

# Court of King's Bench

(APPEAL SIDE)

On appeal from a judgment of the Superior Court, for the Province of Quebec, (District of Montreal), rendered by the Honourable Mr. Justice Mercier, November 23rd, 1934.

**The People of the State of New York,**  
(Plaintiffs in the Court below)  
APPELLANTS

—VS—

**Heirs of the late John M. Phillips,**  
(Defendants in the Court below)

—&—

**The Crown Trust Company et al.,  
es-qual., for the Heirs of the  
late Francis Phillips,**

Defendants severing in their defence  
and en reprise d'instance.

RESPONDENTS

—&—

**The Montreal Safe Deposit Company,**  
TIERS-SAISIS

## C A S E

VOLUME 7.—PAGES 3001. TO 3500.

**BERTRAND, GUERIN, GOUDRAULT and GARNEAU,**  
Attorneys for Appellants.

**COOK, MAGEE, NICHOLSON and O'DONNELL,**  
Attorneys for the Heirs of the late  
John M. Phillips, Respondents.

**HACKETT, MULVENA, FOSTER, HACKETT and HANNEN,**  
Attorneys for The Crown Trust Company et al., es-qual.,  
for the Heirs of the late Francis Phillips, Respondents.

**J.-D. de LAMIRANDE et Cie, 4557 rue St-Denis, Montréal.**  
IMPRIMEURS EDITEURS

NO. 956.

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# Court of King's Bench

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TIERS-SAISIS

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C A S E

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EXHIBIT C-221 (*continued*) :

		Diameter	Pressure
	6 inches	.....	900 lbs. per lin. ft.
	8 "	.....	900 " " " "
	10 "	.....	1,000 " " " "
	12 "	.....	1,050 " " " "
10	15 "	.....	1,250 " " " "
	18 "	.....	1,400 " " " "
	20 "	.....	1,550 " " " "
	22 "	.....	1,750 " " " "
	24 "	.....	1,950 " " " "

Drop weight test.

20        146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

Hydrostatic test.

30        147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

Absorption test.

148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

40        Factory rejection.

149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

EXHIBIT C-221 (*continued*) :

Without cradle.

151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

How laid.

154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than form invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

Gasket and mortar joints.

156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than  $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if directed, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to  $1\frac{1}{2}$ , and the joint wiped inside and finished to a smooth bevel outside.

40 Inspection of joints.

157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall



EXHIBIT C-221 (*continued*) :

be provided. A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

- 10        158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the sewer shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

- 20        160. Immediately after the sewer is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed sewer (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

- 30        161. The exposed ends of pipe sewers shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

- 40        Connection with existing work.

163. Wherever the proposed sewer is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or

**EXHIBIT C-221 (continued) :**

be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe sewer.

Pipes cut to fit masonry.

10        164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

20        165. The length of pipe sewers to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes, and the measurements will be made to the inside face of all chambers.

Prices to cover.

30        166. The contract prices for vitrified pipe sewers shall cover the cost of all necessary excavation (except rock) of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the sewers complete in place, as shown on the plan and as specified.

30

**BASIN CONNECTIONS.**

40        177. The connections between inlets and basin manholes and between basin manholes and sewers or sewer manholes shall be of vitrified pipe of the size shown on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe sewers.

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

EXHIBIT C-221 (*continued*) :

Prices to cover.

- 10 179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place, as specified.

SPURS FOR HOUSE CONNECTIONS.

180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.
- 20 In concrete sewers.

181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.

In pipe sewers.

- 30 182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

- 40 183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

Price to cover.

184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same as specified, and the cost of furnishing and cementing the covers for the same.

EXHIBIT C-221 (*continued*) :

DRAINS FOR HOUSE CONNECTIONS.

185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

10

Depth at curb.

186. House connection drains shall be laid with a minimum gradient of  $\frac{1}{4}$  inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

Material.

20

187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

How laid.

30

188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

Measurement.

189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

Price to cover.

40

190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock); the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to finish and lay the drains for house connections complete in place, as specified.

EXHIBIT C-221 (*continued*) :

MANHOLES.

10           194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

Brick manholes.

195. Brick manholes shall be formed by means of templates placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar  $\frac{1}{2}$ -inch thick.

Steps.

20           197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals, of about 16 inches.

Head and cover.

30           198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

Price to cover.

40           199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

EXHIBIT C-221 (*continued*) :

BASIN MANHOLES.

Brick basin manholes.

10 200. Brick basin manholes shall be formed by means of templates placed at top and bottom with not less than 10 vertical lines drawn between them.

201. Where the walls of brick basin manholes are not built of two rings of brickwork with a mortar layer between the inside of the brickwork shall be smoothly and even plastered with a layer of 1-2 Portland cement mortar  $\frac{1}{2}$  inch thick.

20 202. Where the wall of the basin manhole consists of two rings of brickwork, with a mortar layer between, the outer ring shall be carried up not less than 1 foot in advance of the inner ring, and the inner surface of the former shall be plastered with two coats of mortar. The second coat of mortar shall be applied before the first is set, and the total thickness of the mortar layer shall be 1 inch.

Concrete basin manholes.

30 203. Concrete basin manholes shall, if required, be built in such a manner that the bottom and sidewalls shall be formed in one continuous operation. Concrete basins shall be coated with a grout of neat cement on the inside.

Concrete cover slabs.

204. Concrete cover slabs of basin manholes shall be built of Class "A" concrete, reinforced as shown on plan.

Head cover and trap.

40 205. The basin manhole head and cover shall be of cast iron, as shown on plan, and known as a Standard Sidewalk Manhole Head and Cover. Each head exclusive of cover shall weigh not less than 260 pounds and each cover shall weigh not less than 100 pounds. An iron hood or trap, of the size and dimensions shown on the plan, must be furnished by the Contractor for each basin manhole and is to be built into the basin manhole, as shown on plan.

EXHIBIT C-221 (*continued*) :

Restoration of sidewalks, curbs, etc.

206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

10 Price to cover.

207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all back-filling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

INLETS.

20

208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifications for brickwork and concrete shall be those hereinbefore specified for basin manholes.

Heads.

30

209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

Restoration of roadway, pavements, etc.

40

210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ( $2\frac{1}{2}$ ) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

EXHIBIT C-221 (*continued*) :

Price to cover.

- 10 211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

- 20 219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under this contract shall be restered by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

- 30 220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

Payments, etc., under guarantee.

- 40 221. All pavements, sidewalks, crosswalks, curbs, etc., existing at the time of the opening of the bids for this contract, and under guarantee for maintainence, shall be restored and adjusted by the parties responsible under such guarantee, and at the expense of the Contractor. If not so restored and adjusted during the progress of the work, the Contractor shall, when directed, pay to the President before the completion of the contract a sum of money sufficient to cover the cost of having the same restored and adjusted by the parties responsible under such



EXHIBIT C-221 (*continued*) :

guarantee, and at the charges for the restoration of the same, as set forth in their contracts relating thereto. Such sum shall be accompanied by certificates from the parties responsible for the maintenance of the pavements, sidewalks, crosswalks, curbs, etc., to the effect that such sum will be accepted by them as full payment for such restoration and adjustment.

- 10           221a. The asphalt pavement in METROPOLITAN AVENUE is under guarantee to The City of New York by the McDonald Paving Co., wherein the contract prices for restoration are as follows:— For openings measuring less than ten (10) square yards in area, three dollars and fifty cents (\$3.50) per square yard, and for openings measuring ten (10) square yards or more in area, three dollars (\$3.00) per square yard; these prices to include the construction of an eight (8) inch concrete foundation. The character of pavement (kind, thickness of base, etc.) and manner of restoration shall be determined by, and  
20           subject to approval by the Highway Department.

Temporary restoration.

222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

- 30           When new pavement is laid.

223. If pavements, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

- 40           Trenches flooded.

224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

EXHIBIT C-221 (*continued*) :

Cleaning up.

225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

Cost to be covered.

226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

GRANITE BLOCK PAVEMENT.

(Sand Bed and Sand Joints)

30 The sub-grade shall be properly prepared as heretofore set forth at the required depth below the grade of the finished pavement. When necessary the sub-grade shall be protected by suitable runways or shall be compacted.

Character of Blocks.

40 The paving blocks shall be of medium grained granite showing an even distribution of constituent minerals, shall be of uniform quality and texture without seams, scales or discolorations showing disintegration, free from an excess of mica or feldspar and equal in every respect to the samples in the office of the Engineer of Highways. No out-crop, soft, brittle or laminated stone will be accepted, the block to have a crushing strength of no less than 16000 lbs. per square inch.

EXHIBIT C-221 (*continued*) :

Blocks.

10 The size of the blocks shall be as follows: not less than eight (8) inches nor more than twelve (12) inches in length; not less than three and one-half ( $3\frac{1}{2}$ ) nor more than four and one-half ( $4\frac{1}{2}$ ) inches in width and not less than seven (7) nor more than eight (8) inches in depth. The blocks are to be rectangular, with tops and sides uniform in thickness, to lay closely, and with a fair and true surface; free from bunches and so cut or dressed that they can be laid with points not to exceed three-quarters ( $\frac{3}{4}$ ) of an inch in width, approximately uniform. The stones from each quarry shall be piled and laid separately in different sections of the work, and in no case shall the stones from different quarries be mixed.

20 On the sub-grade as designated shall be laid a bed of clean coarse, dry sand to a depth of one and one-half ( $1\frac{1}{2}$ ) inches.

On the sand bed shall be laid the stone blocks at right angles to the line of the street or at such angle as may be directed. Each course of blocks shall be of the same class and laid straight and regularly, making with the end joints a lap of at least three (3) inches; and in no case shall stones of different widths be laid in the same course, except on curves. The joints between courses shall not exceed three-quarters ( $\frac{3}{4}$ ) inch in width and be practically uniform.

30 After the blocks are laid they shall be covered with clean, sharp sand free from gravel or other impurities, the blocks shall then be thoroughly rammed to a firm unyielding bed, to a uniform surface to conform to the given grade and crown.

Sand covering shall then be spread on the pavement to a depth of one-half ( $\frac{1}{2}$ ) inch and swept into the joints until the same are full.

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EXHIBIT C-219

EXHIBIT C-219

10 (Contract between The City of New York and Angelo Paino, for  
the construction of a sewer and appurtenances in Weisse Avenue  
from Varian Place to Myrtle Avenue; Varian Place from Weisse  
Avenue to Ford Street from the Long Island Railroad to Myrtle  
Avenue; Cooper Avenue from Bertha Place to Brush Street;  
Brush Street from Cooper Avenue to Myrtle Avenue; Hanson  
Place from Myrtle Avenue to Weisse Avenue; Agnes Place from  
Myrtle Avenue to Cooper Avenue; Bertha Place from Myrtle  
Avenue to Cooper Avenue; with a temporary connection to the  
in Cooper Avenue and in Myrtle Avenue from Agnes Place to  
Ford Street, together with an automatic electric pumping station  
at Weisse Avenue and Varian Place, with a pressure pipe through  
20 Weisse Avenue to Central Avenue, Second Ward, Borough of  
Queens, on May 1st, 1923).

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THE CITY OF NEW YORK — DEPARTMENT OF FINANCE

Office of the Comptroller

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CONTRACT SUMMARY

Contractor : ANGELO PAINO No. 65431

Names of sureties : U. S. Fidelity & Guaranty Co.

Amount of bond : \$42,000.00

40 Date of award : April 18, 1923. Department : Pres Queens.

Date of contract : May 1st, 1923. Date of filing : April 25, 1923.

Date paid in full : January 20, 1925.

EXHIBIT C-219 (continued)

DESCRIPTION OF WORK

10 For the construction of a sewer and appurtenances in  
WEISSE AVENUE from Varian Place to Myrtle Avenue;  
VARIAN PLACE from Weisse Avenue to Ford Street; FORD  
STREET from the Long Island Railroad to Myrtle Avenue;  
COOPER AVENUE from Bertha Place to Brush Street; BRUSH  
STREET from Cooper Avenue to Myrtle Avenue; HANSON  
PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE  
from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from  
Myrtle Avenue to Cooper Avenue; with a temporary connection  
to the sewer in Cooper Avenue and in MYRTLE AVENUE from  
Agnes Place to Ford Street, together with an automatic electric  
pumping station at WEISSE AVENUE and VARIAN PLACE,  
20 with a pressure pipe through Weisse Avenue to Central Avenue,  
Second Ward, Borough of Queens.

Original estimate: \$93,443.00

A. E. 2,506.17

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\$95,949.17

ACCOUNTS TO BE CHARGED.

30

C. F. M. 25

The obligation on this surety bond ceases as to anything  
occurring after December 2nd, 1924.

If the conditions of the contract have been complied with,  
the retained percentage (if any) is due on or after December 2nd,  
1924.

40

T. B. RYAN,  
Examiner.

EXHIBIT C-219 (continued)

	Date	CTF. No.	Amount
	Award	CFM 25	93,443.00
		A.E.	293.17
			<u>2,213.00</u>
10			95,949.17

PAYMENTS, AMOUNTS RETAINED AND EARNED

	Date	85% Payments	Amount paid to date	Amount retained to date	Amount earned to date
20	7-19-23	7,391.60	7,391.60	1,304.40	8,696.00
	8-13-23	13,062.80	20,454.40	3,609.60	24,064.00
	10-18-23	17,205.70	37,660.10	6,645.90	44,306.00
	10-30-23	15,571.15	53,231.25	9,393.75	62,625.00
	12-20-23	11,527.70	64,758.95	11,428.05	76,187.00
	4-14-24	14,916.79	79,675.74	14,060.43	93,736.17
	6- 2-24	14,836.28	94,512.02	1,437.15	95,949.17
	12- 9-24	1,437.15	95,949.17		95,949.17
		<u>95,949.17</u>			

30

IN FULL

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EXHIBIT C-219 (continued)

RESOLUTION

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BOARD OF ESTIMATE AND APPORTIONMENT

10

CITY OF NEW YORK

Cal. No. 689

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WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Newtown District, 20 duly adopted by said Board on the 4th day of November, 1920, and approved by the President of the Borough of Queens on the 9th day of November, 1920, as follows, to wit :

RESOLVED, That this Board does hereby initiate proceedings for the said local improvements, to wit :

For the construction of a sewer and appurtenances in WEISSE AVENUE from Varian Place to Myrtle Avenue; 30 VARIAN PLACE from Weisse Avenue to Ford Street; FORD STREET from the Long Island Railroad to Myrtle Avenue; COOPER AVENUE from Bertha Place to Brush Street; BRUSH STREET from Cooper Avenue to Myrtle Avenue; HANSON PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from Myrtle Avenue to Cooper Avenue; with a temporary connection to the sewer in Cooper Avenue and in MYRTLE AVENUE from Agnes Place to Ford Street, together with an automatic electric 40 pumping station at WEISSE AVENUE and VARIAN PLACE, with a pressure pipe through Weisse Avenue to Central Avenue, Second Ward, Borough of Queens.

and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

RESOLVED. That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens

EXHIBIT C-219 (*continued*)

to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included in the assessment.

- 10           RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance: this report being accompanied by a further statement
- 20 showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on July 19, 1922.

- 30           Dated, New York.

(signed) JAMES MATTHEWS

Assistant Secretary,  
Board of Estimate and Apportionment.



EXHIBIT C-219 (*continued*)

BOARD OF ESTIMATE AND APPORTIONMENT.

CITY OF NEW YORK.

(Cal. No. 244-A)

10        A copy of a resolution of the Local Board of the Newton  
District, duly adopted by said Board on the 4th day of Nov.,  
1920 and approved by the President of the Borough of Queens  
on the 9th day of Nov., 1920, having been transmitted to the  
Board of Estimate and Apportionment, as follows, to wit :

RESOLVED, That this Board does hereby initiate pro-  
ceedings for the said local improvement, to wit :

20        For the construction of a sewer and appurtenances in  
WEISSE AVENUE from Varian Place to Myrtle Avenue;  
VARIAN PLACE from Weisse Avenue to Ford Street; FORD  
STREET from the Long Island Railroad to Myrtle Avenue;  
COOPER AVENUE from Bertha Place to Brush Street; BRUSH  
STREET from Cooper Avenue to Myrtle Avenue; HANSON  
PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE  
30        from Myrtle Avenue to Cooper Avenue: BERTHA PLACE from  
Myrtle Avenue to Cooper Avenue: with a temporary connection  
to the sewer in Cooper Avenue and in MYRTLE AVENUE from  
Agnes Place to Ford Street, together with an automatic electric  
pumping station at WEISSE AVENUE and VARIAN PLACE,  
with a pressure pipe through Weisse Avenue to Central Avenue,  
Second Ward, Borough of Queens.

40        and thereupon, on the 19th day of July, 1922, resolutions  
having been adopted by the Board of Estimate and Apportion-  
ment authorizing the President of the Borough of Queens to  
prepare the necessary plans, specifications and an estimate of  
the cost of the proposed improvement based on actual survey  
and further resolving that the Board of Estimate and Apportion-  
ment will consider the authorization of the construction of the  
proposed improvement after the President of the Borough of  
Queens had submitted certain statements as provided in the  
said resolution, and the said resolution having been duly com-  
plied with by the President of the Borough of Queens, as appears  
by papers and documents on the files of the Board of Estimate  
and Apportionment, and there having been presented to the

EXHIBIT C-219 (*continued*)

10 Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses, will be the sum of \$94,300,; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$1,589,270, having also been presented, it is

Resolved, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

20 I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on December 22, 1922.

Dated, New York,

JAMES MATTHEWS,

Assistant Secretary.

30 Board of Estimate and Apportionment.

40

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EXHIBIT C-219 (*continued*)

THE CITY OF NEW YORK

ADVICE OF AWARD OF CONTRACT

(This Copy to be retained by Bookkeeping Division,  
Department of Finance).

10

Contract No. 61239 (To be filled by the Dept. of Finance)

Contract No. 65431 (To be filled by the Dept. of Finance)

\*Date April 18, 1923

Dep't of President of the Borough of Queens.

20 Comptroller of The City of New York:

Please take notice that the following described contract has this day\* been awarded to Contractor Angelo Paino, Address 32 Court Street, Brooklyn, N. Y.

Sureties: United States Fidelity & Guaranty Co.

Amt. of bond: \$42,000.00

30

DETAILS OF PURPOSE OF CONTRACT

For the construction of a sewer and appurtenances in WEISSE AVENUE from Varian Place to Myrtle Avenue; VARIAN PLACE from Weisse Avenue to Ford Street; FORD STREET from the Long Island Railroad to Myrtle Avenue; COOPER AVENUE from Bertha Place to Brush Street; BRUSH STREET from Cooper Avenue to Myrtle Avenue; HANSON PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from Myrtle Avenue to Cooper Avenue; with a temporary connection to the sewer in Cooper Avenue and in MYRTLE AVENUE from Agnes Place to Ford Street, together with an automatic electric pumping station at WEISSE AVENUE and VARIAN PLACE, with a pressure pipe through Weisse Avenue to Central Avenue, Second Ward, Borough of Queens.

EXHIBIT C-219 (continued)

TYPE B

	Contract Chargeable to Code No.	Estimated Amount	Contracts Previously Awarded (Including Adjustments)	Open Market Orders Issued To Date (Including Adjustments)	Misc. Vouchers, Payrolls, and Order Charges
10	CFM 25	\$93,443.00	\$3,528,766.79	\$5,869.86	\$60,912.97

Enter full titles of accounts below and refer to code numbers by means of line numbers in margin.

Street Iprovement Fund

20 Your respectfully,

MAURICE E. CONNOLLY,

President, Borough of Queens, *Head of Dept.*

\* This will be the date of the entry by which the fund is charged with the estimate amount of the contract both in the department making the award and by the Department of Finance. There must therefore be no delay in forwarding this advice.

30

40

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EXHIBIT C-219 (*continued*)

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connolly  
President

Joseph Flanagan  
Borough Secretary

James M. Murtha,  
Secretary to President

Long Island City May 4, 1923.

20 Charles L. Craig, Comptroller,  
City of New York.

Sir:—

I beg to transmit herewith, for registration in the Department of Finance, the following described contracts:—

30 For the construction of a sewer and appurtenances in WEISSE AVENUE from Varian Place to Myrtle Avenue; VARIAN PLACE from Weisse Avenue to Ford Street; FORD STREET from the Long Island Railroad to Myrtle Avenue; COOPER AVENUE from Bertha Place to Brush Street; BRUSH STREET from Cooper Avenue to Myrtle Avenue; HANSON PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from Myrtle Avenue to Cooper Avenue; with a temporary connection  
40 to the sewer in Cooper Avenue and in MYRTLE AVENUE from Agnes Place to Ford Street, together with an automatic electric pumping station at WEISSE AVENUE and VARIAN PLACE, with a pressure pipe through Weisse Avenue to Central Avenue, Second Ward, Borough of Queens.

**EXHIBIT C-219 (continued)**

“For the construction of a sewer and appurtenances in METROPOLITAN AVENUE from Aazalea Street to Mt. Olivet Avenue, and in MT. OLIVET AVENUE from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.”

**Section 1.**

- 10           (1) For regulating and grading that portion of BEACH CHANNEL DRIVE and the inshore and outshore areas contiguous thereto, bounded and described as follows, etc.”

Yours very truly,

MAURICE E. CONNOLLY,  
President of the Borough of Queens.

20

JJR-PJH

encls

30

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40

EXHIBIT C-219 (continued)

City of New York

Office of the

PRESIDENT OF THE BOROUGH OF QUEENS

Maurice E. Connolly

10 President

Joseph Flanagan

Borough Secretary

James M. Murtha,

Secretary to President

Long Island City, May 11, 1923.

Charles L. Craig, Comptroller,  
City of New York.

20 Sir :—

Referring to contract, No. 65431;—

30 For the construction of a sewer and appurtenances in  
WEISSE AVENUE from Varian Place to Myrtle Avenue;  
VARIAN PLACE from Weisse Avenue to Ford Street; FORD  
STREET from the Long Island Railroad to Myrtle Avenue;  
COOPER AVENUE from Bertha Place to Brush Street; BRUSH  
STREET from Cooper Avenue to Myrtle Avenue; HANSON  
PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE  
from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from  
Myrtle Avenue to Cooper Avenue; with a temporary connection  
to the sewer in Cooper Avenue and in MYRTLE AVENUE from  
Agnes Place to Ford Street, together with an automatic electric  
pumping station at WEISSE AVENUE and VARIAN PLACE,  
with a pressure pipe through Weisse Avenue to Central Avenue,  
Second Ward, Borough of Queens.

40 I beg to inform you that the contractor, Angelo Paino,  
32 Court Street, Brooklyn, N. Y., has been ordered to commence  
the work embraced in said contract on May 17, 1923, or within  
five days from said date.

Yours very truly,

BENJAMIN MARIUN,  
Acting President of the Borough of Queens.

JJR-PJH

EXHIBIT C-219 (continued)

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

10 Maurice E. Connolly,  
President.

Michael J. Shugrue,  
Borough Secretary.

James J. Mullany,  
Secretary to President,

Long Island City May 22nd, 1924.

20

The Honorable Charles L. Craig,  
Municipal Building,  
New York City.

Sir:—

In accordance with the recommendation of the Engineer  
of Sewers, this Department, I have granted an extension of time,  
30 ninety-five and one quarter ( $95\frac{1}{4}$ ) working days to Angelo Paino,  
Contractor, 32 Court Street, Brooklyn, N. Y., in which to complete the work in connection with contract No. 65431;—

“For constructing a sewer and appurtenances in Weisse Avenue from Varian Place to Myrtle Avenue, etc. 2nd Ward.”

The work of finishing this contract presented some very  
difficult conditions. The specifications for the construction of  
40 the pumping station, built in connection with this contract, were  
very rigid and specified the contractor must obtain a certain  
result. To comply with these conditions, the contractor was forced  
to submit sample after sample before getting the material, which  
met with the requirements of the specifications.

The construction of the sewer, itself, was finished within  
approximately the contract time and the principal delay was



EXHIBIT C-219 (*continued*)

caused by the construction of the pumping chamber. While the date of completion is given as April 5th, the pumping station and the sewer were in operation in the early part of March, but all of the work to call the contract complete was not finished until April 5th.

10       The specification for the electrical installation, according to the terms of the contract, has to be submitted to and approved by the Department of Water Supply, Gas & Electricity. It took a matter of about two months for the contractor to receive the approval by the latter department, and the machinery could not be ordered until such approval had been received, and this naturally caused the contractor to be delayed during that time.

20       The pumping station was completed and ready to be put in service about February 28, when an unusual heavy rain-storm occurred and water overflowed through the manhole on the pumping chamber, which manhole was built according to the plans, and the water in the pumping chamber flooded the motors. The contractor was, therefore, obliged to dry out these motors, which consumed about two weeks, and, as soon as they were dried out, the station was put in service and sewage allowed to flow into the sewer system.

30       During the delay of having the material for the pumping station approved, another heavy storm occurred and caused a cave in at the pumping station, necessitating excavating and re-bracing the entire chamber.

A delay of about a month was caused by the New York and Queens Electric Light & Power Company in installing a new pole and a transformer station.

40       Considering, therefore, the difficulties encountered on this contract and the fact that the station was put in operation before the date, as given for the final completion, the extension of Ninety-five and one quarter ( $95\frac{1}{4}$ ) working days was granted.

Very truly yours,

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

EXHIBIT C-219 (continued)

The City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connlloy,  
President.

Michael J. Shugrue,  
Borough Secretary.

James J. Mullany,  
Secretary to President.

JFP/I

Long Island City May 23, 1924.

20

The Honorable Charles L. Craig,  
Comptroller of the City of New York,  
Municipal Building,  
New York, N. Y.

Sir :—

In transmitting herewith Final Certificate on contract #65431, Angelo Paino, 32 Court St., Brooklyn, N. Y., Contractor :

30

For constructing a sewer and appurtenances in WEISSE AVE. from Varian Pl. to Myrtle Ave., etc., 2nd Ward.

I beg to state that the contract cost exceeds the price bid by \$2506.17, as noted below :

IN EXCESS OF ESTIMATED QUANTITY

40	.84 lin. ft. 3'0" R. C. P. Sewer (Type B) .....	@ \$10.00 —	8.40
	6.28 lin. ft. 2'9" R. C. P. Sewer (Type B) .....	@ 12.00 —	75.36
	4.73 lin. ft. 24" R. C. P. Sewer (Type B) .....	@ 5.00 —	23.65
	4.1 lin. ft. 22" Vitrified Pipe Sewer .....	@ 5.00 —	20.50
	76. lin. ft. 12" Vitrified Pipe Sewer .....	@ 5.00 —	380.00

EXHIBIT C-219 (continued)

	117.	lin. ft. 12" V. P. Basin Connection .....	@	1.00 —	117.00	
	16.	vert. ft. Risers for House Connections .....	@	5.00 —	80.00	
	2.	6" Spurs on 20" V. P. Sewer .....	@	4.00 —	8.00	
10	195.	cu. yds. Rock Excavation, etc. ....	@	8.00 —	1560.00	
	590.	cu. yds. Steam Cinders (del. & placed) .....	@	1.25 —	737.50	
						<u>3010.41</u>

LESS THAN ESTIMATED QUANTITY

	.02	lin. ft. 3'6" R. C. P. Sewer (Type B) .....	@	\$17.00 —	.34	
20	1.3	lin. ft. 3'3" R. C. P. Sewer (Type B) .....	@	18.00 —	23.40	
	1.4	lin. ft. 2'3" R. C. P. Sewer (Type B) .....	@	9.00 —	12.60	
	.1	lin. ft. 20" Vit. Pipe Sewer	@	4.00 —	.40	
	6.	lin. ft. 12" C. I. Pipe Class A, Belle & Spigot, etc. ....	@	5.00 —	30.00	
	49.	lin. ft. 10" Vit. Pipe, Basin Connections .....	@	1.00 —	49.00	
	185.5	lin. ft. 6" Vit. Pipe H. C. Drains .....	@	1.00 —	185.50	
30	3.	6" Spurs, 24" long on R.C.P. Sewer (Type B) .....	@	1.00 —	3.00	
	1	Basin Manhole .....			20.00	<u>504.24</u>

COST OVER BID PRICE ..... \$2506.17

I hereby request that you issue a certificate of additional estimate applicable to this contract in the sum of \$2506.17.

Very truly yours,  
BENJAMIN MARIUN,  
Acting President of the Borough of Queens,

40 (Enc.)

Approved for contract entry subject to audit when voucher is presented

P. L. KENNEY,  
Clerk in charge,  
Div. of Auditors & Examiners.

EXHIBIT C-219 (*continued*)

THE CITY OF NEW YORK

Department of Finance

Bureau of Audit — Division of Administration

Municipal Building, Room 631

10

New York, Jan. 20, 1925.

\$1,437.15

Received from CHARLES L. CRAIG, Comptroller,  
Warrant No. 28481, for the sum of one thousand, four hundred,  
thirty seven 15/100\*\*\*\*\* Dollars, on account of the within Con-  
tract numbered 65431, for and in Full of repairing security  
Angelo Paino.

20

W. F. HEFFERNAN,

Disbursing Clerk.

30

40

EXHIBIT C-219 (*continued*)

NOTICE. — Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

10 No. 2

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THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

20

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BUREAU OF SEWERS

1922

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ASSESSMENT WORK

Proposal for Bids, Bid, Bond, Agreement and Specifications  
30 For the construction of a sewer and appurtenances in  
WEISSE AVENUE from Varian Place to Myrtle Avenue;  
VARIAN PLACE from Weisse Avenue to Ford Street; FORD  
STREET from the Long Island Railroad to Myrtle Avenue;  
COOPER AVENUE from Bertha Place to Brush Street; BRUSH  
STREET from Cooper Avenue to Myrtle Avenue; HANSON  
PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE  
from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from  
40 Myrtle Avenue to Cooper Avenue; with a temporary connection  
to the sewer in Cooper Avenue and in MYRTLE AVENUE from  
Agnes Place to Ford Street, together with an automatic electric  
pumping station at WEISSE AVENUE and VARIAN PLACE,  
with a pressure pipe through Weisse Avenue to Central Avenue,  
Second Ward, Borough of Queens, together with all the work  
incidental thereto.

EXHIBIT C-219 (*continued*)

No. 1.

THE CITY OF NEW YORK

Office of the

THE PRESIDENT OF THE BOROUGH OF QUEENS

10

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BUREAU OF SEWERS

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20 Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens on the 4th Floor of the Queens Subway Building, 68 Hunterspoint Avenue, Long Island City, Borough of Queens, in The City of New York, until 11 o'clock a. m. On April 17, 1923.

The time allowed for the completion of the work and the full performance of the contract is 150 CONSECUTIVE WORKING DAYS.

The liquidated damages for each day in excess of the allowed time, as stipulated in the contract, is ten dollars per day:

30 The amount of SECURITY or surety bond required will be (\$42,000.00).

40 NOTE. — All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name a price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete, conditional, obscure, or irregular, may be held to be informal and may be rejected, and in case of any discrepancy between the price written in the bid and given in figures, the price in writing will be considered as the bid. The writing must be in ink.

EXHIBIT C-219 (*continued*)

BID OR ESTIMATE

For the construction of a sewer and appurtenances in  
WEISSE AVENUE from Varian Place to Myrtle Avenue;  
VARIAN PLACE from Weisse Avenue to Ford Street; FORD  
10 STREET from the Long Island Railroad to Myrtle Avenue;  
COOPER AVENUE from Bertha Place to Brush Street; BRUSH  
STREET from Cooper Avenue to Myrtle Avenue; HANSON  
PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE  
from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from  
Myrtle Avenue to Cooper Avenue; with a temporary connection  
to the sewer in Cooper Avenue and in MYRTLE AVENUE from  
Agnes Place to Ford Street, together with an automatic electric  
pumping station at WEISSE AVENUE and VARIAN PLACE,  
20 with a pressure pipe through Weisse Avenue to Central Avenue,  
Second Ward, Borough of Queens.

Made by the firm or corporation of ANGELO PAINO

Address 32 Court Street, Brooklyn, N. Y.

NAME AND ADDRESS OF EACH AND EVERY MEMBER  
OF THE FIRM OR PRINCIPAL OFFICERS

30 OF THE CORPORATION.

NOTE. — The bidder's name and residence or adress must  
be inserted herebelow, and in case of a firm, the name and ad-  
dress of each and every member of the firm must be inserted.

In case a bid shall be submitted by or in behalf of any  
corporation, the complete legal name and address of such cor-  
poration must be written herebelow, together with the name,  
address and title of the principal officers of the corporation.

40 Name ANGELO PAINO

Address 32 Court St., Broklyn, N. Y.

The party named above (of lawful age), as Bidder, decla-  
res: That the only person or persons interested in this bid or  
proposal as principal or principals is or are named above, and

EXHIBIT C-219 (*continued*)

10 that no other person than herein above named has any interest in this bid or in the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same work or purpose; that the bid is in all respects fair and without collusion or fraud, and that no member of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor any other officer or employee of The City of New York, is shall be or become, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract, in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery, tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following named sums or prices:

20  
30 The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance, are APPROXIMATE only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

40



EXHIBIT C-219 (continued)

T Y P E "B"

1. 250 Linear Feet 3'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Seventeen 00-100 Dollars (\$17.00).  
10
2. 265 Linear Feet 3'-3" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Eighteen 00-100 Dollars (\$18.00).
3. 631 Linear Feet 3'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Ten 00-100 Dollars (\$10.00).
- 20 4. 516 Linear Feet 2'-9" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Twelve 00-100 Dollars (\$12.00).
5. 763 Linear Feet 2'-3" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Nine 00-100 Dollars (\$9.00).
6. 581 Linear Feet 24-inch Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Five 00-100 Dollars (\$5.00).  
30
7. 203 Linear Feet 22-inch Vitrified Pipe Sewer, Per Linear Foot, Five 00-100 Dollars (\$5.00).
8. 1,651 Linear Feet 20-inch Vitrified Pipe Sewer, Per Linear Foot, Four 00-100 Dollars (\$4.00).
9. 175 Linear Feet 20-inch Vitrified Pipe Sewer, including concrete cradle, Per Linear Foot, Six 00-100 Dollars (\$6.00).  
40
10. 3,350 Linear Feet 12-inch Vitrified Pipe Sewer, Per Linear Foot, Five 00-100 Dollars (\$5.00).
11. 896 Linear Feet 12-inch C. I. Pipe, Class "A", bell and spigot, including bends, etc., in place, as shown on plan, Per Linear Foot, Five 00-100 Dollars (\$5.00).

EXHIBIT C-219 (continued)

12. 63 Manholes, Complete, Each, One hundred 00-100 Dollars (\$100.00).
13. 184 Six-inch Spurs, 24-inches long on Reinforced Concrete Pipe Sewer, (Precast Type "B"), Each, One 00-100 Dollars (\$1.00).
- 10 14. 18 Six-inch Spurs on 22-inch Vitrified Pipe Sewer, Each, Four 00-100 Dollars (\$4.00).
15. 123 Six-inch Spurs on 20-inch Vitrified Pipe Sewer, Each, Four 00-100 Dollars (\$4.00).
16. 277 Six-inch Spurs on 12-inch Vitrified Pipe Sewer, Each, Two 00-100 Dollars (\$2.00).
- 20 17. 4,218 Linear Feet 6-inch Vitrified Pipe House Connection Drains, Per Linear Foot, One 00-100 Dollars (\$1.00).
18. 76 Vertical Feet "Risers" for House Connections, Per Vertical Ft., Five 00-100 Dollars (\$5.00).
19. 1 Automatic Electric Pumping Station, Complete, as shown on plan, including C. I. Flanged Pipe outside of chamber, as shown, Fifteen thousand 00-100 Dollars (\$15,000.00).
- 30 20. 1 Punction Chamber at Weisse Ave. & Carian St., Complete, One thousand 00-100 Dollars (\$1,000.00).
21. 1 Junction Chamber at Weisse Ave. Hanson Place, Complete, Six hundred 00-100 Dollars (\$600.00).
22. 1 Junction Chamber at the bend in Hanson Place, Complete, Seven hundred 00-100 Dollars (\$70.00).
- 40 23. 1 Junction Chamber at Ford St. & Varian St., Complete, Seven hundred 00-100 Dollars (\$700.00).
24. 5 Basin Manholes, Complete, Each, Two hundred 00-100 Dollars (\$200.00).
25. 10 Inlets, Complete, Each, Seventy-five Dollars (\$75.00).

EXHIBIT C-219 (*continued*)

26. 150 Linear Feet 12-inch Vitrified Pipe, Basin Connections,  
Per Linear Foot, One 00-100 Dollars (\$1.00).

27. 150 Linear Feet 10-inch Vitrified Pipe, Basin Connections,  
Per Linear Foot, One 00-100 Dollars (\$1.00).

10 No bid will be allowed to be withdrawn, for any reason  
whatever, after it has been received and deposited with the Pre-  
sident. The President expressly reserves the right to reject all  
bids if he shall deem it for the public interest so to do. No bid  
will be accepted from, nor contract awarded to, any person who  
is in arrears to The City of New York upon debt or contract, or  
who is a defaulter, as surety or otherwise, upon any obligation  
to The City of New York.

20 No bid or proposal will be received, considered and depo-  
sited unless, as a condition precedent to the reception or consi-  
deration of any proposal it be accompanied by either a certified  
check upon one of the State The City of New York, or money to  
the amount of five per centum (5%) of the amount of the secur-  
ity or surety bond required for the faithful performance of the  
contract. Such check or money must not be inclosed in the sealed  
envelope containing the proposal, but must be either inclosed  
in a separate envelope addressed to the Borough President, or  
submitted personally upon the presentation of the bid or propo-  
30 sal and handed to the officer or clerk of the Department who  
has charge of the proposal box, and who will give a proper vou-  
cher for the deposit, and no bid can be deposited in said box un-  
til such check or money has been examined by said officer or  
clerk and found to be correct. All such deposits, except that ma-  
de by the bidder to whom the contract shall be awarded, will be  
returned to the person or persons making the same within three  
(3) days after the decision as to who, shall receive the contract.  
40 If the bidder to whom the contract shall have been awarded  
shall refuse or neglect to execute the same within five days after  
due notice that the contract has been awarded to him, and that  
the adequacy and sufficiency of the surety offered has been ap-  
proved by the Comptroller, the amount of the deposit made by  
him shall be forfeited to and retained by The City of New York  
as liquidated damages for such neglect or refusal; but if he  
shall execute the contract and furnish the said security within

EXHIBIT C-219 (continued)

the time aforesaid, the amount of the deposit shall be returned to him.

Each and every person bidding must sign here.

10 NOTE.—Each and every person bidding and named above must sign here. In the case of a firm, give the name of each and every partner in full.

ANGELO PAINO (L. S.)

.....[L. S.]

20 In case a bid shall be submitted by or in behalf of a corporation it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.

.....[L. S.]

.....[L. S.]

The following affidavit must be similarly signed and sworn to:

30 THE CITY AND STATE OF NEW YORK, COUNTY OF QUEENS ss.:

The above-named bidder (s), being severally duly sworn, say, each for himself, that the several matters stated in the above bid are in all respects true.

Subscribed and sworn to before me, this 17th day of April 1923.  
Signature(s) of bidder(s)

40

ANGELO PAINO

Commissioner of Deeds,  
City of New York  
Certificate Filed Queens County

EXHIBIT C-219 (continued)

NOTICE TO BIDDERS.

10 Bidders are invited to tender bids on monolithic plain concrete sewers from 27-inches upward, these sewers being the standards of the Sewer Department and hereafter designated as Type "A", or on reinforced concrete pipe sewer from 24-inches upward (precast) which will be designated as Type "B", or on both types, if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Types "A" and "B".

NOTICE TO BIDDERS.

20 Prices to be paid by The City of New York for indeterminate quantities, such as

ROCK EXCAVATION .....	8.00	Per	Cu.	Yd.
CLASS "A" CONCRETE .....	15.00	"	"	"
REINFORCING STEEL .....	.06	Per	Lb.	
30 STRUCTURAL STEEL .....	.08	"	"	
FOUNDATION TIMBER .....	70.00	Per	1000	Ft. B. M.
SHEETING & BRACING .....	20.00	"	"	" " "
PILING (TIMBER) .....	1.00	Per	Ft.	driven and cut-off
STEAM CINDERS (Delivered & Placed)	1.25	Per	Cu.	Yd.

40 Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

EXHIBIT C-219 (continued)

Time for presenting bids.

1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in the City of New York, until 11 o'clock A. M., on TUESDAY April 17th, 1923.

10 Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be one hundred and fifty (150) CONSECUTIVE WORKING DAYS.

Security required.

20 3. The amount of security required will be Forty-two thousand 00-100 Dollars (\$42,000.00).

Bidders referred to, form or agreement, etc.

30 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Prices for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

Engineer's estimate.

TYPE "A" (OR SEWER DEPT. STANDARD)

250 Linear Feet 3'-6" Plain Concrete Sewer

40 265 Linear Feet 3'-3" Plain Concrete Sewer

631 Linear Feet 3'-0" Plain Concrete Sewer

516 Linear Feet 2'-9" Plain Concrete Sewer

763 Linear Feet 2'-3" Plain Concrete Sewer

EXHIBIT C-219 (*continued*)

- 581 Linear Feet 24-inch Vitrified Pipe Sewer
- 203 Linear Feet 22-inch Vitrified Pipe Sewer
- 1,651 Linear Feet 20-inch Vitrified Pipe Sewer
- 10 175 Linear Feet 20-inch Vitrified Pipe Sewer, (including concrete cradle)
- 3,350 Linear Feet 12-inch Vitrified Pipe Sewer
- 896 Linear Feet 12-inch C. I. Pipe, Class "A", Bell and Spigot, including bends, etc. in place, as shown on plan
- 63 Manholes, Complete
- 20 134 Six-inch Spurs, 24-inches long on Concrete Sewers
- 50 Six-inch Spurs on 24-inch Vitrified Pipe Sewer
- 18 Six-inch Spurs on 22-inch Vitrified Pipe Sewer
- 123 Six-inch Spurs on 20-inch Vitrified Pipe Sewer
- 277 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
- 30 4,218 Linear Feet 6-inch Vitrified Pipe House Connection Drains
- 76 Vertical Feet "Risings" for House Connections
- 1 Automatic Electric Pumping Station, Complete, as shown on plan, including C. I. Flanged Pipe, outside of chamber, as shown
- 1 Junction Chamber at Weisse Ave. & Varian St., Complete
- 40 1 Junction Chamber at Weisse Ave. & Hanson Pl., Complete
- 1 Junction Chamber at the bend in Hanson Pl., Complete
- 1 Junction Chamber at Ford St. Varian St., Complete
- 5 Basin Manholes, Complete

EXHIBIT C-219 (continued)

10 Inlets, Complete

150 Linear Feet 12-inch Vitrified Pipe, Basin Connections

150 Linear Feet 10-inch Vitrified Pipe, Basin Connections

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T Y P E "B"

250 Linear Feet 3'-6" Reinforced Concrete Pipe Sewer (Pre-cast Type "B")

265 Linear Feet 3'-3" Reinforced Concrete Pipe Sewer (Pre-cast Type "B")

20 631 Linear Feet 3'-0" Reinforced Concrete Pipe Sewer (Pre-cast Type "B")

516 Linear Feet 2'-9" Reinforced Concrete Pipe Sewer (Pre-cast Type "B")

763 Linear Feet 2'-3" Reinforced Concrete Pipe Sewer (Pre-cast Type "B")

30 581 Linear Feet 24-inch Reinforced Concrete Pipe Sewer (Pre-cast Type "B")

203 Linear Feet 22-inch Vitrified Pipe Sewer

1,651 Linear Feet 20-inch Vitrified Pipe Sewer

175 Linear Feet 20-inch Vitrified Pipe Sewer, (including concrete cradle)

3,350 Linear Feet 12-inch Vitrified Pipe Sewer

40 896 Linear Feet 12-inch C. I. Pipe, Class "A", Bell & Spigot, including bonds, etc., in place, as shown on plan

63 Manholes, Complete

184 Six-inch Spurs, 24-inches long on Reinforced Concrete Pipe Sewer (Precast Type "B")



EXHIBIT C-219 (*continued*)

- 18 Six-inch Spurs on 22-inch Vitrified Pipe Sewer
- 123 Six-inch Spurs on 20-inch Vitrified Pipe Sewer
- 277 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
- 10 4,218 Linear Feet 6-inch Vitrified Pipe House Connection Drains
- 76 Vertical Feet "Risers" for House Connections
- 1 Automatic Electric Pumping Station, Complete, as shown on plan, including C. I. Flanged Pipe outside of chamber, as shown
- 1 Junction Chamber at Weisse Ave. & Varian St., Complete
- 20 1 Junction Chamber at Weisse Ave. & Hanson Pd., Complete
- 1 Junction Chamber at the bend in Hanson Pl., Complete
- 1 Junction Chamber at Ford St. & Varian St., Complete
- 5 Basin Manholes, Complete
- 10 Inlets, Complete
- 30 150 Linear Feet 12-inch Vitrified Pipe, Basin Connections
- 150 Linear Feet 10-inch Vitrified Pipe, Basin Connections

Personal examination of work.

- 40 5. The foregoing Engineer's Estimate is approximate only and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misun-

EXHIBIT C-219 (*continued*)

derstanding in regard to the quantity or kind of materials to be furnished or work to be done.

Prices to be stated in writing and in words and in figures.

- 10 6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

Prices bid to cover.

- 20 7. The prices bid must cover the cost of furnishing all necessary materials and labor for and the complete performance of all the work set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

- 30 Bids may be rejected.

9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to be in the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

- 40 Times and places for commencing and prosecuting work to be determined by the President.

10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the pre-

EXHIBIT C-219 (*continued*)

cedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

10           11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

20           Deposit to accompany bid.

30           12. No bid will be received or considered unless accompanied by either a certified check upon one of the National or State Banks or Trust Companies of The City of New York, or a check of such bank or trust company signed by a duly authorized officer thereof, drawn to the order of the Comptroller, or money or corporate stock or certificate of indebtedness of any nature issued by the City of New York, which the Comptroller shall approve as of equal value with the security required, to an amount of five per centum of the amount of the bond required for the faithful performance of the contract (as provided by section 420 of The Greater New York Charter as amended). Such check or money or other form of security must not be inclosed in the sealed envelope containing the bid, but must be handed to the officer or clerk who has charge of the bidding, and no bid shall be deposited in the box provided for that purpose until such check or money or other form of security has been examined by said officer or clerk and found to be correct. All such deposits, except those of the lowest three bidders, will be returned to the persons making the same within 10 days after the opening of the bids; within three days after the awarding of the contract, the remaining deposits, except that made by the bidder whose bid has been accepted, will be returned to the persons making the same. If the successful bidder shall refuse or neglect to execute the contract within five days after notice that it has been awarded to him, and that the adequacy and sufficiency of the security offered has been approved by the Comp-

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EXHIBIT C-219 (*continued*)

troller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York, but if he shall execute the contract and furnish the required security within the time aforesaid, the amount of his deposit will be returned to him.

Names of persons interested.

- 10           13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also, that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of  
20 The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

- 30           14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been  
40 so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in

**EXHIBIT C-219 (continued)**

which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

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**MAURICE E. CONNOLLY,**

President of the Borough of Queens.

The City of New York ....., 192...

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EXHIBIT C-219 (continued)

THE CITY OF NEW YORK  
OFFICE OF THE PRESIDENT OF THE BOROUGH  
OF QUEENS.

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BUREAU OF SEWERS.

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CONTRACT

For the construction of a sewer and appurtenances in WEISSE AVENUE from Varian Place to Myrtle Avenue; VARIAN PLACE from Weisse Avenue to Ford Street; FORD STREET from the Long Island Railroad to Myrtle Avenue; COOPER AVENUE from Bertha Place to Brush Street; BRUSH STREET from Cooper Avenue to Myrtle Avenue; HANSON PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from Myrtle Avenue to Cooper Avenue; with a temporary connection to the sewer in Cooper Avenue and in MYRTLE AVENUE from Agnes Place to Ford Street, together with an automatic electric pumping station at WEISSE AVENUE and VARIAN PLACE, with a pressure pipe through Weisse Avenue to Central Avenue, Second Ward, Borough of Queens.

together with all the work incidental thereto.  
Parties.

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THIS AGREEMENT, made and entered into this 1st day of May, in the year one thousand nine hundred and 23 by and between The City of New York, party of the first part, by the President of the Borough of Queens, and ANGELO PAINO, of 32 Court Street, Brooklyn, N. Y., Contractor, party of the second part, pursuant to the provisions of The Greater New York

EXHIBIT C-219 (*continued*)

Charter, and the resolution of the Board of Estimate and Apportionment adopted on the 19th day of July, 1922, of which resolution the following is a copy :

RESOLUTION

10

BOARD OF ESTIMATE AND APPORTIONMENT.

City of New York

(Cal. No. 244-A)

20 A copy of a resolution of the Local Board of the Newtown District, duly adopted by said Board on the 4th day of November, 1920 and approved by the President of the Borough of Queens on the 9th day of November, 1920, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit :

“RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit :

30 For the construction of a sewer and appurtenances in WEISSE AVENUE from Varian Place to Myrtle Avenue; VARIAN PLACE from Weisse Avenue to Ford Street; FORD STREET from the Long Island Railroad to Myrtle Avenue; COOPER AVENUE from Bertha Place to Brush Street; BRUSH STREET from Cooper Avenue to Myrtle Avenue; HANSON PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from Myrtle Avenue to Cooper Avenue: with a temporary connection to the sewer in Cooper Avenue and in MYRTLE AVENUE from Agnes Place to Ford Street, together with an automatic electric pumping station at WEISSE AVENUE and VARIAN PLACE, with a pressure pipe through Weisse Avenue to Central Avenue,  
40 Second Ward, Borough of Queens;  
and thereupon, on the 19th day of July, 1922, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of

EXHIBIT C-219 (*continued*)

10 the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed, that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$94,300.; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$1,589,270. having been presented, it is

20 **RESOLVED**, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the afore-said preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

30 I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on December 22, 1922.

Dated, New York,

(Signed) JAMES MATTHEWS,

Assistant Secretary,

Board of Estimate and Apportionment.

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EXHIBIT C-219 (*continued*)

Covenant.

10 WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, or themselves, and its, his or their executors, administrators, successors and assigns, as follows:

Contract.

20 I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the plan of the work dated November 14th, 1922, filed in the office of the President of the Borough, entitled : Plan, Profiles, and Details for the construction of a sewer and appurtenances in WEISSE AVENUE from Varian Place to Myrtle Avenue; VARIAN PLACE from Weisse Avenue to Ford Street; FORD STREET from the Long Island Railroad to Myrtle Avenue; COOPER AVENUE from Bertha Place to Brush Street; BRUSH STREET from Cooper Avenue to Myrtle Avenue; HANSON PLACE from Myrtle Avenue to Weisse Avenue; AGNES PLACE from Myrtle Avenue to Cooper Avenue; BERTHA PLACE from Myrtle Avenue to Cooper Avenue; with a temporary connection to the sewer in Cooper Avenue and in MYRTLE AVENUE from Agnes Place to Ford Street, together with an automatic electric pumping station at WEISSE AVENUE and VARIAN PLACE, with a pressure pipe through Weisse Avenue to Central Avenue, Second Ward, Borough. of Queens, and also Drawings of Standard Details pertinent thereto on file in the office of the Engineer.

40 Party of the first part.

II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, or the President of the Borough of Queens, or his authorized representative.

EXHIBIT C-219 (*continued*)

Party of the second part.

Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

Engineer described.

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III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises, limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

Terms defined.

20

IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawings pertinent thereto. Whenever it is provided that anything is "to be" or "to be done," "if" or "as," or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be as determined by the Engineer.

30

Contractor to furnish tools, proper appliances, etc.

V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof: Prices.

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EXHIBIT C-219 (continued)

T Y P E "B"

- Linear Feet 3'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Seventeen 00-100 Dollars (17.00).
- 10 Linear Feet 3'-3" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Eighteen 00-100 Dollars (18.00).
- Linear Feet 3'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Ten 00-100 Dollars (10.00).
- Linear Feet 2'-9" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Twelve 00-100 Dollars (\$12.00).
- 20 Linear Feet 2'-3" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Nine 00-100 Dollars (\$12.00).
- Linear Feet 24-inch Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Five 00-100 Dollars (\$5.00).
- Linear Feet 22-inch Vitrified Pipe Sewer, Per Linear Foot, Five 00-100 Dollars (\$5.00).
- 30 Linear Feet 20-inch Vitrified Pipe Sewer, Per Linear Foot, Four 00-100 Dollars (\$4.00).
- Linear Feet 20-inch Vitrified Pipe Sewer, including concrete cradle, Per Linear Foot, Six 00-100 Dollars (\$6.00).
- Linear Feet 12-inch Vitrified Pipe Sewer, Per Linear Foot, Five 00-100 Dollars (\$5.00).
- 40 Linear Feet 12-inch C. I. Pipe, Class "A", Bell & Spigot, including bends, etc., in place, Per Linear Foot, Five 00-100 Dollars (\$5.00).
- Manholes, Complete, Each, One hundred 00-100 Dollars (\$10.00).
- Six-inch Spurs, 24-inches long, on Reinforced Concrete Pipe Sewer, (Precast Type "B"), Each, One 00-100 Dollar (\$1.00).

EXHIBIT C-219 (continued)

- Six-inch Spurs on 22-inch Vitrified Pipe Sewer, Each, Four 00-100 Dollars (\$4.00).
- Six-inch Spurs on 20-inch Vitrified Pipe Sewer, Each, Four 00-100 Dollars (\$4.00).
- 10 Six-inch Spurs on 12-inch Vitrified Pipe Sewer, Each, Two 00-100 Dollars (\$2.00).
- Linear Feet 6-inch Vitrified Pipe House Connection Drains, Per Linear Foot, One 00-100 Dollar (\$1.00).
- Vertical Feet "Risers" for House Connections, Per Vertical Foot, Five 00-100 Dollars (\$5.00).
- 20 Automatic Electric Pumping Station, as shown on plan, including C. I. Flange Pipe, outside of chamber, as shown, Complete, Fifteen thousand 00-100 Dollars (\$15,000.00).
- Junction Chamber at Weisse Ave. & Varian St., Complete, One thousand 00-100 Dollars (\$1,000.00).
- Junction Chamber at Weisse Ave. & Hanson Pl., Complete, Six hundred 00-100 Dollars (\$600.00).
- 30 Junction Chamber at the bend in Hanson Pl., Complete, Seven hundred 00-100 Dollars (\$700.00).
- Junction Chamber at Ford St. & Varian St., Complete, Seven hundred 00-100 Dollars (\$700.00).
- Basin Manholes, Complete, Each, Two hundred 00-100 Dollars (\$200.00).
- Inlets, Complete, Each, Seventy-five 00-100 Dollars (\$75.00).
- 40 Linear Feet 12-inch Vitrified Pipe, Basin Connections, Per Linear Foot, One 00-100 Dollar (\$1.00).
- Linear Feet 10-inch Vitrified Pipe, Basin Connections, Per Linear Foot, One 00-100 Dollar (\$1.00).

EXHIBIT C-219 (*continued*)

Quantities are approximate only.

No extra compensation.

10 VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only. The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or work to be done. The Contractor hereby agrees that he will  
20 not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

Sewers, etc., to be built as shown on the plan.

30 VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on the plan of the work as the same will be designated on the ground by the Engineer.

Line may be changed.

40 The President may change the line of the sewer or the location of the receiving basins, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby agrees to make no claim for damages or extra compensation on account thereof.

Preservation of points, stakes, etc.

The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for

EXHIBIT C-219 (*continued*)

and to remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

Written order for extra work.

10 VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five per cent. (5%) of the contract price or the total cost of the work and materials.

20 Contract may be modified.

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substance thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

30 Limit to extras.

All claims for additional work or materials in any month shall be made to the Engineer, in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

Inspection.

40 Work or materials may be condemned at any time.

IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfillment of

EXHIBIT C-219 (*continued*)

10 this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

20 Engineer to be final arbiter.

30 X. To prevent all disputes and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall, in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

40 Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

Work and materials must agree with specifications.

XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be

EXHIBIT C-219 (*continued*)

done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract  
10 or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under this contract.

Examinations.

During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent  
20 through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the openings disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

Use of patented articles.

XII. Wherever an article or any kind of material is specified by a trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the Board of Estimate and Apportionment."  
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EXHIBIT C-219 (*continued*)

Claims for infringement.

10 The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will have harmless and indemnify The City against all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

Commencement and completion.

20 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

Time of performance.

30 XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of one hundred and fifty (150) CONSECUTIVE WORKING DAYS.

Time important.

40 It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

EXHIBIT C-219 (*continued*)

In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall  
10 certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess  
20 of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the  
30 President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

End of time period.

The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the  
40 Engineer.

Liquidated damages.

XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of ten

EXHIBIT C-219 (*continued*)

10 Dollars (\$10.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due to the Contractor under this contract.

Work not provided for in contract.

20 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

30 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

40 No damages to be claimed for delay due to other contracts.

XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor

EXHIBIT C-219 (continued)

nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any work or any part thereof being suspended as herein before provided, such allowance of time on account thereof  
10 as the President shall deem reasonable will be made.

If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing work for The City, the President, or whoever is directed by this contract, to make the certificate in refer-  
20 ence to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any  
30 articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.

Right to construct sewers, etc.

Permits for connections.

XX. Prior to the commencement of and during the pro-  
40 gress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any

EXHIBIT C-219 (*continued*)

part of this contract, in accordance with Section XVII., and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstructions in the way of such persons as may be employed in building such sewers and drains, or in making such connections, and the flow from such sewers, drains and connections will be permitted by the Contractor to discharge into the work built under this contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

30 Sewers, etc., to be kept clean.

XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the

EXHIBIT C-219 (*continued*)

remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or the trenches in which it is to be constructed, follow the line and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, 10 the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense. 20 as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

Sale of sand or earth.

30 XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable, then the same shall be removed from the line of work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

40 The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless

EXHIBIT C-219 (*continued*)

such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

10 Contractor to give personal attention to work.

• Not to assign or sublet.

XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by  
20 power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right, title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out  
30 of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the  
40 written consent of the President.

When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions,

EXHIBIT C-219 (*continued*)

orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

Contractor to plank and bridge for traffic.

XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

Guards and lights.

Indemnification of City.

XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials used in its prosecution, or by or on account of any act or omission of the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, as its option, be retained by The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.



EXHIBIT C-219 (*continued*)

Contractor to make repairs.

10 XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due to the Contractor under this contract.

Loss or damage to be assumed by Contractor.

20 XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

30 XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain—anything herein contained to the contrary thereto  
40 notwithstanding—from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or

EXHIBIT C-219 (*continued*)

actions brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

10 Contractor will prevent filing of liens, etc.

XXX. The Contractor will not, at any time, suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to remain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and that any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

Evidence of satisfaction of liens, etc.

30 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

Notice to gas companies, etc.

Not to hinder other companies.

40 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work may be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not

EXHIBIT C-219 (*continued*)

cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipe, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said  
10 gas, railroad, or other companies, within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

Pipes, conduits, etc., of private companies.

20           XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said  
30 pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not  
40 insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

EXHIBIT C-219 (*continued*)

Protection and restoration of pipes, etc., of private companies.

10 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures; and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, or restoring the said pipes, conduits, tracks or other structures.

20 XXXIII-A. If the paving between and a distance of two (2) feet in width outside the tracks of any Street Railroad Company is disturbed by the work of this contract, the contractor shall restore, at his expense, the said pavement, and replace same in good condition to the satisfaction of the Engineer in charge notwithstanding anything hereinbefore or hereinafter mentioned in these specifications.

Contractor to notify Department of Water Supply.  
Gas and Electricity.

30

XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

40 XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any

EXHIBIT C-219 (*continued*)

water pipes or appurtenances owned or controlled or operated by The City, the removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

10 Protection of City's water pipes, etc.

XXXVI. The contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes. and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due to the Contractor under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

30 XXXVII. The Contractor agrees to sustain in their places and protect from injury all water or gas mains, conduits, subways or service pipes, steam pipes and pneumatic pipes, and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor

EXHIBIT C-219 (*continued*)

hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this Contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

Old water and gas pipes.

XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the Contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

Change of grade.

XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which here is no contract price, the provisions in relation to work not provided for in this contract shall apply.

Measurement of work and material.

XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part of the work, or of the materials, be less than those required by the plan, the actual quantities only will be allowed in measurement.

EXHIBIT C-219 (*continued*)

Payment on acceptance of work.

10 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations  
20 hereinafore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sum or sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of  
30 the State, or under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retained for repairs to unpaved streets.

30 It is hereby further agreed that The City shall be and is hereby authorized to retain out the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of . . . . for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done under this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

40 Payment of retained moneys to be made after six months.

It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

EXHIBIT C-219 (*continued*)

Termination of six months' period.

10 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

20 XLII. The action of the Engineer in Charge of Sewers by which the Contractor is to be bound and concluded according to the terms of this Contract shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based. 85% payments.

30 XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over the Engineer shall from time to time, as the work progresses, but not oftener than once a month, make in writing an estimate, such as in his opinion, shall be just and fair, of the amount of the work done and material installed by the Contractor in the performance of this contract on his part, and of the value thereof under and according to the terms of this contract. No allowance will be made in these estimates for materials furnished and delivered until such materials shall have been permanently incorporated in the work, except as hereinafter stated. The first such estimate will be of the amount of work done and materials furnished and installed since the Contractor commenced the performance of this contract on his part, and  
40 every subsequent estimate except the final one, will be of the amount of work done and materials furnished and installed since the last preceding estimate was made. In the estimates allowances will be made for Reinforcing Steel, Structural Steel, Pumps, Electric Motors, Valves, Cast Iron Pipe, Salt Glazed Tile Pipe 12 inches in diameter and larger sizes, Precast Concrete Pipe 24 inches in diameter and larger sizes, Stationary Screens, Mechanically Driven Screens, Cast Iron Tunnel Lining and Pre-



EXHIBIT C-219 (*continued*)

cast concrete Blocks for Tunnel Lining, prior to their installation, which are owned by the Contractor and free from all liens or claims, and which have been delivered at locations where work is to be performed under this contract. Such allowances will be calculated at Eighty (80) per cent of the cost price for said materials. But no allowances will be made for those materials delivered which are in excess of the quantities permitted under the specifications to be distributed along the lines of the work. The Contractor will be required to furnish, prior to the certification for payment, written evidence satisfactory to the Borough President that the Contractor is the owner of the materials upon which payment is to be certified, and that such materials are free from liens or claims. Before certifying for payment for materials aforesaid, the Contractor shall execute or have executed and delivered to the City any and all instruments required to vest in The City title to such materials free from claims or liens. Title to materials certified for payment shall vest in The City upon certification of the same for payment. The Contractor, however, agrees to and does assume responsibility for the safety, care and protection of all such materials until they have been finally installed in the work and the completed work accepted by the City, and further agrees at his own cost to replace any such materials that may be lost or damaged. The aforesaid estimates of amount and quantity will not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one and partly by the other, and it shall be sufficient if they are approximate only and estimates strictly so called. Upon each such estimate, made prior to the time of the completion of all the work of laying all the sewers and appurtenances and the backfilling of trenches, said estimate being certified in writing by the Borough President and Engineer and filed with the Comptroller, The City will pay to the Contractor eighty-five per centum of the amount stated in such estimate to be the value of the work therein certified to have been done and materials certified therein to have been furnished and installed, and eighty-five per cent of eighty per cent of the cost not exceeding the contract value of materials not installed hereinabove specified; except that subsequent to the completion of all the work of laying all the sewers and appurtenances and the backfilling of the trenches, The City will pay to the Contractor eighty-five per centum of the value of the work done and materials furnished under the contract as certified by the Engineer, less the sums theretofore paid to the Contractor. No payment, however,

EXHIBIT C-219 (*continued*)

will be made unless the value of the work done and materials furnished, certified in each such estimate, shall amount to more than fifteen hundred dollars (\$1500.) and provided, that The City may at all times reserve and retain out of said installments, or any of them, such sum or sums as by the terms hereof, or of any act of the Legislature of the State of New York, or of any ordinance of The City passed prior to the date hereof, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

If abandoned, etc.

Contract may be declared abandoned.

Completion of work to be undertaken by President.

XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing, to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (See Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by a written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV., or with any em-

EXHIBIT C-219 (*continued*)

ployee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned, and to use such materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plant or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with the persons or workmen em-

EXHIBIT C-219 (*continued*)

10 ployed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

Notice to Contractor.

20 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon  
30 the Contractor personally.

Labor law.

40 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work to all classes of such laborers, workmen or mechanics upon public work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This

EXHIBIT C-219 (*continued*)

contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provisions of section 222 of the Labor Law.

No estoppel.

- 10 XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.
- 20

Understanding of plans and specifications.

- 30 XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions: and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect
- 40

EXHIBIT C-219 (*continued*)

whatsoever, upon the total amount of work to be paid for, in the final settlement.

Substitution of sureties.

10 XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

Laws 1916, Chap. 478.

20 L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of, and keep insured during the life of this contract, the employees engaged thereon, in compliance with the provisions of Chapter 41 of the laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

30 IN WITNESS WHEREOF, The President of the Borough of Queens for and on behalf of The City of New York, and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,

By BENJAMIN MARIUN,

40

Acting President of the  
Borough of Queens.

ANGELO PAINO,

Contractor.

EXHIBIT C-219 (*continued*)

The City and State of New York,      ss. :  
County of Queens

10      On this 3rd day of May, 1923, before me personally came Benjamin MARIUN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the same as said Acting President for the purposes therein mentioned.

JEFFERSON J. REILLY,  
Commissioner of Deeds, New York City.

20

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The City and State of New York,      ss. :  
County of Queens

30      On this 1st day of May, 1923, before me personally came ANGELO PAINO to me known and known to me to be the same person described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same for the purposes therein mentioned.

JEFFERSON J. REILLY,  
Commissioner of Deeds, New York City.

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EXHIBIT C-219 (continued)

KNOW ALL MEN BY THESE PRESENTS, That we ANGELO PAINO, hereinafter called the "Contractor", and United States Fidelity and Guaranty Company, hereinafter called the "Surety", are held and firmly bound unto The City of New York, in the sum of Forty-two thousand Dollars, lawful money of the United States of America, to be paid unto THE CITY OF NE WYORK, or to its certain attorneys, successors  
10 or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves, and our several and respective heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this 1st day of May, 1923.

WHEREAS, The above bounden Contractor, by an instrument in writing, signed by said Contractor and bearing even date with these presents, one part whereof annexed, has contracted with The City of New York, by the President of the  
20 Borough of Queens, ..... to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete sewer, etc., in Weisse Ave. from Varian Place to Myrtle Ave., etc., 2nd Ward, together with all the work incidental thereto, as is fully and at large set forth and described in the contract aforesaid.

NOW, THEREFORE, The condition of the above obligation is such that if the said above bounden Contractor and its,  
30 his or their heirs, executors, administrators and assigns, or any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained to be performed by said Contractor, and complete the same within the period therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

40 ANGELO PAINO [L. S.]  
Contractor.

United States Fidelity & Guaranty [L. S.]  
Sureties.

By E. MARSAC,  
Attorney-in-fact.

Attest Adolphus A. JACKSON,  
Attorney-in-fact.  
#275,899-23



EXHIBIT C-219 (*continued*)

The City and State of New York, ss. :  
County of Queens

On this 1st day of May, 1923, before me personally came ANGELO PAINO, to me personally known and known to me to be the same person described in and who executed the foregoing bond or obligation, and severally acknowledged that he executed the same.

10

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

20

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FUNDS

PRESIDENT'S CERTIFICATE

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30

It is hereby certified that the estimated cost of the work and materials required by the within contract is Ninety three thousand four hundred forty three 00-100 DOLARS (\$93,443.00). and is chargeable to the Street Improvement Fund of The City of New York.

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

40

The City of New York, May 3rd, 1923.

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EXHIBIT C-219 (*continued*)

The City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

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SPECIFICATION (Electrical Work)

For Automatic Electric Pumping Station

20

In Weisse Avenue at Varian Street,

SECOND WARD, BOROUGH OF QUEENS.

---

1. SCOPE OF WORK :

30

This specifications includes all labor and material necessary for electric light and power wiring, motor equipment control board, float switches and appurtenances for the Automatic Electric Pumping Station in Weisse Avenue at Varian Street, Second Ward, Borough of Queens. Any labor or material not herein specified but required to complete the works as above set forth shall be furnished and installed by the Contractor as if specifically stated herein.

40

2. PLANS.

This specification includes floor and detail plans showing the electric work.

3. JOB NUMBER :

The Department of Water Supply, Gas and Electricity job number for the work herein specified is 3067. This number must

EXHIBIT C-219 (*continued*)

appear on the Contractor's application and on all plans, material, etc., filed for approval.

4. PARTIES DESCRIBED :

10           Wherever in this section of the specification the word Engineer of Light and Power, or a pronoun in the place of him, is used, it shall mean and intend the Chief Engineer, of Light and Power, Department of Water Supply, Gas & Electricity. The other parties are described in the contract forming part of this specification.

5. SUPERVISION OF WORK :

20           The work shall be installed under the supervision of the Engineer subject to the approval, inspection and test of the Engineer of Light and Power.

6. INTERPRETATION OF PLANS AND SPECIFICATIONS :

          Should there be any controversy as to the meaning of this specification, it shall be referred to the Engineer of Light and Power, and after consultation with the Engineer his decision shall be accepted as final and binding upon the Contractor.

30           The location of switch boards, panel boards and outlets are approximate only. Exact locations will be given by a representative of the Engineer of Light and Power at the job.

7. NOTICE OF INTENTION TO BEGIN WORK :

          Contractor shall notify the Engineer of Light and Power and the Engineer at least forty-eight (48) hours before he intends to start the work.

40           8. MATERIALS, APPLIANCES AND WORKMANSHIP :

          All materials, appliances and workmanship supplied hereunder shall be of the best quality obtainable and free from all defects. Samples or detail plans of all materials and appliances shall be submitted to the Engineer for approval and after said approval the samples shall be submitted to the Engineer of Light

EXHIBIT C-219 (*continued*)

and Power for his approval. No material or appliances shall be installed until the approval of the Engineer of Light and Power is obtained. All materials, appliances or workmanship deemed unsatisfactory by the Engineer of Light and Power during the progress of the work shall be removed forthwith from the premises.

10 9. TESTS :

20 Upon completion of the work, and prior to final payment, tests will be made by the Engineer of Light and Power of all materials and appliances installed hereunder. The Contractor shall furnish all labor and material required for such tests. The Engineer of Light and Power will furnish any instruments required. Should the tests show that any of the materials, appliances or workmanship are not first class, or not in compliance with the specification, the Contractor, on written notice from the Engineer of Light and Power, shall remove the same and promptly replace them with other materials and appliances in conformity with the specification.

10. CERTIFICATE :

Final payment will only be made upon presentation to the Comptroller of a certificate of inspection signed by the Engineer of Light and Power, which certificate shall certify :

30 (a) That all materials and workmanship comply in all respects with the rules and regulations of the Department and with Chapter 9 of the Code of Ordinances of The City (Electrical Code).

(b) That the materials and workmanship comply in every respect with the contract specifications and drawings, and fulfill the full intent thereof.

40 11. CUTTING, RESTORATION AND DAMAGE :

This Contractor shall do all cutting of walls, floors, ceilings and other structural work required for the proper installation of the work. The Contractor shall restore all work disturbed equal to its original condition. Any damage to the building or its contents caused by the Contractor or his workmen shall be

EXHIBIT C-219 (continued)

made good at his expense. All cutting, restoration or replacements shall be made by the Contractor to the satisfaction of the Engineer and the Engineer of Light and Power.

12. KIND OF CURRENT :

10 The current supply will be three phase 220 volt, 60 cycle three wire alternating for power and single phase 110—220 volt, 60 cycle 3 wire for light.

13. SERVICES FEEDERS :

20 The Contractor shall provide and install from switchboard to pole on north side of Varian Street about 60 feet west of line a three 2/0 B. S. G. black varnished cambric 600 volt lead encased cable and a cable of three #12 B. S. G. wires installed in 3" rigid iron conduit from switchboard to a point 7'-0" below lowest cross arm of pole and from this point to line wires in 3" fibre conduit. Rigid and fibre conduits shall be connected by threaded couplings. Connections at pole shall be made by the Lighting Company.

14. SWITCH BOARD :

The Contractor shall provide and install a switch board as hereinafter specified.

30 Panels :

The switchboard shall consist of one main panel and two motor panels, one for each motor. They shall be of slate, free from all metallic veins, checks of flaws and shall be at least 1-1/2 inches thick and have one-quarter inch bevelled edges. All panels shall have a dull black marine finish.

Frame :

40 The panels shall be mounted upon an angle iron frame 1/4" x 2" x 2". The frame shall be rigidly bolted together with 3/8" hexagonal bolts. The horizontal supports shall be 1/4" x 1-1/4" x 1-1/2" angle irons continuous in one piece.

EXHIBIT C-219 (*continued*)

Bus — Bars :

The connections between service feeders and all switches and motors shall be made thru bus bars, the connections between switches and contractors resistances, etc., may be by wires properly supported on back of board.

- 10 All bus bars shall be of copper of 98% conductivity. All bus bars shall have a cross sectional area equal to the conductors they supply (based upon 1,000 amperes per square inch), in no case shall they be smaller than 1/8" x 3/4".

Switches :

- 20 All switches shall be of copper polished and lacquered fused front of board and back connected. They shall be of highest grade switchboard type with spade handles for all switches of 100 amperes or larger. The current shall not exceed the following : conducting parts 1,000 amperes per square inch, stationary contacts 100 amperes per square inch, movable contacts 75 amperes per square inch.

Fuses :

- 30 All fuses shall be of the N. E. C. type of approved make. Furnish two complete extra sets of all fuses; this shall be exclusive of those used or installed at time of final inspection.

Automatic Starters :

- 40 The automatic starters shall be of the type that will gradually cut out the starting resistance in the secondary of the motor and short circuit came by magnetically operated contactors governed. The number of control points and the range of adjustment of the relays shall be such that the inrush at any step will not exceed 175% of the full road current of the motor. The starters shall be provided with inverse time limit overload relays in two of the phases.

The contactors shall be of rugged construction providing both mechanical strength and ample cross section for the electrical and magnetic circuits. All main contacts shall be vertical,

EXHIBIT C-219 (*continued*)

either of the renewable roll or slide butt end type or of the laminated brush type with renewable auxiliary arcing contacts. Contactors shall have proper magnetic blow-outs.

Resistances :

- 10 The resistance units shall be of the grid or disc type of approved construction mounted on the back of board. They shall be carefully insulated by means of mica or other approved tubes or washers. The resistance shall be capable of a two minute starting duty at full secondary current without excessive heating.

Transfer Switch :

- 20 It is the intention to have the motors operate in daily sequence so that each motor will in turn operate from the low level float switch. The switch shall however be so wired and connected to operate any motor. The transfer switch shall be made with a plate and handle on front of board with the connections mounted on back. One turn of the handle shall transfer the two motors.

There shall be provided and installed a mechanical device which shall indicate at all times the number of the float switch that is connected to operate each motor.

- 30 Phase Reversal Relay :

There shall be provided and installed a phase reversal relay so connected that any phase reversal will disconnect current from the switch board and light a red lamp on board.

Meters :

- 40 The meters will be furnished and installed by the Lighting Company, but this contractor shall provide the necessary connections, drillings, etc., on board, and shall have the arrangement of bus work for meters approved by the Lighting Company.

Name Plates :

Each switch, starter, etc., shall have a name plate. These plates shall be of copper with letters filled in with black.

EXHIBIT C-219 (*continued*)

Inclosure :

10 The switchboard shall be inclosed on sides by three inch mesh made of electric galvanized wire reinforced by strap iron and having a door at one end with brass hinges and cylinder paracentric snap lock. The top shall be covered with sheet iron #12 gauge reinforced with strap iron. Sides and top shall be painted two coats of black paint.

Equipment :

On the main panel provide and install the following, all as specified hereinabove :

20 One (1) T. P. S. T. fused knife switch for power control

One (1) T. P. S. T. fused knife switch for light control

One (1) phase reversal relay and red indicating lamp

Two (2) D. P. S. T. fused knife switches for lighting circuits

One (1) transfer switch and indicator space and drillings for meters

30 On each motor control panel provide and install the following, all as hereinabove specified :

One (1) T. P. S. T. fused knife switch to control current

One (1) T. P. S. T. fused knife switch normally open, for starting motor from switchboard

40 One (1) Automatic starter, complete, with resistance, and other appurtenances.

15. FLOAT SWITCHES :

The contractors shall provide and install where shown on plan two (2) float switches. Each switch shall be of the single pole, weather proof type mounted on outside wall of wet chamber



EXHIBIT C-219 (*continued*)

and operated by chain drive, with copper float and weight. The levels on which these switches are to be operated will be given at the job.

16. MOTOR CIRCUITS :

10 Provide and install from panel to each motor three wires in secondary circuit. The ampere capacity of the wires shall be 125% of the amperes flowing thru the wires at any time. The size of the wires shall be such that they will meet the New York City Electrical Code requirements as to amperes allowable under Table B ratings.

Control Circuit. — From each float switch install two #14 B. S. G. wires to switchboard.

20 17. MOTORS :

The motors shall be of the induction type with wound rotors and slip rings, three phase, 60 cycle, not less than 20 H. P. direct connected to pump and mounted on common bed plate. The motors shall be designed for the class of work required with windings specially treated for excessive moisture and shall be of General Electric, Westinghouse or Wagner manufacture. Motors of other manufacture may be submitted for approval, under the following requirements, a motor of the type and size here-  
30 in specified that has been in operation one year and is within reasonable distance from the Engineer's office, is available for test and inspection. The motor will be tested and inspected by the Engineer and if found satisfactory will be accepted.

The motor bearings shall be self-oiling, provided with oil rings and having ample surface to insure cool running. The oil reservoirs shall be capable of holding a liberal supply of oil and convenient gauges for indicating the height of oil and outlet for drawing it off shall be provided. Provide heavy canvas water-  
40 proof covers for each motor.

The motors shall have an efficiency of not less than 86% and a power factor of 81% at full load. They shall be capable of carrying their full load continuously without heating in any part more than forty degrees "c" above the surrounding atmosphere, based on a room temperature of twenty-five degrees "C" and they shall be capable of carrying 25% over load for two hours without

EXHIBIT C-219 (continued)

heating more than fifty-five degrees "C" above surrounding atmosphere. The motors shall also be able to carry 50% over load for one minute without injurious rise in temperature. The frames of the machine shall have an insulation resistance from the stator coils and the rotor spiders from the rotor windings of not less than one megohm. The motors shall be capable of standing a breakdown test of 2,000 volts alternating current for one  
10 minute.

The motors shall be given a thorough running test at the shops of the manufacturer. They shall be tested for mechanical running qualities for heating for insulation resistance, insulation breakdown and for efficiency and power factor. and the efficiency and power factor shall be determined for  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , full, and  $1\frac{1}{4}$  loads. All tests shall be made in accordance with the rules of the American Institute of Electrical Engineers. The contractor shall furnish copies of these tests to the Engineers for approval  
20 before motors are shipped.

18. CONDUITS :

All conduits shall be of the hot galvanized type; joints shall be made up with red lead and screwed tight. Conduits shall be supported by galvanized pipe straps and lead anchors on brick and concrete and galvanized pipe hangers on iron work.

30 19. OUTLET BOXES :

All outlet, junction, pull or switch boxes shall be galvanized cast iron with threaded openings. Switch and receptacle boxes shall be set semi-flush.

20. LOCAL SWITCHES :

All local switches shall be of the push button type double pole with black enameled face plate.

40 21. RECEPTACLES :

All plug receptacles shall be of the pin type consisting of receptacle, plug and face plate.

EXHIBIT C-219 (*continued*)

22. WIRE :

10 All wire shall be of the highest grade copper 98% conductivity, and for wires from switchboard to motors, outlets, shall have a rubber insulation that will meet the requirements of Grade B wire, as called for in the standard specification of the Department of Water Supply, Gas and Electricity. The wire between pole and switchboard vault shall be of black varnished cambric made in a cable with jute center fill and shall be lead sheated. This cable shall be of the 600 volt type.

The thickness of lead shall be not less than required by the electrical codes. All rubber insulated wire shall have double braid.

20 Samples of all wires shall be filed for approval; the City, however, reserves the right to test all the wire at the place of manufacture. The Contractor shall provide all labor and material to make such tests.

23. FIXTURES :

30 All ceiling fixtures shall consist of a cast iron outlet box cover, length of  $\frac{1}{2}$ " conduit, cast iron weatherproof fixture with vapor proof clear glass globe and 16" reflector; all wall fixtures shall consist of a Benjamin #6813 fixture.

From switchboard install two circuits, one for motor room, to 2 ceiling, 2 wall and one plug outlet, the other for wet chamber to 1 ceiling, 2 wall and 1 plug outlet.

EXHIBIT C-219 (continued)

SPECIFICATIONS

10

TRENCHES

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraphs 127 and 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where directed. Sheeting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

Sheeting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheeting shall be closely driven

EXHIBIT C-219 (*continued*)

and to such depth below the bottom of the sewer as may be directed.

Tunneling.

- 10 4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

Trees and stumps.

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

- 20 6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

Roadway, sidewalks, etc., to be kept clear.

- 30 7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

40 Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much

EXHIBIT C-219 (*continued*)

of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

Fence.

- 10 9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

- 20 Disposal of water from trenches.

11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

- 30 Cost to be covered.

12. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

40

EARTH EXCAVATION.

13. Earth excavation shall include the removal of all material other than rock as hereinafter defined.

EXHIBIT C-219 (*continued*)

Width of trench for sewers, etc.

10 14. The minimum widths of trenches in earth, for pipe sewers, basin connections, house connections not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs; The minimum widths of trenches in earth, inside the sheeting, for others sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

20 15. Where a manhole or other appurtenance of the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

30 16. The minimum dimensions of the excavation in earth, for brick basin manholes and inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes and inlets, shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

40 17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan, and where the conditions are such as to make it necessary, to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

EXHIBIT C-219 (*continued*)

Cost to be covered.

10 18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

ROCK EXCAVATION.

19. Rock excavation shall include the excavation and removal of the following materials:

20 (a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

30 20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

Rock excavation for basin manholes, etc.

40 21. The required width of trench in rock for pipe sewers, basin connections and house connections will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs; the required width of trench in rock, for other sewers and drains, will be such as to give a clearance of 1 foot on each side of the structure to be built therein at its greatest external width. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with



EXHIBIT C-219 (*continued*)

vertical sides and a horizontal section 1 foot wider on each side than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for basin manholes and inlets will be such as to give a clearance of 1 foot on all sides above their foundation.

10 Depth of trench.

22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

Measurement.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

20 Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

30 Excavation for branches.

25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

40 26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

EXHIBIT C-219 (*continued*)

Exposed structures to be protected.

27. All exposed sewers, manholes receiving basins and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

10 Price to cover.

28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

BACKFILLING.

20 Backfilling around sewers, etc.

29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection or house connection, the material for backfilling trenches as excavated shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

30

Backfilling for remainder of trench.

30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

40

Backfilling around basin manholes, etc.

31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures

EXHIBIT C-219 (*continued*)

shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

Puddling.

10           32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

20           34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

30           35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

Curves, branches, etc., not to be covered.

40           36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

37. As the trenches are backfilled, the Contractor shall remove all surplus material and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of and until the final acceptance of the work, he shall main-

EXHIBIT C-219 (*continued*)

tain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may  
10 furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

Cost covered.

20 38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

30 39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

Specific gravity; weight.

40 40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

Fineness.

41. The cement shall be dry, finely ground, of uniform color and free for lumps. It shall leave a residue of not more

EXHIBIT C-219 (*continued*)

than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

10 42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table.

Neat Cement:

	24 hours .....	175 pounds per sq. in.
20	7 days (1 day in moist air, 6 days in water) .....	500 pounds per sq. in.
	28 days (1 day in moist air, 27 days in water) .....	600 pounds per sq. in.

Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

	7 days (1 day in moist air, 6 days in water) .....	180 pounds per sq. in.
30	28 days (1 day in moist air, 27 days in water) .....	225 pounds per sq. in.

40 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

EXHIBIT C-219 (*continued*)

Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

45. The cement will be subjected to such tests as the Engineer may deem necessary, and such tests will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

EXHIBIT C-219 (*continued*)

Delivery and storing.

49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and the name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it has been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

MORTAR.

51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and  $2\frac{1}{2}$  volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestones. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ( $\frac{1}{4}$ ) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5%) per cent, by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1%) per cent. of organic matter.

EXHIBIT C-219 (*continued*)

Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

10 Sand to be used in construction of the pumping station.

52-A. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestone. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ( $\frac{1}{4}$ ) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5) per cent. by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1) per cent. of organic matter.

20 Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 115 per cent. of the strength of the mortar made with the cement and standard sand, or the sand shall be rejected.

Mixing.

30 53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

Freezing weather.

40 54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.



EXHIBIT C-219 (*continued*)

Cost covered.

55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

10

WATERPROOFING UNDERGROUND PUMPING STATION.

Intent.

It is the intention of these specifications to obtain a concrete floor, both outer and partition walls, as well as roof slab of such density as to prevent any leakage whatever into any part of chamber, or any leakage from storage room through walls surrounding it, and it is hereby agreed and understood by the contractor that the entire structure shall be entirely free from leakage. To accomplish this result it is understood and agreed by the contractor that the materials shall be the best of their respective kinds. It is further agreed by the contractor that he will so grade the materials that with the proper proportion of cement and correct amount of water for the apportioned materials the result as indicated by the intention above described will be obtained.

30

It is further understood and agreed by the contractor that the progress of the construction of the floor, walls and roof shall be as near continuous as the hours for labor and weather conditions permit, and that whenever pouring of concrete in floor, walls or roof is stopped long enough for the concrete in forms to get its initial set, that part on which additional new work is to join must be thoroughly cleaned with a hose, roughened with a pick or other suitable appliance and then washed with a neat cement grout just preceding the starting of pouring the new concrete. The concrete shall be rodded and spaded with suitable tools, to expel the air bubbles and produce a dense and compact mass. It is essential that the spading and rodding be continued long enough, especially near the forms, so that the surface of the concrete shall be smooth and impermeable.

40

EXHIBIT C-219 (*continued*)

Materials.

10 The minimum requirements for cement shall be as described on pages 44, 45 and 46 of the contract specifications, but bidders are hereby cautioned that a more finely ground cement than described in paragraph 41, page 45, of contract specification is at least desirable the better to obtain the required density of concrete.

The minimum requirements for sand shall be those described in paragraph 52-A, page 46 of contract specification, but in addition to the requirements therein described the sand must be so graded that when mixed with the coarse aggregate the required density will be obtained.

20 The coarse aggregate shall be approved trap rock, dense fine grained limestone or granite broken into roughly cubical or pyramidal fragments, or North Shore Long Island gravel that will pass through a screen with circular openings one and one-quarter ( $1\frac{1}{4}$ ) inch diameter and shall be retained on a screen with openings one-eighth ( $\frac{1}{8}$ ) inch diameter, or any part thereof. The above named aggregate must be clean and sound. The aggregate shall be so graded that when mixed with the proper proportion of sand as hereinbefore described the resultant mixture will be a mass of such density that the percentage of voids will be less than twenty (20) per cent.

30 Proportions of the concrete.

40 The approximate proportions will be cement, 1 part: sand,  $1\frac{1}{2}$  parts: stone,  $2\frac{1}{2}$  parts, but it must be understood that these proportions are only approximate and the contractor so understands, and agrees that he will make at his own expense such tests as are required to obtain a mixture of cement, sand and stone or gravel, such that when blocks of concrete cast in a cylindrical mold eight (8) inches in diameter and sixteen (16) inches long and seasoned twenty-eight (28) days (1 day in moist air and 27 days in clean damp sand), they shall not fall below a compressive strength of 3,000 pounds per square inch of cross sectional area, or the materials shall be rejected.

EXHIBIT C-219 (*continued*)

10 The contractor understands and agrees that he is to make the grading and compressive tests at his own expense, far enough in advance of beginning the construction of the underground structure that he can submit certified report to Engineer-in-Charge of Engineering-Construction of such tests, including sieve sizes of sand and stone, proportions of cement, sand, and stone, quantity of water used, and compressive strength of cylindrical blocks, and not delay its completion. He also understands and agrees that he is to furnish at his own expense a sufficient volume of graded material he intends to use for the concrete mixture, together with the proper quantity of cement to mix with said materials to the Engineer-in-Charge of Engineering-Construction far enough in advance of beginning construction of the underground structure to enable said Engineer to submit the materials to laboratory of President of the Borough of Queens to make the necessary sieve, mixture, water content and compressive tests to check the test report submitted by contractor.

20

At least six cylindrical blocks as herein described and furnished by contractor must comply with the compressive and grading tests herein described, and the quantity of graded materials submitted to Engineer-in-Charge, Engineering-Construction for investigation by laboratory of President of Borough of Queens must be enough for at least six 6) cylindrical blocks of the dimensions above described that will pass the prescribed tests.

30

The contractor understands and agrees that he will not begin the construction of the underground concrete pump chamber or storage well until he has received from the Engineer-in-Charge of Engineering-Construction the approval of reports of all tests of materials to be used in said chamber and storage well.

40 The contractor further understands and agrees that in addition to the certified tests of the six samples of cylindrical blocks and the materials for the six additional samples which he is to furnish to Engineer-in-Charge, Engineering-Construction, all the above before he begins the construction of the underground pumping chamber and well; that additional cylindrical blocks of the same size: viz., eight inches diameter and sixteen inches long will be taken, without previous notice to contractor, from the batches of concrete mixed for and to be used in the floor, walls and roof. These blocks, after being seasoned in the manner described for the blocks hereinbefore mentioned, will be subjected

EXHIBIT C-219 (*continued*)

to a crushing test, also similar to those above named and must not fall below a crushing strength of 3,000 lbs. per square inch of cross sectional area or the floor, walls or roof into which the material from which the samples were taken will be rejected. The Engineer-in-Charge, Engineering-Construction, will determine when such samples are to be taken.

10 Water content.

Only such amount of water shall be used as will give the maximum density. The use of water in excess of such quantity is prohibited.

Forms.

20 Particular attention is invited to the necessity of securing a smooth finish on the outer surface of walls and roof, and in addition to this a smooth and finished surface on the interior walls, floor and roof of storage well and pump chamber. The interior surface of the walls, floor and roof surrounding pump chamber and storage well must be inspected by the Engineer immediately after forms are removed and before the concrete is too hard, at which time he will direct the contractor to remove forthwith any unevenness caused by the forms or from other cause and in addition to paint the surface of all walls and roof of pump chamber and well with two coats of neat cement to be applied, as directed by the Engineer. The contractor hereby agrees to  
30 comply with said engineer's instructions.

Reinforcement.

All reinforcement shall be placed in strict conformity to the plans and care shall be taken by the contractor to properly secure the same before placing the concrete.

40 The contractor expressly guarantees the sufficiency of the plans and specifications to produce the results called for by these specifications.

EXHIBIT C-219 (*continued*)

CONCRETE.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

10 Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings  $1\frac{1}{4}$  inches in diameter and shall be retained on a screen with openings  $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

20

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing  $\frac{9}{10}$  cubic foot, and the other ingredients shall be measured by an approved method.

30

Water.

59. Only clean fresh water shall be used for concrete.

Mixing.

60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 3 inches deep and shall be thoroughly wetted. The cement and

40

EXHIBIT C-219 (*continued*)

10 sand shall be mixed dry on a suitable platform; until the mixture has a uniform color. This mixture shall be spread evenly on the bed of wet stone, water added, and the entire mass turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

Placing concrete.

20 61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work, shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When  
30 a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

Joining old and new concrete.

62. When fresh concrete is to be laid on or adjoining concrete already set, the surface of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

40 Forms and centres.

63. The Contractor shall provide all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the faces against which the concrete is to be placed shall be satisfactorily smooth and clean.

EXHIBIT C-219 (*continued*)

Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approval lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

10 Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

20 Exposed surfaces.

65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

30

Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed, one per cent. by weight of salt shall be added to the water for each degree Fahrenheit that the temperature of the air is below 32 degrees Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

40

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against it. It

EXHIBIT C-219 (*continued*)

shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

Measurement.

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

BRICK MASONRY.

Quality of bricks.

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

How laid.

72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than  $\frac{3}{8}$  inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed  $\frac{1}{4}$  inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be racked back in courses, unless otherwise permitted.



**EXHIBIT C-219 (continued)**

**Protection.**

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

**Freezing weather.**

74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

**Cost of Brick Masonry.**

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

**STRUCTURAL STEEL.**

**Quality.**

76. Structural steel shall be medium steel and rivet steel made by the open hearth process and shall conform to the latest revised Standard Specifications for Structural Steel for Buildings adopted by the American Society for Testing Materials, and such tests as may be required shall be made in accordance therewith and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

Properties Considered	Medium Steel	Rivet Steel
Phosphorus (maximum) . . . . .	0.06 per cent.	0.06 per cent.
Ultimate strength, lbs. per sq. in. . . . .	55,000-65,000	48,000-58,000
Yield point (minimum), lbs. per sq. in. . . . .	1/2 ult. tens. str.	1/2 ult. tens. str.
Elongation, per cent. in 8 in. (minimum) . . . . .	1,400,000	1,400,000
Character of fracture . . . . .	ult. tens. str. Silky	ult. tens. str. Silky
Cold bend without fracture . . .	180° to diam. of 1 thickness	180° flat

EXHIBIT C-219 (*continued*)

Finish.

77. All finished material shall be free from injurious seams, flaws and cracks, and have a workmanlike finish.

Variation in weight.

- 10        78. When steel is inspected at the mill or shop all pieces (except plates), which vary in weight more than  $2\frac{1}{2}$  per cent. from that specified shall be rejected; when steel is not inspected until it is delivered on the work such variation in weight will be sufficient cause for rejection when, in the judgment of the Engineer, the safety of the work will be impaired thereby.

Workmanship.

- 20        79. All structural steel shall be in accordance with the plan and approved shop drawings. All details not shown on the plan, and all workmanship and finish shall be equal to the best current practice in similar work for buildings.

Anchor bolts.

- 30        80. Anchor bolts and expansion bolts shall be furnished where required and set in place as directed. When holes are drilled in masonry or concrete for such bolts, the holes shall be washed clean and the bolts shall be firmly embedded in a mortar composed of equal parts of cement and sand, unless other material is shown on the plan.

Melt numbers.

81. Test specimens and every finished piece of steel shall be stamped with melt or blow number, except that small pieces may be shipped in bundles securely wired together, with the melt or blow number on a metal tag attached.

- 40        Tests and inspections.

82. The required tests and inspections of structural steel shall, if directed, be made at the mills and shops by the City's authorized inspector. The Contractor shall notify the City as to the mills and shops which are to supply the steel sufficiently in

EXHIBIT C-219 (*continued*)

advance to enable the City to arrange for such tests and inspections and the mills and shops shall afford every facility for making the same.

Mill certificates.

- 10 83. If it is decided not to make the City's tests and inspections at the mills, then mill certificates showing the properties of each melt of which the steel is made will be accepted for consideration.

Shipping invoices.

84. The Contractor will be required to furnish complete copies of shipping invoices with each shipment of steel.

- 20 Certificates, etc., for information only.

85. Steel will not be accepted until the required inspector's reports or mill certificates are received. All tests, inspections, reports and certificates are for the information of the Engineer, and he shall not be precluded on account thereof from requiring or making any further tests which he may deem necessary.

Shop drawings.

- 30 86. The Contractor shall prepare complete and accurate shop drawings of all steel work, and no shop work shall be done until such drawings shall have been approved. The Contractor shall furnish the Engineer with 3 complete sets of prints of the approved shop drawings.

Painting.

- 40 87. All steel shall be thoroughly cleaned of scale, rust, oil and dirt, and unless otherwise directed, those parts which are not to be bedded in concrete shall be painted with a priming coat of the best red lead and linseed oil or such other paint of equivalent value as may be directed. After erection the metal which will be exposed in the finished work shall be evenly painted with 2 coats of approved paint. No painting shall be done on wet surfaces.

EXHIBIT C-219 (continued)

Measurement.

88. The amount of structural steel paid for as such will be all structural steel placed in the work in accordance with the plan or directions, except any excess greater than 2½ per cent. above the weight required, and except such structural steel shown on the plan as being part of structures for which there are contract prices, and the cost of which is hereinafter specified to be covered by the contract prices for such structures. This paragraph does not apply to structural steel in screen house.

Price to cover.

89. The contract price for structural steel shall cover the cost of all labor and materials required to furnish, fabricate, erect and paint the same, to furnish all test pieces, to prepare and furnish prints of shop drawings, and to drill holes for and set anchor and expansion bolts, where required, all as specified.

STEEL REINFORCEMENT BARS.

Shape.

90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete at frequent intervals and to insure intimate contact between the steel and concrete.

Samples.

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

Size.

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

**EXHIBIT C-219 (continued)**

**Variation in weight.**

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

10 **Quality.**

94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows :

20

Properties Considered	Structural Steel Grade		Cold Twisted Bars
	Plain Bars	Deformed Bars	
Phosphorus, max.			
Open Hearth .....	0.05	0.05	0.10
Bessemer .....	0.10	0.10	0.05
Ultimate Tensile Strength, pounds per sq. in. ....	55,000-70,000	55,000-70,000	Recorded only
Yield Point, minimum pounds per sq. in. ....	33,000	33,000	55,000
Elongation, minimum per cent. in 8 inches .....	1,400,000	1,250,000	5 per cent.
	tens. str.	tens. str.	
Cold bend without fracture:			
Bars under ¾ in. in diam. or thickness .....	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 2t.
thickness and over ....	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 3t.
	t : Nominal thickness or diameter of bar.		

30

40

95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when

EXHIBIT C-219 (*continued*)

being bent will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

Delivery and protection.

- 10 97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

- 20 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the Contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing.

- 30 99. All bars shall be as long as can be conveniently used, accurately bent, placed, spaced and jointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

100. The cost of all steel reinforcement bars and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

WROUGHT IRON.

40

Quality.

101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation

EXHIBIT C-219 (*continued*)

of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with the fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

10 Galvanizing.

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20 IRON CASTINGS.

Quality.

104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The castings shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

30

Cost covered.

105. The cost of all labor and materials required to furnish coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

40 TIMBER.

Quality.

106. All timber shall be merchantable pine or spruce, unless otherwise specified, and shall be sound and free from shakes, cracks, large or loose knots, and other defects impairing its

EXHIBIT C-219 (*continued*)

strength or durability. It shall be squared to the required dimensions throughout its entire length.

Placing.

10 107. Timber shall be placed where shown on the plan or directed, and where necessary shall be firmly spiked or bolted with approved nails, spikes or bolts of such sizes and lengths, and at such places and in such numbers as shown on the plan or as directed.

Measurement.

20 108. The amount of timber to be paid for as such will be all timber placed in the work in accordance with the plan or directions, except piles and timber sheeting, and except such timber shown on the plan as being part of structures for which there are contract prices, and the cost of which is hereinafter specified to be covered by the contract prices for such structures. The amount paid for will not include timber used for forms, templets, centres, scaffolds, bridges (unless otherwise specified), fences, guard rails or other temporary structures, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. No deduction will be made in the measurement of timber flooring on account of the spaces occupied by the piles.

30 Price to cover.

109. The contract price for timber shall cover the cost of all labor and materials required to furnish, work, place and secure the same as specified.

TIMBER SHEETING.

40 Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.



EXHIBIT C-219 (*continued*)

When paid for.

111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

10 Measurement.

112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, dangers and braces left in place without such order, not sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same

30  
40 The pumps and motors shall consist of two (2) not less than six inch (6") double suction, split case horizontal volute centrifugal pumps, (Worthington, DeLaval, Cameron, Alberger, Allis Chalmers make or equal), direct connected to 20 H. P., 2 phase, 60 cycle, 220 volts, squirrel cage, A. C. motors, each pump and motor to be mounted upon one cast iron bed plate, as shown on plan; impeller of pump to be of bronze of the open double suction type, revolving between renewable hard cast iron side plates secured in the pump casing. (This design of impeller is mentioned because the liquid to be passed through pumps is dry weather sewage and also during storms the sewage is diluted with the run off from storms. This liquid is passer through a screen of the bar type, the openings in which are approximately one-half inch ( $\frac{1}{2}$ " ) and it is expressly understood that paper, grass, straw, twigs and such like floating matter will float

EXHIBIT C-219 (continued)

through the openings in the screens, and the impeller must be capable of passing the floating matter that finds its way past the screen). Bronze sleeve on shaft, bearings of ample size to avoid heating and designed to be free from bearing trouble due to improper lubrication. Pump casing to be free from leakage. The capacity of each pump to be 1000 G. P. M. against a total head of fifty feet (50') (submerged suction). Pump to be perfectly  
10 balanced, efficiency not less than 65%. Motors to be 20 H. P., 2 phase, 60 cycle, A. C., squirrel cage type, (Westinghouse, General Electric or Wagner make) to meet the conditions specified hereinafter.

If the contractor elects to use larger pumps and motors to secure the required efficiency, the valves, gates, piping, etc., shall conform to such increased size.

20

CONCRETE SEWERS.

(Type "A" or Sewer Department Standard)

Inverts.

122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of  
30 suitable size for convenient construction, and unless otherwise permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Unless otherwise shown on the plan, a layer of mortar not less than  $\frac{1}{2}$ -inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templets, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall  
40 be floated or troweled to a smooth finish. The concrete for inverts shall be deposited continuously for their entire cross sections and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

EXHIBIT C-219 (*continued*)

Side walls.

123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

Roof.

10

124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

20

125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

Reinforcement.

30

126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

Minimum length of invert.

127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

40

Connections.

128. Connections and branches for lateral sewers and receiving basins shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with

EXHIBIT C-219 (*continued*)

bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

Measurements.

- 10            129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on account of openings at branches and man-holes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

Price to cover.

- 20            130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templets and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

30

TYPE "B"

CEMENT CONCRETE PIPE WITH REINFORCEMENT

- 40            131. Reinforced cement concrete pipe used shall be circular in section with or without that base and shall conform in dimensions as shown in table.

General dimensions of pipes and minimum test

load per lin. ft. of pipe.

EXHIBIT C-219 (continued)

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe
10	24"	3 "	4'	3 "	3350 Lbs.
	27"	3 1/2"	4'	3 "	3700 "
	30"	3 1/2"	4'	3 "	4400 "
	33"	4 "	4'	3 "	4600 "
	36"	4 "	4'	4 "	4800 "
	39"	4 "	4'	4 "	5200 "
	42"	4 1/2"	4'	5 1/2"	5600 "
	45"	4 1/2"	4'	5 1/2"	6100 "
	48"	5 "	4'	5 1/2"	6600 "
	51"	5 "	4'	5 1/2"	7050 "
20	54"	5 1/2"	4'	5 1/2"	7500 "
	57"	5 1/2"	4'	5 1/2"	7750 "
	60"	6 "	4'	5 1/2"	8000 "
	63"	6 "	4'	5 1/2"	8400 "
	66"	6 1/2"	4'	5 1/2"	8800 "
	72"	7 "	4'	5 1/2"	9400 "
	78"	8 "	4'	5 1/2"	10400 "
	84"	8 "	4'	5 1/2"	11200 "
	90"	8 1/2"	4'	5 1/2"	12000 "
	96"	8 1/2"	4'	5 1/2"	12800 "
30	102"	9 "	4'	5 1/2"	13600 "
	108"	9 "	4'	5 1/2"	14400 "

Testing pipe.

Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes, for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering-Construction.

EXHIBIT C-219 (continued)

Material of pipe, cement, sand, stone or gravel.

10 132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform to the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe be stamped as made with date of manufacture.

Joints.

20 133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ( $\frac{1}{2}$ ) per cent from the hereinbefore mentioned dimensions will be permitted.

Jointing.

30 134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line making a continuous invert. After this has been done, steel forms especially designed for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portion grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

Laying pipe.

40 135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless otherwise specially ordered by the Engineer-in-Charge of Engineering-Construction.

Steel for reinforcement.

136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Com-

EXHIBIT C-219 (*continued*)

pany's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

- 10 137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

Disposal of water from trenches.

138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even through reinforced concrete pipe shall be furnished on this contract.

- 20 Rejection of defective pipe.

139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

Depth of cover.

- 30 139a. Where depth of cover on precast pipe sewer is sixteen feet (16') or over extra reinforcing steel shall be used in the pipe to take care of the increased stresses. The cost of such extra steel shall be included in the price bid for precast pipe sewers.

139b. Precast concrete pipe, Type "B", will be paid for from the inside face of all chambers.

VITRIFIED PIPE SEWERS.

40

Vitrified pipe.

140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over

**EXHIBIT C-219 (continued)**

the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations: it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

10

**Identification marks.**

141. Each pipe shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

20

**Shape and dimensions.**

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

30

Size	Length	Thickness	Depth of Socket	Annular Space
6.....	2 feet	5/8 inch	2 1/2 inches	5/8 inch
8.....	3 "	3/4 "	2 3/4 "	5/8 "
10.....	3 "	7/8 "	2 3/4 "	5/8 "
12.....	3 "	1 "	3 "	5/8 "
15.....	3 "	1 1/4 "	3 "	5/8 "
18.....	3 "	1 1/2 "	3 1/4 "	5/8 "
20.....	3 "	1 2/3 "	3 1/2 "	5/8 "
22.....	3 "	1 5/6 "	3 3/4 "	5/8 "
24.....	3 "	2 inches	4 "	5/8 "

40

**Curves, bends, etc.**

143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective



EXHIBIT C-219 (continued)

sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

- 10            144. Any or all of the following tests may be applied to samples selected from the pipe delivered on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

Crushing tests.

- 20            145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

	Diameter	Pressure
	6 inches .....	900 lbs. per lin. ft.
	8 " .....	900 " " " "
	10 " .....	1,000 " " " "
30	12 " .....	1,050 " " " "
	15 " .....	1,250 " " " "
	18 " .....	1,400 " " " "
	20 " .....	1,550 " " " "
	22 " .....	1,750 " " " "
	24 " .....	1,950 " " " "

Drop weight test.

- 40            146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

EXHIBIT C-219 (*continued*)

Hydrostatic test.

147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

10 Absorption test.

148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

Factory rejection.

20 149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

Cradles.

30 150. In earth trenches pipe sewers shall be laid in concrete cradles when required by the plan. In rock trenches pipe sewers shall be laid in cradles of concrete, gravel or broken stone as shown on the plan.

Without cradle.

151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

40 Concrete cradles.

152. When the sewer is to be laid in a concrete cradle, the concrete for the full width of the cradle shall be deposited continuously to the height of the outside bottom of the pipe. Before the concrete has set the pipe shall be evenly bedded therein and the remainder of the concrete immediately deposited and carefully tamped in such a manner as to avoid disturbing the sewer.

EXHIBIT C-219 (*continued*)

Grave or broken stone cradle.

10 153. When the sewer is to be laid in a gravel or broken stone cradle, the latter shall consist of clean gravel or sound broken stone, all of which will pass through a  $1\frac{1}{4}$ -inch mesh, and be retained on a  $\frac{1}{8}$ -inch mesh screen. The gravel or broken stone shall be deposited and tamped for the full width of the trench to the height of the outside bottom of the pipe. The pipe shall then be bedded therein and the remainder of the gravel or broken stone deposited and carefully tamped in such a manner as to avoid disturbing the sewer.

How laid.

20 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

Gasket and mortar joints.

30 156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than  $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if desired, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to  $1\frac{1}{2}$ , and the joint wiped inside and finished to a smooth  
40 bevel outside.

Inspection of joints.

157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall be provided.

EXHIBIT C-219 (*continued*)

A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

10           158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the sewer shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

20           160. Immediately after the sewer is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed sewer (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

30           161. The exposed ends of pipe sewers shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

40           Connection with existing work.

163. Wherever the proposed sewer is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or be reset

EXHIBIT C-219 (*continued*)

in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe sewer.

Pipes cut to fit masonry.

10 164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

20 165. The length of pipe sewers to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes, and the measurements will be made to the inside face of all chambers.

Prices to cover.

30 166. The contract prices for vitrified pipe sewers shall cover the cost of all necessary excavation (except rock); of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the sewers complete in place, as shown on the plan and as specified.

CAST IRON PIPE SEWERS.

Cast iron pipe.

40 167. Cast iron pipe for sewers shall conform with the requirements of the latest revised Standard Specifications for Cast Iron Pipe adopted by the American Society for Testing Materials, and all tests required shall be made in accordance therewith.

168. The thickness of shell and weight of the several classes of pipe, and the allowable variations of diameter and weight shall be as follows:

EXHIBIT C-219 (continued)

Nominal Inside Diam. Ins.	Class A 100 Ft. Head 43 Lbs. Pressure		Class B 200 Ft. Head 80 Lbs. Pressure		Class C 300 Ft. Head 130 Lbs. Pressure		Allowable Diameter	Variations Weight
	Thick- ness Ins.	Weight	Thick- ness Ins.	Weight	Thick- ness Ins.	Weight		
10 4...	0.40	240	0.45	260	0.48	280	0.06 in.	5 per cent.
6...	0.44	370	0.48	400	0.51	430	0.06 "	5 " "
8...	0.46	515	0.51	570	0.56	625	0.06 "	5 " "
10...	0.50	685	0.57	765	0.62	850	0.06 "	5 " "
12...	0.54	870	0.62	985	0.68	1,100	0.06 "	5 " "
14...	0.57	1,075	0.66	1,230	0.74	1,400	0.06 "	5 " "
16...	0.60	1,300	0.70	1,500	0.80	1,725	0.06 "	5 " "
18...	0.64	1,550	0.75	1,800	0.87	2,100	0.08 "	4 " "
20...	0.67	1,800	0.80	2,100	0.92	2,500	0.08 "	4 " "
24...	0.76	2,450	0.89	2,800	1.04	3,350	0.08 "	4 " "
20 30... 30...	0.88	3,500	1.03	4,000	1.20	4,800	0.10 "	4 " "
36...	0.99	4,700	1.15	5,450	1.36	6,550	0.10 "	4 " "
42...	1.10	6,150	1.28	7,100	1.54	8,600	0.10 "	4 " "
48...	1.26	8,000	1.42	9,000	1.71	10,900	0.12 "	4 " "
54...	1.35	9,600	1.55	11,200	1.90	13,700	0.15 "	4 " "
60...	1.39	11,000	1.67	13,250	2.00	16,100	0.15 "	4 " "

30 The above weights are for 12 feet laying lengths and standard sockets; proportionate allowance will be made for any variation therefrom.

Variation in thickness.

40 169. For pipes whose standard thickness is less than 1 inch, the thickness of metal in the body of the pipe shall not be more than 0.08 inch less than the standard thickness; and for pipes whose standard thickness is 1 inch or more, the variation shall not exceed 0.10 inch, except that for areas not exceeding 8 inches in any direction, variations from the standard thickness of 0.02 inch in excess of the allowance above given will be permitted.

Coating.

170. All cast iron pipe shall be thoroughly and evenly coated inside and outside with coal tar pitch varnish. The coat-

EXHIBIT C-219 (*continued*)

ing shall be smooth, tough and tenacious when cold and shall not be brittle or have any tendency to scale off.

Marking.

171. The weight and class letter shall be conspicuously painted by the manufacturer with white oil paint on the inside of each pipe after the coating is hard.

172. Joints of cast iron pipe sewers shall be of the kinds shown on the plan.

Lead joints.

173. When lead joints are required, the inner portion of the annular space between the pipes shall be packed with clean, sound jute packing yarn, and the remaining portion shall be run full of pure soft lead and calked with suitable tools. Unless otherwise shown on the plan the depths of the lead joints shall be  $2\frac{1}{2}$  inches for 6-inch to 8-inch pipe, 3 inches for 12-inch to 24-inch pipe and  $3\frac{1}{2}$  inches for 30-inch to 48-inch pipe.

Mortar joints.

174. When gasket and mortar joints or plain mortar joints are required they shall be made as specified in paragraphs 184 and 185.

175. All the requirements, as hereinbefore specified, relating to excavation, laying, backfillings and measurement of vitrified pipe sewers shall apply, as far as they are applicable, to cast iron pipe sewers.

Prices to cover.

176. The contract prices for cast iron pipe sewers shall cover the cost of all necessary excavation (except rock); of all bulkheads of all backfilling; and of all labor and materials required to furnish and lay by the sewers complete in place, as shown on the plan and as specified.

EXHIBIT C-219 (continued)

BASIN CONNECTIONS.

10 177. The connections between inlets and basin manholes and between basin manholes and sewers or sewer manholes shall be of vitrified pipe of the size shown on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe sewers.

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

20 Prices to cover.

179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place as specified.

30 SPURS FOR HOUSE CONNECTIONS.

180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.

In concrete sewers.

40 181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.



EXHIBIT C-219 (*continued*)

In pipe sewers.

10           182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

          183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

Price to cover.

20           184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same as specified, and the cost of furnishing and cementing the covers for the same.

DRAINS FOR HOUSE CONNECTIONS.

30           185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

Depth at curb.

          186. House connections drains shall be laid with a minimum gradient of  $\frac{1}{4}$  inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

40           Material.

          187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

EXHIBIT C-219 (*continued*)

How laid.

188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

10 Measurement.

189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

Price to cover.

20 190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock); the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to furnish and lay the drains for house connections complete in place, as specified.

RISERS.

30 191. Where shown on the plan or where directed risers for house connections shall be built from the spurs in such a manner and to such height as may be shown or directed. Unless otherwise shown on the plan they shall be of vitrified pipe of the quality and dimensions hereinbefore specified for vitrified pipe sewers. They shall be supported and surrounded by concrete as shown, and each shall be closed with an approved cover.

Measurement.

40 192. The lengths of risers to be paid for will be determined by measurements along their axes.

Price to cover.

193. The contract price for risers shall cover the cost of all necessary excavation (except rock); the cost of all concrete used in connection with the risers; the cost of all backfilling;

EXHIBIT C-219 (*continued*)

the cost of all covers, bends and specials required; and the cost of all labor and materials required to construct the risers complete in place, as specified.

MANHOLES.

10

194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

Brick manholes.

20

195. Brick manholes shall be formed by means of templates placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar  $\frac{1}{2}$  inch thick.

Steps.

197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals of about 16 inches.

Head and cover.

30

198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

Price to cover.

40

199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all bluestones; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

EXHIBIT C-219 (continued)

BASIN MANHOLES

Brick basin manholes.

200. Brick basin manholes shall be formed by means of  
10 templets placed at top and bottom with not less than 10 vertical  
lines drawn between them.

201. Where the walls of brick basin manholes are not  
built of two rings of brickwork with a mortar layer between,  
the inside of the brickwork shall be smoothly and even plastered  
with a layer of 1 — 2 Portland cement mortar  $\frac{1}{2}$  inch thick.

202. Where the wall of the basin manhole consists of two  
20 rings of brickwork, with a mortar layer between, the outer ring  
shall be carried up not less than 1 foot in advance of the inner  
ring, and the inner surface of the former shall be plastered with  
two coats of mortar. The second coat of mortar shall be applied  
before the first is set, and the total thickness of the mortar layer  
shall be 1 inch.

Concrete basin manholes.

203. Concrete basin manholes shall, if required, be built  
30 in such a manner that the bottom and sidewalks shall be formed  
in one continuous operation. Concrete basins shall be coated  
with a grout of neat cement on the inside.

Concrete cover slabs.

204. Concrete cover slabs of basin manholes shall be built  
of Class "A" concrete, reinforced as shown on plan.

Head cover and trap.

40 205. The basin manhole head and cover shall be of cast  
iron, as shown on plan, and known as a Standard Sidewalk Man-  
hole Head and Cover. Each head exclusive of cover shall weigh  
not less than 260 pounds and each cover shall weigh not less  
100 pounds. An iron hood or trap, of the size and dimen-  
sions shown on the plan, must be furnished by the Contractor

EXHIBIT C-219 (*continued*)

for each basin manhole and is to be built into the basin manhole, as shown on plan.

Restoration of sidewalks, curbs, etc.

10       206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

Price to cover.

20       207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all back-filling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

INLETS.

208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifications for brickwork and concrete shall be those hereinbefore specified for basin manholes.

30       Heads.

209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

Restoration of roadway pavements, etc.

40       210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ( $2\frac{1}{2}$ ) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

EXHIBIT C-219 (*continued*)

Price to cover.

211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

PARK INLET BASINS.

212. Park inlet basins and the heads and covers therefor shall be of the materials, forms and dimensions shown on the plan. If required, the mouths of park inlet basins shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

Price to cover.

213. The contract price for park inlet basins shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlet basins, when required; and of all labor and materials required to construct the park inlet basins complete, in place, as shown on the plan and specified.

EMBANKMENT.

Quality.

214. Where indicated on the plan, embankment shall be made of the form and dimensions shown. It shall consist of clean steam ashes or filling of the quality specified in paragraph 30, which shall contain no stone over 6 inches in its largest dimension. When the material forming the embankment contains stones, the latter shall be so distributed through the mass that all interstices are filled with fine material, and the material within 2 feet of the sewer shall be free of stones. When embankment is used as foundation it shall consist entirely of filling of the quality specified in paragraph 29.

EXHIBIT C-219 (*continued*)

How made.

215. The embankment shall be deposited and spread in horizontal layers to such an extent and at such times as may be directed. If required, such portion of the embankment as may be deemed necessary shall be made prior to the construction of the sewer or its foundation and any excavation that may be necessary for the building of the sewer and its foundation shall be made therein. When embankment is used as a foundation, the ground on which it is to be made shall be prepared by grubbing and clearing, and removing all improper material. Embankment used as foundation shall be deposited in uniform horizontal layers not exceeding 1 foot in depth, and each layer shall be thoroughly compacted by rolling or tamping or both; such embankment shall not be built upon until the expiration of . . . . days after its completion.

20 Approaches.

216. Where the embankment obstructs or interferes in any way with any public or private roadway the Contractor shall furnish and place all material necessary to provide suitable approaches, of such widths and to such extent as shown on the plan or as directed.

30 217. All embankment and approaches shall be maintained at their full dimensions until the completion of this contract.

Cost covered.

40 218. The cost of all labor and materials required to prepare the ground, to make the embankment and approaches as specified, to make all necessary excavations and backfilling therein, and to maintain the embankments and approaches at their designated dimensions until the completion of this contract, shall be covered by the contract prices for the structures over or in connection with which they are made.

RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under this

EXHIBIT C-219 (*continued*)

contract shall be restored by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

10        220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

20        Pavements, etc., under guarantee.

30        221. All pavements, sidewalks, crosswalks, curbs, etc., existing at the time of the opening of the bids for this contract, and under guarantee for maintenance, shall be restored and adjusted by the parties responsible under such guarantee, and at the expense of the Contractor. If not so restored and adjusted during the progress of the work, the Contractor shall, when directed, pay to the President before the completion of the contract a sum of money sufficient to cover the cost of having the same restored and adjusted by the parties responsible under such guarantee, and at the charges for the restoration of the same, as set forth in their contracts relating thereto. Such sum shall be accompanied by certificates from the parties responsible for the maintenance of the pavements, sidewalks, crosswalks, curbs, etc., to the effect that such sum will be accepted by them as full payment for such restoration and adjustment.

40        221-a. The asphaltic concrete pavement in Central Avenue is under guarantee to The City of New York by the Uvalde Asphalt Paving Co., wherein the contract prices for restoration are as follows: For openings measuring less than ten (10) square yards in area three dollars and fifty cents (\$3.50) per square yard, and for openings measuring ten (10) square yards or more in area, three dollars (\$3.00) per square yard; these prices to include the construction of an eight (8) inch concrete foundation.



EXHIBIT C-219 (*continued*)

The character of pavement (kind, thickness of base, etc.) and manner of restoration shall be determined by, and subject to approval by the Highway Department.

Temporary restoration.

10           222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

When new pavement is laid.

20           223. If pavement, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

Trenches flooded.

30           224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

Cleaning up.

40           225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

EXHIBIT C-219 (*continued*)

Cost to be covered.

226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

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20 SPLIT GRANITE BLOCK PAVEMENT TO BE RELAID ON

CONCRETE FOUNDATION WITH CEMENT

GROUTED JOINTS.

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30

The contractor shall take up sufficient of the present split granite block pavement including concrete foundation to insure after relaying, an even surface, all as determined by the Engineer.

The sub-grade shall be prepared the required depth below the grade of finished pavement and shall be thoroughly compacted before laying the concrete foundation.

40

On this subgrade shall be laid a Portland cement concrete foundation, as specified under concrete. Concrete will be paid for at the price bid per cubic yard and where such price is not provided for, shall be included in the specified schedule items.

EXHIBIT C-219 (*continued*)

Designated paving blocks removed from the split granite block pavement shall be cleaned and reused, new blocks to supply the deficiency shall be of size and material as follows :

10 Not less than five (5) inches nor more than ten (10) inches in length, not less than three and one-half ( $3\frac{1}{2}$ ) inches nor more than four and one-half ( $4\frac{1}{2}$ ) inches in width, and not less than four and one-half ( $4\frac{1}{2}$ ) inches nor more than five and one-half ( $5\frac{1}{2}$ ) inches in depth.

20 The blocks shall be rectangular with tops and sides uniform in thickness, to lay closely and with a fair and true surface and shall be of medium grained granite showing uniform in quality and texture, without seams, scales or discolorations indicating disintegration, an even distribution of constituent minerals, and free from excess of mica or feldspar. No outcrop soft, brittle or seamy stones will be accepted, the blocks to have a crushing strength of no less than sixteen thousand (16,000) pounds per square inch.

On the concrete foundation shall be spread a bed of clean coarse, dry sand to a depth of one (1) inch.

30 On the sand bed the blocks shall be laid in conformity with the lines of existing pavement, each course of blocks shall be of the same class and laid straight and regularly, making the end joints a lap of at least three (3) inches; the joints between courses shall not exceed one-half ( $\frac{1}{2}$ ) inch in width and be practically uniform.

The gravel used in stiffening the joints must be washed quartz entirely free from dirt and sand and of such size that it will pass through a sieve of one-quarter ( $\frac{1}{4}$ ) inch mesh and be retained by one of one-tenth ( $\frac{1}{10}$ ) inch mesh.

40 The paving blocks shall be thoroughly rammed to bring their surface to the proper grade.

The blocks are to be thoroughly sprinkled with water before grouting, the grout shall be of one (1) part cement to one part clean dry, sharp sand, the grouting shall be done in two operations, the second pouring to take place within one-half ( $\frac{1}{2}$ ) to three-quarter ( $\frac{3}{4}$ ) of an hour after the first pouring when the

EXHIBIT C-219 (*continued*)

grout between the joints has fully subsided and the initial set is taking place, the whole surface shall be slightly sprinkled with water and all surface mixture left on the top of blocks swept into the joints, bringing them up flush and full.

10 After the grouting is done and time for evaporation has elapsed, the pavement shall be covered with a coating of clean, dry sand, and properly barricaded and kept free from traffic.

The contractor shall remove all materials and debris from the site of work after the pavement is completed.

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EXHIBIT C-222.

EXHIBIT C-222.

*(Contract between The City of New York and Angelo Paino, for the construction of a temporary drain and appurtenances in Jamaica Avenue from 185th Street to Hollis Avenue; Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th Street to*  
10 *Hollis Avenue to the existing drain in 99th Avenue, for the purpose of abating a nuisance to prevent damage to property, Fourth Ward, Borough of Queens, on May 11, 1923).*

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ANNEXES TO CONTRACT

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20 THE CITY OF NEW YORK — DEPARTMENT OF FINANCE  
OFFICE OF THE COMPTROLER

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CONTRACT SUMMARY

Contractor : ANGELO PAINO No. 65621

30 Names of sureties: The U. S. Fidelity & Guaranty Co.

Amount of bond \$8,000.00

Date of award: April 18, 1923; Department Pres. Boro of Queens

Date of contract: May 11, 1923 Date paid in full: May 15, 1926

DESCRIPTION OF WORK

40

For the construction of a temporary drain and appurtenances in Jamaica Avenue from 185th Street to Hollis Avenue; Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th Street from Hollis Avenue to the existing drain in 99th Avenue,

EXHIBIT C-222 (continued).

for the purpose of abating a nuisance to prevent damage to property, Fourth Ward, Borough of Queens.

Original estimate : \$14,249.00

R. E. 292.52

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13,956.48

10

ACCOUNTS TO BE CHARGED

C. F. M. 25.

The obligation on this surety bond ceases as to anything occurring after April 4, 1924.

20 If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after April 4, 1924.

GEORGE W. MORTAR,

Examiner.

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40

EXHIBIT C-222 (continued).

PAYMENTS, AMOUNTS RETAINED AND EARNED.

	Date	85% Payments	Amount paid to date	Amount retained to date	Amount earned to date
10	10-18-23	9,558.25	9,558.25	1,686.75	11,245.00
	11-22-23	2,035.75	11,594.00	2,046.00	13,640.00
	12-23-25	1,985.14	13,579.14	377.34	14,216.48
	4-29-26	377.34	13,956.48		
		<hr/>			
		\$13,956.84			

\$260.00 — 26 days excess time @ \$10 per day \$260.00

20

IN FULL

30

40

EXHIBIT C-222 (*continued*).

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT  
CITY OF NEW YORK

10

(Cal. No. 128)

WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Jamaica District, duly adopted by said Board on the 2nd day of February, 1923, and approved by the Acting President of the Borough of Queens on the 2nd day of February, 1923, as follows, to wit:

20

“RESOLVED, That this Board does hereby initiate proceedings for the said local improvement to wit:

For the construction of a temporary drain in order to abate a nuisance and to prevent damage to property in Jamaica Avenue from 185th Street to Hollis Avenue, and in Hollis Avenue from Jamaica Avenue to the existing drain at Hollis Avenue and Farmers Avenue, Fourth Ward, Borough of Queens,” and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

30

RESOLVED, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included in the assessment.

40

RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon



EXHIBIT C-222 (*continued*).

as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and contingencies, the total probable cost, and the number of working  
10 days to be allowed the contractor for carrying out the work.

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on March 16, 1923.

Dated, New York.

(signed) JAMES MATTHEWS

Assistant Secretary,  
Board of Estimate and Apportionment.

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EXHIBIT C-222 (*continued*).

BOARD OF ESTIMATE AND APPORTIONMENT  
CITY OF NEW YORK

(Cal. No. 127-B)

10       A copy of a resolution of the Local Board of the Jamaica District, duly adopted by said Board on the 2nd day of February, 1923, and approved by the Acting President of the Borough of Queens on the 2d day of February, 1923, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit :

“Resolved, That this Board do hereby initiate proceedings for the said local improvement, to wit :

20       For the construction of a temporary drain in order to abate a nuisance and to prevent damage to property in Jamaica Avenue from 185th Street to Hollis Avenue, and in Hollis Avenue from Jamaica Avenue to the existing drain at Hollis Avenue and Farmers Avenue, Fourth Ward, Borough of Queens.”

— and thereupon, on the 16th day of March, 1923, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolutions, and the said resolutions having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$17,200; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$9,643,000, having also been presented; it is

30  
40

EXHIBIT C-222 (*continued*).

RESOLVED, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

10

A true copy of resolution adopted by the Board of Estimate and Apportionment, March 23, 1923.

(Signed) JAMES MATTHEWS,

Dated, New York, Assistant Secretary,

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EXHIBIT C-222 (continued).

CONTRACT NO. 65621  
The City of New York

ADVICE OF AWARD OF CONTRACT

10 (This copy to be retained by Bookkeeping Division,  
Department of Finance)

Dept of PRESIDENT OF THE BOROUGH OF QUEENS.

\*Date April 18, 1923

Comptroller of the City of New York :

20 Please take notice that the following described contract  
has this day\* been awarded to Contractor ANGELO PAINO,

Address 32 Court Street, Brooklyn, N. Y.

Sureties : United States Fidelity & Guaranty Co.

Amt. of bond \$8,000.00

DETAILS OF PURPOSE OF CONTRACT

30 For the construction of a temporary drain and appur-  
tenances in Jamaica Avenue from 185th Street to Hollis Avenue ;  
Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th  
Street from Hollis Avenue to the existing drain in 99th Avenue,  
for the purpose of abating a nuisance to prevent damage to  
property, Fourth Ward, Borough of Queens.

TYPE "B"

40

Contract Chargeable to Code No.	Estimated Amount	Contracts Previously Awarded (Including Adjustments)	Open Market Orders Issued To Date (Including Adjustments)	Misc. Vouchers, Payrolls, and Other Charges
C. F. M. 25	\$14,249.00	\$3,528,766.79	\$5,869.86	\$60,912.97

EXHIBIT C-222 (*continued*).

Enter full titles of accounts and refer to code numbers by means of line numbers in margin.

Street Improvement Fund.

Yours respectfully,

10

MAURICE E. CONNOLLY,

President, Borough of Queens, *Head of Dept.*

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\* This will be the date of the entry by which the fund is charged with the estimated amount of the contract both in the department making the award and by the Department of Finance. There must therefore be no delay in forwarding this advice.

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EXHIBIT C-222 (*continued*).

CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

10 Maurice E. Connolly,  
President.

Joseph Flanagan,  
Borough Secretary.

James M. Murtha,  
Secretary to President.

Long Island City, April 26, 1923.

20 The Honorable Charles L. Craig,  
Comptroller of The City of New York,  
Municipal Building,  
New York, N. Y.

Sir :—

In reference to resolution :

30 For the construction of a temporary drain and appur-  
tenances in Jamaica Avenue from 185th Street to Hollis Avenue;  
Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th  
Street from Hollis Avenue to the existing drain in 99th Avenue,  
for the purpose of abating a nuisance to prevent damage to  
property:

This resolution was approved by the Board of Estimate  
and Apportionment on March 23, 1923. Bids were opened on  
Tuesday, April 17, 1923 and the matter of the registration of the  
40 contract is now before you.

The above title is the title under which the resolution was  
worded during the running of the advertisement in the City  
Record, etc. and is the title used on the construction plan.

The wording of the resolution, as approved by the Board  
of Estimate and Apportionment, is as follows:

EXHIBIT C-222 (*continued*).

For the construction of a temporary drain, in order to abate a nuisance and to prevent damage to property in Jamaica Ave. from 185th St. to Hollis Ave. and in Hollis Ave. from Jamaica Ave. to the existing drain at Hollis Ave. and Farmers

Ave, Fourth Ward, Borough of Queens.

10       The apparent discrepancy between the title, as approved by the Board of Estimate and Apportionment, and the title, as on the construction plan, is due to the fact that 190th St. runs into Hollis Ave. at its intersection, where 190th St. is a dead end, and an inspection of the construction plan makes it difficult to tell whether the continuing street is 190th St. or is Hollis Ave. It is really, however, Hollis Ave.; so that the resolution, as approved by the Board of Estimate and Apportionment, is proper and a slight discrepancy was made on the title of the construction plan.  
20 They are, therefore, both the one and the same thing.

Yours very truly,

MAURICE E. CONNOLLY,

President of the Borough of Queens.

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EXHIBIT C-222 (*continued*).

CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

10

Maurice E. Connolly,  
President.

Joseph Flanagan,  
Borough Secretary

James M. Murtha,  
Secretary to President

Long Island City May 24, 1923.

20 Charles L. Craig, Comptroller,  
New York City.  
Sir:—

Referring to contract, No. 65621;—

30 For the construction of a temporary drain and appur-  
tenances in Jamaica Avenue from 185th Street to Hollis Avenue;  
Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th  
Street from Hollis Avenue to the existing drain in 99th Avenue,  
for the purpose of abating a nuisance to prevent damage to  
property, Fourth Ward, Borough of Queens.

I beg to inform you that the contractor, Angelo Paino, 32  
Court Street, Brooklyn, N. Y., has been ordered to commence the  
work embraced in said contract on June 4, 1923, or within five  
days from said date.

Very truly yours,

40

BENJAMIN MARIUN,

Actin President of the Borough of Queens.

JJR-PJH



EXHIBIT C-222 (*continued*).

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connolly  
President

Charles H. Shroeder,  
Borough Secretary

Long Island City, December 5, 1925.

Hon. Chas. L. Craig, Comptroller,  
Department of Finance,  
20 Municipal Building,  
New York City, N. Y.

Sir :—

In accordance with the recommendation of the Engineer of Sewers, this Department, I have granted an extension of time of 27 days to Angelo Paino, 32 Court St., Brooklyn, N. Y., in which to complete the work in connection with contract #65621 :

30 For the construction of a temporary drain, etc. in JAMAICA AVE. from 185th St. to Hollis Ave., Fourth Ward, Borough of Queens.

40 While the work on this contract was ordered ahead on June 4, 1923, the work was not actually begun until July 19, 1923. The contractor claims that he was delayed on account of being unable to get material for this work. Even after starting, he was very dilatory in completing the work and caused great inconvenience to the travelling public. I am, therefore, deducting as liquidated damages 26 days at \$10 per day on this contract, and allowing 2 days' extension of time on account of difficult conditions encountered during the prosecution of the work.

Yours very truly,

MAURICE E. CONNOLLY,

President of the Borough of Queens.

JFP/I

EXHIBIT C-222 (*continued*).

City of New York  
Office of the

PRESIDENT OF THE BOROUGH OF QUEENS

10                   Division of Engineering and Construction  
                      Bureau of Sewers

Maurice E. Connolly  
President

Long Island City December 7, 1925.

To:

20                   Mr. James Rice,  
                      Engineer in Charge,  
                      Engineering Construction.

Mr. J. F. Perrine,  
Engineer of Sewers.

Gentlemen :

30                   In accordance with the recommendation of the Engineer of  
the Bureau of Sewers, this department, I have this day granted  
to Angelo Paino, 32 Court St., Brooklyn, N. Y., an extension of  
time of 27 days, in which to complete the work on contract  
#65621 :

For the construction of a temporary drain, etc. in JAMAICA AVE. from 185th St. to Hollis Ave., 4th Ward.

I am also deducting, as liquidated damages, 25 days at \$10.00 per day, on account of failure to start work immediately and being dilatory after starting the work.

40                   Very truly yours,

MAURICE E. CONNOLLY,  
President of the Borough of Queens.

JFP/I

EXHIBIT C-222 (*continued*).

GENERAL RELEASE

TO ALL TO WHOM THESE PRESENTS SHALL COME OR  
MAY CONCERN, GREETING :

10           KNOW YE, That I, Angelo Paino, 32 Court St., Brooklyn,  
N. Y., for and in consideration of the sum of One thousand, nine  
hundred, eighty five 14/100\*\*\*\*\* Dollars, lawful money of the  
United States of America, to me in hand paid by The City of  
New York, have remised, released and forever discharged, and by  
these presents do, for myself, my heirs, executors, administrators  
and assigns, remise, release and forever discharge the said City  
of New York of and from all and all manner of action and  
actions, cause and causes of action, suits, debts, dues, sums of  
20 money, accounts, reckonings, bonds, bills, specialties, covenants,  
contracts, controversies, agreements, promises, variances,  
trespasses, damages, judgments, extents, executions, claims  
and demands whatsoever in law or in equity, which against said  
City of New York, I ever had, now have or which I, my heirs,  
executors, administrators or assigns hereafter can, shall or may  
have, for, upon or by reason of a certain contract or agreement  
made the 11th day of May, A.D. 1923 by and between Myself and  
the said City of New York, for Contract No. 65621, Drain, &c.,  
Jamaica Ave. &c., or by reason of any matter, cause or thing  
30 whatsoever resulting or arising therefrom, from the beginning  
of the world to the day of the date of these presents. Excepting  
the sum of \$377.34 retained as repairing security.

IN WITNESS WHEREOF, I have hereunto set my hand  
and seal the 16th day of February in the year one thousand nine  
hundred and twenty six.

ANGELO AINO           [L. S.]

40 Sealed and delivered in the presence of

W. F. HEFFERNAN.

EXHIBIT C-222 (continued).

State of New York,  
County of New York,           ss.:  
City of New York,

10           On this 16th day of February, 1926, personally came and  
appeared before me Angelo Paino to me known and known to me  
to be the person described therein, and who executed th forgoing  
instrument and acknowledged that he executed the same for uses  
and purposes therein mentioned.

W. F. HEFFERNAN,

Notary Public, Commissioner of Deeds.

Comm. of Deeds, N. Y. City, residing in N. Y. County.

20           New York Clerks No. 12, Term expires Jan. 12, 1928.

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THE CITY OF NEW YORK

30           DEPARTMENT OF FINANCE

BUREAU OF AUDIT — DIVISION OF ADMINISTRATION.

Municipal Building, Room 631

\$377.34

New York, May 15, 1926

40           Received from CHARLES W. BERRY, Comptroller,  
Warant No. 81935 for the sum of Three hundred, Seventy seven  
34-100\*\*\*\*\* Dollars, on account of the within Contract numbered  
65621 for and in Full of repairing security, Angelo Paino.

Mailed May 15, 1926

W .F. HEFFERNAN,

EXHIBIT C-222 (*continued*).

NOTICE.—Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

10

No. 5

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CITY OF NEW YORK  
Office of  
THE PRESIDENT OF THE BOROUGH OF QUEENS.

20

---

BUREAU OF SEWERS

1923

---

ASSESSMENT WORK

Proposal for Bids, Bid, Bond, Agreement and Specifications

30

For the construction of a temporary drain and appurtenances in Jamaica Avenue from 185th Street to Hollis Avenue; Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th Street from Hollis Avenue to the existing drain in 99th Avenue, for the purpose of abating a nuisance to prevent damage to property, Fourth Ward, Borough of Queens. together with all the work incidental thereto.

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EXHIBIT C-222 (*continued*).

No. 2

THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

10

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BUREAU OF SEWERS

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Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens, on the 4th Floor of the Queens Subway Building, 68  
20 Hunterspoint Avenue, Long Island City, Borough of Queens, in The City of New York, until 11 o'clock a. m. on April 17th, 1923.

The time allowed for the completion of the work and the full performance of the contract is 50 CONSECUTIVE WORKING DAYS.

The liquidated damages for each day in excess of the allowed time, as stipulated in the contract is ten dollars per day.

30 The amount of SECURITY or surety bond required will be (\$8,000.00).

NOTE.—All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name the price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete, conditional, obscure, or irregular, may be held to be informal and  
40 may be rejected, and in case of any discrepancy between the price written in and the bid and that given in figures, the price in writing will be considered as the bid. The writing must be in ink.

EXHIBIT C-222 (*continued*).

BID OR ESTIMATE

10 For the construction of a temporary drain and appurtenances in Jamaica Avenue from 185th Street to Hollis Avenue; Hollis Avenue from Jamaica Avenue to 190th Street, and in 190th Street from Hollis Avenue to the existing drain in 99th Avenue, for the purpose of abating a nuisance and to prevent damage to property, Fourth Ward, Borough of Queens.

Made by the firm or corporation of ANGELO PAINO

Address 32 Court Street, Brooklyn, N. Y.

20 NAME AND ADDRESS OF EACH AND EVERY MEMBER  
OF THE FIRM OR PRINCIPAL OFFICERS OF  
THE CORPORATION

NOTE.—The bidder's name and residence or address must be inserted herebelow, and in case of a firm, the name and address of each and every member of the firm must be inserted.

30 In case a bid shall be submitted by or in behalf of any corporation, the complete legal name and address of such corporation must be written herebelow, together with the name, address and title of the principal officers of the corporation.

Name ANGELO PAINO

Address 32 Court St., Brooklyn, N. Y.

40 The party named above (of lawful age), as Bidder, declares: That the only person or persons interested in this bid or proposal as principal or principals is or are named above, and that no other person than herein above named has any interest in this bid or in the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same work or purpose; that the bid is in all respects fair and without collusion or fraud, and that no member of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor any other

EXHIBIT C-222 (*continued*).

officer or employee of The City of New York, is, shall be or become, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that  
10 he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following  
20 named sums or prices:

The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance, are approximate only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by  
30 personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

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T Y P E "B"

- 40
1. 1.660 Linear Feet 24-inch Reinforced Concrete Pipe Drain, (Precast Type "B"), Per Linear Foot, Five 75-100 Dollars (\$5.75).
  2. 12 Manholes, Complete, Each, Seventy-five 00-100 Dollars (\$75.00).



EXHIBIT C-222 (*continued*).

3. 6 Special Inlets, Complete, Each, Two hundred 00-100 Dollars (\$200.0).

4. 330 Linear Feet 12-inch Class "A" C. I. Pipe, Basin Connections, Per Linear Foot, Six 00-100 Dollars (\$6.00).

10 5. 24 Linear Feet 12-inch Vitrified Pipe, Basin Connection, One 00-100 Dollars (\$1.00).

6. 1 Chamber at the built drain in 190th Street, Complete, Six hundred 00-100 Dollars (\$600.00).

20 No bid will be allowed to be withdrawn, for any reason whatever, after it has been received and deposited with the President. The President expressly reserves the right to reject all bids if he shall deem it for the public interest so to do. No bid will be accepted from, nor contract awarded to, any person who is in arrears to The City of New York upon debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

30 No bid or proposal will be received, considered and deposited unless, as a condition precedent to the reception or consideration of any proposal it be accompanied by either a certified check upon one of the State or National Banks of The City of New York, drawn and made payable to the order of the Comptroller of the City of New York, or money to the amount of five per centum (5%) of the amount of the security or surety bond required for the faithful performance of the contract. Such check or money must not be inclosed in the sealed envelope containing the proposal, but must be either inclosed in a separate envelope addressed to the Borough President, or submitted personally upon the presentation of the bid or proposal and handed to the officer or clerk of the Department who has charge of the proposal box, and who will give a proper voucher for the deposit, and no bid can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be returned to the person or persons making the same within three (3) days after the decision as to who shall receive the contract. If the bidder to whom the contract shall have been awarded shall refuse or neglect to execute the same within five days after

40

EXHIBIT C-222 (continued).

due notice that the contract has been awarded to him, and that the adequacy and sufficiency of the surety offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract and furnish the said security within  
10 to him.

Each and every person bidding must sign here.

NOTE.—Each and every person bidding and named above must sign here. In the case of a firm, give the name of each and every partner in full.  
20

ANGELO PAINO [L. S.]

..... [L. S.]

In case a bid shall be submitted by or in behalf of a corporation it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.  
30

..... [L. S.]

..... [L. S.]

The following affidavit must be similarly signed and sworn to:

THE CITY AND STATE OF NEW YORK,  
COUNTY OF QUEENS.

The above-named bidder (s), being severally duly sworn,  
40 say, each for himself, that the several matters stated in the above bid are in all respects true.

ANGELO PAINO

Subscribed and sworn to before me, this 17th day of April, 1923.

.....

Commissioner of Deeds, City of New York  
Certificate filed Queens County.

EXHIBIT C-222 (continued).

NOTICE TO BIDDERS.

10 Bidders are invited to tender bids on 24-inch vitrified pipe sewer, this sewer being the standards of the Sewer Department and hereafter designated as Type "A" or on reinforced concrete pipe sewer from 24-inches and upward (Precast) which will be designated as Type "B", or on both types, if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Types "A" and "B".

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NOTICE TO BIDDERS.

20

Prices to be paid by The City of New York for indeterminate quantities, such as

ROCK EXCAVATION .....	8.00	Per Cu. Yd.
CLASS "A" CONCRETE .....	15.00	" " "
REINFORCING STEEL .....	.06	Per Lb.
STRUCTURAL STEEL .....	.08	" "
FOUNDATION TIMBER .....	70.00	Per 1000 Ft. B. M.
30 SHEETING & BRACING .....	20.00	" " " " "
PILING (TIMBER) .....	1.00	Per Ft. driven and cut-off
STEAMS CENDERS (Delivered & Placed)	1.25	Per Cu. Yd.

Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

40

1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in The City of New York, until 11 o'clock a. m., on Tuesday April 17th, 1923.

EXHIBIT C-222 (*continued*).

Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be Fifty (50) CONSECUTIVE WORKING DAYS.

10 Security required.

3. The amount of security required will be Eight thousand 00-100 Dollars (\$8,000.00).

Bidders referred to, form of agreement, etc.

20 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Price for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

Engineer's estimate.

30 TYPE "A" (OR SEWER DEPT. STANDARD).

1,515 Linear Feet 24-inch Vitrified Pipe Drain

145 Linear Feet 24-inch Vitrified Pipe Drain  
(on concrete cradle)

12 Manholes, Complete

6 Special Inlets, Complete

40 330 Linear Feet 12-inch Class "A" C. I. Pipe, Basin  
Connections

24 Linear Feet 12-inch Vitrified Pipe, Basin Connections

1 Chamber at the built drain in 190th Street, Complete

EXHIBIT C-222 (*continued*).

T Y P E "B"

- 1,660 Linear Feet 24-inch Reinforced Concrete Pipe Drain  
(Precast Type "B")
- 10            12 Manholes, Complete
- 6 Special Inlets, Complete
- 330 Linear Feet 12-inch Class "A" C. I. Pipe, Basin  
              Connections
- 24 Linear Feet 12-inch Vitrified Pipe, Basin Con-  
              nections
- 20            1 Chamber at the built drain in 190th Street, Complete

Personal examination of work.

5. The foregoing Engineer's Estimate *is approximate only* and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.
- 30

Prices to be stated in writing and in words and in figures.

- 40            6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

EXHIBIT C-222 (*continued*).

Prices bid to cover.

10 7. The prices bid must cover the cost of furnishing *all necessary materials and labor for and the complete performance of all the work* set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

Bids may be rejected.

20 9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

30 Times and places for commencing and prosecuting work to be determined by the President.

10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

40 No extra compensation.

11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be

EXHIBIT C-222 (*continued*).

actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

10 12. No bid will be received or considered unless accom-  
panied by either a certified check upon one of the National or  
State Banks or Trust Companies of The City of New York, or a  
check of such bank or trust company signed by a duly authorized  
officer thereof, drawn to the order of the Comptroller, or money  
or corporate stock or certificate of indebtedness of any nature  
issued by the City of New York, which the Comptroller shall  
approve as of equal value with the security required, to an  
amount of five per centum of the amount of the bond required  
for the faithful performance of the contract (as provided by sec-  
20 tion 420 of The Greater New York Charter, as amended). Such  
check or money or other form of security must not be inclosed  
in the sealed envelope containing the bid, but must be handed  
to the officer or clerk who has charge of the bidding, and no bid  
shall be deposited in the box provided for that purpose until such  
check or money or other form of security has been examined by  
said officer or clerk and found to be correct. All such deposits,  
except those of the lowest three bidders, will be returned to the  
persons making the same within 10 days after the opening of the  
bids; within three days after the awarding of the contract, the  
30 remaining deposits, except that made by the bidder whose bid  
has been accepted, will be returned to the persons making the  
same. If the successful bidder shall refuse or neglect to execute  
the contract within five days after notice that it has been award-  
ed to him, and that the adequacy and sufficiency of the security  
offered has been approved by the Comptroller, the amount of  
the deposit made by him shall be forfeited to and retained by  
The City of New York, but if he shall execute the contract and  
furnish the required security within the time aforesaid, the  
amount of his deposit will be returned to him.

40 Names of persons interested.

13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also, that it is made without any connection with any other person

EXHIBIT C-222 (*continued*).

10 making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

20 14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having  
30 abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

40 15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

MAURICE E. CONNOLLY,

President of the Borough of Queens.

The City of New York . . . . ., 192...



EXHIBIT C-222 (*continued*).

THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

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BUREAU OF SEWER

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CONTRACT FOR the construction of a temporary drain and appurtenances in JAMAICA AVENUE from 185th Street to Hollis Avenue; HOLLIS AVENUE from Jamaica Avenue to 190th Street, and in 190TH STREET from Hollis Avenue to the existing drain in 99th Avenue, for the purpose of abating a nuisance, and to prevent damage to property, Fourth Ward, Borough of Queens, together with all the work incidental thereto.

30

Parties.

40

THIS AGREEMENT, made and entered into this 11th day of May, in the year one thousand nine hundred and 23 between The City of New York, party of the first part, by the President of the Borough of Queens, and Angelo Paino of 32 Court Street, Brooklyn, Contractor, party of the second part, pursuant to the provisions of The Greater New York Charter, and the resolution of The Board of Estimate and Apportionment adopted on the 16th day of March, 1923, of which resolution the following is a copy:

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EXHIBIT C-222 (*continued*).

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

City of New York

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(Cal. No. 127-B)

A copy of a resolution of the Local Board of the Jamaica District, duly adopted by said Board on the 2d day of February, 1923 and approved by the President of the Borough of Queens on the 2d day of February, 1923 having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

20       “RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit:

30       For the construction of a temporary drain in order to abate a nuisance and to prevent damage to property in Jamaica Avenue from 185th Street to Hollis Avenue; and in Hollis Avenue from Jamaica Avenue to the existing drain at Hollis Avenue and Farmers Avenue, Fourth Ward, Borough of Queens”, and thereupon, on the 16th day of March, 1923, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Appointment an estimate in writing in such detail as the Board has directed, that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$17,200; and a statement of the assessed va-

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EXHIBIT C-222 (*continued*).

lue according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$9,643,000. having also been presented, it is

RESOLVED, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on March 23, 1923.

20 (Signed) JAMES MATTHEWS,  
Assistant Secretary.  
Board of Estimate and Apportionment.

30 Covenant.

WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, of themselves, and its, his or their executors, administrators, successors and assigns, as follows:

40 Contract.

I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the Plan of the Work dated March 9th, 1923, filed in the office of the President of the Borough, entitled: Plan, Profile and Details

EXHIBIT C-222 (*continued*).

10 for the construction of a temporary drain and appurtenances in JAMAICA AVENUE from 185th Street to Hollis Avenue; HOLLIS AVENUE from Jamaica Avenue to 190th Street, and in 190TH STREET from Hollis Avenue to the existing drain in 99th Avenue, for the purpose of abating a nuisance, and to prevent damage to property, Fourth Ward, Borough of Queens, and also Wrowings of Standard Details pertinent thereto on file in the office of the Engineer. v

Party of the first part.

II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, of the President of the Borough of Queens, or his authorized representative.

20 Party of the second part.

Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

Engineer described.

30 III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises, limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

Terms defined.

40 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawing pertinent thereto. Whenever it is provided that anything is "to be" or "to be done", "if" or "as", or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport

EXHIBIT C-222 (*continued*).

are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

- 10 V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof:

20 Prices.

T Y P E "B"

- Linear Feet 24-inch Reinforced Concrete Pipe Drain (Precast Type "B"), Per Linear Foot, Five 75-100 Dollars (\$5.75).
- 30 Manholes, Complete, Each, Seventy five 00-100 Dollars (\$75.00).
- Special Inlets, Complete, Each, Two hundred 00-100 Dollars (\$200.00).
- Linear Feet 12-inch Class 'AA' C. I. Pipe, Basin Connections, Per Linear Foot, Six 00-100 Dollars (\$6.00).
- Linear Feet 12-inch Vitrified Pipe, Basin Connections, Per Linear Foot, One 00-100 Dollars (\$1.00).
- 40 Chamber at the built drain in 190th Street, Complete, Six hundred 00-100 Dollars (\$600.00).

EXHIBIT C-222 (*continued*).

Quantities are approximate only.

No extra compensation.

- VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only.
- 10 The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or
- 20 work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

Sewers, etc., to be built as shown on the plan.

- VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on
- 30 the plan of the work as the same will be designated on the ground by the Engineer.

Line may be changed.

- The President may change the line of the drain of the manholes, inlets, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby agrees to make no
- 40 claim for damages or extra compensation on account thereof.

Preservation of points, stakes, etc.

The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for and to

EXHIBIT C-222 (*continued*).

remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

Written order for extra work.

- 10 VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five (5) per cent, of the contract price or the total cost of the work and materials.

- 20 Contract may be modified

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substances thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

- 30 Limit to extras.

All claims for additional work or materials in any month shall be made to the Engineer; in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

Inspection.

- 40 Work or materials may be condemned at any time.

IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfilment

EXHIBIT C-222 (*continued*).

of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any  
10 material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

20 Engineer to be final arbiter.

X. To prevent all dispute and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall  
30 in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive upon the Contractor; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted  
40 by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

Work and materials must agree with specifications.

XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best



EXHIBIT C-222 (*continued*).

10 kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under his contract.

Examination.

20 During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the opening disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

Use of patented articles.

30 XII. Wherever an article or any kind of material is specified by trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York  
40 Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the condition to secure which shall be prescribed by the Board of Estimate and Apportionment."

EXHIBIT C-222 (*continued*).

Claims for infringement.

10 The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will save harmless and indemnify The City all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

Commencement and completion.

20 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor without notice shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

Time of performance.

30 XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of Fifty (50) CONSECUTIVE WORKING DAYS.

Time important.

40 It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

EXHIBIT C-222 (*continued*).

10 In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of  
20 rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work, then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in  
30 writing and duly served upon the President prior to the filing in the office of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

End of time period.

40 The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

Liquidated damages.

XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of Ten 00/100 Dollars (\$10.00) for each and every day the time consumed in

EXHIBIT C-222 (*continued*).

10 said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due under this contract.

Work not provided for in contract.

20 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

30 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay due to other contracts.

40 XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall

EXHIBIT C-222 (*continued*).

be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any part thereof being suspended as hereinbefore provided, such allowance of time on account thereof as the President shall deem reasonable will be made.

- 10 If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing the work for The City, the President, or whoever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be  
20 made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

- XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.  
30

Right to construct sewers, etc.

Permits for connections.

- XX. Prior to the commencement of and during the progress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof  
40 located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII, and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract

EXHIBIT C-222 (*continued*).

10 or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstruction in the way of such persons as may be employed in building such sewers and drains, or in making such connections, and the flow from such  
20 sewers, drains and connections will be permitted by the Contractor to discharge into the work built under his contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined  
to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

30 XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When  
40 the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or the trenches in which it is to be constructed, follow the line, and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin

EXHIBIT C-222 (*continued*).

connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

Sale of sand or earth.

XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable under the provisions of the specifications hereof; but if it be unsuitable, then the same shall be removed from the line of the work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

EXHIBIT C-222 (*continued*).

Contractor to give personal attention to work.

Not to assign or sublet.

- 10           XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, 20 this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law 30 or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the written consent of the President.

When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

- 40           XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions, orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be de-



EXHIBIT C-222 (*continued*).

clared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

10 Contractor to plank and bridge for traffic.

XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

20 Guards and lights.

Indemnification of City.

30 XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same; or from any improper materials used in its prosecution, or by or on account of any act or omission of the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, at its option, be retained by  
40 The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

Contractor to make repairs.

XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act

EXHIBIT C-222 (*continued*).

10 or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due under this contract.

Loss or damage to be assumed by Contractor.

20 XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

30 XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain — anything herein contained to the contrary thereof notwithstanding — from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge  
40 the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought or that may be brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

EXHIBIT C-222 (*continued*).

Contractor will prevent filing of liens, etc.

10 XXX. The Contractor will not, at any time suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to retain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

Evidence of satisfaction of liens, etc.

20 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

Notice to gas companies, etc.

30 Not to hinder other companies.

40 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad, and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work any be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipes, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said as, railroad, or other companies, within five days after receipt of such notice, fail to support, re-

EXHIBIT C-222 (continued).

move or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

10 Pipes, conduits, etc., of private companies.

20 XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said  
30 pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not insure the accuracy of such reports or information, and agrees  
that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

Protection and restoration of pipes, etc., in private companies.

40 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures, and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, removing or restoring the said pipes, conduits, tracks or other structures.

EXHIBIT C-222 (*continued*).

10 XXXIII-a. If the paving between and for a distance of two (2) feet in width outside the tracks of any street railroad company is disturbed by the work of this contract, the Contractor shall restore, at his expense, the said pavement, and replace same in good condition to the satisfaction of the Engineer in charge, notwithstanding anything hereinbefore, or hereinafter mentioned in these specifications.

Contractor to notify Department of Water Supply,  
Gas and Electricity.

XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

20 City's water pipes, etc.

30 XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any water pipes or appurtenances, owned or controlled or operated by The City, to removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

Protection of City's water pipes, etc.

40 XXXVI. The Contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes,

EXHIBIT C-222 (*continued*).

and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

10 Protection of gas and water mains and pipes, etc.

20 XXXVII. The Contractor agrees to sustain in their places and protect all water or gas mains, conduit, subways or service pipes, steam pipes and pneumatic pipes, that may be adjacent to his work but entirely outside of the lines of the excavations as required by the specifications and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage  
30 which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever,  
40 or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him: and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

Old water and gas pipes.

XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of

EXHIBIT C-222 (*continued*).

The City and will be piled by the contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

Change of grade.

- 10 XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which there is no contract price, the provisions in relation to work not provided for in this contract shall apply.

Measurement of work and material.

- 20 XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part of the work, or of the materials be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

- 30 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller.
- 40 The City will pay to the Contractor on or before the expiration of thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, under any ordinance of The City passed prior to the date of this contract and now in force.

EXHIBIT C-222 (continued).

Moneys to be retained for repairs to unpaved streets.

10 It is hereby further agreed that The City shall be and is hereby authorized to retain out of the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06/100 for each linear foot of drain, basin connection, constructed under this contract within unpaved streets, and the sum of \$0.60/100 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done under this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

20 Payment of retained moneys to be made after six months.

It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

30 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

40 XLII. The action of the Engineer in Charge of Sewers, by which the Contractor is to be bound and concluded according to the terms of this contract, shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final cer



EXHIBIT C-222 (*continued*).

tificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

10           XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over the Engineer shall from time to time, as the work progresses, but not oftener than once a month, make in writing an estimate, such as in his opinion, shall be just and fair, of the amount of the work done and material installed by the Contractor in the performance of this contract on his part, and of the value thereof under and according to the terms of this contract. No allowance will be made in these estimates for materials furnished and delivered until such materials shall have been permanently incorporated in the work, except as hereinafter stated. The first such estimate will be of the amount of work done and materials furnished and installed since the Contractor commenced the performance of this contract on his part, and every subsequent estimate except the final one, will be of the amount of work done and materials furnished and installed since the last preceding estimate was made. In the estimates allowances will be made for Reinforcing Steel, Structural Steel, Pumps, Electric Motors, Valves, Cast Iron Pipe, Salt Glazed Tile Pipe 12 inches in diameter and larger sizes, Precast Concrete Pipe 24 inches in diameter and larger sizes, Stationary Screens, 20   Mechanically Driven Screens, Cast Iron Tunnel Lining and Precast concrete Blocks for Tunnel Lining, prior to their installation, which are owned by the Contractor and free from all liens or claims, and which have been delivered at locations where work is to be performed under this contract. Such allowances will be calculated at Eighty (80) per cent of the cost price for said materials. But no allowances will be made for those materials delivered which are in excess of the quantities permitted under the specifications to be distributed along the lines of the work. The Contractor will be required to furnish, prior to the certification for payment, written evidence satisfactory to the Borough President that the Contractor is the owner of the materials upon which payment is to be certified, and that such materials are free from liens or claims. Before certifying for payment for materials aforesaid, the Contractor shall execute or have executed and delivered to The City any and all instruments required to 40

EXHIBIT C-222 (*continued*).

vest in The City title to such materials free from claims or liens. Title to materials certified for payment shall vest in The City upon certification of the same for payment. The Contractor, however, agrees to and does assume responsibility for the safety, care and protection of all such materials until they have been finally installed in the work and the completed work accepted by the City, and further agrees at his own cost to replace any such materials that may be lost or damaged. The aforesaid estimates of amount and quantity will not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one and partly by the other, and it shall be sufficient if they are approximate only and estimates strictly so called. Upon each such estimate, made prior to the time of the completion of all the work of laying all the sewers and appurtenances and the backfilling of trenches, said estimate being certified in writing by the Borough President and Engineer and filed with the Comptroller, The City will pay to the Contractor eighty-five per centum of the amount stated in such estimate to be the value of the work therein certified to have been done and materials certified therein to have been furnished and installed, and eighty-five per cent of eighty per cent of the cost not exceeding the contract value of materials not installed hereinabove specified except that subsequent to the completion of all the work of laying all the sewers and appurtenances and the backfilling of the trenches, The City will pay to the Contractor eighty-five per centum of the value of the work done and materials furnished under the contract as certified in each such estimate, shall amount to more than fifteen hundred dollars (\$1500.) and provided, that The City pay at all times reserve and retain out of said installments, or any of them, such sum sums as by the terms hereof, or of any act of the Legislature of the State of New York, or of any ordinance of The City passed prior to the date hereof, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

EXHIBIT C-222 (*continued*).

If abandoned, etc.

Contract may be declared abandoned.

Completion of work to be undertaken by President.

- 10 XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (see Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV, or with any employee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned and to use such plant and materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been
- 20
- 30
- 40

EXHIBIT C-222 (*continued*).

completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to dis-

10 continue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plan or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time

20 taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with

30 the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

40 Notice to Contractor.

XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other com-

EXHIBIT C-222 (*continued*).

10 munications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to proclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

Labor Law.

20 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public  
30 work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provision of section 222 of the Labor Law.

No estoppel.

40 XLVII. The City shall not, nor shall any Department or officer thereof be procluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and

EXHIBIT C-222 (*continued*).

10 materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

Understanding of plans and specifications.

20 XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter  
30 of the said requirements, covenants, stipulations and restrictions; and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

Substitution of Sureties.

40 XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

EXHIBIT C-222 (*continued*).

Laws 1916, Chap. 478.

10 L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of and keep insured during the life of this contract the employees engaged thereon, in compliance with the provisions of Chapter 41 of the Laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

IN WITNESS WHEREOF, The President of the Borough of Queens for and on behalf of The City of New York, and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

20

THE CITY OF NEW YORK,

By BENJAMIN MARIUN,

Acting President of the Borough of Queens.

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ANGELO PAINO,

Contractor.

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EXHIBIT C-222 (*continued*).

The City and State of New York, ss. :  
County of Queens,

10 On this 17th day of May, 1923, before me personally came Benjamin MARIUN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the foregoing instrument, and he acknowledged to me that he executed the same as said Acting President for the purposes therein mentioned.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

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The City and State of New York, ss. :  
County of Queens

30 On this 11th day of May, 1923, before me personally came ANGELO PAINO, to me known and known to me to be the same person described in and who executed the foregoing instrument, and he acknowledged to me that he execute the same for the purposes therein mentioned.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

40



EXHIBIT C-222 (continued).

KNOW ALL MEN BY THESE PRESENTS, That we ANGELO PAINO, hereinafter called the "Contractor," and U. S. FIDELITY and GUARANTY CO hereinafter called the "Surety," are held and firmly bound unto The City of New York, in the sum of EIGHT THOUSAND DOLLARS, lawful money of the United States of America, to be paid unto THE CITY OF NEW YORK, or to its certain attorneys,  
10 successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves and our several and respective heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this 11th day of May, 1923.

WHEREAS, The above bounden Contractor, by an instrument in writing, under his hand, and bearing even date with these presents, one part whereof is hereto annexed, has contracted with The City of New York, by the President of the  
20 Borough of Queens, to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete temporary drain, etc. in Jamaica Ave from 185th Street to Hollis Ave, etc. 4th Ward, together with all the work incidental thereto, as is fully and at large set forth and described in the contract aforesaid.

NOW, THEREFORE, The condition of the above obligation in such that if the said above bounden Contractor and its, his or their heirs, executors, administrators and assigns, or  
30 any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained on his part to be performed, and complete the same within the period therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

40 ANGELO PAINO [L. S.]  
Contractor.

United States Fidelity and Guaranty Co. [L.S.]

By C. P. MARSAC,  
Attorney-in-fact.

Attest: WILLIAM H. ESTVIEW,  
Attorney-in-fact.

#275963-23

EXHIBIT C-222 (*continued*).

THE CITY AND STATE OF NEW YORK, ss :  
COUNTY OF QUEENS,

10 On this 11th day of May, 1923, before me personally came  
ANGELO PAINO, to me personally known and known to me to  
be the same person described in and who executed the foregoing  
bond or obligation, and severally acknowledged that he executed  
the same.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

20

\_\_\_\_\_

FUNDS

PRESIDENT'S CERTIFICATE

30

\_\_\_\_\_

Funds O. K. R.

It is hereby certified that the estimated cost of the work  
and materials required by the within contract is Fourteen thou-  
sand two hundred forty nine 00-10 DOLARS (\$14249.00), charge-  
able to the Street Improvement Fund of the City of New York.

40

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

THE CITY OF NEW YORK, May 17th, 1923.

EXHIBIT C-222 (continued).

SPECIFICATIONS.

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TRENCHES

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10

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built drain shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraph 154.) Unless otherwise directed each trench for basin connections shall be fully excavated for its entire length before any pipes are laid therein.

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where shown on the plan or directed. Sheet piling and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

40 Sheet piling in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheet piling shall be closely driven and to such depth below the bottom of the sewer as may be directed.

EXHIBIT C-222 (*continued*).

Tunneling.

4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

Trees and stumps.

10

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

20

Roadway, sidewalks, etc., to be kept clear.

7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary, a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum of inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

30

Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the drain, so much of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

40

EXHIBIT C-222 (*continued*).

Fence.

9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

- 10            10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

Disposal of water from trenches.

- 20            11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

Cost to be covered.

- 30            12. The cost of all labor required to be done and all materials required to be furnished in the performance of all of the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EARTH EXCAVATION.

- 40            13. Earth exvacation shall include the removal of all material other than rock as hereinafter defined.

Width of trench for sewers, etc.

14. The minimum widths of trenches in earth, for pipe drains, basin connections, not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on

EXHIBIT C-222 (*continued*).

each side of the pipe, exclusive of spurs and hubs; and all such trenches shall have a clear width equal to the maximum width of the cradles of the drains to be laid in them, when such cradles are wider than the minimum widths herein specified.

- 10        15. Where a manhole or other appurtenance or the foundation therefor extends beyond the exterior lines of the drain or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

- 20        16. The minimum dimensions of the excavation in earth, for concrete inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete inlets shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

- 30        17. The trenches shall be excavated to the depths required for the foundations of the drains and appurtenances shown on the plan and where the conditions are such as to make it necessary to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

Cost to be covered.

- 40        18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EXHIBIT C-222 (*continued*).

ROCK EXCAVATION

19. Rock excavation shall include the excavation and removal of the following materials:

10 (a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

20 20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

Rock excavation for basin manholes, etc.

30 21. The required width of trench in rock for basin connections & pipe drains will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the drain or its foundation, the excavation in rock required for the same will be contained in a prisme with vertical sides and a horizontal section 1 foot wider on each side than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for inlets will be such as to give a clearance of 1 foot on all sides above their foundation.

40 Depth of trench.

22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

EXHIBIT C-222 (*continued*).

Measurements.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

10

Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

20

Excavation for branches.

25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

30

Exposed structures to be protected.

27. All exposed drains, manholes and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at is own expense.

40



EXHIBIT C-222 (*continued*).

Price to cover.

28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

10

BACKFILLING.

Backfilling around sewers, etc.

29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the drain, basin connection, or drain, the material for backfilling trenches as excavated, shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

20

Backfilling for remainder of trench.

30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

30

Backfilling around basin manholes, etc.

31. Backfilling within 2 feet of manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

40

EXHIBIT C-222 (*continued*).

Puddling.

32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

10 33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

20 34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

30 Curves, branches, etc., not to be covered.

36. Drains, basin connections, sewer connections and intersections, ends of drain and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

40 37. As the trenches are backfilled, the Contractor shall remove all surplus materials and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of an until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case

EXHIBIT C-222 (*continued*).

of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract, where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

Fineness.

41. The cement shall be dry, finely ground, of uniform color and free from lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve,

EXHIBIT C-222 (continued).

and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table:

Neat Cement:

24 hours . . . . . 175 pounds per sq. in.

7 days (1 day in moist air, 6 days in water)  
500 pounds per sq. in.

20 28 days (1 day in moist air, 27 days in water)  
600 pounds per sq. in.

Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

7 days (1 day in moist air, 6 days in water)  
180 pounds per sq. in.

30 28 days (1 day in moist air, 27 days in water)  
225 pounds per sq. in.

The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

EXHIBIT C-222 (*continued*).

Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

45. The cement will be subjected to such tests as the Engineer may deem necessary, and such test will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needless. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

EXHIBIT C-222 (*continued*).

Delivery and storing.

49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it had been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

MORTAR.

51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and  $2\frac{1}{2}$  volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestone. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ( $\frac{1}{4}$ ) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5) per cent. by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1) per cent. of organic matter.

EXHIBIT C-222 (*continued*).

Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

Mixing.

10

53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

20 Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

Cost covered.

30 55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

CONCRETE.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

40 Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other impro-

EXHIBIT C-222 (*continued*).

per substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings  $1\frac{1}{4}$  inches in diameter and shall be retained on a screen with openings  $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

10

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing  $\frac{9}{10}$  cubic foot, and the other ingredients shall be measured by an approved method.

Water.

20

59. Only clean fresh water shall be used for concrete.

Mixing.

60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed or wet stone, water added, and the entire mass turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

30

40

Placing concrete.

61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently



EXHIBIT C-222 (*continued*).

to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

20 Joining old and new concrete.

62. When fresh concrete is to be laid on or adjoining concrete already set, the surfact of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

Forms and centres.

30 63. The Contractor shall provided all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the face against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approved lubricant; when no lubricant is required such surfaces shall be thoroughly wet-  
40 ted just before the concrete is placed.

Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or

EXHIBIT C-222 (*continued*).

embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

Exposed surfaces.

- 10 65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

20 Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed one per cent, by weight of salt shall be added to the water for each degree Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

30 Protection.

- 40 68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

EXHIBIT C-222 (*continued*).

Prices to cover.

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

10

BRICK MASONRY

Quality of bricks

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location or the work in which they are to be used.

How laid

72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than  $\frac{3}{8}$  inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed  $\frac{1}{4}$  inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be raked back in courses, unless otherwise permitted.

Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

EXHIBIT C-222 (continued).

Freezing weather.

74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of brick masonry.

- 10        75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

**STRUCTURAL STEEL.**

Quality.

- 20        76. Structural steel shall be medium steel and rivet steel made by the open hearth process and shall conform to the latest revised Standard Specifications for Structural Steel for Buildings adopted by the American Society for Testing Materials, and such tests as may be required shall be made in accordance therewith and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

30        Properties Considered	Medium Steel	Steel Steel
Phosphorus (maximum) . . . . .	0.06 per cent	0.06 per cent
Ultimate tensile strength, lbs. per sq. in. . . . .	55,000-65,000	48,000-58,000
Yield point (minimum), lbs. per sq. in. . . . .	½ ult. tens.str.	½ ult. tens. str.
Elongation, per cent. in 8 in. (minimum) . . . . .	1,400,000	1,400,000
40        Character of fracture . . . . .	ult. tens. str. Silky	ult. tens. str. Silky
Cold bend without fracture . . .	180° to diam. of 1 thickness	180° flat

EXHIBIT C-222 (*continued*).

Finish.

77. All finished material shall be free from injurious seams, flaws and cracks, and have a workmanlike finish.

Variation in weight.

- 10           78. When steel is inspected at the mill or shop all pieces (except plates), which vary in weight more than  $2\frac{1}{2}$  per cent. from that specified shall be rejected; when steel is not inspected until it is delivered on the work such variation in weight will be sufficient cause for rejection when, in the judgment of the Engineer, the safety of the work will be impaired thereby.

Workmanship.

- 20           79. All structural steel shall be in accordance with the plan. All details not shown on the plan, and all workmanship and finish shall be equal to the best current practice in similar work for buildings.

Anchor bolts.

- 30           80. Anchor bolts and expansion bolts shall be furnished where required and set in place as directed. When holes are drilled in masonry or concrete for such bolts, the holes shall be washed clean and the bolts shall be firmly embedded in a mortar composed of equal parts of cement and sand, unless other material is shown on the plan.

Melt numbers.

- 40           81. Test specimens and every finished piece of steel shall be stamped with melt or blow number, except that small pieces may be shipped in bundles securely wired together, with the melt or blow number on a metal tag attached.

Test and inspections.

82. The required tests and inspections of structural steel shall, if directed, be made at the mills and shops by the City's authorized inspector. The Contractor shall notify the City as to

EXHIBIT C-222 (continued).

the mills and shops which are to supply the steel sufficiently in advance to enable the City to arrange for such tests and inspections and the mills and shops shall afford every facility for making the same.

Mill certificates.

- 10           83. If it is decided not to make the City's tests and inspections at the mills, then mill certificates showing the properties of each melt of which the steel is made will be accepted for consideration.

Certificates, etc., for information only.

- 20           85. Steel will not be accepted until the required inspector's reports or mill certificates are received. All tests, inspections, reports and certificates are for the information of the Engineer, and he shall not be precluded on account thereof from requiring or making any further tests which he may deem necessary.

Painting.

- 30           87. All steel shall be thoroughly cleaned of scale, rust, oil and dirt, and unless otherwise directed, those parts which are not to be bedded in concrete shall be painted with a priming coat of the best red lead and insed oil or such other paint of equivalent value as may be directed. After erection the metal which will be exposed in the finished work shall be evenly painted with 2 coats of approved paint. No painting shall be done on wet surfaces.

Measurement.

- 40           88. The amount of structural steel paid for as such will be all structural steel placed in the work in accordance with the plan or directions, except any excess greater than  $2\frac{1}{2}$  per cent. above the weight required, and except such structural steel shown on the plan as being part of structure for which there are contract prices, and the cost of which is hereinafter specified to be covered by the contract prices for such structures.

EXHIBIT C-222 (*continued*).

Price to cover.

10 89. The Contract price for structural steel shall cover the cost of all labor and materials required to furnish, fabricate, erect and paint the same, to furnish all test pieces, to prepare and furnish prints of shop drawings, and to drill holes for and set anchor and expansion bolts, where required, all as specified.

STEEL REINFORCEMENT BARS.

Shape

20 90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bound with the concrete frequent intervals and to insure intimate contact between the steel and concrete

Samples

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

30 Size

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

Variation in weight.

40 93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

Quality.

94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted

EXHIBIT C-222 (continued).

by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

10	Properties Considered	Structural Steel Grade		Cold Twisted Bars
		Plain Bars	Deformed Bars	
	Phosporus, max.			
	Open Hearth .....	0.05	0.05	0.10
	Bessemer .....	0.10	0.10	0.05
	Ultimate Tensile Strength, pounds per sq. in. ....	55,000-70,000	55,000-70,000	Recorded only
	Yield Point, minimum pounds per sq. in. ....	33,000	33,000	55,000
	Elongation, minimum per cent. in 8 inches .....	1,400,000	1,250,000	5 per cent.
20		—————	—————	
		tens. str.	tens. str.	
	Cold bend without fracture:			
	Bars under ¾ in. in diam. or thickness .....	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 3t.
	thickness and over ....	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 2t.
	t : Nominal thickness or diameter of bar.			

30 95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when being bent, will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

40 Delivery and protection

97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in



EXHIBIT C-222 (*continued*).

concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

- 10 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing

- 20 99. All bars shall be as long as can be conveniently used accurately bent, placed, spaced and pointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

100. The cost of all steel reinforcement bars and the requirements specified in connection with which it is used.

WROUGHT IRON

30 Quality.

- 40 101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with a fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

Galvanizing,

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

EXHIBIT C-222 (*continued*).

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

10

IRON CASTINGS.

Quality.

104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The casting shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

20

Cost covered.

105. The cost of all labor and materials required to furnish, coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

30

TIMBER SHEETING.

Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

40

EXHIBIT C-222 (*continued*).

When paid for.

111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

10 Measurement.

112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, rangers and braces left in place without such order, nor sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to pldace the same.

TYPE "B"

Cement Concrete Pipe With Reinforcement

40 131. Reinforced cement concrete pipe used shall be circular in section with or without flat base and shall conform in dimensions as shown in table.

EXHIBIT C-222 (continued).

General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe	
10	24"	3 "	4'	3 "	3350 Lbs.	
	27"	3 1/2"	4'	3 "	3700 "	
	30"	3 1/2"	4'	3 "	4400 "	
	33"	4 "	4'	3 "	4600 "	
	36"	4 "	4'	4 "	4800 "	
	39"	4 "	4'	4 "	5200 "	
	20	42"	4 1/2"	4'	5 1/2"	5600 "
		45"	4 1/2"	4'	5 1/2"	6100 "
		48"	5 "	4'	5 1/2"	6600 "
		51"	5 "	4'	5 1/2"	7050 "
54"		5 1/2"	4'	5 1/2"	7500 "	
57"		5 1/2"	4'	5 1/2"	7750 "	
60"		6 "	4'	5 1/2"	8000 "	
63"		6 "	4'	5 1/2"	8400 "	
66"		6 1/2"	4'	5 1/2"	8800 "	
72"		7 "	4'	5 1/2"	9400 "	
30	78"	8 "	4'	5 1/2"	10400 "	
	84"	8 "	4'	5 1/2"	11200 "	
	90"	8 1/2"	4'	5 1/2"	12000 "	
	96"	8 1/2"	4'	5 1/2"	12800 "	
	102"	9 "	4'	5 1/2"	13600 "	
	108"	9 "	4'	5 1/2"	14400 "	

Testing pipe.

- 40) Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering

EXHIBIT C-222 (*continued*).

an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering Construction.

10

Material of pipe, cement, sand, stone or gravel.

132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe shall be as made with care of manufacture.

20

Joints.

133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ( $1\frac{1}{2}$ ) per cent. from the hereinbefore mentioned dimensions will be permitted.

30

Jointing.

134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line, making a continuous invert. After this has been done, steel forms especially designated for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portions grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

40

Laying pipe.

135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has

EXHIBIT C-222 (*continued*).

not been seasoned for twenty-one (21) days, unless otherwise Construction.

Steel for reinforcement.

10 136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Company's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

20 137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

Disposal of water from tranches.

138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even though reinforced concrete pipe shall be furnished on this contract.

Rejection of defective pipe.

30 139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

Depth of cover.

40 139a. Where depth of cover on precast pipe sewer is sixteen feet (16') or over extra reinforcing steel shall be used in the pipe to take care of the increased stresses. The cost of such extra steel shall be included in the price bid for precast pipe sewers.

139b. Precast concrete pipe, Type "B", will be paid for from the inside face of all chambers.

EXHIBIT C-222 (continued).

VITRIFIED PIPE SEWERS.

Vitrified pipe.

140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations; it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

Identification marks.

141. Each shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

30 Shape and dimensions.

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

	Size	Length	Thickness	Depth of Socket	Annular Space
40	6.....	2 feet	5/8 inch	2 1/2 inches	5/8 inch
	8.....	3 "	3/4 "	2 3/4 "	5/8 "
	10.....	3 "	7/8 "	2 3/4 "	5/8 "
	12.....	3 "	1 "	3 "	5/8 "
	15.....	3 "	1 1/4 "	3 "	5/8 "
	18.....	3 "	1 1/2 "	2 1/4 "	5/8 "
	20.....	3 "	1 2/3 "	3 1/2 "	5/8 "
	22.....	3 "	1 5/6 "	3 3/4 "	5/8 "
	24.....	3 "	2 inches	4 "	5/8 "

EXHIBIT C-222 (continued).

Curves, bends, etc.

10 143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

144. Any or all of the following tests may be applied to samples selected on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

20 Crushing tests.

145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

30	Diameter	Pressure
	6 inches .....	900 lbs. per lin. ft.
	8 " .....	900 " " " "
	10 " .....	1,000 " " " "
	12 " .....	1,050 " " " "
	15 " .....	1,250 " " " "
	18 " .....	1,400 " " " "
	20 " .....	1,550 " " " "
	22 " .....	1,750 " " " "
40	24 " .....	1,950 " " " "

Drop weight test.

146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2



EXHIBIT C-222 (*continued*).

blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

Hydrostatic test.

- 10           147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

Absorption test.

- 20           148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

Factory rejection.

149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

- 30           Without cradle.

Cradles.

150. In earth trenches pipe drains shall be laid in concrete cradles when required by the plan. In rock trenches pipe drains shall be laid in cradles of concrete, gravel or broken stone as shown on the plan.

Without cradle.

- 40           151. When the drain is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

EXHIBIT C-222 (*continued*).

Concrete cradle.

10 152. When the drain is to be laid in a concrete cradle, the concrete for the full width of the cradle shall be deposited continuously to the height of the outside bottom of the pipe. Before the concrete has set the pipe shall be evenly bedded therein and the remainder of the concrete immediately deposited and carefully tamped in such a manner as to avoid disturbing the sewer.

How laid.

20 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than form invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

Gasket and mortar joints.

30 156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than  $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if directed, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to  $1\frac{1}{2}$ , and the joint wiped inside and finished to a smooth bevel outside.

40 Inspection of joints.

157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall

EXHIBIT C-222 (*continued*).

be provided. A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

- 10        158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the drain shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

- 20        160. Immediately after the drain is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed drain (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

- 30        161. The exposed ends of pipe drains shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

- 40        Connection with existing work.

163. Wherever the proposed drain is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or

EXHIBIT C-222 (*continued*).

be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe drain.

Pipes cut to fit masonry.

10        164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

20        165. The length of pipe drains to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at man-holes, and the measurements will be made to the inside face of all chambers.

Prices to cover.

30        166. The contract prices for vitrified pipe drains shall cover the cost of all necessary excavation (except rock) of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the drains complete in place, as shown on the plan and as specified.

30

CAST IRON PIPE DRAINS.

Cast iron pipe.

40        167. Cast iron pipe for drains shall conform with the requirements of the latest revised Standard Specifications for Cast Iron Pipe adopted by the American Society for Testing Materials, and all tests required shall be made in accordance therewith.

168. The thickness of shell and weight of the several classes of pipe, and the allowable variations of diameter and weight shall be as follows:

EXHIBIT C-222 (continued).

Nominal Inside Diam. Ins.	Class A 100 Ft. Head 43 Lbs. Pressure		Class B 200 Ft. Head 80 Lbs. Pressure		Class C 300 Ft. Head 130 Lbs. Pressure		Allowable Variations	
	Thick-ness Ins.	Weight	Thick-ness Ins.	Weight	Thick-ness Ins.	Weight	Diameter	Weight
4...	0.40	240	0.45	260	0.48	280	0.06 in.	5 per cent.
6...	0.44	370	0.48	400	0.51	430	0.06 "	5 " "
8...	0.46	515	0.51	570	0.56	625	0.06 "	5 " "
10...	0.50	685	0.57	765	0.62	850	0.06 "	5 " "
12...	0.54	870	0.62	985	0.68	1,100	0.06 "	5 " "
14...	0.57	1,075	0.66	1,230	0.74	1,400	0.06 "	5 " "
16...	0.60	1,300	0.70	1,500	0.80	1,725	0.06 "	5 " "
18...	0.64	1,550	0.75	1,800	0.87	2,100	0.08 "	4 " "
20...	0.67	1,800	0.80	2,100	0.92	2,500	0.08 "	4 " "
24...	0.76	2,450	0.89	2,800	1.04	3,350	0.08 "	4 " "
30...	0.88	3,500	1.03	4,000	1.20	4,800	0.10 "	4 " "
36...	0.99	4,700	1.15	5,450	1.36	6,550	0.10 "	4 " "
42...	1.10	6,150	1.28	7,100	1.54	8,600	0.10 "	4 " "
48...	1.26	8,000	1.42	9,000	1.71	10,900	0.12 "	4 " "
54...	1.35	9,600	1.55	11,200	1.90	13,700	0.15 "	4 " "
60...	1.39	11,000	1.67	13,250	2.00	16,100	0.15 "	4 " "

The above weights are for 12 feet laying lengths and standard sockets; proportionate allowance will be made for any variation therefrom.

30 Variation in thickness.

169. For pipes whose standard thickness is less than 1 inch, the thickness of metal in the body of the pipe shall not be more than 0.08 inch less than the standard thickness; and for pipes whose standard thickness is 1 inch or more, the variation shall not exceed 0.10 inch, except that for areas not exceeding 8 inches in any direction, variations from the standard thickness of 0.02 inch in excess of the allowance above given will be permitted.

40 Coating.

170. All cast iron pipe shall be thoroughly and evenly coated inside and outside with coal tar pitch varnish. The coating shall be smooth, tough and tenacious when cold and shall not be brittle or have any tendency to scale off.

EXHIBIT C-222 (*continued*).

Marking.

171. The weight and class letter shall be conspicuously painted by the manufacturer with white oil paint on the inside of each pipe after the coating is hard.

10 172. Joints of cast iron pipe sewers shall be of the kinds shown on the plan.

Lead joints.

173. When lead joints are required, the inner portion of the annular space between the pipes shall be packed with clean, sound jute packing yarn, and the remaining portion shall be run full of pure soft lead and calked with suitable tools. Unless otherwise shown on the plan the depths of the lead joints shall  
20 be 2½ inches for 6-inch to 8-inch pipe, 3 inches for 12-inch to 24-inch pipe and 3½ inches for 30-inch to 48-inch pipe.

Mortar joints.

174. When gasket and mortar joints are required they shall be made as specified in paragraph 156.

175. All the requirements, as hereinbefore specified, relating to excavation, laying, backfilling and measurements of  
30 vitrified pipe drains shall apply, as far as they are applicable, to cast iron pipe drains.

Prices to cover.

176. The contract prices for cast iron pipe drains shall cover the cost of all necessary excavation (except rock); of all concrete cradles required; of all bulkheads; of all backfilling; of all labor and materials required to furnish and lay the drains complete in place, as shown on the plan and as specified.  
40

BASIN CONNECTIONS.

177. The connections between inlets and manholes shall be of vitrified pipe or cast iron of the size shown on the plan or on the standard details on file in the Engineer's Office, Bureau

EXHIBIT C-222 (*continued*).

of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe drains.

Measurement.

- 10 178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

Prices to cover.

- 20 179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place, as specified.

MANHOLES.

194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

- 30 Brick manholes.

195. Brick manholes shall be formed by means of templates placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar  $\frac{1}{2}$ -inch thick.

Steps.

- 40 197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals, of about 16 inches.

Head and cover.

198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall

EXHIBIT C-222 (*continued*).

weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

Price to cover.

- 10           299. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

INLETS.

- 20           208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan.

Heads.

209. The head shall be as shown on plan and shall conform in all respects to the specifications. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

- 30           Restoration of roadway, pavements, etc.

210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ( $2\frac{1}{2}$ ) feet adjoining such inlets shall, if re-  
40           quired, be paved with approved paving blocks.

Price to cover.

211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when



EXHIBIT C-222 (*continued*).

required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

RESTORATION OF SURFACE AND CLEANING UP.

10

Restoration of unpaved roadways, sidewalks, etc.

219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under this contract shall be restered by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

20

Pavements, etc., restored by Contractor.

220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

30

Payments, etc., under guarantee.

40

221. All pavements, sidewalks, crosswalks, curbs, etc., existing at the time of the opening of the bids for this contract, and under guarantee for maintenance, shall be restored and adjusted by the parties responsible under such guarantee, and at the expense of the Contractor. If not so restored and adjutsed during the progress of the work, the Contractor shall, when directed, pay to the President before the completion of the contract a sum of money sufficient to cover the cost of having the same restored and adjusted by the parties responsible under such guarantee, and at the charges for the restoration of the same, as set forth in their contracts relating thereto. Such sum shall be accompanied by certificates from the parties responsible for the maintenance of the pavements, sidewlaks, crosswalks, curbs, etc., to the effect that such sum will be accepted by them as full payment fur such restoration and adjustment.

EXHIBIT C-222 (*continued*).

10 221a. The sheet asphalt pavement in JAMAICA AVENUE is under guarantee to The City of New York by the Borough Asphalt Paving Co., wherein the contract prices for restoration are as follows:— For openings measuring less than ten (10) square yards in area, three dollars and fifty cents (\$3.50) per square yard, and for openings measuring ten (10) square yards or more in area, three dollars (\$3.00) per square yard; these prices to include the construction of an eight (8) inch concrete foundation. The character of pavement (kind, thickness of base, etc.) and manner of restoration shall be determined by, and subject to approval by the Highway Department.

Temporary restoration.

20 222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

When new pavement is laid.

30 223. If pavements, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

Trenches flooded.

224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

40 Cleaning up.

225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The side-

EXHIBIT C-222 (*continued*).

walks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

Cost to be covered.

- 10           226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

RESTORATION OF GRANITE BLOCK PAVEMENTS  
WITH BITUMINOUS GROUTED JOINTS.

20

The pavings taken up in the performance of this contract shall be restored, subject to the approval of the Highway Department.

BITUMINOUS MACADAM PAVEMENT.

30

The roadway shall be brought to a uniform sub-grade, and shall be rolled with a steam roller weighing no less than 10 tons until the surface is thoroughly compacted. Portions of the road-bed inaccessible to the steam roller shall be wetted and tamped or rolled with a small roller, as may be directed. Material which cannot be satisfactorily rolled, or which is otherwise objectionable, shall be removed and replaced with acceptable material. In shaping the roadway great care shall be used to secure a uniform surface parallel to, and the required depth, below the finished pavement surface.

40

On this subgrade shall be spread a layer of two and one half ( $2\frac{1}{2}$ ) inch clean crushed stone or trap rock to insure a depth of three and one half ( $3\frac{1}{2}$ ) inches after rolling, this stone shall be rolled with a steam roller weighing not less than ten (10) tons, and filled with sharp sand added in small quantities during the rolling and flushed with sufficient water to completely fill all voids between the crushed stone. The rolling shall be continued until all motion in the mass ceases.

EXHIBIT C-222 (*continued*).

When completed and before adding the next course the bottom course shall have an even surface at the required grade and of the proper cross section, with all interstices filled.

10 The next course shall be of one and one half ( $1\frac{1}{2}$ ) inch clean crushed stone of trap rock spread to a depth insuring a total thickness of completed pavement of six (6) inches. The voids in this course shall also be completely filled with sand by sweeping and flushing to within one half ( $\frac{1}{2}$ ) inch of the top of stone, while being rolled with a steam roller weighing not less than ten (10) tons. The rolling shall be continued until all motion in the mass ceases.

When completed and before adding the next course the bottom course shall have an even surface at the required grade and of the proper cross section, with all interstices filled.

20 The next course shall be of one and one half ( $1\frac{1}{2}$ ) inch clean crushed stone of trap rock spread to a depth insuring a total thickness of completed pavement of six (6) inches. The voids in this course shall also be completely filled with sand by sweeping and flushing to within one half ( $\frac{1}{2}$ ) inch of the top of stone, while being rolled with a steam roller weighing not less than ten (10) tons. The rolling shall be continued until all motion in the mass ceases.

30 After the water has drained from the pavement and the surface is perfectly dry a bituminous filler complying with the specifications for Bituminous road surfacing material shall be distributed on the prepared surface at the rate of not less than one and one quarter ( $1\frac{1}{4}$ ) nor more than one and three quarters ( $1\frac{3}{4}$ ) gallons per square yard; the distribution shall be made from an approved distributor equipped with facilities for heating the material and maintaining a temperature of not less than two hundred (200) degrees and not more than three hundred (300) degrees F. This bituminous filler shall be forced onto the road, care being taken to secure a uniform distribution of the same.

40 Before the bituminous filler has cooled off a layer of three quarter ( $\frac{3}{4}$ ) inch crushed stone of trap rock shall be spread upon the roadway to a depth of about one (1) inch loose measurement and thoroughly rolled and compacted.

EXHIBIT C-222 (continued).

A coating of bituminous road surfacing material shall then be applied to the surface, the amount used shall be such as to completely and uniformly coat the surface when carefully spread with squeegee or brooms, and shall be at least ( $\frac{1}{2}$ ) one half gallon per square yard.

10 After it has been applied and spread, it shall be covered with stone chips or gravel, and then rolled until they are bonded with the bituminous material of the seal coat.

All materials used shall comply with the specifications pertaining thereto.

20 The cost of all grading, handling of materials, one year maintenance and all work in connection with the pavement shall be included in the price bid per square yard of completed pavement.

SPECIFICATIONS FOR CRUSHED STONE, STONE CHIPS  
AND GRAVEL.

30 Crushed stone shall consist of angular fragments of trap rock, free from thin or elongated pieces, soft or disintegrated stone, dirt or other objectionable matter, occurring either free or as a coating on the stone.

PHYSICAL PROPERTIES :

The stone shall meet the following requirements :—  
French coefficient of wear ..... not less than 10  
Toughness ..... not less than 12  
Cementing value ..... not less than 45

40 SIZE Two and one half ( $2\frac{1}{2}$ ) inch Crushed Stone.

Two and one half ( $2\frac{1}{2}$ ) inch crushed stone, when tested by means of laboratory screens, shall meet the following requirements:

Passing  $3\frac{1}{4}$  inch screen, not less than 95 per cent

EXHIBIT C-222 (continued).

Retained on  $2\frac{1}{4}$  inch screen, not less than 85 per cent

One and one-half ( $1\frac{1}{2}$ ) inch Crushed Stone.

One and one half ( $1\frac{1}{2}$ ) inch crushed stone, when tested by means of laboratory screens, shall meet the following requirements:

10

Passing  $2\frac{1}{4}$  inch screen, not less than 95 per cent

Retained on  $1\frac{1}{8}$  inch screen, not less than 85 per cent.

Three quarter ( $\frac{3}{4}$ ) inch Crushed Stone.

Three-quarter ( $\frac{3}{4}$ ) inch crushed stone, when tested by means of laboratory screens, shall meet the following requirements:

20

Passing  $1\frac{1}{4}$  inch screen, not less than 95 per cent

Retained on  $\frac{5}{8}$  inch screen, not less than 85 per cent.

STONE CHIPS.

30

The stone chips or strap rock shall be that portion of the product of the crusher, which when tested by means of laboratory screens, will meet the following requirements:

Passing  $\frac{5}{8}$  inch screen not less than 95 per cent

Retained on  $\frac{1}{4}$  inch screen, not less than 85 per cent.

Passing 100 mesh sieve less than 3 per cent.

40

GRAVEL.

Gravel shall be composed of sound, hard, durable particles of stone, free from a coating of clay or loam. It shall be free from vegetable or other deleterious matter. It shall meet the following requirements:

EXHIBIT C-222 (*continued*).

Passing  $\frac{3}{8}$  inch screen, not less than 95 per cent.

Retained on  $\frac{1}{8}$  inch screen, not less than 85 per cent.

BITUMINOUS ROAD SURFACING MATERIAL.

10

The bituminous road surfacing material shall be homogeneous, free from water, and shall meet the requirements described under A, or B, or C.

A.

1. Specific gravity 25°/25°C (77°/77°F) not less than 1.00
- 20 2. Flash point not less than 175°C (347°F)
3. Melting point 35°C (95°F) to 55°C (131°F)
4. Penetration at 25°C 100 g., 5 sec. 80-130
5. Loss at 163°C (325°F) 5 hours, not more than 1%
  - a) Penetration of residue at 25°C 100 g, 5 sec. not less than 60.
6. Total bitumen (soluble in CS<sub>2</sub>) not less than 99.5%
  - a) Organic matter insoluble, not more than 0.2%

30

B.

1. Specific gravity at 25°/25°C (77°/77°F) 1.030—1.060
2. Flash point not less than 175°C (347°F.)
3. Melting point 40°C (104°F) to 50°C (122°F).
4. Penetration at 25°C, 100 g. 5 sec. 90-120.
- 40 5. Loss at 163°C (325°F) 5 hours not more than 3%
  - a) Penetration of residue at 25°C 100 g, 5 sec. not less than 60.
6. Total bitumen (soluble in CS<sub>2</sub>) not less than 95.0%
  - a) Inorganic matter insoluble, 1.5% to 3.0%

EXHIBIT C-222 (continued).

C.

(Coal Tar)

1. Specific gravity at 77/77 deg. F. (25/25 deg. C.)  
1.180 to 1.280.
- 10 2. Float test at 122 deg. F. (50 deg. C.) 120 to 180 seconds.
3. Total distillat by weight:
  - To 338 deg. F. (170 deg. C.) — 0.0%
  - To 455 deg. F. (235 deg. C.) — not more than 2.0%
  - To 518 deg. F. (20 deg. C.) — not more than 10.0%
  - To 572 deg. F. (3 deg. C.) — not more than 20.0%
  - (a) Melting point of residue — not more than 167 deg F.  
(75 deg. C.) 0
  - 20 (b) Ductility of residue — not less than 50cms.
  - (c) Specific gravity of total distillate at 77 deg. F. (25  
deg. C.) — not less than 1.03.
4. Total bitumen soluble in carbon disulphide — not less than  
75.0%

Tests of the physical and chemical properties of the material shall be made in accordance with the standard methods of tests of the Board of Estimate and Apportionment of the City  
30 of New York.



EXHIBIT C-7.

10

20

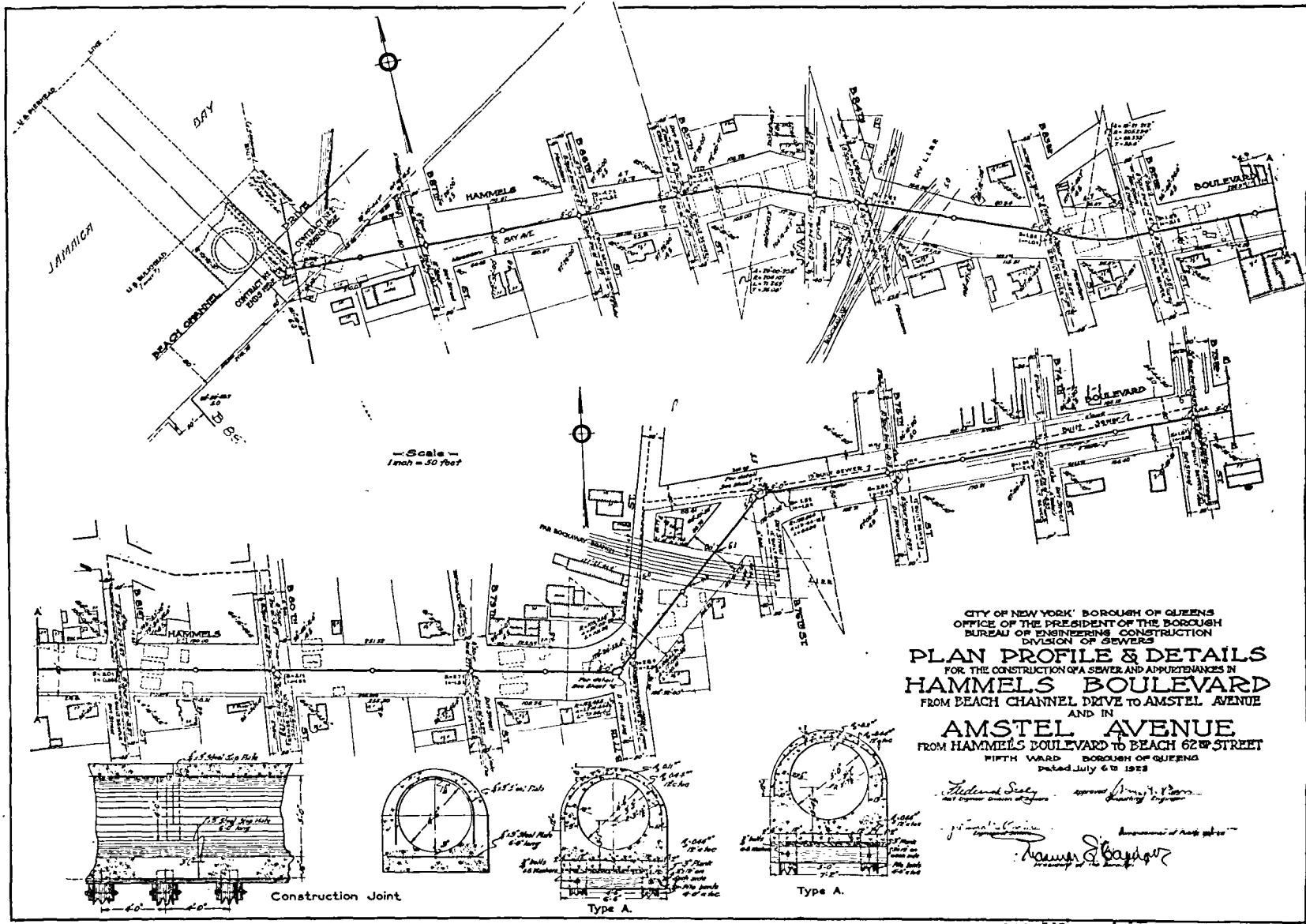
EXHIBIT C-7.

*(Plan profile and details for the construction of a sewer and appurtenances in Hammels Boulevard from Beach Channel Drive to Amstel Ave, etc., July 6th, 1923).*

30

40

EXHIBIT C-7 (continued).

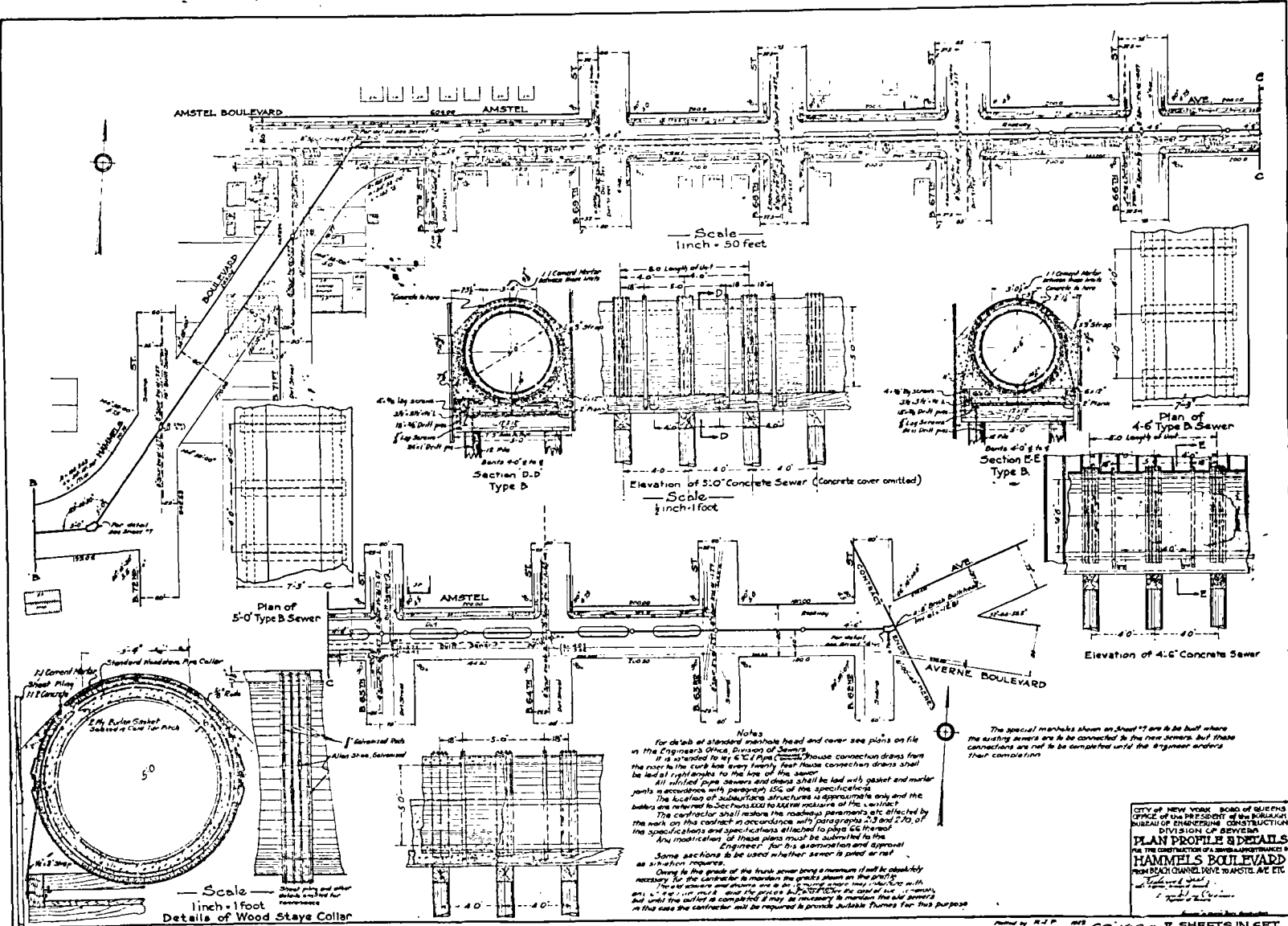


CITY OF NEW YORK, BOROUGH OF QUEENS  
 OFFICE OF THE PRESIDENT OF THE BOROUGH  
 BUREAU OF ENGINEERING CONSTRUCTION  
 DIVISION OF SEWERS

**PLAN PROFILE & DETAILS**  
 FOR THE CONSTRUCTION OF A SEWER AND APPURTENANCES IN  
**HAMMELS BOULEVARD**  
 FROM BEACH CHANNEL DRIVE TO AMSTEL AVENUE  
 AND IN  
**AMSTEL AVENUE**  
 FROM HAMMELS BOULEVARD TO BEACH 62<sup>ND</sup> STREET  
 FIFTH WARD, BOROUGH OF QUEENS  
 Dated July 6<sup>TH</sup> 1925

*Frederick Seely* approved  
*James J. Barry* approved  
*James J. Barry* approved

EXHIBIT C-7 (continued).



**Notes**

For details of standard manhole head and cover see plans on file in the Engineer's Office, Division of Sewers.

If it is desired to lay 6" C.I. Pipe (Cast-iron) connection drains from the sewer to the curb use every fourth foot House connection drains shall be laid at right angles to the line of the sewer.

All vitrified joint sewers and drains shall be laid with gasket and malar joints in accordance with paragraph 156 of the specifications.

The location of subsurface structures is approximate only and the builder is referred to Sections 222 to 226 of the specifications.

The contractor shall restore the roadway pavements etc. affected by the work on this contract in accordance with paragraphs 233 and 270 of the specifications and specifications attached to plans C-1 through C-7.

Any modifications of these plans must be submitted to the Engineer for his examination and approval.

Some sections to be used whether sewer is paved or not as situation requires.

Being in the grade of the trunk sewer being a minimum it will be absolutely necessary for the contractor to maintain the grade shown on the plan.

The sewer structure and structure are to be in concrete and shall be built with all 4" x 4" or 6" x 6" posts near the pipes and 2" x 4" posts near the cover, but until the outlet is completed it may be necessary to maintain the old sewer in this case the contractor will be required to provide suitable frames for this purpose.

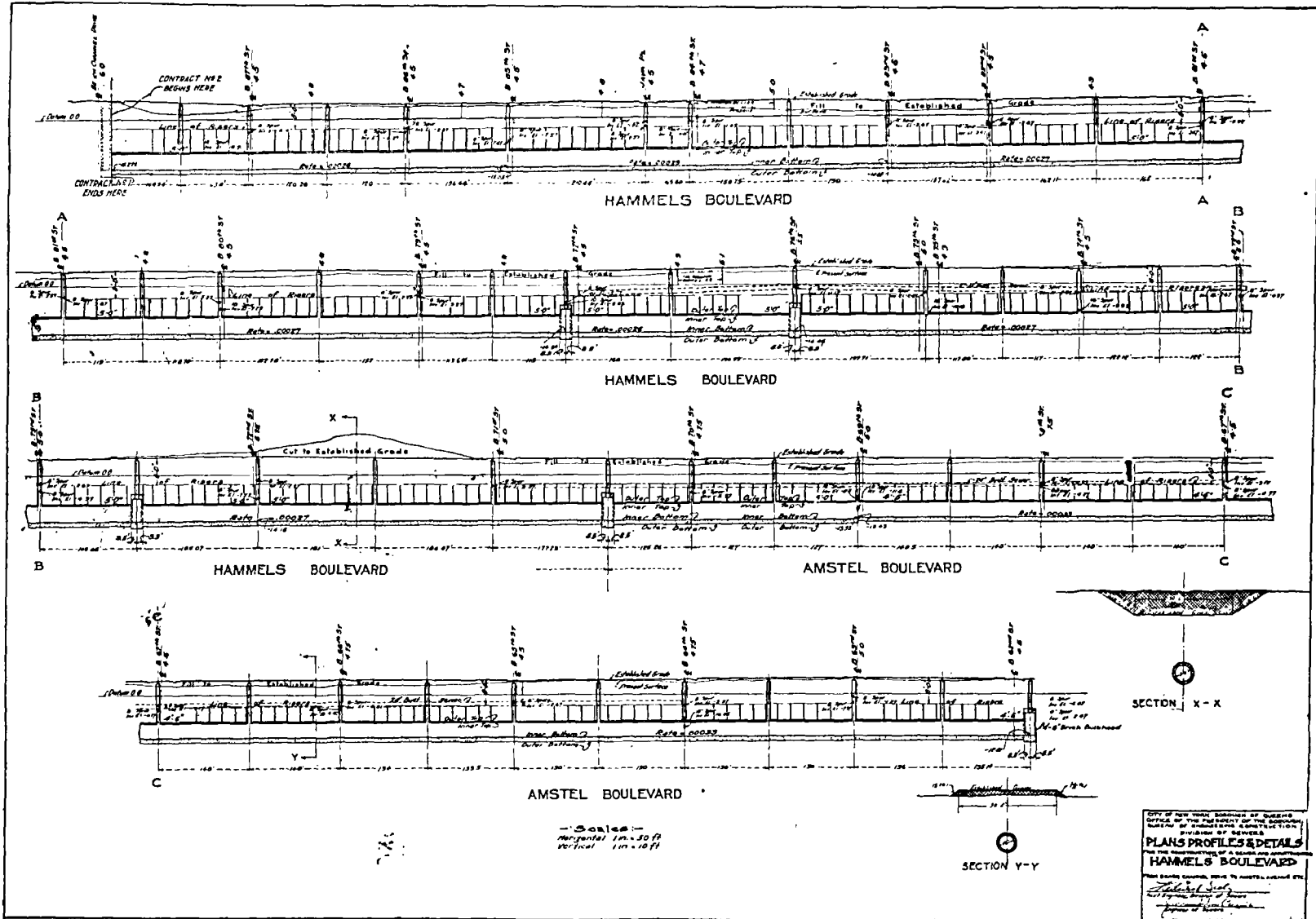
The special marks shown on sheet 17 are to be built where the existing sewers are to be connected to the new sewers but these connections are not to be completed until the engineer orders their completion.

CITY OF NEW YORK BOARD OF SUPERVISORS  
 OFFICE OF THE PRESIDENT OF THE BOARD  
 BUREAU OF ENGINEERING, CONSTRUCTION  
 DIVISION OF SEWERS

**PLAN PROFILE DETAILS**  
 FOR THE CONSTRUCTION OF SEWERAGE IMPROVEMENTS IN  
**HAMMILLS BOULEVARD**  
 FROM BEACH CHANNEL DRIVE TO AMSTEL AVE. ETC.

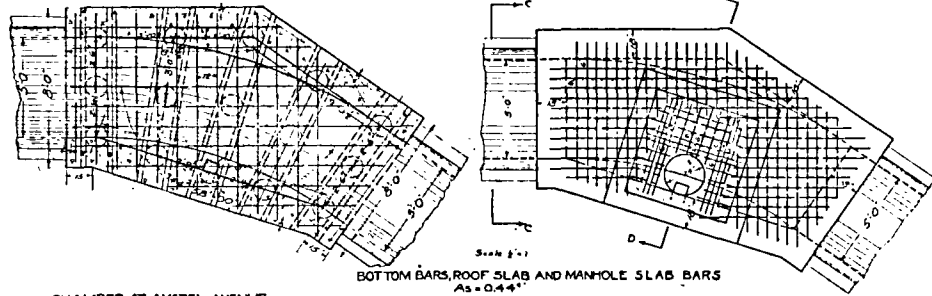
69/1876

EXHIBIT C-7 (continued).

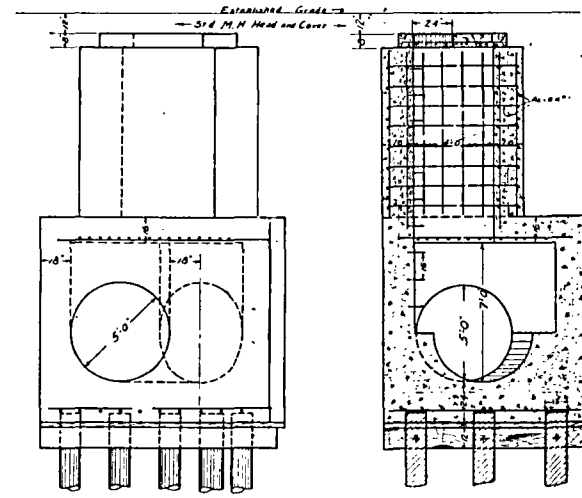


Drawn by R. J. H. 11169-016 3 SHEETS IN SET  
 Traced by 11169-016 SHEET NO. 3

EXHIBIT C-7 (continued).

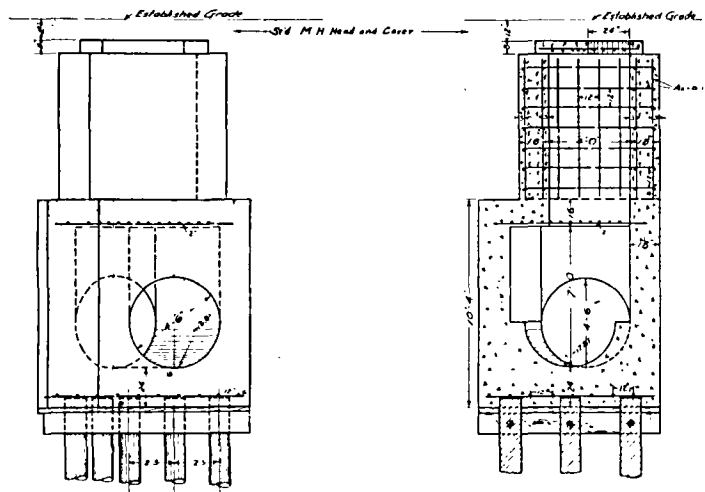


CHAMBER AT AMSTEL AVENUE  
BETWEEN 70<sup>TH</sup> AND 71<sup>ST</sup> STS.



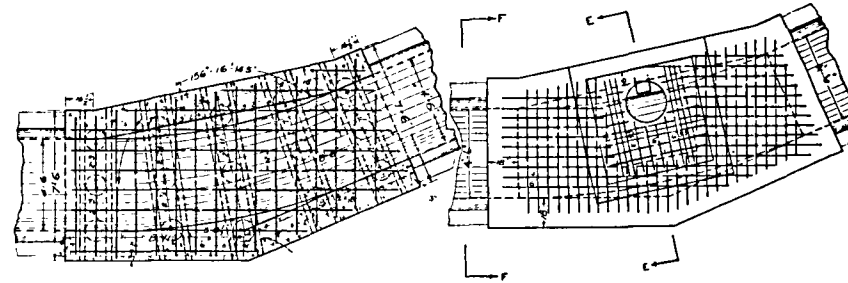
SECTION CC

SECTION DD



SECTION FF

SECTION EE



CHAMBER AT 62<sup>ND</sup> ST AND AMSTEL AVENUE.

CITY OF NEW YORK BUREAU OF SINKS AND  
OFFICE OF THE ENGINEER OF THE BUREAU  
BUREAU OF ENGINEERING CONSTRUCTION  
DIVISION OF SINKS

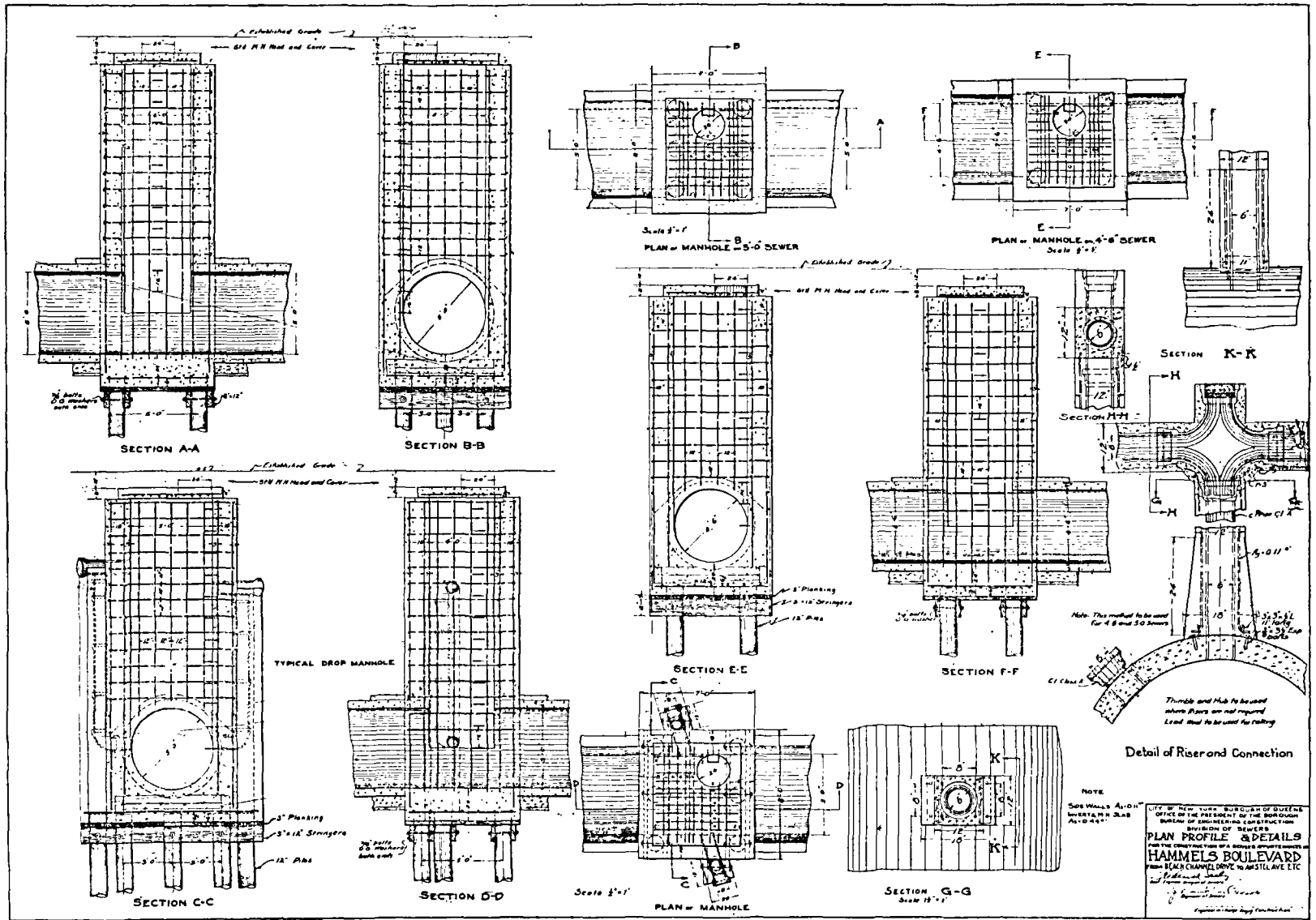
PLAN PROFILE & DETAILS  
FOR THE CONSTRUCTION OF A SEWER AND MANHOLE CHAMBER  
HAMMELS BOULEVARD  
FROM BEACH CHANNEL DRIVE - AMSTEL AVENUE ETC.

*Richard S. Smith*  
Chief Engineer

Designed by A.S.S. 1923  
Drawn 1923  
Checked Feb 16 1923

69-1806 7 SHEETS  
SHEET NO 4

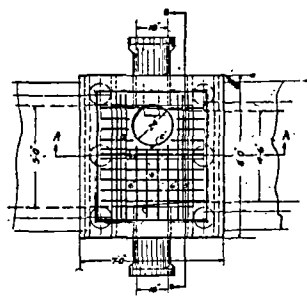
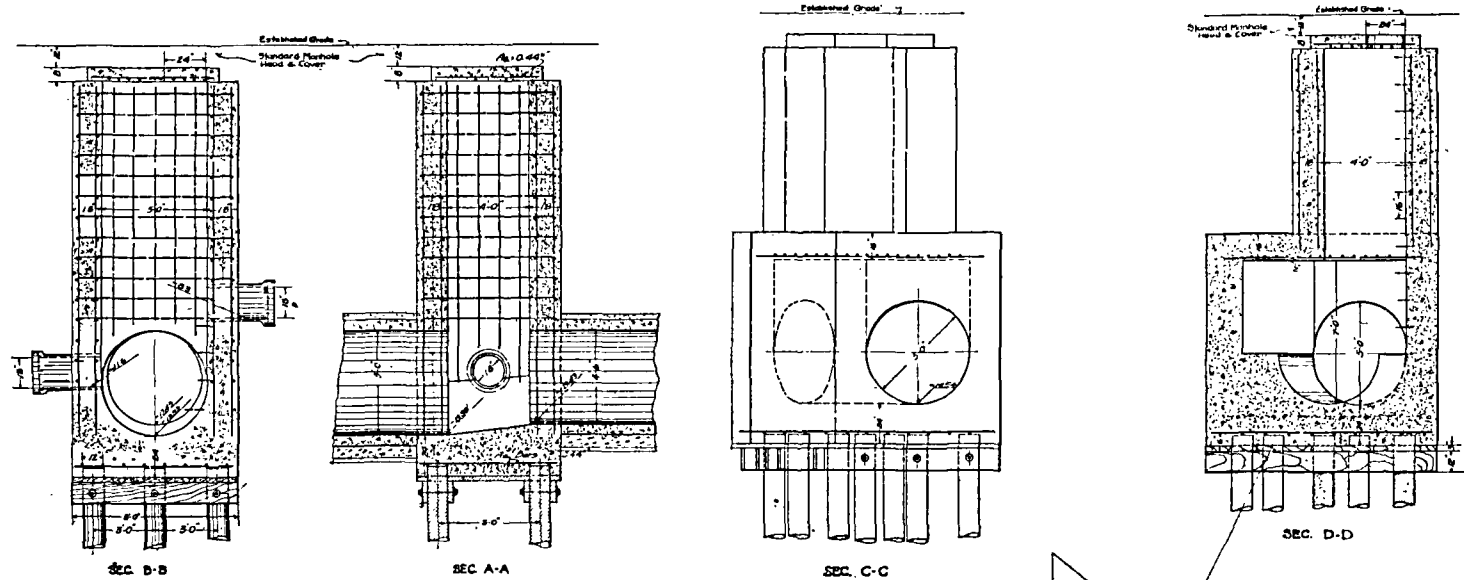
EXHIBIT C-7 (continued).



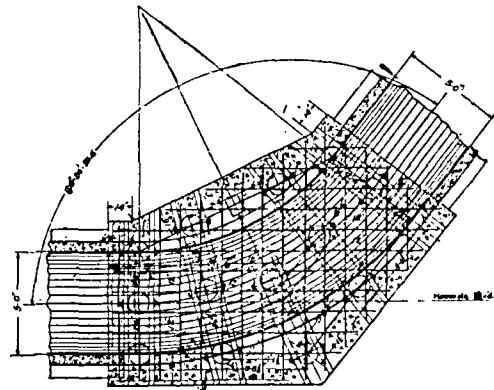
NOTE  
 SEE WALLS A-10"  
 INVERT IN SLAB  
 A-10'-0"

PLAN PROFILE & DETAILS  
 FROM THE CITY ENGINEER'S OFFICE  
 HANMELS BOULEVARD  
 FROM BEACH CHANNEL DRIVE TO AMSTELAVE ETC

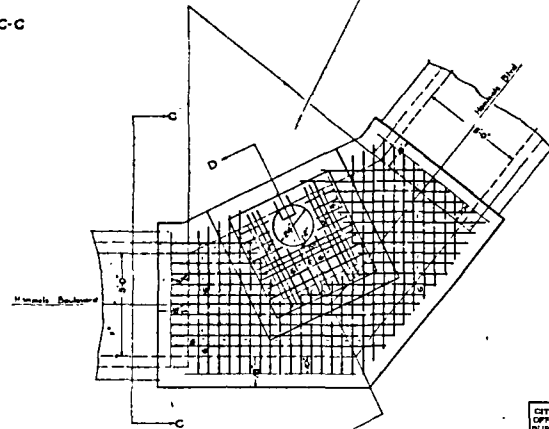
EXHIBIT C-7 (continued).



MANHOLE AT 56th ST & AMSTEL AVENUE



INVERT PLAN OF CHAMBER AT 57th ST & HAMMELS BLVD.



BOTTOM, ROOF SLAB & MANHOLE SLAB BARS As on 4" CHAMBER AT 57th ST & HAMMELS BLVD.

CITY OF NEW YORK BOARD OF QUEEN'S OFFICE of the PRESIDENT of the BOARD BUREAU OF ENGINEERING CONSULTATION DIVISION OF SERVICES

**PLAN PROFILE & DETAILS**  
FOR THE CONSTRUCTION AND MAINTENANCE OF  
**HAMMELS BOULEVARD**  
FROM EACH CHANNEL DRIVE TO AMSTEL AVE. C/C

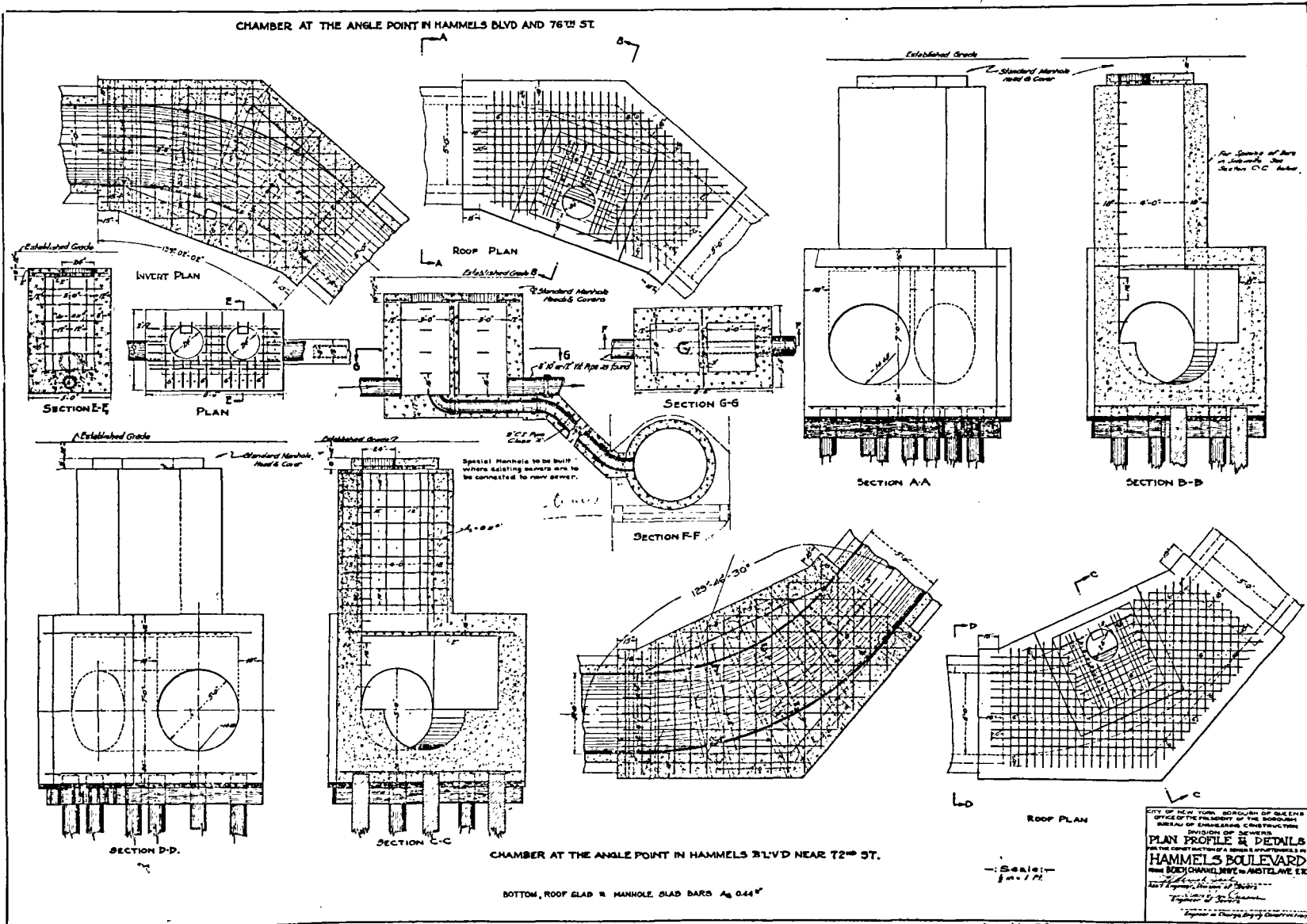
Scale of Plan = 1" = 10'-0"  
Scale of Profile = 1" = 1'-0"

DATE: 10/15/1966

Designed by: J.A.S. —  
Drawn by: J.A.S. —  
Traced by: J.A.S. —  
Checked by: —

69-1806 T SHEETS  
SHEET 106

EXHIBIT C-7 (continued).



CITY OF NEW YORK, BUREAU OF ENGINEERING  
OFFICE OF THE PRESIDENT OF THE BOARD OF  
ENGINEERS AND ARCHITECTS  
DIVISION OF SEWERS  
PLAN PROFILE & DETAILS  
FOR THE GREAT SECTION OF A SEWER LATERAL IN  
HAMMELS BOULEVARD  
FROM BOXING HILL, N.Y. TO ANSELAVE, E.T.C.  
Prepared by the Bureau of Engineering  
Approved by the Board of Engineers and Architects  
Engineer in Charge, Division of Sewers

Scale: 1" = 1'-0"

Designed by... 1923  
Drawn by... 1923  
Checked by... 1923

69-1806 7 SHEETS  
SHEET NO 7



EXHIBIT C-220.

EXHIBIT C-220.

(Contract of Angelo Paino & John M. Phillips, August 9, 1923).

10

LOCK-JOINT PIPE

JOHN M. PHILLIPS

P. O. Box 75

LONG ISLAND CITY, N. Y.

Yard:

20 Maurice Ave. & Broadway  
Elmhurst, Queens Co., N. Y.  
Phone 2170 Newtown

August 9th, 1923.

Mr. Angelo Paino.

#32 Court Street, Bklyn, N. Y.

30 I beg to quote you lock joint reinforced concrete pipe at  
the following prices per lineal foot, and upon the following terms  
and conditions.

	2200	of 24"	at \$2.25
	760	" 27"	" 2.85
	800	" 33"	" 3.85
	631	" 36"	" 4.25
	261	" 39"	" 4.50
40	250	" 42"	" 5.50

Pipe to be used for the sewers in WEISSE AVE. fr.  
Varian Pl. to Myrtle Ave. &c. — JAMAICA AVE. from 185th.  
St. to Hollis Drain &c( & in METROPOLITAN AVE. from  
Azalea St. to Mt. Olivet Ave. &c.

EXHIBIT C-220. (*continued*).

DELIVERY.

The pipe is to be manufactured along the entire length of line of work and turned over on their sides, at the point of manufacture, where delivery is to be taken by you.

10

QUALITY.

I agree that when the pipe is delivered it shall be acceptable to the Borough Engineer and meet the requirements of the specifications for the above work.

20

SEALING FORMS.

I agree to lend you sealing forms making joints between pipes, and it is agreed that the value of these forms are as follows: \$6.00 each.

In case of loss of, or injury or damage to forms, or in case of failure to return same, they shall be paid for by you at the above prices.

30

TERMS.

All pipe laid by you shall be paid for in full immediately after you have received payment. It is further agreed that in addition to the above you shall pay for all pipe, whether laid or not, upon which advance payments have been made to you. It is understood and agreed that title to all pipe shall, remain in J. M. Phillips name, until paid for in full, in cash.

40

You are further to be responsible for any injury or damage to pipe belonging to me, but delivered to you for use upon the work, and shall keep the pipe properly lighted in accordance with local ordinances. Should your work be abandoned,

EXHIBIT C-220. (*continued*).

payment for all pipe manufactured on this contract shall be immediately due and payable.

Each and every one of the foregoing terms is of the essence of this contract.

10

QUANTITIES.

The prices herein are based upon the quantities above written, but these quantities may be changed by written notice to you.

20

It is understood that I will be allowed a reasonable time for the beginning of delivery, and that I will not be responsible on account of delays caused by floods, fires, strikes, or any accidents beyond my control, failure of carriers, or unavoidable delays otherwise occasioned which may interfere with my making delivery.

This agreement to be binding upon the heirs, successors or assignees of both parties.

JOHN M. PHILLIPS.

30

I hereby accept the above proposition and agree to its terms and conditions.

ANGELO PAINO.

40

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EXHIBIT C-159.

EXHIBIT C-159.

*(Contract between The City of New York and Awixa Corporation, for the construction of a sewer and appurtenances in 25th Street from Patterson Avenue to Hayes Ave, Hayes Avenue from 25th Street to 27th Street, and in 27th Street from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens, on Aug. 16, 1923).*

10

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ANNEXES TO CONTRACT

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THE CITY OF NEW YORK — DEPARTMENT OF FINANCE  
OFFICE OF THE COMPTROLLER

20

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CONTRACT SUMMARY

Contractor: AWIXA CORPORATION No. 66597

Names of sureties: Maryland Casualty Co.,

30

Union Indemnity Co.,

United States Fidelity & Guaranty Co.,

Standard Accident Insurance Co.,

Independence Indemnity Co.

Amount of bond: \$180,000.00

Date of award: July 27, 1923 Department Pres. Boro of Queens

40 Date of contract Aug. 16, 1923 Date paid in full 7-27-26

DESCRIPTION OF WORK

For the construction of a sewer and appurtenances in 25th Street from Patterson Avenue to Hayes Ave, Hayes Avenue from

EXHIBIT C-159. (continued).

25th Street to 27th Street, and in 27th Street from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens.

	Original estimate:	\$309,866.85
	A. E.	2,641.05
		<hr/>
		312,507.90
10	A. E.	4,258.00
		<hr/>
		316,765.90

ACCOUNTS TO BE CHARGED

C. F. M. 25.

20 The obligation on this surety bond ceases as to anything occurring after January 31, 1926.

If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after January 31, 1926.

GEORGE W. MORTAR,  
Examiner.

30

LIENS AND ASSIGNMENTS.

Assignment Filed 10-1-23 Awixa Corp. Claire D. Schlesmner  
and James F. Richardson.

CONTRACT.

40

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EXHIBIT C-159. (continued).

PAYMENTS, AMOUNTS RETAINED AND EARNED.

	Date	85% Payments	Amount paid to date	Amount retained to date	Amount earned to date
10	1-14-24	9,811.38	9,811.38	1,731.42	11,542.80
	2-13-24	18,945.22	28,756.60	5,074.70	33,831.30
	3-10-24	9,775.00	38,531.60	6,799.70	45,331.30
	4-14-24	14,015.65	52,547.25	9,273.05	61,820.30
	5- 8-24	12,529.94	65,077.19	11,484.21	76,561.40
	6- 9-24	21,065.89	86,143.08	15,201.72	101,344.80
	7- 8-24	25,472.97	111,616.05	19,696.95	131,313.00
	8- 7-24	19,082.25	130,698.30	23,064.40	153,762.70
20	9-10-24	25,372.58	156,070.88	27,541.92	183,612.80
	Pursuant to Chapter 394 — Laws of 1921				
	10- 2-24	23,064.40	179,135.28	4,477.52	183,612.80
	10- 7-24	32,993.34	212,128.62	10,299.88	222,428.50
	Pursuant to Chapter 394 — Laws of 1921				
	10-31-24	10,299.88	222,428.50		222,428.50
30	11- 6-24	34,885.67	257,314.17	6,156.29	263,470.46
	12- 9-24	24,387.77	281,701.94	10,460.02	292,161.96
	Pursuant to Chapter 394 — Laws of 1921				
	12- 9-24	6,156.29	287,858.23	4,303.73	292,161.96
	1-12-25	16,712.10	304,570.33	7,252.92	311,823.25
	Pursuant to Chapter 394 — Laws of 1921				
40	1-30-25	7,252.92	311,823.35		
	8-28-25	4,258.00			
	9-23-25	364.39	316,445.64	320.26	316,765.90
	7- 9-26	320.26	316,765.90		316,765.90

IN FULL

EXHIBIT C-159. (continued).

CONTRACT #66597  
AWIXA CORPORATION.

10	Date	Retained percent- age payments by	Concrete stock instituted	Concrete stock certified	Date
	1924				
		City			
	Oct. 9	\$23,064.40	\$24,000.00	10/26/25	50000
	Dec. 17	6,156.29	7,000.00	IN FULL	
	1925				
20	Feb. 14	7,252.92	8,000.00		E.J.S.
	1924				
	Nov. 11	10,299.99	11,000.00		
		46,773.49	50,000.00		

30



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EXHIBIT C-159. (*continued*).

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

(Cal. No. 66)

10

WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Newtown District, duly adopted by said Board on the 22nd day of December, 1921, and approved by the Acting President of the Borough of Queens on the 27th day of December, 1921, as follows, to wit:

20

“RESOLVED, That this Board does hereby initiate proceedings for the said local improvement to wit:

“For the construction of a sewer and appurtenances in:— 25TH STREET, from Patterson Avenue to Hayes Avenue; HAYES AVENUE, from 25st Street to 27th Street; and in 27TH STREET, from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens”; and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

30

RESOLVED, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included in the assessment.

40

RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment



EXHIBIT C-159. (*continued*).

may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

10

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on January 26, 1923.

Dated, New York.

(signed) JAMES MATTHEWS

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Assistant Secretary,  
Board of Estimate and Apportionment.

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40

EXHIBIT C-159. (*continued*).

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

(Cal. No. 372-A)

10       A copy of a resolution of the Local Board of the Newtown District, duly adopted by said Board on the 22nd day of December, 1921 and approved by the President of the Borough of Queens on the 27th day of December, 1921, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

“Resolved, That this Board do hereby initiate proceedings for the said local improvement, to wit :

20       “For the construction of a sewer and appurtenances in:—  
25TH. STREET, from Patterson Avenue to Hayes Ave.; HAYES AVENUE, from 25th Street to 27th Street; and in 27TH. STREET, from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens”;

and thereupon, on the 26th day of January, 1923, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolutions, and the said resolutions having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of  
30 Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$390,500; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$7,636,980. having also been presented; it is  
40

EXHIBIT C-159. (continued).

10      **RESOLVED**, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

    A true copy of a resolution adopted by the Board of Estimate and Apportionment.

JUNE 29, 1923.

(Signed) JAMES MATTHEWS,

20    Assistant Secretary,

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EXHIBIT C-159. (continued).

CONTRACT NO. 66597

The City of New York

ADVICE OF AWARD OF CONTRACT

10 (This copy to be retained by Bookkeeping Division,  
Department of Finance)

Dept of PRESIDENT OF THE BOROUGH OF QUEENS.

\*Date July 27, 1923

Comptroller of the City of New York :

20 Please take notice that the following described contract  
has this day\* been awarded to Contractor Awixa Corporation,

Address Islip, N. Y.

	Sureties Maryland Casualty Company	36,000
	Union Indemnity Co.	36,000
	U. S. Fidelity & Guaranty Co.	36,000
30	Standard Accident Insurance	36,000
	Independence Indemnity Co.	

Amt. of bond \$180,000.00

DETAILS OF PURPOSE OF CONTRACT

40 For the construction of a sewer and appurtenances in:  
25th Street from Patterson Avenue to Hayes Avenue, Hayes  
Avenue from 25th Street to 27th Street, and in 27th Street from  
Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens.

EXHIBIT C-159. (continued).

TYPE "B"

	Contract Chargeable to Code No.	Estimated Amount	Contracts Previously Awarded (Including Adjustments)	Open Market Orders Issued To Date (Including Adjustments)	Misc. Vouchers, Payrolls, and Other Charges
10	C. F. M. 25	309,866.85	3,328,766.79	5, 869.86	60,912.97

Enter full titles of accounts and refer to code numbers by means of line numbers in margin.

Street Improvement Fund.

Yours respectfully,

20

MAURICE E. CONNOLLY,

President, Borough of Queens, *Head of Dept.*

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\* This will be the date of the entry by which the fund is charged with the estimated amount of the contract both in the department making the award and by the Department of Finance.  
30 There must therefore be no delay in forwarding this advice.

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EXHIBIT C-159. (*continued*).

NOTICE.—Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

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10 No. 3

CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

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20

BUREAU OF SEWERS

1923

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ASSESSMENT WORK

30

Proposal for Bids, Bid, Bond, Agreement and Specifications for the construction of a sewer and appurtenances in 25TH STREET from Patterson Avenue to Hayes Avenue; HAYES AVENUE from 25th Street to 27th Street, and in 27TH STREET from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens, together with all the work incidental thereto.

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40

NOTICE TO BIDDERS.

Bidders are invited to tender bids on monolithic plain concrete sewers from 27-inches upward, these sewers being the standards of the Sewer Department and hereafter designated as Type "A", or on reinforced concrete pipe sewer from 24-inches upward (precast) which will be designated as Type "B", or on

EXHIBIT C-159. (*continued*).

both types, if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Types "A" and "B".

NOTICE TO BIDDERS.

10

Prices to be paid by The City of New York for indeterminate quantities, such as

ROCK EXCAVATION .....	8.00	Per Cu. Yd.
CLASS "A" CONCRETE .....	15.00	" " "
REINFORCING STEEL .....	.06	Per Lb.
20 STRUCTURAL STEEL .....	.08	" "
FOUNDATION TIMBER .....	70.00	Per 1000 Ft. B. M.
SHEETING & BRACING .....	20.00	" " " " "
PILING (TIMBER) .....	1.00	Per Ft. driven and cut-off
STEAMS CENDERS (Delivered & Placed)	1.25	Per Cu. Yd.

30 Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in The City of New York, until 11 o'clock a. m. on Thursday July 19th, 1923.

40

Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be Two Hundred (200) CONSECUTIVE WORKING DAYS.

EXHIBIT C-159. (continued).

Security required.

3. The amount of security required will be One Hundred Eighty Thousand Dollars (\$180,000.00).

Bidders referred to, form of agreement, etc.

10 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Price for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

20 Engineer's estimate.

TYPE "A" (OR SEWER DEPT. STANDARD).

- 3,913 Linear Feet 7'-6" Reinforced Concrete Sewer
- 1,450 Vertical Feet Risers for H. C. Drains
- 30 78 Six-inch Spurs 24" long on Reinforced Concrete Sewer
- 110 Linear Feet 6" Vitrified Pipe, House Connection Drains
- 943 Linear Feet 12" Vitrified Pipe, Basin Connections
- 525 Linear Feet 10" Vitrified Pipe, Basin Connections
- 18 Manholes and Drop Manholes
- 40 22 Basin Manholes
- 34 Inlets
  - 1 Chamber at 34th Ave. & 82nd St., Complete
  - 1 Chamber at 34th Ave. & 84th St., Complete



EXHIBIT C-159. (*continued*).

- 1 Chamber at 37th Ave. & 84th St., Complete  
(including the 24-inch pipe and new manhole, as shown)

T Y P E "B"

- 10 3,913 Linear Feet 7'-6" Reinforced Concrete Pipe Sewer  
(Precast Type "B")
- 1,450 Vertical Feet Risers for H. C. Drains
- 78 Six-inch Spurs 24" long on Reinforced Concrete Pipe  
Sewer (Precast Type "B")
- 110 Linear Feet 6" Vitrified Pipe, House Connection Drains
- 20 943 Linear Feet 12" Vitrified Pipe, Basin Connections
- 525 Linear Feet 10" Vitrified Pipe, Basin Connections
- 18 Manholes and Drop Manholes
- 22 Basin Manholes
- 34 Inlets
- 30 1 Chamber at 34th Ave. & 82nd St., Complete
- 1 Chamber at 34th Ave. & 84th St., Complete
- 1 Chamber at 37th Ave. & 84th St., Complete  
(including the 24-inch pipe and new manhole, as shown)

Personal examination of work.

- 40 5. The foregoing Engineer's Estimate *is approximate only* and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings

EXHIBIT C-159. (*continued*).

thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.

- 10 Prices to be stated in writing and in words and in figures.

6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

- 20 Prices bid to cover.

7. The prices bid must cover the cost of furnishing *all necessary materials and labor for and the complete performance of all the work* set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

Rock excavation.

- 30 8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

Bids may be rejected.

- 40 9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

EXHIBIT C-159. (*continued*).

Times and places for commencing and prosecuting work to be determined by the President.

10        10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

20        11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

30        12. No bid will be received or considered unless accompanied by either a certified check upon one of the National or State Banks or Trust Companies of The City of New York, or a check of such bank or trust company signed by a duly authorized officer thereof, drawn to the order of the Comptroller, or money or corporate stock or certificate of indebtedness of any nature issued by the City of New York, which the Comptroller shall approve as of equal value with the security required, to an amount of five per centum of the amount of the bond required for the faithful performance of the contract (as provided by section 420 of The Greater New York Charter, as amended). Such  
40        check or money or other form of security must not be inclosed in the sealed envelope containing the bid, but must be handed to the officer or clerk who has charge of the bidding, and no bid shall be deposited in the box provided for that purpose until such check or money or other form of security has been examined by said officer or clerk and found to be correct. All such deposits, except those of the lowest three bidders, will be returned to the

EXHIBIT C-159. (*continued*).

10 persons making the same within 10 days after the opening of the bids; within three days after the awarding of the contract, the remaining deposits, except that made by the bidder whose bid has been accepted, will be returned to the persons making the same. If the successful bidder shall refuse or neglect to execute the contract within five days after notice that it has been awarded to him, and that the adequacy and sufficiency of the security offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York, but if he shall execute the contract and furnish the required security within the time aforesaid, the amount of his deposit will be returned to him.

Names of persons interested.

20 13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also, that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety  
30 or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

40 14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from

EXHIBIT C-159. (*continued*).

the date of the service of a notice to the effect that the contract has been so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

- 10      15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

20                                      MAURICE E. CONNOLLY,  
President of the Borough of Queens.

The City of New York ..... 192...



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EXHIBIT C-159. (*continued*).

THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

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BUREAU OF SEWER

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20 CONTRACT FOR the construction of a sewer and appurtenances in 25TH STREET from Patterson Avenue to Hayes Avenue; HAYES AVENUE from 25th Street to 27th Street, and in 27TH STREET from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens, together with all the work incidental thereto.

Parties.

30 THIS AGREEMENT, made and entered into this 16th day of August, in the year one thousand nine hundred and 23 between The City of New York, party of the first part, by the President of the Borough of Queens, and Awixa Corporation, of Islip, L. I., Contractor, party of the second part, pursuant to the provisions of The Greater New York Charter, and the resolution of The Board of Estimate and Apportionment adopted on the 26th day of January, 1923, of which resolution the following is a copy:

40 Covenant.

WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party

EXHIBIT C-159. (*continued*).

of the second part for itself, himself, of themselves, and its, his or their executors, administrators, successors and assigns, as follows:

Contract.

10 I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the Plan of the Work dated June 6th, 1923, filed in the office of the President of the Borough, entitled: Plan, Profile and Details for the construction of a sewer and appurtenances in: 25TH STREET from Patterson Avenue to Hayes Avenue; HAYES AVENUE from 25th Street to 27th Street, and in 27TH STREET from Hayes Avenue to Polk Avenue, Second Ward, Borough of Queens, and also Drawings of Standard Details  
20 pertinent thereto on file in the office of the Engineer.

Party of the first part.

II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, of the President of the Borough of Queens, or his authorized representative.

30 Party of the second part.

Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

Engineer described.

40 III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises, limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

EXHIBIT C-159. (*continued*).

Terms defined.

10 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawing pertinent thereto. Whenever it is provided that anything is "to be" or "to be done", "if" or "as", or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

20 V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof:

30

T Y P E "B"

Prices.

Linear Feet 7'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Sixty eight 70-100 Dollars (\$68.70).

40

Vertical Feet Risers for House Connection Drains, Per Vertical Foot, Four 00-100 Dollars (\$4.00).

Six-inch Spurs 24" long on Reinforced Concrete Pipe Sewer (Precast Type "B"), Each, One 00-100 Dollar (\$1.00).



EXHIBIT C-159. (*continued*).

Linear Feet 6" Vitrified Pipe, House Connection Drains, Per Linear Foot, Three 25-100 Dollars (\$3.25).

Linear Feet 12" Vitrified Pipe, Basin Connection, Per Linear Foot, Four 00-100 Dollars (\$4.00).

10 Linear Feet 10" Vitrified Pipe, Basin Connection, Per Linear Foot, One 25-100 Dollars (\$1.25).

Manholes and Drop Manholes, Complete, Each, Seven hundred ninety five 00-100 Dollars (\$795.00).

Basin Manholes, Complete, Each, Two hundred 00-100 Dollars (\$200.00).

20 Inlets, Complete, Each, Fifty five 00-100 Dollars (\$55.00).

Chamber at 34th Ave. and 82nd St., Complete, Thirty six hundred Dollars (\$3600.00).

Chamber at 34th Ave. and 84th St., Complete, Thirty two hundred Dollars (\$3200.00).

30 Chamber at 37th Ave. and 84th St., (including 24" pipe and new manhole as shown), Complete, Three thousand Dollars (\$3,000.00).

Quantities are approximate only.

No extra compensation.

40 VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only. The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such

EXHIBIT C-159. (*continued*).

statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several  
10 classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

Sewers, etc., to be built as shown on the plan.

VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on the plan of the work as the same will be designated on the ground by the Engineer.

20 Line may be changed.

The President may change the line of the sewer or the location of the basin, manholes, inlets, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby agrees to make no claim for damages or extra compensation on account thereof.

30 Preservation of points, stakes, etc.

The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for and to remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

40 Written order for extra work.

VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given

EXHIBIT C-159. (*continued*).

before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five (5) per cent, of the contract price or the total cost of the work and materials.

10 Contract may be modified

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substances thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

Limit to extras.

- 20 All claims for additional work or materials in any month shall be made to the Engineer; in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

Inspection.

- 30 Work or materials may be condemned at any time.

- 40 IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfilment of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further

EXHIBIT C-159. (*continued*).

agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

10

Engineer to be final arbiter.

X. To prevent all dispute and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive upon the Contractor; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

20

Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

30

Work and materials must agree with specifications.

XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written

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EXHIBIT C-159. (*continued*).

notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under his contract.

10 Examination.

During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the opening disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

20

Use of patented articles.

XII. Wherever an article or any kind of material is specified by trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the condition to secure which shall be prescribed by the Board of Estimate and Apportionment."

30

40 Claims for infringement.

The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will save harmless and indemnify The City

EXHIBIT C-159. (*continued*).

all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

Commencement and completion.

10 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor without notice shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

20 Time of performance.

XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner: and he will fully and entirely perform this contract on his part before the expiration of Two Hundred (200) CONSECUTIVE WORKING DAYS.

30 Time important.

40 It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during

EXHIBIT C-159. (*continued*).

10 such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered  
20 in the prosecution of said work, then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

30 End of time period.

The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

Liquidated damages.

40 XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of Thirty 00/100 Dollars (\$30.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of

EXHIBIT C-159. (*continued*).

delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due under this contract.

10 Work not provided for in contract.

XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing  
20 such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the  
30 roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay due to other contracts.

XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor  
40 nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract: if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of



EXHIBIT C-159. (*continued*).

the work or any part thereof being suspended as hereinbefore provided, such allowance of time on account thereof as the President shall deem reasonable will be made.

10 If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing the work for The City, the President, or whoever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

20 Allowance of time for delays.

XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.

30 Right to construct sewers, etc.

Permits for connections.

40 XX. Prior to the commencement of and during the progress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII, and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract

EXHIBIT C-159. (*continued*).

10 or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstruction in the way of such persons as may be employed in building such sewers and drains, or in making such connections, and the flow from such  
10 sewers, drains and connections will be permitted by the Contractor to discharge into the work built under his contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined  
20 to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

30 XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When  
40 the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or

EXHIBIT C-159. (*continued*).

10 the trenches in which it is to be constructed, follow the line, and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work.

20 During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

Sale of sand or earth.

30 XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable under the provisions of the specifications hereof; but if it be unsuitable, then the same shall be removed from the line of the work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

40 The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the

EXHIBIT C-159. (*continued*).

Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

10 Contractor to give personal attention to work.

Not to assign or sublet.

20 XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the written consent of the President.

40 When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions,

EXHIBIT C-159. (*continued*).

orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

Contractor to plank and bridge for traffic.

XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

Guards and lights.

Indemnification of City.

XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work or in guarding the same; or from any improper materials used in its prosecution, or by or on account of any act or omission of the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, at its option, be retained by

EXHIBIT C-159. (*continued*).

The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

Contractor to make repairs.

10 XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due under this contract.

20 Loss or damage to be assumed by Contractor.

30 XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

40 XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain — anything herein contained to the contrary

EXHIBIT C-159. (*continued*).

thereof notwithstanding — from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought or that may be brought to enforce such claim or the lien created by the filing of such notice. 10 The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

Contractor will prevent filing of liens, etc.

20 XXX. The Contractor will not, at any time suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to retain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

Evidence of satisfaction of liens, etc.

30 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

Notice to gas companies, etc.

40 Not to hinder other companies.

XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad, and other companies owning or con-

EXHIBIT C-159. (*continued*).

10 trolling any pipe, tracks or other structures which during the  
progress of the work any be affected by the prosecution of the  
same so that said companies may protect or remove their struc-  
tures, and he will not cause any hindrance to, or interference  
with, any such gas company or other company or companies in  
protecting their said pipes, tracks or other structures, nor in  
removing or otherwise protecting and replacing the main and  
service pipes, lampposts, lamps, tracks or other structures where  
necessary, but the Contractor will suffer the said company or  
companies to take all such measures as are requisite for the pur-  
pose aforesaid. But if said as, railroad, or other companies,  
within five days after receipt of such notice, fail to support, re-  
move or otherwise protect their structures, the Contractor will  
upon the approval of the President protect or remove the same, it  
being expressly understood that the cost thereof shall not be a  
charge against The City, but shall be a matter for adjustment  
20 between the Contractor and the company or companies concerned.

Pipes, conduits, etc., of private companies.

30 XXXII. It is hereby agreed that The City is not res-  
ponsible or liable for the support, protection or reconstruction of  
such gas pipes, conduits, water pipes, tracks or structures owned  
by private companies enjoying special franchises or occupying  
any portion of the street or way on or below the surface in its  
streets or ways, as the Contractor admits that he has carefully  
examined the location of work, has made special inquiry at the  
offices of the companies owning, controlling or operating said  
pipes, conduits, tracks and structures, and he has determined to  
his satisfaction the character, size, location and length of such  
pipes, conduits, tracks and structures; that he has inspected the  
public records of the various City Departments having cognizance  
and control of pipes, conduits, and other subsurface structures,  
and of The City's water pipes, conduits and sewers, and he has  
made such further personal inspection and investigation as he  
deemed proper to determine the correctness of the information so  
40 obtained; and he clearly understands that The City does not  
insure the accuracy of such reports or information, and agrees  
that he will not make any claim against The City for damages or  
extra work caused or occasioned by his relying upon such records,  
reports or information furnished by any City Department or any  
companies, either as a whole or in part.



EXHIBIT C-159. (*continued*).

Protection and restoration of pipes, etc., in private companies.

10 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures, and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, removing or restoring the said pipes, conduits, tracks or other structures.

20 XXXIII-a. If the paving between and for a distance of two (2) feet in width outside the tracks of any street railroad company is disturbed by the work of this contract, the Contractor shall restore, at his expense, the said pavement, and replace same in good condition to the satisfaction of the Engineer in charge, notwithstanding anything hereinbefore, or hereinafter mentioned in these specifications.

Contractor to notify Department of Water Supply,  
Gas and Electricity.

30 XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

40 XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any

EXHIBIT C-159. (*continued*).

water pipes or appurtenances, owned or controlled or operated by The City, to removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

10 Protection of City's water pipes, etc.

20 XXXVI. The Contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes, and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

30 XXXVII. The Contractor agrees to sustain in their places and protect all water or gas mains, conduit, subways or service pipes, steam pipes and pneumatic pipes, that may be adjacent to his work but entirely outside of the lines of the excavations as required by the specifications and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or struc-

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EXHIBIT C-159. (*continued*).

10 tures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

Old water and gas pipes.

20 XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

Change of grade.

30 XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which there is no contract price, the provisions in relation to work not provided for in this contract shall apply.

Measurement of work and material.

40 XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part of the work, or of the materials be less than those required by the plan, the actual quantities only will be allowed in measurement.

EXHIBIT C-159. (*continued*).

Payment on acceptance of work.

10 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations  
20 hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retained for repairs to unpaved streets.

30 It is hereby further agreed that The City shall be and is hereby authorized to retain out of the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06/100 for each linear foot of sewer, basin connection, constructed under this contract within unpaved streets, and the sum of \$. . . . . for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done under this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

40 Payment of retained moneys to be made after six months.

It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

EXHIBIT C-159. (*continued*).

Termination of six months' period.

10 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

20 XLII. The action of the Engineer in Charge of Sewers, by which the Contractor is to be bound and concluded according to the terms of this contract, shall be that evidenced by said Engineer's final certificate. all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

30 XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over the Engineer shall from time to time, as the work progresses, but not oftener than once a month, make in writing an estimate, such as in his opinion, shall be just and fair, of the amount of the work done and material installed by the Contractor in the performance of this contract on his part, and of the value thereof under and according to the terms of this contract. No allowance will be made in these estimates for materials furnished and delivered until such materials shall have been permanently incorporated in the work, except as hereinafter stated. The first such estimate will be of the amount of work done and materials furnished and installed since the Contractor  
40 commenced the performance of this contract on his part, and every subsequent estimate except the final one, will be of the amount of work done and materials furnished and installed since the last preceding estimate was made. In the estimates allowances will be made for Reinforcing Steel, Structural Steel, Pumps, Electric Motors, Valves, Cast Iron Pipe, Salt Glazed Tile

EXHIBIT C-159. (*continued*).

Pipe 12 inches in diameter and larger sizes, Precast Concrete Pipe 24 inches in diameter and larger sizes, Stationary Screens, Mechanically Driven Screens, Cast Iron Tunnel Lining and Precast concrete Blocks for Tunnel Lining, prior to their installation, which are owned by the Contractor and free from all liens or claims, and which have been delivered at locations where work is to be performed under this contract. Such allowances will be  
10 calculated at Eighty (80) per cent of the cost price for said materials. But no allowances will be made for those materials delivered which are in excess of the quantities permitted under the specifications to be distributed along the lines of the work. The Contractor will be required to furnish, prior to the certification for payment, written evidence satisfactory to the Borough President that the Contractor is the owner of the materials upon which payment is to be certified, and that such materials are free from liens or claims. Before certifying for payment for  
20 materials aforesaid, the Contractor shall execute or have executed and delivered to The City any and all instruments required to vest in The City title to such materials free from claims or liens. Title to materials certified for payment shall vest in The City upon certification of the same for payment. The Contractor, however, agrees to and does assume responsibility for the safety, care and protection of all such materials until they have been finally installed in the work and the completed work accepted by the City, and further agrees at his own cost to replace any such materials that may be lost or damaged. The aforesaid  
30 estimates of amount and quantity will not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one and partly by the other, and it shall be sufficient if they are approximate only and estimates strictly so called. Upon each such estimate, made prior to the time of the completion of all the work of laying all the sewers and appurtenances and the backfilling of trenches, said estimate being certified in writing by the Borough President and Engineer and filed with the Comptroller, The City will pay to the Contractor eighty-five per centum of the amount stated in  
40 such estimate to be the value of the work therein certified to have been done and materials certified therein to have been furnished and installed, and eighty-five per cent of eighty per cent of the cost not exceeding the contract value of materials not installed hereinabove specified except that subsequent to the completion

EXHIBIT C-159. (*continued*).

10 of all the work of laying all the sewers and appurtenances and the backfilling of the trenches, The City will pay to the Contractor eighty-five per centum of the value of the work done and materials furnished under the contract as certified in each such estimate, shall amount to more than fifteen hundred dollars (\$1500.) and provided, that The City pay at all times reserve and retain out of said installments, or any of them, such sum  
20 sums as by the terms hereof, or of any act of the Legislature of the State of New York, or of any ordinance of The City passed prior to the date hereof, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by  
30 the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

If abandoned, etc.

Contract may be declared abandoned.

30 Completion of work to be undertaken by President.

40 XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (see Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof

EXHIBIT C-159. (*continued*).

abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV, or with any employee found on the work, and the Contractor agrees to thereupon dis-  
10 continue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work de-  
20 clared abandoned and to use such plant and materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion  
30 of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated  
40 damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to dis-  
continue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plan or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City  
or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this



EXHIBIT C-159. (*continued*).

10 clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

20 Notice to Contractor.

30 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to proclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

40 Labor Law.

XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be

EXHIBIT C-159. (*continued*).

permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or  
10 mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provision of section 222 of the Labor Law.

No estoppel.

XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other  
20 officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do  
30 not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

Understanding of plans and specifications.

XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof,  
40 together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as

EXHIBIT C-159. (*continued*).

10 to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions; and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

Substitution of Sureties.

20

XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

30 Laws 1916, Chap. 478.

L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of and keep insured during the life of this contract the employees engaged thereon, in compliance with the provisions of Chapter 41 of the Laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

40

IN WITNESS WHEREOF, The President of the Borough of Queens for and on behalf of The City of New York, and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with

EXHIBIT C-159. (*continued*).

the Comptroller of The City of New York, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,

10

By BENJAMIN MARIUN,

Acting President of the Borough of Queens.

AWIXA CORPORATION,

Contractor.

20

By Claire D. Schlemmer,

President.

30

The City and State of New York, ss. :  
County of Queens,

On this 7th day of Sept., 1923, before me personally came Benjamin MARIUN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the foregoing instrument, and he acknowledged to me that he executed the same as said Acting President for the purposes therein mentioned.

40

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

EXHIBIT C-159. (*continued*).

Certificate of acknowledgment of Contractor, if a corporation.

The City and State of New York, ss.:  
County of Queens

10           On this 16th day of August, 1923, before me personally  
came Claire D. SCHLEMNER to me known, who being by me  
duly sworn, did depose and say that he resides in the City of  
Islip, N. Y., and is the President of AWIXA CORPORATION,  
the corporation described in, and which executed the foregoing  
instrument, that he knows the corporate seal of said company;  
that the seal affixed to the foregoing instrument is such cor-  
porate seal; that it was so affixed by order of the Board of  
Directors of said company and that by like order he thereto  
20 signed his name and official designation.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

30

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40

EXHIBIT C-159. (*continued*).

KNOW ALL MEN BY THESE PRESENTS, That we  
AWIXA CORP. hereinafter called the "Contractor", and

	Standard Accident Insurance Co.	\$36,000
	Independence Indemnity Co.	\$36,000
10	Union Indemnity Co.	\$36,000
	Maryland Casualty Co.	\$36,000
	U. S. Fidelity & Guaranty Co.	\$36,000

are held and firmly bound unto The City of New York, in the  
sum of One hundred eighty thousand DOLLARS, lawful money  
of the United States of America, to be paid unto THE CITY OF  
20 NEW YORK, or to its certain attorneys, successors or assigns;  
for which payment, well and truly to be made, we and each of  
us do bind ourselves, and our several and respective heirs, execut-  
ors, administrators and assigns, jointly and severally, firmly  
by these presents.

Signed, sealed and dated this 16th day of August, 1923.

30 WHEREAS, The above bounden Contractor, by an instru-  
ment in writing, signed by said contractor, and bearing even date  
with these presents, one part whereof is hereto annexed, has con-  
tracted with The City of New York, by the President of the  
Borough of Queens, to furnish all the labor and materials, and  
to excavate for, build, construct and in all respects complete  
sewer in 25th Street, from Patterson Ave to Hayes Ave, etc.,  
Second Ward, together with all the work incidental thereto, as is  
fully and at large set forth and described in the contract afore-  
said.

40 NOW, THEREFORE, The condition of the above  
obligation in such that if the said above bounden Contractor and  
its, his or their heirs, executors, administrators and assigns, or  
any or either of them, shall well and truly, and in a good, suffi-  
cient and workmanlike manner, perform or cause to be performed  
the said contract, and each and every of the covenants, promises,  
agreements and provisions therein contained to be performed by  
said contractor and complete the same within the period therein

EXHIBIT C-159. (*continued*).

stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

AWIXA CORPORATION [L. S.]

Contractor.

10

By Claire D. Schlemmer, President.

Sureties:

United States Fidelity and Guaranty Company,

By E. MASCAR,

Attorney-in-Fact.

20

Attest Adolphus A. JACKSON,

Attorney-in-Fact.

#276546-23

Maryland Casualty Company,

Attorney-in-Fact.

30

Independence Indemnity Company,

By WALTER H. DUFF,

Resident Vice-President.

Attest: H. CORCORAN,

Resident Assistant Secretary.

40

Standard Accident Insurance Company,

Resident Vice-President.

Attest H. D. HEINLEIN,

Resident Assist. Secretary.

Union Indemnity Company,

Vice-President.

Attest: EDWARD J. HOLLIGAN,

Attorney-in-Fact.

EXHIBIT C-159. (*continued*).

THE CITY AND STATE OF NEW YORK, ss :  
COUNTY OF QUEENS,

10 On this 16th day of August, 1923, before me personally came Claire D. SCHLEMNER, to me known, who being by me duly sworn, did depose and say that he resides in Islip, N. Y., that he is the President of the Awixa Corporation, the corporation described in, and which executed the above instrument, that he knows the corporate seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Corporation and that by like order he thereto signed his name and official designation.

JEFFERSON J. REILLY

20

Commissioner of Deeds, New York City.

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FUNDS

PRESIDENT'S CERTIFICATE

30

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Funds O. K. R.

40 It is hereby certified that the estimated cost of the work and materials required by the within contract is Three hundred nine thousand eight hundred sixty six 85-100 DOLLARS (\$30,866.85), and is chargeable to the Street Improvement Fund of The City of New York.

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

THE CITY OF NEW YORK, Sept. 7th, 1923.



EXHIBIT C-159. (continued).

SPECIFICATIONS.

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TRENCHES

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10

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraphs 127 and 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed, each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

30

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where shown on the plan or directed. Sheeting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

40

EXHIBIT C-159. (*continued*).

Sheeting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheeting shall be closely driven and to such depth below the bottom of the sewer as may be directed.

10 Tunneling.

4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

Trees and stumps.

20 5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

Roadway, sidewalks, etc., to be kept clear.

30 7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary, a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in  
40 satisfactory condition, and the work shall at all times be so conducted as to cause a minimum of inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

EXHIBIT C-159. (*continued*).

Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

Fence.

9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

Disposal of water from trenches.

11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

Cost to be covered.

12. The cost of all labor required to be done and all materials required to be furnished in the performance of all of the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EXHIBIT C-159. (*continued*).

EARTH EXCAVATION.

13. Earth excavation shall include the removal of all material other than rock as hereinafter defined.

10 Width of trench for sewers, etc.

14. The minimum widths of trenches in earth for pipe sewers, basin connections, and house connections not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs; and all such trenches shall have a clear width equal to the maximum width of the cradles of the sewers to be laid in them, when such cradles are wider than the minimum widths herein specified. The minimum widths of trenches in earth, inside the sheeting, for other sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

15. Where a riser, manhole or other appurtenance of the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

16. The minimum dimensions of the excavation in earth, for brick basin manholes and inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes and inlets shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown

EXHIBIT C-159. (*continued*).

on the plan and where the conditions are such as to make it necessary to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

10

Cost to be covered.

18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

20

ROCK EXCAVATION

19. Rock excavation shall include the excavation and removal of the following materials:

(a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

30

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

40

Width of trench.

Rock excavation for basin manholes, etc.

21. The required width of trench in rock for pipe sewers, basin connections & house connections will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs

EXHIBIT C-159. (*continued*).

and hubs. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with vertical sides and a horizontal section 1 foot wider on each side than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for basin manholes & inlets will be such as to give a clearance of 1 foot on all sides above their foundation.

Depth of trench.

22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

Measurements.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

Excavation for branches.

25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock

EXHIBIT C-159. (*continued*).

excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

10 Exposed structures to be protected.

27. All exposed sewers, manholes, receiving basins and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

Price to cover.

20 28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

BACKFILLING.

Backfilling around sewers, etc.

30 29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection, or house connection, the materials for backfilling trenches as excavated shall be clean earth, or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

40 Backfilling for remainder of trench.

30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This back-

EXHIBIT C-159. (*continued*).

filling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

Backfilling around basin manholes, etc.

- 10 31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

Puddling.

32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

- 20 33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

- 30 34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

- 40 35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

Curves, branches, etc., not to be covered.

36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.



EXHIBIT C-159. (*continued*).

Removal of surplus material.

37. As the trenches are backfilled, the Contractor shall remove all surplus materials and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of an until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract, where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh

EXHIBIT C-159. (*continued*).

not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

Fineness.

- 10 41. The cement shall be dry, finely ground, of uniform color and free from lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table:

20 Neat Cement:

24 hours . . . . .	175 pounds per sq. in.
7 days (1 day in moist air, 6 days in water)	500 pounds per sq. in.
28 days (1 day in moist air, 27 days in water)	600 pounds per sq. in.

30 Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

7 days (1 day in moist air, 6 days in water)	180 pounds per sq. in.
28 days (1 day in moist air, 27 days in water)	225 pounds per sq. in.

- 40 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

EXHIBIT C-159. (*continued*).

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

10 Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

20 45. The cement will be subjected to such tests as the Engineer may deem necessary, and such test will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

30 Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

40 47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be

EXHIBIT C-159. (*continued*).

taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

Delivery and storing.

- 10           49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it had been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.
- 20

Cost to be covered.

50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.
- 30

MORTAR.

51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and 2½ volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.
- 40

Sand.

52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestone. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ( $\frac{1}{4}$ ) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5)

EXHIBIT C-159. (*continued*).

per cent. by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1) per cent. of organic matter.

10 Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

Mixing.

20 53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require rettempering shall not be used.

Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

30 Cost covered.

55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

CONCRETE.

40

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken

EXHIBIT C-159. (continued).

10 into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings  $1\frac{1}{4}$  inches in diameter and shall be retained on a screen with openings  $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing  $\frac{9}{10}$  cubic foot, and the other ingredients shall be measured by an approved method.

20 Water.

59. Only clean fresh water shall be used for concrete.

Mixing.

30 60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed or wet stone, water added, and the entire mass  
40 turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

EXHIBIT C-159. (*continued*).

Placing concrete.

61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

Joining old and new concrete.

62. When fresh concrete is to be laid on or adjoining concrete already set, the surfact of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

Forms and centres.

63. The Contractor shall provided all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the face against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approved lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

EXHIBIT C-159. (*continued*).

Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

Exposed surfaces.

65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

Depositing concrete under water.

66. Whenever it becomes necessary to place concrete under water, it shall be deposited by means of drop-bottom buckets or other approved method. Concrete so deposited shall be carefully spread without tamping.

Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed one per cent, by weight of salt shall be added to the water for each degree Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against



EXHIBIT C-159. (*continued*).

10 it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

Prices to cover.

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

BRICK MASONRY

20 Quality of bricks

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

30 How laid

72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than  $\frac{3}{8}$  inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed  $\frac{1}{4}$  inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be racked back in courses, unless  
40 otherwise permitted.

Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be prot-

EXHIBIT C-159. (continued).

ected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

Freezing weather.

10 74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of brick masonry.

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20 STRUCTURAL STEEL.

Quality.

30 76. Structural steel shall be medium steel and rivet steel made by the open hearth process and shall conform to the latest revised Standard Specifications for Structural Steel for Buildings adopted by the American Society for Testing Materials, and such tests as may be required shall be made in accordance therewith and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

Properties Considered	Medium Steel	Steel Steel
Phosphorus (maximum) . . . . .	0.06 per cent	0.06 per cent
Ultimate tensile strength, lbs. per sq. in. . . . .	55,000-65,000	48,000-58,000
Yield point (minimum), lbs. per sq. in. . . . .	1/2 ult. tens.str.	1/2 ult. tens. str.
40 Elongation, per cent. in 8 in.  (minimum) . . . . .	1,400,000	1,400,000
	ult. tens. str.	ult. tens. str.
Character of fracture . . . . .	Silky	Silky
Cold bend without fracture . . .	180° to diam. of 1 thickness	180° flat

EXHIBIT C-159. (*continued*).

Finish.

77. All finished material shall be free from injurious seams, flaws and cracks, and have a workmanlike finish.

Variation in weight.

- 10           78. When steel is inspected at the mill or shop all pieces (except plates), which vary in weight more than 2½ per cent. from that specified shall be rejected; when steel is not inspected until it is delivered on the work such variation in weight will be sufficient cause for rejection when, in the judgment of the Engineer, the safety of the work will be impaired thereby.

Workmanship.

- 20           79. All structural steel shall be in accordance with the plan. All details not shown on the plan, and all workmanship and finish shall be equal to the best current practice in similar work for buildings.

Anchor bolts.

- 30           80. Anchor bolts and expansion bolts shall be furnished where required and set in place as directed. When holes are drilled in masonry or concrete for such bolts, the holes shall be washed clean and the bolts shall be firmly embedded in a mortar composed of equal parts of cement and sand, unless other material is shown on the plan.

Melt numbers.

81. Test specimens and every finished piece of steel shall be stamped with melt or blow number, except that small pieces may be shipped in bundles securely wired together, with the melt or blow number on a metal tag attached.

- 40           Test and inspections.

82. The required tests and inspections of structural steel shall, if directed, be made at the mills and shops by the City's authorized inspector. The Contractor shall notify the City as to the mills and shops which are to supply the steel sufficiently in advance to enable the City to arrange for such tests and inspec-

EXHIBIT C-159. (*continued*).

tions and the mills and shops shall afford every facility for making the same.

Mill certificates.

- 10 83. If it is decided not to make the City's tests and inspections at the mills, then mill certificates showing the properties of each melt of which the steel is made will be accepted for consideration.

Shipping invoices.

84. The Contractor will be required to furnish complete copies of shipping invoices with each shipment of steel.

Certificates, etc., for information only.

- 20 85. Steel will not be accepted until the required inspector's reports or mill certificates are received. All tests, inspections, reports and certificates are for the information of the Engineer, and he shall not be precluded on account thereof from requiring or making any further tests which he may deem necessary.

Shop drawings.

- 30 86. The Contractor shall prepare complete and accurate shop drawings of all steel work, and no shop work shall be done until such drawings shall have been approved. The Contractor shall furnish the Engineer with 3 complete sets of prints of the approved shop drawings.

Painting.

- 40 87. All steel shall be thoroughly cleaned of scale, rust, oil and dirt, and unless otherwise directed, those parts which are not to be bedded in concrete shall be painted with a priming coat of the best red lead and linseed oil or such other paint of equivalent value as may be directed. After erection the metal which will be exposed in the finished work shall be evenly painted with 2 coats of approved paint. No painting shall be done on wet surfaces.

EXHIBIT C-159. (*continued*).

Measurement.

10 88. The amount of structural steel paid for as such will be all structural steel placed in the work in accordance with the plan or directions, except any excess greater than  $2\frac{1}{2}$  per cent. above the weight required, and except such structural steel shown on the plan as being part of structure for which there are contract prices, and the cost of which is hereinafter specified to be covered by the contract prices for such structures.

Price to cover.

20 89. The Contract price for structural steel shall cover the cost of all labor and materials required to furnish, fabricate, erect and paint the same, to furnish all test pieces, to prepare and furnish prints of shop drawings, and to drill holes for and set anchor and expansion bolts, where required, all as specified.

STEEL REINFORCEMENT BARS.

Shape

30 90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete frequent intervals and to insure intimate contact between the steel and concrete

Samples

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

40 Size

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

EXHIBIT C-159. (*continued*).

Variation in weight.

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

10 Quality.

94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

Properties Considered	Structural Steel Grade		Cold Twisted Bars
	Plain Bars	Deformed Bars	
Phosphorus, max.			
Open Hearth .....	0.05	0.05	0.10
Bessemer .....	0.10	0.10	0.05
Ultimate Tensile Strength, pounds per sq. in. ....	55,000-70,000	55,000-70,000	Recorded only
Yield Point, minimum pounds per sq. in. ....	33,000	33,000	55,000
Elongation, minimum per cent. in 8 inches .....	1,400,000	1,250,000	5 per cent.
	tens. str.	tens. str.	
Cold bend without fracture:			
Bars under ¼ in. in diam. or thickness .....	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of .3t.
thickness and over ....	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 2t.
	t : Nominal thickness or diameter of bar.		

40 95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar

EXHIBIT C-159. (*continued*).

when being bent, will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

Delivery and protection

- 10 97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

- 20 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing

- 30 99. All bars shall be as long as can be conveniently used accurately bent, placed, spaced and pointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

100. The cost of all steel reinforcement bars and the requirements specified in connection with which it is used.

WROUGHT IRON

- 40 Quality.

101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous.

EXHIBIT C-159. (*continued*).

Specimens shall bend cold, with a fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

Galvanizing,

- 10            102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

Cost covered.

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20

IRON CASTINGS.

Quality.

- 30            104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The casting shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

Cost covered.

105. The cost of all labor and materials required to furnish, coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

40

TIMBER.

Quality.

106. All timber shall be merchantable pine or spruce, unless otherwise specified, and shall be sound and free from



EXHIBIT C-159. (*continued*).

shakes, cracks, large or loose knots, and other defects impairing its strength or durability. It shall be squared to the required dimensions throughout its entire length.

Placing.

- 10 107. Timber shall be placed where shown on the plan or directed, and where necessary shall be firmly spiked or bolted with approved nails, spikes or bolts of such sizes and lengths and at such places and in such numbers as shown on the plan, or as directed.

Measurement.

- 20 108. The amount of timber to be paid for as such will be all timber placed in the work in accordance with the plan or directions, except piles and timber sheeting, and except such timber shown on the plan as being part of structures for which there are contract prices, and the cost of which is hereinafter specified to be covered by the contract prices for such structures. The amount paid for will not include timber used for forms, templates, centers, scaffolds, bridges (unless otherwise specified), fences, guard rails or other temporary structures, the cost of all of which there are contract prices. No deduction will be made in the measurement of timber flooring on account of the spaces occupied by the piles.

- 30 Price to cover.

109. The contract price for timber shall cover the cost of all labor and materials required to furnish, work, place and secure the same, as specified.

TIMBER SHEETING.

- 40 Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a men-

EXHIBIT C-159. (*continued*).

ner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

When paid for.

10 111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

Measurement.

20 112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, rangers and braces left in place without such order, nor sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

30 113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same.

CONCRETE SEWERS.

(Type "A" or Sewer Department Standard)

40

Inverts.

122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of suitable size for convenient construction, and unless otherwise

EXHIBIT C-159. (continued).

permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Unless otherwise shown on the plan, a layer of mortar not less than  $\frac{1}{2}$  inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templates, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall be floated or troweled to a smooth finish. The concrete for inverts shall be deposited continuously for their entire cross sections and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

10

Side walls.

20

123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

Roof.

30

124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

40

125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

EXHIBIT C-159. (*continued*).

Reinforcement.

126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

10 Minimums length of invert.

127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

Connections.

20 128. Connections and branches for lateral sewers and basin manholes shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

Measurements.

30 129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on accounts of openings at branches and manholes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

Price to cover.

40 130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templets and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

EXHIBIT C-159. (continued).

TYPE "B"

Cement Concrete Pipe With Reinforcement

10            131. Reinforced cement concrete pipe used shall be circular in section with or without flat base and shall conform in dimensions as shown in table.

General dimensions of pipes and minimum test

load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe	
20	24"	3 "	4'	3 "	3350 Lbs.	
	27"	3 1/2"	4'	3 "	3700 "	
	30"	3 1/2"	4'	3 "	4400 "	
	33"	4 "	4'	3 "	4600 "	
	36"	4 "	4'	4 "	4800 "	
	39"	4 "	4'	4 "	5200 "	
	30	42"	4 1/2"	4'	5 1/2"	5600 "
		45"	4 1/2"	4'	5 1/2"	6100 "
		48"	5 "	4'	5 1/2"	6600 "
		51"	5 "	4'	5 1/2"	7050 "
54"		5 1/2"	4'	5 1/2"	7500 "	
57"		5 1/2"	4'	5 1/2"	7750 "	
60"		6 "	4'	5 1/2"	8000 "	
63"		6 "	4'	5 1/2"	8400 "	
66"		6 1/2"	4'	5 1/2"	8800 "	
72"		7 "	4'	5 1/2"	9400 "	
40	78"	8 "	4'	5 1/2"	10400 "	
	84"	8 "	4'	5 1/2"	11200 "	
	90"	8 1/2"	4'	5 1/2"	12000 "	
	96"	8 1/2"	4'	5 1/2"	12800 "	
	102"	9 "	4'	5 1/2"	13600 "	
	108"	9 "	4'	5 1/2"	14400 "	

EXHIBIT C-159. (*continued*).

Testing pipe.

Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering Construction.

20 Material of pipe, cement, sand, stone or gravel.

132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be can be an accurate 1—2—4 mix. Each pipe shall be as made with rate of manufacture.

Joints.

133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ( $1\frac{1}{2}$ ) per cent. from the hereinbefore mentioned dimensions will be permitted.

Jointing.

134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line, making a continuous invert. After this has been done, steel forms especially designated

EXHIBIT C-159. (*continued*).

for the purpos shall be placed over and around the entire joint, and the mortar for sealing the arch portions grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

Laying pipe.

- 10           135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless oterwise Construction.

Steel for reinforcement.

- 20           136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Company's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

- 30           Disposal of water from tranches.

138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even though reinforced concrete pipe shall be furnished on this contract.

Rejection of defective pipe.

- 40           139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

Depth of cover.

139a. Where depth of cover on precast pipe sewer is sixteen feet (16') or over extra reinforcing steel shall be used in the pipe to take care of the increasd strsses. The cost of such

EXHIBIT C-159, (*continued*).

extra steel shall be included in the price bid for precast pipe sewers.

139b. Precast concrete pipe, Type "B", will be paid for from the inside face of all chambers.

10

VITRIFIED PIPE SEWERS.

Vitrified pipe.

140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations; it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

30

Identification marks.

141. Each shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

Shape and dimensions.

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

40



EXHIBIT C-159. (continued).

	Size	Length	Thickness	Depth of Socket	Annular Space
	6.....	2 feet	$\frac{5}{8}$ inch	$2\frac{1}{2}$ inches	$\frac{5}{8}$ inch
	8.....	3 "	$\frac{3}{4}$ "	$2\frac{3}{4}$ "	$\frac{5}{8}$ "
	10.....	3 "	$\frac{7}{8}$ "	$2\frac{3}{4}$ "	$\frac{5}{8}$ "
10	12.....	3 "	1 "	3 "	$\frac{5}{8}$ "
	15.....	3 "	$1\frac{1}{4}$ "	3 "	$\frac{5}{8}$ "
	18.....	3 "	$1\frac{1}{2}$ "	$2\frac{1}{4}$ "	$\frac{5}{8}$ "
	20.....	3 "	$1\frac{2}{3}$ "	$3\frac{1}{2}$ "	$\frac{5}{8}$ "
	22.....	3 "	$1\frac{5}{6}$ "	$3\frac{3}{4}$ "	$\frac{5}{8}$ "
	24.....	3 "	2 inches	4 "	$\frac{5}{8}$ "

Curves, bends, etc.

20

143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

30

144. Any or all of the following tests may be applied to samples selected on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

Crushing tests.

40

145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

EXHIBIT C-159. (continued).

		Diameter	Pressure				
		6 inches .....	900	lbs.	per	lin.	ft.
		8 " .....	900	"	"	"	"
		10 " .....	1,000	"	"	"	"
		12 " .....	1,050	"	"	"	"
10		15 " .....	1,250	"	"	"	"
		18 " .....	1,400	"	"	"	"
		20 " .....	1,550	"	"	"	"
		22 " .....	1,750	"	"	"	"
		24 " .....	1,950	"	"	"	"

Drop weight test.

- 20 146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

Hydrostatic test.

- 30 147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

Absorption test.

148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

40 Factory rejection.

149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

EXHIBIT C-159. (*continued*).

Without cradle.

10 151. When the drain is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

How laid.

20 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than form invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

Gasket and mortar joints.

30 156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than  $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if directed, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to  $1\frac{1}{2}$ , and the joint wiped inside and finished to a smooth bevel outside.

40 Inspection of joints.

157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall be provided. A suitable ladder affording easy access for such

EXHIBIT C-159. (*continued*).

inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

10 158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the drain shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

20 160. Immediately after the drain is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed drain (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

30 161. The exposed ends of pipe drains shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

40 Connection with existing work.

163. Wherever the proposed drain is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or

EXHIBIT C-159. (*continued*).

be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe drain.

Pipes cut to fit masonry.

- 10        164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

- 20        165. The length of pipe drains to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes, and the measurements will be made to the inside face of all chambers.

Prices to cover.

- 30        166. The contract prices for vitrified pipe drains shall cover the cost of all necessary excavation (except rock) of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the drains complete in place, as shown on the plan and as specified.

BASIN CONNECTIONS.

- 40        177. The connections between inlets and manholes shall be of vitrified pipe or cast iron of the size shown on the plan or on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe drains.

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

EXHIBIT C-159. (*continued*).

Prices to cover.

- 10 179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place, as specified.

SPURS FOR HOUSE CONNECTIONS.

- 20 180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.  
In concrete sewers.

181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.

In pipe sewers.

- 30 182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

- 40 183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

Price to cover.

184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same

EXHIBIT C-159. (*continued*).

as specified, and the cost of furnishing and cementing the covers for the same.

DRAINS FOR HOUSE CONNECTIONS.

- 10           185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

Depth at curb.

186. House connection drains shall be laid with a minimum gradient of  $\frac{1}{4}$  inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

20

Material.

187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

How laid.

- 30           188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

Measurement.

189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

40

Price to cover.

190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock); the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to furnish and lay the drains for house connections complete in place, as specified.

EXHIBIT C-159. (*continued*).

RISERS.

10 191. Where shown on the plan or where directed risers for house connections shall be built from the spurs in such a manner and to such height as may be shown or directed. Unless otherwise shown on the plan they shall be of vitrified pipe of the quality and dimensions hereinbefore specified for vitrified pipe sewers. They shall be supported and surrounded by concrete as shown, and each shall be closed with an approved cover.

Measurement.

192. The lengths of risers to be paid for will be determined by measurements along their axes.

20 Price to cover.

193. The contract price for risers shall cover the cost of all necessary excavation (except rock); the cost of all concrete used in connection with the risers; the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to construct the risers complete in place, as specified.

30

MANHOLES.

194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

Brick manholes.

40 195. Brick manholes shall be formed by means of templates placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar  $\frac{1}{2}$ -inch thick.



EXHIBIT C-159. (*continued*).

Concrete manholes.

196. Concrete manholes shall be built of the materials, sizes and dimensions shown on the plan.

Steps.

- 10        197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals, of about 16 inches.

Head and cover.

- 20        198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

Price to cover.

- 30        199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

BASIN MANHOLES.

Brick basin manholes.

- 40        200. Brick basin manholes shall be formed by means of templets placed at top and bottom with not less than 10 vertical lines drawn between them.

201. Where the walls of brick basin manholes are not built of two rings of brickwork with a mortar layer between the inside of the brickwork shall be smoothly and even plastered with a layer of 1-2 Portland cement mortar  $\frac{1}{2}$  inch thick.

EXHIBIT C-159. (*continued*).

202. Where the wall of the basin manhole consists of two rings of brickwork, with a mortar layer between, the outer ring shall be carried up not less than 1 foot in advance of the inner ring, and the inner surface of the former shall be plastered with two coats of mortar. The second coat of mortar shall be applied before the first is set, and the total thickness of the mortar layer shall be 1 inch.

10

Concrete basin manholes.

203. Concrete basin manholes shall, if required, be built in such a manner that the bottom and sidewalls shall be formed in one continuous operation. Concrete basins shall be coated with a grout of neat cement on the inside.

Concrete cover slabs.

20

204. Concrete cover slabs of basin manholes shall be built of Class "A" concrete, reinforced as shown on plan.

Head cover and trap.

205. The basin manhole head and cover shall be of cast iron, as shown on plan, and known as a Standard Sidewalk Manhole Head and Cover. Each head exclusive of cover shall weigh not less than 260 pounds and each cover shall weigh not less than 100 pounds. An iron hood or trap, of the size and dimensions shown on the plan, must be furnished by the Contractor for each basin manhole and is to be built into the basin manhole, as shown on plan.

30

Restoration of sidewalks, curbs, etc.

206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

40

Price to cover.

207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all back-filling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

EXHIBIT C-159. (continued).

INLETS.

10 208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifications for brickwork and concrete shall be those hereinbefore specified for basin manholes.

Heads.

209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

20 Restoration of roadway, pavements, etc.

210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ( $2\frac{1}{2}$ ) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

30 Price to cover.

211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

40 RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under

EXHIBIT C-159. (*continued*).

this contract shall be retered by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

- 10        220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

20        Payments, etc., under guarantee.

- 30        221. All pavements, sidewalks, crosswalks, curbs, etc., existing at the time of the opening of the bids for this contract, and under guarantee for maintenance, shall be restored and adjusted by the parties responsible under such guarantee, and at the expense of the Contractor. If not so restored and adjusted during the progress of the work, the Contractor shall, when directed, pay to the President before the completion of the contract a sum of money sufficient to cover the cost of having the same restored and adjusted by the parties responsible under such guarantee, and at the charges for the restoration of the same, as set forth in their contracts relating thereto. Such sum shall be accompanied by certificates from the parties responsible for the maintenance of the pavements, sidewalks, crosswalks, curbs, etc., to the effect that such sum will be accepted by them as full payment for such restoration and adjustment.

- 40        221-A. The sheet asphalt pavement in 82nd Street, Northern Boulevard to 23th Street is under guarantee by the Cleveland Trinidad Paving Co. The sheet asphalt pavements in 34th Avenue, 82nd Street and 83rd Street and at the intersection of 84th Street and 37th Avenue are under guarantee by the Sicilian Asphalt Co. The prices for restoration of these pavements are as follows : For openings measuring less than ten (10) square yards in area, three dollars and fifty cents (\$3.50) per square yard and for openings measuring ten (10)

EXHIBIT C-159. (*continued*).

square yards or more in area, three dollars (\$3.00) per square yard. These prices to include an eight inch (8") concrete foundation. The character of pavement (kind, thickness of base, etc.) and manner of restoration shall be determined by, and subject to approval by the Highway Department.

10 Temporary restoration.

222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

When new pavement is laid.

20 223. If pavements, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

Trenches flooded.

30 224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

Cleaning up.

40 225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

EXHIBIT C-159. (*continued*).

Cost to be covered.

226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

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EXHIBIT C-86.

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EXHIBIT C-86.

*(Original Statement of discount of John M. Phillips with firm  
of Muccini and Decker for 1924, 1925 and 1926).*

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EXHIBIT C-86 (continued).

SHEET No. I

John M. Phillips Property - 190 Sheet D

1925

Date	Description	Amount	Location / Notes	Balance
Bal 1924		11,000.00	Grand Ave	97,000.00
Jan 16	Daniel J. Creans \$101.00	27,000.00	2012 8'-0" 3 1/2" 573-7'-0" 2'-00" 536-5'-6" 13.10 781-4'-6" 12	66,000.00 162,000.00
30	Cash 54	1500.00		
Feb 3		200.00		
3		158.00	Queens Boulevard 2807-6'-0" @ 22 564'-2'-9" @ 7 1/2"	163,000.00 325,000.00
12	Rose Spunella 70.00	15,000.00		
Mar 26	Daniel Creans 74.00	21,608.53	Dammers Boulevard 3621-4'-6" @ 45°	163,000.00 325,000.00
		87,608.50		
June 2		20,077.00	S.ance Hill Blvd 260'-24" @ 3	780.00 325,780.00
7	John Phillips 27.00	190.00		
July 2	Rose Spunella 12.65	10,000.00	Balk Ave 287'-3'-6" @ 19 583'-3'-0" 12 1/2	12,714.00 328,524.00
22	Cash 279.00	5,000.00		
Aug 4	Cash 44.50	10,000.00	Bonds	196.63 329,720.63
8	Daniel Creans 298.00	13,462.13		
17	Cash 313.00	8,000.00		
Oct 6	Daniel Creans 332.00	15,611.43		
13	Cash 340.00	5,184.50		
Dec 4	Andrew Jones 274.00	10,000.00		
8	Rose Spunella 29.00	9,639.63		
12	Cash 293.00	7,000.00		
		13,534.00		
		21,740.63		
			Bal = 122,300.00	



EXHIBIT C-86 (continued).

SHEET No. II

John Phillips 1946

Sheet ②

Jan	28	Cash	427	1000	-	Bal	122200
	30	ck Cash	428	3500	-	Springfield Blvd ✓	
Feb	6	Cash	430	1000	-	6580' 3'6" @ 45 <sup>00</sup>	296100
	8	ck Cash	447	3000	-	Hemstead Ave ✓	
	13	Cash	449	1000	-	3650' 3'6" @ 45 <sup>00</sup>	164250
	20	"	450	3000	-	Jamaica Ave ✓	
	27	"	452	5000	-	7788- 3'6" @ 45 <sup>00</sup>	350460
Mar	6	"	461	5000	-	677 2'9" @ 30 <sup>00</sup>	20310
	13	"	465	5000	-	Brunkerhoff Ave ✓	370770
	13	ck Cash	464	4000	-	2807- 3'6" 1943	
	20	Cash	470	5000	-	152-4'0" 1943	57620
	27	"	473	5000	-		1,011,040
Apr	3	"	475	5000	-		
	10	"	484	5000	-		
	17	"	490	5000	-		
	24	"	497	5000	-		
May	1	"	504	5000	-		
	8	"	513	5000	-		
	12	Wells Bros	522	35,25	-		
	15	Cash	523	5000	-		
	22	"	522	5000	-		
	29	"	550	5000	-		
June	1	Michael D'Angelo	558	25,000	-		
	4	Cash	561	5000	-		
	7	Joseph DE Salvo	559	25,000	-		
	12	Cash	575	5000	-		
	19	"	581	5000	-		
	26	"	593	5000	-		
July	3	"	619	10,000	-		
	3	Edward Harrison	626	28,250	-		
	10	Cash	627	15,000	-		
	17	"	637	15,000	-		
	21	John O'Toole	649	1,000	-		
	23	Cash	650	15,000	-		
	29	Daniel Ewright	658	25,000	-		
	30	Cash	660	15,000	-		
Aug	6	Cash	675	15,000	-		
	9	Wm Mcguire	673	15,000	-		
	13	Cash	680	15,000	-		
	9	John Mc Donald	674	20,000	-		
	20	Cash	708	15,000	-		
	27	"	717	15,000	-		
Sept	3	"	726	15,000	-		
	6	Thomas Cassidy	736	5,000	-		
	10	Cash	738	15,000	-		
	13	Thos Cassidy	753	5,000	-		
	13	Edw Harrison	752	5,000	-		
	14	John Mc Donald	762	4,182	-		
	16	Edward Carroll	764	12,565	-		
	17	Cash	765	15,000	-		
	27	John Mc Donald	777	43,000	-		
				510,647	-		

City of State N.Y. v Heirs John Phillips  
 DEPENDENT'S EXOR

Maurice Gordon

Kathleen Gordon

(over)

945-148

EXHIBIT C-86 (continued).

SHEET No. III

		510647-	
Sep	17	Michael D'Angelo 765	21600 -
	20	Philip Schaefer 766	10500 -
	20	Ed Harrison 777	11015 -
	20	Pete Campbell 778	1710 -
	20	Thos W. Cassidy 779	15000 -
	25	Cash	791 15000 -
Oct	1	"	792 15000 -
	1	J. Bureau 793	155545
	4	Oliver Van Schaak 800	16700 -
	6	John M. Donald 806	21000 -
	8	Cash	807 15000 -
	15	"	818 15000 -
	18	Thos Shaw 824	33500 -
	18	J Beattie 825	10000 -
	18	E. J. Madden 826	10000 -
	18	B Silverman 827	19500 -
	18	Frank Shannon 828	2000 -
	22	Cash	835 15000 -
	22	Wm Zorn 843	2000 -
	26	Thos Shaw 847	5300 -
	26	E. J. Madden 848	2500 -
	26	B Silverman 849	2200 -
	26	Frank Shannon 850	1000 -
	26	Thos Cassidy 851	1000 -
	29	Cash	852 15000 -
Nov	5	"	859 15000 -
	11	"	875 15000 -
	20	"	882 15000 -
	26	"	890 15000 -
Dec	8	Daniel Ewright 916	1775 -
	10	A. E. Kagans 926	14591 -
	20	R Spinnella 952	45000 -
	24	Jan Harris 957	1000 -
	29	John M Phillips 960	438557
			90547897

Bal-

1011040 -  
90547897  
105156503

Maurice Jordeaux

A  
Karlo Penlon

EXHIBIT C-86 (continued).

SHEET No. IV

1927  
John M Phillips

Sheet 3  
Bal 105,561.03

DATE	PLAINTIFF'S EXHIBIT	DEFENDANT'S EXHIBIT	DEED	AMOUNT	DESCRIPTION	AMOUNT
Jan 24				986	300	88th St (Dutton Ave)
Feb 21				1015	25000	1063-410" @ 1100
				1019	25000	515 3-0 8-0
Apr 1				1048	15000	264-2-7 7-0
				1054	15000	181-2-4 3
May 3				1091	21000	
				1092	6500	51st St 488' 5-6" @ 2140
				1093	250	
				1094	750	Murray St 1544' 7-0" / 27 56
				1095	4500	
				1096	5000	Worcester 7
				1097	1000	653' 2-2 1538' 2-4
				1098	11000	
				1099	500	Rockaway Boulevard
				1100	8000	1350' 7-0" @ 2640
				1101	10000	2776' 4-6 1640
				1113	10000	
				1123	10000	Devel 32nd St 2266-3-0" @ 2250
				1131	10000	
				1130	16535	Dutton Ave 807' 3-0" 1300
				1184	75000	270 2-6 670 12300
June 1				1183	5000	
July 7				1146	35000	121st
				1185	15000	646' 4-0" 1500
				1187	5000	680 3-6 1250
				1204	17317	260 2-4 3
				1205	5000	
				1210	16275	38th St 542' 4-0" 1700
				1213	5000	435' 1-9" 900
				1298	14250	671-24 3 15016
				1299	10250	
				1316	1646294	92nd St (Private St) 402' 3-3" @ 12
				1318	3000	
				1319	137071	Becker St 3859' 8-0" 36-1
				1320	149317	300' 3-0" 11- 142307
				1321	112366	
				1322	125709	45th Ave 527' 3-9" 12
				1323	160193	260 3-3" 10
				1324	125418	520 3-0" 9
				1325	1425-	250 2-9" 8
				1326	3500	250 2-6" 7 18000
				1329	18725	250 2-4 3
				1327	2000	
				1328	28000	24th St 494' 3-0" 500
				1331	139194	253' 2-9" 500
				1332	154086	260' 2-6 500
				1338	138041	5000
				1398	2536767	52986403
				1400	4785-	
				1400	570-	

Carson Parker

James W. Spaulding

People of State N. Y. v. Heirs John Phillips  
PLAINTIFFS EXHIBIT  
DEFENDANTS EXHIBIT  
DATE  
CLERK

945-150

(Over)

EXHIBIT C-86 (continued).

SHEET No. V

John Phillips

Nov 18 Cash P.R.  
25 "  
Dec 3 Credit

1438 5000 -  
1441 M 2000 -  
1445 M 500 -  
529783 69  
80 34  
529864 03

529:864 03

EXHIBIT C-228.

10

EXHIBIT C-228.

20

*(34 cheques paid to John M. Phillips and signed by Angelo Paine, in 1924, 1925, 1926 and 1927).*

30

40

EXHIBIT C-228 (continued).

*For deposit -*  
*John M. Phillips*

RECEIVED PAYMENT  
Through the New York Clearing House  
OCT 9 1924  
THE CORN EXCHANGE BANK N.Y.  
Queens County Branch  
ENDORSEMENTS GUARANTEED

Brooklyn, N.Y. *Oct 9<sup>th</sup>* 1924 No 1586

**Lawyers Title and Trust Company.** 1-110  
44 COURT STREET *To pay in full*

Pay to the order of *John M. Phillips* \$ *213.<sup>40</sup>*

*Two hundred, thirteen <sup>40</sup>/<sub>100</sub>* Dollars

PAYABLE THROUGH THE NEW YORK CLEARING HOUSE

SAFE DEPOSIT VAULTS

*Angelo Paino*

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 14TH ST. BROOKLYN

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

5354  
6410

RECEIVED PAYMENT  
Through  
DEC 30 1924  
BANK, N. Y.  
BRANCH  
IS GUARANTEED

Brooklyn, N.Y. Dec. 30<sup>th</sup> 1924 N° 1701

Lawyers Title and Trust Company. 1-110  
44 COURT STREET

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 14<sup>TH</sup> ST., BROOKLYN

Pay to the order of

*John M. Phillips*  
*Thirteen hundred sixty*

\$1360.<sup>00</sup>

\* Dollars

PAYABLE THROUGH THE NEW YORK CLEARING HOUSE

SAFE DEPOSIT  
VAULTS

*Angelo Paino*

EXHIBIT C-228 (continued).

*for deposit  
John M. Phillips*

0144  
5425

**PAINO BROTHERS  
GENERAL CONTRACTORS**

32 COURT STREET

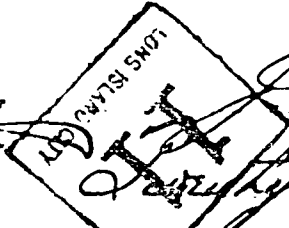
BROOKLYN, N. Y.

BROOKLYN, N. Y.

1 No. 184

*May 14<sup>th</sup> 1925*

PAY TO THE  
ORDER OF



*J.M. Phillips*

\$20,000.<sup>00</sup>

*Twenty thousand*

DOLLARS.

**BANK OF THE MANHATTAN COMPANY  
AT JAMAICA**

**NEW YORK CITY**

PAINO BROTHERS

*Frank L. Paine*

*Angeles Paine*



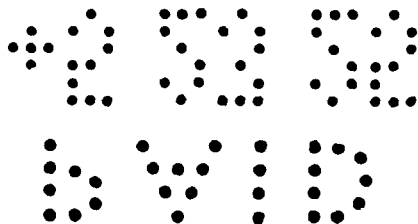
EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

MANHATTAN COMPANY  
D. W. A. RUSH, CASHIER

MAY 23 1925

RECEIVED PAYMENT THROUGH THE  
NEW YORK CLEARING HOUSE  
PRIOR ENDORSEMENTS GUARANTEED

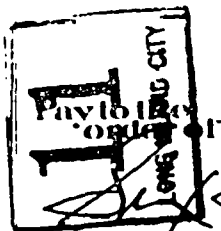


Brooklyn, N.Y.

*May 19 1925*

No 1863

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 14TH ST., BROOKLYN



Lawyers Title and Trust Company, 1-110  
110 NASSAU STREET

*John M. Phillips \$6250 <sup>00</sup>/<sub>100</sub>*  
*Six Thousand Two Hundred Fifty Dollars*

PAYABLE THROUGH THE NEW YORK CLEARING HOUSE

SAFE DEPOSIT  
VAULTS

*Angelo Paino*

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

2000  
5410

PAINO BROTHERS  
GENERAL CONTRACTORS

32 COURT STREET

BROOKLYN, N. Y.

BROOKLYN, N. Y.

1 No. 190

*May 22 1925*

PAY TO THE ORDER OF

UNION ISLAND CO.

*John M. Phillips*

*\$19,000.00*

*Nineteen Thousand*

DOLLARS

BANK OF THE MANHATTAN COMPANY  
AT JAMAICA

NEW YORK CITY

1-2

*Frank L. Paine*  
*Angelo Paine*

PAINO BROTHERS

EXHIBIT C-228 (continued).

*For deposit*  
*John M. Phillips*

RECEIVED PAYMENT THROUGH THE  
NEW YORK CLEARING HOUSE  
JUL 14 1925  
1-2 BANK OF THE 1-2  
MANHATTAN COMPANY  
D. W. A. RICH, CASHIER

THREE THOUSAND DOLLARS

Brooklyn, N.Y. *July 11* 1925 No 1920

**Lawyers' Title and Trust Company.** 1-110  
44 COURT STREET

Pay to the order of *John M. Phillips*

**THREE THOUSAND DOLLARS**

\$23000 <sup>00</sup>/<sub>100</sub>

Dollars

*Angelo Paine*

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 14TH ST., BROOKLYN

SAFE DEPOSIT VAULTS

ISLAND CITY CLEARING HOUSE

EXHIBIT C-228 (continued).

*John McPhillips*

THIRTY EIGHT HUNDRED FIFTY TWO DOLLARS

NEW YORK CITY Aug 12 1925 No. 365

BANK OF THE MANHATTAN COMPANY 1-2  
AT JAMAICA

ANGELO PAINO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

PAY TO THE ORDER OF

*John McPhillips*

\$30852.00

THIRTY EIGHT HUNDRED FIFTY TWO DOLLARS

DOLLARS

Angelo Paine

EXHIBIT C-228 (continued).

*For deposit  
John M. Hollister*

**PAID TO THE ORDER OF**  
**JOHN M. HOLLISTER**  
**NEW YORK**

**PAINO BROTHERS**  
**GENERAL CONTRACTORS**

32 COURT STREET

BROOKLYN, N. Y.

BROOKLYN, N. Y.

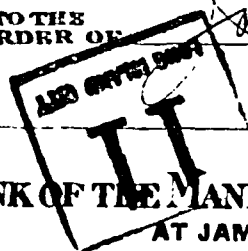
1 No. 335

*Sept 26* 1925

PAID TO THE ORDER OF

*John M. Hollister*

*\$20,000* <sup>00</sup>/<sub>100</sub>



**TWENTY THOUSAND DOLLARS**

DOLLARS

**BANK OF THE MANHATTAN COMPANY**  
AT JAMAICA

PAINO BROTHERS

*By Angelo Paino*

**NEW YORK CITY**

EXHIBIT C-228 (continued).

MANTAN COMPANY  
1-2 BANK OF THE  
SEP 28 1925  
RECEIVED PAYMENT THROUGH THE  
NEW YORK CLEARING HOUSE  
PRIOR ENDORSEMENTS GUARANTEED  
D. W. RUSH, CASHIER

for deposit  
John M. Phillips

Brooklyn, N.Y. Sept 26 1925 No. 2002

**Lawyers Trust Company,** 1-110  
44 COURT STREET

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 57th ST., BROOKLYN

Pay to the order of John M. Phillips \$ 698.00  
**SIX HUNDRED NINETY EIGHT AND NO/100**  
 Dollars

PAID THROUGH THE NEW YORK CLEARING HOUSE

SAFE DEPOSIT VAULTS

Angelo Paino

EXHIBIT C-228 (continued).

*For deposit to  
John M. Phillips*

*PAINO BROTHERS GENERAL CONTRACTORS*  
*32 COURT STREET BROOKLYN N.Y.*



**PAINO BROTHERS  
GENERAL CONTRACTORS**

32 COURT STREET

BROOKLYN, N. Y.

BROOKLYN, N. Y.

No. 363

*Det 26*

1935

PAY TO THE ORDER OF

*John M. Phillips*

\$34,024.00

**THIRTY FOUR THOUSAND TWENTY FOUR DOLLARS**

**BANK OF THE MANHATTAN COMPANY**

AT JAMAICA

NEW YORK CITY

PAINO BROTHERS

*By Angelo Paino*

EXHIBIT C-228 (continued).

*For deposit*  
*John M. Phillips*

*(M)*

JAMAICA

NEW YORK CITY *Nov. 28* 1925 No. 414

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

ANGELO PAINO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

THIS CHECK IS PROTECTED  
BY A  
NATIONAL  
SURETY FORGERY CO. OF  
AGANST  
FORGERY OR ALTERATION

PAY TO THE ORDER OF *John M. Phillips* \$21000<sup>00</sup>/<sub>100</sub>

**TWENTY ONE THOUSAND DOLLARS**

*Farmer's Boulevard*  
JAMAICA ISLAND, CITY

*Angelo Paine*



EXHIBIT C-228 (continued).

*John M. Phillip  
Tr. Deposit*

*INVESTMENT*  
TWO  
AND  
NOV 10

PAINO BROTHERS  
GENERAL CONTRACTORS

32 COURT STREET BROOKLYN, N. Y.

BROOKLYN, N. Y. *Dec 18* 1925

1 No. 472

PAY TO THE ORDER OF

*John M. Phillip*  
LONG ISLAND CITY

*John M. Phillip*

\$65,000.00

SIXTY FIVE THOUSAND DOLLARS

BANK OF THE MANHATTAN COMPANY  
AT JAMAICA

PAINO BROTHERS

*Angelo Paino*

NEW YORK CITY

EXHIBIT C-228 (continued).

For deposit  
John M. Phillips

RECEIVED PAYMENT THROUGH THE  
NEW YORK CLEARING HOUSE  
PRIOR ENDORSMENTS GUARANTEED  
DEC 28 1925  
1-2 BANK OF THE 1-2  
MANHATTAN COMPANY  
D. W. A. ROUSH, CASHIER

Brooklyn, N.Y. Dec. 26<sup>th</sup> 1925 No 2034

**Lawyer's Trust Company,** 1-110  
44 COURT STREET

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 14TH ST., BROOKLYN

THIS CHECK IS PROTECTED  
BY A  
NATIONAL  
SURETY FORGERY BOND  
AGAINST  
FORGERY OR ALTERATION

Pay to the order of John M. Phillips \$ 946<sup>00</sup>/<sub>100</sub>

**NINE HUNDRED FORTY SIX DOLLARS**

PAID THROUGH THE NEW YORK CLEARING HOUSE

SAFE DEPOSIT VAULTS

Angelo Paino

EXHIBIT C-228 (continued).

NEW YORK CITY July 2 1926 No. 478

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

\$ 40,000 .....

DOLLARS

PAY TO THE ORDER OF John M. G. ...

**40,000 DOLLARS**

Angelo Paimo

Farmers Trust Co.

THIS CHECK IS PROTECTED BY A NATIONAL SURETY FUND AGAINST FOREIGN ALTERATION

W

FOR DEPOSIT  
John M. G. ...

OIAA  
FARMERS TRUST CO.

ANGLO PAIMO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

*For deposit  
John M. Phillips*

01A9  
25-4

NEW YORK CITY Feb 27 1926 No: 595<sup>6</sup>

ANGELO PAINO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

PAY TO THE  
ORDER OF  
**11**  
City - NY, N.Y.

*John M. Phillips* \$45000<sup>00</sup>/<sub>100</sub>  
*Thousand* <sup>00</sup>/<sub>100</sub> DOLLARS

*Angelo Paine*

EXHIBIT C-228 (continued).

*For deposit  
John H. Phillips*

000000  
000000

NEW YORK CITY *April 24* 192*6* No. 589

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

ANGELO PAINO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

ALD ONYTS SHY TO THE  
ORDER OF  
**11**

*John H. Phillips* \$25000.<sup>00</sup>

ANGELO PAINO \$25000.00 DOLLARS

DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

0124  
2524

NEW YORK CITY May 27 1926 No: 652

ANGELO PAINO,  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

PAY TO THE ORDER OF **11** *John M. Phillips* \$100,000<sup>00</sup>/<sub>100</sub>  
LONG ISLAND CITY, N.Y. ANGELO PAINO \$100000 AND 00/100 CENTS

*Angelo Paine*  
LEON KIPNIS  
JUN 1 1926  
Certified Public Accountant

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

577000

NEW YORK CITY June 16 1926 No. 681

ANGELO PAINO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA  
PAY TO THE ORDER OF John M. Phillips  
ANGEL PAINO \$77000 AND 00 CTS

\$77000.<sup>00</sup>/<sub>100</sub>

DOLLARS

*Angelo Paino*  
1926 JUL 8 11 AM  
NEW YORK

EXHIBIT C-228 (continued).

*To Deposit*  
*John. M. Phillips*

*18* 1926

25000



ANGELO PAINO  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

NEW YORK CITY Nov 20 1926 No. 903

**BANK OF THE MANHATTAN COMPANY**  
AT JAMAICA  
*John M. Phillips*  
ANGELO PAINO

PAY TO THE ORDER

1-2 00  
25000.-  
~~\$25000.00~~

\$25000 AND 00 CTS DOLLARS



*Angelo Paino*



EXHIBIT C-228 (continued).

*J. M. Phillips  
for deposit  
John M. Phillips*

NEW YORK

NEW YORK CITY April 5 1927 No. 1077

ANGELO PAINO,  
GENERAL CONTRACTOR  
32 COURT ST.  
BROOKLYN, N. Y.

BANK OF THE MANHATTAN COMPANY 1-2  
AT JAMAICA

PAY TO THE ORDER OF  
APR 5 1927  
II

*M. Phillips* \$10000 <sup>00</sup>/<sub>100</sub>  
ONE TEN THOUSAND AND 00 CENTS  
DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

1300

ANGELO PAINO  
GENERAL CONTRACTOR

*1*

1

NEW YORK CITY *May 27* 1927 No. **1147**

**BANK OF THE MANHATTAN COMPANY** 1-2

AT JAMAICA

PAY TO THE  
ORDER OF

*John M. Phillips*

\$ *13000<sup>00</sup>*

LONG ISLAND CITY  
**11**

ANGELO PAINO **\$13000 AND 00 CTS**

DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

DEPOSITED TO CREDIT OF

*John M. Phillips*

BANK OF THE MANHATTAN CO.  
LONG ISLAND CITY, N. Y.

*John M. Phillips*  
Cashier

5000

ANGELO PAINO  
GENERAL CONTRACTOR

LONG ISLAND CITY  
PAY TO THE ORDER OF

NEW YORK CITY

*June 3*

1927

No. 1162

BANK OF THE MANHATTAN COMPANY  
AT JAMAICA

1-2

*John M. Phillips*  
*Five thousand 00/100*

\$5000.<sup>00</sup>

DOLLARS

*Angelo Paino*

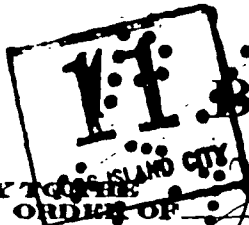
EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

5050

ANGELO PAINO  
GENERAL CONTRACTOR

NEW YORK CITY July 8 1927 No. 1209



**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

PAY TO THE ORDER OF John M. Phillips \$35000<sup>00</sup>/<sub>100</sub>

ANGELO PAINO \$35000 AND 00 CTS DOLLARS

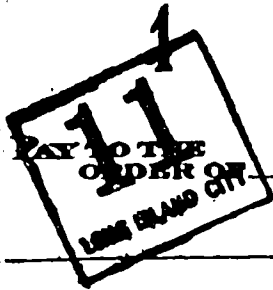
Angelo Pano

EXHIBIT C-228 (continued).

*J.M. Phillips*  
*For deposit*  
*John M. Phillips*

01A9  
75050

ANGELO PAINO  
GENERAL CONTRACTOR  
*Aug 4*



NEW YORK CITY Aug 4 1927 No. 1240

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

*M. Phillips*  
ANGELO PAINO \$22000 AND 00 CTS  
DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*PM Phillips  
for deposit  
John M. Phillips*

*11*

Received Payment through the  
Bank of the  
Manhattan Company  
1-2  
AUG 1927  
BANK OF THE  
MANHATTAN COMPANY  
60 Wall Street, N. Y.  
W. L. WISH Center

Brooklyn, N.Y. *August 1927* No 2372

ANGELO PAINO  
GENERAL CONTRACTOR  
2016 EAST 14TH ST. BROOKLYN

Lawyers Trust Company  
44 COURT STREET

1-110

Pay to the order of *J M Phillips* \$22,500<sup>00</sup>/<sub>100</sub>

ANGELO PAINO \$22,500 AND 00 CENTS Dollars

PAYABLE THROUGH THE NEW YORK CLEARING HOUSE

SAFE DEPOSIT  
VAULTS

*Angelo Paino*

EXHIBIT C-228 (continued).

*J.M. Phillips  
For deposit  
John M. Phillips*

01A9  
7000

NEW YORK CITY Sept 17 1927 No. 1336

**BANK OF THE MANHATTAN COMPANY**  
AT JAMAICA

ANGELO PAINO  
GENERAL MANAGER



*J.M. Phillips*

\$10,000<sup>00</sup>/<sub>100</sub>

ANGELO PAINO \$10,000 AND 00 CTS

DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

DIAMOND

NEW YORK CITY Sept 19 1922 No. 1332

1

**BANK OF THE MANHATTAN COMPANY** 1-2  
AT JAMAICA

ANGELO PAINO  
GENERAL CONTRACTOR

PAY TO THE ORDER OF  
**11**  
LONG ISLAND CITY

*John M. Phillips*  
ANGELO PAINO \$30000 AND 00 CTS.

\$30000 <sup>00</sup>/<sub>100</sub>

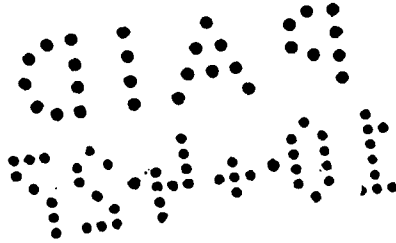
DOLLARS

*Angelo Paine*



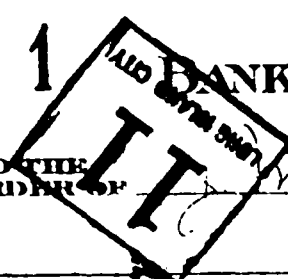
EXHIBIT C-228 (continued).

*J.M. Phillips  
For deposit  
John M. Phillips*



ANGELO PAINO  
GENERAL CONTRACTOR

NEW YORK CITY Oct - 1 1927 No. **1383**



BANK OF THE MANHATTAN COMPANY

1-2

AT JAMAICA

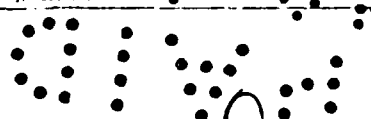
PAY TO THE ORDER OF

*J. Phillips*

\$12000<sup>00</sup>00

ANGELO PAINO \$12000<sup>00</sup>00

DOLLARS



*Angelo Paino*

EXHIBIT C-228 (continued).

*J. M. Phillips  
For deposit  
John M. Phillips*

0149  
21901

ANGELO PAINO  
GENERAL CONTRACTOR

*1-4-27*

NEW YORK CITY Oct 20 1927 No. 1895

1

BANK OF THE MANHATTAN COMPANY 1-2  
AT JAMAICA

PAY TO THE  
ORDER OF

*J. M. Phillips*

\$ 4000<sup>00</sup>

11  
LONG ISLAND CITY

ANGELO PAINO \$40000 AND 00 CTS

DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*J.M. Phillips*  
*for deposit*  
*John M. Phillips*

NEW YORK  
OCT 20 1927

NEW YORK CITY Oct 20 1927 No. 1396

1

BANK OF THE MANHATTAN COMPANY 1-2  
AT JAMAICA

ANGELO PAINO  
GENERAL CONTRACTOR

PAY TO THE  
ORDER OF

*J.M. Phillips*

\$2000<sup>00</sup>00<sup>00</sup>

11  
LONG ISLAND CITY

ANGELO PAINO \$20000 AND 00 CENTS

DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*J. M. Phelan*  
*For deposit*  
*John M. Phelan*

01A9  
20201

NEW YORK CITY Oct 26 1927 No. 1406

1

**BANK OF THE MANHATTAN COMPANY** 1-2

AT JAMAICA

PAY TO THE ORDER OF

**11**  
MANHATTAN CITY

ANGELO PAINO \$1500<sup>00</sup> AND 00 CTS

\$1500<sup>00</sup>/<sub>100</sub>

DOLLARS

*Angelo Paino*

ANGELO PAINO  
GENERAL CONTRACTOR  
MANHATTAN CITY

EXHIBIT C-228 (continued).

*For deposit  
John M. Phillips*

5549

ANGELO PAINO  
GENERAL CONTRACTOR

1

NEW YORK CITY *Nov 4 1927*

No. 1419

BANK OF THE MANHATTAN COMPANY  
AT JAMAICA

1-2

PAY TO THE  
ORDER OF

*John M. Phillips \$4,000.<sup>00</sup>*

11  
LONG ISLAND CITY

*Four thousand and no* DOLLARS

*Angelo Paino*

EXHIBIT C-228 (continued).

*J.M. Phillips  
for deposit  
John M. Phillips*

(5)

1927

15000

ANGELO PAINO  
GENERAL CONTRACTOR

1  
PAY TO THE  
ORDER OF  
LONG ISLAND CITY

NEW YORK CITY Nov 9 1927 No. 1427

BANK OF THE MANHATTAN COMPANY 1-2  
AT JAMAICA

*J.M. Phillips*

\$ 15000<sup>00</sup>

ANGELO PAINO \$15000 AND 00 CTS

DOLLARS

*Angelo Paino*

*J M Phillips*  
*For deposit*  
*John M Phillips*

1118

ANGELO PAINO  
GENERAL CONTRACTOR

1  
11  
PAY TO THE  
ORDER OF  
LONG ISLAND CITY

NEW YORK CITY Nov 18 1927 No. 1426

BANK OF THE MANHATTAN COMPANY 1-2  
AT JAMAICA

*J M Phillips*  
ANGELO PAINO

\$20000 AND 00 CTS

~~\$20000~~

DOLLARS

*Angelo Pains*

EXHIBIT C-19.

EXHIBIT C-19.

10 *(Contract between The City of New York and Duit, Inc., for the construction of a sewer and appurtenances in Fisk Avenue from Queens Boulevard to Calamus Avenue and in Calamus Avenue from Fisk Avenue to Decker Street, Second Ward, Borough of Queens, on March 15, 1924).*

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THE CITY OF NEW YORK — DEPARTMENT OF FINANCE

20 Office of the Comptroller

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CONTRACT SUMMARY

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30 Contractor DUIT INC. No. 69176

Names of sureties Fidelity & Deposit Co. of Md.  
Royal Indemnity Co.,  
Eagle Indemnity Co.

Amount of bond \$181,000

Date of award Mar. 7, 1924 Department Pres. Borough of Queens

40 Date of contract Mar. 15, 1924 Date paid in full 8/2/27

DESCRIPTION OF WORK

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For the construction of a sewer and appurtenances in Fisk Avenue from Queens Boulevard to Calamus Avenue and in



EXHIBIT C-19. (*continued*).

Calamus Avenue from Fisk Avenue to Decker Street, Second Ward, Borough of Queens.

Original estimate, \$339,783.00
A. E.                   2,392.00
<hr/>
342,175.00

10

ACCOUNTS TO BE CHARGED.

C. F. M. 25

The obligation on this surety bond ceases as to anything occurring after June 21, 1926.

20 If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after June 21, 1926.

GEORGE W. MORTON,

Examiner.

30

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40

EXHIBIT C-19. (continued).

PAYMENTS, AMOUNTS RETAINED AND EARNED

---

	Date	85% Payments	Amount paid to date	Amount retained to date	Amount earned to date
10	10-20-24	75,352.50	75,352.50	13,297.50	88,650.00
					Pursuant to Chap. 394 — Laws of 1921
	12-22-24	13,297.50	88,650.00		
20					Pursuant to Chap. 394 — Laws of 1921
	12-24-24	54,272.60	142,922.50	9,577.50	152,500.00
	1- 5-25	9,577.50			
	5-21-25	46,479.70	198,979.70	8,202.30	207,182.00
					Pursuant to Chap. 394 — Laws of 1921
	8- 6-25	8,202.30	207,182.00		
	7-24-25	35,468.80	242,650.80	6,259.20	248,910.00
30					Pursuant to Chap. 394 — Laws of 1921
	8- 6-25	6,259.20	248,910.00		
	9-18-25	37,799.50	286,709.50	6,670.50	293,380.00
	11-17-25	27,835.80	314,545.30	11,582.70	326,128.00
					Pursuant to Chap. 394 — Laws of 1921
	12- 3-25	11,400.00	325,945.30	182.70	
40	1-19-26	10,465.20	336,410.50	2,029.50	338,440.00
	6- 3-26	3,470.46	339,880.96	2,294.04	342,175.00
	7-18-27	2,294.04	342,175.00		342,175.00

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EXHIBIT C-19. (continued).

CONTRACT #69176.

DUIT INC.

10

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Date	Retained percent- age payments by City	Corporate stock substituted	Corporate stock released	Date
1924				
20 1925				
Dec. 30	\$13,297.50	\$13,00.00	8/16/26	47100
Jan. 13	9,577.50	9,100.00	IN FULL	
Aug. 11	6,259.20	6,000.00		E.J.S.
Aug. 11	8,202.30	8,000.00		
Dec. 12	11,400.00	1,000.00		

30

40

EXHIBIT C-19. (*continued*).

RESOLUTION.

BOARD OF ESTIMATE AND APPORTIONMENT.

(Cal. No. 124)

10

WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Newtown District, duly adopted by said Board on the 14th day of Sept., 1922 and approved by the President of the Borough of Queens on the 20th day of Sept, 1922 as follows, to wit:

20       RESOLVED, That this Board does hereby initiate proceedings for the said local improvements, to wit :

“For the construction of a sewer and appurtenances in:—  
FISK AVENUE, from Queens Boulevard to Calamus Avenue;  
and in CALAMUS AVENUE, from Fisk Avenue to Decker Street,  
Second Ward, Borough of Queens”;

and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property  
30       benefited.

RESOLVED, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included  
40       in the assessment.

RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that

EXHIBIT C-19. (*continued*).

10 he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

A true copy of a resolution adopted by the Board of Estimate and Apportionment.

MAY 11, 1923.

20

(signed) JAMES MATTHEWS

Assistant Secretary,

30

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40

EXHIBIT C-19. (*continued*).

BOARD OF ESTIMATE AND APPORTIONMENT.

CITY OF NEW YORK.

(Cal. No. 137)

10

A copy of a resolution of the Local Board of the Newton District, duly adopted by said Board on the 14th day of September, 1922, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit :

20

“For the construction of a sewer and appurtenances in Fisk avenue from Queens boulevard to Calamus avenue, and in Calamus avenue from Fisk avenue to Decker street, Second Ward, Borough of Queens.”

30

— and thereupon, on the 11th day of May, 1923, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens had submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses, will be the sum of \$402,600; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$7,464,570, having also been presented, it is

40

EXHIBIT C-19. (*continued*).

Resolved, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

A true copy of resolution adopted by the Board of Estimate and Apportionment, February 8, 1924.

JAMES MATTHEWS,

Assistant Secretary.

20

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30

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EXHIBIT C-19. (continued).

THE CITY OF NEW YORK

ADVICE OF AWARD OF CONTRACT

(This Copy to be retained by Bookkeeping Division,  
Department of Finance).

10

Dep't of President of the Borough of Queens.

\*Date Mar 2, 1924

Comptroller of The City of New York:

Please take notice that the following described contract  
has this day\* been awarded to Duit Inc.,

20

Address 203 Agryle Road, Brooklyn, N. Y.,

Sureties. Fidelity & Deposit Co. of Maryland	50,000
Royal Indeminty Co.	81,000
Eagle Indemnity Co.	50,000

Amt. of bond \$181,000.

30

DETAILS OF PURPOSE OF CONTRACT

For the construction of a sewer and appurtenances in  
FISK AVENUE from Queens Boulevard to Calamus Avenue,  
and in CALAMUS AVENUE from Fisk Avenue to Decker  
Street, Second Ward, Borough of Queens.

TYPE B

40

Contract Chargeable to Code No.	Estimated Amount	Contracts Previously Awarded (Including Adjustments)	Open Market Orders Issued To Date (Including Adjustments)	Mics. Vouchers, Payrolls, and Order Charges
CFM 25	\$39,783.00	\$9,874,813.33	\$17,070.88	\$421,917.80



EXHIBIT C-19. (*continued*).

Enter full titles of accounts below and refer to code numbers by means of line numbers in margin.

Street Improvement Fund

Your respectfully,

10

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

\* This will be the date of the entry by which the fund is charged with the estimate amount of the contract both in the department making the award and by the Department of Finance. There must therefore be no delay in forwarding this advice.

20

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30

40

EXHIBIT C-19. (*continued*).

NOTICE. — Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

10

No. 2

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THE CITY OF NEW YORK

Office of  
THE PRESIDENT OF THE BOROUGH OF QUEENS.

20

---

BUREAU OF SEWERS

1923

---

ASSESSMENT WORK

30

Proposal for Bids, Bid, Bond, Agreement and Specifications of a sewer and appurtenances in: FISK AVENUE from Queens Boulevard to Calamus Avenue, and in CALAUS AVENUE from Fisk Avenue to Decker Street, Second Ward, Borough of Queens, together with all the work incidental thereto.

40

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EXHIBIT C-19. (*continued*).

TYPE "B"

THE CITY OF NEW YORK

Office of the

10 THE PRESIDENT OF THE BOROUGH OF QUEENS

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BUREAU OF SEWERS

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20 Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens on the 4th Floor of the Queens Subway Building, 68 Hunterspoint Avenue, Long Island City, Borough of Queens, in The City of New York, until 11 o'clock a. m. On Mar 4, 1924.

The time allowed for the completion of the work and the full performance of the contract is 200 CONSECUTIVE WORKING DAYS.

30 The liquidated damages for each day in excess of the allowed time, as stipulated in the contract, is ten dollars per day: The amount of SECURITY or surety bond required will be (\$181,000.00).

40 NOTE. — All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name a price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete, conditional, obscure, or irregular, may be held to be informal and may be rejected, and in case of any discrepancy between the price written in the bid and given in figures, the price in writing will be considered as the bid. The writing must be in ink.

EXHIBIT C-19. (*continued*).

BID OR ESTIMATE

10 For the construction of a sewer and appurtenances in FISK AVENUE from Queens Boulevard to Calamus Avenue, and in CALAMUS AVENUE from Fisk Avenue to Decker Street, Second Ward, Borough of Queens.

Made by the firm or corporation of Duit Inc.

Address 203 Argyle Road, Brooklyn.

20 NAME AND ADDRESS OF EACH AND EVERY MEMBER OF THE FIRM OR PRINCIPAL OFFICERS OF THE CORPORATION.

NOTE.—The bidder's name and residence or address must be inserted herebelow, and in case of a firm, the name and address of each and every member of the firm must be inserted.

30 In case a bid shall be submitted by or in behalf of any corporation, the complete legal name and address of such corporation must be written herebelow, together with the name, address and title of the principal officers of the corporation.

Name Duit Inc.

Address 203 Argyle Road, Brooklyn.

Name John J. Green, President.

Address 203 Argyle Road, Brooklyn.

40 Name J. Kelly Jr., Secretary.

Address 20 Ash St., Flushing, N. Y.

The party named above (of lawful age), as Bidder, declares: That the only person or persons interested in this bid or proposal as principal or principals is or are named above, and

EXHIBIT C-19. (*continued*).

10 that no other person than herein above named has any interest in this bid or in the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same work or purpose; that the bid is in all respects fair and without collusion or fraud, and that no member of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor any other officer or employee of The City of New York, is shall be or become, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract, in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery, tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following named sums or prices:

20  
30 The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance, are APPROXIMATE only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

T Y P E "B"

1. 2,028 Linear Feet 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Seventy five and 00-100 Dollars (\$75.00).

EXHIBIT C-19. (continued).

2. 1,730 Linear Feet 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), including removal of 48" water main, Per Linear Foot, Eighty One and 00-100 Dollars (\$81.00).
- 10 3. 1 Chamber in 69th Street at 48th Avenue, Complete, Ten Thousand and 00-100 Dollars (\$10,000.00).
4. 1 Chamber in 69th Street at Farfield Avenue, Complete, Four Thousand and 00-100 Dollars (4,000.00).
5. 1 Chamber in 69th Street at Calamus Avenue, Complete, nine Thousand Five Hundred and 00-100 Dollars (\$9,500.00).
- 20 6. 1 Chamber in Calamus Avenue near 69th Place, Complete, Four thousand and 00-100 Dollars (\$4,000.00).
7. 1 Chamber in Calamus Avenue at 70th Street, Complete. Six Thousand Five hundred and 00-100 Dollars (\$6,500.00).
8. 1 Chamber in Calamus Avenue at 74th Street, Complete. Four Thousand and 00-100 Dollars (\$4,000.00).
- 30 9. 17 Manholes and Drop Manholes, Complete, Each, Two Hundred Seventy Five and 00-100 Dollars (\$250.00).
10. 9 Basin Manholes, Complete, Each, One Hundred Twenty Five and 00-100 Dollars (\$125.00).
11. 12 Standard Inlets, Complete, Each, Sixty and 00-100 Dollars (\$60.00).
- 40 12. 4 Special Inlets, Complete, Each, One Hundred Seventy Five and 00-100 Dollars (\$125.00).
13. 350 Linear Feet 12-inch Vitrified Pipe, Basin Connection, Per Linear Foot, Two and 00-100 Dollars (\$2.00).
14. 210 Linear Feet 10-inch Vitrified Pipe, Basin Connection, Per Linear Foot, Two and 00-100 Dollars (\$2.00).

EXHIBIT C-19. (*continued*).

15. 213 Six-inch Spurs 24-inches long on 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Each, One and 00-100 Dollar (\$1.00).
16. 33 Vertical Feet Risers for House Connection, Per Vertical Foot, Three and 00-100 Dollars (\$3.00).
- 10 17. 688 Linear Feet 6-inch Vitrified Pipe, House Connection Drains, Per Linear Foot, Two and 00-100 Dollars (\$2.00).
18. 30 Linear Feet 16-inch C. I. Pipe (Class "A"), including removal of present 16-inch pipes, Per Linear Foot, Five and 00-100 Dollars (\$5.00).

20 No bid will be allowed to be withdrawn, for any reason whatever, after it has been received and deposited with the President. The President expressly reserves the right to reject all bids if he shall deem it for the public interest so to do. No bid will be accepted from, nor contract awarded to, any person who is in arrears to The City of New York upon debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

30 No bid or proposal will be received, considered and deposited unless, as a condition precedent to the reception or consideration of any proposal it be accompanied by either a certified check upon one of the State The City of New York, or money to the amount of five per centum (5%) of the amount of the security or surety bond required for the faithful performance of the contract. Such check or money must not be inclosed in the sealed envelope containing the proposal, but must be either inclosed in a separate envelope addressed to the Borough President, or submitted personally upon the presentation of the bid or proposal and handed to the officer or clerk of the Department who has charge of the proposal box, and who will give a proper voucher for the deposit, and no bid can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be returned to the person or persons making the same within three (3) days after the decision as to who, shall receive the contract. If the bidder to whom the contract shall have been awarded

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EXHIBIT C-19. (continued).

shall refuse or neglect to execute the same within five days after due notice that the contract has been awarded to him, and that the adequacy and sufficiency of the surety offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract and furnish the said security within the time aforesaid, the amount of the deposit shall be returned to him.

Each and every person bidding must sign here.

NOTE.—Each and every person bidding and named above must sign here. In the case of a firm, give the name of each and every partner in full.

DUIT INC. (L. S.)

In case a bid shall be submitted by or in behalf of a corporation, it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.

JOHN J. CREEM, (L. S.)  
President.

.....[L. S.]

.....[L. S.]

The following affidavit must be similarly signed and sworn to:

THE CITY AND STATE OF NEW YORK, COUNTY OF QUEENS ss.:

The above-named bidder (s), being severally duly sworn, say, each for himself, that the several matters stated in the above bid are in all respects true.

40

Subscribed and sworn to before me this 4th day of March, 1924.

Signature(s) of bidder(s)

JOHN J. CREEM  
JEFFERSON J. REILLY,

Commissioner of Deeds,  
City of New York

Certificate Filed Queens County



EXHIBIT C-19. (continued).

NOTICE TO BIDDERS.

Prices to be paid by The City of New York for indeterminate quantities, such as

10	CLASS "A" CONCRETE .....	15.00	"	"	"
	REINFORCING STEEL .....	.06	Per	Lb.	
	STRUCTURAL STEEL .....	.08	"	"	
	FOUNDATION TIMBER .....	70.00	Per	1000 Ft.	B. M.
	SHEETING & BRACING .....	20.00	"	"	" " "
20	PILING (TIMBER) .....	1.00	Per	Ft. driven and	cut-off
	STEAM CINDERS (Delivered & Placed)	1.25	Per	Cu.	Yd.

Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

- 30
1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in the City of New York, until 11 o'clock A. M., on TUESDAY April 4th, 1924.

Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be Two Hundred (200) **CONSECUTIVE WORKING DAYS**.

40

Security required.

3. The amount of security required will be One hundred and eighty one thousand Dollars (\$181,000.00).

EXHIBIT C-19. (*continued*).

Bidders referred to, form or agreement, etc.

4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Prices for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

Engineer's estimate.

TYPE "A"

20

2,028 Linear Feet 8'-0" Reinforced Concrete Sewer

1,730 Linear Feet 8'-0" Reinforced Concrete Sewer  
(including removal of 48" water main)

1 Chamber in 69th Street at 48th Avenue

1 Chamber in 69th Street at Garfield Avenue

30

1 Chamber in 69th Street at Calamus Avenue

1 Chamber in Calamus Avenue nr. 69th Place

1 Chamber in Calamus Avenue at 74th Street

1 Chamber in Calamus Avenue at 70th Street

17 Manholes and Drop Manholes

40

9 Basin Manholes

12 Standard Inlets

4 Special Inlets

350 Linear Feet 12" Vitrified Pipe, Basin Connection

EXHIBIT C-19. (continued).

- 210 Linear Feet 10" Vitrified Pipe, Basin Connection
- 213 Six-inch Spurs 24" long on 8'-0" Reinforced Conc. Sewers
- 33 Vertical Feet Risers for House Connection
- 10 688 Linear Feet 6" Vitrified Pipe House Connection Drains
- 30 Linear Feet 16" C. I. Pipe (Class "A") including removal of present 16" pipes.

T Y P E "B"

- 20 2,028 Linear Feet 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B")
- 1,730 Linear Feet 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B") including removal of 48" water main
  - 1 Chamber in 69th Street at 48th Avenue
  - 1 Chamber in 69th Street at Garfield Avenue
  - 1 Chamber in 69th Street at Calamus Avenue
  - 30 1 Chamber in Calamus Avenue nr. 69th Place
  - 1 Chamber in Calamus Avenue at 70th Street
  - 1 Chamber in Calamus Avenue at 74th Street
- 17 Manholes and Drop Manholes
  - 9 Basin Manholes
  - 40 12 Standard Inlets
  - 4 Special Inlets
- 350 Linear Feet 12" Vitrified Pipe, Basin Connection
- 210 Linear Feet 10" Vitrified Pipe, Basin Connection

EXHIBIT C-19. (*continued*).

213 Six-inch Spurs 24" long on 8'-0" Reinforced Concrete Pipe  
Sewer (Precast Type "B")

33 Vertical Feet Risers for House Connection

688 Linear Feet 6" Vitrified Pipe House Connection Drains

10 30 Linear Feet 16" C. I. Pipe (Class "A") including removal  
of present 16" pipes.

Personal examination of work.

20 5. The foregoing Engineer's Estimate is approximate only and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.

30 Prices to be stated in writing and in words and in figures.

6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

Prices bid to cover.

40

7. The prices bid must cover the cost of furnishing all necessary materials and labor for and the complete performance of all the work set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

EXHIBIT C-19. (*continued*).

Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

Bids may be rejected.

10 9. Permission will not be given for the withdrawal of any bid within forty-five (45 days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

20 Times and places for commencing and prosecuting work to be determined by the President.

30 10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

40 11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

12. No bid will be received or considered unless accompanied by either a certified check upon one of the National or State Banks or Trust Companies of The City of New York, or

EXHIBIT C-19. (*continued*).

10 a check of such bank or trust company signed by a duly authorized officer thereof, drawn to the order of the Comptroller, or money or corporate stock or certificate of indebtedness of any nature issued by the City of New York, which the Comptroller shall approve as of equal value with the security required, to an amount of five per centum of the amount of the bond required for the faithful performance of the contract (as provided by section 420 of The Greater New York Charter as amended). Such check or money or other form of security must not be inclosed in the sealed envelope containing the bid, but must be handed to the officer or clerk who has charge of the bidding, and no bid shall be deposited in the box provided for that purpose until such check or money or other form of security has been examined by said officer or clerk and found to be correct. All such deposits, except those of the lowest three bidders, will be returned to the persons making the same within 10 days after the opening of the bids; within three days after the awarding of the contract, the remaining deposits, except that made by the bidder whose bid has been accepted, will be returned to the persons making the same. If the successful bidder shall refuse or neglect to execute the contract within five days after notice that it has been awarded to him, and that the adequacy and sufficiency of the security offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York, but if he shall execute the contract and furnish the required security within the time aforesaid, the amount of his deposit will be returned to him.

20

30

Names of persons interested.

13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also, that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety or otherwise, in or in the performance of the contract or in the

40

EXHIBIT C-19. (*continued*).

material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

- 10           14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been  
20 so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

- 30           15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

MAURICE E. CONNOLLY,

President of the Borough of Queens.

40

The City of New York ..... , 192...

EXHIBIT C-19. (*continued*).

THE CITY OF NEW YORK  
OFFICE OF THE PRESIDENT OF THE BOROUGH  
OF QUEENS.

10

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BUREAU OF SEWERS.

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CONTRACT

For the construction of a sewer and appurtenances in:  
20 FISK AVENUE from Queens Boulevard to Calamus Avenue,  
and in CALAMUS AVENUE from Fisk Avenue to Decker Street,  
Second Ward, Borough of Queens.  
together with all the work incidental thereto.

Parties.

THIS AGREEMENT, made and entered into this 15th  
day of Mar., in the year one thousand nine hundred and twenty  
four by and between The City of New York, party of the first part,  
30 by the President of the Borough of Queens, and DUIT INC. of  
203 Argyle Road, Brooklyn, N. Y., Contractor, party of the  
second part, pursuant to the provisions of The Greater New  
York Charter, and the resolution of The Board of Estimate and  
Apportionment adopted on the 11th day of May 1923, of which  
resolution the following is a copy:

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT.

40

City of New York

(Cal. No. 137)

A copy of a resolution of the Local Board of the Newtown  
District, duly adopted by said Board on the 14th day of Sept.,  
1922 and approved by the President of the Borough of Queens on



EXHIBIT C-19. (*continued*).

the 20th day of September, 1922, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

“RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit:

10       “For the construction of a sewer and appurtenances in:—  
FISK AVENUE, from Queens Boulevard to Calamus Avenue;  
and in CALAMUS AVENUE, from Fisk Avenue to Decker Street,  
Second Ward, Borough of Queens”;

20       and thereupon, on the 11th day of May, 1923, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed, that  
30       the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$402,600; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$7,464,570, having been presented, it is

40       RESOLVED, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the afore-said preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

EXHIBIT C-19. (*continued*).

A true copy of a resolution by the Board of Estimate and Apportionment.

FEBRUARY 8, 1924.

(Signed) JAMES MATTHEWS,

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Assistant Secretary,

Board of Estimate and Apportionment.

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Covenant.

20

WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, or themselves, and its, his or their executors, administrators, successors and assigns, as follows:

Contract.

30

I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the Plan of the Work dated December 12th, 1923, filed in the office of the President of the Borough, entitled: PLANS, PROFILES and DETAILS for the construction of a sewer and appurtenances in: : FISK AVENUE from Queens Boulevard to Calamus Avenue, and in CALAMUS AVENUE from Fisk Avenue to  
40 Decker Street, Second Ward, Borough of Queens, and also Drawings of Standard Details pertinent thereto on file in the office of the Engineer.

Party of the first part.

II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means

EXHIBIT C-19. (*continued*).

The City of New York, the party of the first part hereto, or the President of the Borough of Queens, or his authorized representative.

Party of the second part.

10 Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

Engineer described.

20 III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises, limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

Terms defined.

30 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawings pertinent thereto. Whenever it is provided that anything is "to be" or "to be done," "if" or "as," or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

40 V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the fol-

EXHIBIT C-19. (continued).

lowing prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof:

Prices.

10

T Y P E "B"

- 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Seventy five Dollars (\$75.00).
- 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B") including removal of 48" water Main, Per Linear Foot, Eighty one Dollars (\$81.00).
- 20 Chamber in 69th Street at 48th Avenue, Complete, Ten thousand dollars (\$10,000.00).
- Chamber in 69th Street at Garfield Avenue, Complete, Four thousand Dollars (\$4,000.00).
- Chamber in 69th Street at Calamus Avenue, Complete, Ninety five hundred Dollars (\$9,500.00).
- 30 Chamber in Calamus Avenue near 69th Place, Complete, Four thousand Dollars (\$4,000.00).
- Chamber in Calamus Avenue at 70th Street, Complete, Sixty five hundred Dollars (\$6,500.00).
- Chamber in Calamus Avenue at 74th Street, Complete, Four thousand Dollars (\$4,000.00).
- 40 Manholes and Drop Manholes, Complete, Each, Two hundred fifty Dollars (\$250.00).
- Basin Manholes, Complete, Each, One hundred twenty five Dollars (\$125.00).
- Standard Inlets, Complete, Each, Sixty Dollars (\$60.00).

EXHIBIT C-19. (*continued*).

Special Inlets, Complete, Each, One hundred twenty five Dollars (\$125.00).

12" Vitrified Pipe, Basin Connection, Per Linear Foot, Two Dollars (\$2.00).

10 10" Vitrified Pipe, Basin Connection, Per Linear Foot, Two Dollars (\$2.00).

Six-inch Spurs 24" long on 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Each, One Dollar (\$1.00).

Risers for House Connection Drains, Per Vertical Foot, Three Dollars (\$3.00).

20 6" Vitrified Pipe, House Connection Drains, Per Linear Foot, Two Dollars (\$2.00).

16" C. I. Pipe (Class "A") including removal of present 16" pipes, Per Linear Foot, Five Dollars (\$5.00).

Quantities are approximate only.

No extra compensation.

30 VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only. The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work 40 any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

EXHIBIT C-19. (*continued*).

Sewers, etc., to be built as shown on the plan.

VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on the plan of the work as the same will be designated on the ground by the Engineer.

- 10 Line may be changed.

The President may change the line of the sewer or the location of the receiving basins, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby agrees to make no claim for damages or extra compensation on account thereof.

- 20 Preservation of points, stakes, etc.

The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for and to remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

- 30 Written order for extra work.

VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five per cent. (5%) of the contract price or the total cost of the work and materials.

40

Contract may be modified.

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substance

EXHIBIT C-19. (*continued*).

thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

Limit to extras.

10 All claims for additional work or materials in any month shall be made to the Engineer, in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

Inspection.

Work or materials may be condemned at any time.

20 IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfillment of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed  
30 by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept  
40 the work or materials at any time thereafter.

Engineer to be final arbiter.

X. To prevent all disputes and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall, in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this con-

EXHIBIT C-19. (*continued*).

tract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

10

Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

20

Work and materials must agree with specifications.

XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under this contract.

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Examinations.

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During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so



EXHIBIT C-19. (*continued*).

disturbed. Should the openings disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

Use of patented articles.

10 XII. Wherever an article or any kind of material is specified by a trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the Board of Estimate and Apportionment."

20

Claims for infringement.

The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will have harmless and indemnify The City against all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

30

Commencement and completion.

XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

40

EXHIBIT C-19. (*continued*).

Time of performance.

10           XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of two hundred (200) CONSECUTIVE WORKING DAYS.

Time important.

20           It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

30           In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess  
40 of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work then the time which the Contractor is delayed on account thereof will be determined and allowed by the

EXHIBIT C-19. (*continued*).

10 President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

End of time period.

The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

Liquidated damages.

20 XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of twenty-five Dollars (\$25.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due to the Contractor under this contract.

30

Work not provided for in contract.

40 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

EXHIBIT C-19. (*continued*).

President's right to suspend work.

10 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay  
due to other contracts.

20 XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any work or any part thereof being suspended as herein before provided, such allowance of time on account thereof  
30 as the President shall deem reasonable will be made.

If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing work for The City, the President, or whoever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion  
40 of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any

EXHIBIT C-19. (*continued*).

articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.

Right to construct sewers, etc.

10 Permits for connections.

20 XX. Prior to the commencement of and during the progress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII., and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstructions in the way of such persons as may be employed in building such  
30 sewers and drains, or in making such connections, and the flow from such sewers, drains and connections will be permitted by the Contractor to discharge into the work built under this contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made  
40 or joined to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

EXHIBIT C-19. (*continued*).

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

- 10 XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or the trenches in which it is to be constructed, follow the line and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense.
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- 40 as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

EXHIBIT C-19. (*continued*).

Sale of sand or earth.

10 XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable, then the same shall be removed from the line of work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

20 The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

30 Contractor to give personal attention to work.

Not to assign or sublet.

40 XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right, title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, this

EXHIBIT C-19. (*continued*).

10 contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the written consent of the President.

When Contractor is absent.

20 Disorderly workmen.

Contractor to provide assistance.

30 XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions, orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

Contractor to plank and bridge for traffic.

40 XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.



EXHIBIT C-19. (*continued*).

Guards and lights.

Indemnification of City.

10 XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials used in its prosecution, or by or on account of any act or omission of 20 the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, as its option, be retained by The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

Contractor to make repairs.

30 XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due to the Contractor under this 40 contract.

Loss or damage to be assumed by Contractor.

XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be en-

EXHIBIT C-19. (*continued*).

countered in the prosecution of the same, or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

- 10           XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain—anything herein contained to the contrary thereto notwithstanding—from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.
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Contractor will prevent filing of liens, etc.

- XXX. The Contractor will not, at any time, suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to remain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and that any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.
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EXHIBIT C-19. (*continued*).

Evidence of satisfaction of liens, etc.

10 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

Notice to gas companies, etc.

Not to hinder other companies.

20 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work may be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipe, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said gas, railroad, or other companies, within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

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Pipes, conduits, etc., of private companies.

XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying

EXHIBIT C-19. (*continued*).

any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

Protection and restoration of pipes, etc., of private companies.

XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures; and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, or restoring the said pipes, conduits, tracks or other structures.

Contractor to notify Department of Water Supply, Gas and Electricity.

XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

EXHIBIT C-19. (*continued*).

City's water pipes, etc.

10 XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any water pipes or appurtenances owned or controlled or operated by The City, the removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

20 Protection of City's water pipes, etc.

30 XXXVI. The contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes, and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due to the Contractor under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

40 XXXVII. The Contractor agrees to sustain in their places and protect from injury all water or gas mains, conduits, subways or service pipes, steam pipes and pneumatic pipes, and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them,

EXHIBIT C-19. (*continued*).

and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this Contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

Old water and gas pipes.

XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the Contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

Change of grade.

XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which here is no contract price, the provisions in relation to work not provided for in this contract shall apply.

EXHIBIT C-19. (*continued*).

Measurement of work and material.

10 XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part of the work, or of the materials, be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

20 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except 30 such sum or sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, or under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retained for repairs to unpaved streets.

40 It is hereby further agreed that The City shall be and is hereby authorized to retain out the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of \$0.75 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done un-

EXHIBIT C-19. (*continued*).

der this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

Payment of retained moneys to be made after six months.

10 It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

20 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

30 XLII. The action of the Engineer in Charge of Sewers by which the Contractor is to be bound and concluded according to the terms of this Contract shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

40 XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over the Engineer shall from time to time, as the work progresses, but not oftener than once a month, make in writing an estimate, such as in his opinion, shall be just and fair, of the amount of the work done and material installed by the Contractor in the performance of this contract on his part, and of the value thereof under and according to the terms of this contract. No allowance will be made in these estimates for



EXHIBIT C-19. (*continued*).

materials furnished and delivered until such materials shall have been permanently incorporated in the work, except as hereinafter stated. The first such estimate will be of the amount of work done and materials furnished and installed since the Contractor commenced the performance of this contract on his part, and every subsequent estimate except the final one, will be of the amount of work done and materials furnished and installed since the last preceding estimate was made. In the estimates allowances will be made for Reinforcing Steel, Structural Steel, Pumps, Electric Motors, Valves, Cast Iron Pipe, Salt Glazed Tile Pipe 12 inches in diameter and larger sizes, Precast Concrete Pipe 24 inches in diameter and larger sizes, Stationary Screens, Mechanically Driven Screens, Cast Iron Tunnel Lining and Precast concrete Blocks for Tunnel Lining, prior to their installation, which are owned by the Contractor and free from all liens or claims, and which have been delivered at locations where work is to be performed under this contract. Such allowances will be calculated at Eighty (80) per cent of the cost price for said materials. But no allowances will be made for those materials delivered which are in excess of the quantities permitted under the specifications to be distributed along the lines of the work. The Contractor will be required to furnish, prior to the certification for payment, written evidence satisfactory to the Borough President that the Contractor is the owner of the materials upon which payment is to be certified, and that such materials are free from liens or claims. Before certifying for payment for materials aforesaid, the Contractor shall execute or have executed and delivered to the City any and all instruments required to vest in The City title to such materials free from claims or liens. Title to materials certified for payment shall vest in The City upon certification of the same for payment. The Contractor, however, agrees to and does assume responsibility for the safety, care and protection of all such materials until they have been finally installed in the work and the completed work accepted by the City, and further agrees at his own cost to replace any such materials that may be lost or damaged. The aforesaid estimates of amount and quantity will not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one and partly by the other, and it shall be sufficient if they are approximate only and estimates strictly so called. Upon each such estimate, made prior to the time of the completion of all the work of laying all the sewers and appurtenances and the backfilling of trenches, said estimate being

EXHIBIT C-19. (*continued*).

certified in writing by the Borough President and Engineer and filed with the Comptroller, The City will pay to the Contractor eighty-five per centum of the amount stated in such estimate to be the value of the work therein certified to have been done and materials certified therein to have been furnished and installed, and eighty-five per cent of eighty per cent of the cost not exceeding the contract value of materials not installed hereinabove specified; except that subsequent to the completion of all the work of laying all the sewers and appurtenances and the back-filling of the trenches, The City will pay to the Contractor eighty-five per centum of the value of the work done and materials furnished under the contract as certified by the Engineer, less the sums theretofore paid to the Contractor. No payment, however, will be made unless the value of the work done and materials furnished, certified in each such estimate, shall amount to more than fifteen hundred dollars (\$1500.) and provided, that The City may at all times reserve and retain out of said installments, or any of them, such sum or sums as by the terms hereof, or of any act of the Legislature of the State of New York, or of any ordinance of The City passed prior to the date hereof, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

If abandoned, etc.

Contract may be declared abandoned.

40 Completion of work to be undertaken by President.

XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing, to

EXHIBIT C-19. (*continued*).

the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (See Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by a written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV., or with any employee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned, and to use such materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plant or materials shall be removed so long as the same may be wanted for the work. In the comput-

EXHIBIT C-19. (*continued*).

10 ation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

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Notice to Contractor.

30 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

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EXHIBIT C-19. (continued).

Labor law.

10 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property: that the wages to be paid for a legal day's work to all classes of such laborers, workmen or mechanics upon public work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provisions of section 222 of the Labor Law.

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No estoppel.

30 XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

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Understanding of plans and specifications.

XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this con-

EXHIBIT C-19. (*continued*).

tract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions: and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

Substitution of sureties.

XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

Laws 1916, Chap. 478.

L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of, and keep insured during the life of this contract, the employees engaged thereon, in compliance with the provisions of Chapter 41 of the laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

IN WITNESS WHEREOF, The President of the Borough of Queens for and on behalf of The City of New York, and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with

EXHIBIT C-19. (*continued*).

the Comptroller of The City of New York, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,

By BENJAMIN MARIUN,

10

Acting President of the  
Borough of Queens.

DUIT INC.,

Contractor.

20

By JOHN J. CREEM,

President.

The City and State of New York,      ss. :  
County of Queens

30

On this 22nd day of March, 1924, before me personally came Benjamin MARIUN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the same as said Acting President for the purposes therein mentioned.

JEFFERSON J. REILLY,

40

Commissioner of Deeds, New York City.

EXHIBIT C-19. (continued).

The City and State of New York, ss.:  
County of Queens

10 On this 15th day of March, 1924, before me personally came JOHN J. CREEM, to me known, who, being by me duly sworn, did depose and say that he resides in the City of Brooklyn and is the President of DUIT INC., the corporation described in, and which executed the foregoing instrument, that he knows the corporate seal of said company; that the seal affixed to the foregoing instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company and that by like order he thereto signed his name and official designation.

JEFFERSON J. REILLY,

Commissioner of Deeds, New York City.

20

30 KNOW ALL MEN BY THESE PRESENTS, That we DUIT INC., hereinafter called the "Contractor", and Fidelity and Deposit Co. of Md, Royal Indemnity Co. and Eagle Indemnity Co. hereinafter called the "Sureties", are held and firmly bound unto The City of New York, in the sum of One hundred eighty one thousand DOLARS, lawful money of the United States of America, to be paid unto THE CITY OF NEW YORK, or to its certain attorneys, successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves, and our several and respective heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this 15th day of March, 1924.

40 WHEREAS, The above bounden Contractor, by an instrument in writing, signed by said Contractor and bearing even date with these presents, one part whereof annexed, has contracted with The City of New York, by the President of the Borough of Queens, ..... to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete sewer, etc. in Fisk Ave. from Queens Boulevard to Calamus Ave, etc., 2nd Ward, together



EXHIBIT C-19. (continued).

with all the work incidental thereto, as is fully and at large set forth and described in the contract aforesaid.

10 NOW, THEREFORE, The condition of the above obligation is such that if the said above bounden Contractor and its, his or their heirs, executors, administrators and assigns, or any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained to be performed by said Contractor, and complete the same within the period therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

20

DUIT INC., [L. S.]

Contractor.

By, JOHN J. CREEM, Pres.

Eagle Indemnity Company,

.....

Attorney-in-fact.

30

#50,000

Royal Indemnity Company,

.....

Resident Vice-President.

.....

Resident Asst. Secretary.

40

Bond H 4110498

Fidelity and Deposit Company of Maryland,

By GEORGE E. BAER,

Attorney-in-fact.

File #141662

EXHIBIT C-19. (*continued*).

The City and State of New York, ss. :  
County of Queens

10 On this 15th day of March, 1924, before me personally came JOHN J. CREEM, to me known, who, being by me duly sworn, did depose and say that he resides in Brooklyn that he is the President of the DUIT INC., the corporation described in, and which executed the above instrument, that he knows the corporate seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Corporation and that by like order he thereto signed his name and official designation.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

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FUNDS

PRESIDENT'S CERTIFICATE

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It is hereby certified that the estimated cost of the work and materials required by the within contract is Three hundred thirty nine thousand seven hundred eighty three DOLLARS (\$339,783.00), and is chargeable to the Street Improvement Fund of the City of New York.

BENJAMIN MARIUN,

40

Acting President of the Borough of Queens.

THE CITY OF NEW YORK, May 21st, 1924.

Funds O. K. R.

EXHIBIT C-19. (continued).

SPECIFICATIONS

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10

TRENCHES

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraphs 127 and 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where directed. Sheeting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

Sheeting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheeting shall be closely driven

EXHIBIT C-19. (*continued*).

and to such depth below the bottom of the sewer as may be directed.

Tunneling.

- 10 4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

Trees and stumps.

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

- 20 6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

Roadway, sidewalks, etc., to be kept clear.

- 30 7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

40 Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much

EXHIBIT C-19. (*continued*).

of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

Fence.

- 10 9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

- 20 Disposal of water from trenches.

11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

- 30 Cost to be covered.

12. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

40

EARTH EXCAVATION.

13. Earth excavation shall include the removal of all material other than ledge rock.

EXHIBIT C-19. (*continued*).

Width of trench for sewers, etc.

10 14. The minimum widths of trenches in earth, for pipe sewers, basin connections, house connections not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs; The minimum widths of trenches in earth, inside the sheeting, for other sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

20 15. Where a manhole or other appurtenance of the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

30 16. The minimum dimensions of the excavation in earth, for brick basin manholes, inlets and special inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in any cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes, inlets and special inlets shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

40 17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan, and where the conditions are such as to make it necessary, to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

EXHIBIT C-19. (*continued*).

Cost to be covered.

- 10 18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

BACKFILLING.

Backfilling around sewers, etc.

- 20 29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection or house connection, the material for backfilling trenches as excavated shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

Backfilling for remainder of trench.

- 30 30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

Backfilling around basin manholes, etc.

- 40 31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

EXHIBIT C-19. (*continued*).

Puddling.

32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

10 33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

20 34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

30 Curves, branches, etc., not to be covered.

36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

40 37. As the trenches are backfilled, the Contractor shall remove all surplus material and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of and until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the



EXHIBIT C-19. (*continued*).

service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

20

CEMENT.

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

30

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212°F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

40

Fineness.

41. The cement shall be dry, finely ground, of uniform color and free for lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

EXHIBIT C-19. (*continued*).

Tensile strength.

42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table.

10 Neat Cement:

24 hours ..... 175 pounds per sq. in.

7 days (1 day in moist air, 6 days in water) ..... 500 pounds per sq. in.

28 days (1 day in moist air, 27 days in water) ..... 600 pounds per sq. in.

20 Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

7 days (1 day in moist air, 6 days in water) ..... 180 pounds per sq. in.

28 days (1 day in moist air, 27 days in water) ..... 225 pounds per sq. in.

30 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

40

Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

EXHIBIT C-19. (*continued*).

Testing.

45. The cement will be subjected to such tests as the Engineer may deem necessary, and such tests will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

Delivery and storing.

49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and the name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it has been tested and accepted, and any

EXHIBIT C-19. (*continued*).

concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

- 10           50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

MORTAR.

- 20           51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and  $2\frac{1}{2}$  volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

- 30           52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestones. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ( $\frac{1}{4}$ ) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5%) per cent, by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1%) per cent. of organic matter.

- 40           Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

Mixing.

53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has

**EXHIBIT C-19. (continued).**

a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

10 Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

Cost covered.

20 55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

**CONCRETE.**

Class A concrete.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

30 Broken stone or gravel.

40 57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings  $1\frac{1}{4}$  inches in diameter and shall be retained on a screen with openings  $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

EXHIBIT C-19. (*continued*).

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing  $9/10$  cubic foot, and the other ingredients shall be measured by an approved method.

10 Water.

59. Only clean fresh water shall be used for concrete.

Mixing.

20 60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed of wet stone, water added, and the entire mass turned until  
30 each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

Placing concrete.

40 61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted

EXHIBIT C-19. (*continued*).

the concrete in the work, shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

10

Joining old and new concrete.

62. When fresh concrete is to be laid on or adjoining concrete already set, the surface of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

Forms and centres.

20

63. The Contractor shall provide all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the faces against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approval lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

30

Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

40

Exposed surfaces.

65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of

EXHIBIT C-19. (*continued*).

the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

10 Depositing concrete under water.

66. Whenever it becomes necessary to place concrete under water, it shall be deposited by means of drop-bottom buckets or other approved method. Concrete so deposited shall be carefully spread without tamping.

Freezing weather.

- 20 67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed, one per cent. by weight of salt shall be added to the water for each degree Fahrenheit that the temperature of the air is below 32 degrees Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

Protection.

- 30 68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering  
40 as well as the concrete shall be kept wet for such time as may be directed.

The cost of all concrete and the requirements specified therewith shall be covered by the contract price for the structure in connection with which it is used.



EXHIBIT C-19. (*continued*).

BRICK MASONRY.

Quality of bricks.

- 10 71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

How laid.

- 20 72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than  $\frac{3}{8}$  inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed  $\frac{1}{4}$  inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be racked back in courses, unless otherwise permitted.

30 Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

40 Freezing weather.

74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

**EXHIBIT C-19. (continued).**

**Cost of Brick Masonry.**

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

10

**STRUCTURAL STEEL.**

**Quality.**

76. Structural steel shall be medium steel and rivet steel made by the open hearth process and shall conform to the latest revised Standard Specifications for Structural Steel for Buildings adopted by the American Society for Testing Materials, and such tests as may be required shall be made in accordance therewith and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

Properties Considered	Medium Steel	Rivet Steel
Phosphorus (maximum) . . . . .	0.06 per cent.	0.06 per cent.
Ultimate strength, lbs. per sq. in. . . . .	55,000-65,000	48,000-58,000
Yield point (minimum), lbs. per sq. in. . . . .	1/2 ult. tens. str.	1/2 ult. tens. str.
Elongation, per cent. in 8 in. (minimum) . . . . .	1,400,000 <hr/> ult. tens. str.	1,400,000 <hr/> ult. tens. str.
Character of fracture . . . . .	Silky	Silky
Cold bend without fracture . . .	180° to diam. of 1 thickness	180° flat

30

40

**Finish.**

77. All finished material shall be free from injurious seams, flaws and cracks, and have a workmanlike finish.  
Variation in weight.

EXHIBIT C-19. (*continued*).

Variation in weight.

78. When steel is inspected at the mill or shop all pieces (except plates), which vary in weight more than  $2\frac{1}{2}$  per cent. from that specified shall be rejected; when steel is not inspected until it is delivered on the work such variation in weight will be sufficient cause for rejection when, in the judgment of the Engineer, the safety of the work will be impaired thereby.

Workmanship.

79. All structural steel shall be in accordance with the plan and approved shop drawings. All details not shown on the plan, and all workmanship and finish shall be equal to the best current practice in similar work for buildings.

Anchor bolts.

20

80. Anchor bolts and expansion bolts shall be furnished where required and set in place as directed. When holes are drilled in masonry or concrete for such bolts, the holes shall be washed clean and the bolts shall be firmly embedded in a mortar composed of equal parts of cement and sand, unless other material is shown on the plan.

Melt numbers.

30

81. Test specimens and every finished piece of steel shall be stamped with melt or blow number, except that small pieces may be shipped in bundles securely wired together; with the melt or blow number on a metal tag attached.

Tests and inspections.

40

82. The required tests and inspections of structural steel shall, if directed, be made at the mills and shops by the City's authorized inspector. The Contractor shall notify the City as to the mills and shops which are to supply the steel sufficiently in advance to enable the City to arrange for such tests and inspections and the mills and shops shall afford every facility for making the same.

Mill certificates.

83. If it is decided not to make the City's tests and inspections at the mills, then mill certificates showing the proper-

EXHIBIT C-19. (*continued*).

ties of each melt of which the steel is made will be accepted for consideration.

Shipping invoices.

10           84. The Contractor will be required to furnish complete copies of shipping invoices with each shipment of steel.

Certificates, etc., for information only.

85. Steel will not be accepted until the required inspector's reports or mill certificates are received. All tests, inspections, reports and certificates are for the information of the Engineer, and he shall not be precluded on account thereof from requiring or making any further tests which he may deem necessary.

20           Shop drawings.

86. The Contractor shall prepare complete and accurate shop drawings of all steel work, and no shop work shall be done until such drawings shall have been approved. The Contractor shall furnish the Engineer with 3 complete sets of prints of the approved shop drawings.

Painting.

30           87. All steel shall be thoroughly cleaned of scale, rust, oil and dirt, and unless otherwise directed, those parts which are not to be bedded in concrete shall be painted with a priming coat of the best red lead and linseed oil or such other paint of equivalent value as may be directed. After erection the metal which will be exposed in the finished work shall be evenly painted with 2 coats of approved paint. No painting shall be done on wet surfaces.

40           Measurement.

88. The amount of structural steel paid for as such will be all structural steel placed in the work in accordance with the plan or directions, except any excess greater than  $2\frac{1}{2}$  per cent. above the weight required, and except such structural steel shown on the plan as being part of structures for which there are contract prices, and the cost of which is hereinafter specified to be

EXHIBIT C-19. (*continued*).

covered by the contract prices for such structures. This paragraph does not apply to structural steel in screen house.

Price to cover.

- 10        89. The contract price for structural steel shall cover the cost of all labor and materials required to furnish, fabricate, erect and paint the same, to furnish all test pieces, to prepare and furnish prints of shop drawings, and to drill holes for and set anchor and expansion bolts, where required, all as specified.

STEEL REINFORCEMENT BARS.

Shape.

- 20        90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete at frequent intervals and to insure intimate contact between the steel and concrete.

Samples.

- 30        91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

Size.

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

- 40        Variation in weight.

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

**EXHIBIT C-19. (continued).**

**Quality.**

10 94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

Properties Considered	Structural Steel Grade		Cold Twisted Bars
	Plain Bars	Deformed Bars	
Phosphorus, max.			
Open Hearth .....	0.05	0.05	0.10
Bessemer .....	0.10	0.10	0.05
20 Ultimate Tensile Strength, pounds per sq. in. ....	55,000-70,000	55,000-70,000	Recorded only
Yield Point, minimum pounds per sq. in. ....	33,000	33,000	55,000
Elongation, minimum per cent. in 8 inches .....	1,400,000	1,250,000	5 per cent.
	tens. str.	tens. str.	
Cold bend without fracture:			
Bars under ¼ in. in diam. or thickness .....	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 2t.
30 thickness and over ....	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 3t.
	t : Nominal thickness or diameter of bar.		

95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

40 96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when being bent will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

96-A. Bending sheets for steel reinforcement shall be furnished, if required, in which case the reinforcement bars shall not be bent until such bending sheets have been approved.

EXHIBIT C-19. (*continued*).

Delivery and protection.

97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the Contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing.

99. All bars shall be as long as can be conveniently used, accurately bent, placed, spaced and jointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

30 Cost covered.

100. The cost of all steel reinforcement bars and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

WROUGHT IRON.

40 Quality.

101. Wrough iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with the fiber, through 180 degrees

EXHIBIT C-19. (*continued*).

around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

Galvanizing.

- 10 102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

Cost covered.

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20

IRON CASTINGS.

Quality.

- 30 104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The castings shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

Cost covered.

105. The cost of all labor and materials required to furnish coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

40

TIMBER.

Quality.

106. All timber shall be merchantable pine or spruce, unless otherwise specified, and shall be sound and free from shakes, cracks, large or loose knots, and other defects impairing its



EXHIBIT C-19. (*continued*).

strength or durability. It shall be squared to the required dimensions throughout its entire length.

Placing.

107. Timber shall be placed where shown on the plan or directed, and where necessary shall be firmly spiked or bolted with approved nails, spikes or bolts of such sizes and lengths, and at such places and in such numbers as shown on the plan or as directed.

Measurement.

108. The amount of timber to be paid for as such will be all timber placed in the work in accordance with the plan or directions, except piles and timber sheeting, and except such timber shown on the plan as being part of structures for which there are contract prices, and the cost of which is hereinafter specified to be covered by the contract prices for such structures. The amount paid for will not include timber used for forms, templates, centres, scaffolds, bridges (unless otherwise specified), fences, guard rails or other temporary structures, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. No deduction will be made in the measurement of timber flooring on account of the spaces occupied by the piles.

30 Price to cover.

109. The contract price for timber shall cover the cost of all labor and materials required to furnish, work, place and secure the same as specified.

TIMBER SHEETING.

40 Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

EXHIBIT C-19. (*continued*).

When paid for.

111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

10 Measurement.

112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, dangers and braces left in place without such order, not sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same

PILES.

Quality.

114. Piles shall be of white oak, spruce or yellow pine, sound and free from splits, shakes and other imperfections impairing their strength or durability. They shall be straight, taper uniformly from butt to point and if required shall be barked. Unless otherwise shown on the plan, they shall conform to the following dimensions:

EXHIBIT C-19. (continued).

Dimensions.

	Length Below Cutoff	Minimum Diameter at Point	Minimum Diameter at Cutoff
10	Less than 20 feet .....	6 inches	10 inches
	20 feet to 25 feet .....	6 inches	11 inches
	26 feet to 35 feet .....	6 inches	12 inches
	36 feet to 45 feet .....	6 inches	13 inches
	46 feet and over .....	6 inches	14 inches

20 115. To determine the necessary length of piles to be used in the work, the Contractor may be required to drive test piles.

116. Each pile less than 60 feet long shall be in one piece; piles longer than 60 feet may be spliced in an approved manner. The small ends of piles shall be pointed, and, if required, shall be shod with approved iron shoes. The butt ends of piles shall be cut off square and protected with approved iron bands while driving.

How driven.

30 177 .Piles shall be driven without the use of a follower, unless specially permitted. Pile heads that become split or broomed shall be cut off and the driving continued. Any pile which splits, breaks or drives unsatisfactorily will not be paid for, and it shall be withdrawn or abandoned and another driven in place of it. After being driven piles shall be accurately cut off at the required elevation.

Bearing pile.

40 118. Bearing piles shall be driven vertically and shall be spaced as shown on the plan or as directed. They shall be driven to a satisfactory refusal by a hammer having a concave face and weighing not less than 2,000 pounds nor more than 2,500 pounds. Refusal in general will be indicated by a penetration not exceeding 1 inch per blow under the last 6 blows of the hammer falling 15 feet. If steam hammer pile drivers are used, the piles shall be

**EXHIBIT C-19. (continued).**

driven so that their bearing power shall be not less than that of piles driven as herein specified. When it is shown on the plan or specified that piles are to be driven to a certain required depth, they shall be driven if necessary, by the use of a water jet or by any other approved method.

10 **Brace piles.**

119. Where shown on the plan, brace, batter or spur piles shall be driven at the inclination shown or directed, to a satisfactory refusal, and the tops shall be framed, bolted or strapped to adjoining piles or to each other as shown on the plan, or directed.

**Measurement.**

20 120. The amount of piles to be paid for will be the total length below cutoff of all piles remaining in the work in accordance with the plan or directions, and the total length of all piles used only as test piles. Piles driven for temporary use will not be paid for.

**Price to cover.**

30 121. The contract price for piles shall cover the cost of all labor and materials required to furnish, drive and cut off the same as specified, of fastening brace piles, and of furnishing and placing all shoes, bands, bars, straps, bolts and other fastenings required.

**CONCRETE SEWERS.**

(Type "A" or Sewer Department Standard)

40 **Inverts.**

122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of suitable size for convenient construction, and unless otherwise permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Un-

EXHIBIT C-19. (*continued*).

10 less otherwise shown on the plan, a layer of mortar not less than 1/2-inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templets, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall be floated or troweled to a smooth finish. The concrete for inverts shall be deposited continuously for their entire cross sections and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

Side walls.

20 123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

Roof.

30 124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

40 125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

Reinforcement.

126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

EXHIBIT C-19. (*continued*).

Minimum length of invert.

127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

10 Connections.

128. Connections and branches for lateral sewers and receiving basins shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

20 Measurements.

129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on account of openings at branches and manholes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

30 Price to cover.

130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templates and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

40

TYPE "B"

CEMENT CONCRETE PIPE WITH REINFORCEMENT

131. Reinforced cement concrete pipe used shall be circular in section with or without that base and shall conform in dimensions as shown in table.

**EXHIBIT C-19. (continued).**

General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe	
10	24"	3 "	4'	3 "	3350 Lbs.	
	27"	3½"	4'	3 "	3700 "	
	30"	3½"	4'	3 "	4400 "	
	33"	4 "	4'	3 "	4600 "	
	36"	4 "	4'	4 "	4800 "	
	39"	4 "	4'	4 "	5200 "	
	42"	4½"	4'	5½"	5600 "	
	45"	4½"	4'	5½"	6100 "	
	48"	5 "	4'	5½"	6600 "	
	20	51"	5 "	4'	5½"	7050 "
		54"	5½"	4'	5½"	7500 "
		57"	5½"	4'	5½"	7750 "
		60"	6 "	4'	5½"	8000 "
63"		6 "	4'	5½"	8400 "	
66"		6½"	4'	5½"	8800 "	
72"		7 "	4'	5½"	9400 "	
78"		8 "	4'	5½"	10400 "	
84"		8 "	4'	5½"	11200 "	
90"		8½"	4'	5½"	12000 "	
30	96"	8½"	4'	5½"	12800 "	
	102"	9 "	4'	5½"	13600 "	
	108"	9 "	4'	5½"	14400 "	

**Testing pipe.**

Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes, for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering-Construction.

EXHIBIT C-19. (continued).

Material of pipe, cement, sand, stone or gravel.

10 132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform to the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe be stamped as made with date of manufacture.

Joints.

20 133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ( $\frac{1}{2}$ ) per cent from the hereinbefore mentioned dimensions will be permitted.

Jointing.

30 134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line making a continuous invert. After this has been done, steel forms especially designed for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portion grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

Laying pipe.

40 135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless otherwise specially ordered by the Engineer-in-Charge of Engineering-Construction.

Steel for reinforcement.

136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Com-



**EXHIBIT C-19. (continued).**

pany's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

**Spurs.**

- 10           137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

**Disposal of water from trenches.**

138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even through reinforced concrete pipe shall be furnished on this contract.

- 20           **Rejection of defective pipe.**

139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

**Depth of cover.**

- 30           139a. Where depth of cover on precast pipe sewer is sixteen feet (16') or over extra reinforcing steel shall be used in the pipe to take care of the increased stresses. The cost of such extra steel shall be included in the price bid for precast pipe sewers.

139b. Precast concrete pipe, Type "B", will be paid for from the inside face of all chambers.

40

**VITRIFIED PIPE SEWERS.**

**Vitrified pipe.**

140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over

**EXHIBIT C-19. (continued).**

10 the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations: it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

Identification marks.

20 141. Each pipe shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

Shape and dimensions.

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

30	Size	Length	Thickness	Depth of Socket	Annular Space
	6.....	2 feet	5/8 inch	2 1/2 inches	5/8 inch
	8.....	3 "	3/4 "	2 3/4 "	5/8 "
	10.....	3 "	7/8 "	2 3/4 "	5/8 "
	12.....	3 "	1 "	3 "	5/8 "
	15.....	3 "	1 1/4 "	3 "	5/8 "
	18.....	3 "	1 1/2 "	3 1/4 "	5/8 "
	20.....	3 "	1 2/3 "	3 1/2 "	5/8 "
40	22.....	3 "	1 5/6 "	3 3/4 "	5/8 "
	24.....	3 "	2 inches	4 "	5/8 "

Curves, bends, etc.

143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes

EXHIBIT C-19. (continued).

and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

10 144. Any or all of the following tests may be applied to samples selected from the pipe delivered on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

Crushing tests.

20 145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

	Diameter	Pressure
	6 inches .....	900 lbs. per lin. ft.
	8 " .....	900 " " " "
	10 " .....	1,000 " " " "
	12 " .....	1,050 " " " "
30	15 " .....	1,250 " " " "
	18 " .....	1,400 " " " "
	20 " .....	1,550 " " " "
	22 " .....	1,750 " " " "
	24 " .....	1,950 " " " "

Drop weight test.

40 146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

EXHIBIT C-19. (*continued*).

Hydrostatic test.

147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

10 Absorption test.

148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

Factory rejection.

20 149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

Without cradle.

30 151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

How laid.

40 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.