



Water and Waste  
Eaux et déchets

ENVIRONMENTAL STANDARDS DIVISION

## 2022 BIOSOLIDS DEWATERING, MONITORING, DISPOSAL, AND MASTER PLAN UPDATE



ENVIRONMENT ACT LICENCE #1089E RR

January 2023



Water and Waste  
Eaux et déchets

**2022 BIOSOLIDS DEWATERING, MONITORING, DISPOSAL,  
AND MASTER PLAN UPDATE**

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**HEATHER DEMCHENKO, B. Sc.  
COMPLIANCE REPORTING TECHNICIAN**

**NANCY CRAWFORD, B. Sc.  
COMPLIANCE REPORTING BRANCH HEAD**

**RENÉE GROSSELLE, B. Sc.  
MANAGER OF ENVIRONMENTAL STANDARDS DIVISION**

**JANUARY 2023**



Water and Waste  
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## 2022 BIOSOLIDS DEWATERING, MONITORING, DISPOSAL, AND MASTER PLAN UPDATE

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## 2022 BIOSOLIDS DEWATERING, MONITORING, DISPOSAL, AND MASTER PLAN UPDATE

### 1.0 INTRODUCTION

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Environment Act Licence (EAL) #1089E RR, issued on June 14, 2000, requires that the City of Winnipeg monitor its biosolids dewatering and disposal operations and submit a report to the regulating authority and various municipalities on or before the 31st of January of each year.

Biosolids are an end product of sewage treatment, created when solids and sludge that are separated from wastewater are digested and dewatered. They are rich in nutrients and also contain metals and trace amounts of minerals.

Historically, the City of Winnipeg's biosolids were spread on agricultural fields to act as a fertilizer under a program known as WinGRO. In 2011, the allowable biosolids application rates were reduced. The existing WinGRO equipment could not operate at the reduced rates, and the program was discontinued as a result. From 2011 to 2014, all biosolids produced at the City of Winnipeg's North End Pollution Control Centre (NEWPCC) were disposed of at the Brady Road Resource Management Facility (BRRMF).

In 2014, the City of Winnipeg developed a Biosolids Master Plan<sup>1</sup> (BMP), a 30-year plan for maximizing the recovery and beneficial reuse of the nutrients contained in biosolids.

This report summarizes the results of the City's 2022 Biosolids Dewatering, Monitoring, and Disposal Program, and provides an update of activities taken in 2022 under the BMP. EAL #1089E RR was repealed on June 22, 2022 when Manitoba Environment, Climate and Parks (MECP) issued EAL #3377<sup>2</sup> for the land application of biosolids to agricultural lands, as such, this is the final report for EAL #1089E RR.



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### 2.0 BIOSOLIDS COMPOSITION AND DISTRIBUTION

From January 1, 2022 to December 31, 2022 the City produced 54,307 wet tonnes of anaerobically digested, mechanically-dewatered biosolids at the NEWPCC; the total solids in the biosolids averaged  $27.3 \pm 3.9\%$  ( $n = 255$ ). The dewatering equipment achieved a total solids content of at least 20 percent by weight in the biosolids for all samples.

Of the 54,307 wet tonnes of biosolids produced in 2022, approximately 15,767 wet tonnes were applied to agricultural land, 28,991 wet tonnes were used for soil fabrication at the Summit Landfill, 9,549 wet tonnes were used for soil fabrication at the BRRMF. No biosolids were landfilled or composted at the BRRMF in 2022. The temporary storage facility in the RM of West St. Paul was not used to provide interim storage for mechanically-dewatered biosolids in 2022 and will not be used for biosolids storage in the future.

The 2015-2022 Biosolids Distributions are shown in Figure 1, Table 1 contains analytical results for 2022 biosolids samples, and Appendix I contains the Monthly Hauling Summaries for 2022.

**FIGURE 1: 2015-2022 BIOSOLIDS DISTRIBUTION**

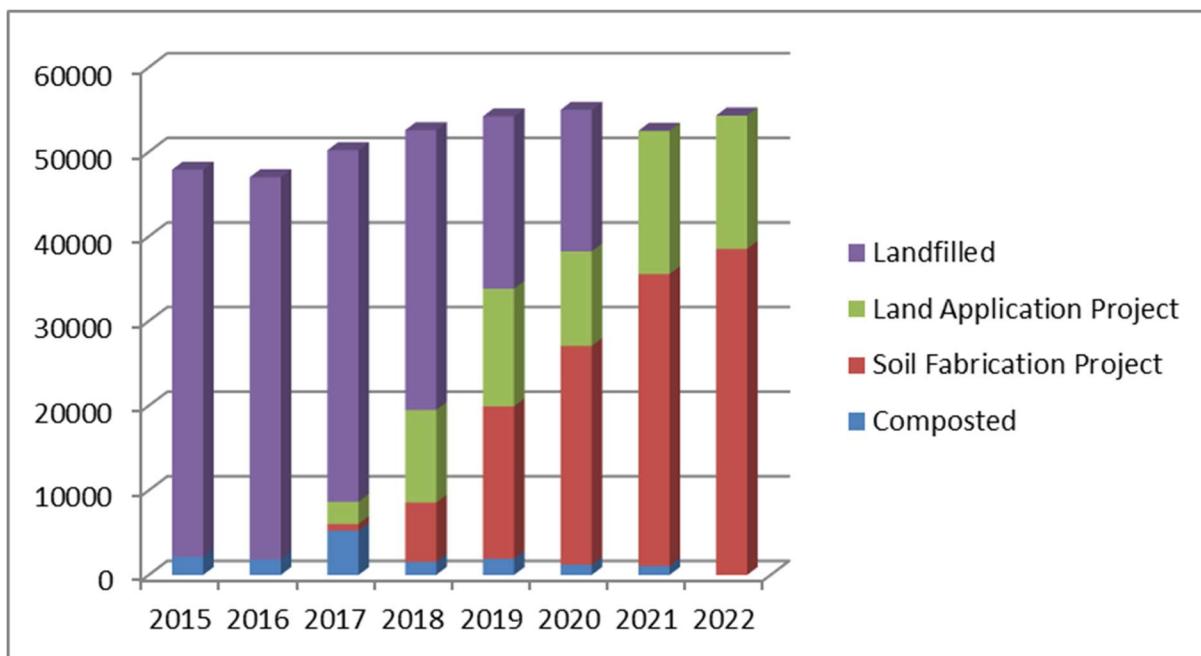




TABLE 1

2022 Biosolids Quality

Sample Number	Date Sampled *	Total Cd (mg/Kg-Cd)	Total Cr (mg/Kg-Cr)	Total Cu (mg/Kg-Cu)	Total Ni (mg/Kg-Ni)	Total Pb (mg/Kg-Pb)	Total Zn (mg/Kg-Zn)	Total P (mg/Kg-P)	NH3-N (mg/Kg-N)	TKN (mg/Kg-N)	pH (units)	Specific Conductance (uS/cm)	Moisture (%)
1	4-Jan-22	2.6	77	486	20.6	26.6	1,138	27,220	11,590	47,100	5.65	12,100	77.9
2	17-Jan-22	1.9	65	432	22.1	27.1	917	24,700	10,510	44,700	5.70	10,600	76.9
3	31-Jan-22	1.8	71	638	31.6	29.6	983	28,560	9,789	41,400	5.61	12,900	75.7
4	14-Feb-22	1.7	69	545	26.2	29.1	888	24,810	9,756	45,500	5.72	10,900	76.2
5	28-Feb-22	1.7	67	542	24.1	32.0	881	25,500	7,643	45,000	5.78	9,840	75.6
6	14-Mar-22	1.7	68	499	30.1	38.0	932	21,310	10,670	33,500	5.58	10,600	72.4
7	28-Mar-22	2.1	69	422	29.3	42.7	733	17,290	9,098	31,000	5.79	8,570	68.1
8	11-Apr-22	2.1	102	409	28.7	45.6	626	15,890	8,796	45,000	5.80	8,310	67.7
9	25-Apr-22	1.7	109	407	30.8	60.0	664	14,760	8,061	29,100	5.97	7,970	66.1
10	9-May-22	1.7	113	385	32.6	69.5	876	14,070	8,288	27,100	5.81	8,090	66.3
11	24-May-22	1.5	111	364	32.7	73.5	1,205	13,830	8,346	27,000	5.91	7,120	65.9
12	6-Jun-22	1.5	106	374	32.3	72.4	904	13,880	8,315	26,600	5.91	7,580	67.7
13	20-Jun-22	1.9	93	365	30.1	63.5	722	13,830	8,169	24,500	5.92	8,680	68.2
14	4-Jul-22	2.4	89	387	29.1	66.8	678	14,530	8,328	27,800	5.90	8,740	70.6
15	18-Jul-22	2.3	86	407	28.1	59.9	797	15,040	7,954	31,100	5.91	8,520	69.8
16	2-Aug-22	1.6	83	448	28.5	61.4	923	17,560	8,668	30,200	5.95	12,100	73.4
17	15-Aug-22	1.5	71	432	25.9	59.6	758	16,170	8,132	32,800	6.21	10,400	73.0
18	29-Aug-22	1.6	80	470	28.3	65.0	707	18,570	9,204	36,800	5.84	12,000	74.3
19	12-Sep-22	1.5	76	503	29.1	53.6	692	22,040	9,075	30,500	5.71	11,300	73.2
20	26-Sep-22	3.3	84	579	31.8	45.3	988	23,740	10,890	36,700	5.78	10,800	74.8
21	11-Oct-22	4.6	93	520	35.4	37.7	1,459	21,710	10,440	35,500	5.66	12,000	74.7
22	24-Oct-22	2.7	74	423	32.4	33.1	2,387	19,030	9,438	37,700	6.36	11,300	75.0
23	7-Nov-22	2.4	132	562	40.3	36.6	2,093	25,790	8,938	37,800	5.90	9,790	75.1
24	21-Nov-22	1.9	104	567	36.7	34.3	1,591	24,060	7,259	41,800	6.30	10,300	76.4
25	5-Dec-22	1.8	83	563	40.7	33.3	1,449	27,000	8,767	40,700	5.88	10,200	76.3
26	19-Dec-22	1.7	63	518	43.0	28.9	1,047	28,770	6,767	40,100	5.72	9,750	75.8

Average:	2.0	86	471	30.8	47.1	1,040	20,372	8,957	35,654	5.86	10,018	72.6
Maximum:	4.6	132	638	43.0	73.5	2,387	28,770	11,590	47,100	6.36	12,900	77.9
Minimum:	1.5	63	364	20.6	26.6	626	13,830	6,767	24,500	5.58	7,120	65.9

\* Indicates starting date for biweekly composite samples

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### 3.0 BENEFICIAL REUSE OF BIOSOLIDS

#### (A) BIOSOLIDS LAND APPLICATION

Land application of biosolids is considered beneficial reuse because it provides nutrients for agricultural crop production. The City has been conducting In-Field Storage and Land Application programs since 2018. On June 15, 2022, Manitoba Environment, Climate and Parks issued EAL #3377 for the annual land application of the City of Winnipeg's biosolids to agricultural lands.

The 2022 Biosolids Land Application Program was managed in accordance with EAL #3377. Between June and October 2022, a total of 15,767 wet tonnes of biosolids were stockpiled at two in-field storage sites which had straw beds and berms for leachate management; straw was applied over the biosolids each evening after deliveries to cap the biosolids and ensure odour and vector control. The stockpiled biosolids were land applied between October 3 and 14, at an application rate of 67 wet tonnes per hectare.

Odours at the stockpile site and at pre-determined distances from the stockpile site were classified as no odour to annoying by an odour assessment panel. Odour assessments were also conducted at select locations surrounding the fields during application, with the highest odour level classified as very annoying. The on-site contractor received an odour complaint at the time of land application; to mitigate the concern, the biosolids were incorporated into the soil by the end of the day. The RM of Macdonald Reeve and Council did not receive any complaints about odours during the 2022 program and the City did not receive any odour concerns from the public through the project phone number or email address.

In 2022, soil samples were collected from fields that received biosolids in 2019, 2020 and 2021. The post-harvest residual nitrate-nitrogen aligned with anticipated residuals and were lower than the previous fall findings. The phosphorus results were below the applicable Nutrient Management Guidelines.

A detailed description of the project, including analytical results, is found in The City of Winnipeg Biosolids Land Application Program Annual Summary Report 2022, which will be submitted to MECP in March 2023.



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**(B) SOIL FABRICATION**

The use of biosolids as an ingredient in the fabrication of soil for use in cap systems at landfill sites is considered a beneficial reuse because nutrients are recovered by vegetation that grows in the fabricated soil. In February 2017, Manitoba Sustainable Development (MSD), now Manitoba Environment, Climate and Parks (MECP) approved a Notice of Alteration (NOA) to EAL #3081R for a pilot Soil Fabrication Project at the Brady Road Resource Management Facility (BRRMF).

In 2022, approximately 38,540 wet tonnes of biosolids were mixed with wood chips and either street sweepings or clay to produce fabricated soil, which was used in the cap systems at Summit Landfill and BRRMF.

At the Summit Landfill, odours were noted locally during receiving operations, but they were reduced after mixing the biosolids with woodchips and street sweepings. No odours were detected offsite during the biosolids receiving or soil spreading operations and no odour complaints were received through 311 or other public sources. At the BRRMF, no odour complaints were attributed specifically to biosolids. There were no dust, noise, vector, or nuisance concerns during operations at the Summit Landfill or the BRRMF.

In 2023, the target is to use approximately 36,000 wet tonnes of biosolids in soil fabrication projects. The projects will include spreading and seeding operations and environmental monitoring including surface water, soil, and vegetation monitoring and analysis.

A detailed description and findings of the 2022 project at the Summit Landfill will be included in the Summit Landfill Soil Fabrication Pilot Project Year Four Annual Report, which will be submitted to MECP in March 2023. A detailed description and findings of the 2022 project at the BRRMF will be included in the 2022 BRRMF Annual Report, which will be submitted to MECP in April 2023.



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**(c) COMPOST**

The composting of biosolids is considered a beneficial reuse because nutrients are retained in the final product. The City of Winnipeg conducted a pilot biosolids composting program from 2015 to 2018, which produced a low odour, nutrient rich compost with low metals content. The City of Winnipeg Biosolids Compost Pilot Report<sup>3</sup> provides a detailed description of the project. An NOA to the BRRMF EAL #3081R allows for ongoing operational biosolids composting.

In 2022, none of the biosolids produced at the NEWPCC were diverted to the compost facility. In 2023, biosolids composting will occur on an as-needed basis to meet final cover needs at the BRRMF.

**(d) LANDFILL DISPOSAL**

Landfill disposal of biosolids is not considered a beneficial reuse because valuable nutrients are not recovered. In 2022, none of the biosolids produced at the NEWPCC were disposed of at the BRRMF. In 2023, biosolids that are not composted, land applied, or used in soil fabrication projects will be disposed of at the BRRMF.

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**4.0 ADDITIONAL ACTIVITIES UNDER THE BIOSOLIDS MASTER PLAN**

On December 20, 2022, funding for a new digestion facility at the NEWPCC with thermal hydrolysis pre-treatment was approved through the Investing in Canada Infrastructure Program (ICIP). This tri-level government funding is based on the current approved budget of \$552 million.

The City has concluded its market sounding to determine the market's tolerance for delivering the project as a fixed price design build and is preparing Request for Qualification and Request for Proposal documents based on the feedback received in the market soundings.

Updates pertaining to design and construction of the new digestion facility will be reported to MECP in the bi-annual NEWPCC Master Plan Reports.

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**5.0 REFERENCES**

1. COW/Veolia. September 2014. City of Winnipeg Biosolids Master Plan
2. Manitoba Environment, Climate and Parks. June 2022. Environment Act Licence #3377
3. COW. October 2018. City of Winnipeg Biosolids Compost Pilot Report

## **APPENDIX I**

## **MONTHLY HAULING SUMMARIES**



## 2022 Biosolids Management Program

January		2022													
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1															
2															
3	120.02	23.05	27.66	0	5	0	0	0	5	0.00	120.02	0.00	0.00	0.00	
4	144.67	22.00	31.83	0	6	0	0	0	6	0.00	144.67	0.00	0.00	0.00	
5	120.28	22.00	26.46	0	5	0	0	0	5	0.00	120.28	0.00	0.00	0.00	
6	387.27	21.45	83.07	0	16	0	0	0	16	0.00	387.27	0.00	0.00	0.00	
7	217.72	22.75	49.53	0	9	0	0	0	9	0.00	217.72	0.00	0.00	0.00	
8															
9															
10	218.83	22.95	50.22	0	9	0	0	0	9	0.00	218.83	0.00	0.00	0.00	
11	241.78	22.95	55.49	0	10	0	0	0	10	0.00	241.78	0.00	0.00	0.00	
12	190.09	23.05	43.81	0	8	0	0	0	8	0.00	190.09	0.00	0.00	0.00	
13	150.84	22.45	33.86	0	6	0	0	0	6	0.00	150.84	0.00	0.00	0.00	
14	117.11	22.50	26.35	0	5	0	0	0	5	0.00	117.11	0.00	0.00	0.00	
15															
16															
17	363.08	22.70	82.42	0	15	0	0	0	15	0.00	363.08	0.00	0.00	0.00	
18	145.93	24.50	35.75	0	6	0	0	0	6	0.00	145.93	0.00	0.00	0.00	
19	218.35	24.60	53.71	0	9	0	0	0	9	0.00	218.35	0.00	0.00	0.00	
20	212.88	24.10	51.30	0	9	0	0	0	9	0.00	212.88	0.00	0.00	0.00	
21	48.44	24.30	11.77	0	2	0	0	0	2	0.00	48.44	0.00	0.00	0.00	
22															
23															
24	267.16	21.55	57.57	0	11	0	0	0	11	0.00	267.16	0.00	0.00	0.00	
25	169.51	23.05	39.07	0	7	0	0	0	7	0.00	169.51	0.00	0.00	0.00	
26	265.98	24.25	64.50	0	11	0	0	0	11	0.00	265.98	0.00	0.00	0.00	
27	218.67	22.75	49.75	0	9	0	0	0	9	0.00	218.67	0.00	0.00	0.00	
28	120.76	23.30	28.14	0	5	0	0	0	5	0.00	120.76	0.00	0.00	0.00	
29															
30															
31	291.79	23.80	69.44	0	12	0	0	0	12	0.00	291.79	0.00	0.00	0.00	
TOTAL	4231.13	23.05	975.28	0	175	0	0	0	175	0.00	4231.13	0.00	0.00	0.00	

NOTES:

No information available, monthly average used.



## 2022 Biosolids Management Program

February 2022															
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1	24.32	23.30	5.67	0	1	0	0	0	1	0.00	24.32	0.00	0.00	0.00	
2	265.46	23.95	63.58	0	11	0	0	0	11	0.00	265.46	0.00	0.00	0.00	
3	264.12	22.35	59.03	0	11	0	0	0	11	0.00	264.12	0.00	0.00	0.00	
4	109.08	24.90	27.16	0	5	0	0	0	5	0.00	109.08	0.00	0.00	0.00	
5															
6															
7	195.26	24.00	46.86	0	8	0	0	0	8	0.00	195.26	0.00	0.00	0.00	
8	194.17	24.30	47.18	0	8	0	0	0	8	0.00	194.17	0.00	0.00	0.00	
9	265.90	24.25	64.48	0	11	0	0	0	11	0.00	265.90	0.00	0.00	0.00	
10	119.45	24.80	29.62	0	5	0	0	0	5	0.00	119.45	0.00	0.00	0.00	
11	121.65	24.35	29.62	0	5	0	0	0	5	0.00	121.65	0.00	0.00	0.00	
12															
13															
14	192.45	25.20	48.50	0	8	0	0	0	8	0.00	192.45	0.00	0.00	0.00	
15	315.72	25.40	80.19	0	13	0	0	0	13	0.00	315.72	0.00	0.00	0.00	
16	142.76	22.00	31.41	0	6	0	0	0	6	0.00	142.76	0.00	0.00	0.00	
17	153.43	22.90	35.14	0	6	0	0	0	6	0.00	153.43	0.00	0.00	0.00	
18	137.72	23.35	32.16	0	6	0	0	0	6	0.00	137.72	0.00	0.00	0.00	
19															
20															
21															
22	240.82	22.40	53.94	0	10	0	0	0	10	0.00	240.82	0.00	0.00	0.00	
23	286.35	24.55	70.30	0	12	0	0	0	12	0.00	286.35	0.00	0.00	0.00	
24	260.74	24.60	64.14	0	11	0	0	0	11	0.00	260.74	0.00	0.00	0.00	
25	94.11	24.05	22.63	0	4	0	0	0	4	0.00	94.11	0.00	0.00	0.00	
26															
27															
28	290.15	23.25	67.46	0	12	0	0	0	12	0.00	290.15	0.00	0.00	0.00	
TOTAL	3673.63	23.89	879.07	0	153	0	0	0	153	0.00	3673.63	0.00	0.00	0.00	

NOTES: No information available, monthly average used.



## **2022 Biosolids Management Program**



## 2022 Biosolids Management Program

April 2022															
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1	187.08	31.65	59.21	0	8	0	0	0	8	0.00	187.08	0.00	0.00	0.00	
2															
3															
4	262.57	31.35	82.32	0	11	0	0	0	11	0.00	262.57	0.00	0.00	0.00	
5	285.24	31.65	90.28	0	12	0	0	0	12	0.00	285.24	0.00	0.00	0.00	
6	95.22	30.95	29.47	0	4	0	0	0	4	0.00	95.22	0.00	0.00	0.00	
7	188.81	32.65	61.64	0	8	0	0	0	8	0.00	188.81	0.00	0.00	0.00	
8	93.26	32.15	29.98	0	4	0	0	0	4	0.00	93.26	0.00	0.00	0.00	
9															
10															
11	340.82	32.35	110.25	0	14	0	0	0	14	0.00	340.82	0.00	0.00	0.00	
12	240.67	32.10	77.25	0	10	0	0	0	10	0.00	240.67	0.00	0.00	0.00	
13															
14															
15	295.29	32.02	94.55	0	12	0	0	0	12	0.00	295.29	0.00	0.00	0.00	
16	198.65	32.02	63.61	0	8	0	0	0	8	0.00	198.65	0.00	0.00	0.00	
17															
18	239.29	32.02	76.62	0	10	0	0	0	10	0.00	239.29	0.00	0.00	0.00	
19	240.73	31.60	76.07	0	10	0	0	0	10	0.00	240.73	0.00	0.00	0.00	
20	189.44	32.45	61.47	0	8	0	0	0	8	0.00	189.44	0.00	0.00	0.00	
21	189.97	31.70	60.22	0	8	0	0	0	8	0.00	189.97	0.00	0.00	0.00	
22	140.40	31.25	43.88	0	6	0	0	0	6	0.00	140.40	0.00	0.00	0.00	
23															
24															
25	143.05	33.25	47.56	0	6	0	0	0	6	0.00	143.05	0.00	0.00	0.00	
26	260.75	30.75	80.18	0	11	0	0	0	11	0.00	260.75	0.00	0.00	0.00	
27	188.70	32.35	61.05	0	8	0	0	0	8	0.00	188.70	0.00	0.00	0.00	
28	141.51	32.70	46.27	0	6	0	0	0	6	0.00	141.51	0.00	0.00	0.00	
29	190.32	33.40	63.57	0	8	0	0	0	8	0.00	190.32	0.00	0.00	0.00	
30															
TOTAL	4111.76	32.02	1315.46	0	172	0	0	0	172	0.00	4111.76	0.00	0.00	0.00	

NOTES:

No information available, monthly average used.



## **2022 Biosolids Management Program**



# **2022 Biosolids Management Program**

June	2022														
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1	214.48	35.65	76.46	0	0	0	9	0	9	0.00	0.00	0.00	214.48	0.00	
2	191.37	33.30	63.73	0	0	0	8	0	8	0.00	0.00	0.00	191.37	0.00	
3	119.90	34.95	41.91	0	0	0	5	0	5	0.00	0.00	0.00	119.90	0.00	
4															
5															
6	215.74	33.10	71.41	0	0	0	9	0	9	0.00	0.00	0.00	215.74	0.00	
7	214.67	33.95	72.88	0	0	0	9	0	9	0.00	0.00	0.00	214.67	0.00	
8	214.18	34.95	74.86	0	0	0	9	0	9	0.00	0.00	0.00	214.18	0.00	
9	192.24	33.05	63.54	0	0	0	8	0	8	0.00	0.00	0.00	192.24	0.00	
10	217.27	32.05	69.63	0	0	0	9	0	9	0.00	0.00	0.00	217.27	0.00	
11															
12															
13	218.92	28.85	63.16	0	0	0	9	0	9	0.00	0.00	0.00	218.92	0.00	
14	217.83	33.10	72.10	0	0	0	9	0	9	0.00	0.00	0.00	217.83	0.00	
15	310.38	32.15	99.79	0	0	0	13	0	13	0.00	0.00	0.00	310.38	0.00	
16	188.58	31.60	59.59	0	0	0	8	0	8	0.00	0.00	0.00	188.58	0.00	
17	142.18	32.40	46.07	0	0	0	6	0	6	0.00	0.00	0.00	142.18	0.00	
18	93.08	32.58	30.32	0	0	0	4	0	4	0.00	0.00	0.00	93.08	0.00	
19															
20	286.29	30.30	86.74	0	0	0	12	0	12	0.00	0.00	0.00	286.29	0.00	
21	214.01	31.40	67.20	0	0	0	9	0	9	0.00	0.00	0.00	214.01	0.00	
22	239.72	32.70	78.39	0	0	0	10	0	10	0.00	0.00	0.00	239.72	0.00	
23	213.94	33.95	72.63	0	0	0	9	0	9	0.00	0.00	0.00	213.94	0.00	
24	168.07	33.90	56.98	0	0	0	7	0	7	0.00	0.00	0.00	168.07	0.00	
25															
26															
27	146.14	32.05	46.84	0	0	6	0	0	6	0.00	0.00	146.14	0.00	0.00	
28	264.38	33.45	88.44	0	0	11	0	0	11	0.00	0.00	264.38	0.00	0.00	
29	358.03	30.05	107.59	0	0	15	0	0	15	0.00	0.00	358.03	0.00	0.00	
30	282.29	29.80	84.12	0	0	12	0	0	12	0.00	0.00	282.29	0.00	0.00	
TOTAL	4923.69	32.58	1594.37	0	0	44	162	0	206	0.00	0.00	1050.85	3872.84	0.00	



## **2022 Biosolids Management Program**



## **2022 Biosolids Management Program**

August 2022														
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost
1	23.60	26.16	6.17	0	0	1	0	0	1	0.00	0.00	23.60	0.00	0.00
2	305.23	27.10	82.72	0	0	13	0	0	13	0.00	0.00	305.23	0.00	0.00
3	300.40	29.55	88.77	0	0	13	0	0	13	0.00	0.00	300.40	0.00	0.00
4	336.52	26.75	90.02	0	0	15	0	0	15	0.00	0.00	336.52	0.00	0.00
5	157.62	27.15	42.79	0	0	7	0	0	7	0.00	0.00	157.62	0.00	0.00
6														
7														
8	230.31	25.20	58.04	0	0	10	0	0	10	0.00	0.00	230.31	0.00	0.00
9	278.88	25.50	71.11	0	0	12	0	0	12	0.00	0.00	278.88	0.00	0.00
10	274.35	25.45	69.82	0	0	12	0	0	12	0.00	0.00	274.35	0.00	0.00
11	190.47	26.00	49.52	0	0	8	0	0	8	0.00	0.00	190.47	0.00	0.00
12	140.37	24.45	34.32	0	0	6	0	0	6	0.00	0.00	140.37	0.00	0.00
13														
14														
15	360.60	25.25	91.05	0	0	15	0	0	15	0.00	0.00	360.60	0.00	0.00
16	193.36	22.95	44.38	0	2	6	0	0	8	0.00	48.25	145.12	0.00	0.00
17	192.89	24.50	47.26	0	8	0	0	0	8	0.00	192.89	0.00	0.00	0.00
18	144.12	26.16	37.70	0	0	6	0	0	6	0.00	0.00	144.12	0.00	0.00
19	95.31	25.70	24.49	0	0	4	0	0	4	0.00	0.00	95.31	0.00	0.00
20														
21														
22	289.33	26.90	77.83	0	0	12	0	0	12	0.00	0.00	289.33	0.00	0.00
23	71.95	27.20	19.57	0	0	3	0	0	3	0.00	0.00	71.95	0.00	0.00
24	72.49	25.00	18.12	0	0	3	0	0	3	0.00	0.00	72.49	0.00	0.00
25	97.45	28.35	27.63	0	0	4	0	0	4	0.00	0.00	97.45	0.00	0.00
26	121.44	30.45	36.98	0	0	5	0	0	5	0.00	0.00	121.44	0.00	0.00
27														
28														
29	291.95	25.90	75.62	0	0	12	0	0	12	0.00	0.00	291.95	0.00	0.00
30	286.90	23.90	68.57	0	0	12	0	0	12	0.00	0.00	286.90	0.00	0.00
31	239.63	26.16	62.69	0	0	10	0	0	10	0.00	0.00	239.63	0.00	0.00
TOTAL	4695.17	26.16	1162.49	0	10	189	0	0	199	0.00	241.13	4454.04	0.00	0.00



## 2022 Biosolids Management Program

September 2022															
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1	238.05	27.20	64.75	0	0	10	0	0	10	0.00	0.00	238.05	0.00	0.00	
2	192.91	27.30	52.66	0	0	8	0	0	8	0.00	0.00	192.91	0.00	0.00	
3															
4															
5															
6	361.33	24.75	89.43	0	0	15	0	0	15	0.00	0.00	361.33	0.00	0.00	
7	286.35	25.45	72.88	0	0	12	0	0	12	0.00	0.00	286.35	0.00	0.00	
8	213.08	25.65	54.66	0	0	9	0	0	9	0.00	0.00	213.08	0.00	0.00	
9	194.89	26.60	51.84	0	0	8	0	0	8	0.00	0.00	194.89	0.00	0.00	
10															
11															
12	262.66	25.90	68.03	0	0	11	0	0	11	0.00	0.00	262.66	0.00	0.00	
13	258.83	26.10	67.56	0	0	11	0	0	11	0.00	0.00	258.83	0.00	0.00	
14	225.46	26.65	60.08	0	0	10	0	0	10	0.00	0.00	225.46	0.00	0.00	
15	94.77	25.40	24.07	0	0	4	0	0	4	0.00	0.00	94.77	0.00	0.00	
16	188.41	26.80	50.49	0	0	8	0	0	8	0.00	0.00	188.41	0.00	0.00	
17															
18															
19	213.65	27.60	58.97	0	0	9	0	0	9	0.00	0.00	213.65	0.00	0.00	
20	235.58	27.85	65.61	0	0	10	0	0	10	0.00	0.00	235.58	0.00	0.00	
21	212.21	27.45	58.25	0	0	9	0	0	9	0.00	0.00	212.21	0.00	0.00	
22	234.20	25.80	60.42	0	0	10	0	0	10	0.00	0.00	234.20	0.00	0.00	
23	161.14	25.45	41.01	0	0	7	0	0	7	0.00	0.00	161.14	0.00	0.00	
24															
25															
26	228.60	26.70	61.04	0	0	10	0	0	10	0.00	0.00	228.60	0.00	0.00	
27	257.32	26.90	69.22	0	0	11	0	0	11	0.00	0.00	257.32	0.00	0.00	
28	214.93	25.70	55.24	0	0	9	0	0	9	0.00	0.00	214.93	0.00	0.00	
29	166.79	24.75	41.28	0	0	7	0	0	7	0.00	0.00	166.79	0.00	0.00	
30	159.51	26.30	41.95	0	0	7	0	0	7	0.00	0.00	159.51	0.00	0.00	
TOTAL	4600.66	26.30	1209.43	0	0	195	0	0	195	0.00	0.00	4600.66	0.00	0.00	

NOTES:

No information available, monthly average used.



## 2022 Biosolids Management Program

October 2022															
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1															
2															
3	313.57	24.10	75.57	0	0	13	0	0	13	0.00	0.00	313.57	0.00	0.00	
4	217.61	24.50	53.31	0	0	9	0	0	9	0.00	0.00	217.61	0.00	0.00	
5	145.69	25.75	37.52	0	0	6	0	0	6	0.00	0.00	145.69	0.00	0.00	
6	144.57	25.75	37.23	0	0	6	0	0	6	0.00	0.00	144.57	0.00	0.00	
7	217.02	23.85	51.76	0	0	9	0	0	9	0.00	0.00	217.02	0.00	0.00	
8															
9															
10	265.52	24.91	66.14	0	0	11	0	0	11	0.00	0.00	265.52	0.00	0.00	
11	265.48	26.30	69.82	0	0	11	0	0	11	0.00	0.00	265.48	0.00	0.00	
12	169.02	25.10	42.42	0	0	7	0	0	7	0.00	0.00	169.02	0.00	0.00	
13	190.66	24.35	46.42	0	0	8	0	0	8	0.00	0.00	190.66	0.00	0.00	
14	144.69	25.10	36.32	0	0	6	0	0	6	0.00	0.00	144.69	0.00	0.00	
15															
16															
17	264.06	24.30	64.17	0	11	0	0	0	11	0.00	264.06	0.00	0.00	0.00	
18	200.84	25.65	51.51	0	8	0	0	0	8	0.00	200.84	0.00	0.00	0.00	
19	212.94	25.15	53.56	0	9	0	0	0	9	0.00	212.94	0.00	0.00	0.00	
20	189.88	24.05	45.67	0	8	0	0	0	8	0.00	189.88	0.00	0.00	0.00	
21	214.85	23.50	50.49	0	9	0	0	0	9	0.00	214.85	0.00	0.00	0.00	
22															
23															
24	264.70	23.95	63.40	0	11	0	0	0	11	0.00	264.70	0.00	0.00	0.00	
25	240.01	23.35	56.04	0	10	0	0	0	10	0.00	240.01	0.00	0.00	0.00	
26	237.16	26.10	61.90	0	10	0	0	0	10	0.00	237.16	0.00	0.00	0.00	
27	239.58	25.75	61.69	0	10	0	0	0	10	0.00	239.58	0.00	0.00	0.00	
28	136.74	26.50	36.24	0	6	0	0	0	6	0.00	136.74	0.00	0.00	0.00	
29															
30															
31	239.10	25.05	59.89	0	10	0	0	0	10	0.00	239.10	0.00	0.00	0.00	
TOTAL	4513.71	24.91	1121.07	0	102	86	0	0	188	0.00	2439.87	2073.85	0.00	0.00	

NOTES:

No information available, monthly average used.



## 2022 Biosolids Management Program

November 2022															
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost	
1	285.75	24.40	69.72	0	12	0	0	0	12	0.00	285.75	0.00	0.00	0.00	
2	214.43	27.55	59.08	0	9	0	0	0	9	0.00	214.43	0.00	0.00	0.00	
3	190.22	25.10	47.75	0	8	0	0	0	8	0.00	190.22	0.00	0.00	0.00	
4	118.20	26.75	31.62	0	5	0	0	0	5	0.00	118.20	0.00	0.00	0.00	
5															
6															
7	286.00	25.75	73.64	0	12	0	0	0	12	0.00	286.00	0.00	0.00	0.00	
8	214.33	24.15	51.76	0	9	0	0	0	9	0.00	214.33	0.00	0.00	0.00	
9	238.71	24.75	59.08	0	10	0	0	0	10	0.00	238.71	0.00	0.00	0.00	
10	213.96	26.30	56.27	0	9	0	0	0	9	0.00	213.96	0.00	0.00	0.00	
11															
12															
13															
14	334.71	24.35	81.50	0	14	0	0	0	14	0.00	334.71	0.00	0.00	0.00	
15	285.46	23.50	67.08	0	12	0	0	0	12	0.00	285.46	0.00	0.00	0.00	
16	213.18	24.60	52.44	0	9	0	0	0	9	0.00	213.18	0.00	0.00	0.00	
17	190.43	23.40	44.56	0	8	0	0	0	8	0.00	190.43	0.00	0.00	0.00	
18	140.45	24.90	34.97	0	6	0	0	0	6	0.00	140.45	0.00	0.00	0.00	
19															
20															
21	263.00	22.40	58.91	0	11	0	0	0	11	0.00	263.00	0.00	0.00	0.00	
22	283.49	23.50	66.62	0	12	0	0	0	12	0.00	283.49	0.00	0.00	0.00	
23	163.67	22.90	37.48	0	7	0	0	0	7	0.00	163.67	0.00	0.00	0.00	
24	235.46	23.30	54.86	0	10	0	0	0	10	0.00	235.46	0.00	0.00	0.00	
25	133.59	24.35	32.53	0	6	0	0	0	6	0.00	133.59	0.00	0.00	0.00	
26															
27															
28	283.31	22.90	64.88	0	12	0	0	0	12	0.00	283.31	0.00	0.00	0.00	
29	235.81	24.25	57.18	0	10	0	0	0	10	0.00	235.81	0.00	0.00	0.00	
30	140.06	23.30	32.63	0	6	0	0	0	6	0.00	140.06	0.00	0.00	0.00	
TOTAL	4664.24	24.40	1134.59	0	197	0	0	0	197	0.00	4664.24	0.00	0.00	0.00	

NOTES:

No information available, monthly average used.



## **2022 Biosolids Management Program**



## 2022 Biosolids Management Program

### January - December 2022

Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads for Soil Fab	Loads to Land App	Loads to Brady S.F.	Loads to Compost	Loads Total	Wet Cake Landfill	Wet Cake Soil Fab	Wet Cake Land App	Wet Cake Brady S.F.	Wet Cake Compost
TOTAL	54307.3	27.29	14774.70	0.00	1210.00	667.00	399.00	0.00	2276.00	0.00	28991.31	15767.32	9548.66	0.00

NOTES: