwater Quality

Groundwater is to be sampled twice annually, in April and September. The water is to be analysed for the following analytes: chloride, sulfate, nitrate nitrogen, nitrite nitrogen, dissolved organic carbon (DOC), total kjeldahl nitrogen, pH, total dissolved solids, total hardness, nitrogen, nitrate+nitrite as nitrogen, total nitrogen, dissolved metals (aluminum, arsenic, boron, cadmium, chromium, cobalt, iron, lead, manganese, mercury, molybdenum, potassium, selenium, sodium, and zinc).

3.1.4

Data Quality Assurance

As per the OC, monitoring must be undertaken following the terms and conditions of the Environmental Data Quality Assurance Regulation (EQDA), or other legislation which may be in effect at the time. The EQDA specifies ten percent of the samples collected shall be duplicated to provide data quality assurance. Quality control information generated by the laboratory while analyzing parameters required by the OC shall also be provided with the data required to be reported.

3.1.5 Criteria and Compliance

The applicable criteria for groundwater quality are provided in the British Columbia Approved and Working Water Quality Guidelines. The results of the groundwater monitoring program have also historically been compared to the Guidelines for Canadian Drinking Water Quality (GCDWQ).

As per the OC, the landfill must be operated in a manner such that ground or surface water quality does not decrease beyond the applicable criteria at or beyond the landfill property boundary.

3.1.6 Annual Reporting

As per Section 4.6 of the OC, reporting associated with the EMP will be included as part of the Landfill Annual Report, and will include a compilation, interpretation and trend analysis of the receiving environmental monitoring data prepared by a suitable qualified professional.

3.2 Hauled Liquid Waste Facility

As indicated above, the hauled liquid waste facility is operated under Permit PE 14804 (**Appendix C**). A monitoring program for the facility is required under Section 3 of the Permit. The current program includes monthly water levels, biannual wastewater sampling, biannual groundwater sampling, and reporting.

3.2.1 Water Levels

Water levels in monitoring wells MW-1-'97 and LFMW3-'10, as shown on **Figure 1**, are to be recorded on a monthly basis.

3.2.2 Wastewater Quality

The wastewater from the infiltration basins is to be sampled twice annually, in April and September. The water from the grab samples is to be analysed for the following analytes: BOD₅, suspended solids, conductivity, pH, chloride, nitrate nitrogen, ammonia nitrogen, total coliform and fecal coliform.

3.2.3 Groundwater Monitoring

Groundwater in monitoring wells MW-1-'97 and LFMW3-'10 is to be sampled twice annually, in April and September. The water is to be analysed for the following analytes: conductivity, pH, chloride, nitrate nitrogen, nitrite nitrogen, ammonia nitrogen, kjeldahl nitrogen, total nitrogen, total phosphorous, dissolved phosphorous, ortho-phosphate, total coliform and fecal coliform.

3.2.4 Annual Reporting

As per Section 3.8 of the Permit, reporting associated with the EMP will be included as part of the Hauled Liquid Waste Facility Annual Report, and will include a summary of the results of the monitoring programs, data interpretation and trend analyses by a suitable qualified professional.

3.3 Compost Facility

The compost facility operates under Registration 109610. There is no environmental monitoring program specific to the compost facility. The groundwater monitoring undertaken for the landfill, as presented above, also serves to identify impacts (if any) from the on-site composting operations.

Any leachate generated as part of the composting operations is collected in a leachate sump located at the southwest corner of the impermeable compost pad and is recirculated into the compost windrows as needed. Leachate quantities are minimal due to the arid climate of the Site. In the unlikely event that leachate must be removed from the Site for disposal, the volume, dates, analytical data, and end disposal location of the leachate should be recorded and kept on file.