

December 31, 1913.

Mr. Richard H. Gillespie,

Chief Engineer of Sewers and Highways.

Sir:—

I submit herewith a report of the operations of the Bureau of Sewers in the office of the President of the Borough of The Bronx for the year ending December 31, 1913.

Respectfully,

JOSIAH H. FITCH,  
Engineer of Sewers.

**OFFICE OF THE PRESIDENT OF THE BOROUGH OF THE BRONX.**  
**REPORT OF THE OPERATIONS OF THE BUREAU OF SEWERS, BOROUGH OF THE BRONX, DURING THE**  
**YEAR ENDING DECEMBER 31, 1913.**

**I. SUMMARY OF WORK DONE PRIOR TO AND SINCE ANNEXATION IN 1874 TO DECEMBER 31, 1913**  
**—COMBINED STORM WATER AND SANITARY SEWERS.**

	Linear feet of Concrete Sewer.	Linear feet of Brick Sewer.	Lin. ft. of Wooden Stave Sewer.	Linear feet of Pipe Sewer.	Total Lengths of Sewers. All Kinds.		No. of Spurs.	No. of Manholes Built.	No. of Manholes Rebuilt.	No. of Manhole Heads and Covers.	No. of Ventilators.	No. of Receiving Basins Built.	No. of Receiving Basins Rebuilt.	No. of Catch Basins Built.	Linear ft. of Concrete Drain.
					Lin. ft.	Miles.									
First Quarter .....	2,979.00	.....	..	12,196.70	15,175.70	2.874	1,760	161	..	..	..	21	..	1	50.00
Second Quarter .....	3,755.93	.....	..	12,640.48	16,396.41	3.105	1,493	140	..	..	..	58	..	..	....
Third Quarter .....	4,315.05	.....	..	16,656.80	20,971.85	3.972	2,168	196	2	..	..	51	..	..	....
Fourth Quarter .....	4,959.00	.....	..	17,891.90	22,850.90	4.328	2,668	216	27	..	..	43	..	1	....
Totals for Year 1913...	16,008.98	.....	..	59,385.88	75,394.86	14.279	8,089	713	29	..	..	173	..	2	50.00
*Totals prior to Jan. 1,															
1913 .....	65,989.96	291,002.93	25	1,144,313.74	1,501,331.63	284.343	204,281	14,517	1	2	2	3,562	2	30	266.68
Totals, Jan. 1, 1914 ...	81,998.94	291,002.93	25	1,203,699.62	1,576,726.49	298.622	212,370	15,230	30	2	2	3,735	2	32	316.68
* For subdivisions under various Departments, see Annual Report for Year 1912.															

	Lin. ft. of 12-in. to 24-in. Drain Pipe.	Lin. ft. of 3-in. Drain Pipe.	Lin. ft. of 6-in. Pipe as Risers.	Cu. Yds. of Rock Excavation.	Cu. Yds. of Excavation. All Kinds. (Earth).	Cu. Yds. of Excavation in Tunnel.	Cu. Yds. of Concrete (Extra).	Cu. Yds. of Class A Concrete.	Cu. Yds. of Class B Concrete.	Cu. Yds. of Class C Concrete.	Cu. Yds. of Class D Concrete.	Cu. Yds. of Granite Masonry.
First Quarter .....	28.6	....	1,104.	11,519.7	9,500.7	.....	.....	2,050.0	232.6	.....	860.	..
Second Quarter .....	235.9	....	941.3	10,852.4	6,400.0	.....	.....	4,825.0	295.2	.....	895.	..
Third Quarter .....	190.4	....	87.2	13,804.5	1,590.0	.....	.....	2,254.4	3,083.6	173.0	320.	..
Fourth Quarter .....	349.0	....	100.0	9,925.2	.....	.....	.....	1,110.0	2,025.3	468.6	.....	..
Totals for Year 1913 .....	803.9	....	2,232.5	46,101.8	17,490.7	.....	.....	10,239.4	5,636.7	641.6	2,075.	..
*Total prior to Jan. 1, 1913.	9,377.2	1,246	6,147.3	1,367,970.03	192,006.28	49,210	12,501.67	36,369.3	28,758.4	481.8	13,634.	2.4
Totals, Jan. 1, 1914 .....	10,181.1	1,246	8,379.8	1,414,071.83	209,496.98	49,210	12,501.67	46,608.7	34,395.1	1,123.4	15,709.	2.4

	Cu. Yds. of Brick Masonry.	Cu. Yds. of Rubble Masonry in Mortar.	Cu. Yds. of Dry Rubble Masonry.	Cu. Yds. of Broken Stone.	Feet (B. M.) of Timber.	Lin. Ft. of Piles.	Tons of Structural Steel.	Tons of Steel Bars.	Tons of Old Rails.	Pounds of Wrought Iron.	Pounds of Cast Iron.	Lin. Ft. of 24-in. Cast Iron Pipe.
First Quarter .....	.....	.....	.....	.....	154,559.	1,565.	3,075	77,438	.....	.....	.....	..
Second Quarter .....	2.	.....	37.5	3.4	151,555.	14,703.	10,975	289,135	.....	.....	.....	..
Third Quarter .....	22.1	14.	122.1	2.9	329,180.	160,851.	15,052	143,224	.....	.....	.....	..
Fourth Quarter .....	.....	213.	1.0	193.0	419,399.	121,400.	.....	77,113	.....	.....	.....	..
Totals for Year 1913 .....	24.10	227.00	160.60	199.30	1,054,693.	298,519.	29,102	586,910	.....	.....	.....	..
*Totals prior to Jan. 1, 1913.	1,080.93	14,548.77	916.4	45,559.17	17,722,306.	1,621,974.	302,266	2,179,669	274,427	3,219	23,664	56.5
Totals, Jan. 1, 1914 .....	1,105.03	14,775.77	1,077.00	45,758.47	18,776,999.	1,920,493.	331,368	2,766,579	274,427	3,219	23,664	56.5

	Sq. Ft. of Galv. Wire Netting.	Sq. Ft. of Expanded Metal.	Sq. Ft. of Waterproofing.	Lin. Ft. of Wooden Stave Flume.	No. of Sewer Gates.	Cu. Yds. of Embankment.	Sq. Yds. of Rip Rap.	Sq. Yds. of Telford Macadam.	Lin. Ft. of Iron Fence.	No. of Iron Gates.	Lin. Ft. of Curbing Set.	Sq. Yd. of Iron Slag Pavement.	Sq. Yds. Vitrified Brick Pavement.
First Quarter .....	110.	....	....	..	..	....	....	....	....	..	....	....	..
Second Quarter .....	978.	....	....	..	..	....	....	....	....	..	....	....	..
Third Quarter .....	710.4	....	....	..	..	....	....	....	330.6	..	....	....	77.8
Fourth Quarter .....	.....	....	....	..	..	....	....	....	....	..	....	....	..
Totals for Year 1913 ..	1,798.4	....	....	..	..	....	....	....	330.6	..	....	....	77.8
*Totals prior to Jan. 1,													
1913 .....	12,007.0	8,904	716	27	4	32,666	3,500	267	463.4	2	127.6	123.5	..
Totals, Jan. 1, 1914 .....	13,805.4	8,904	716	27	4	32,666	3,500	267	794.00	2	127.6	123.5	77.8

**II. SUMMARY OF WORK DONE PRIOR TO AND SINCE ANNEXATION (JUNE 6, 1895) TO DECEMBER 31, 1913—  
SANITARY SEWERS.**

Items.	Lin. Ft. of Brick Sewer.	Lin. Ft. of Pipe Sewer.	Total Lengths of Sewers. All Kinds.		No. of Spurs.	No. of Manholes.	No. of Inlets.	No. of Flush Tanks.	Cu. Yds. of Rock Excavation.	Cu. Yds. of Concrete (Extra).	Cu. Yds. of Rubble Masonry in Mortar.	Cu. Yds. of Broken Stone.
			Lin. Ft.	Miles.								
96 First Quarter .....	.....	201.9	201.9	0.038	10	3	..	..	190.	....	.....	....
Second Quarter .....	.....	.....	.....	....	....	....	..	..	.....	....	.....	....
Third Quarter .....	.....	.....	.....	....	....	....	..	..	.....	....	.....	....
Fourth Quarter .....	.....	.....	.....	....	....	....	..	..	.....	....	.....	....
Totals for Year 1913 ....	.....	201.9	201.9	0.038	10	3	..	..	190.	....	.....	....
*Totals prior to Jan. 1, 1913.	7,194.70	182,252.58	189,447.28	35.880	12,595	1,256	6	4	47,938.10	30.56	2,132.56	211.69
Totals, Jan. 1, 1914 .....	7,194.70	182,454.48	189,649.18	35.918	12,605	1,259	6	4	48,128.10	30.56	2,132.56	211.69

\* For subdivision under various Departments, see Annual Report for Year 1912.

	Ft. (B. M.) of Timber.	Lin. Feet of Piles.	Lin. Ft. of 12-in. to 24-in. Drain Pipe.	Lin. Ft. of 6-in. to 8-in. Drain Pipe.	Lin. Ft. of 3-in. Drain Pipe.	Lin. Ft. of 3-in. Galv. Iron Pipe.	Lin. Ft. of 12-in. Cast Iron Pipe.	Lin. Ft. of 6-in. Pipe as Risers.
First Quarter .....	7,620	.....	.....	..	..	..	..	.....
Second Quarter .....	.....	.....	.....	..	..	..	..	.....
Third Quarter .....	.....	.....	.....	..	..	..	..	.....
Fourth Quarter .....	.....	.....	.....	..	..	..	..	.....
Totals for Year 1913 ....	7,620	.....	.....	..	..	..	..	.....
*Totals prior to Jan. 1,								
1913 .....	212,540	2,683	2,541	35	108	64	12	3,207
Totals, Jan. 1, 1914 .....	220,160	2,683	2,541	35	108	64	12	3,207

Miles of Sewers in the Borough of The Bronx on December 31, 1913:

    Combined Storm Water and Sanitary Sewers .....298.622  
    Sanitary Sewers ..... 35.918

        Total .....334.540

Of the foregoing mileage of Sewers built about 847/1000 miles has been rebuilt, of which 52/100 miles was rebuilt during the year 1913. In addition to the foregoing mileage there are about 4 8/10 miles of uncompleted work (Sewers, etc.), and 50 Receiving Basins under contract December 31, 1913.

### III. SURFACE WATER DRAINS (Built Under Contract).

	Lin. Ft. of Concrete Drain.	Lin. Ft. of Pipe Drain.	Tot. Lengths of Drains. of (All Kinds) Lin. Ft. Miles.		No. of Spurs.	No. of Manholes.	No. of Manhole Frames.	No. of Rec. Basins.	Cu. Yds. of Rock Excavation.	Cu. Yds. of Excava- tion of all Kinds. (Earth).	Cu. Yds. of Class A Concrete.	Cu. Yds. of Class B Concrete.	Cu. Yds. of Brick Masonry.	Cu. Yds. of Rubble Masonry in Mortar.	Cu. Yds. of Dry Rubble Masonry.	Tons of Steel Bars.	Tons of Structural Steel.	Sq. Ft. of Wire Netting.
First Quarter																		
Second Quarter																		
Third Quarter		46.3	46.3	0.009				1										
Fourth Quarter																		
Total for Year 1913...		46.3	46.3	0.009				1										
*Total prior to Jan. 1, 1913	1,832	3,184.9	5,016.9	0.950	130	19	49	7	2,126.4	1,474.8	1,613.7	17	0.9	3,524	463	11.625	1.010	106.6
Totals, Jan. 1, 1914	1,832	3,231.2	5,063.2	0.959	130	19	49	8	2,126.4	1,474.8	1,613.7	17	0.9	3,524	463	11.625	1.010	106.6

\* For subdivision under various Departments—See Annual Report for Year 1912.

TABLE III.—Continued.

	Feet (B. M.) of Timber.	Lin. Ft. of 3-in. Galv. Iron Pipe.	Lin. Ft. of 6-in. to 12-in. Cast Iron Pipe.	Cu. Yds. of Dry Stone Paving.	Septic Tanks Built.
First Quarter .....	....	....	....	....	..
Second Quarter .....	....	....	....	....	..
Third Quarter .....	....	....	....	....	..
Fourth Quarter .....	....	....	....	....	..
Totals for Year 1913 .....	....	....	....	....	..
*Totals prior to Jan. 1, 1913	19,641	14.5	1,033	189.5	1
Totals, Jan. 1, 1914 .....	19,641	14.5	1,033	189.5	1

IV. STATEMENT SHOWING THE NATURE AND EXTENT OF THE DRAINAGE PROVISIONS CONSTRUCTED AND UNDER MAINTENANCE, IN ADDITION TO PERMANENT SEWERS AND APPURTENANCES.

Class.	Total on Dec. 31, 1913.
Pipe Drains or Culverts, linear feet .....	101,180
Stone Drains or Culverts, linear feet .....	86,449
Box Drains or Culverts, linear feet .....	18,752
Open Drains or Ditches, linear feet .....	88,014
Inlets, number .....	649

V. CONTRACTS COMPLETED DURING 1913.

Number.	Estimated Cost of Work.	Total Amount Cer- tified as Actual Cost of Work.	Approximate Varia- tion between Estima- ted and Actual Cost shown in percentage.	Amount retained as Security for Repairs.
43 .....	\$1,403,508.04	\$1,392,126.62	0.82	\$39,177.39

**VI. SUMMARY OF PAYMENTS MADE ON CONTRACTS IN FORCE AND  
UNDER CONSTRUCTION DURING THE YEAR 1913.**

Number of Seventy Per Cent. Payments forwarded .....	53
Amount paid to Contractors by Seventy Per Cent. Payments.	\$218,387.98
Number of Eighty-five Per Cent. Payments forwarded .....	116
Amount paid to Contractors by Eight-five Per Cent. Payments	567,354.37
Number of Payments on Acceptance forwarded .....	43
Net Amount Paid to Contractors by Payments on Acceptance	385,180.62
Number of Payments of Amounts Retained as Security for Re- pairs forwarded .....	31
Net Amount Paid to Contractors on account of Security for Repairs .....	28,484.86
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Total Number of Payments of all kinds .....	243
Total Amount Paid to Contractors .....	\$1,199,407.83

**VII. SUMMARY OF CONTRACTS.**

Number of Contracts.	In force, Jan. 1, 1913		Executed during year ending Dec. 31, 1913		Total	
	Sewers.	Receiving Basins.	Sewers.	Receiving Basins.	Sewers.	Receiving Basins.
Completed during the Year 1913 .....	18	2	15	8	33	10
In progress at end of year ending De- cember 31, 1913 .....	2	..	16	5	18	5
Under 6 months repair .....	8	..	14	8	22	8
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Totals .....	28	2	45	21	73	23

VIII. REPORT WITH REFERENCE TO LOCAL IMPROVEMENTS—BOROUGH OF THE BRONX.

Local Improvements for Sewers, etc., and Receiving Basins, etc.	1st Quarter ending March 31, 1913		2nd Quarter ending June 30th, 1913		3rd quarter ending Sept. 30th, 1913		4th Quarter ending Dec. 31st, 1913		Total for Year 1913	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
Total authorized for these purposes .....	7	\$131,700.00	16	\$302,675.00	8	\$87,825.00	14	\$336,332.00	45	\$858,532.00
*Let on Contract .....	11	683,801.55	11	207,667.64	18	193,386.60	10	190,096.37	50	1,274,952.16
Contract work completed .....	8	170,832.55	5	139,211.15	19	1,037,507.25	11	44,575.67	43	1,392,126.62
Contract work completed and certified to the Board of Assessors (includes Engrs. and Insprs. fees) .....	3	82,209.82	7	99,109.50	2	46,295.52	24	612,088.55	36	839,703.39
Contract work completed but not so certified (exclusive of Engrs. and Insprs. fees) .....	7	164,297.61	5	219,887.58	22	1,218,042.12	9	711,474.68	..	.....
Contract work in progress on December 31st, 1913, with estimated cost of same .....									23	1,232,063.84

\* Includes 4 Contracts amounting to \$23,701.28 let during 1st Quarter, 1913, and relet during 2nd Quarter, 1913, for \$29,252.59.

**IX. TABULATION SHOWING AVERAGE PRICES AS BID DURING  
THE YEARS 1912 AND 1913 ON VARIOUS CONTRACTS BY  
THE SUCCESSFUL BIDDERS.**

Kind of Work.	1912		1913	
	No. of bids included in Average.	Average Price.	No. of bids included in Average.	Average Price.
Concrete Sewer (9 ft. 0 in. x 6 ft. 0 in.) and (11 ft. 3 in. x 8 ft.) Double, Per Lin. Foot .....	..	.....	1	\$52.70
Concrete Sewer, 11 ft. 3 in. x 8 ft. Double, Per Lin. Foot .....	..	.....	1	57.56
Concrete Sewer, 10 ft. 0 in. x 8 ft. 0 in. Double, Per Lin. Foot .....	..	.....	1	50.31
Concrete Sewer, 8 ft. 9 in. x 8 ft. 0 in. Double, Per Lin. Foot .....	..	.....	1	44.22
Concrete Sewer, 8 ft. 6 in. x 8 ft. 0 in. Double, Per Lin. Foot .....	..	.....	1	41.85
Concrete Sewer, 8 ft. 3 in. x 8 ft. 0 in. Double, Per Lin. Foot .....	..	.....	1	37.97
Concrete Sewer, 5 ft. 0 in. x 7 ft. 0 in. Double, Per Lin. Foot .....	..	.....	1	21.00
Concrete Sewer, 5 ft. 0 in. x 6 ft. 6 in. Double, Per Lin. Foot .....	..	.....	1	18.60
Concrete Sewer, 12 ft. 6 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	39.73
Concrete Sewer, 12 ft. 0 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	34.66
Concrete Sewer, 11 ft. 6 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	34.98
Concrete Sewer, 11 ft. 3 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	31.67
Concrete Sewer, 10 ft. 0 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	26.95
Concrete Sewer, 9 ft. 6 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	25.43
Concrete Sewer, 9 ft. 0 in. x 7 ft. 6 in., Per Lin. Foot ..	1	\$30.00	..	....
Concrete Sewer, 9 ft. 0 in. x 7 ft. 2 in., Per Lin. Foot ..	1	22.00	..	....
Concrete Sewer, 9 ft. 0 in. x 6 ft. 10 in., Per Lin. Foot ..	1	22.00	..	....
Concrete Sewer, 9 ft. 0 in. x 6 ft. 6 in., Per Lin. Foot ..	2	15.23	..	....
Concrete Sewer, 9 ft. 0 in. x 6 ft. 0 in., Per Lin. Foot ..	..	.....	1	27.43
Concrete Sewer, 8 ft. 6 in. x 7 ft. 0 in., Per Lin. Foot ..	..	.....	1	24.50
Concrete Sewer, 7 ft. 9 in. x 7 ft. 0 in., Per Lin. Foot ..	..	.....	1	25.00
Concrete Sewer, 7 ft. 0 in. x 8 ft. 0 in., Per Lin. Foot ..	..	.....	1	25.21
Concrete Sewer, 7 ft. 6 in. x 6 ft. 6 in., Per Lin. Foot ..	..	.....	1	15.60
Concrete Sewer, 7 ft. 0 in. x 6 ft. 0 in., Per Lin. Foot ..	..	.....	1	14.00
Concrete Sewer, 6 ft. 9 in. x 6 ft. 0 in., Per Lin. Foot ..	..	.....	1	23.36
Concrete Sewer, 6 ft. 0 in. x 6 ft. 0 in., Per Lin. Foot ..	1	14.00	1	13.00
Concrete Sewer, 5 ft. 3 in. x 6 ft. 0 in., Per Lin. Foot ..	..	.....	1	12.00
Concrete Sewer, 6 ft. 0 in. x 5 ft. 6 in., Per Lin. Foot ..	1	13.00	..	.....
Concrete Sewer, 4 ft. 3 in. x 5 ft. 6 in., Per Lin. Foot ..	1	12.00	..	.....
Concrete Sewer, 4 ft. 6 in. Diameter, Per Lin. Foot..	..	.....	1	8.50
Concrete Sewer, 4 ft. 0 in. Diameter, Per Lin. Foot..	1	12.00	2	8.92
Concrete Sewer, 3 ft. 6 in. Diameter, Per Lin. Foot..	1	10.00	1	19.00
Concrete Sewer, 3 ft. 9 in. Diameter, Per Lin. Foot..	1	12.00	..	.....
Concrete Sewer, 3 ft. 3 in. Diameter, Per Lin. Foot..	..	.....	1	20.00
Concrete Sewer, 2 ft. 9 in. Diameter, Per Lin. Foot..	1	10.00	1	6.00
Concrete Sewer, 59 in. x 56 in., Per Lin. Foot.....	..	.....	1	12.00
Concrete Sewer, 54 in. x 68 in., Per Lin. Foot.....	..	.....	1	15.00
Concrete Sewer, 52 in. x 65 in., Per Lin. Foot.....	..	.....	1	14.00
Concrete Sewer, 50 in. x 62 in., Per Lin. Foot.....	1	11.00	..	.....
Concrete Sewer, 45 in. x 60 in., Per Lin. Foot .....	..	.....	2	10.50
Concrete Sewer, 42 in. x 56 in., Per Lin. Foot.....	3	11.60	2	10.63
Concrete Sewer, 38 in. x 50 in., Per Lin. Foot.....	..	.....	3	11.23
Concrete Sewer, 40 in. x 53 in., Per Lin. Foot.....	..	.....	1	13.79
Concrete Sewer, 34 in. x 46 in., Per Lin. Foot.....	1	10.00	3	8.49
Concrete Sewer, 32 in. x 44 in., Per Lin. Foot.....	1	10.31	3	8.00
Concrete Sewer, 29 in. x 40 in., Per Lin. Foot.....	1	10.00	3	7.92
Pipe Sewer, 30 in. Diameter, Per Lin. Foot.....	2	8.00	12	8.43

TABLE IX.—Continued.

Pipe Sewer, 24 in. Diameter, Per Lin. Foot.....	4	5.93	11	6.99
Pipe Sewer, 20 in. Diameter, Per Lin. Foot.....	3	4.71	7	4.43
Pipe Sewer, 18 in. Diameter, Per Lin. Foot .....	8	4.13	20	4.59
Pipe Sewer, 15 in. Diameter, Per Lin. Foot.....	10	4.14	21	3.85
Pipe Sewer, 12 in. Diameter, Per Lin. Foot.....	19	3.84	29	3.63
Pipe Sewer, 10 in. Diameter, Per Lin. Foot.....	1	1.75	..	.....
Pipe Sewer, 8 in. Diameter, Per Lin. Foot.....	2	2.45	..	.....
Pipe Sewer, 12 in. Dia. Cast Iron, Per Lin. Foot....	..	.....	1	6.00
Pipe Sewer, 8 in. Dia. Cast Iron, Per Lin. Foot....	..	.....	1	5.00
Basin Connections, Per Lin. Foot .....	..	.....	19	1.36
Spurs, Each .....	17	1.27	25	1.28
Manholes, Each .....	20	68.19	31	60.09
Receiving Basin, Each .....	13	174.34	30	175.43
Inlets, Each .....	1	88.00	1	59.00
Class "A" Concrete, Per Cu. Yd. ....	..	.....	5	8.60
Class "B" Concrete, Per Cu. Yd. ....	5	6.38	17	5.44
Class "C" Concrete, Per Cu. Yd. ....	..	.....	15	4.63
Rubble Masonry in Mortar, Per Cu. Yd. ....	1	4.60	2	3.50
Dry Rubble Masonry, Per Cu. Yd. ....	2	2.84	4	1.25
Broken Stone, Per Cu. Yd. ....	..	.....	2	2.45
Rock Excavation, Per Cu. Yd. ....	17	2.40	34	3.12
Timber, Per M. ....	8	33.66	22	31.41
Piles, Per Foot .....	2	.18	6	.35
Steel Bars, Per Lb. ....	4	0.033	13	0.037
12 in. to 24 in. Drain Pipe, Per Foot .....	3	.71	18	1.69
6 in. Pipe as Risers including Supporting Concrete, Per Foot .....	1	1.00	3	2.95
Stone Ballast, Cu. Yds. ....	..	.....	3	1.50
Slope Pavement, Sq. Yds. ....	..	.....	2	.75

X. CEMENT TESTS MADE DURING THE YEAR 1913.  
Seven (7) Day Tests.

Number of barrels sampled and tested .....	63
Number of bags sampled and tested .....	220,126
Number of briquets made for neat tests .....	6,111
Number of neat tests made .....	5,850
Long Time and Special Tests.	
Number of briquets made for neat tests .....	1,008
Number of neat tests made .....	762
Number of briquets made for sand tests .....	3,933
Number of sand tests made .....	3,627

XI. WORK IN CONNECTION WITH PREPARATION OF SEWERAGE  
DISTRICT PLANS COMPLETED DURING THE YEAR 1913.

Miles of Sewers .....	26.41
Drainage Plans .....	34
Lithograph Prints .....	120
Study Tracings .....	29
Investigations and Reports .....	38
Estimates .....	11
Plans and Sketches Submitted .....	56
Design of Special Sections .....	1
Index Maps, indicating various subjects .....	2
Surveys .....	7
Sewer Assessment Areas .....	35
Progress Tracings .....	19

TABLE XI.—Continued.

Progress Prints .....	267
Photo. Negatives .....	39
Photo. Prints .....	226
Miscellaneous Prints .....	118
Prints, temporary connections .....	22

**XII. RELATIVE TO MAINTENANCE AND REPAIRS OF SEWERS AND DRAINS.**

**Statement of Various Classes of Work Performed During the Year 1913.**

	Lin. ft. or No. Examined.	Lin. ft. or No. Cleaned.	Lin. ft. or No. Repaired.	Lin. ft. or No. Built.
Sewers .....	448,279	848,190	398	50
Receiving or Catch Basins .....	122	10,111	75	3
Manholes .....	575	1,484	257	4
Pipe Stone and Box Drains or Culverts .....	216	51,569	13,970	1,007
Open Drains or Ditches .....		109,180		30
Flush Tanks .....		12		
Loads of dirt carted .....				21,028
Cubic Yards of Excavation and Filling in .....				1,776
Linear Feet of Sheet piling and Shoring Driven and Drawn .....				215

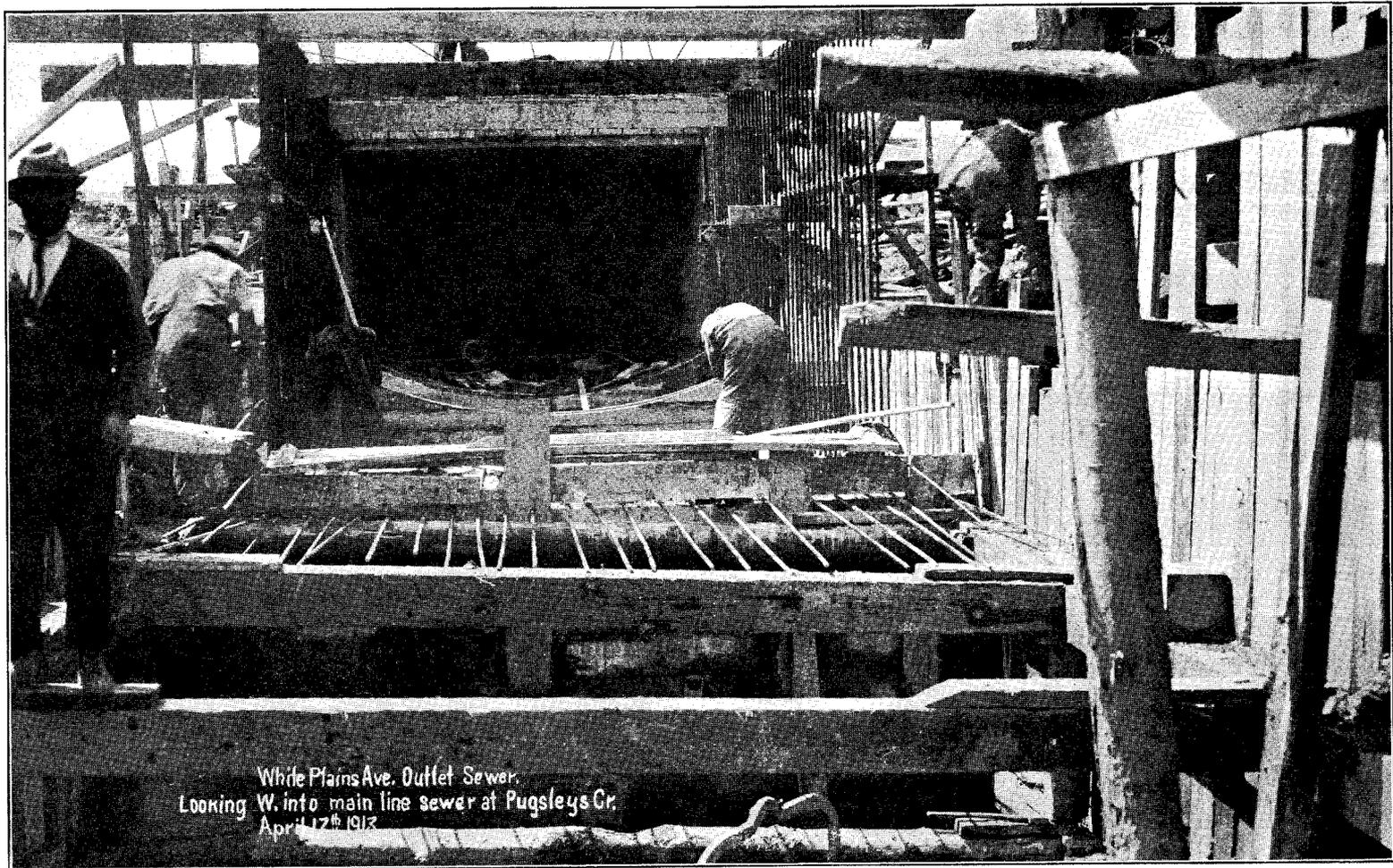
**XIII. HOUSE CONNECTIONS, ETC.**

The following is a list of the work inspected by the Bureau of Sewers in the matter of laying connections from houses to sewers and miscellaneous work done by property owners or Corporations during the year 1913:

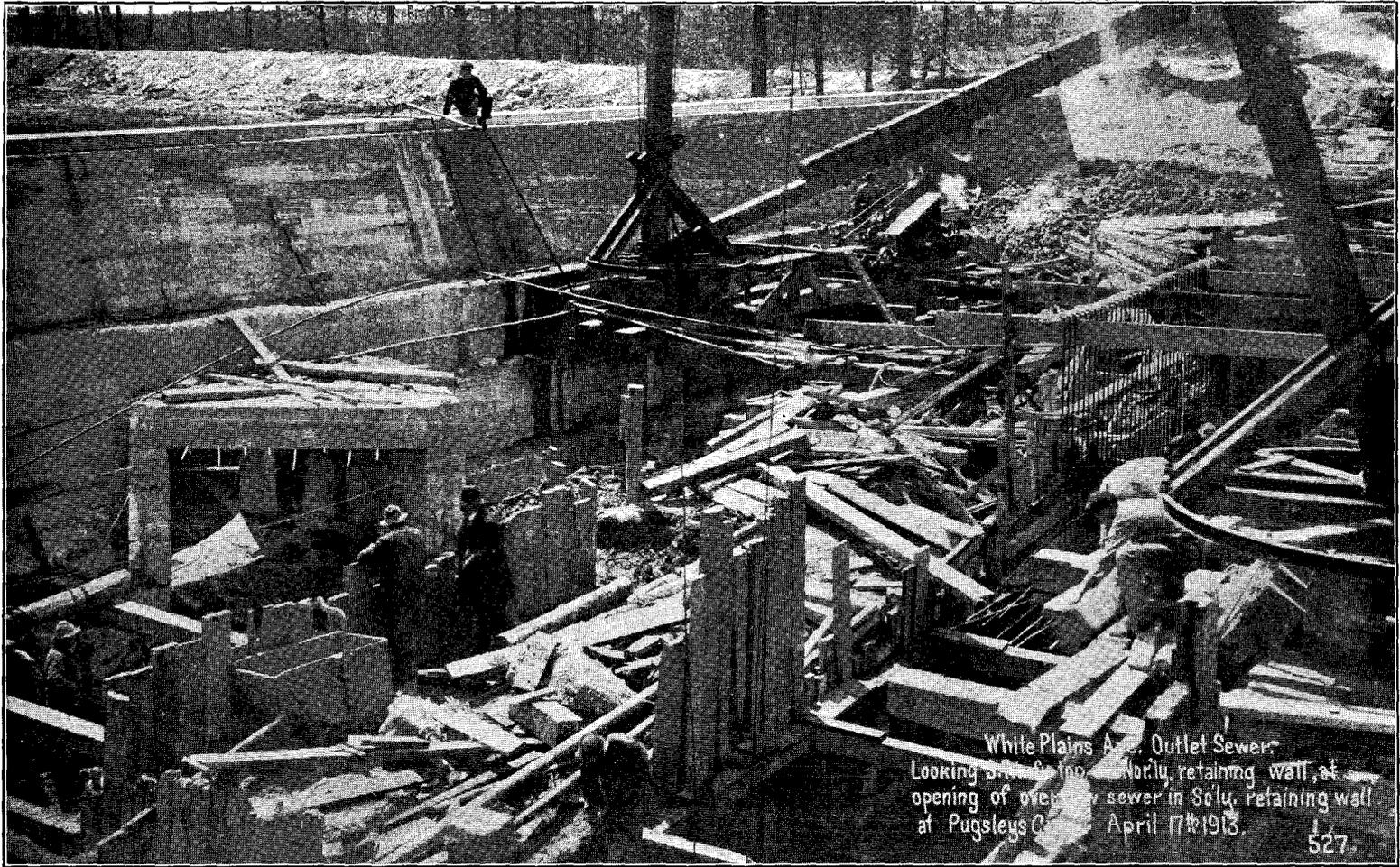
New house connections .....	1,323
Repairs to house connections .....	185
Temporary connections .....	24
Surface water drains laid .....	1
Leader connections .....	3
Disconnections from private drains and reconnecting to public sewer..	41
Continuing sewer connections from curb to house .....	9
Additional sewer connections .....	3
Reconnecting house sewers .....	1
Blocking of sewer connections .....	7
Replacing earthenware pipe with iron pipe .....	2
Replacing 6-inch pipe with 8-inch pipe (for house connection) .....	1
Lowering house sewer pipe .....	1
To build Catch Basin .....	1
To connect track drainage basin .....	2
To connect receiving basin .....	1
To connect subway manholes .....	2
Hydrant connections .....	95
Blow off connections .....	17
<b>Total Inspections .....</b>	<b>1,718</b>

Supplemental to the preceding tabulations, the following is presented in relation to the work of the Bureau of Sewers, Borough of The Bronx, for the year 1913:





White Plains Ave. Outlet Sewer.  
Looking W. into main line sewer at Pugsleys Cr.  
April 17<sup>th</sup> 1913



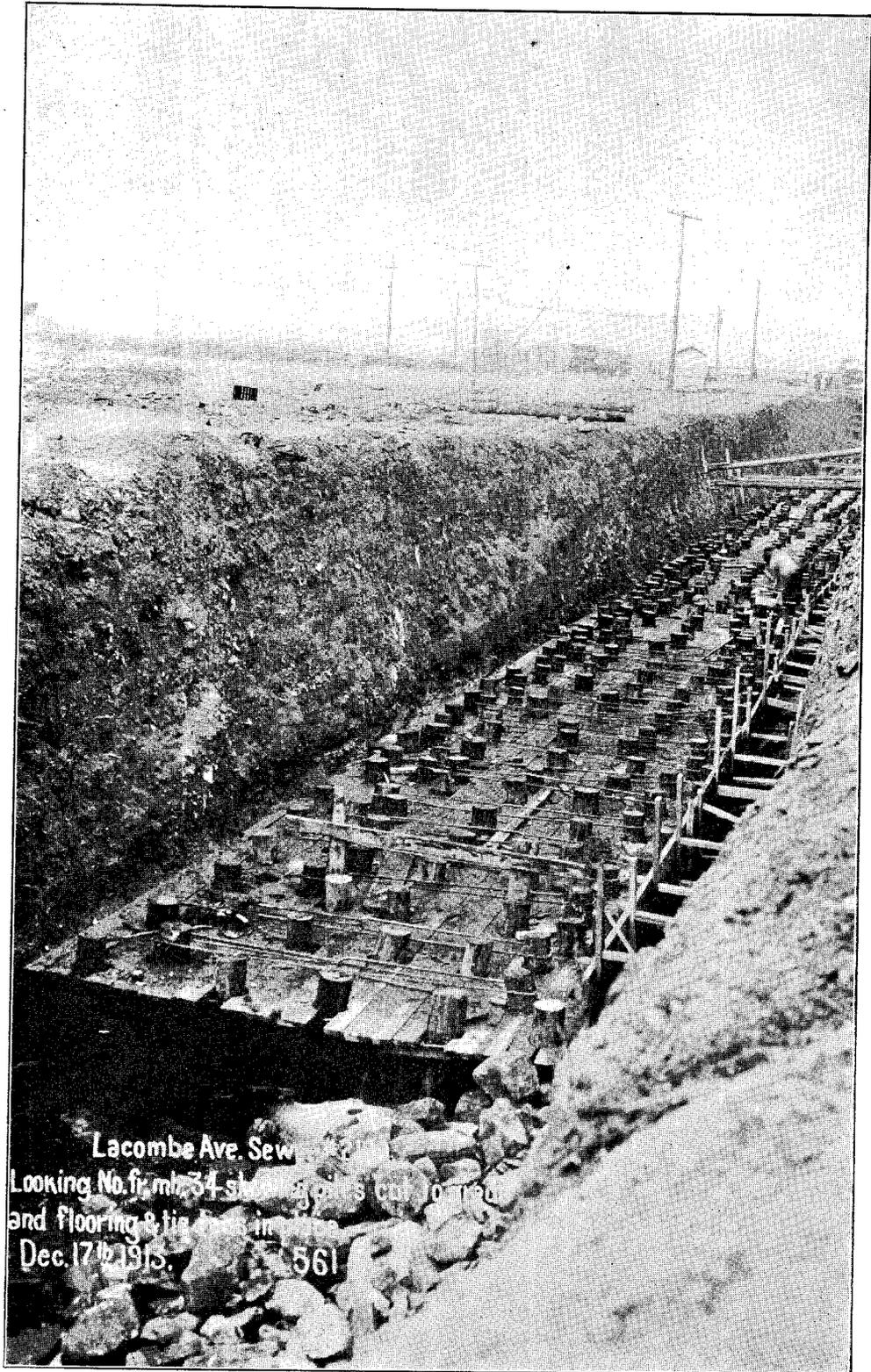
White Plains Ave. Outlet Sewer  
Looking S. & E. into N. retaining wall, at  
opening of over sewer in S. retaining wall  
at Pugsleys C. April 17th 1913. 527.



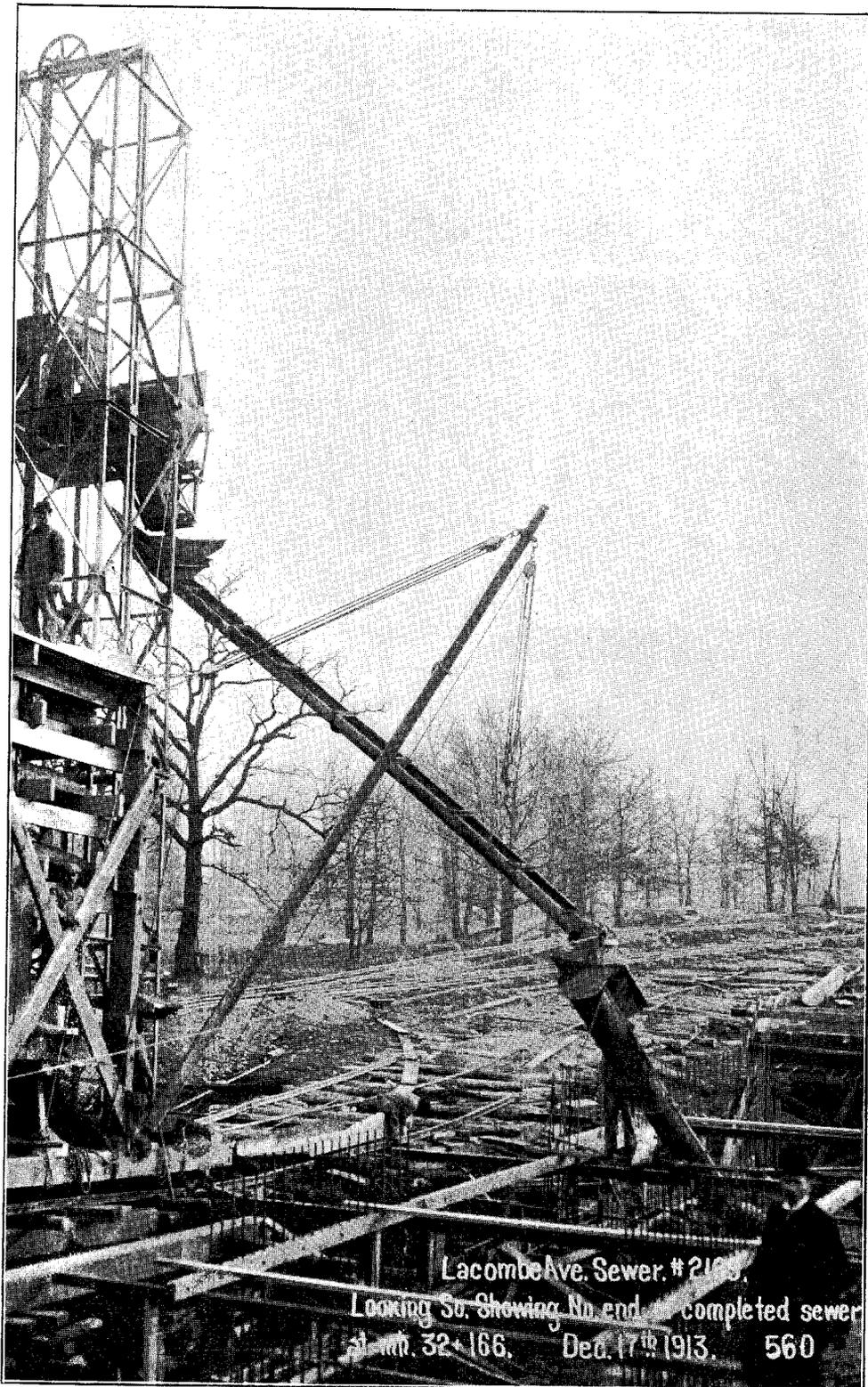
White Plains Ave. Outlet Sewer.  
Looking No. fr. So. side of Cornell Ave.  
April 17<sup>th</sup> 1913. 530



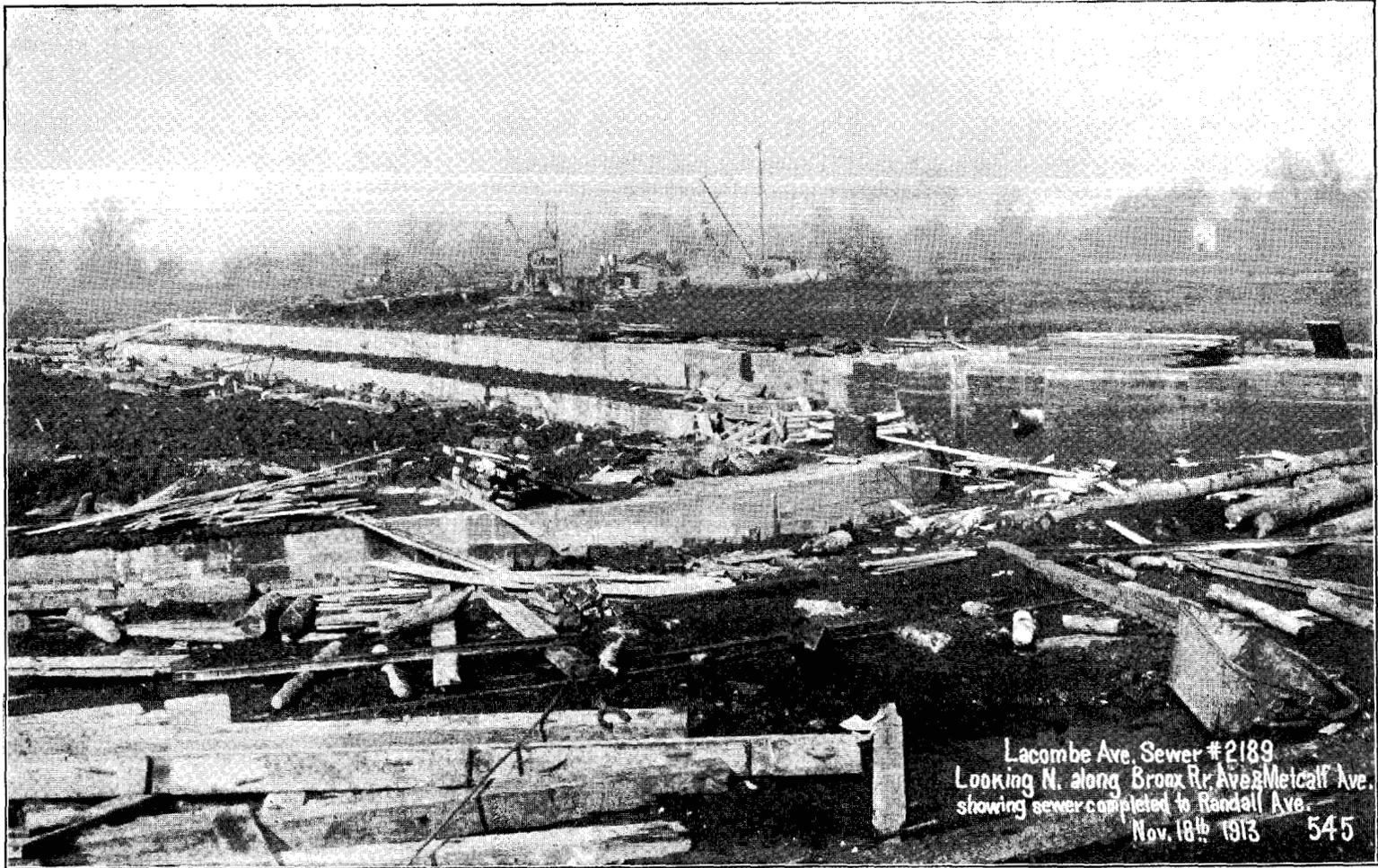
Inspection Party - September 11th 1913  
White Plains Road Sewer - Bronx - New York City



Lacombe Ave. Sewer  
Looking No. from 34 showing pipe cut, 10 ft. in  
and flooring & tie rods in place  
Dec. 17, 1915. 561



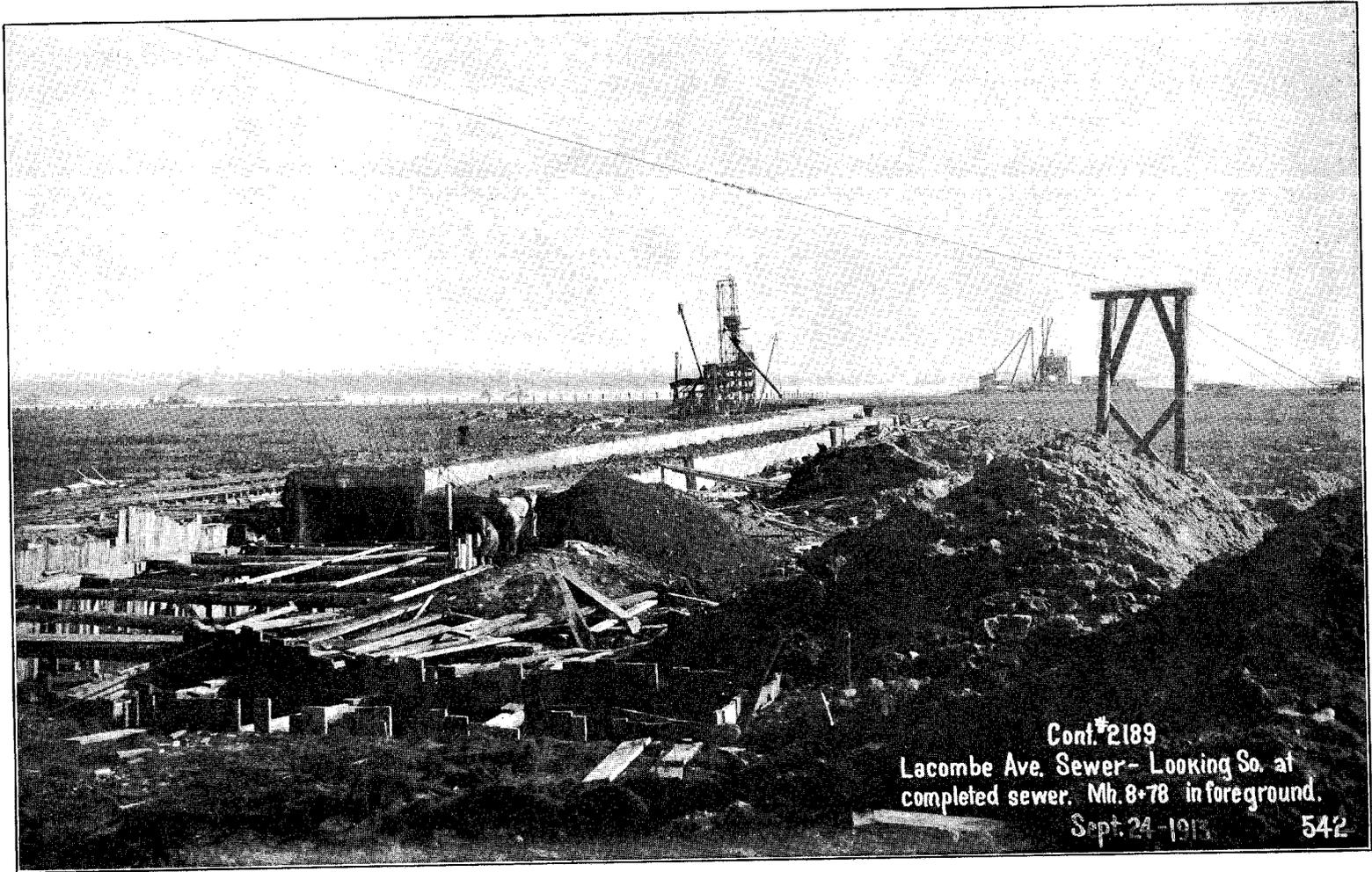
Lacomb Ave. Sewer # 2163.  
Looking So. Showing No. end of completed sewer  
at mt. 32 + 166. Dec. 17<sup>th</sup> 1913. 560



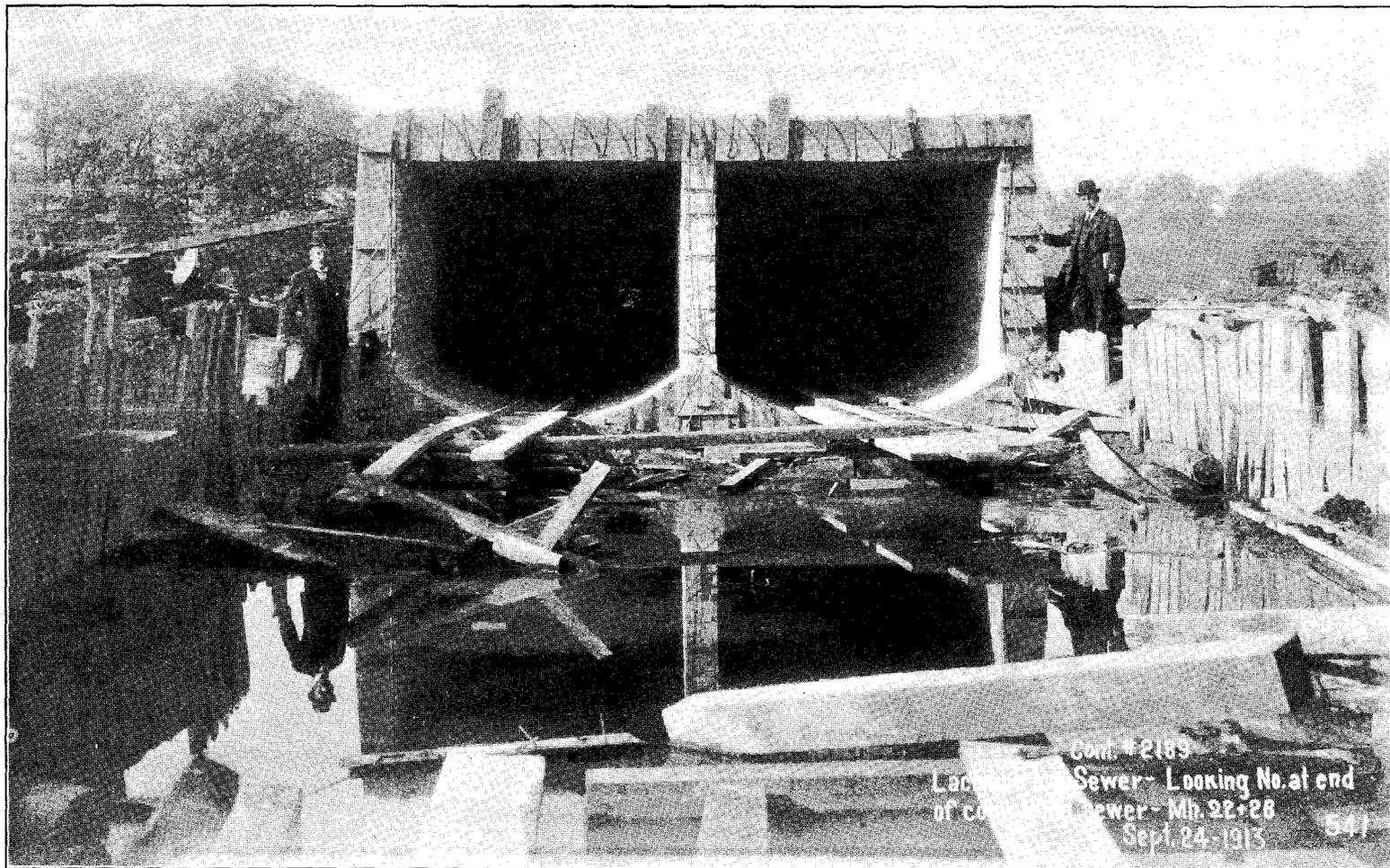
Lacombe Ave. Sewer #2189  
Looking N. along Bronx Rr. Ave. & Metcalf Ave.  
showing sewer completed to Randall Ave.  
Nov. 18<sup>th</sup> 1913 545



Lacombe Ave. Sewer #2189,  
Looking S. fr. abt. mb. 9+70, Randall Ave.  
overflow chamber in foreground.  
Nov. 18<sup>th</sup> 1913. 547



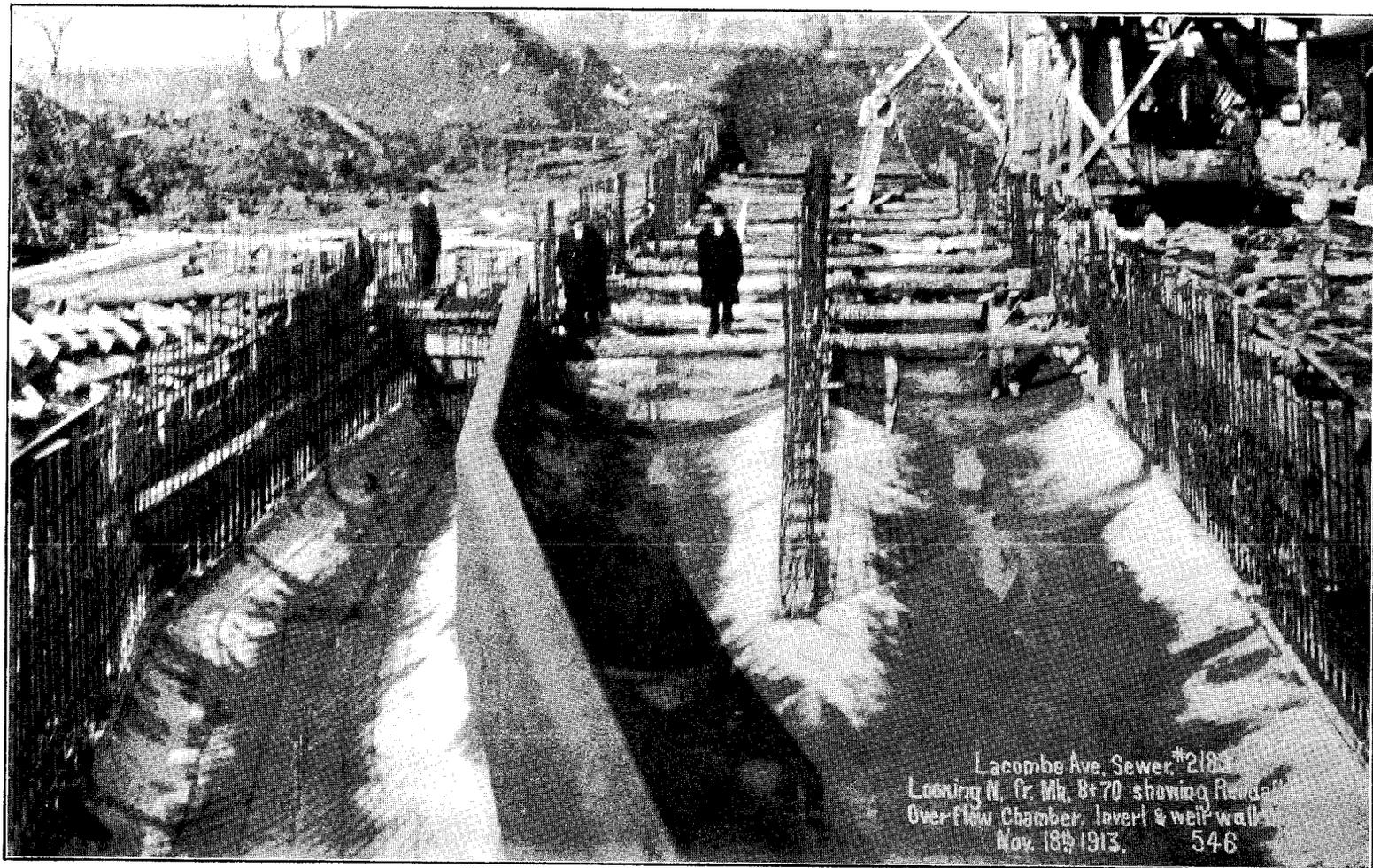
Cont. #2189  
Lacombe Ave. Sewer - Looking So. at  
completed sewer. Mh. 8+78 in foreground.  
Sept. 24 - 1913 542



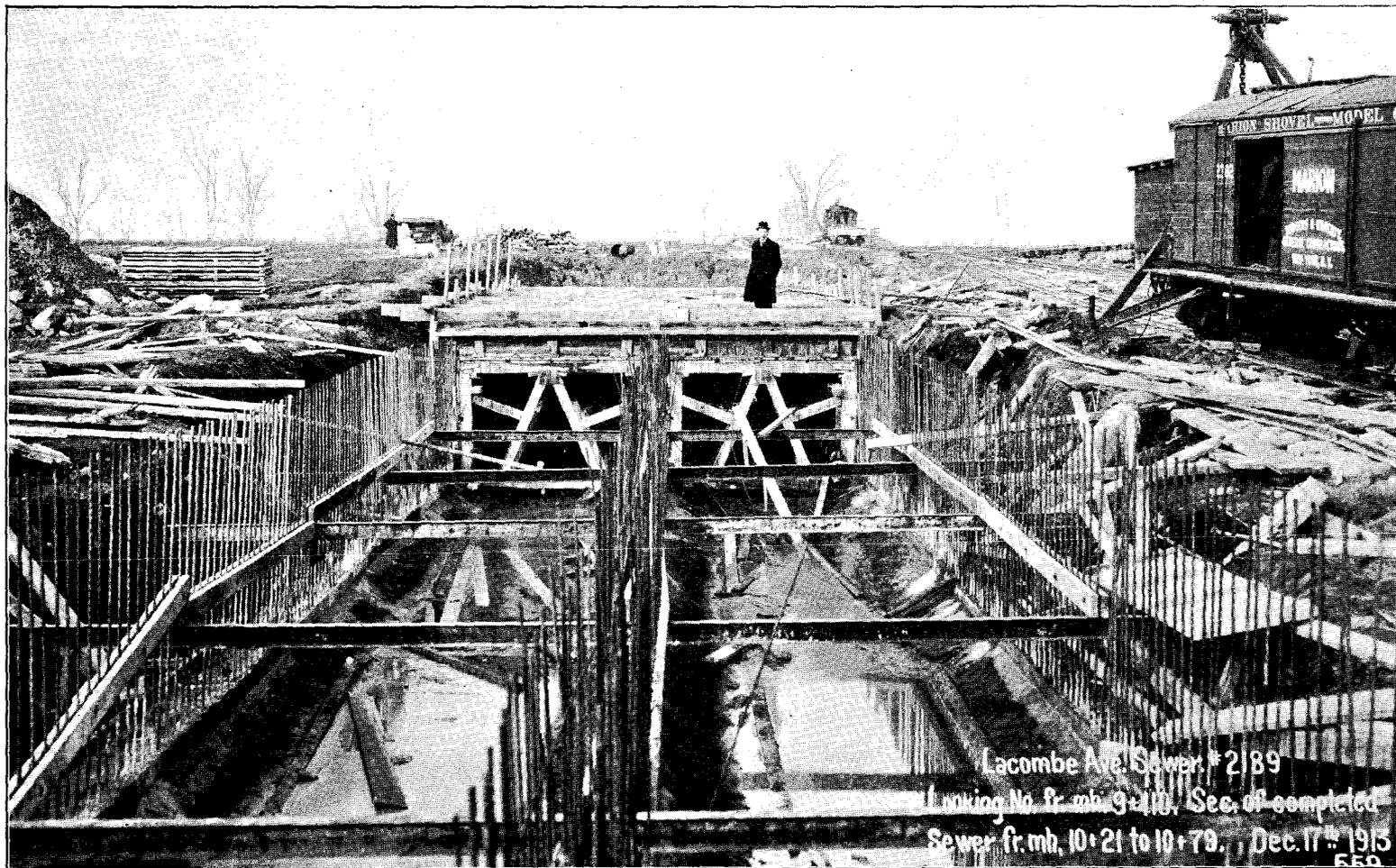
Cont. #2189  
Lack of Sewer - Looking No. at end  
of construction sewer - Mh 22-28  
Sept. 24-1913 541



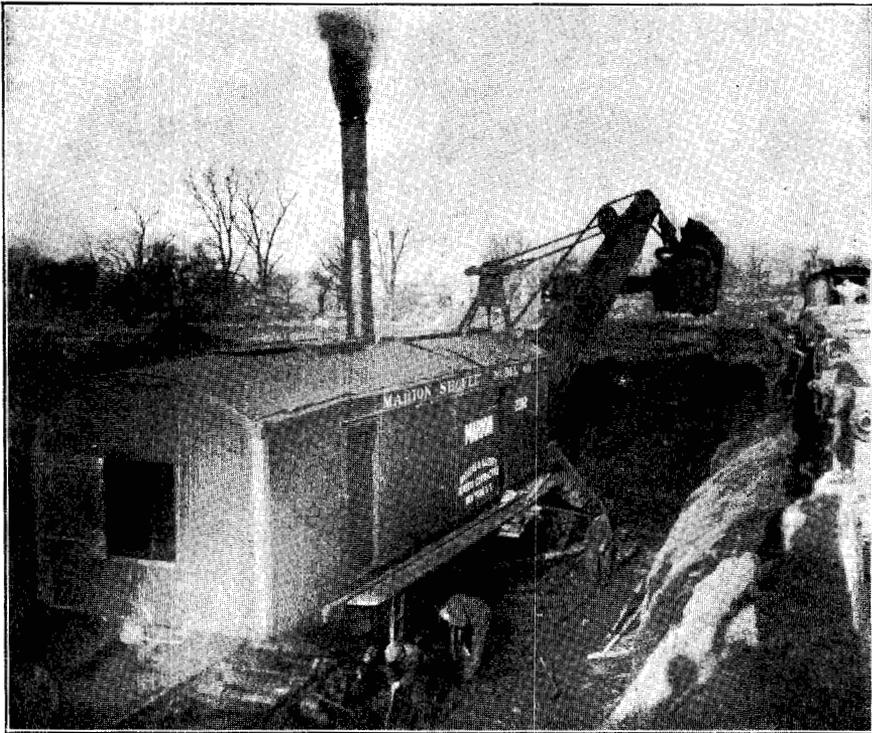
Cont #2189  
Lacombe Ave. Sewer - Looking No. from  
Mh 22-100± showing completed sewer  
From Mh. 22+28 to 24+140 540  
Sept. 24 - 1913



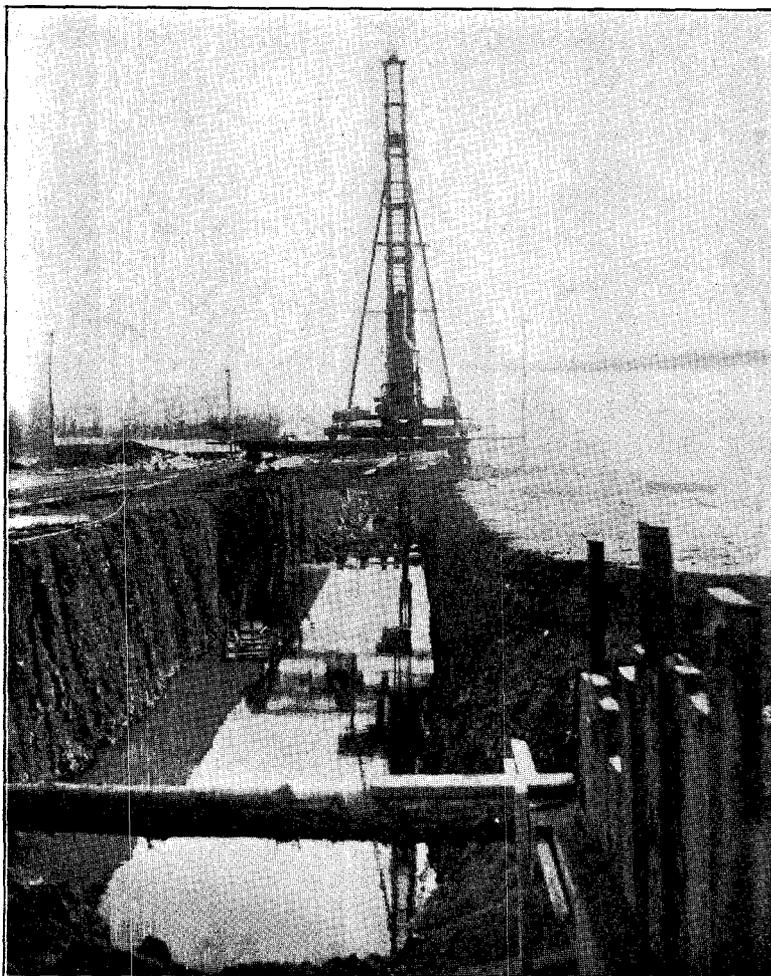
Lacombe Ave. Sewer, #2183  
Looking N. fr. Mh. 8:70 showing Runway  
Overflow Chamber, Invert & well walk  
Nov. 18<sup>th</sup> 1913. 546



Lacombe Ave. Sewer, # 2189  
Linking No. fr. mb. 9+10, Sec. of completed  
Sewer fr. mb. 10+21 to 10+79., Dec. 17<sup>th</sup> 1915  
559



VIEW AT SEWARD AVENUE, DECEMBER 29, 1913.



LACOMBE AVENUE SEWER, LOOKING SOUTH FROM WESTCHESTER AVENUE,  
DECEMBER 3, 1913.

### Sewer Construction.

The contract for constructing the Outlet sewer in WHITE PLAINS ROAD, between the East River and East 152nd Street; and in EAST 152ND STREET, between White Plains Road and Avenue B, and in AVENUE B, between East 152nd Street and Lafayette Avenue (East 156th Street); and in LAFAYETTE AVENUE (East 156th Street), between Avenue B and Avenue A, was completed during the year 1913. The total cost of this Contract was \$591,398.71.

Illustrations from Numbers 1 to 4 accompanying this report show conditions on this contract at various times during the year 1913.

Illustration Number 5 shows a party, consisting of most of the Consulting Engineers and the Chief Engineers of various Bureaus in the City and the Chief Engineer of the Board of Estimate and Apportionment and others, making an inspection trip of this sewer upon the completion of the same. The watershed drained by this sewer is approximately 7,925 acres. The maximum section of sewer built on this contract is equivalent in capacity to a circle 15 feet 6 inches in diameter, and will discharge about 423,000 gallons per minute.

The contract for constructing a main outlet sewer in Westchester Avenue, between Zerega Avenue and Westchester Square; and in Westchester Square, between Westchester Avenue and Walker Avenue, was completed during the year 1913. The total cost of this contract was \$81,815.43.

This sewer is the continuation of the main Outlet Sewer in Zerega Avenue and eventually will be extended northerly to Blondell Avenue and thence up Blondell Avenue to the New York, New Haven and Hartford Railroad Company's property and across and under such property and up into the middle portion of the district lying east of the Bronx River and eventually up to the southerly limits of the former Village of Williamsbridge.

The contract for constructing sewers, etc., in Walker Avenue, between Westchester Square and Overing Street; and in Benson Avenue, between Westchester Square and Walker Avenue; and in Overing Street, between Westchester Square and Walker Avenue; and in St. Peters Avenue, between Westchester Avenue and Walker Avenue; and in Zerega Avenue, between Westchester Avenue and Glebe Avenue; and in Tratman Avenue, between Zerega Avenue and Benson Avenue; and in Frisby Avenue, between Zerega Avenue and Walker Avenue; and in Glebe Avenue, between Rowland Avenue and Overing Street; and in Maclay Avenue, between St. Peter's Avenue and Benson Avenue, was completed during the year 1913. The total cost of this contract was \$64,926.18.

The contract for constructing Sewer, etc., in Parker Street, between Westchester Avenue and Castle Hill Avenue, was completed during the year 1913. The total cost of this contract was \$68,304.52.

The construction of sewers in the Village of Unionport has practically been completed during the year 1913.

The contract for constructing sewers, etc., in East 177 Street, from Pugsley Avenue to Leland Avenue; and in the south side of East 177th Street, from Leland Avenue to Theriot Avenue; and in Theriot Avenue, between E. 177th Street and Westchester Avenue; and in Theriot Avenue, between East 177th Street and Westchester Avenue; and in Westchester Avenue, between Pugsley Avenue and Theriot Avenue; and in the Plaza at the intersection of East 177th Street and Westchester Avenue, was carried on vigorously during the year 1913. The total value of the work done on this contract up to the end of 1913 was \$89,758.75, and the value of the work done in 1913 on this said contract was \$73,764.25.

Work on the contract for constructing sewers and appurtenances in White Plains Road, between East 177th Street and Walker Avenue; and in Wood

Avenue, between White Plains Road and Beach Avenue; and in McGraw Avenue, between White Plains Road and East 177th Street; and in East 177th Street, between McGraw Avenue and Theriot Avenue; and in Leland Avenue, between McGraw Avenue and Wood Avenue; and in Theriot Avenue, between East 177th Street and Wood Avenue, has been carried on vigorously during the year 1913, and the contract is nearly completed. The total value of the work done up to the end of 1913 is \$65,888 and the work done during the year 1913 is \$60,467.

The contract for constructing sewers and appurtenances in Castle Hill Avenue, between Parker Street and Walker Avenue; and in Walker Avenue, between Castle Hill Avenue and Silver Street, was completed during the year 1913, and the total cost of the contract was \$35,501.21.

In addition to the above, many contracts for sewers are in progress, covering the remaining street in the former Village of Westchester and it is expected before the end of the coming year that most of these will be completed.

The contract for constructing the Outlet Sewer in Lacombe Avenue, between Bronx River and Bronx River Avenue; and in Bronx River Avenue, between Lacombe Avenue and Metcalf Avenue; and in Metcalf Avenue, between Bronx River and East 177th Street, was let during the year to Rodgers & Hagerly, and work on the same progressed vigorously. The contract price is \$568,947.29.

Photographs numbered from 6 to 16 illustrate the condition on various portions of the work during various times during the year 1913.

The area tributary to the Metcalf Avenue Sewer north of East 177th Street and Bronx Park Avenue is about 800 acres. There will be a storm overflow located at East 177th Street and Bronx Park Avenue. This overflow will discharge three-quarters of the storm flow or about 575 cubic feet per second and the amount carried on at this point will be about 165 cubic feet per second or about six times the ultimate dry weather flow from the 800 acres. Between the East 177th Street overflow and the overflow which is located at Lacombe Avenue, there is an increment of 790 acres. The total drainage area therefore tributary to the Lacombe Avenue overflow is 1,590 acres, of which 247 acres is in the Randall Avenue drainage area.

There is a branch coming into the Metcalf Avenue Sewer at Randall Avenue, and on this Randall Avenue Branch there will also be an overflow which will discharge three-quarters of the storm flow or about 166 cubic feet per second and the amount carried on through the Randall Avenue sewer will be 55 cubic feet per second or about nine times the dry weather flow plus the storm flow from the increment area of 52 acres, between Lafayette Avenue and Metcalf Avenue.

The Lacombe Avenue overflow is designed to discharge seven-eighths of the increment storm flow or about 355 cubic feet per second, and the amount carried on will be about 317 cubic feet per second or about six times the ultimate dry weather flow.

The contract for rebuilding the sewers, etc., in Tinton Avenue, between East 156th Street and East 165th Street; and in East 160th Street, between Tinton Avenue and Forest Avenue; and in East 165th Street, between Tinton Avenue and Forest Avenue; in Forest Avenue, between East 166th Street and Home Street, was let during the year to the John J. Hart Contracting Company and the contract price thereof was \$59,620.30. Work on this contract progressed vigorously and the contract was practically completed during the year 1913.

There is submitted also with this report a copy of a report of the investigation made in the matter of rainfall and run-off on the Tinton Avenue Watershed which was completed during the year 1913.

### Drainage Plans.

The following drainage plans have been prepared by the Bureau of Sewers and adopted by the Board of Estimate and Apportionment during the year 1913.

Sewerage District No. 43-S, adopted by the Board of Estimate and Apportionment, May 1, 1913. This provides for sewers in the territory bounded approximately by Bronx and Pelham Parkway, N. Y., N. H. & H. R. R., Cheseborough Avenue and Munroe Avenue, and contains about 296 acres.

Sewerage District No. 43-U, adopted by the Board of Estimate and Apportionment, April 17, 1913, provides a system of separate sewers and drains for the district bounded approximately by Burke Avenue, Hutchinson River, Bushnell Avenue and Gunther Avenue, and the area affected contains about 279 acres.

Modified plan for Sewerage District No. 43-K-3, adopted by the Board of Estimate and Apportionment, December 4, 1913. This plan affects the sewers in the vicinity of Sacket Avenue and Bogart Avenue and relates to about 174 acres.

Modified plan for Sewerage District 43-E-3, adopted by the Board of Estimate and Apportionment, November 6, 1913. This plan modifies the sewers in Williamsbridge Road, between West Farms Road and Eastchester Road and affects about 6 acres.

Modified plan for Sewerage District No. 43-B-5, adopted by the Board of Estimate and Apportionment, September 25, 1913, and provides for a receiving basin at Westchester Avenue and Overing Street.

Modified plan for Sewerage District No. 43-G-1, adopted by the Board of Estimate and Apportionment, January 23, 1913. This plan provides high level sewer in Metcalf Avenue, between Beacon Avenue and East 177th Street.

Modified plan for Sewerage 43-G-3, adopted by the Board of Estimate and Apportionment, October 9, 1913. The plan modifies the sewers in the vicinity of 174th Street and Stratford Avenue and affects about 30 acres.

Robertson Street, adopted by the Board of Estimate and Apportionment, November 6, 1913. This plan provides a storm water drain in Robertson Place, between 242nd Street and East 243rd Street, and affects 8 acres.

Modified plan for Sewerage District No. 33-G-5, adopted by the Board of Estimate and Apportionment, December 4, 1913, and modifies the sewer in Kinderman Place, between Webster Avenue and Brook Avenue, and affects 2 acres.

Modified plan for Sewerage District 33-E-5, adopted by the Board of Estimate and Apportionment, May 15, 1913. This plan modifies the sewer in Monterey Avenue, between 178th Street and 179th Street, and affects about 2 acres.

Modified plan for Sewerage District No. 39-D-2, adopted by the Board of Estimate and Apportionment, July 10, 1913. This plan modifies the sewers in the area bounded approximately by Fieldston Road, West 244th Street, Waldo Avenue and West 238th Street and contains 16 acres.

Modified plan for Sewerage District 42-L-2, adopted by the Board of Estimate and Apportionment, November 20, 1913, establishes a receiving basin at East 179th Street and Belmont Avenue.

Modified plan for Sewerage District No. 36-D-2, adopted by the Board of Estimate and Apportionment, May 15, 1913. This plan provides for the exten-

sion of the Tiffany Street Trunk Sewer to the United States Pierhead Line and affects about 915 acres.

Sewerage District No. 43-T, fixing the sewers in the territory bounded by the City of Mt. Vernon, Hutchinson River, Hammersley Avenue, Palmer Avenue, Tillotson Avenue, Hunter Avenue, Hollers Avenue, Varian Avenue, and Harper Avenue, and comprises an area of about 346 acres.

Modified plan for Sewerage District No. 43-4, which provides for the extension of the White Plains Avenue Trunk Sewer, from the Bulkhead Line to the new U. S. Pierhead Line, and affects a drainage area of about 7,500 acres.

Modified plan for Sewerage District No. 43-F-2. This re-locates the storm water overflow in the Bronx River at Lacombe Avenue, and the area affected is about 1,585 acres.

Modified plan for Sewerage District No. 36-C-2. This provides a sewer to carry the dry weather flow from the existing sewer in Truxton Street, from the bulkhead line to the new U. S. Pierhead Line, and affects an area of about 225 acres.

Modified plan for Drainage Sewerage District No. 39-C-2. This modifies the sewer in West 254th Street, between Valles Avenue and Fieldston Road, and affects an area of about 6 acres.

Modified plan for Sewerage District No. 39-B-2. This modifies the sewer in West 238th Street, between Broadway and Putnam Avenue, and affects an area of about 8 acres.

Modified plan for Sewerage District No. 42-I-2. This modifies the sewers in Lowell Street, between Whitlock Avenue and Longfellow Avenue, and affects an area of about 2 acres.

Modified plan for Sewerage District No. 43-G-1. This provides for high level sewers in Metcalf Avenue, between Beacon Avenue and East 177th Street.

Modified plan for Sewerage District No. 43-I-1. This establishes receiving basins at the intersection of Bear Swamp Road and Neill Avenue.

Modified plan for Sewerage District No. 39-A-2. This establishes a receiving basin at the intersection of Bailey Avenue and West 231st Street.

Modified plan for Sewerage District No. 43-C-2. This establishes a receiving basin at the intersection of Wood Avenue and Theriot Avenue.

Modified plan for Sewerage District No. 39-S. This affects the sewers in the territory bounded approximately by Van Cortlandt Park, Mosholu Parkway South, Sedgwick Avenue, West 238th Street and Broadway, and comprises an area of about 90 acres.

Modified plan for Sewerage District No. 37-J-2. This affects the sewers in the territory bounded approximately by Jerome Avenue, Evelyn Place, Aqueduct Avenue, and West 184th Street and covers an area containing about 7 acres.

Modified plan for Sewerage District No. 33-D-5. This affects the sewers in the territory bounded approximately by Gun Hill Road, Bainbridge Avenue, 210th Street and DeKalb Avenue, comprising an area of about 4 acres.

The following drainage plans have been forwarded to the Board of Estimate and Apportionment for approval and adoption, but have not been as yet adopted by said Board.

Sewerage District No. 43-V. This plan provides a lateral system of sewers for the territory bounded approximately by Westchester Avenue, Westchester Creek, Lafayette Avenue and Zerega Avenue, and contains about 94 acres.

Modified plan for Sewerage District No. 43-H-1. This plan provides for the continuation on the sewer in Adams Street, between Bronx Park Avenue and Morris Park Avenue, and affects 15 acres.

Modified plan for Sewerage District No. 43-I-2, provides for the rearrangement of the sewers in Boston Road, between Bronx and Pelham Parkway and Arnow Avenue, and affects 48 acres.

Modified plan for Sewerage District No. 43-A, modifies the sewers in the vicinity of Herschell and Halsey Streets, and the area affected is about 8 acres.

Modified plan for Sewerage District No. 43-G-2, modifies the sewers in the vicinity of Devoe Avenue and Wyatt Avenue and affects about 24 acres.

Modified plan for Sewerage District No. 43-J-1, rearranges the sewers in Boston Road, between Arnow Avenue and Burke Avenue, and affects about 35 acres.

Modified plan for Sewerage District No. 43-L-1, rearranges the sewers in Boston Road and vicinity, between Burke Avenue and Corsa Avenues, and affects 418 acres.

Modified plan for Sewerage District No. 43-P-1, rearranges the sewers in Boston Road, between Corsa and Boller Avenues, and affects 109 acres.

Modified plan for Sewerage District No. 43-J-2, modifies the sewers in the area bounded approximately by Burke Avenue, Boston Road, Radcliff Avenue and White Plains Road, and affects about 107 acres.

Modified plan for Sewerage Districts Nos. 31-D-2 and 33-I-5, modifies the sewers in McClelland Street, between Morris Avenue and Findlay Avenues, and affects 2 acres.

Modified plan for Sewerage Districts Nos. 33-H-5 and 38-V, establishes receiving basins in the vicinity of Creston Avenue and East 197th Street.

Modified plan for Sewerage District No. 32-H, modifies the sewer system in the area bounded approximately by East 141st Street, Willis Avenue, N. Y., N. H. & H. R. R. R. Yards and Third Avenue, and which contains about 113 acres.

Modified plan for Sewerage District No. 36-F-2, establishes a receiving basin at Intervale Avenue and Chisholm Street.

Modified plan for Sewerage District No. 33-J-5. This plan modifies the sewer in East 185th Street, between Washington Avenue and Third Avenue.

Modified plan for Sewerage District No. 33-K-5, establishes receiving basins in the vicinity of Jerome Avenue and East 204th Street.

Modified plan for Sewerage Districts Nos. 33-F-5 and 34-K. This plan modifies the sewers in the vicinity of East 149th Street and Trinity Avenue, and affects an area of about 39 acres.

Modified plan for Sewerage District No. 39-E-2, modifies the sewers in the territory bounded approximately by Tyndall Avenue, West 261st Street, Broadway and West 259th Street, and affects 17 acres.

Modified plan for Sewerage District No. 42-M-2. This plan modifies sewers in the vicinity of Bryant Avenue and East 167th Street, and affects about 4 acres.

Woodlawn Heights Sanitary Outlet Sewer plan provides intercepting sewer which discharges into the Bronx Valley Sewer and drains about 366 acres.

#### **Cement Laboratory.**

During the year 1913 there were 5,850 tests made for tensile strength for work under construction. This represented samples taken from 220,378 bags of cement.

There were also 762 long time tests made for tensile strength. There are submitted with this report charts showing graphical illustrations of the result of some of the long time tests made on various brands of cement. These charts show a continuation of the chart which was submitted for the year 1912, together with some tests that were started in 1911 and 1913.

### Maintenance of Sewers, Receiving Basins, Drains, etc.

The work of maintenance of Sewers, Receiving Basins, Drains, Culverts, etc., in the Borough of The Bronx, has been carried on continuously and diligently during the year 1913.

There have been 660 complaints received during the year of the stopping of sewers, drains, culverts, and open ditches, or the overflowing of receiving basins, and all of these complaints have been promptly attended to and the sewers, basins, etc., relieved where such necessity arose.

In addition to caring for the complaints received, the regular work of cleaning receiving basins and sewers has been carried on steadily, and also the maintaining of the open drains, ditches, culverts, etc., in the districts not provided with permanent sewers.

During the year, there have been 805,959 linear feet of pipe sewer of various sizes cleaned in the Borough of The Bronx, at an average cost of 1.7 cents per linear foot. This is a slight reduction from the cost of last year, which was 1.9 cents per linear foot. I would call attention to the fact that during the year 1912 there were 577,448 linear feet of pipe sewers cleaned. Attention is therefore called to the fact that during the year 1913 the amount of Pipe Sewers cleaned exceeded the amount cleaned during the previous year by 228,511 linear feet.

There have been 42,231 linear feet of Concrete Sewer cleaned during the year, at an average cost of 21 cents per linear foot. During the year 1912 there were only 36,181 linear feet of Concrete Sewers cleaned, at an average cost of 13 cents per linear foot. The increased cost is due to the fact that larger sewers have been cleaned.

There were 10,385 linear feet of Pipe Drains or Culverts cleaned during the year, at an average cost of 11 cents per linear foot. The average cost of cleaning Pipe Drains or Culverts during the year 1912 was 10 cents per foot, and only 6,219 linear feet were cleaned in 1912.

There were 36,577 linear feet of Stone Drains or Culverts cleaned during the year, at an average cost of 14 cents per linear foot, and during the year 1912 there were 48,063 linear feet of Stone Drains or Culverts cleaned, at an average cost of 11 cents per linear foot.

There have been 4,607 linear feet of Box Drains or Culverts cleaned during the year, at an average of 9 cents per linear foot, while during the year 1912 there were 5,793 linear feet of Box Drains or Culverts cleaned, at an average cost of 10 cents per linear foot.

There have been 109,180 linear feet of Open Drains or Ditches cleaned and opened during the year, at an average cost of 2.7 cents per linear foot, while during the year 1912 there were 120,818 linear feet of Open Drains or Ditches cleaned, at an average cost of 3 cents per linear foot.

There have been cleaned in the Borough of The Bronx, during the year 1913, 10,111 Receiving Basins, at an average cost of \$2.67 for each cleaning, and during the year 1912 there were only 9,567 receiving basins cleaned, at an average cost of \$2.71 per basin. This shows a material increase in the number of receiving basins cleaned during the year, and a reduction of the cost of cleaning the same.

In this connection, I would like to call attention to the fact that during the year 1910, there were 7,525 receiving basins cleaned, at an average cost of \$3.57 per basin; and more especially would I call attention to the fact that during the year 1909 there were only 3,571 receiving basins cleaned, at an average cost of \$4.60 per basin.

I would like to compare, therefore, the number of basins cleaned during the year 1909, and the average cost of each, with the number of basins cleaned during the year 1913 and the average cost of each:

Basins cleaned during the year 1909—3,571; at an average cost of \$4.60 per basin.

Basins cleaned during the year 1913—10,111; at an average cost of \$2.67 per basin.

The effect of this has been to obviate almost entirely the complaints of receiving basins overflowing, and it is unusual now in this Bureau to have basins blocked or obstructed, and I have been able to clean 10,111 receiving basins at an average cost of \$2.67, or a total cost of \$26,977.97; whereas, during the year 1909 the cleaning of 3,571 receiving basins, at an average cost of \$4.60, meant the expenditure of \$16,426.60. Thus, for the expenditure of about two-thirds more, we have been able to clean practically three times as many basins.

There were in existence at the end of the year 1913, 3,735 receiving basins in The Borough of The Bronx. We have cleaned during the year, as I have stated, 10,111 basins, which means that each basin has been cleaned on the average about two and one-half times. This does not hold absolutely, for the reason that some basins will require cleaning many times, whereas other basins require cleaning very seldom during the year.

Respectfully submitted,

JOSIAH H. FITCH,

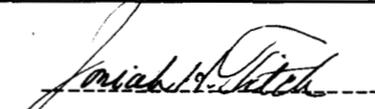
New York, December 31, 1913.

Engineer of Sewers.

**MAP**

## SUMMARY OF AMOUNT AND UNIT COST OF WORK DONE UNDER MAINTENANCE

ITEMS	CLASS OF WORK	QUARTER ENDING MARCH 31 <sup>ST</sup> 1913					QUARTER ENDING JUNE 30 <sup>TH</sup> 1913					QUARTER ENDING SEPTEMBER 30 <sup>TH</sup> 1913					QUARTER ENDING DECEMBER 31 <sup>ST</sup> 1913					SUMMARY OF FOUR QUARTERS 1913										
		LINEAR FT. OR N <sup>o</sup>	PERSONAL SERVICE	CARTS	MATERIALS	TOTAL COST	UNIT COST	LINEAR FT. OR N <sup>o</sup>	PERSONAL SERVICE	CARTS	MATERIALS	TOTAL COST	UNIT COST	LINEAR FT. OR N <sup>o</sup>	PERSONAL SERVICE	CARTS	MATERIALS	TOTAL COST	UNIT COST	LINEAR FT. OR N <sup>o</sup>	PERSONAL SERVICE	CARTS	MATERIALS	TOTAL COST	UNIT COST	LINEAR FT. OR N <sup>o</sup>	PERSONAL SERVICE	CARTS	MATERIALS	TOTAL COST	UNIT COST	
PIPE SEWERS LINEAR FEET	EXAMINATION	101724	120.77	59.40		180.17	.0017	142281	203.77	91.26		295.03	.0021	133828	163.15	70.49		233.64	.0017	31766	92.24	40.48		132.72	.0042	409599	579.93	261.63		841.56	.0021	
	CLEANING	200840	243.177	1119.82		3551.59	.0176	188724	192234	1135.83		3058.17	.0162	207550	2277.77	1196.73	6.00	3480.50	.0167	208839	2469.36	1259.34		3728.70	.0178	805959	9101.24	4711.72	6.00	13818.96	.0171	
	REPAIRING BUILDING	145	320.99	77.64	51.66	450.29	3.11	27	79.47	18.37	11.69	109.53	4.06	60	106.25	33.00	23.34	162.59	2.71	109	480.89	115.24	54.23	650.36	5.97	341	987.60	244.25	140.92	1372.77	4.03	
BRICK OR CONCRETE SEWERS LINEAR FEET	EXAMINATION	4430	6.06	1.82		7.88	.0018	9410	13.19	5.11		18.30	.0019	20500	20.66	10.83		31.49	.0015	4340	14.06	6.91		20.97	.0049	38680	53.97	24.67		78.64	.0020	
	CLEANING	10780	2203.79	503.68		2707.47	.2512	11320	2080.57	423.50		2504.07	.2212	9445	1354.30	351.00	1.83	1707.13	.1807	10686	1433.99	377.66		1811.65	.1695	42231	7072.65	1655.84	1.83	8730.32	.2087	
	REPAIRING BUILDING	25	306.28	73.69	21.06	401.03	16.00							6	12.10	3.00	5.04	20.14	3.36	26	146.00	29.25	16.32	191.57	7.37	57	464.38	105.94	42.42	612.74	10.75	
PIPE DRAINS OR CULVERTS LINEAR FEET	EXAMINATION							12	38.34	3.38		41.72	3.48												12	38.34	3.38		41.72	3.48		
	CLEANING	2101	248.05	43.86		291.91	.1389	3786	329.53	57.92		387.45	.1023	2488	247.50	32.81		280.31	.1127	2010	186.00	29.37		215.37	.1071	10385	1011.08	163.96		1175.04	.1131	
	REPAIRING BUILDING	49	57.19	10.87	5.76	73.82	1.51	3	11.25	3.00		14.25	4.75	92	289.63	55.49	40.66	385.78	4.19	10	.84	.38		1.22	.1220	154	358.91	69.74	4.642	475.07	3.09	
STONE DRAINS OR CULVERTS LINEAR FEET	EXAMINATION	75	1.00			1.00	.0133	90	2.00			2.00	.0222							4	8.19	.75		8.94	2.24	169	11.19	.75		11.94	.0706	
	CLEANING	7273	896.38	150.42		1046.80	.1431	10618	1003.38	144.71		1148.09	.1081	8853	1061.14	216.32		1277.46	.1444	9833	1520.60	244.15		1764.75	.1795	36577	4481.50	755.60		5237.10	.1432	
	REPAIRING BUILDING	2901	1239.22	206.08	134.11	1579.41	.5444	4120	1605.96	288.39	164.18	2058.47	.4996	2389	1043.46	251.98	104.25	1393.69	.5860	2412	945.88	204.20	257.13	1407.21	.5834	11822	4834.52	950.59	659.67	6444.78	.5451	
BOX DRAINS OR CULVERTS LINEAR FEET	EXAMINATION							29	54.00	9.75		7.96	2.47	125	205.56	43.89	9.49	258.94	2.07	53	50.91	20.44		71.35	1.35	293	411.34	87.96	21.05	520.35	1.78	
	CLEANING	1016	77.38	9.36		86.74	.0853	1548	127.90	22.29		150.19	.0970	671	61.87	18.25		80.12	.1200	1372	106.41	15.98		122.39	.0892	4607	373.56	65.88		439.44	.0953	
	REPAIRING BUILDING	208	41.90	10.75	30.84	83.49	.4014	4.55	110.67	23.69	82.71	217.07	.4771	622	205.56	68.43	102.46	376.45	.6052	709	178.59	37.56	76.30	292.45	.4125	1994	536.72	140.43	292.31	969.48	.4862	
OPEN DRAINS OR DITCHES LINEAR FEET	EXAMINATION							272	135.09	22.50		106.00	263.59	9.691	64	49.87	9.90	30.60	89.47	1.40	121	53.85	12.07	62.89	128.81	1.06	631	285.28	54.44	246.09	585.79	.9293
	CLEANING	27502	664.03	77.28		741.31	.0269	31496	749.47	98.17		847.64	.0269	13962	428.01	72.56	1.50	502.07	.0360	36220	780.41	86.83		867.24	.0239	109180	2621.92	334.84	1.50	2958.26	.0271	
	REPAIRING BUILDING													30	7.25	3.00		10.25	.3420							30	7.25	3.00		10.25	.3416	
RECEIVING OR CATCH BASINS NUMBER	EXAMINATION	67	8.87	1.64		10.51	.1567	47	5.21	82		6.03	.1282	6	4.11	2.86		6.97	1.16	2	1.89	.88		2.77	1.39	122	20.08	6.20		26.28	.2154	
	CLEANING	2323	2335.45	3882.28		6217.73	2.67	2588	2719.87	4200.28		6920.15	2.67	2503	2587.30	4118.94		6706.24	2.67	2697	2706.10	4427.75		-7133.85	2.65	10111	10348.72	16629.25		26977.97	2.67	
	REPAIRING BUILDING	12	48.67	5.57	14.82	69.16	5.76	19	39.07	10.00	24.78	73.85	3.89	22	102.98	17.25	26.09	146.32	6.65	22	166.46	37.75	14.76	218.97	9.95	75	357.16	70.57	80.55	508.30	6.77	
MANHOLES NUMBER	EXAMINATION	319	22.50			22.50	.0706													2	12.54	3.00		15.54	7.77	3	63.29	13.12	22.05	98.46	32.82	
	CLEANING	32	55.95	15.00		70.95	2.22	790	85.40	8.25		93.65	.1185	33	28.01	2.25		30.26	.9170	629	119.92	27.00		146.92	.2334	1484	289.28	52.50		341.78	.2303	
	REPAIRING BUILDING	22	157.56	32.06	56.54	244.16	11.19	73	384.43	65.07	109.65	559.15	1.66	107	238.35	39.75	57.56	335.66	3.14	55	205.34	55.24	72.77	333.35	6.06	257	985.68	192.12	296.52	1474.32	5.73	
FLUSH TANKS NUMBER	EXAMINATION							4	6.50	7.5		7.25	1.81	4	7.50	3.00		10.50	2.63							12	20.51	6.00		26.51	2.21	
	CLEANING	4	6.51	2.25		8.76	2.19	4	6.50	7.5		7.25	1.81	4	7.50	3.00		10.50	2.63							12	20.51	6.00		26.51	2.21	
	REPAIRING BUILDING																															
MISCELLANEOUS OVERHEAD CHARGES			566.64	239.38		806.02		1118.33	248.77			1367.10		2008.17	231.21			2239.38			707.31	289.29		996.60			4400.45	1008.65		5409.10		
TOTAL FIELD COST			12978.35	6592.97	525.97	20997.29		13552.90	6895.63	525.74	20974.27		13327.36	6883.16	454.67	20665.19				13151.46	7341.27	581.01	21073.74			53010.07	27713.03	208739	82810.49			
OVERHEAD CHARGES	MAINTENANCE OF YARD								2699.49					2791.25				2791.25			2875.76			2875.76			11011.46			11011.46		
	STORES LIVE STOCK		2644.96																													
EQUIPMENT SERVICE	MAINTENANCE OF YARD		1098.13						1153.72					1157.25				1157.25									4534.85			4534.85		
TOTAL YARD COST			5158.98						5306.57					5554.99				5554.99			5447.63			5447.63			21468.15			21468.15		
TOTAL FIELD & YARD COST			18137.31	6592.97				18858.47					18882.35	6883.16	454.67	26220.18				18599.09	7341.27	581.01	26521.37			74478.22	27713.03	208739	104278.64			

  
 J. W. Kelsay - DEL.  
 ENGINEER OF SEWERS

BUREAU OF SEWERS

BOROUGH OF THE BRONX

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STUDY OF THE RAINFALL AND  
RUNOFF—TINTON AVENUE  
DRAINAGE AREA

1911 to 1913

## GENERAL DESCRIPTION.

The sewer in which the runoff was measured is of the combined type and situated in Tinton Ave., between E. 160th and E. 161st Sts., Borough of The Bronx. It was constructed in 1892 and is egg-shaped, 38 inches by 44 inches, built of brick, and in excellent condition.

At several points above and below where the sewer gauge was located careful measurements were taken of the interior dimensions of the sewer, and the results so closely agreed with the Bronx Standard Sewer Section, shown on Sheet No. 3, that the mean hydraulic radius of this section was used in the computations.

For a distance of 140 feet above and 156 feet below the point where the sewer gauge is located, the invert gradient or slope of the sewer is .67 foot per hundred.

In the computations of the capacity of the sewer, a frictional coefficient of .015 was assumed. The average depth of the dry weather flow was found to be .6 foot.

From April 10th, 1911, to July 19th, 1911, the float of the sewer gauge was .97 foot above the invert of the sewer, and from July 19th, 1911, to the end of the season, the float was .89 foot above the invert. During the year 1912 the float was .79 foot above the sewer invert, and in 1913 the float was lowered so that the dry weather could be measured. The sewer gauge was placed in a chamber built under the sidewalk at the curblineline, 17 feet from the sewer. The chamber is connected with the sewer by means of a 12-inch vitrified pipe, which enters the sewer at right angles to the center line, and from the 12-inch pipe, which connects the chamber with the sewer, a 12-inch vitrified pipe riser was carried up vertically to a height of 9 feet 4 inches above the sewer invert. Directly over this 12-inch riser the register was placed in such a manner that the float and counter-balance hung freely in the pipe and the float, in its upward movement, would pass the counter-balance.

The length of the tape or wire connecting the register and float was so arranged that the counter-balance was always above the water level, except during such time as the sewer was surcharged 1.5 feet or over. Provision was also made for cleaning the connecting pipe and chamber. For details of chamber, see Sheet No. 3.

A stick gauge, shown on Sheet No. 4, for measuring the maximum water depth in the sewer, was placed vertically in a manhole on the line of the sewer, about 10 feet away from the pipe which connects the chamber with the sewer, for the purpose of comparing the greatest depth recorded by the register with that recorded by the stick gauge.

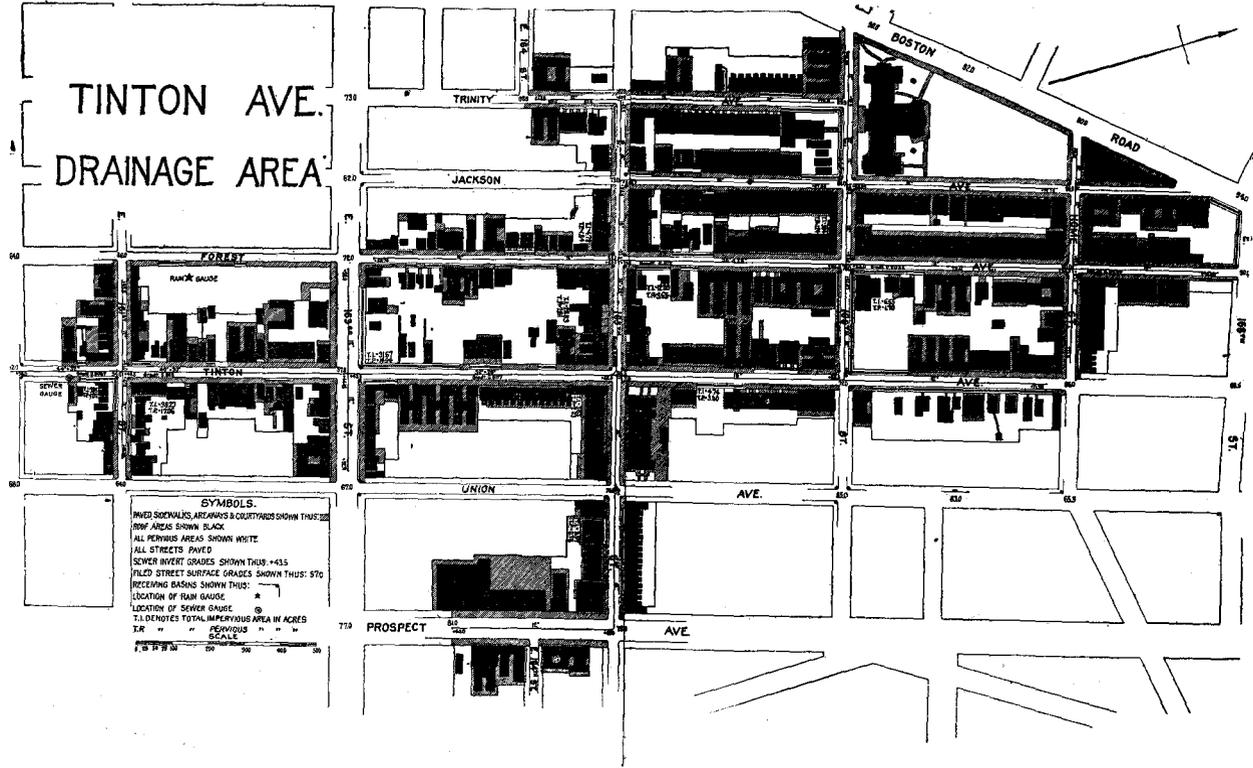
The drainage area tributary to the Tinton Ave. sewer contains 56.29 acres, of which 68.3 per cent. is impervious area, and 31.7 per cent. pervious.

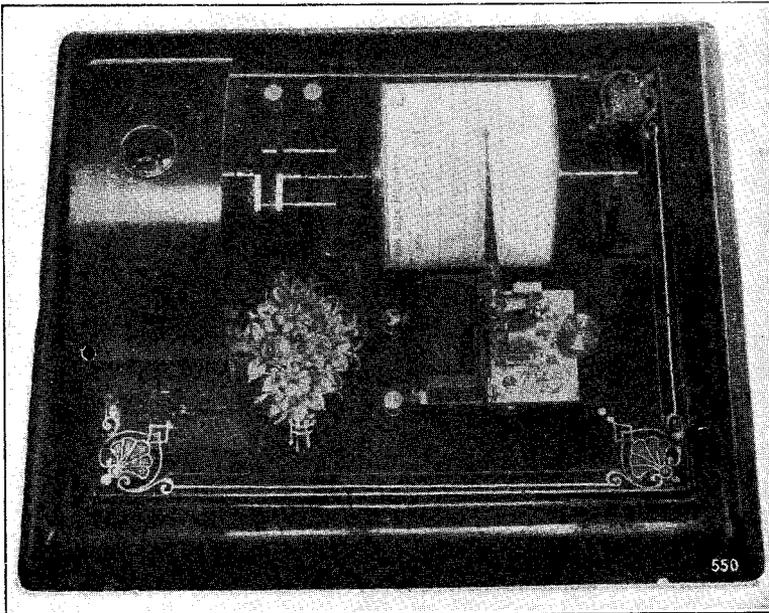
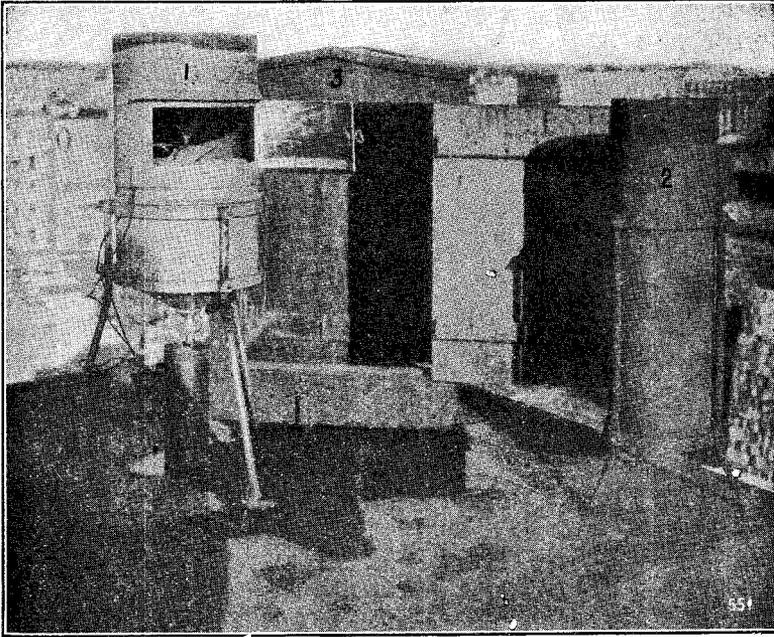
The tributary sewers, grades and slopes, boundary of the drainage area, the street system and surface grades are shown on Sheet No. 2. There are two public buildings within the drainage area which are suitably situated for rain-gauge stations, but permission to enter these buildings every day could not be obtained; therefore, the rain-gauge was installed on the roof of the building occu-

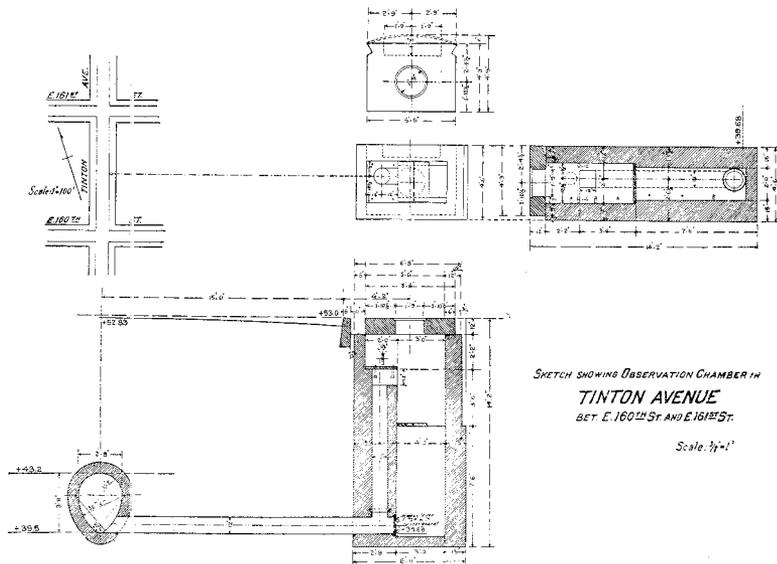
ped by Hook and Ladder Co. No. 19, which is located on the east side of Forest Ave., 150 feet north of E. 161st St., and is, consequently, situated without the southwest boundary line of the drainage area.

The rain-gauge was placed in the center of the roof and 45 feet above the street; it is not obstructed by any tall buildings or trees which would produce eddies of wind.

On the following sheets will be found a map showing the drainage area in detail, pictures of the instruments used in the study of the rainfall and runoff, record sheets of the same, also diagrams of severe storms, maximum intensity curves, and a chronological arrangement of storms and runoff diagrams.

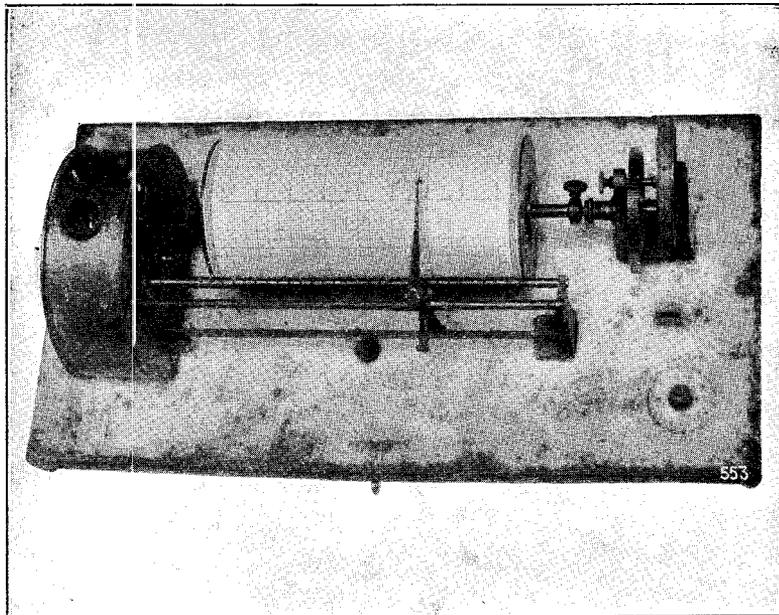




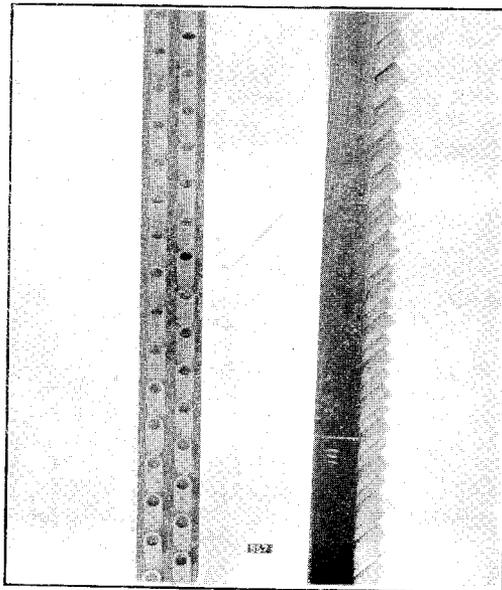
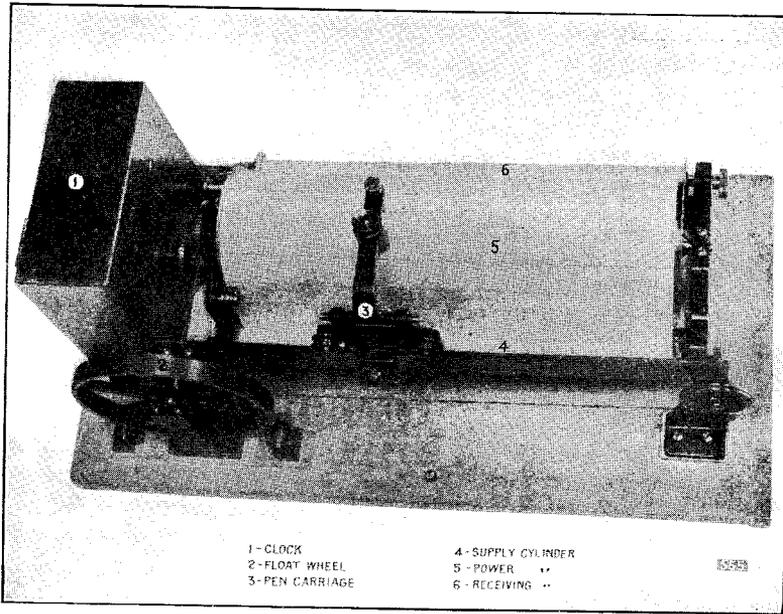


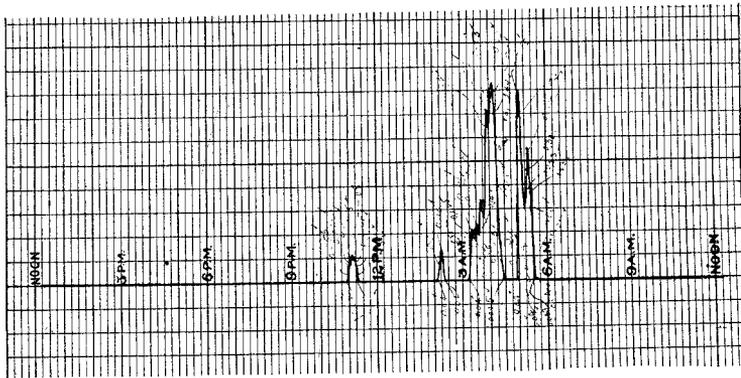
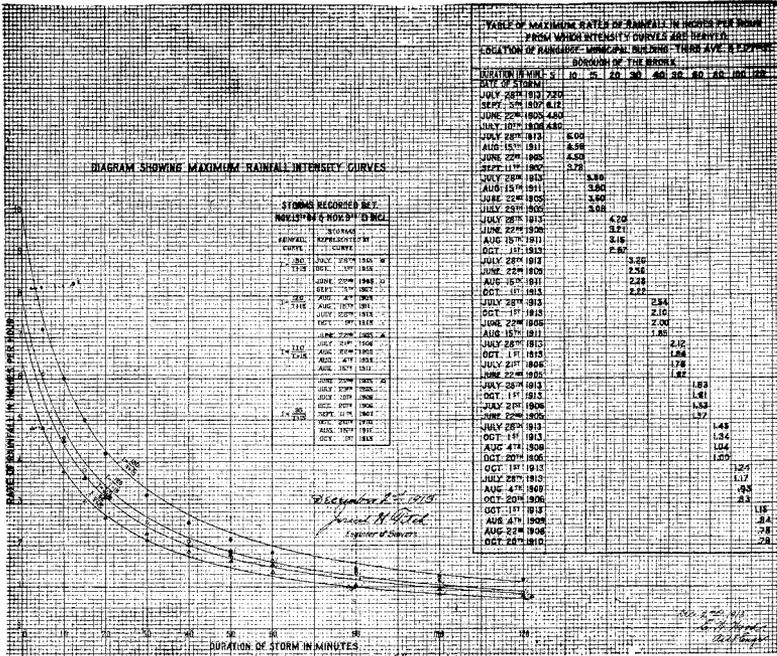
SKETCH SHOWING OBSERVATION CHAMBER IN  
**TINTON AVENUE**  
 BET. E. 160<sup>TH</sup> ST AND E. 161<sup>ST</sup> ST.

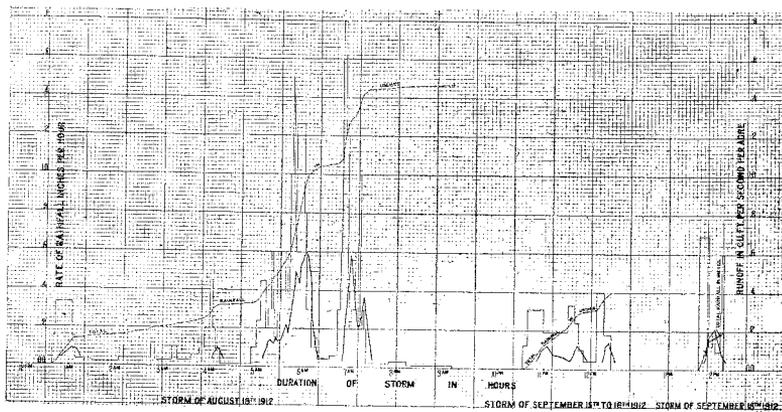
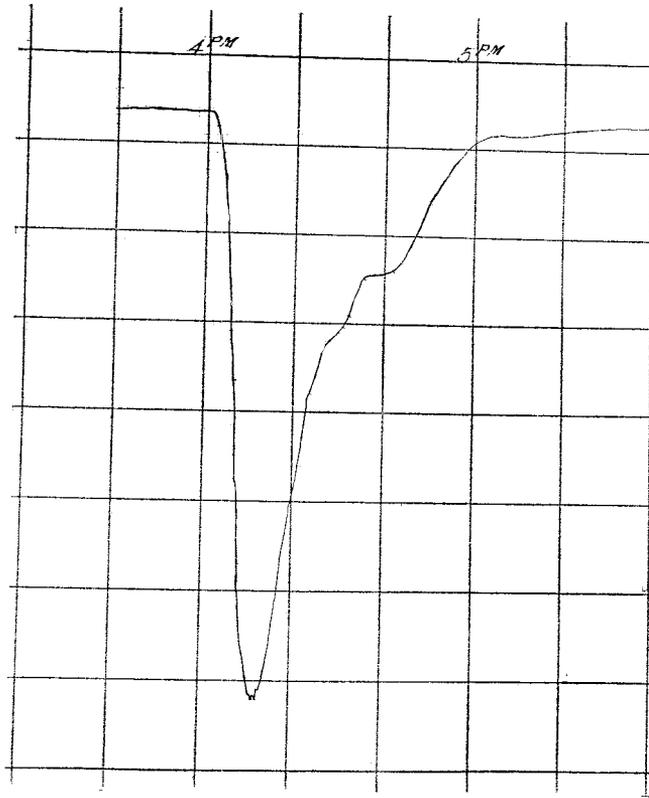
Scale: 1/4" = 1'

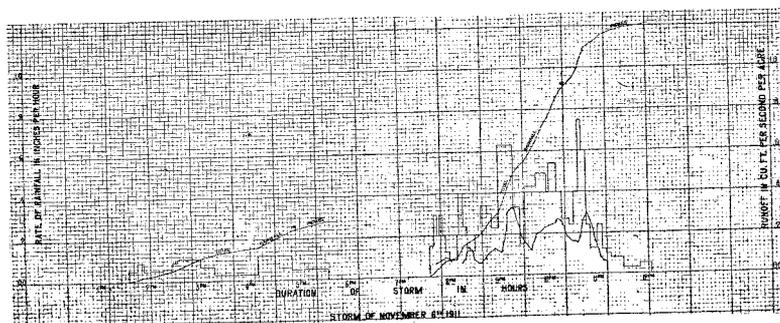
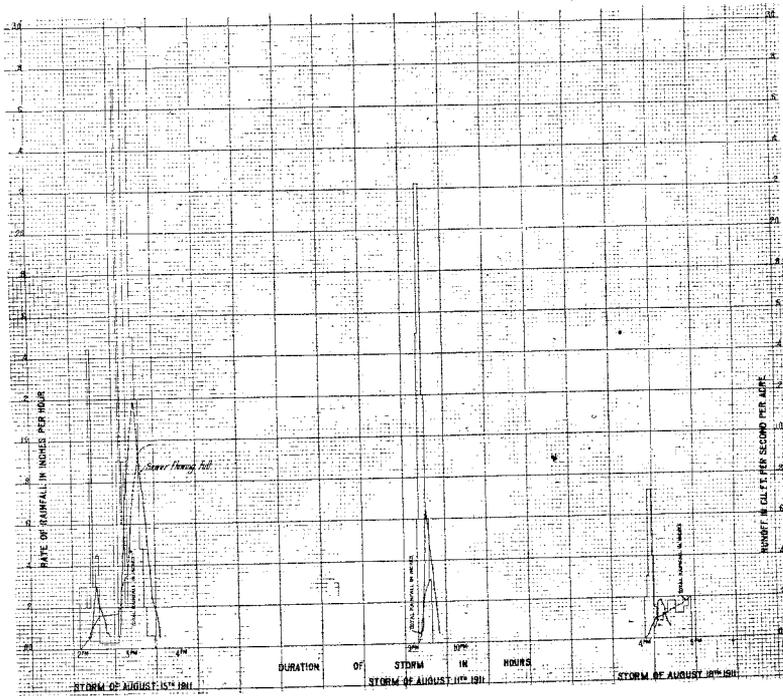


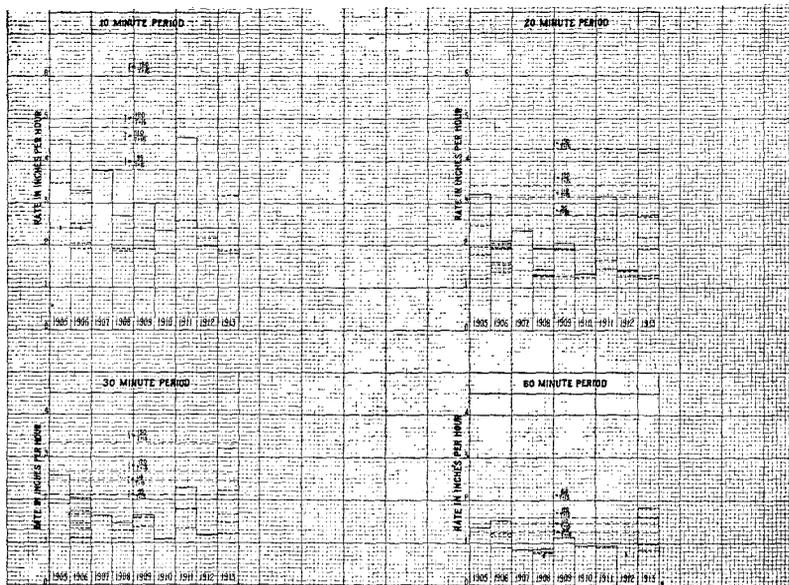
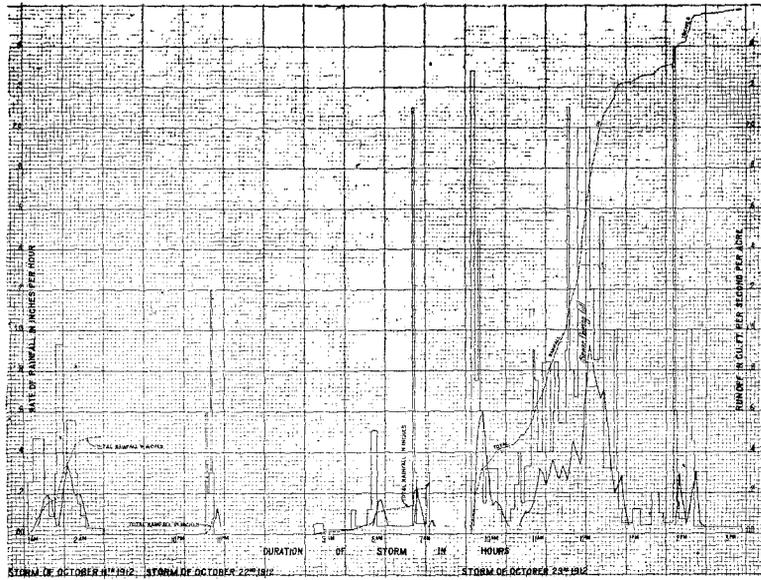












## ANNUAL REPORT BUREAU OF DESIGN—1913.

January 22, 1914.

Mr. R. H. Gillespie.  
Chief Engineer of Sewers and Highways.

Sir:

I submit herewith a report of the operations of the Bureau of Design during the year 1913.

From the tables hereto annexed it will be noted that during the year 151 contracts, estimated to cost \$2,138,462, were prepared for letting, whereas during the preceding year 131 contracts, estimated to cost \$2,500,000 were prepared. Assessment lists for expenditures amounting to approximately \$2,394,000 were prepared during 1913, as compared with \$1,260,000 during 1912.

The records of the Bureau show that the cost of preparation of the contracts, exclusive of work done prior to preliminary authorization, was 0.55 per cent. of the estimated cost of the work to be done, and the cost of preparation of the assessment lists was 0.41 per cent. of the amount expended on the contracts for which the lists were made.

During the year plans and specifications were prepared for a number of important contracts. Some of the interesting features of this work are described below.

**SPUYTEN DUYVIL OUTLET SEWER.**—This sewer is located in the former right of way of the New York Central and Hudson River Railroad, from 230th Street to Harlem River. It will serve to drain an area of about 300 acres, and will be the outlet for about 10 miles of main and lateral sewers. It will cost approximately \$90,000. The work to be done under this contract includes about 2,300 linear feet of reinforced concrete sewer from 7 feet 9 inches by 7 feet 0 inches to 8 feet 6 inches by 7 feet 0 inches interior dimensions. One section of the sewer under the tracks of the New York Central and Hudson River Railroad involved special features of design. The foundation conditions at the Harlem River are unusual. The soundings indicate rock with a sloping surface at a depth of 60 feet, this being overlaid with 8 to 10 feet of clay and sand, superimposed upon which is about 50 feet of mud. These conditions necessitated special longitudinal and lateral bracing of the piles used for the foundation.

Sewer in **LAFAYETTE AVENUE**, from Bronx River to Damis Avenue; and in **DAMIS AVENUE**, from Bronx River Avenue to Westchester Avenue.—This sewer is a portion of the system of which the recently completed White Plains Avenue sewer will be the main outlet. It will take the drainage of about 195 acres, which will contain about 8 miles of main and lateral sewers. It will cost approximately \$95,000. The sections of the sewer range from 54 inches by 68 inches egg-shape to a double sewer, each barrel of which is 5 feet by 7 feet in interior dimensions, and the soundings indicate that for about half its length the sewer will require pile foundation. The length of the work included in this

contract is about 3,800 linear feet, and while the drainage plans require only six different sizes of sewer, the physical conditions in the street were such that it was found necessary for reasons of economy to design fifteen sections. The sewer is designed to have a storm water overflow into the Bronx River at Lafayette Avenue. This overflow will also be used as a temporary outlet pending the construction of the sewer in Bronx River Avenue.

**WEBSTER AVENUE RELIEF SEWER.**—This contract provides for an extension of the sewer which was built a few years ago for the purpose of relieving the old Webster Avenue and Brook Avenue sewers which had become surcharged to a dangerous extent. The first portion of the relief sewer built, extended from Webster Avenue, at Wendover Avenue to the Harlem River, at a point north of High Bridge. It was constructed almost entirely in tunnel and cost nearly \$1,000,000. The contract in preparation at the present time will extend the relief sewer north in Webster Avenue, from Wendover Avenue to a point about 200 feet north of Tremont Avenue, and will afford additional relief to an area of about 2,200 acres, containing about 82 miles of sewers of various sizes. The portion to be constructed will be about 3,350 feet long and is estimated to cost about \$275,000. The sewer is designed to be of reinforced concrete and includes two sections, the interior dimensions of which are 13 feet by 8 feet 6 inches and 12 feet 6 inches by 8 feet 6 inches. Unusual conditions of roof loading and restricted headroom at several places necessitated careful study of the roof design, and the type finally determined to be most economical consists of I-beams spaced at varying intervals and supporting reinforced concrete slabs. The connection with the end of the existing relief sewer is to be made by means of a reducer 51 feet long, 18 feet 3 inches wide at the large end and 13 feet wide at the other. At intervals along the line the new and old sewers are to be connected by means of galleries.

Outlet Sewer in **PENNYFIELD AVENUE**, from East River to Chaffee Avenue; and in **CHAFFEE AVENUE**, from Pennyfield Avenue to Throgs Neck Boulevard; and in **THROGS NECK BOULEVARD**, from Chaffee Avenue to Barkley Avenue.—This sewer will be about 12,000 feet long and its interior dimensions will vary from 5 feet 6 inches by 6 feet 6 inches to 11 feet 3 inches by 6 feet 6 inches. The soundings indicate that pile foundation will be required for about 4,500 feet. This work is estimated to cost about \$480,000. When completed it will take the drainage of about 1,250 acres which will contain about 76 miles of main and lateral sewers. It will be provided with two storm water overflows, one discharging into Weir Creek at Dewey Avenue and the other discharging into East River at Chaffee Avenue.

Regulating, Grading, etc., **EAST 222ND STREET**, from Bronxwood Avenue to Arnow Avenue. This contract was let during the year and is notable chiefly on account of the amount of work involved. The street affected is about 1.7 miles long and requires the excavation of about 115,000 cubic yards of material and the furnishing of about 150,000 cubic yards of filling. The cutting in some places is 19 feet deep and the embankment in others is 20 feet high. The cost of this work, which does not include the furnishing of curb or flagging, will be about \$110,000.

A contract for constructing steps in **EAST 168TH STREET**, between Clay Avenue and Teller Avenue, has just been let. The difference in grade between the two avenues is 58 feet and the length of the block is only 161 feet. It would therefore be impossible to build a street for vehicular traffic, and a strip of land 30 feet wide was acquired for the purpose of constructing a flight of steps to

accomodate pedestrians. At the request of the owners of property in the vicinity an attempt has been made to design a rather ornamental structure of random range stone work, with granite steps and copings. The structure covers the plot for its entire width, and the steps start at the lower level near Clay Avenue and terminate in a roofed pavilion at Teller Avenue.

The revision of the Standard Details of Construction, which was begun late in 1912, was completed in 1913, and the third edition was issued early in the year. The book has been enlarged from 16 to 28 pages, the additions being mainly new types of receiving basins and inlets.

The contracts for street improvements are now so drawn that the standard details of construction are made a part thereof. The details are intended to be used in conjunction with the contract drawings, and are to be used in all cases where they are applicable, provided other details are not shown on the plan.

The standard details of construction are published in book form about 8½ inches by 11 inches, and consist of 28 pages of lithographs, made to scale. They are prepared and used in this form for the following reasons:

1.—It is intended to standardize the more common details of construction by making the details here shown a part of all contracts for regulating, grading, paving and sewer improvements. Only special or unusual details will hereafter be shown on the contract plans.

2.—The time and cost of the preparation of the plans will be materially reduced by avoiding the frequent repetition of the ordinary details. The cost of construction will also be reduced by reason of the fact that the ordinary structures are standard and uniform, and that contractors and manufacturers may prepare and keep in stock patterns, forms and templates for the various parts shown in the standard structures, and thereby save the expense of preparing new patterns, forms and templates for each particular contract.

3.—The chances of error in reproducing the details on each plan are reduced to a minimum and the draftsman's efficiency is materially increased because he is required to concentrate his attention only on the special features of the work in hand.

4.—By eliminating the drawings of the ordinary structures, the plans are rendered clear and easily legible. Furthermore, the attention of prospective bidders is immediately directed to the special or unusual features of the work.

5.—It is intended that copies of this book shall be placed in the hands of contractors, manufacturers, engineers and inspectors, so that all concerned in the construction of public improvements may have in concise and convenient form the information most frequently required.

So far as this bureau is concerned the results anticipated from the use of the standards have been fully realized; and it is believed that with regard to their use by engineers, inspectors, contractors and manufacturers, they have had a considerable measure of success.

The form of contract and specifications for sewers, which was prepared last year by a committee of engineers representing all the boroughs of the City, has been used for sewer contracts in this borough during the past year. New contracts and specifications for regulating and grading, and for paving with

sheet asphalt, asphalt blocks, granite blocks and bituminous concrete, have been prepared during the year, and for the sake of uniformity, as much of the matter in the sewer contract and specifications as was applicable has been used in the same or slightly modified language. Some of them are now in use and others are being printed.

A summary of the work done in connection with the preparation of contracts follows:

Field books for preliminary surveys .....	167
Preliminary working drawings, sketches, etc. ....	133
Tracings of construction details .....	21
Data for report to Local Boards forwarded—contracts .....	198
<b>Contract plans and specifications:</b>	
No of contracts .....	109
No. of tracings .....	131
No. of copies of specifications .....	1,211
No. of copies of bid sheets .....	2,305
Contracts forwarded for letting .....	151
Construction field books .....	114
Inspectors' books .....	166
Lithograph prints for Record Maps forwarded .....	172
Progress profiles .....	60
Working drawings (studies) of standard details .....	19
Tracings of standard details .....	16
<b>Assessment Lists:</b>	
No. of contracts .....	147
No. of maps prepared in duplicate .....	471
Frontage represented (linear feet) .....	1,242,227.25
No. of lots .....	14,023
No. of sketches for temporary connections .....	23
<b>Total estimated cost (including engineering and inspection) of:</b>	
Contracts forwarded for letting .....	\$2,138,462.00
<b>Total cost of contracts (including engineering and inspection) for which assessments lists were forwarded .....</b>	<b>\$2,393,663.00</b>

Details of the work summarized above will be found in Table I, II, III, IV and V.

Appended hereto are reproductions of a number of the contract plans prepared in the Bureau of Design. They are reproduced for the purpose of illustrating some of the more interesting engineering problems which are met in this borough, and the methods of meeting them, and also the character, quality and style of work done in the drafting room.

**MIAP**

**MIAP**

### Subsurface Records.

The amount of work completed during the year by the division of subsurface records was noticeably more than that completed during the preceding year, as is shown by the following tabulation:

Kind of Work	1913	1912	Increase
Sheets for which surveys were made .....	101	93	8
Sheets on which surveys were plotted .....	105	62	43
Sheets for which subsurface examinations were made ..	141	73	68
Sheets on which examinations were plotted .....	51	35	16
Sheets completed to date and colored .....	10	4	6

In addition to the data actually recorded on the maps, a vast amount of data has been gathered from examinations of street openings, and filed. This information will be placed on new maps as rapidly as they are made.

The large amount of work done during the year is due partly to the increased efficiency of the men and partly to improvement in the subdivision and method of handling the work.

Attention is again directed to the importance of hastening as much as possible the work of preparing the subsurface record maps. Additional force could be effectively employed with the same overhead charges, and the advantages to be gained from the use of the maps at an early date cannot be overestimated.

The details of the year's work to the extent that the same can be stated in figures, are shown in the following summary:

Description	Number			Linear Ft.
	Located	Measured	Examined	Measured
Transit points .....	684	....	....	....
Angles .....	....	2,605	....	....
Transit and offset lines .....	....	....	....	551,850
Sewers .....	....	....	....	....
Sewer manholes .....	1,403	....	1,937	....
Receiving basins .....	413	....	515	....
Water gate chambers .....	....	7	....	....
Water gate boxes .....	938	....	827	....
Hydrants .....	625	....	....	....
Drips—gas .....	119	....	....	....
Poles .....	296	....	....	....
Elevated columns .....	219	....	....	....
E. C. S. Co. manholes and boxes ...	123	40	....	....
C. T. and E. S. Co. manholes and boxes .....	351	441	....	....
N. Y. F. D. boxes .....	....	14	....	....
Street and curb lines .....	....	....	....	270,380
Trolley tracks .....	....	....	....	118,840
Railroad tracks .....	....	....	....	....
Kiosks .....	....	....	....	....
N. Y. C. manholes .....	14	....	....	....
R. T. boxes .....	6	....	....	....
Retaining walls .....	....	64	....	....
Col. foundations .....	....	....	....	....
Road boxes .....	16	....	....	....
U. R. R. boxes .....	21	....	....	....

Description	Number			Linear Ft. Measured
	Located	Measured	Examined	
Fences .....	61	....	....	.....
Bridges .....	9	....	....	.....
Newells .....	2	....	....	.....
N. Y. Police Dept. boxes .....	....	....	....	.....
Tunnel walls .....	....	....	....	.....
<b>Investigations of Open Cuts.</b>				
Open cuts .....	....	....	8,377	.....
Water mains .....	2,528	....	....	.....
Gas mains .....	3,005	....	....	.....
Duct mains .....	800	....	....	.....
Special sections—gas .....	....	1	....	.....
Miscellaneous pipes .....	58	....	....	.....
Vaults .....	....	4	....	.....

The work of the year was conducted in some respects under adverse conditions. An unusual amount of time was lost on account of sickness. Much of the work was done under great pressure, because it was considered important to have the authorization or letting of certain contracts expedited. An unusual number of temporary employees was appointed with the consequent loss of time and effort while they were familiarizing themselves with their work. Notwithstanding these handicaps the amount of work done during the year compares more than favorably with that of preceding years, and the contracts have been let more expeditiously than ever. This result is largely due to the continued and faithful co-operation of the employees of the bureau.

Respectfully,

CHARLES GARTENSTEIG,  
Engineer of Design.

**TABLE I.**

**Estimate of Quantities and Data for Report to Local Board Forwarded.  
Sewers and Appurtenances.**

COLLEGE AVENUE, between E. 167th Street and E. 168th Street.  
PAULDING AVENUE, between Walker Avenue and N. Y., N. H. & H. R. R  
STORROW STREET, between Benedict Avenue and McGraw Avenue; and in  
McGRAW AVENUE, between Storrow Street and Pugsley Avenue.  
LAFAYETTE AVENUE, between Longwood Avenue and Tiffany Street.  
TAYLOR AVENUE, between Wood Avenue and Walker Avenue; and in  
ARCHER AVENUE, between Theriot Avenue and Beach Avenue; and in  
GUERLAIN PLACE, between Leland Avenue and Beach Avenue; and in  
WALKER AVENUE, (both sides), between Taylor Avenue and Leland  
Avenue, and in THERIOT AVENUE, between Walker Avenue and the  
summit south of Guerlain Place.  
MONTEREY AVENUE, between E. 178th Street and E. 179th Street.  
MARMION AVENUE, between E. 176th Street and E. 175th Street.  
MONTEREY AVENUE, between E. 178th Street and E. 179th Street.

ST. LAWRENCE AVENUE, between Gleason Avenue and the summit southerly therefrom.

EASTCHESTER ROAD, between Blondell Avenue and Williamsbridge Road; and in WILLIAMSBRIDGE ROAD, between Eastchester Road (Silver Street), and the property of the N. Y., N. H. & H. R. R.

WILLIAMSBRIDGE ROAD (both sides), between Walker Avenue and Silver Street.

ST. RAYMOND AVENUE, between Zerega Avenue and St. Peter's Avenue.

POWELL AVENUE, between Pugsley Avenue and Virginia Avenue; and in VIRGINIA AVENUE, between Powell Avenue and Virginia Avenue; and in GLEASON AVENUE, between Pugsley Avenue and Virginia Avenue; and in ELLIS AVENUE, between Pugsley Avenue and Virginia Avenue; and in NEWBOLD AVENUE, between Tremont Avenue and Virginia Avenue.

RHINELANDER AVENUE, between Muliner Avenue and Bear Swamp Road; and in BEAR SWAMP ROAD, between Rhineland Avenue to a point about 300 feet southerly therefrom.

BLACKROCK AVENUE, between Pugsley Avenue and Virginia Avenue; and in VIRGINIA AVENUE, between Watson Avenue and Blackrock Avenue.

ST. RAYMOND AVENUE, between St. Peter's Avenue and Overing Street.

VAN CORTLANDT PARK SOUTH, between Broadway and Albany Road.

CASTLEHILL AVENUE, between Westchester Avenue and Parker Avenue.

BAILEY AVENUE, between W. 238th Street and a point about 220 feet northerly therefrom.

HERSCHELL STREET, between Westchester Avenue and Wellington Avenue.

OLMSTEAD AVENUE, between Hermany Avenue and Turnbull Avenue.

HAVILAND AVENUE, between Pugsley Avenue and Virginia Avenue; and in VIRGINIA AVENUE, between Watson Avenue and Powell Avenue.

WILLIAMSBRIDGE ROAD (both sides), between Walker Avenue and Silver Street.

NEWTON AVENUE, between W. 253rd Street and W. 260th Street.

E. 207TH STREET, between Woodlawn Road and Perry Avenue.

BRONXDALE AVENUE, between West Farms Road and Castlehill Avenue.

BRITTON (SHERIDAN) STREET, between the easterly line of Bronx Park to White Plains Road.

E. 172ND STREET, between Seabury Place and Boston Road.

STORY AVENUE, between Metcalf Avenue and Manor Avenue; and in STRATFORD AVENUE, between Story Avenue and the summit north of Lafayette Avenue.

PARK STREET, between E. 149th Street and Westchester Avenue.

GLOVER STREET, between Lyon Avenue and St. Raymond Avenue.

DORSEY STREET, between Zerega Avenue and Seddon Street.

MACLAY AVENUE, between Seddon Street and St. Peter's Avenue.

WOOD AVENUE, between White Plains Road and Storrow Street; and in GRAY STREET, between McGraw Avenue and Archer Street.

THROG'S NECK BOULEVARD, between Barclay Avenue and Eastern Boulevard; and in EASTERN BOULEVARD, between Throg's Neck Boulevard and Westchester Avenue; and in WESTCHESTER AVENUE, between Eastern Boulevard and Morris Park Avenue.

WEST 236TH STREET, between Spuyten Duyvil Road and Corlear Avenue, etc.

WEST 236TH STREET, between Kingsbridge Avenue and Corlear Avenue, etc.

DAVIDSON AVENUE, from the existing sewer south of West 184th Street to Evelyn Place, etc.

WHITE PLAINS AVENUE, from a point 100 feet north of the bulkhead line to the pierhead line of the East River.

ALBANY CRESCENT, between 231st Street and Bailey Avenue.

W. 260TH STREET, between Broadway and Fieldston Road.

West side of AQUEDUCT AVENUE, between W. 176th Street and W. 174th Street.

McGRAW AVENUE, between White Plains Road and Gray St.

STARLING AVENUE, between Olmstead Avenue and Hoguet Avenue; and in HOGUET AVENUE, between Starling Avenue and McGraw Avenue; and in McGRAW AVENUE, between Hoguet Avenue and Pugsley Ave.

RHINELANDER AVENUE, between Cruger Avenue and Wallace Avenue; and in WALLACE AVENUE, between Rhinelander Avenue and Bear Swamp Road; and in BEAR SWAMP ROAD, between Wallace Avenue and Bronx Park East; and in BRONX PARK EAST, between Bear Swamp Road and the summit north of Mace Avenue; and in PELHAM PARKWAY NORTH, between Bronx Park East and Olinville Avenue; and in OLINVILLE AVENUE, between Pelham Parkway North and Waring Avenue; and in WARING AVENUE, between Olinville Avenue and the east side of White Plains Road; and in WHITE PLAINS ROAD (west side), between Waring Avenue and the summit north of Mace Avenue.

BRONX and PELHAM PARKWAY, between Pelham Parkway South and the north side of Pelham Parkway, at Matthews Avenue; and in BRONX and PELHAM PARKWAY NORTH, between Matthews Avenue and Bronxwood Avenue; and in BRONXWOOD AVENUE, between Pelham Parkway North and Allerton Avenue.

#### Storm Water Sewer and Appurtenances.

EAST 233RD STREET, between Hutchinson River and Provost Avenue.

#### Rebuilding Sewers and Appurtenances.

E. 135TH STREET, between Walnut Avenue and Willow Avenue.

THIRD AVENUE, between E. 138th Street and E. 140th Street.

#### Receiving Basins and Appurtenances.

Northwest corner of LONGFELLOW AVENUE and Seneca Avenue.

Southwest corner of LONGFELLOW AVENUE and Seneca Avenue.

East and west sides of EXTERIOR STREET, south of W. 230th Street.

Northeast corner of AQUEDUCT AVENUE and E. 181st Street.

Southeast corner of St. Ann's Avenue and E. 161st Street.

East side of BAILEY AVENUE, opposite W. 233rd Street.

Northeast and southeast corners GARRISON AVENUE and Barretto Street.

North side of E. 180TH STREET, opposite Bronx Park Avenue.

Northeast corner of BROADWAY and W. 230th Street.

Northeast corner of STEBBINS AVENUE and E. 169th Street.

Northeast corner of MORRIS AVENUE and McClellan Street.

Northeast corner of BASSFORD AVENUE and E. 185th Street.

Northeast corner of W. 169TH STREET and Inwood Avenue.

Northeast corner of JEROME AVENUE and E. 198th Street.

Southwest corner of CHISHOLM STREET and Intervale Avenue.

Southwest and southeast corners of W. 231ST STREET and Albany Crescent.

Southeast corner of W. 233RD STREET and Albany Crescent.

West side of JEROME AVENUE, opposite E. 204th Street.  
Northwest corner of JEROME AVENUE and W. 196th Street.  
Northwest corner of BELMONT AVENUE and E. 179th Street.

Drains.

ROBERTSON STREET, between E. 242nd Street and E. 243rd Street.

Catch Basin and Appurtenances.

PALISADE PLACE, about 110 feet east of Sedgwick Avenue.

TABLE II.

Approximate Assessed Valuations Forwarded for Report to Local Board.

Regulating, Grading, etc.

VIRGINIA AVENUE, from Public Place at intersection of Westchester Avenue to Ludlow Avenue.  
PUGSLEY AVENUE, from McGraw Avenue to Tremont Avenue.  
MEAD STREET, from Garfield Street to Unionport Road.  
BAKER STREET, from Garfield Street to Unionport Road.  
WHITTIER STREET, from Seneca Avenue to Lafayette Avenue.  
W. 254TH STREET, from Broadway to Fieldston Road.  
COSTER STREET, from Randall Avenue to Edgewater Road.  
ADAMS STREET, from Morris Park Avenue to N. Y., N. H. & H. R. R.  
DYRE AVENUE, from Boston Road to City Line.  
PARK STREET, from E. 149th Street to Westchester Avenue.  
BEACH AVENUE, from Walker Avenue to Tremont Avenue.  
STORROW STREET, from Public Place at 177th Street and Westchester Avenue to Unionport Road.  
FORT SCHUYLER ROAD, from West Farms Road to Morris Avenue.  
TAYLOR AVENUE, from Westchester Avenue to 250 feet north of Wood Avenue; and in WEST 234TH STREET, from Kingsbridge Avenue to 150 feet west of Tibbett's Avenue.  
NORTH STREET, from Walton Avenue to Morris Avenue.  
E. 190TH STREET, from Jerome Avenue to Creston Avenue.  
ST. RAYMOND AVENUE, from Hoguet Avenue to Williamsbridge Road.  
TAYLOR AVENUE, from Westchester Avenue to E. 177th Street.  
FORDHAM ROAD, from Harlem River terrace to Webster Avenue.  
NORTH STREET, from Aqueduct Avenue East to Jerome Avenue.  
TIER STREET, from City Island Avenue to North Street.  
AMETHYST STREET, from Morris Park Avenue to Rhineland Avenue.  
BARNES AVENUE, from N. Y., N. H. & H. R. R. to Rhineland Avenue.  
CRUGER AVENUE, from N. Y., N. H. & H. R. R. to Bronx and Pelham Parkway.  
E. 164TH STREET, from Sheridan Avenue to Jerome Avenue.  
E. 174TH STREET, from Boone Street to Bronx Avenue.  
AUSTIN PLACE, from E. 144th Street to E. 149th Street.  
WALLACE AVENUE, from N. Y., N. H. & H. R. R. to Bronx and Pelham Parkway.  
VICTOR STREET, from Van Nest Avenue (Columbus Avenue) to Rhineland Avenue.  
UNNAMED STREET, from Rogers Place and E. 165th Street West to E. 165th Street.

BARNES AVENUE, from N. Y., N. H. & H. R. R. to (Bronxdale Avenue)  
 Bear Swamp Road.  
 ALLERTON AVENUE, from Bronx Boulevard to Eastchester Road.  
 RHINELANDER AVENUE, from Unionport Road to White Plains Road.  
 MORRIS PARK AVENUE, from Williamsbridge Road to Eastchester Road.  
 BLACKROCK AVENUE, from Virginia Avenue to Westchester Creek.  
 CHATTERTON AVENUE, from Virginia Avenue to a point 265 feet east of  
 Zerega Avenue.  
 E. 217TH STREET, from White Plains Avenue to Oakland Avenue.  
 HOLLAND AVENUE, from N. Y., N. H. & H. R. R. to the Bronx and Pel-  
 ham Parkway.  
 162ND STREET, from Grand Boulevard and Concourse to Sherman Avenue.  
 MERRILL STREET, from Rosedale Avenue to Beach Avenue.  
 BLACKROCK AVENUE, from Virginia Avenue to Havemeyer Avenue.  
 ST. PETER'S AVENUE, from Westchester Avenue to Walker Avenue.  
 PARKER STREET, from Castlehill Avenue to Lyon Avenue.  
 RHINELANDER AVENUE, from White Plains Road to Unionport Road.  
 BENSON STREET, from Lane Avenue to Walker Avenue.  
 FRISBY AVENUE, from Walker Avenue to Zerega Avenue.  
 ALLERTON AVENUE, from Bronx Boulevard to Eastchester Road, excepting  
 portion between White Plains Road and Boston Road.  
 PIERCE AVENUE, from Bear Swamp Road to Paulding Avenue; and PAULD-  
 ING AVENUE, from Pierce Avenue to N. Y., N. H. & H. R. R.  
 COTTAGE PLACE, from Crotona Park South to E. 170th Street.  
 WALLACE AVENUE, from N. Y., N. H. & H. R. R. to Bronxdale Avenue.  
 WEST 254TH STREET, from Broadway to about 235 feet west of north house-  
 line of Valles Avenue.  
 EAST 141ST STREET, from Park Avenue to Rider Avenue.  
 PUGSLEY AVENUE, from Tremont Avenue to Powell Avenue.  
 GLEASON AVENUE, from White Plains Avenue to Zerega Avenue.  
 ADEE AVENUE, from White Plains Road to Boston Road.  
 WEST 260TH STREET, from Fieldston Road to Broadway.  
 NEWBOLD AVENUE, from Virginia Avenue to Zerega Avenue.  
 CRUGER AVENUE, from Baker Avenue to Morris Park Avenue.  
 SEDGWICK AVENUE, from Depot Place to W. 171st Street.  
 ALLERTON AVENUE, from Bronx Park East to White Plains Road.  
 RANDALL AVENUE, from the pier and bulkhead line of Bronx River to White  
 Plains Road.  
 PUGSLEY AVENUE, from Tremont Avenue to Ludlow Avenue.  
 DAVIDSON AVENUE, from the northerly line of the property of the Jerome  
 Avenue Realty Company to W. 181st Street; GRAND AVENUE, from the  
 northerly line of the property of the Jerome Avenue Realty Company to  
 W. 181st Street; HARRISON AVENUE, from the northerly line of the  
 property of the Jerome Avenue Realty Company to W. 181st Street.  
 WEST 236TH STREET, from Corlear Avenue to Broadway.  
 SPUYTEN DUYVIL PARKWAY, from Fieldston Road to Broadway.

Regulating, Grading and Paving with Granite Blocks.

SENECA AVENUE, from Hunt's Point Avenue to 100 feet east of Edgewater  
 Road.  
 GUN HILL ROAD, from Webster Avenue to White Plains Road.

Regulating, Grading and Paving with Sheet Asphalt.

DAVIDSON AVENUE, from Evelyn Place to Fordham Road.

DAVIDSON AVENUE, from Evelyn Place to a point 453 feet north of W. 180th Street.

The portion of PROSPECT AVENUE, now occupied by a center plot, from East 152nd Street to a line 80 feet northerly therefrom.

Regulating, Grading and Steps.

UNNAMED STREET, from Fordham Road, near Hampden Place to Sedgwick Avenue.

Paving with Asphalt Blocks.

VYSE AVENUE, from 173rd Street to Boston Road.

E. 165TH STREET, from Union Avenue to Stebbins Avenue.

HOE AVENUE, from E. 167th Street to West Farms Road.

MACLAY AVENUE, from Walker Avenue to St. Peter's Avenue.

E. 165TH STREET, from Grant Avenue to Morris Avenue.

Paving with Sheet Asphalt.

BECK STREET, 10 feet north of Leggett Avenue to 35 feet north of Leggett Avenue.

BATHGATE AVENUE, from 188th Street to Fordham Road.

W. 230TH STREET, from Broadway to Corlear Avenue.

E. 180TH STREET, from Devoe Avenue to Morris Park Avenue.

ZEREGA AVENUE, from Westchester Avenue to St. Raymond Avenue.

E. 132ND STREET, from St. Ann's Avenue to Locust Avenue.

CONCORD AVENUE, from E. 142nd Street to E. 149th Street.

KELLY STREET, from Intervale Avenue to E. 163rd Street.

JACKSON AVENUE, from E. 141st Street to E. 149th Street.

E. 181ST STREET, from Mapes Avenue to Southern Boulevard.

FAILE STREET, from bridge over N. Y., N. H. & H. R. R. to Garrison Avenue.

Paving with Granite Blocks.

E. 179TH STREET, from Park Avenue to Third Avenue.

E. 178TH STREET, from Park Avenue to Third Avenue.

GERMAN PLACE, from Westchester Avenue to Roe Street.

E. 170TH STREET, from Bristow Street to Wilkins Avenue.

PARK AVENUE EAST, from 144th Street to Morris Avenue.

CROMWELL AVENUE, from E. 150th Street to the existing pavement about 495 feet northerly therefrom.

Paving with Sheet Asphalt and Asphalt Blocks.

UNIVERSITY AVENUE (Aqueduct), from Washington Bridge to south crosswalk at Burnside Avenue (west of University Avenue).

Paving with Bituminous Pavement.

CLASON POINT ROAD, from Westchester Avenue to East River.

NELSON AVENUE, from Boscobel Avenue to Maccomb's Road.

VYSE AVENUE, from E. 173rd Street to Tremont Avenue.

NELSON AVENUE, from Featherbed Lane to Maccomb's Road.

Paving with Bituminous Concrete.

INWOOD AVENUE, from Cromwell Avenue to Maccomb's Road; and in W.

170TH STREET, from Boscobel Avenue to Jerome Avenue.

WALTON AVENUE, from 175th Street to 177th Street.

GARRISON AVENUE, from Tiffany Street to Hunt's Point Avenue.

HOE AVENUE, from 173rd Street to Boston Road.

BRANDT PLACE, from University Avenue to Nelson Avenue; and W. 174TH STREET (175th Street) from Nelson Avenue to Maccomb's Road.  
WALTON AVENUE, from 175th Street to 176th Street.  
MACLAY AVENUE, from Zerega Avenue to Walker Avenue.  
TREMONT AVENUE, from Westchester Avenue to west side Rosedale Avenue.  
GLEBE AVENUE, from Westchester Avenue to Overing Street.  
MACLAY AVENUE, from Zerega Avenue to Walker Avenue.  
KINGSBRIDGE AVENUE, from 230th Street to 234th Street.  
E. 174TH STREET, from Southern Boulevard to Bryant Avenue.  
E. 151ST STREET, from Prospect Avenue to Jackson Avenue.

Guard Rail.

Northwest corner E. 182ND STREET and Webster Avenue.  
Northeast corner of BROADWAY and 236th Street.  
In front of Premises Nos. 985 and 987 Intervale Avenue.  
CHARLOTTE STREET, 110 feet north of Seabury Place.  
Block No. 2744, which is bounded by Hoe Avenue, 167th Street and West Farms Road and about 72 feet of flagging.  
HOE AVENUE, 167th Street and West Farms Road.  
Southeast corner of 178TH STREET and Prospect Avenue.

Filling in Sidewalk, Laying and Relaying Flagging.

WHITLOCK AVENUE, from Lafayette Avenue (east side), northerly, about 125 feet.

Filling in Sunken Lots.

Easterly and westerly sides of BROADWAY, from 233rd Street to a point midway between 236th Street and 237th Street.

Fencing Vacant Lots.

PARK AVENUE, northwest corner, 184th Street to about 217 feet north.

Repairing Sidewalks.

Northwest corner THIRD AVENUE and St. Pauls Place.  
At the northwest corner of THIRD AVENUE and ST. PAUL'S PLACE.  
BEACH AVENUE, from Gleason Avenue to Watson Avenue.

Flagging.

E. 205TH STREET, in front of Lots 9, 10, 12, 30, 88, 89—Block 3341.  
Southwest corner of THIRD AVENUE and E. 149th Street.

Flagging and Reflagging Sidewalk.

Southerly side of GUN HILL ROAD, from about 46.5 feet east of Kingsbridge Avenue southerly for a distance of about 142 feet.

**TABLE III.**

**Contract Plans and Specifications Prepared.**

Sewers and Appurtenances.

PUGSLEY AVENUE, between Westchester Avenue and McGraw Avenue.  
W. 236TH STREET, between Broadway and Kingsbridge Avenue; and in W. 238TH STREET, between Broadway and Kingsbridge Avenue; and in KINGSBRIDGE AVENUE, between W. 234th Street and W. 238th Street.

**WATSON AVENUE**, between Pugsley Avenue and Theriot Avenue; and in  
**THERIOT AVENUE**, between Watson Avenue and Westchester Avenue.  
**MONTEREY AVENUE**, between E. 178th Street and E. 179th Street.  
**ST. RAYMOND AVENUE**, between Parker Street and Odell Street; and in  
Purdy Street, between Parker Street and Westchester Avenue; and in **WEST-**  
**CHESTER AVENUE** (both sides), between Olmstead Avenue and Castlehill  
Avenue; and in **GLOVER STREET**, between St. Raymond Avenue and Cas-  
tlehill Avenue.  
**MARMION AVENUE**, between E. 176th Street and E. 175th Street.  
**COLLEGE AVENUE**, between E. 167th Street and E. 168th Street.  
**GLEASON AVENUE**, between Metcalf Avenue and St. Lawrence Avenue.  
**ST. LAWRENCE AVENUE**, between Gleason Avenue and the summit south-  
erly therefrom.  
**BEACH AVENUE**, between Wood Avenue and Mansion Street.  
**ST. RAYMOND AVENUE**, between Zerega Avenue and St. Peter's Avenue.  
**S. RAYMOND AVENUE**, between St. Peter's Avenue and Overing Street.  
Across the property of the N. Y. C. & H. R. R. Co., from the U. S. Pier  
and Bulkhead line of the Harlem River Ship Canal, at a point about 25 feet  
west of the West Bulkhead line of former Spuyten Duyvil Creek to the  
former right-of-way of the N. Y. C. & H. R. R., etc.  
**PENNYFIELD AVENUE**, between the East River to Chaffee Avenue, etc.  
**TAYLOR AVENUE**, between Wood Avenue and Walker Avenue.  
**BLACKROCK AVENUE**, between Pugsley Avenue and Virginia Avenue.  
**OLMSTEAD AVENUE**, between Hermany Avenue and Turnbull Avenue;  
**POWELL AVENUE**, between Pugsley Avenue and Virginia Avenue; and  
in **VIRGINIA AVENUE**, between Powell Avenue and Westchester Avenue;  
and in **GLEASON AVENUE**, between Pugsley Avenue and Virginia Ave-  
nue; and in **ELLIS AVENUE**, between Pugsley Avenue and Virginia Ave-  
nue; and in **NEWBOLD AVENUE**, between Tremont Avenue and Virginia  
Avenue.  
**LAFAYETTE AVENUE**, between Bronx River and Damis Avenue; and in  
**DAMIS AVENUE**, between Bronx River Avenue and Westchester Avenue.  
**WALDO AVENUE**, between W. 242nd Street and W. 236th Street; and in W.  
**236TH STREET**, between Waldo Avenue and Riverdale Avenue; and in  
**RIVERDALE AVENUE**, between W. 236th Street and W. 238th Street;  
and in **GREYSTONE AVENUE**, between W. 236th Street and a point 500  
feet north of W. 238th Street; and in **W. 238TH STREET**, between Waldo  
Avenue and Riverdale Avenue.  
**E. 207TH STREET**, between Bainbridge Avenue and Perry Avenue.  
**CASTLEHILL AVENUE**, between Westchester Avenue and Parker Street.  
**E. 172ND STREET**, between Seabury Place and Boston Road.  
**RANDALL AVENUE**, between Metcalf Avenue and Bronx River.

Rebuilding Sewers and Appurtenances.

**TINTON AVENUE**, between E. 156th Street and E. 165th Street.  
**E. 146TH STREET**, between Brook Avenue and St. Ann's Avenue.  
**E. 135TH STREET**, between Walnut Avenue and Willow Avenue.

A Relief Sewer and Appurtenances.

**WEBSTER AVENUE**, from the existing Storm Relief Tunnel Sewer in Wen-  
dover Avenue to a point 200 feet north of Tremont Avenue.

Regulating, Grading, etc.

**W. 179TH STREET**, from Osborne Place to Aqueduct Avenue.  
**W. 172ND STREET**, from Inwood Avenue to Jerome Avenue.

E. 198TH STREET, from Creston Avenue to Jerome Avenue.  
 TAYLOR AVENUE, from Westchester Avenue to Gleason Avenue.  
 E. 222ND STREET, from Bronxwood Avenue to Arnow Avenue.  
 VAN NEST AVENUE, from West Farms Road to Bear Swamp Road.  
 GLEBE AVENUE, from Zerega Avenue to Overing Street.  
 TYNDALL AVENUE, from Mosholu Avenue to about 73.12 feet north of W.  
 230th Street.  
 E. 174TH STREET, from Southern Boulevard to Bronx River.  
 E. 187TH STREET, from Valentine Avenue to Marion Avenue.  
 RANDOLPH AVENUE, from St. Lawrence Avenue to Beach Avenue.  
 W. 172ND STREET, from Aqueduct Avenue to Jessup Avenue.  
 GRAY STREET, from Tremont Avenue to Unionport Road.  
 BEACH AVENUE, from Gleason Avenue to 177th Street.  
 PUGSLEY AVENUE, from Tremont Avenue to McGraw Avenue.  
 FIELDSTON ROAD, from Mosholu Avenue to a point about 305 feet north of  
 W. 250th Street.  
 LIEBIG AVENUE, from Mosholu Avenue to the south line of the Foster  
 property, near 260th Street.  
 MORRIS AVENUE, from Fordham Road to E. 191st Street; and in E. 191st  
 STREET, from Morris Avenue to Creston Avenue.  
 WHITTIER STREET, from Seneca Avenue to Lafayette Avenue.  
 E. 174TH STREET, from Southern Boulevard to Boone Street (80 feet in  
 width).  
 NEWTON AVENUE, from W. 253rd Street to W. 260th Street.  
 NORTH STREET, from Aqueduct Avenue East to Jerome Avenue.  
 SUMMIT PLACE, from Heath Avenue to Bailey Avenue.  
 ST. RAYMOND AVENUE, from Hogue Avenue to Williamsbridge Road.  
 TAYLOR AVENUE, from Westchester Avenue to 250 feet north of Wood  
 Avenue.  
 PARK STREET, from E. 149th Street to Westchester Avenue.  
 UNIONPORT ROAD, from Morris Park Avenue to Walker Avenue.  
 W. 234TH STREET, from Kingsbridge Avenue to 150 feet west of Tibbett  
 Avenue.  
 VIRGINIA AVENUE, from Public Place at Westchester Avenue to Ludlow  
 Avenue.  
 GUN HILL ROAD, from Webster Avenue to White Plains Avenue.  
 FRISBY AVENUE, from Walker Avenue to Zerega Avenue.  
 FORDHAM ROAD, from Harlem River Terrace to Webster Avenue.  
 E. 164TH STREET, from Sheridan Avenue to Jerome Avenue.  
 W. 254TH STREET, from Broadway to change of grade 235 feet west of Valles  
 Avenue.  
 COTTAGE PLACE, from 170th Street to Crotona Park South.  
 FT. SCHUYLER ROAD, from West Farms Road to Morris Lane.  
 BARNES AVENUE, from N. Y., N. H. & H. R. R. to Bear Swamp Road  
 (Bronxdale Avenue).  
 E. 217TH STREET, from White Plains Avenue to Oakley Avenue.  
 MULINER AVENUE, from Morris Park Avenue to Bear Swamp Road.  
 BENEDICT AVENUE, from Storrow Street to Olmstead Avenue.  
 VAN CORTLANDT PARK SOUTH, from Mosholu Parkway to Broadway.  
 ST. PETERS AVENUE, from Westchester Avenue to Walker Avenue.  
 CHATTERTON AVENUE, from Virginia Avenue to a point 265 feet east of  
 Zerega Avenue.  
 WALLACE AVENUE, from N. Y., N. H. & H. R. R. to Bear Swamp Road.

- E. 141ST STREET, from Park Avenue to Rider Avenue.
- E. 190TH STREET, from Jerome Avenue to Creston Avenue.

Regulating, Grading and Paving with Granite Blocks.

- EXTERIOR STREET, from University Heights to Fordham Road.
- FORDHAM ROAD, from Exterior Street westerly to the Public Dock.
- SENECA AVENUE, from Hunts Point Avenue to 100 feet east of Edgewater Road.

Regulating, Grading and Paving with Sheet Asphalt.

- E. 140TH STREET, from Park Avenue to Morris Avenue.

Paving with Granite Blocks.

- E. 170TH STREET, from Bristow Street to Wilkins Avenue.
- GERMAN PLACE, from Westchester Avenue to Rae Street.
- E. 179TH STREET, from Third Avenue to Park Avenue.
- CEDAR AVENUE, from Sedgwick Avenue to W. 179th Street; and in W. 177TH STREET, from west of Cedar Avenue to railroad.

Paving with Sheet Asphalt.

- BATHGATE AVENUE, from 188th Street to Fordham Road.
- BECK STREET, from 10 feet north of N. C. line of Leggett Avenue to about 35 feet north therefrom.
- W. 230TH STREET, from Broadway to Corlear Avenue.
- ZEREGA AVENUE, from Westchester Avenue to St. Raymond Avenue.
- E. 180TH STREET, from Devoe Avenue to Morris Park Avenue.
- HOE AVENUE, from 167th Street to West Farms Road.

Paving with Asphalt Blocks.

- E. 165TH STREET, from Union Avenue to Stebbins Avenue.
- E. 165TH STREET, from Grant Avenue to Morris Avenue.

Paving with Bituminous Concrete.

- WALTON AVENUE, from E. 177th Street to Tremont Avenue.
- OGDEN AVENUE, from W. 169th Street to Aqueduct Avenue.
- MORRIS AVENUE, from E. 166th Street to 170th Street.
- HOE AVENUE, from E. 173rd Street to Boston Road.
- FINDLAY AVENUE, from E. 165th Street to 166th Street.
- VYSE AVENUE, from E. 173rd Street to Tremont Avenue.
- GARRISON AVENUE, from Tiffany Street to Hunt's Point Road.
- NELSON AVENUE, from Featherbed Lane to Macomb's Road.
- BAILEY AVENUE, from W. 238th Street to Kingsbridge Avenue.
- BRANDT PLACE, from University Avenue to Nelson Avenue; and in WEST 174TH STREET, from Nelson Avenue to Macomb's Road.
- KINGSBRIDGE AVENUE, from W. 230th Street to W. 234th Street.
- TREMONT AVENUE, from Westchester Avenue to west side of Rosedale Avenue.
- CLASON POINT ROAD, from Westchester Avenue to East River.

Paving with Sheet Asphalt and Asphalt Blocks.

- W. 231ST STREET, from Corlear Avenue to Bailey Avenue.
- LONGWOOD AVENUE (where not already paved), from Westchester Avenue to Southern Boulevard.

Paving with Asphalt Block and Granite Block.

- BAILEY AVENUE, from Albany Road to Ft. Independence Street.

Curbing and Flagging.

BEACH AVENUE, from Gleason Avenue to Watson Avenue.

Filling in Sunken Lots.

W. 233RD STREET to a point 150 feet south of 236th Street, from west house line of Broadway to east house line of Putnam Avenue.

**TABLE IV.**

**Contracts Forwarded for Letting.**

Sewers and Appurtenances.

- ST. LAWRENCE AVENUE, between Tremont Avenue and Merrill Street; and in COMMONWEALTH AVENUE, between Tremont Avenue and Merrill Street.
- ST. LAWRENCE AVENUE, between Tremont Avenue and Randolph Avenue; and in BEACON AVENUE, between Tremont Avenue and Rosedale Avenue; and in COMMONWEALTH AVENUE, between Beacon Avenue and Tremont Avenue.
- ST. RAYMOND AVENUE, between Parker Street and Zerega Avenue; and in MACLAY AVENUE, between Parker Street and Zerega Avenue; and in ZEREGA AVENUE, between St. Raymond Avenue and Lyvere Street.
- PUGSLEY AVENUE, between Westchester Avenue and McGraw Avenue.
- LIEBIG AVENUE, between W. 259th Street and W. 260th Street; and a temporary connection at Liebig Avenue and W. 260th Street; and in W. 260TH STREET, between Liebig Avenue and Riverdale Avenue; and in RIVERDALE AVENUE, between W. 259th Street and W. 261st Street.
- MACLAY AVENUE, between Zerega Avenue and Seddon Street.
- W. 254TH STREET, between Broadway and Fieldston Road.
- GUN HILL ROAD, from the existing sewer in Olinville Avenue to Perry Avenue; and in WEBSTER AVENUE, between Gun Hill Road and E. 211th Street; and in DECATUR AVENUE, between Gun Hill Road and the summit 300 feet southerly therefrom; and in WEBSTER AVENUE (east side), between Gun Hill Road and E. 210th Street; and in WEBSTER AVENUE, from the east side to the west side, at E. 210th Street; and in WEBSTER AVENUE (west side), between E. 210th Street and Gun Hill Road; and in PARKSIDE PLACE, between E. 210th Street and the summit 200 feet north of E. 207th Street.
- W. 236TH STREET, between Broadway and Kingsbridge Avenue.
- WATSON AVENUE, between Pugsley Avenue and Theriot Avenue; and in THERIOT AVENUE, between Watson Avenue and Westchester Avenue.
- MONTEREY AVENUE, between E. 178th Street and E. 179th Street.
- LAFAYETTE AVENUE, between Longwood Avenue and Tiffany Street.
- ST. RAYMOND AVENUE, between Parker Street and Odell Street.
- MARMION AVENUE, between E. 176th Street and E. 175th Street.
- LAFAYETTE AVENUE, between Longwood Avenue and Tiffany Street.
- ST. LAWRENCE AVENUE, between Gleason Avenue and the summit southerly therefrom.
- BEACH AVENUE, between Wood Avenue and Mansion Street; and in MERRILL STREET, between Beach Avenue and St. Lawrence Avenue.
- COLLEGE AVENUE, between E. 167th Street and E. 168th Street.

GLEASON AVENUE, between Metcalf Avenue and St. Lawrence Avenue; and in ST. LAWRENCE AVENUE, between Gleason Avenue and Westchester Avenue; and in WESTCHESTER AVENUE (south side), between St. Lawrence Avenue and Taylor Avenue.

ST. RAYMOND AVENUE, between St. Peter's Avenue and Overing Street.

ST. RAYMOND AVENUE, between Zerega Avenue and St. Peter's Avenue.

BLACKROCK AVENUE, between Pugsley Avenue and Virginia Avenue.

TAYLOR AVENUE, between Wood Avenue and Walker Avenue; and in ARCHER AVENUE, between Theriot Avenue and Beach Avenue; and in GUERLAIN STREET, between Leland Avenue and Beach Avenue; and in WALKER AVENUE (both sides), between Taylor Avenue and Leland Avenue; and in THERIOT AVENUE, between Walker Avenue and the summit south of Guerlain Street.

SPUYTEN DUYVIL OUTLET SEWER, from Harlem River ship canal to former right-of-way of the N. Y. C. & H. R. R. R. and in said right-of-way to W. 230th Street.

POWELL AVENUE, between Pugsley Avenue and Virginia Avenue; and in VIRGINIA AVENUE, between Powell Avenue and Westchester Avenue. and in GLEASON AVENUE, between Pugsley Avenue and Virginia Avenue; and in ELLIS AVENUE, between Pugsley Avenue and Virginia Avenue; and in NEWBOLD AVENUE, between Tremont Avenue and Virginia Avenue.

OLMSTEAD AVENUE, between Hermany Avenue and Turnbull Avenue.

E. 207TH STREET, between Bainbridge Avenue and Perry Avenue.

WALDO AVENUE, between W. 242nd Street and W. 236th Street; and in W. 236TH STREET, between Waldo Avenue and Riverdale Avenue; RIVERDALE AVENUE, between W. 236th Street and W. 238th Street; Greystone AVENUE, between W. 236th Street and a point 500 feet north of W. 238th Street; W. 238TH STREET, between Waldo Avenue and Riverdale Avenue.

CASTLE HILL AVENUE, between Westchester Avenue and Parker Street.

LAFAYETTE AVENUE, between Bronx River and Damis Avenue; and in DAMIS AVENUE, between Bronx River Avenue and Westchester Avenue.

#### Rebuilding Sewers and Appurtenances.

TINTON AVENUE, between E. 156th Street and E. 165th Street; and in E. 160TH STREET, between Tinton Avenue and Forest Avenue; in E. 165TH STREET, between Tinton Avenue and Forest Avenue; in FOREST AVENUE, between E. 166th Street and Home Street.

E. 146TH STREET, between Brook Avenue and St. Ann's Avenue; and in ST. ANN'S AVENUE, between E. 146th Street and E. 147th Street.

#### Receiving Basins and Appurtenances.

Northeast, northwest, southeast and southwest corners of LONGFELLOW AVENUE and Seneca Avenue.

Southwest corner of ST. ANN'S AVENUE and E. 161st Street.

Northeast corner of AQUEDUCT AVENUE and W. 181st Street.

Northeast and southeast corners of GARRISON AVENUE and Barretto Street.

East side of BAILEY AVENUE, opposite West 231st Street; and northwest and southwest corners of W. 236TH STREET and Bailey Avenue; and on east side of Bailey Avenue, opposite West 236th Street.

Northeast corner of BROADWAY and W. 230th Street.

North Side of E. 180TH STREET, opposite Bronx Park Avenue.

Northeast corner of STEBBINS AVENUE and E. 169th Street.

Southeast and southwest corners of WEST 231ST STREET and Albany Crescent.

Northeast corner of MORRIS AVENUE and McClellan Street.  
Northeast corner of JEROME AVENUE and East 198th Street; on southwest corner of GRAND BOULEVARD and CONCOURSE and E. 198th Street; and on west side of Creston Avenue, opposite E. 197th Street.  
Southwest corner of CHISHOLM STREET and Intervale Avenue.  
Northeast corner of W. 169TH STREET and Inwood Avenue; and at the southeast corner of Inwood Avenue and Cromwell Avenue.

Catch Basins and Appurtenances.

PALISADE PLACE, about 110 feet east of Sedgwick Avenue.

Regulating, Grading, etc.

SPUYTEN DUYVIL ROAD, from Johnson Avenue to north side of W. 230th Street.

MACLAY AVENUE, from Zerega Avenue to Walker Avenue.

TREMONT AVENUE, from the present terminus at Ludlow Avenue to Ft. Schuyler Road.

W. 179TH STREET, from Osborne Place to Aqueduct Avenue.

BEACH AVENUE, from Bronx River Avenue to Gleason Avenue.

W. 172ND STREET, from Jerome Avenue to Inwood Avenue.

TAYLOR AVENUE, from Gleason Avenue to Westchester Avenue.

E. 198TH STREET, from Jerome Avenue to Creston Avenue.

GLEBE AVENUE, from Zerega Avenue to Overing Street.

RANDOLPH AVENUE, from St. Lawrence Avenue to Beach Avenue.

W. 172ND STREET, from Aqueduct Avenue to Jessup Avenue.

E. 222ND STREET, from Bronxwood Avenue to Arnow Street.

VAN NEST AVENUE, from West Farms Road to Bear Swamp Road.

STORROW STREET, from Public Place at 177th Street and Westchester Avenue to Unionport Road.

GRAY STREET, from Tremont Avenue to Unionport Road.

BEACH AVENUE, from Gleason Avenue to Walker Avenue.

E. 187TH STREET, from Valentine Avenue to Marion Avenue; and Building Steps and appurtenances where necessary.

PUGSLEY AVENUE, from McGraw Avenue to Tremont Avenue.

ST. LAWRENCE AVENUE, from Randolph Avenue to Westchester Avenue.

FIELDSTON AVENUE, from Mosholu Avenue to a point about 303 feet north of W. 250th Street.

WHITTIER STREET, from Seneca Avenue to Lafayette Avenue.

MORRIS AVENUE, from Fordham Road to E. 191st Street; and in E. 191ST STREET, from Morris Avenue to Creston Avenue.

NEWTON AVENUE, from W. 253rd Street to W. 260th Street.

E. 174TH STREET, from Southern Boulevard to the easterly side of Boone Avenue.

NORTH STREET, from Aqueduct Avenue East to Jerome Avenue.

PARK STREET, from E. 149th Street to Westchester Avenue.

TAYLOR AVENUE, from Westchester Avenue to 250 feet north of Wood Avenue.

UNIONPORT ROAD, from Morris Park Avenue to Walker Avenue.

W. 234TH STREET, from Kingsbridge Avenue to a point 150 feet west of Tibbett Avenue.

E. 190TH STREET, from Jerome Avenue to Creston Avenue.

VIRGINIA AVENUE, from Public Place at intersection of Westchester Avenue and 177th Street to Ludlow Avenue.

W. 234TH STREET, from Kingsbridge Avenue to a point 150 feet west of Tibbett Avenue.

FRISBY AVENUE, from Walker Avenue to Zerega Avenue.  
E. 190TH STREET, from Jerome Avenue to Creston Avenue.  
FORDHAM ROAD, from Harlem River Terrace to Webster Avenue.  
E. 164TH STREET, from Sheridan Avenue to Jerome Avenue.  
W. 254TH STREET, from Broadway and grade plus 57.2, about 235 feet west  
of the westerly house line of Valles Avenue.  
WHITE PLAINS AVENUE, from Walker Avenue to Westchester Avenue.

Regulating, Grading and Steps.

SUMMIT PLACE, from Heath Avenue to Bailey Avenue.  
E. 168TH STREET, from Clay Avenue to Morris Avenue.

Regulating, Grading and Paving with Granite Blocks.

EXTERIOR STREET, from University Heights Bridge to Fordham Road; and  
FORDHAM ROAD, from Exterior Street, westerly to the Public Dock.

Paving with Sheet Asphalt.

W. 230TH STREET, from Broadway to Corlear Avenue.  
E. 180TH STREET, from Devoe Avenue to Morris Park Avenue.  
E. 140TH STREET, from Park Avenue to Morris Avenue.  
ZEREGA AVENUE, from Westchester Avenue to St. Raymond Avenue.

Repaving with Sheet Asphalt.

WALTON AVENUE, from E. 149th Street to E. 151st Street.  
BOSTON ROAD, from E. 165th Street to Jefferson Street; and E. 169TH  
STREET, from Boston Road to Franklin Avenue.  
BOSTON ROAD, from Prospect Avenue to the Southern Boulevard.  
BECK STREET, from Leggett Avenue to Longwood Avenue; and in KELLY  
STREET, from E. 156th Street to Longwood Avenue; and in E. 156TH  
STREET, from Kelly Street to Beck Street.  
JACKSON AVENUE, from E. 149th Street to Westchester Avenue.  
SUMMIT AVENUE, from W. 165th Street to W. 166th Street.

Paving with Asphalt Blocks.

BATHGATE AVENUE, from E. 188th Street to Fordham Road.  
LONGFELLOW AVENUE, from Lafayette Avenue to the N. Y., N. H. and  
H. R. R. R.  
E. 165TH STREET, from Union Avenue to Stebbins Avenue.  
E. 165TH STREET, from Grant Avenue to Morris Avenue.

Repaving with Asphalt Blocks.

MORRIS AVENUE, from E. 156th Street to E. 161st Street.

Paving with Sheet Asphalt and Asphalt Blocks.

W. 231ST STREET, from Corlear Avenue to Bailey Avenue.

Repaving with Sheet Asphalt and Asphalt Blocks.

FOX STREET, from 165th Street northerly to Intervale Avenue.  
CAULDWELL AVENUE, from Westchester Avenue to E. 161st Street.  
LONGWOOD AVENUE, from Southern Boulevard to Westchester Avenue.

Paving with Bituminous Concrete.

LIND AVENUE, from the 23rd and 24th Ward line to Aqueduct Avenue; and  
AQUEDUCT AVENUE, from Lind Avenue to Washington Bridge.  
E. 202ND STREET, from Webster Avenue to the N. Y. & H. R. R.  
WALTON AVENUE, from E. 177th Street to Tremont Avenue.  
W. 236TH STREET, from Broadway and Kingsbridge Avenue; and in W. 238th  
Street, between Broadway and Kingsbridge Avenue; and in Kingsbridge Ave-  
nue, between W. 234th Street and W. 238th Street.

OGDEN AVENUE, from W. 169th Street to Aqueduct Avenue.  
MORRIS AVENUE, from E. 166th Street to E. 170th Street.  
HOE AVENUE, from E. 173rd Street to E. Boston Road.  
VYSE AVENUE, from E. 173rd Street to E. 177th Street.  
FINDLAY AVENUE, from E. 165th Street to E. 166th Street.  
NELSON AVENUE, from Featherbed Lane to Macomb's Road.  
BRANDT PLACE, from University Avenue to Nelson Avenue; and WEST  
174TH STREET, from Nelson Avenue to Macomb's Road.  
GARRISON AVENUE, from Tiffany Street to Hunt's Point Avenue.  
BAILEY AVENUE, from W. 238th Street to Kingsbridge Road.  
KINGSBRIDGE AVENUE, from 230th Street to 234th Street.  
MORRIS AVENUE, from E. 166th Street to E. 170th Street.  
CLASON POINT ROAD, from Westchester Avenue to the East River.

Repaving with Bituminous Concrete.

BOSTON ROAD (a strip 16 feet wide), from White Plains Road to the City  
Line.

Paving with Granite Blocks.

RIVER AVENUE, from E. 149th Street to a point about 451 feet south of E.  
151st Street.  
GERMAN PLACE, from Westchester Avenue to Rae Street.  
CEDAR AVENUE, from Sedgwick Avenue to W. 179th Street; and W. 177TH  
Street, from Cedar Avenue to N. Y. & P. R. R.  
E. 179TH STREET, from Park Avenue to Third Avenue.  
E. 170TH STREET, from Bristow Street to Wilkins Place.

Repaving with Granite Blocks.

BROOK AVENUE, from E. 156th Street to Third Avenue.  
E. 150TH STREET, from Third Avenue to Melrose Avenue.  
E. 151ST STREET, from Third Avenue to Melrose Avenue.  
E. 155TH STREET, from Third Avenue to Elton Avenue.  
ELTON AVENUE, from Third Avenue to E. 155th Street.  
WEBSTER AVENUE, from E. 178th Street to E. 187th Street.  
WESTCHESTER AVENUE, from Southern Boulevard to Ward Avenue.  
TREMONT AVENUE, from Third Avenue to Boston Road.  
E. 156TH STREET, from Cauldwell Avenue to Dawson Street.  
WEBSTER AVENUE, from Gun Hill Road to the north side of 233rd Street.  
E. 169TH STREET, from Boston Road to E. 167th Street; and in E. 167TH  
STREET, from E. 169th Street to Southern Boulevard.

Repaving with Redressed Granite Blocks.

TREMONT AVENUE, from Webster Avenue to easterly side of Third Avenue.

Paving with Granite Blocks and Asphalt Blocks.

BAILEY AVENUE, from Albany Road at W. 234th Street to Ft. Independence  
Street.

Guard Rail.

Northeast corner of BROADWAY and W. 236th Street.  
Northwest corner of E. 182ND STREET and Webster Avenue.  
Sunken lots Nos. 985 and 987 Intervale Avenue.  
West side of PARK AVENUE, from the northwest corner of 184th Street to  
a point about 217 feet northerly therefrom.  
Block No. 2744 bounded by Hoe Avenue, 167th Street and West Farms Road.  
Northerly side of E. 169TH STREET, between Hughes Avenue and Belmont  
Avenue.  
Southeast corner of 178TH STREET and Prospect Avenue.

ST. LAWRENCE AVENUE, between Gleason Avenue to the summit south-  
erly therefrom.

BLACKROCK AVENUE, between Pugsley Avenue and Virginia Avenue, etc.

Receiving Basins and Appurtenances.

Southeast corner of ALEXANDER AVENUE and E. 135th Street; and at the  
southeast corner of LINCOLN AVENUE and E. 135th Street.

Southeast and southwest corners of CANNON PLACE and W. 238th Street; and  
on the east and west side of Cannon Place, between Giles Place and W.  
238th Street.

Southwest corner of FOX STREET and Inwood Avenue.

Northeast, northwest, southeast and southwest corners of LONGFELLOW  
AVENUE and Seneca Avenue.

Southwest corner of ST. ANN'S AVENUE and E. 161st Street.

North side of E. 180TH STREET, opposite Bronx Park Avenue.

Northeast corner of AQUEDUCT AVENUE and W. 181st Street.

Northeast corner of BROADWAY and W. 230th Street.

Northeast corner of STEBBINS AVENUE and E. 169th Street.

East side of BAILEY AVENUE, opposite West 233rd Street; northwest and  
southwest corner of WEST 236TH STREET and Bailey Avenue; east side  
of BAILEY AVENUE, opposite W. 236th Street.

Northeast and southeast corners of GARRISON AVENUE and Barretto Street.

Regulating, Grading, etc.

PALISADE PLACE, from Popham Avenue to the change of grade about 100  
feet east of Sedgwick Avenue.

WHITE PLAINS AVENUE, from Morris Park Avenue to Walker Avenue.

WESTCHESTER AVENUE, from Main Street (West Farms Road) to the  
Eastern Boulevard at Pelham Bay Park, except at Westchester Creek.

BRONXWOOD AVENUE, from Gun Hill Road to Burke Avenue.

W. 165TH STREET, from Woodycrest Avenue to Anderson Avenue.

RANDALL AVENUE, from Leggett Avenue to the Bronx River.

TIEBOUT AVENUE, from Ford Street to E. 183rd Street.

AQUEDUCT AVENUE EAST, from E. 180th Street to E. 184th Street.

THERIOT AVENUE, from Wood Avenue to Gleason Avenue.

JEROME AVENUE, from 190th Street to point 600 feet north of Van Cortlandt  
Avenue.

242ND STREET, from the easterly side of Katonah Avenue to the northerly  
boundary line of the City of New York.

GARFIELD STREET, from Morris Park Avenue to the N. Y., N. H. & H. R. R.

PAULDING AVENUE, from E. 222nd Street to E. 233rd Street.

WEST FARMS ROAD, from Morris Park Avenue to the intersection of West-  
chester Avenue and former Main Street.

E. 149TH STREET, from the Southern Boulevard to the East River.

W. 230TH STREET, from Bailey Avenue to Riverdale Avenue; and in W. 231ST  
STREET, from Bailey Avenue to Riverdale Avenue.

SPUYTEN DUYVIL ROAD, from Johnson Avenue to the northerly side of  
W. 230th Street.

DORSEY STREET, from Zerega Avenue to Seddon Street.

PARKER STREET, from Westchester Avenue to Lyon Avenue.

E. 193RD STREET, from Bainbridge Avenue to Webster Avenue.

FULLER STREET, from Seddon Street to Zerega Avenue.

E. 223RD STREET, from Bronxwood Avenue to Laconia Avenue; and in E.

224TH STREET, from Bronxwood Avenue to Laconia Avenue; and in E.

225TH STREET, from Bronxwood Avenue to Laconia Avenue.

Cleaning and Painting.

The steel and iron work of the bridges over the New York Central and Hudson River Railroad tracks at Gerard and River Avenues.

Repairing Bridge.

EAGLE AVENUE, and E. 161st Street.

Repairing Sidewalk.

Northwest corner of THIRD AVENUE and St. Paul's Place.

Southwest corner of THIRD AVENUE and E. 149th Street.

East 205th Street, in front of Lots Numbered 9, 10, 11, 12, 30, 88 and 89 in Block No. 3341.

TABLE V.

Assessment Lists Forwarded.

Sewers and Appurtenances.

WESTCHESTER AVENUE, between Zerega Avenue and Castle Hill Avenue; and in GLOVER STREET, between Westchester Avenue and Lyon Avenue; and in DORIS STREET, between Westchester Avenue and summit north of Westchester Avenue; and in LUDLOW AVENUE, between Pugsley Avenue and Zerega Avenue; and in CASTLEHILL AVENUE, between Ludlow Avenue and Blackrock Avenue; and in E. 177TH STREET, between Ludlow Avenue and Havemeyer Avenue; and in WESTCHESTER AVENUE, between Pugsley Avenue and Olmstead Avenue.

AUSTIN PLACE, between E. 144th Street (St. Joseph's Street) and E. 147th Street.

WALKER AVENUE, between Westchester Square and Overing Street; and in BENSON AVENUE, between Westchester Square and Walker Avenue; and in OVERING STREET, between Westchester Square and Walker Avenue; and in ST. PETER'S AVENUE, between Westchester Avenue and Walker Avenue; and in ROWLAND STREET, between Westchester Avenue and St. Raymond Avenue; and in ZEREGA AVENUE, between Westchester Avenue and Glebe Avenue; and in TRATMAN AVENUE, between Zerega Avenue and Benson Avenue; and in FRISBY AVENUE, between Zerega Avenue and Walker Avenue; and in GLEBE AVENUE, between Rowland Street and Overing Street. and in MACLAY AVENUE, between St. Peter's Avenue and Benson Avenue.

WHITE PLAINS AVENUE (both sides), between E. 242nd Street and the City Line.

EDGEWATER ROAD, between Seneca Avenue and Garrison Avenue.

LURTING AVENUE, between Walker Avenue and property of N. Y., N. H. & H. R. R.

TIFFANY STREET, between Whitlock Avenue and Garrison Avenue.

CASTLEHILL AVENUE, between Parker Street and Walker Avenue.

ST. GEORGE'S CRESCENT, between 206th Street and Van Cortland Avenue.

TREMONT AVENUE, between Sedgwick Avenue and Aqueduct Avenue; and in AQUEDUCT AVENUE (west side), between Tremont Avenue and W. 176th Street; and in ANDREWS AVENUE, between Tremont Avenue and the first summit south therefrom.

HAVILAND AVENUE, between Zerega Avenue and summit west of Havemeyer Avenue; in POWELL AVENUE, between Zerega Avenue and summit west of Havemeyer Avenue; and in GLEASON AVENUE, between Zerega Avenue and summit west of Havemeyer Avenue; ELLIS AVENUE, between Zerega Avenue and summit west of Pugsley Avenue; and in E. 177TH STREET (north side), between Pugsley Avenue and summit west of Gleason Avenue; and in E. 177TH STREET (south side), between Ellis Avenue and Gleason Avenue; in NEWBOLD AVENUE, between Zerega Avenue and Havemeyer Avenue; and in WATERBURY AVENUE, between Zerega Avenue and Havemeyer Avenue; and in NEWBOLD AVENUE, between Pugsley Avenue and the summit east of Castlehill Avenue; in OLMSTEAD AVENUE, between Ellis Avenue and Westchester Avenue; and in HAVEMEYER AVENUE, between Watson Avenue and Waterbury Avenue; and in CASTLEHILL AVENUE, between Gleason Avenue and Westchester Avenue.

McGRAW AVENUE, between Theriot Avenue and Taylor Avenue.

HAVEMEYER AVENUE, between Lafayette Avenue and Watson Avenue; and in E. 177TH STREET, between Havemeyer Avenue and summit east of Watson Avenue; in TURNBULL AVENUE, between Zerega Avenue and Havemeyer Avenue; and in HERMANY AVENUE, between Zerega Avenue and the summit west of Castlehill Avenue; in STORY AVENUE, between Zerega Avenue and the summit west of Castlehill Avenue; in QUIMBY AVENUE, between Zerega Avenue and Castlehill Avenue; and in HOUGHTON AVENUE, between Zerega Avenue and Castlehill Avenue; and in CHATTERTON AVENUE, between Zerega Avenue and Castlehill Avenue; and in BLACKROCK AVENUE, between Havemeyer Avenue and Castlehill Avenue; and in E. 177TH STREET (north side), between Blackrock Avenue and Watson Avenue; and in WATSON AVENUE, between Havemeyer Avenue and E. 177th Street; and in CASTLEHILL AVENUE, between Story Avenue and Turnbull Avenue.

BEACH AVENUE, between Wood Avenue and Randolph Avenue.

COLLEGE AVENUE, between E. 167th Street and E. 168th Street.

PARKER STREET, between Westchester Avenue and Castlehill Avenue.

PERRY AVENUE, between Gun Hill Road and E. 211th Street; and in E. 211TH STREET, between Perry Avenue and Woodlawn Road; and in WOODLAWN ROAD, between Gun Hill Road and E. 212th Street; and in E. 212TH STREET, between Woodlawn Road and Jerome Avenue; and in ROCHAMBEAU AVENUE, between E. 212th Street and Gun Hill Road; and in DE KALB AVENUE, between E. 212th Street and Gun Hill Road; and in JEROME AVENUE, between E. 212th Street and summit south.

E. 170TH STREET, between Morris Avenue and the Grand Boulevard and Concourse; and in The GRAND BOULEVARD AND CONCOURSE (east side), between E. 167th Street and E. 172nd Street.

W. 236TH STREET, between Broadway and Kingsbridge Avenue; and in W. 238TH STREET, between Broadway and Kingsbridge Avenue; and in KINGSBRIDGE AVENUE, between W. 234th Street and W. 238th Street.

PUGSLEY AVENUE, between Westchester Avenue and McGraw Avenue.

MARMION AVENUE, between E. 176th Street and E. 175th Street.

HERMANY AVENUE, between Pugsley Avenue and summit east of Olmstead Ave.; and in STORY AVENUE, between Pugsley Avenue and summit east of Olmstead Avenue.

ST. LAWRENCE AVENUE, between Tremont Avenue and Merrill Street.

**SEDGWICK AVENUE**, from Van Cortlandt Avenue to change of grade about 430 feet westerly therefrom.

**MACLAY AVENUE**, from Zerega Avenue to Walker Avenue.

**KINGSBRIDGE ROAD**, from Bailey Avenue to the boundary line between the Borough of The Bronx and the Borough of Manhattan.

**GRAND AVENUE**, from W. 181st Street to W. 184th Street.

**VAN CORTLANDT AVENUE**, from Sedgwick Avenue to Albany Road.

**E. 198TH STREET**, from Jerome Avenue to Creston Avenue.

**GLEBE AVENUE**, from Zerega Avenue to Overing Street.

**W. 235TH STREET**, from Spuyten Duyvil Parkway to Riverdale Avenue.

**198TH STREET**, from Jerome Avenue to Creston Avenue.

**W. 233RD STREET**, from Broadway to Albany Road.

**RANDOLPH AVENUE**, from St. Lawrence Avenue to Beach Avenue.

**W. 172ND STREET**, from Jerome Avenue to Inwood Avenue.

**ALBANY ROAD**, from Van Cortlandt Park South to Bailey Avenue.

**ST. LAWRENCE AVENUE**, from West Farms Road to Westchester Avenue.

**ROSEDALE AVENUE**, from Walker Avenue to Tremont Avenue.

**LELAND AVENUE**, from Walker Avenue to Westchester Avenue.

**TAYLOR AVENUE**, from Gleason Avenue to Westchester Avenue.

**E. 236TH STREET**, from White Plains Road to Barnes Avenue.

**GLEBE AVENUE**, from Westchester Avenue to Zerega Avenue.

**PUGSLEY AVENUE**, from McGraw Avenue to Tremont Avenue.

**E. 165TH STREET**, from about 122 feet west of Grant Avenue to about 76 feet west of Walton Avenue.

**CORLEAR AVENUE**, from 230th Street to 240th Street.

**WHITTIER STREET**, from Seneca Avenue to Lafayette Avenue.

**ALBANY ROAD**, from Bailey Avenue north of 230th Street to Bailey Avenue, north of 233rd Street.

**GLEBE AVENUE**, from Zerega Avenue to Overing Street.

Regulating and Flagging.

Westerly side of **GARRISON AVENUE**, from Hunt's Point Avenue to Faile Street.

Northerly side of **E. 139TH STREET**, about 200 feet east of **ST. ANN'S AVENUE**, running easterly about 70 feet.

Regulating, Grading and Paving with Granite Blocks.

**GARRISON AVENUE**, from Whittier Street to the Bulkhead Line of the Bronx River.

**TIFFANY STREET**, from the northerly side of former Edgewater Road to the Dock recently constructed at the foot of said Tiffany Street.

Regulating, Regrading and Paving with Asphalt Blocks.

**TIFFANY STREET**, from Southern Boulevard to Lafayette Avenue.

Regulating, Grading and Paving with Bituminous Concrete.

**E. 202ND STREET**, from Webster Avenue to the N. Y. and Harlem Railroad.

Regulating, Regrading and Paving with Bituminous Concrete.

**MANIDA STREET**, from Lafayette Avenue to Oak Point Avenue.

Regulating, Grading and Paving with Asphalt Blocks.

**BARRETTO STREET**, from Southern Boulevard to Whitlock Avenue.

Paving with Asphalt Blocks.

**E. 133RD STREET**, from Cypress Avenue to Southern Boulevard.

**HOE AVENUE**, from E. 172nd Street to E. 173rd Street.

**BELMONT AVENUE**, from E. 175th Street to E. 177th Street.

**BRYANT AVENUE**, from E. 172nd Street to E. 174th Street.

TELLER AVENUE, from E. 154th Street to E. 167th Street.  
MOSHOLU PARKWAY SOUTH, from Briggs Avenue to Van Cortlandt Avenue.

HEATH AVENUE, from Bailey Avenue to Boston Road.

E. 165TH STREET, from Intervale Avenue to Westchester Avenue.

WALKER AVENUE, from Morris Park Avenue to Unionport Road.

HEATH AVENUE, from Boston Avenue to Ft. Independence Street.

W. 231ST STREET, from Corlear Avenue to Bailey Avenue.

AQUEDUCT AVENUE, from the southerly crosswalk at Burnside Avenue to the northerly side of 181st Street.

LONGFELLOW AVENUE, from Lafayette Avenue to the N. Y., N. H. and H. R. R.

E. 165TH STREET, from Union Avenue to Stebbins Avenue.

WALKER AVENUE, from Morris Park Avenue to Unionport Road.

Paving with Sheet Asphalt.

BEAUMONT AVENUE, from Grote Street to E. 189th Street.

E. 179TH STREET, from Park Avenue West to Valentine Avenue.

E. 173RD STREET, from Minford Place to Southern Boulevard.

BECK STREET, from a point about 10 feet north to a point about 35 feet north of the north curb line of Leggett Avenue.

BATHGATE AVENUE, from E. 188th Street to Fordham Road.

Paving with Granite Blocks.

E. 167TH STREET, from Jerome Avenue to about 124 feet east of Gerard Avenue; and from 94 feet west of Sherman Avenue to the N. Y. & Harlem R. R.

RIVER AVENUE, from E. 149th Street to a point about 451 feet south of E. 151st Street.

E. 168TH STREET, from Clay Avenue to Webster Avenue.

Paving with Granite and Asphalt Blocks.

BAILEY AVENUE, from Albany Road at W. 234th Street to Ft. Independence Street.

Paving with Sheet Asphalt and Asphalt Block.

LONGWOOD AVENUE, from Southern Boulevard to Westchester Avenue.

Paving with Bituminous Concrete.

E. 236TH STREET, from Mount Vernon Avenue to Webster Avenue.

COSTER STREET, from Lafayette Avenue to Randall Avenue.

COMMONWEALTH AVENUE, from Walker Avenue to Merrill Street.

CITY ISLAND AVENUE, from approach to City Island Bridge to Long Island Sound.

ST. LAWRENCE AVENUE, from Walker Avenue to Merrill Street.

MARION AVENUE, from E. 189th Street to Fordham Road.

LIND AVENUE, from 23rd and 24th Ward line to Aqueduct Avenue; and

AQUEDUCT AVENUE, from Lind Avenue to Washington Bridge.

DEVOE TERRACE (Park View Place), from Webb Avenue to W. 190th Street.

MORRIS AVENUE, from E. 184th Street to Fordham Road.

WALTON AVENUE, from E. 177th Street to Tremont Avenue.

OGDEN AVENUE, from W. 169th Street to Aqueduct Avenue.

E. 173RD STREET, from Southern Boulevard to Bryant Avenue.

AQUEDUCT AVENUE, from Fordham Road to Kingsbridge Road.

ST. LAWRENCE AVENUE, from Walker Avenue to Merrill Street.

FINDLAY AVENUE, from E. 165th Street to E. 166th Street.

GARRISON AVENUE, from Tiffany Street to Hunt's Point Avenue.  
HOE AVENUE, from E. 173rd Street to Boston Road.  
W. 261ST STREET, from Riverdale Avenue to Broadway.  
VYSE AVENUE, from E. 173rd Street to E. 177th Street.  
VYSE AVENUE, from E. 172nd Street to E. 173rd Street.  
NELSON AVENUE, from Featherbed Lane to Macomb's Road.

Paving with Bituminous Macadam.

WALTON AVENUE, from Fordham Road to Burnside Avenue.

Erecting Guard Rail.

Northwest corner of WHITE PLAINS AVENUE and 230th Street.

Sunken Lots Nos. 985 and 987 Intervale Avenue.

At the northwest corner of E. 182ND STREET and Webster Avenue.

Reflagging Sidewalks.

Southwest corner of THIRD AVENUE and E. 149th Street.

Repairing Sidewalk.

Northwest corner of THIRD AVENUE and St. Paul's Place.

Setting and Resetting Flagstones and Removing Boulder.

In front of No. 542 East 145th Street.

Fencing Vacant Lots.

West side of PARK AVENUE, from the northwest corner of 184th Street to a point about 217 feet northerly therefrom.

Filling in Sunken Lots.

East side of HUNT AVENUE, beginning 145 feet south of Bronxdale Avenue and extending 75 feet south.

Filling in Sunken Sidewalk.

In front of premises Nos. 525, 527 and 529 E. 134th Street.

New York, January 24, 1914.

**TOPOGRAPHICAL BUREAU,**  
**Office of the President of the Borough of The Bronx.**

Mr. R. H. Gillespie,  
Chief Engineer of Sewers and Highways.

Sir:

I beg to transmit herewith a general recapitulation of the work done in the Topographical Bureau during the year 1913.

The Topographical Bureau is charged with the following:

First: Topographical Survey of the Borough.

Second: Laying out of the Street System and Establishment of grades.

Third: Monumenting of the streets.

Fourth: Making maps in condemnation proceedings.

Fifth: Reports and affidavits concerning dedication.

Sixth: Keep historical record of streets, both public and private.

Seventh: Examine permits for buildings and opening streets to prevent house planting and disturbing of monuments.

Eighth: Numbering of houses.

Ninth: Examine all deeds offered for cession of streets.

Tenth: Furnish various bureaus with data regarding street systems, grades and changes thereof.

Eleventh: To keep in custody maps and records of the Topographical Bureau and the filed city map of the Borough.

Twelfth: Correspondence of the bureau.

In fact, the Topographical Bureau supplies the ground work on which all the improvements in the Borough are based.

The topographical survey and the triangulation of the Borough of The Bronx by the United States Coast and Geodetic Survey were completed during 1910 and additional surveying is constantly going on in connection with the monumenting, establishing of grades and street opening matters.

The whole map of the Borough, in sections, has been prepared and forwarded, with the exception of City and Hart's Islands.

Sections 55, 57, 58, 59 and 60 of the final maps were forwarded for adoption during the year.

Sections 56 and 59 were amended.

Three copies for filing of Sections 55, 56 and 61 were prepared and forwarded.

Sections 56 and 61 were filed in the Topographical Bureau.

The establishing of grades of streets and the changes on petitions by property owners require considerable study.

The monumenting of new streets, the referencing, the taking up and the resetting of old monuments in cases where they have been disturbed by the regulating, grading, paving and sewer construction, is being attended to.

The surveys, computations and maps relative to condemnation proceedings for acquiring title to streets have been promptly furnished when requested by Commissioners of Estimate and Assessment.

Twenty-three new proceedings for acquiring title to avenues and streets covering twenty-nine (29) streets were initiated by the Board of Estimate and Apportionment during 1913; and sixteen (16) proceedings previously initiated were amended during the year.

The examination of permits for crossing sidewalks and streets, for moving or altering old buildings and for erection of new ones, requiring very often surveys, is also assigned to the Topographical Bureau.

Over 1,220 communications were referred to the Topographical Bureau during 1913; the majority of them required maps, plans, studies and reports, which are enumerated in the resume of the work, as shown below.

Considerable time is consumed by the Topographical Engineer and his Assistants in giving information, explaining pending local board matters, etc., to outsiders who bring their grievances to this office.

The Topographical force on December 31, 1913, consisted of the following employees: 1 Assistant Engineer in Charge, 12 Assistant Engineers, 2 Transmitters, 2 Transmitters and Computers, 2 Computers, 25 Topographical Draughtsmen, 2 Levelers, 6 Chainmen and Rodmen, 4 Rodmen, 2 Axemen, 1 Stenographer and Typewriter, 3 Clerks, 1 Searcher, 3 Laborers and 1 Driver, making a total of 63 monthly employees and 4 Laborers.

### RESUME OF OFFICE WORK AND FIELD WORK.

#### 1. Topographical Survey of the Borough.

#### 2. Laying Out of the Street System and Establishment of Grades.

Maps in seventy-three (73) cases were prepared and submitted for adoption during the year 1913.

Maps in sixty-two (62) cases were prepared in triplicate and forwarded for filing during the year 1913.

#### 3. Monumenting of the Streets.

During the year 1913, three hundred and fifty (350) orders were received for setting, resetting, testing and accurately referencing monuments and one hundred and forty-five (145) orders were brought over from 1912, making in all four hundred and ninety-five (495) orders.

Two hundred and eighty-eight (288) orders of 1913 were attended to and one hundred and twelve (112) orders brought over from 1912 were also attended to, making in all four hundred (400) orders.

The following is a tabulated statement of the office work and field work in relation to monumenting during the year 1913.

#### Office Work.

Traverses worked up, in feet .....	227,252
Monument instructions issued .....	533
Total length of final side and monument lines, in feet .....	644,818
Length of traversed courses, in feet .....	1,140,823
Monument co-ordinates calculated .....	830

#### Field Work.

Points set .....	553
Points reset .....	338
Accurately referenced .....	260
Accurately measured, in feet .....	668,133
Taped, in feet .....	271,146
Concrete monuments made .....	393
Monuments set .....	484
Monuments reset .....	135
Monuments set to grade .....	144
New monuments used .....	416
Old monuments used .....	288
Bolts used .....	58
Iron boxes set .....	8
Flags cut .....	35

#### 4. Making Maps in Condemnation Proceedings.

This work consists of making (a) surveys for damage and profile maps, (b) rule maps, (c) draft damage maps, (d) profiles of avenues and streets, (e) reports as to erection of buildings shown on damage maps, (f) draft benefit maps, (g) final damage and benefit maps, and (h) inspection and testimony.

"a" Damage map surveys were made in forty-seven (47) streets.

The amount of work which was done and completed on the above survey is as follows:

247 houses, 310 fences and 201 stone walls were located; 84,444 linear feet of avenues chained, 243,690 feet taped in location and cross-section measurement and 1,483 angles turned.

Surveys for profile maps were made in sixteen (16) streets.

The amount of work which was done and completed on the above surveys is as follows:

1,885 levels were taken and 12,150 feet taped.

"b" Rule maps, in quadruplicate, were prepared and forwarded with technical descriptions, in triplicate, in thirty (30) street opening proceedings and three (3) amended proceedings for forty-nine (49) streets.

"c" Draft damage maps, in triplicate, were prepared and forwarded in thirty-three (33) proceedings, comprising 1,444 plots, covering 8,396,573.36 square feet or 3,558.633 city lots on forty-eight (48) streets or parts of streets.

"d" Profile maps, showing the physical elevation of the property on the side lines and centre of the street **in those blocks only on which buildings have been erected**, were made for fourteen (14) street opening proceedings covering twenty-five (25) streets.

"e" Examinations were made in the Bureau of Buildings, Borough of The Bronx, to determine the dates of erection of buildings on certain street opening proceedings, giving the building plan number, the dates of commencement and completion of buildings, and reports were made on twenty-eight (28) street opening proceedings.

"f" Draft benefit maps were prepared in twenty-seven (27) proceedings covering 12,380 benefit plots.

"g" Final copies of damage maps, in triplicate, and benefit maps, in quadruplicate, were forwarded in twenty-seven (27) proceedings comprising 1,619 maps covering 3,313 damage parcels.

"h" After a draft damage map of a street is completed and before forwarding the same, the street was inspected to be assured that no encroachments were omitted.

Testimony was given by various assistants when required by the Corporation Counsel before Commissioners in Condemnation and other proceedings.

#### 5. Reports and Affidavits Concerning Dedication.

Affidavits as to dedication of streets were prepared for transmission to the Corporation Counsel. This required an accurate search of all records in the different city departments and examination and searching as to the physical condition of each street. These affidavits were prepared on ten (10) streets in order to prove dedication and thus avoid street opening proceedings where no additional land is required.

#### 6. Keep Historical Record of Streets, Both Public and Private.

This record is necessary for the determination of the status of streets as to dedication, etc., and for use in condemnation proceedings.

**7. Examine Permits for Buildings and Opening Streets to Prevent House Planting and Disturbing of Monuments.**

Permits issued by the Department of Water Supply, Gas and Electricity and by the Superintendent of Highways for the opening of streets for water taps, gas and sewer connections and for crossing the sidewalks for excavating, laying new sidewalks and for openings for poles and trees, were examined in relation to their interference with the street monuments and in case this occurred, a \$25 bond was required.

1. Number of permits recorded and examined .....	6,447
2. Number of permits held for \$25 bond .....	123
3. Number of permits cancelled where bond had been exacted .....	28

Location plans of buildings submitted by the Bureau of Buildings were examined in relation to encroachments on land to be taken for street purposes.

1. Number of plans for new buildings .....	662
2. Number of plans for altering old buildings .....	668
3. Number of plans for new buildings disapproved on account of encroachments on land to be taken for street purposes .....	13

Location plans of buildings submitted by the Superintendent of Highways for moving of buildings to new locations were examined in relation to encroachments on land to be taken for street purposes.

1. New location of old buildings approved .....	86
2. New location of old buildings disapproved .....	7
3. Number of buildings moved through public highways .....	16

**8. Numbering of Houses.**

A complete system of house numbers was established in 1906. The occupants or owners of all the houses in the Borough have been notified of the new numbers of their houses.

A record of the new house numbers is kept in atlases on file in the Topographical Bureau.

New buildings are erected and requests for house numbers are made for same, new numbers being assigned. A record of all these assigned house numbers are also kept in atlases on file.

During the year 1913, 2,218 requests for new numbers were made.

**9. Examine all Deeds Offered for Cession of Streets.**

In following out the provisions of Section 992 of the Greater New York Charter in reference to ceding of streets, much time was consumed in looking over the deeds of cession and affidavits of title and comparing same with the Land Map of the City of New York. During the year 178 deeds were examined and reported on.

**10. Furnish Various Bureaus with Data Regarding Street Systems, Grades and Changes Thereof.**

Compilation of dates of filing grades and vesting of title to one hundred and sixteen (116) avenues and streets were furnished to the Bureau of Highways.

Compilation of grades of forty-six (46) streets were made for the Bureau of Designs.

## **11. To Keep in Custody Maps and Records of the Topographical Bureau and the Filed City Map of the Borough.**

During the year 1913, ninety-eight (98) maps, which were ordered to be filed by the Board of Estimate and Apportionment, were deposited in the vault of the Topographical Bureau.

## **12. Correspondence of the Bureau.**

During the year 1913, 1,229 communications were referred for report to the Topographical Bureau by the Chief Engineer of Sewers and Highways, and 1,136 reports and letters were required to be written on these subjects.

## **MISCELLANEOUS.**

During the year, considerable time of the Searcher was occupied in examining and searching through reports, maps, etc., relative to awards for damage on street opening proceedings of the Borough of The Bronx.

Considerable time of the Searcher was occupied in transcribing the records of the Board of Trustees of the Villages of Williamsbridge and South Mount Vernon.

Searches were made in the offices of the County Clerk and Register of the Counties of New York, Kings, Richmond and Westchester in relation to the incorporation of Cemeteries and tabulated for the use of the President of the Borough of The Bronx.

During the year, eleven (11) index maps were prepared for the use of the Chief Engineer of Sewers and Highways and the Topographical Bureau.

Two maps, east and west of the Bronx River, respectively, were prepared showing legal, dedicated and streets in use.

Numerous deeds were copied during the year.

Atlases of the final maps of the Borough of The Bronx have been corrected from time to time as changes therein have been filed; such atlases being in the various offices of the President of the Borough of The Bronx.

Three sets of the final sections of the Borough (Topographical Bureau, Bureau of Design and Division of Street Openings), were brought up to date.

The maps in the vault of the Topographical Bureau are being indexed and cared for and the dates of the topographical surveys compiled and recorded on the topographical sheets.

Eleven (11) property maps, which were filed in the Register's office of New York County, were copied and compared.

The large wall index map (scale 600 feet to the inch) showing all legally acquired streets of the Borough and streets upon which proceedings are now pending were colored from time to time and kept up to date.

During the year 1913, 8,207 blueprints and blackprints were made for the Topographical Bureau, the Bureau of Sewers, Bureau of Highways, Bureau of Design and the Division of Subsurface Records.

The Board of Estimate and Apportionment on April 20, 1911, passed a resolution to authorize the Borough President to sell to the public copies of maps, other than those pertaining to street openings and records of sub-surface structures at certain prices and three hundred and four (304) requests were executed and \$526.73 were received by the General Bookkeeper for the same.

An office to give general information to the public having been established by the President of the Borough of The Bronx in the Municipal Building, many inquiries which come to this Bureau were attended to by the Topographical Bureau. An accurate account of the number of cases could not be kept.

During the year 1913, sixty-three (63) streets or portions of same were vested in the City of New York, (40 east of the Bronx River, a length of 66,104 feet and 23 west of the Bronx River, a length of 40,142 feet) covering a total length of 106,246 feet or 20.12 miles.

Portions of ten streets were declared dedicated to the use of the public.

Considerable amount of work is incurred in making out the monthly returns to the Corporation Counsel's office, as provided by Section 980 of the Greater New York Charter, Revised, as amended by Chapter 394 of the Laws of 1909, which section provides, that a monthly return be forwarded to the Corporation Counsel, verified by the Borough President, showing the names of persons employed, and the number of hours occupied by them in the preparation of maps relating to proceedings for acquiring title to avenues, streets, etc., and the dates of the days of each month so occupied, their respective salaries, and the amount of such salary apportioned to the expense thereof in each proceeding.

Charges were made to ninety-three (93) proceedings at a cost of \$42,708.83.

During 1913, the map of the Borough of The Bronx, east of the Bronx River, was completed and photo-lithographed and printed on a scale of 1,200 feet to the inch and on a scale of 600 feet to the inch.

Many maps, sketches, tracings, black prints and blue prints were made auxiliary to preparing maps for adoption and in connection with various other works under the jurisdiction of the Topographical Bureau; also a considerable amount of copying and searching of records in the different city departments and the Register's Office of New York City and Westchester County at White Plains. Among the more important items under this head are investigations and maps requested by other city departments.

The weekly payroll, in duplicate, of the laborers, etc., assigned to the Topographical Bureau, is prepared every week.

The payroll, in triplicate, of the engineers, draughtsmen, etc., is prepared at the end of each month and all the newly established service records of every employee have to be examined and compared with the weekly reports of work.

Respectfully,

JOHN C. HUME,  
Assistant Engineer in Charge.

January 15, 1915.

Hon. Douglas Mathewson,  
President, Borough of The Bronx.

Dear Sir:

I beg to transmit herewith a report of the building operations in the Bureau of Buildings, Borough of The Bronx, for the year 1913.

Yours very truly,

ROBERT J. MOOREHEAD,  
Superintendent of Buildings, Borough of The Bronx.

**BUREAU OF BUILDINGS, BOROUGH OF THE BRONX.**

Report of Operations for the Year 1913.

Robert J. Moorehead, Superintendent.

**Plans and Specifications for New Buildings Filed and Acted Upon  
During the Year 1913.**

Classification.	No. of Plans.	No. of Bldgs.	Estimated Cost.
Dwelling houses, estimated cost over \$50,000.....	...	...	.....
Dwelling houses, estimated cost bet. \$20,000 and \$50,000	2	2	\$40,000
Dwelling houses, estimated cost less than \$20,000.....	76	97	638,975
Brick Tenements, estimated cost over \$15,000.....	202	324	14,907,351
Brick Tenements, estimated cost less than \$15,000....	4	5	36,500
Frame Tenements .....	1	1	7,000
Hotels .....	...	...	.....
Stores, estimated cost over \$30,000.....	...	...	.....
Stores, estimated cost between \$30,000 and \$15,000....	2	2	35,000
Stores, estimated cost less than \$15,000.....	36	38	231,750
Office Buildings .....	11	11	88,225
Manufactories and Workshops .....	49	51	812,240
Schoolhouses .....	11	15	1,057,700
Churches .....	10	11	272,500
Public Buildings, Municipal, Etc.....	8	8	314,323
Public Buildings, Places of Amusement .....	45	47	982,100
Stables and Garages .....	49	49	155,000
Frame Dwellings .....	101	129	478,800
Other Structures .....	55	56	15,025
<b>Totals .....</b>	<b>662</b>	<b>846</b>	<b>\$20,072,489</b>

**Plans and Specifications for Alterations to Buildings Filed and Acted Upon  
During Year 1913.**

Classification.	No. of Plans.	No. of Bldgs.	Estimated Cost.
Brick Dwellings .....	36	45	\$67,450
Frame Dwellings .....	319	369	322,143
Brick Tenements .....	100	117	135,245
Frame Tenements .....	21	25	15,775
Hotels .....	14	15	56,050
Stores .....	47	49	49,600
Office Buildings .....	12	13	41,750
Manufactories and Workshops .....	45	47	200,700
Schools .....	8	9	122,100
Churches .....	8	8	76,900
Public Buildings .....	37	37	180,400
Stables and Garages .....	11	11	8,625
Miscellaneous .....	2,529	2,529	352,226
<b>Totals .....</b>	<b>3,187</b>	<b>3,274</b>	<b>\$1,628,964</b>

**Other Applications Filed and Acted Upon During Year 1913.**

Nature.	No.	Estimated Cost.
Construction Slips (including temporary structures or ordinary repairs) .....	1,487	\$232,913
Plumbing and Drainage Slips .....	895	100,525
"No Construction" Slips .....	137	16,958
<b>Totals .....</b>	<b>2,519</b>	<b>\$350,396</b>

**New Buildings and Alterations Commenced, Completed, or In Progress During Year 1913.**

	Com- menced.	Com- pleted.	In Progress, Dec. 31, 1913.
New Buildings .....	756	1,029	367
Alterations .....	655	598	252

**Violations of the Law and Unsafe Building Cases Filed During Year 1913.**

Nature.	Pending, Dec. 31st, 1912.	Received Since.	Total for Dis- position.	Removed Before Ac- tion by Courts.	Total for Final Disposition.	Pending Dec. 31st, 1913.	Forwarded for Prosecution.
Defective construction materials, etc..	344	1,321	1,665	1,479	1,479	186	174
Erecting, altering or removing with- out permit or after disapproval....	1,368	1,720	2,088	1,808	1,808	280	248
Insufficient means of escape, fire escapes, aisles obstructed, etc.....	1	..	1	..	..	1	..
Defective light and ventilation.....	..	2	2	2	2	..	..
Defective plumbing and drainage..	110	432	542	468	468	74	90
Unsafe Buildings .....	272	600	872	617	617	255	11
<b>Totals .....</b>	<b>1,095</b>	<b>4,075</b>	<b>5,170</b>	<b>4,374</b>	<b>4,374</b>	<b>796</b>	<b>523</b>

**Notices Issued During Year 1913.**

To place fire escapes on buildings.....	..
To remove violations of law .....	4,501
To repair passenger elevators .....	8
To remove unsafe buildings .....	1,218
Letters (including notices of disapproval of plans)....	9,465
<b>Total .....</b>	<b>15,192</b>

**Total Number of Inspections, With Reports, Made by Inspectors During 1913.**

By Construction Inspectors .....	138,649
By Iron and Steel Inspectors .....	71,294
By Elevator Inspectors .....	418
By Plumbing and Drainage Inspectors .....	36,098
By Plastering Inspectors .....	9,842
<b>Total .....</b>	<b>256,301</b>

**Complaints Received and Investigated During Year 1913.**

Nature.	Pending Dec. 31st, 1912.	Received Since.	Totals.	Unfounded.	Notices Issued.	Totals.	Pending Dec. 31st, 1913.
	Defective flues .....	..	11	11	2	9	11
Defective construction materials, etc. ..	..	35	35	13	22	35	..
Defective leaders .....	..	19	19	7	12	19	..
Erecting and altering without permit ..	..	75	75	37	38	75	..
Frame structures erected or removed without permit .....	..	38	38	12	26	38	..
Defective plumbing and drainage.....	..	64	64	36	28	64	..
Insufficient means of escape, aisles ob- structed, etc. ....	..	4	4	4	..	4	..
Unsafe buildings .....	..	1,168	1,168	893	275	1,168	..
Fences over 10 feet high .....	..	3	3	2	1	3	..
Wood too near flues .....	..	11	11	2	9	11	..
Defective plastering and lathing.....	..	6	6	4	2	6	..
<b>Totals .....</b>	<b>..</b>	<b>1,434</b>	<b>1,434</b>	<b>1,012</b>	<b>422</b>	<b>1,434</b>	<b>..</b>

**Pieces of Iron and Steel Inspected, with Reports Thereon, Made by Inspectors  
During the Year 1913.**

Beams .....	41,781
Columns .....	3,718
Angles .....	1,164
Channels .....	10,435
Bases .....	709
Plates .....	186
Tees .....	45
Girders .....	7,417
Lintels .....	5,743
Trusses .....	96
<b>Total .....</b>	<b>71,294</b>

### INSPECTION OF ELEVATORS FOR THE YEAR 1913

Number inspected .....	418
Found in good order and fit for use .....	410
Found not in compliance with the law .....	8

#### DISPOSITION OF CASES NOT IN COMPLIANCE WITH LAW.

Nature.	Pending last report,	Received since.	Total.	Law complied with.	Now pending.
Defective guide rails, posts and gibs .....	..	1	1	1	..
Doors and door locks out of repair .....	..	4	4	4	..
Fronts of cars unprotected .....	..	1	1	1	..
Run by persons under 18 years old .....	..	1	1	1	..
Safety attachments out of order .....	..	1	1	1	..
Gratings .....	1	..	1	1	..
Totals .....	1	8	9	9	..
Notices issued .....				8	
Forwarded for prosecution .....				1	

#### COMPARATIVE STATEMENT, YEARS 1912 AND 1913.

	1912.	1913.
Applications for new buildings .....	929	662
Estimated Cost .....	\$34,644,400	\$20,072,489
Applications for Alterations .....	573	3,187
Estimated Cost .....	\$1,170,777	\$1,628,964
Construction slips filed .....	1,185	1,487
Estimated Cost .....	\$141,570	\$232,913
P. & D. slips filed .....	659	895
Estimated Cost .....	\$81,323	\$100,525
"No Construction" slips filed .....	79	137
Estimated Cost .....	\$11,800	\$16,958
New buildings commenced .....	1,127	756
New buildings completed .....	1,460	1,029
Alterations commenced .....	545	655
Alterations completed .....	549	598
Violations filed by Inspectors .....	3,610	3,475
Unsafe building cases filed by Inspectors .....	719	600
Violations removed .....	3,839	3,757
Fire escape cases removed .....	67	..
Unsafe buildings made safe or taken down .....	659	617
Complaints received and investigated .....	1,092	1,434
Notices issued (including notices of disapproval of plans) .....	10,083	9,465
Inspections made by Construction Inspectors .....	144,437	138,649
Inspections made by Plastering Inspectors .....	12,620	9,842
Inspections made by P. & D. Inspectors .....	32,247	36,098
Inspections made by Elevator Inspectors .....	421	418
Number of pieces of iron and steel inspected .....	79,515	71,294