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January 27, 2021

Chairman and Commissioners of the
Rockaway Valley Regional
Sewerage Authority
99 Green Bank Road
Boonton, New Jersey 07005

Dear Chairman and Commissioners:

Enclosed please find fifteen (15) bound copies and one (1) unbound copy of the Schedule of Three Year Average Daily Wastewater Meter Readings and Charges to Each Participating Municipality for the Period Ended September 30, 2020 for the Authority.

Should you have any questions on the enclosed, please do not hesitate to call me.

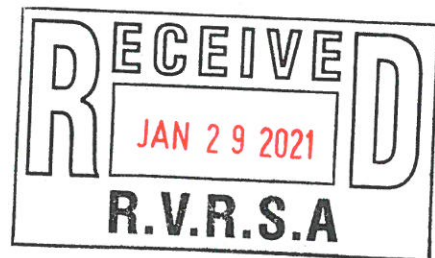
Very truly yours,

Paul J. Cuva

Paul J. Cuva, C.P.A.
Registered Municipal Accountant

PJC:ms

Enclosure



ROCKAWAY VALLEY REGIONAL
SEWERAGE AUTHORITY
SCHEDULE OF THREE YEAR AVERAGE DAILY
WASTEWATER METER READINGS
AND CHARGES TO EACH PARTICIPATING
MUNICIPALITY FOR THE PERIOD ENDED
SEPTEMBER 30, 2020, 2019 and 2018



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Chairman and Commissioners of the
Rockaway Valley Regional Sewerage Authority
99 Green Bank Road
Boonton, New Jersey 07005

Ladies and Gentlemen:

We have applied certain agreed-upon procedures, as discussed below, with respect to the schedule of three year average daily wastewater meter readings and charges to each participating municipality of the Rockaway Valley Regional Sewerage Authority (the "Authority") for the twelve-month period ended September 30, 2020, 2019 and 2018. It should be noted that on November 14, 2002 the Authority passed a resolution amending the user charge system basis of preparing annual user charges. The methodology of calculation changed from a one year actual annual flow to a three year actual flow for purposes of calculating the distribution of budgeted costs to the participants for the years ended September 30, 2020, 2019 and 2018.

During the 2020 fiscal year, the Authority reexamined meter readings and flow rates for all municipalities. It was concluded that the 2020 municipal flow data the Authority requested contained inconsistencies and conditions that required adjustment. The Authority requested that the Authority Engineers, Mott MacDonald, perform a thorough review of FY 2020 meter data and make necessary adjustments for missing or inaccurate data. For details on such variations and adjustments made in actual flow data (see Exhibit 1 of the report).

The Authority is allocating budgeted costs as operating, maintenance, repair and upkeep expenses under paragraph 6(c) of the Stipulation of Settlement Agreement dated August 17, 1984 (see Exhibit 2 of the report).

This report is solely for your information and is not to be referred to or distributed for any purpose to anyone who is not a member of the Board of the Authority or management of the participating municipalities. The procedures we performed are summarized as follows:

- a) We obtained from management the adjusted system summary meter flow data prepared by Mott MacDonald for each meter, the monthly flow calculation worksheets and a schedule of adjusted weighted average daily flow, for the period October 1, 2019 to September 30, 2020.



- b) We compared the adjusted system summary meter flow data as adjusted by Mott MacDonald to the wastewater flow calculation metered flow and adjusted unmetered units worksheet.
- c) We agreed the weighted average daily flows used to allocate the original budgeted 2020 sewer charges to each participating municipality to the actual three year average daily flows of the participating municipalities for the three year period ended September 30, 2020, 2019 and 2018.
- d) We reviewed the calculation by recalculating the schedule of adjusted weighted average daily flow by multiplying the number of days in the month and the millions of gallons per day for each participating municipality. We added twelve months of flow for the period October 1, 2019 to September 30, 2020. After obtaining a total for each municipality for the period, we recalculated the percentage applicable to each participating municipality.
- e) We agreed the total budgeted 2020 sewer charges of \$9,894,485 to the budget submitted to the Division of Local Government Services and allocated the total to each of the participating municipalities based on the three year actual weighted average daily flow for the three year period ended September 30, 2020.
- f) We verified the calculation by recalculating the credit or additional charge due to or from each participating municipality or Jersey City.
- g) We recalculated the average of the actual flows for the years ended September 30, 2020, 2019 and 2018.

Because the above procedures do not constitute an audit made in accordance with generally accepted auditing standards generally accepted in the United States of America, we do not express an opinion on the Schedule of Three Year Average Daily Wastewater Meter Readings and Charges to Each Participating Municipality for the three year period ended September 30, 2020. In connection with the procedures referred to above, no matters came to our attention that caused us to believe that the schedule might require adjustments.

This report relates only to items specified above and does not extend to any financial statements of the Rockaway Valley Regional Sewerage Authority taken as a whole.

Very truly yours,

Wielkotz & Company, LLC

WIELKOTZ & COMPANY, LLC
Certified Public Accountants



Rockaway Valley Regional Sewerage Authority
Schedule of Three Year Average Daily Wastewater Meter Readings
And Charges To Each Participating Municipality For The Period Ended

Participant	Budget		Actual		Budget			Actual			(Credit)/ Additional Charge	
	Three Years Average		Three Years Average		Estimated Charges		Adjusted Charges		Total	Jersey City		Municipalities
	Average Daily Flow (Gallons)	Percentage of Total Average Daily Flow	Average Daily Flow (Gallons)	Percentage of Total Average Daily Flow	Jersey City	Municipalities	Jersey City	Municipalities				
Town of Boonton	823,561	8.470%	882,894	8.808%	\$511,352	\$326,737	\$496,474	\$375,017	\$871,491	\$496,474	\$375,017	\$48,280
Boonton Township	121,429	1.249%	121,608	1.213%	\$43,714	\$79,857	\$42,442	\$77,595	\$120,037	\$42,442	\$77,595	(\$2,262)
Township of Denville	1,232,175	12.673%	1,342,749	13.395%	\$728,905	\$525,006	\$707,697	\$617,710	\$1,325,407	\$707,697	\$617,710	\$92,704
Town of Dover	2,387,862	24.559%	2,427,492	24.217%	\$1,448,661	\$981,324	\$1,406,510	\$989,629	\$2,396,139	\$1,406,510	\$989,629	\$8,305
Randolph Township	1,119,926	11.518%	1,180,551	11.777%	\$219,587	\$920,096	\$213,197	\$952,106	\$1,165,303	\$213,197	\$952,106	\$32,010
Rockaway Borough	676,163	6.954%	663,183	6.616%	\$542,867	\$145,224	\$527,071	\$127,546	\$654,618	\$527,071	\$127,546	(\$17,678)
Rockaway Township	2,228,851	22.924%	2,251,891	22.465%	\$578,448	\$1,689,721	\$561,617	\$1,661,189	\$2,222,806	\$561,617	\$1,661,189	(\$28,532)
Victory Gardens	201,526	2.073%	204,517	2.040%	\$97,594	\$107,487	\$94,754	\$107,121	\$201,876	\$94,754	\$107,121	(\$366)
Borough of Wharton	931,473	9.580%	949,066	9.468%	\$403,592	\$544,313	\$391,849	\$544,959	\$936,808	\$391,849	\$544,959	\$646
Total	9,722,966	100.000%	10,023,951	100.000%	\$4,574,719	\$5,319,766	\$4,441,612	\$5,452,873	\$9,894,485	\$4,441,612	\$5,452,873	\$133,107

(A)

(B)

(C)

(A) Based on The Average of The Actual Flows For The Year of 19, 18, 17
(B) Based on The Average of The Actual Flows For The Year of 20, 19, 18
(C) Allocated Based on Stipulation of Settlement.



Memorandum

Subject **Review of the 2019 – 2020 RVRSA Meter Data**

To JoAnn Mondsini, Executive Director, RVRSA

From Peter Kocsik, Senior Vice-President, Mott MacDonald
 Nancy Wohlleb, Vice-President, Mott MacDonald

Our reference 507393244 Task 2020md

Office Iselin, New Jersey

Date November 24, 2020

Your reference 2019 – 2020 RVRSA Meter Data

Notes

As requested, Mott MacDonald was tasked with reviewing the 2019-2020 RVRSA meter data collected for the User Charge System.

Task 1 – Review of the Raw Flow Data

MM was provided with a copy of the 2019-2020 RAW DATA spreadsheet that was compiled by the Authority. This spreadsheet tracked the total daily gallon flow for each meter by month. There were several instances in which the daily flow being recorded had a zero value, or higher/lower flow value than was expected. In order to determine why this was occurring, MM requested and was granted access to the Mission Communications Cloud System that the Authority uses to track meter operation and flow data.

To get a better understanding of the flows being recorded and where the potential data gaps were occurring, MM downloaded the flow readings utilizing the flow tables in the Mission system, as this information is compiled in 15 minute intervals during a 24 hour period and shows times in which the meter may have lost communication with the Mission system or recorded a zero value, as well as higher/lower than normal flows the for each meter during the 15-minute interval. It is noted that the "flow data" is the total volume being collected during the 15-minute interval rather than the flow rate. A drawback in utilizing this data is that true maximum and minimum data is not captured within a 15-minute interval. If a meter reading is missed, during the next recorded interval, the reading is the total volume calculated since the prior recorded interval. Hence, parsing the data for maximums and minimums has to be reviewed carefully to see if a high flow is observed, and whether or not that reading was preceded by a period of missing data.

The initial review was to highlight areas in which there was no connection to the Mission system or zero flow. During this review we were also able to easily see some of the higher/lower than normal flows. The lower than normal flows tended to occur prior to the meter going offline or when a zero-flow condition occurred. The higher than normal flows tended to occur when the meters went back online or the zero-flow condition ended. However, there were some instances where these higher/lower than normal flows didn't follow the pattern previously discussed.

It is also, noted that during this initial review that both the MH-1 and DV-2 were eliminated from further review as these meters are located at pump stations and both the meter on/off conditions and zero flow readings are considered normal operation.

Additionally, it is noted that on March 8th for approximately 1 hour all meters went offline at the same time, it is assumed that this was due to an update being performed by the Mission Communication System. For this one-hour period, we utilized the average flow for the same period on the day before, as these were both weekend days (Saturday and Sunday) for all meters, except MH-1 and DV-2.

Task – 2 Procedure for Correcting Missing Data

Adjustments were made to the flow based on the following criteria.

1. No adjustment was made if the following conditions occurred:
 - a. Only 1 missing 15 min interval was noted during the day.
 - b. During a short period (4-5 consecutive missing intervals) that the value for first non-zero reading if when averaged over the missing period was consistent with the normal interval flow.
2. If more than half the month was missing data points, we looked at that Months total during previous years. We also compared data that was available for that meter during the 2019-2020 that was from the same time period and had similar precipitation conditions. We selected the value that was most consistent with the typical flows being collected for the year. If neither of these data values appeared acceptable, we looked at the net increase/decrease in flow totals of meters adjacent to the meter in question and applied the average percent increase/decrease to the previous month's total to obtain the new value. The exception to these rules occurred in Meter B, where the meter was down for several months at the beginning of the review period and the actual daily flow data was downloaded from meter by the vendor, this data was entered into the adjusted tables.
3. If one day needed to be corrected depending on the amount of intervals either the average flow during the same time period day before or after was used to fill in the missing data points, this was also subject to whether or not a significant rain event occurred. If a significant rain event occurred, data from a day from another month with similar conditions was used.
4. When several days needed to be corrected the average of the flow from the day prior and after the event was used, this was also subject to whether or not a significant rain event occurred during this period. If a significant rain event occurred, data from a similar from another month with similar conditions was used.
5. For Meters MH-2, MH-3, MH-4, and Pondview where there appeared to be sporadic gaps the missing data, an interval flow value was either entered into the missing fields, this value was consistent with the value above and below the missing interval, in some cases the average flow interval value was applied to all the zero flow values for the month.

When we compared the RAW Data provided by RVRSA to the Adjusted Values we observed on average that the adjusted values range from -0.99% to +4.57%, the exception being August 2020 which saw an overall increase of 23.05%. During the month of the August there was a power outage that lasted for several days which affected 9 meters, after power was restored meters MH-2 and B continued to have issues and Meter BT-1 needed to be replaced due to power surge damage. This event lasted 16 days.

We attach hereto a summary of meter adjustments table and graph for each meter. The summary shows the monthly flows for the period of October 2019-September 2020 for each meter, before and after the adjustments.

Task 3 – Apply the User Charge Wastewater Flow Calculation.

Using the raw data spreadsheets and adjusted data, Mott MacDonald applied the User-Charge formulas that have been recently updated to the various users. Generally, the monthly flow values appeared to be consistent with the unadjusted data as slight deviations upward/downward which could be attributed to the weather conditions. The two notable exceptions are Picatinny and Rockaway Borough.

The flows for Picatinny dropped off at the start of the March 2020 lockdown, lowering to approximately half of its January and February 2020 flows. We believe the trend is consistent with the now-in-place COVID-19 regulations for military facilities, where only essential personal are allowed onsite.

In regards, to Rockaway Borough, application of the updated UCS formulas and the adjusted flow values still resulted in a negative "flow" for a majority of 2020. It is our understanding that Rockaway Borough's flow is often historically resulting in a negative flow value. Upon review of the UCS formula for Rockaway Borough, it is possible that negative values for Rockaway Borough occur as a result of the range of accuracy of the flow values being captured by the large meters upstream of RB-1 are large enough to offset the Borough's magnitude of flow. The current formula is:

$$\text{Flow} = \text{M:RB} - (\text{M:RT3} + \text{M:RT4} + \text{M:RT5} + \text{M:DV2}) - (94 \text{ EDU})$$

Within the above formula, Meter RT-3 is in-line with the Interceptor. The following meters that are upstream of the location of M:RT-3 are:

M:D1, M:RT-7, M:VG, M:R3 and M:HOWMET

As a check against the impact of meter accuracy ranges on the user charge formula, we created a separate table and adjusted the formula for Rockaway Borough to remove the flow from RT-3 and replace it with the flow values from the meters noted above, plus we added in 72 units from Rockway Township that were tributary to the Rockaway Borough meter. The substitution resulted in the previously calculated negative flow values for Rockaway Borough now becoming positive with many of the values "making sense" given the size of the Borough, households and population. Further investigation and discussion will need to be performed as there still seems to be some inconsistencies for the flow totals from month to month.

We would be pleased to discuss this further with you and if Authorized, proceed with further evaluation of the user charge system and flow data.

having submitted Answers thereto; and

WHEREAS, Jersey City, the Authority and all other Defendants have adopted formal resolutions approving the basic terms of the settlement herein set forth.

NOW THEREFORE IT IS HEREBY AGREED AND STIPULATED by the respective parties through their duly appointed legal counsel, that the Stipulation be amended as follows:

1. Paragraph 6 of the Stipulation shall be amended to read as follows:

6: Jersey City shall pay over to the Authority, at such time as shall be determined by the Authority, the following amounts:

(a) A capital or principal amount equivalent to an amount that bears the same ratio to the total and complete local cost of the project that 4.5 million gallons per day bears to the total daily treatment capacity of the New Treatment Facilities, (Segments I and II), less Five Hundred Thousand (\$500,000) Dollars,

i.e.: Jersey City Share =

$$\frac{\text{Total Local Cost of Treatment Plant (including Segment II)} \times \left(\frac{4.5 \text{ mgd}}{12 \text{ mgd}} \right) - \$500,000}{}$$

(b) A capital or principal amount equivalent to an amount which bears the same ratio to the total and complete local cost of the New Interceptor that 4.5 million gallons per day bears to the total daily capacity of the New Interceptor.

i.e.: Jersey City Share =

$$\frac{\text{Total Local Cost} \times 4.5 \text{ mgd}}{\text{New Interceptor} \quad 21 \text{ mgd}}$$

(c) An amount which represents Jersey City's share of the operating maintenance, repair and upkeep expenses of the New Treatment Facilities and New Interceptor, bearing the same ratio to the total annual operating, maintenance, repair that 4.5 million gallons per day bears to the average daily plant flow.

i.e.: Jersey City Share =

$$\frac{\text{Total Annual Operation, Repair, Maintenance and Upkeep Expenses} \times 4.5 \text{ mgd}}{\text{Average Daily Plant Flow}}$$