



February 2, 2023

Mr. Steve Copp
Mirror Nova Scotia Limited
600 Otter Lake Drive
Lakeside, NS B3T 2E2

Dear Mr. Copp,

Re: November 2022 Performance Audit
Otter Lake Waste Processing & Disposal Facility

In November 2022, Strum Consulting was retained by Mirror Nova Scotia Limited (Mirror) to oversee a Performance Audit at the Otter Lake Waste Processing & Disposal Facility (Otter Lake) located at 600 Otter Lake Drive in Lakeside, NS.

The purpose of the Performance Audit was to characterize the incoming residential waste stream and assess the percentage of compostable waste in this stream by mass. The audit also captures the incoming percentage of white goods and household hazardous waste (HHW). This letter report provides a summary of the Performance Audit completed on November 28, 2022 and includes a statistical analysis of the performance audit data collected to date.

SUMMARY

Based on 11 samples being collected during the November 2022 Performance Audit, the total compostable waste percentage per area ranged from a minimum of 8.02% to a maximum of 23.22%. The total weighted Compostable Waste Percentage for the November 2022 Audit is calculated to be 15.14%.

Using the combined data collected during the May, August, and November 2022 Performance Audits, the total compostable waste percentage ranged from a minimum of 8.34% to a maximum of 16.68%. For the three audits completed to date, the 95% confidence interval is 7.82% to 14.05%, with a total weighted Compostable Waste Percentage value of 12.45%. The long-term cumulative goal (i.e., Performance Target) for Otter Lake includes compostable waste not exceeding 10% of the total amount of municipal solid waste landfilled, by mass.

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Background

In March 2022, Nova Scotia Environment & Climate Change (NSECC) issued an updated Municipal Approval for Otter Lake, allowing the Front End Processor and Waste Stabilization Facility (FEP/WSF) to be deactivated upon the submission and acceptance of a Compliance Plan in accordance with the Approval requirements.

As per the Approval, the Performance Targets for Otter Lake include (but are not limited to) a long term goal of compostable waste not exceeding 10% of the total amount of municipal solid waste landfilled, by mass. Prior to the deactivation of the FEP and WSF, the submitted Compliance Plan must include details of how Performance Targets will be achieved. The Compliance Plan also outlines how Performance Audits will be completed as a means to quantify the presence of compostable waste being received at Otter Lake. White goods and HHW were added to this audit (and moving forward) based on comments received from NSECC after their review of the draft Compliance Plan.

Given the above, quarterly Performance Audits will be completed to characterize the composition of compostable waste in the incoming residential waste stream.

Methodology

The methodology followed for the November 2022 Performance Audit reflects best practices identified in the Divert NS Waste Audit Manual and Field Procedures Guide (2017), as well as site specific processes established by Halifax Regional Municipality (HRM), and is summarized below.

Sample Load Identification

Residential curbside collection is divided into eight collection areas in HRM and condominium properties which are also considered to be residential. The geographic descriptions of the various areas are described in Table A, below.

Table A: Collection Area Descriptions

Waste Collection Area	Area Description
1	Halifax (former city limits); Spryfield
2	Dartmouth (former city limits)
3	Bedford; Hammonds Plains; Pockwock
4	Beechville-Timberlea; Herring Cove; Prospect; Peggy's Cove; St. Margaret's Bay to Hubbards
5	Sackville; Beaver Bank; Rall River; Waverley, Wellington; Dutch Settlement
6	Cole Harbour; Westphal; Cherry Brook; Eastern Passage; Cow Bay
7	Porters Lake; Lawrencetown; Chezzetcook; Lake Echo; Preston
8	Middle Musquodoboit; Musquodoboit Harbour; Elderbank; Sheet Harbour; Eastern Shore
Condos	Multi-residential style properties located in various communities

Based on residential curbside collection schedules for each specific collection area and the scheduled audit date and time, sample loads are selected ahead of time by HRM staff. A random number generator is used to choose which vehicle would be sampled.

The Alberta Provincial Waste Characterization Framework (2005) was reviewed and used to guide the number and weight of the samples to be collected. A minimum annual sample number of 40 samples is recommended, and as such, one sample from six curbside collection areas (Areas 3-8), two samples from two collection areas (Areas 1 and 2), and one sample from condos, for a total of 11 samples, were assessed as part of the November 2022 Performance Audit.

The selected loads were visually inspected on the tip floor upon arrival and photographs were taken as shown in the attached photo log. The following information was recorded for each load:

- Collection vehicle and route numbers
- Date/Time of arrival
- Date/Time sample taken
- Gross and tare weight of truck
- Weight of sample
- Number/type of bulky items observed
- Names of persons taking the sample
- Date/Time of sorting

Sample Size

Photographs of the auditing process are provided as Attachment 1. Once emptied from the vehicle, multiple sections of the load were selected in order to draw a sample that was representative of the load. Each sample was to contain a mix of clear and black bags. Containers shown in Photo 2 (Attachment 1) were used to collect a sample between 90 and 135 kg.

Records documenting the identifying information of each vehicle sampled (scale tickets - Attachment 2) and the Performance Audit Record field data sheets (Attachment 3) are also attached to this report.

Material Categories

The categories that were used to define the different types of compostable waste are consistent with the Approval and are outlined below in Table B.

Table B: Compostable Waste Sorting Categories

Category	Sub-Category	Examples
Fibre	Newsprint/Paper	The Chronicle Herald, The Coast, Masthead News, The Cobequid/Dartmouth/Cole Harbour Wire, flyers
	Corrugated Cardboard/Boxboard	Consumer boxes (e.g., from appliances, storage, filing, and shipping)

Category	Sub-Category	Examples
Organics	Food Waste (Putrescible)	Whole vegetables, fruit, meat, fish, leftover food waste, egg shells, peels, oils, bones, fat, packaged food if most of it consists of food
	Yard Waste	Grass, leaves, brush, branches, wood chips, soil

Materials which did not fall into one of the above noted categories were counted, weighed, and categorized as one of the following:

- Other garbage
- Household hazardous waste (HHW) including lead-acid (automotive) batteries, post-consumer paint products, ethylene glycol, used oil, used glycol, used oil filters, glycol containers, and oil containers.
- White goods (items such as toasters, microwaves, and coffee makers that would be mostly composed of metal materials that can be disposed of in garbage bags). It should be noted that the majority of white goods are not marketable from a recycling perspective.

Sorting Procedure

The sorting team consisted of several Mirror staff. All staff was briefed on the sorting protocols, including familiarity with example materials for each sorting category. Strum staff was designated as “Lead” and was responsible for quality control and data collection.

The audit space consisted of an open area set up with tables for sorting waste materials, containers clearly labeled for each of the waste categories, and digital scales for weighing the waste materials. The containers used for sorting were weighted prior to commencing the audit and recorded on the data sheets to allow for net sample weights to be determined.

To maintain consistency, the Lead was responsible for weighing and recording the data on dedicated data sheets for each area, each time a container was filled. The process continued for each respective area until the full sample was properly sorted and weighed.

Previous Assessments

An Initial Performance Audit was completed in May 2022 as detailed in the Initial Performance Audit report (dated June 22, 2022). Using the data collected during the May 2022 Performance Audit, the total compostable waste percentage ranged from a minimum of 3.27% to a maximum of 15.4%. For the May 2022 Waste Audit, the total weighted Compostable Waste Percentage was calculated as 8.01%.

An additional Performance Audit was completed in August 2022 (report dated November 4, 2022). Using the combined data collected during the May 2022 and August 2022 Performance Audits, the total compostable waste percentage ranged from a minimum of 4.69% to a maximum of 15.48%. For the May and August 2022 Waste Audits, the total weighted Compostable Waste Percentage was calculated as 10.81%.

Further details of the May 2022 and August 2022 Performance Audits are provided in the above-noted reports.

November 2022 Performance Audit Summary

A summary of the November 2022 Performance Audit completed at Otter Lake is provided below in Table C. As previously mentioned, the November 2022 Performance Audit field data sheets containing the data collected respective to each waste collection area during the audit are attached to this report as Attachment 3.

Table C: November 2022 Performance Audit Results

Waste Collection Area	Category Percentage (%)							
	Garbage/Residue	HHW	White Goods	Fibre - Newsprint /Paper	Fibre - Corrugated Cardboard	Organics - Food/ Putrescible Waste	Organics - Yard Waste	Total Compostable Waste
1A	75.23%	1.01%	0.00%	6.06%	2.39%	14.77%	0.00%	23.22%
1B	78.36%	0.36%	5.71%	1.21%	1.93%	7.79%	4.07%	15.00 %
2A	86.84%	0.53%	1.05%	1.05%	6.11%	5.89%	2.53%	15.58%
2B	79.23%	0.66%	0.55%	1.75%	0.87%	15.30%	0.00%	17.92%
3	82.67%	0.00%	2.57%	0.69%	2.57%	11.58%	0.00%	14.84%
4	85.07%	1.00%	2.69%	1.09%	0.70%	9.85%	0.00%	11.64%
5	84.44%	0.31%	1.01%	0.78%	4.90%	8.17%	0.16%	14.01%
6	79.87%	0.13%	4.09%	0.77%	1.21%	13.55%	0.13%	15.66%
7	80.77%	1.03%	0.34%	1.20%	3.08%	12.99%	0.60%	17.87%
8	90.10%	0.10%	1.49%	0.99%	0.99%	5.74%	0.30%	8.02%
Condos	86.11%	0.69%	1.94%	4.03%	4.17%	3.47%	0.56%	12.23%

Notes: 1. Total compostable waste percentage based on aggregate of four compostable waste category percentages.

Using the data in Table C above, the total compostable waste percentage ranged from a minimum of 8.02% (Area 8) to a maximum of 23.22% (Area 1A), with a mean of 15.09% based on the 11 samples collected during the November 2022 Performance Audit.

Average Total Compostable Waste Percentage

A summary of the Total Compostable Waste percentage for the May 2022, August 2022, and November 2022 Performance Audits completed at Otter Lake is provided below in Table D. Using this data, the Average Total Compostable Waste percentage was calculated for each area.

Table D: Average Total Compostable Waste Percentage

Waste Collection Area	May 2022 Total Compostable Waste	August 2022 Total Compostable Waste	November 2022 Total Compostable Waste	November 2022 Total Compostable Waste - Secondary Samples	Average Total Compostable Waste Per Area
1	15.40%	13.09%	23.22%	15.00%	16.68%
2	10.44%	20.52%	15.58%	17.92%	16.12%
3	3.87%	19.32%	14.84%	-	12.68%
4	3.27%	12.39%	11.74%	-	9.13%
5	6.34%	12.03%	14.01%	-	10.79%
6	3.39%	5.98%	15.66%	-	8.34%
7	3.96%	7.80%	17.87%	-	9.88%
8	6.90%	16.40%	8.02%	-	10.44%
Condos	10.54%	13.20%	12.23%	-	11.99%

Notes: 1. Average total compostable waste percentage per area based on May 2022, August 2022, and November 2022 Waste Audit Total Compostable Waste percentages.
 2. Secondary samples collected from Areas 1 and 2 during November 2022 Waste Audit.

Using the data in Table D above, the average total compostable waste percentage ranges from a minimum of 8.34% (Area 6) to a maximum of 16.68% (Area 1), with a mean of 11.78% based on a total of 29 samples being collected during the May 2022, August 2022, and November 2022 Performance Audits.

Overall Compostable Waste

November 2022

As shown in Table E below, given the November 2022 total compostable waste percentage per area and the three year average of waste tonnage per area, the estimated compostable waste tonnage per year has been calculated. Using the total of the Estimated Annual Compostable Waste (7408.10 tonnes) and the three year waste average total (48,923.20 tonnes), the Compostable Waste Percentage is calculated to be 15.14%. Supporting data is provided as Table 1 (Attachment 4).

Table E: Estimated Annual Compostable Waste based on November 2022 Data

Waste Collection Area	Three Year Waste Average (Tonnes)	November 2022 Total Compostable Waste	Estimated Annual Compostable Waste (Tonnes)
1	9918.30	19.11%*	1895.39
2	6866.42	16.75%*	1150.13
3	4358.45	14.84%	646.79
4	5304.70	11.64%	617.47
5	8372.02	14.01%	1172.92
6	5130.17	15.66%	803.38
7	2962.13	17.87%	529.33
8	3383.67	8.02%	271.37
Condos	2627.33	12.23%	321.32
TOTAL	48923.20	N/A	7408.10
Compostable Waste Percentage = (7408.10/48923.20) X 100 = 15.14%			

Notes: 1. Data used to calculate three year average provided by Mirror and included tonnage from the fiscal years 2019/2020, 2020/2021, and 2021/2022.
 2. * November 2022 Total Compostable Waste percentages for Areas 1 and 2 are based on average of the two samples (A and B) collected from each respective area during the November 2022 waste audit.

Based on the data in Table E above, the Estimated Annual Compostable Waste per area ranges from a minimum of 271.37 tonnes (Area 8) to a maximum of 1895.39 tonnes (Area 1), with a mean of 823.12 tonnes.

May, August, and November 2022

As shown in Table F below, given the average (May, August, and November 2022) total compostable waste percentage per area and the three year average of waste tonnage per area, the estimated compostable waste tonnage per year has been calculated. Using the totals of the Estimated Annual Compostable Waste (6088.75 tonnes) and the three year waste average total (48,923.20 tonnes), the Compostable Waste Percentage is calculated to be 12.45%. Supporting data is provided as Table 2 (Attachment 4).

Table F: Estimated Annual Compostable Waste based on May, August, and November 2022 Data

Waste Collection Area	Three Year Waste Average (Tonnes)	Three Year Waste Average (% Total)	Average Total Compostable Waste % Per Area	Estimated Annual Compostable Waste (Tonnes)
1	9918.30	20.27%	16.68%	1654.37
2	6866.42	14.04%	16.12%	1106.87
3	4358.45	8.91%	12.68%	552.65
4	5304.70	10.84%	9.10%	482.73
5	8372.02	17.11%	10.79%	903.34
6	5130.17	10.49%	8.34%	427.86
7	2962.13	6.05%	9.88%	292.66
8	3383.67	6.92%	10.44%	353.26
Condos	2627.33	5.37%	11.99%	315.02
TOTAL	48923.20	100.00%	N/A	6088.75
Compostable Waste Percentage = (6088.75/48923.20) X 100 = 12.45%				

Notes: 1. Data used to calculate three year average provided by Mirror and included tonnage from the fiscal years 2019/2020, 2020/2021, and 2021/2022.

Based on the data in Table F above, the Estimated Annual Compostable Waste per area ranges from a minimum of 292.66 tonnes (Area 7) to a maximum of 1654.37 tonnes (Area 1), with a mean of 676.53 tonnes.

Descriptive Statistics

A descriptive statistical analysis was completed on the Estimated Annual Compostable Waste tonnage calculated per area from the May 2022, August 2022, and November 2022 Performance Audits. The statistical analysis was completed using the Microsoft Excel Analysis ToolPak Descriptive Statistics analysis tool. Supporting data for the statistical analysis is provided as Tables 3 and 4 (Attachment 4).

At 95% confidence interval, the Estimated Average Annual Compostable Waste tonnage per area is calculated to be between 476.36 tonnes (lower bound) and 855.90 tonnes (upper bound). The confidence interval was calculated by subtracting/adding the calculated 95% confidence level (189.77) from the mean (666.13 tonnes).

By dividing the lower bound (476.36 tonnes) and upper bound (855.90 tonnes) of the 95% confidence interval by the Total Estimated Annual Compostable Waste (6090.35 tonnes), and multiplying the values by 100%, the percentage of Estimated Annual Compostable Waste is calculated to be between 7.82% and 14.05%.

The above noted statistical analysis is based on a total of 29 samples collected during the May 2022, August 2022, and November 2022 Performance Audits. As additional sampling will be completed during future audits, it is expected that the statistical data will vary as more data becomes available.

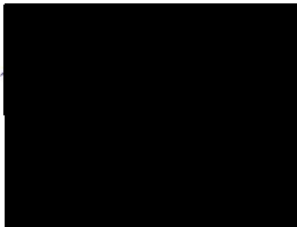
Closure

This report was prepared by [REDACTED], Project Manager. Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report.

This Report and any use of the Report is subject to the terms herein (see attached Statement of Qualifications and Limitations).

If you have any questions, please contact us.

Thank you,



Statement of Qualifications and Limitations

This Report (the "Report") has been prepared by Strum Consulting ("Consultant") for the benefit of Mirror Nova Scotia Limited ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

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- as required by law
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ATTACHMENT 1
PHOTOGRAPH LOG



Photo 1: Waste collection vehicle unloading waste collected from HRM collection Area 1. Photo taken on November 16, 2022.



Photo 2: Waste audit sample collected from HRM collection Area 1. Photo taken on November 28, 2022 during waste audit.



Photo 3: Sorting process and fiber OCC bin of HRM collection Area 1. Photo taken November 28, 2022 during waste audit.



Photo 4: Food waste bin sorted from HRM collection Area 1. Photo taken November 28, 2022 during waste audit.



Photo 5: Waste pile from HRM collections Area 2.
Photo collected November 23, 2022



Photo 6: Waste audit sample from HRM collection Area 2.
Photo collected November 28, 2022.



Photo 7: Waste sample collected from HRM collection Area 2 following sorting.
Photo taken on November 28, 2022 during waste audit.



Photo 8: Newsprint/ paper bin sorted from HRM collection Area 2.
Photo taken November 28, 2022 during waste audit.



Photo 9: Waste collection vehicle unloading waste collected from HRM collection Area 3. Photo taken on November 17, 2022.



Photo 10: Waste audit sample from HRM collection Area 3. Photo collected November 28, 2022 during waste audit.



Photo 11: Waste audit sample from HRM collection Area 3 following sorting. Photo collected November 28, 2022 during waste audit.



Photo 12: Food waste sorted from HRM collection Area 3. Photo taken November 28, 2022 during waste audit.



Photo 13: Waste collection vehicle unloading waste collected from HRM collection Area 4. Photo taken on November 23, 2022.

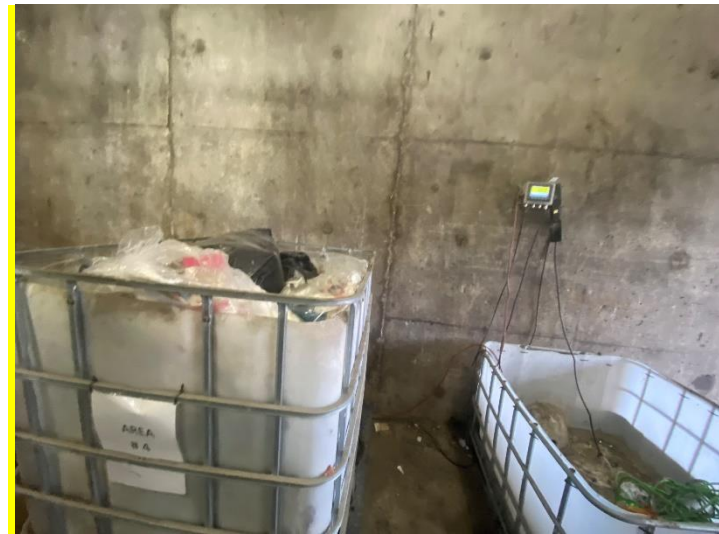


Photo 14: Waste audit sample from HRM collection Area 4. Photo collected November 28, 2022 during waste audit.



Photo 15: Paper waste bin sorted from HRM collection Area 4. Photo taken November 28, 2022 during waste audit.



Photo 16: Yard waste bin sorted from HRM collection Area 4. Photo taken November 28, 2022 during waste audit.



Photo 17: Waste collection vehicle unloading waste collected from HRM collection Area 5. Photo taken on November 17, 2022.



Photo 18: Waste audit sample from HRM collection Area 5. Photo collected November 28, 2022.



Photo 19: 10 Kg bag of construction waste separated from HRM collection Area 5. Photo taken November 28, 2022 during waste audit.



Photo 20: Waste sample from HRM collection Area 5 following sorting. Photo taken November 28, 2022 during waste audit.



Photo 21: Waste collection vehicle unloading waste collected from HRM collection Area 6. Photo taken on November 17, 2022.



Photo 22: Waste pile from HRM collection Area 6. Photo collected November 28, 2022.



Photo 23: Food waste bin separated from HRM collection Area 6. Photo taken November 28, 2022 during waste audit.



Photo 24: Fiber OCC bin separated from HRM collection Area 6. Photo taken November 28, 2022 during waste audit.



Photo 25: Waste collection vehicle unloading waste collected from HRM collection Area 7. Photo taken on November 23, 2022.



Photo 26: Waste from HRM collection Area 7. Photo collected November 23, 2022.



Photo 27: Food waste bin separated from HRM collection Area 7. Photo taken November 28, 2022 during waste audit.



Photo 28: Waste sample from HRM collection Area 7 following sorting. Photo taken November 28, 2022 during waste audit.



Photo 29: Waste collection vehicle unloading waste collected from HRM collection Area 8. Photo taken on November 23, 2022.



Photo 30: Waste audit sample from HRM collection Area 8. Photo collected November 28, 2022.



Photo 31: HSW waste bin separated from HRM collection Area 8. Photo taken November 28, 2022 during waste audit.



Photo 32: Waste sample from HRM collection Area 8 following sorting. Photo taken November 28, 2022 during waste audit.

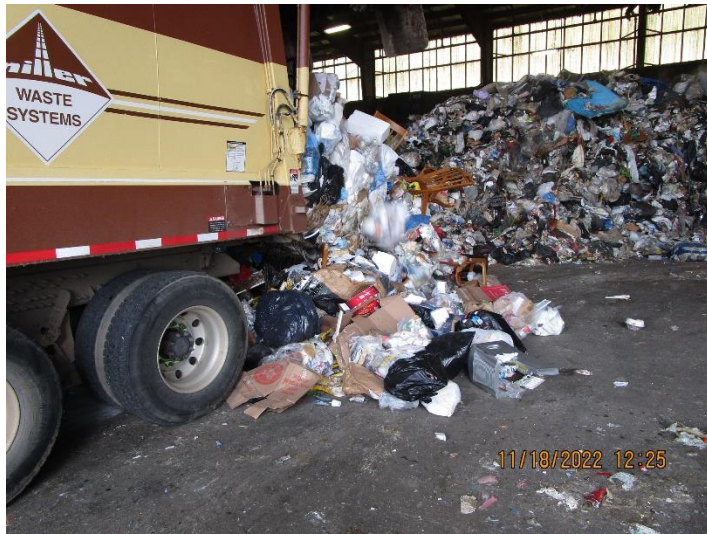


Photo 33: Waste collection vehicle unloading waste collected from HRM collection Area 9 (Condos). Photo taken on November 18, 2022.



Photo 34: Waste audit sample from HRM collection Area 9 (Condos). Photo collected November 28, 2022.



Photo 35: 17kg black bag of construction waste separated from HRM collection Area 9 (Condos). Photo taken November 28, 2022 during waste audit.



Photo 36: Waste sample from HRM collection Area 9 (Condos) following sorting. Photo taken November 28, 2022 during waste audit.

ATTACHMENT 2
SCALE TICKETS

Halifax Regional Municipality

Scale Slip: 081582
11/17/2022 11:56:48
Clerk: Shelley

Vehicle ID: RE1034
License Plate: 56-949-D
Waste Type: residential
Origin: 1 HALIFAX
Invoice: 0400927
Royal Environmental Group

Gross Weight: 26,310 (kg)
Tare Weight: 16,510 (kg)
Net Weight: 9,800 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Scale Slip: 081531
11/16/2022 12:09:54
Clerk: DMS

Vehicle ID: RE1037
License Plate: 56-926-D
Waste Type: residential
Origin: 1 HALIFAX
Invoice: 0400927
Royal Environmental Group

Gross Weight: 25,980 (kg)
Tare Weight: 16,490 (kg)
Net Weight: 9,490 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Vehicle ID: RE2091
License Plate: PR41474
Waste Type: residential
Origin: 2 DARTMOUTH
Invoice: 0400927
Royal Environmental Group

Scale Slip: 081718
11/22/2022 12:37:01
Clerk: DMS

Gross Weight: 23,600 (kg)
Tare Weight: 16,120 (kg)
Net Weight: 7,480 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Vehicle ID: RE1043
License Plate: 57423D
Waste Type: residential
Origin: 2 DARTMOUTH
Invoice: 0400927
Royal Environmental Group

Scale Slip: 081785
11/23/2022 16:30:27
Clerk: DMS

Gross Weight: 21,570 (kg)
Tare Weight: 16,470 (kg)
Net Weight: 5,100 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Vehicle ID: RE1040
License Plate: 57420D
Waste Type: residential
Origin: 3 BEDFORD/HAMMONDS PLAINS
Invoice: 0400927
Royal Environmental Group

Scale Slip: 081761
11/23/2022 12:17:03
Clerk: DMS

Gross Weight: 25,420 (kg)
Tare Weight: 16,530 (kg)
Net Weight: 8,890 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Vehicle ID: GFL007
License Plate: 45362D
Waste Type: residential
Origin: 4 WESTERN COUNTY
Invoice: 0402150
GFL Environmental Inc

Scale Slip: 081776
11/23/2022 14:35:50
Clerk: DMS

Gross Weight: 28,200 (kg)
Tare Weight: 16,780 (kg)
Net Weight: 11,420 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Scale Slip: 081574
11/17/2022 10:09:39
Clerk: Shelley

Vehicle ID: RE1029
License Plate: 55-318-D
Waste Type: residential
Origin: 5 SACKVILLE/FALL RIVER
Invoice: 0400927
Royal Environmental Group

Gross Weight: 26,240 (kg)
Tare Weight: 16,510 (kg)
Net Weight: 9,730 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Vehicle ID: RE1041
License Plate: 57-421-D
Waste Type: residential
Origin: 6 COLE HARBOUR/EASTERN PASSAGE
Invoice: 0400927
Royal Environmental Group

Scale Slip: 081640
11/18/2022 13:01:46
Clerk: Shelley

Gross Weight: 26,670 (kg)
Tare Weight: 16,500 (kg)
Net Weight: 10,170 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Scale Slip: 081781
11/23/2022 15:40:01
Clerk: DMS

Gross Weight: 26,810 (kg)
Tare Weight: 17,190 (kg)
Net Weight: 9,620 (kg)

Total: \$0.00
\$0.00

Vehicle ID: MW9519
License Plate: 56245D
Waste Type: residential
Origin: PRESTON/LAWRENCETOWN/LAKE ECHO
Invoice: 0188466
MILLER WASTE SYSTEMS

Halifax Regional Municipality

Vehicle ID: ES8183
License Plate: 51811D
Waste Type: residential
Origin: 8 EASTERN COUNTY
Invoice: 0028092
EASTERN SHORE CARTAGE

Scale Slip: 081771
11/23/2022 13:40:01
Clerk: DMS

Gross Weight: 23,100 (kg)
Tare Weight: 16,740 (kg)
Net Weight: 6,360 (kg)

Total: \$0.00
\$0.00

Halifax Regional Municipality

Vehicle ID: MW4117
License Plate: 50123D
Waste Type: residential
Origin: BEDFORD SACKVILLE CONDOS
Invoice: 0188466
MILLER WASTE SYSTEMS

Scale Slip: 081628
11/18/2022 11:32:38
Clerk: Shelley

Gross Weight: 20,260 (kg)
Tare Weight: 17,480 (kg)
Net Weight: 2,780 (kg)

Total: \$0.00
\$0.00

ATTACHMENT 3
FIELD DATA SHEETS

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 1 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1037
Collection Area	1
Date	16-Nov-22
Ticket Time	12:09
Gross Weight	25,980
Tare Weight	16,490
Net Weight	9490

KG
KG
KG

Weight of Gross Sample 159 KG
Weight of Tote Bin 50 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 109 KG **Sample Audit Time Started** 9am
Number of Bulkies Observed - **Sample Audit Time Completed** 9:30am

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	50.00	132.00	-	82.00
Fibre - Newsprint/Paper	2.20	7.00	1.80	6.60
Fibre - OCC	2.20	2.90	1.90	2.60
Food/Putrescible Waste	2.20	11.90	6.40	16.10
Yard Waste	1.10	1.10	-	0.00
HSW	1.10	2.20	-	1.10
White Goods	0.00	-	-	0.00

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	132.00	50.00	82.00	75.23
Fibre - Newsprint/Paper	8.80	2.20	6.60	6.06
Fibre - OCC	4.80	2.20	2.60	2.39
Food/Putrescible Waste	2.20	1.10	16.10	14.77
Yard Waste	0.00	0.00	0.00	0.00
HSW	0.00	0.00	1.10	1.01
White Goods	0.00	0.00	0.00	0.00
Lost or Gained Mass	Combined Weight Following Sorting			100.00
	159.00			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area Area 1B (Black and Clear Bags) **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1034	
Collection Area	1	
Date	17-Nov-22	
Ticket Time	11:56	
Gross Weight	26,310	KG
Tare Weight	16,510	KG
Net Weight	9800	KG

Weight of Gross Sample 186 KG
Weight of Tote Bin 46 KG **Date of Audit of Sample** Nov 28, 2022
Net Sample of Trash 140 KG **Sample Audit Time Started** 11am
Number of Bulkies Observed - **Sample Audit Time Completed** 11:25am

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	46.00	108.70	47.00	109.70
Fibre - Newsprint/Paper	4.40	2.50	3.60	1.70
Fibre - OCC	4.40	2.80	4.30	2.70
Food/Putrescible Waste	3.30	4.90	9.30	10.90
Yard Waste	1.10	0.00	6.80	5.70
HSW	2.20	1.20	1.50	0.50
White Goods	2.20	8.60	1.60	8.00

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	155.70	46.00	109.70	78.36
Fibre - Newsprint/Paper	6.10	4.40	1.70	1.21
Fibre - OCC	7.10	4.40	2.70	1.93
Food/Putrescible Waste	2.70	3.30	10.90	7.79
Yard Waste	10.20	1.10	5.70	4.07
HSW	0.00	2.20	0.50	0.36
White Goods	10.20	2.20	8.00	5.71
Lost or Gained Mass	Combined Weight Following Sorting			100.27
	186.50			

Notes: Net Sample represents the black bag portion of Area 1 Load 2.
Combined weight following sorting calculated after combining Black and Clear bag sorted waste.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area Area 1 Load 2 Black Bags **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1034
Collection Area	1
Date	17-Nov-22
Ticket Time	11:56
Gross Weight	26,310
Tare Weight	16,510
Net Weight	9800

KG
KG
KG

Weight of Gross Sample 186 KG
Weight of Tote Bin 46 KG **Date of Audit of Sample** Nov 28, 2022
Net Sample of Trash 80 KG **Sample Audit Time Started** 11am
Number of Bulkies Observed - **Sample Audit Time Completed** 11:25am

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	46.00	108.70	-	62.70
Fibre - Newsprint/Paper	2.20	1.80	1.80	1.40
Fibre - OCC	2.20	2.50	1.80	2.10
Food/Putrescible Waste	2.20	4.70	4.60	7.10
Yard Waste	1.10	6.80	-	5.70
HSW	1.10	1.50	-	0.40
White Goods	1.10	1.60	-	0.50

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	108.70	46.00	62.70	78.38
Fibre - Newsprint/Paper	3.60	2.20	1.40	1.75
Fibre - OCC	4.30	2.20	2.10	2.63
Food/Putrescible Waste	1.50	1.10	7.10	8.88
Yard Waste	1.60	1.10	5.70	7.13
HSW	0.00	0.00	0.40	0.50
White Goods	1.60	1.10	0.50	0.63
Lost or Gained Mass	Combined Weight Following Sorting			100.27
	186.50			

Notes: Net Sample represents the black bag portion of Area 1 Load 2.
Combined weight following sorting calculated after combining Black and Clear bag sorted waste.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area Area 1 Load 2 Clear Bags **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1034
Collection Area	1
Date	17-Nov-22
Ticket Time	11:56
Gross Weight	26,310
Tare Weight	16,510
Net Weight	9800

KG
KG
KG

Weight of Gross Sample 186 KG
Weight of Tote Bin 126 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 60 KG **Sample Audit Time Started** 11am
Number of Bulkies Observed - **Sample Audit Time Completed** 11:25am

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	126.00	173.00	-	47.00
Fibre - Newsprint/Paper	2.20	1.20	1.30	0.30
Fibre - OCC	2.20	1.40	1.40	0.60
Food/Putrescible Waste	1.10	4.90	-	3.80
Yard Waste	0.00	-	-	0.00
HSW	1.10	1.20	-	0.10
White Goods	1.10	8.60	-	7.50

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	173.00	126.00	47.00	78.33
Fibre - Newsprint/Paper	2.50	2.20	0.30	0.50
Fibre - OCC	2.80	2.20	0.60	1.00
Food/Putrescible Waste	1.20	1.10	3.80	6.33
Yard Waste	8.60	1.10	0.00	0.00
HSW	0.00	0.00	0.10	0.17
White Goods	8.60	1.10	7.50	12.50
Lost or Gained Mass	Combined Weight Following Sorting			100.27
	186.50			

Notes: Combined weight following sorting calculated after combining Black and Clear bag sorted waste.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 2 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1043
Collection Area	2
Date	23-Nov-22
Ticket Time	16:30
Gross Weight	21,570
Tare Weight	164,470
Net Weight	5100

KG
KG
KG

Weight of Gross Sample 146 KG
Weight of Tote Bin 51 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 95 KG **Sample Audit Time Started** 9:35am
Number of Bulkies Observed - **Sample Audit Time Completed** 10:30am

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	51.00	133.50	-	82.50
Fibre - Newsprint/Paper	2.20	1.90	1.30	1.00
Fibre - OCC	2.20	3.70	4.30	5.80
Food/Putrescible Waste	2.20	2.70	5.10	5.60
Yard Waste	1.10	3.50	-	2.40
HSW	1.10	1.60	-	0.50
White Goods	1.10	2.10	-	1.00

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	133.50	51.00	82.50	86.84
Fibre - Newsprint/Paper	3.20	2.20	1.00	1.05
Fibre - OCC	8.00	2.20	5.80	6.11
Food/Putrescible Waste	1.60	1.10	5.60	5.89
Yard Waste	2.10	1.10	2.40	2.53
HSW	0.00	0.00	0.50	0.53
White Goods	2.10	1.10	1.00	1.05
Lost or Gained Mass	Combined Weight Following Sorting			108.90
	159.00			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area Area 2B (Black and Clear Bags) **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE2091	
Collection Area	2	
Date	22-Nov-22	
Ticket Time	12:37	
Gross Weight	23,600	KG
Tare Weight	16,120	KG
Net Weight	7480	KG

Weight of Gross Sample 142.5 KG
Weight of Tote Bin 51 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 91.5 KG **Sample Audit Time Started** 11:45am
Number of Bulkies Observed - **Sample Audit Time Completed** 12pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	51.00	84.00	39.50	72.50
Fibre - Newsprint/Paper	2.20	1.90	1.90	1.60
Fibre - OCC	2.20	1.50	1.50	0.80
Food/Putrescible Waste	4.40	6.00	12.40	14.00
Yard Waste	0.00	-	-	0.00
HSW	2.20	1.50	1.30	0.60
White Goods	1.10	1.60	-	0.50

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	123.50	51.00	72.50	79.23
Fibre - Newsprint/Paper	3.80	2.20	1.60	1.75
Fibre - OCC	3.00	2.20	0.80	0.87
Food/Putrescible Waste	2.80	4.40	14.00	15.30
Yard Waste	1.60	0.00	0.00	0.00
HSW	0.00	2.20	0.60	0.66
White Goods	1.60	1.10	0.50	0.55
Lost or Gained Mass	Combined Weight Following Sorting			99.65
	142.00			

Notes: Net Sample represents the black bag portion of Area 2 Load 2.
Combined weight following sorting calculated after combining Black and Clear bag sorted waste.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area Area 2 Load 2 Black Bags **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE2091
Collection Area	2
Date	22-Nov-22
Ticket Time	12:37
Gross Weight	23,600
Tare Weight	16,120
Net Weight	7480

KG
KG
KG

Weight of Gross Sample 142.5 KG
Weight of Tote Bin 51 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 44.5 KG **Sample Audit Time Started** 11:45am
Number of Bulkies Observed - **Sample Audit Time Completed** 12pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	51.00	84.00	-	33.00
Fibre - Newsprint/Paper	1.10	1.90	-	0.80
Fibre - OCC	1.10	1.50	-	0.40
Food/Putrescible Waste	2.20	7.00	5.40	10.20
Yard Waste	0.00	-	-	0.00
HSW	1.10	1.30	-	0.20
White Goods	0.00	-	-	0.00

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	84.00	51.00	33.00	74.16
Fibre - Newsprint/Paper	1.90	1.10	0.80	1.80
Fibre - OCC	1.50	1.10	0.40	0.90
Food/Putrescible Waste	1.30	1.10	10.20	22.92
Yard Waste	0.00	0.00	0.00	0.00
HSW	0.00	0.00	0.20	0.45
White Goods	0.00	0.00	0.00	0.00
Lost or Gained Mass	Combined Weight Following Sorting			99.65
	142.00			

Notes: Net Sample represents the black bag portion of Area 2 Load 2.
Combined weight following sorting calculated after combining Black and Clear bag sorted waste.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area Area 2 Load 2 Clear Bags **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE2091
Collection Area	2
Date	22-Nov-22
Ticket Time	12:37
Gross Weight	23,600
Tare Weight	16,120
Net Weight	7480

KG
KG
KG

Weight of Gross Sample 142.5 KG
Weight of Tote Bin 95.5 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 47 KG **Sample Audit Time Started** 12:30pm
Number of Bulkies Observed - **Sample Audit Time Completed** 12:45pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	95.50	135.00	-	39.50
Fibre - Newsprint/Paper	1.10	1.90	-	0.80
Fibre - OCC	1.10	1.50	-	0.40
Food/Putrescible Waste	2.20	2.90	3.10	3.80
Yard Waste	0.00	-	-	0.00
HSW	1.10	1.50	-	0.40
White Goods	1.10	1.60	-	0.50

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	135.00	95.50	39.50	84.04
Fibre - Newsprint/Paper	1.90	1.10	0.80	1.70
Fibre - OCC	1.50	1.10	0.40	0.85
Food/Putrescible Waste	1.50	1.10	3.80	8.09
Yard Waste	1.60	1.10	0.00	0.00
HSW	0.00	0.00	0.40	0.85
White Goods	1.60	1.10	0.50	1.06
Lost or Gained Mass	Combined Weight Following Sorting			99.65
	142.00			

Notes: Combined weight following sorting calculated after combining Black and Clear bag sorted waste.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 3 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1040
Collection Area	3
Date	23-Nov-22
Ticket Time	12:17
Gross Weight	25,420
Tare Weight	16,530
Net Weight	8890

KG
KG
KG

Weight of Gross Sample 151.5 KG
Weight of Tote Bin 50.5 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 101 KG **Sample Audit Time Started** 10:30am
Number of Bulkies Observed - **Sample Audit Time Completed** 11am

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	50.50	134.00	-	83.50
Fibre - Newsprint/Paper	2.20	1.70	1.20	0.70
Fibre - OCC	2.20	2.70	2.10	2.60
Food/Putrescible Waste	2.20	10.00	3.90	11.70
Yard Waste	1.10	1.10	-	0.00
HSW	0.00	-	-	0.00
White Goods	1.10	3.70	-	2.60

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	134.00	50.50	83.50	82.67
Fibre - Newsprint/Paper	2.90	2.20	0.70	0.69
Fibre - OCC	4.80	2.20	2.60	2.57
Food/Putrescible Waste	0.00	0.00	11.70	11.58
Yard Waste	3.70	1.10	0.00	0.00
HSW	0.00	0.00	0.00	0.00
White Goods	3.70	1.10	2.60	2.57
Lost or Gained Mass	Combined Weight Following Sorting			100.00
	151.50			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 4 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	GFL007
Collection Area	4
Date	23-Nov-22
Ticket Time	14:35
Gross Weight	28,200
Tare Weight	16,780
Net Weight	11420

KG
KG
KG

Weight of Gross Sample 151 KG
Weight of Tote Bin 50.5 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 100.5 KG **Sample Audit Time Started** 12:45pm
Number of Bulkies Observed - **Sample Audit Time Completed** 1:10pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	50.50	136.00	-	85.50
Fibre - Newsprint/Paper	1.10	2.20	-	1.10
Fibre - OCC	1.10	1.80	-	0.70
Food/Putrescible Waste	2.10	7.40	4.70	10.00
Yard Waste	1.10	1.10	-	0.00
HSW	1.10	2.10	-	1.00
White Goods	1.10	3.80	-	2.70

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	136.00	50.50	85.50	85.07
Fibre - Newsprint/Paper	2.20	1.10	1.10	1.09
Fibre - OCC	1.80	1.10	0.70	0.70
Food/Putrescible Waste	2.10	1.10	10.00	9.95
Yard Waste	3.80	1.10	0.00	0.00
HSW	0.00	0.00	1.00	1.00
White Goods	3.80	1.10	2.70	2.69
Lost or Gained Mass	Combined Weight Following Sorting			100.33
	151.50			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 5 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1029
Collection Area	5
Date	17-Nov-22
Ticket Time	10:09
Gross Weight	26,240
Tare Weight	16,510
Net Weight	9730

KG
KG
KG

Weight of Gross Sample 178 KG
Weight of Tote Bin 49.5 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 128.5 KG **Sample Audit Time Started** 1:10pm
Number of Bulkies Observed - **Sample Audit Time Completed** 1:30pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	49.50	158.00	-	108.50
Fibre - Newsprint/Paper	1.10	2.10	-	1.00
Fibre - OCC	2.20	3.80	4.70	6.30
Food/Putrescible Waste	2.20	6.10	6.60	10.50
Yard Waste	1.10	1.30	-	0.20
HSW	1.10	1.50	-	0.40
White Goods	1.10	2.40	-	1.30

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	158.00	49.50	108.50	84.44
Fibre - Newsprint/Paper	2.10	1.10	1.00	0.78
Fibre - OCC	8.50	2.20	6.30	4.90
Food/Putrescible Waste	1.50	1.10	10.50	8.17
Yard Waste	2.40	1.10	0.20	0.16
HSW	0.00	0.00	0.40	0.31
White Goods	2.40	1.10	1.30	1.01
Lost or Gained Mass	Combined Weight Following Sorting			89.33
	159.00			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 6 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	RE1040
Collection Area	6
Date	18-Nov-22
Ticket Time	13:01
Gross Weight	26,670
Tare Weight	16,500
Net Weight	10170

KG
KG
KG

Weight of Gross Sample 206.5 KG
Weight of Tote Bin 50 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 156.5 KG **Sample Audit Time Started** 1.35pm
Number of Bulkies Observed - **Sample Audit Time Completed** 2pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	50.00	175.00	-	125.00
Fibre - Newsprint/Paper	1.10	2.30	-	1.20
Fibre - OCC	2.20	2.20	1.90	1.90
Food/Putrescible Waste	2.20	7.00	16.40	21.20
Yard Waste	1.10	1.30	-	0.20
HSW	1.10	1.30	-	0.20
White Goods	1.10	7.50	-	6.40

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	175.00	50.00	125.00	79.87
Fibre - Newsprint/Paper	2.30	1.10	1.20	0.77
Fibre - OCC	4.40	2.20	1.90	1.21
Food/Putrescible Waste	1.30	1.10	21.20	13.55
Yard Waste	7.50	1.10	0.20	0.13
HSW	0.00	0.00	0.20	0.13
White Goods	7.50	1.10	6.40	4.09
Lost or Gained Mass	Combined Weight Following Sorting			99.76
	206.00			

Notes: Cat litter and food wrappers found in 16.4kg sorted food bin.

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 7 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	MW9519
Collection Area	7
Date	23-Nov-22
Ticket Time	15:40
Gross Weight	26,810
Tare Weight	17,190
Net Weight	9620

KG
KG
KG

Weight of Gross Sample 166.5 KG

Weight of Tote Bin 49.5 KG **Date of Audit of Sample** 28-Nov-22

Net Sample of Trash 117 KG **Sample Audit Time Started** 2pm

Number of Bulkies Observed - **Sample Audit Time Completed** 2:30pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	49.50	144.00	-	94.50
Fibre - Newsprint/Paper	2.20	1.40	2.20	1.40
Fibre - OCC	2.20	1.60	4.20	3.60
Food/Putrescible Waste	2.20	10.00	7.40	15.20
Yard Waste	1.10	1.80	-	0.70
HSW	1.10	2.30	-	1.20
White Goods	1.10	1.50	-	0.40

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	144.00	49.50	94.50	80.77
Fibre - Newsprint/Paper	3.60	2.20	1.40	1.20
Fibre - OCC	5.80	2.20	3.60	3.08
Food/Putrescible Waste	2.30	1.10	15.20	12.99
Yard Waste	1.50	1.10	0.70	0.60
HSW	0.00	0.00	1.20	1.03
White Goods	1.50	1.10	0.40	0.34
Lost or Gained Mass	Combined Weight Following Sorting			100.00
	166.50			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 8 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	ES8183
Collection Area	8
Date	23-Nov-22
Ticket Time	13:40
Gross Weight	23,100
Tare Weight	16,740
Net Weight	6360

KG
KG
KG

Weight of Gross Sample 152 KG
Weight of Tote Bin 51 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 101 KG **Sample Audit Time Started** 2:30pm
Number of Bulkies Observed - **Sample Audit Time Completed** 3pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	51.00	142.00	-	91.00
Fibre - Newsprint/Paper	1.10	2.10	-	1.00
Fibre - OCC	1.10	2.10	-	1.00
Food/Putrescible Waste	1.10	6.90	-	5.80
Yard Waste	1.10	1.40	-	0.30
HSW	1.10	1.20	-	0.10
White Goods	1.10	2.60	-	1.50

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	142.00	51.00	91.00	90.10
Fibre - Newsprint/Paper	2.10	1.10	1.00	0.99
Fibre - OCC	2.10	1.10	1.00	0.99
Food/Putrescible Waste	1.20	1.10	5.80	5.74
Yard Waste	2.60	1.10	0.30	0.30
HSW	0.00	0.00	0.10	0.10
White Goods	2.60	1.10	1.50	1.49
Lost or Gained Mass	Combined Weight Following Sorting			99.34
	151.00			

Notes:

Performance Audit Record

Date November 28, 2022 **Name of Supervisor** Patrick Avery

Area 9 **Number of Sorters** 8

Weighscale Ticket Information

Truck Number/ID	MW4117
Collection Area	9
Date	18-Nov-22
Ticket Time	11:32
Gross Weight	20,260
Tare Weight	17,480
Net Weight	2780

KG
KG
KG

Weight of Gross Sample 122.5 KG
Weight of Tote Bin 50.5 KG **Date of Audit of Sample** 28-Nov-22
Net Sample of Trash 72 KG **Sample Audit Time Started** 3:05pm
Number of Bulkies Observed - **Sample Audit Time Completed** 3:30pm

Material	Empty Bin(s) Weight (KG)	Total Separated Sample Weights (KG)		Net Sample (KG)
		1	2	
Garbage/Residue	50.50	112.50	-	62.00
Fibre - Newsprint/Paper	2.20	3.10	2.00	2.90
Fibre - OCC	2.20	2.20	3.00	3.00
Food/Putrescible Waste	1.10	3.60	-	2.50
Yard Waste	1.10	1.50	-	0.40
HSW	1.10	1.60	-	0.50
White Goods	1.10	2.50	-	1.40

Material	Gross Sample (KG)	Total Weight of Bins (KG)	Net Sample (KG)	Net Waste Percentage (%)
Garbage/Residue	112.50	50.50	62.00	86.11
Fibre - Newsprint/Paper	5.10	2.20	2.90	4.03
Fibre - OCC	5.20	2.20	3.00	4.17
Food/Putrescible Waste	1.60	1.10	2.50	3.47
Yard Waste	2.50	1.10	0.40	0.56
HSW	0.00	0.00	0.50	0.69
White Goods	2.50	1.10	1.40	1.94
Lost or Gained Mass	Combined Weight Following Sorting			100.41
	123.00			

Notes: 17kg black bag of construction materials in waste.

ATTACHMENT 4
SUPPORTING DATA

Table 1: Total Compostable Waste Percentage Per Area (November 2022)

Project # 22-8641

Waste Collection Area	% Organics From November 28, 2022 Waste Audit	Average Based On Previous Three Fiscal Years (Tonnes)	Estimated Annual Compostable Waste (Tonnes)
1	19.11%	9918.30	1895.39
2	16.75%	6866.42	1150.13
3	14.84%	4358.45	646.79
4	11.64%	5304.70	617.47
5	14.01%	8372.02	1172.92
6	15.66%	5130.17	803.38
7	17.87%	2962.13	529.33
8	8.02%	3383.67	271.37
Condos	12.23%	2627.33	321.32
TOTAL		48923.19	7408.10

Mean	14.46%	-	823.12
Min	8.02%	-	271.37
Max	19.11%	-	1895.39

Compostable Waste Percentage	$(7408.10/48923.19)*100\% = 15.14\%$
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Notes: % Organic for Areas 1 and 2 are based on average of the two samples (A and B) collected from each respective area during the November 2022 waste audit.



Table 2: Average Total Compostable Waste Percentage Per Area (May, August, and November 2022)

Project # 22-8641

Waste Collection Area	% Organics From May 19, 2022 Baseline Audit	% Organics From August 30, 2022 Waste Audit	% Organics From November 28, 2022 Waste Audit	% Organics From November 28, 2022 Waste Audit - Secondary Samples	% Organics Average	Average Based On Previous Three Fiscal Years (Tonnes)	Estimated Annual Compostable Waste (Tonnes)
1	15.40%	13.09%	23.22%	15.00%	16.68%	9918.30	1654.37
2	10.44%	20.52%	15.58%	17.92%	16.12%	6866.42	1106.87
3	3.87%	19.32%	14.84%	-	12.68%	4358.45	552.65
4	3.27%	12.39%	11.64%	-	9.10%	5304.70	482.73
5	6.34%	12.03%	14.01%	-	10.79%	8372.02	903.34
6	3.39%	5.98%	15.66%	-	8.34%	5130.17	427.86
7	3.96%	7.80%	17.87%	-	9.88%	2962.13	292.66
8	6.90%	16.40%	8.02%	-	10.44%	3383.67	353.26
Condos	10.54%	13.20%	12.23%	-	11.99%	2627.33	315.02
TOTAL						48923.19	6088.75

Mean	11.78%	-	676.53
Min	8.34%	-	292.66
Max	16.68%	-	1654.37

Compostable Waste Percentage	$(6088.75/48923.19)*100\% = 12.45\%$
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Table 3: Estimated Annual Compostable Waste Per Area

Project # 22-8641

Audit	Waste Collection Area	% Organics	Average Waste Based On Previous Three Fiscal Years (Tonnes)	Estimated Annual Compostable Waste (Tonnes)
May 2022 Initial Performance Audit	1	15.40%	9918.30	1527.42
	2	10.44%	6866.42	716.85
	3	3.87%	4358.45	168.67
	4	3.27%	5304.70	173.46
	5	6.34%	8372.02	530.79
	6	3.39%	5130.17	173.96
	7	3.96%	2962.13	117.30
	8	6.90%	3383.67	233.47
	Condos	10.54%	2627.33	276.92
August 2022 Performance Audit	1	13.09%	9918.30	1298.31
	2	20.52%	6866.42	1408.99
	3	19.32%	4358.45	842.05
	4	12.39%	5304.70	657.25
	5	12.03%	8372.02	1007.15
	6	5.98%	5130.17	306.78
	7	7.80%	2962.13	231.05
	8	16.40%	3383.67	554.92
	Condos	13.20%	2627.33	346.81
November 2022 Performance Audit	1	19.11%	9918.30	1895.39
	2	16.75%	6866.42	1150.13
	3	14.84%	4358.45	646.79
	4	11.74%	5304.70	622.77
	5	14.01%	8372.02	1172.92
	6	15.66%	5130.17	803.38
	7	17.87%	2962.13	529.33
	8	8.02%	3383.67	271.37
	Condos	12.23%	2627.33	321.32
Mean	11.67%	-	666.13	
Min	3.27%	-	117.30	
Max	20.52%	-	1895.39	

Notes: November 2022 % Organic for Areas 1 and 2 are based on average of the two samples (A and B) collected from each respective area during the November 2022 waste audit.



Table 4: Descriptive Statistics**Project 22-8641**

Mean	666.1323781
Standard Error	92.32110254
Median	554.92188
Mode	#N/A
Standard Deviation	479.7145206
Sample Variance	230126.0213
Kurtosis	0.155236909
Skewness	0.9455022
Range	1778.086782
Minimum	117.300348
Maximum	1895.38713
Sum	17985.57421
Count	27
Confidence Level(95.0%)	189.7687441
Upper CI	855.9011222
Lower CI	476.3636341