

Council Chamber, Ann Arbor, Mich.,
Feb. 5, 1917. Regular session.

Meeting called to order by the
President. Present: Ald. Fiegel, Heusel,
A. Lutz, Mayer, Andres, Flynn, Man-
waring, Sherk, Freeman, Geo. Lutz.
Pres. Wurster, 11. Absent: Ald. Heck,
Donnelly, McGregor, Sink, 4. Minutes
of previous meeting approved.

Communications.

From Board of Public Works—

Moved by Mr. Cornwell, that the
Board recommends to Council that
the salary of Geo. H. Sandenburg be
raised to \$100.00 per month, begin-
ning February 1st, 1917. Adopted by
Board.

(Council action)—

Moved by Ald. Fiegel, that the rec-
ommendation of the Board be con-
curred in.

Adopted by following vote: Yeas,
Ald. Fiegel, Heusel, A. Lutz, Mayer,
Andres, Flynn, Manwaring, Sherk,
Freeman, Geo. Lutz, 10. Nays, none.
President not voting on any questions.
Water Works Department, Ann Arbor,
Mich., Feb. 1, 1917.

To the Honorable Common Coun-
cil, of the City of Ann Arbor, Mich.:
Gentlemen—After submitting the mat-
ter of salaries to the Committee of the
Whole, and receiving the approval
thereof, we have placed the salary of
Geo. Vandawarker, \$1,900.00 per year
R. Spokes 1,900.00 per year
Louise Malloy 85.00 per mo.
Arthur E. Hawkes 85.00 per mo.

To take effect Feb. 1st., 1917, and
respectfully request that you confirm
the same.

John Lindenschmitt, Geo. J. Mann,
Wirt Cornwell, Commissioners of
Water Department.

(Council action)—

Moved by Ald. Albert Lutz, that
recommendation of Water Works
Commissioners be concurred in.

Lost by following vote: Yeas, Ald.
Fiegel, Heusel, A. Lutz, Mayer, An-
dres, Flynn, Manwaring, 7. Nays, Ald.
Sherk, Freeman, Geo. Lutz, 3.

Petitions.

Petition of Wm. H. Morton, et al.,
for paving Packard st., between Gran-
ger ave. and the city limits, on Pack-
ard st., received and ordered on file.

Petition of Wm. H. Morton, et al.,
for sanitary sewer on Packard st., be-
tween Brooklyn ave. and the city lim-
its, received and referred to Sewer
committee.

Petition of Roy B. Hiscock, et al.,
for sanitary sewer on Eber White,
Elder and Hiscock boulevards, and on

Lutz, Maxwell and Wakefield avenues,
received and referred to Sewer com-
mittee.

Petition of Ann Arbor branch of the
Association of Collegiate Alumnae, for
opening of street, received and referred
to Street committee.

From Board of Fire Commissioners—
Ann Arbor, Mich., Feb. 5, 1917.

To the Honorable Common Council
of the city of Ann Arbor: Gentlemen
—It is now about a year since we re-
ceived our motor driven fire appara-
tus, and it is evident to everyone that
our city made no mistake in purchas-
ing the two pieces of equipment au-
thorized by the vote of our electors.

During the past year this apparatus
has stood up under every test, and
given perfect satisfaction, demonstrat-
ing in several instances that, had it not
been for the motor driven pumper,
valuable property in some of the high-
er altitudes of our city would have
been destroyed for lack of sufficient
water pressure, under conditions pre-
vailing at that time of the year.

In the past two months the fire de-
partment has responded to forty-seven
alarms, and in at least three instances,
there was a second alarm, and in the
one case a third, while the depart-
ment was still attending the first.
Fortunately these fires were not ser-
ious, and all were properly taken
care of, but if, for instance in the
case of the Whitney theater, the fire
had gained a little more headway and
reached the auditorium proper, we
hesitate to predict what might have
happened, as the regular equipment
had responded to an alarm on S.
Twelfth street.

Owing to the constant rapid growth
of our city, we deem it imperative that
further steps be taken to improve the
present equipment of the fire depart-
ment, and we would recommend that
the city purchase an additional motor
driven pumper, such as we now have
or a similar one, together with a
tractor for the aerial truck.

An additional pumper and a trac-
tor would do away with the remaining
six horses.

These six horses with upkeep cost
about \$720.00 annually.

The cost, for maintaining this extra
pumper and tractor, ought not exceed
\$150.00 per year.

As an illustration, we give the cost,
for the past ten months, of maintain-
ing the pumper and service truck we
now have.

"Pumper" expense for 10

months	\$ 75.57
"Truck" expense for 10 months	73.85

Total\$149.42

These figures include a few small extras not originally on the equipment.

The expense for keeping the six horses for the same length of time (10 mos.) was \$565.75.

We also now operate with four less men that we had prior to installing the motor driven apparatus.

This amounted to a saving of \$2,253.00, which sum is figured at the old scale of wages, and does not take into account the ten percent increase granted in November by your Honorable Body.

An additional pumper and a tractor for the large truck would cost in the neighborhood of \$12,000.00.

We are endeavoring to gradually motorize the entire equipment of the department, so as to bring it to the highest state of efficiency.

Ann Arbor needs this extra apparatus, and we trust you will give this matter your careful consideration.

Respectfully, Board of Fire Commissioners, Sid. W. Milard, Julius F. Haarer, C. J. Sweet.

Received and referred to Fire and Finance committees.

Committee Reports.

FINANCE REPORT

Contingent Fund.

I. G. Reynolds, salary and clerk hire	\$166.66
Chas. L. Miller, salary and clerk hire	108.33
Herbert W. Crippen, salary	125.00
Manley Osgood, salary	150.00
Alfred J. Paul, salary	125.00
Frank B. DeVine, salary	83.33
George H. Sandenburg, salary	85.00
R. M. Caughey, salary	70.00
M. E. Easterly, salary	55.00
John A. Wessinger, salary	50.00
Douglas Bycraft, salary	60.00
Ura G. Rickert, salary	50.00
Edwin Ganzhorn, salary	25.00
M. C. Ryan, salary, 1/2 month.....	38.50
Edward Besch, collecting garbage.....	400.00

Total salaries for month of Jan., \$1,591.82

Fire Fund.

Chas. Andrews, salary	\$ 55.00
Eugene Williams, salary	42.35
Geo. Hoelzle, salary	42.35
Ralph Edwards, salary	42.35
Henry McLaren, salary	40.15
Jacob Gwinner, salary	40.15
Arthur Clark, salary	38.50
Harley Wise, salary	38.50
Martin Noll, salary	38.50
Geo. Isbel, salary	38.50
Frank Markey, salary	38.50
Thomas Shamp, salary	38.50

Herman Kruse, salary	38.50
Al. McNamara, salary	38.50
Emil Dammin, salary	38.50
Mat. Heininger, salary	38.50
Benj. Zahn, salary	33.00
Geo. Marsh, salary	33.00
Chas. Carroll, salary	25.30
Frank Kapp, salary	25.30

Total salaries 1-2 month January.\$763.95

Police Fund.

Thos. O'Brien, salary	\$ 50.00
Wm. April, salary	38.50
Gus Meyers, salary	38.50
Wm. E. Blackburn, salary	38.50
Ruben Armbruster, salary	38.50
Frank Keihl, salary	38.50
Ed. Blumhardt, salary	38.50
Emanuel Sadt, salary	38.50
Earl Walker, salary	38.50
Marlend Howard, salary	38.50
Robert Clark, salary	35.75

Total police salaries 1-2 month January\$432.25

Poor Fund

J. H. Shadford, salary	\$ 35.00
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Cemetery Fund

C. F. Miller, salary	\$ 60.00
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Park Fund

Ray E. Bassett, salary	\$125.00
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Water Works Fund.

Geo. S. Vandawarker, salary	\$150.00
R. Spokes, salary	150.00
Dr. H. Emerson, salary	50.00
A. W. Cochran, salary	10.00
Geo. Mann, salary	20.00
John Lindenschmitt, salary	20.00
Wirt Cornwell, salary	20.00

Total monthly salaries\$420.00

Harry Willsher, salary	\$ 40.00
Leslie Bush, salary	40.00
Fred Schwikart, salary	37.50
Robert Rowe, salary	30.00
Fd Schwikart, salary	30.00
John Ford, salary	30.00
Henry Linde, salary	35.00
John Schwikart, salary	32.50
John Volland, salary	30.00
A. E. Hawkes, salary	37.50
Cliff Shetterly, salary	50.00
Louise Malloy, salary	32.50
Russell Pryce, salary	20.00

Total semi-monthly salaries.....\$445.00

Water Works fund total salaries...\$865.00

Contingent Fund

Engineer Dept.—	
A. A. Burrell, services	\$ 7.50
M. S. Charlton, services	1.50
F. L. Feiner, services	9.00
Emanuel Holzapfel, services	36.39
Erve Howard, services	1.63
James Mason, services	45.67
Horace H. Person, services	21.00
W. B. Russell, services	9.45
Fred Ulrich, services	8.00
Martin Walsh, services	33.61
F. E. Williams, services	31.84

Total Engineer Dept.\$205.59

Thomas Biddle, services Charter Commission	\$ 23.80
Udo J. Wile, services to Board of Health	10.00

R. G. MacKenzie, vaccinations	12.00
Edwin C. Ganzhorn, vaccinations	3.00
Conrad Georg, vaccinations	7.00
Mich. State Tel. Co., tolls	.80
Washtenaw Gas Co., light	22.57
The Detroit Edison Co., light	34.38
League of Michigan Municipalities, dues	15.00
W. M. Saunders, services typewriting	29.00
The Christian Mack Agency, fire insurance	24.00
Champion Potato Machine Co., expansion bucket for sewer work	56.00
Clean Sweep Co., supplies	3.00
Keuffel & Esser Co., supplies	21.12
Standard Oil Co., gasoline	41.73
The Brown Drug Store, supplies	13.65
Eberbach & Son Co., supplies	39.21
Jno. C. Fischer Co., supplies	1.95
The Mayer-Schairer Co., supplies	58.60
Muehlig & Schmid, supplies	39.70
George Wahr, supplies	34.75
Washtenaw Electric Shop, supplies	3.00
E. M. Wurster, supplies, etc.	13.30
Ernest Rehberg & Son, ice	25.02
R. W. Steere, water	1.85
Home Laundry, laundry	1.00
The Times News Co., printing	193.85
The Athens Press, printing	17.25
Clyde C. Kerr, printing	3.70
A. C. Marquardt Garage, auto repairs	6.77
Smith Tire Repair Co., auto repairs	36.30
Ed. Easterly, repairs to flag pd.	1.00
Ann Arbor Taxicab and Transfer Co., taxi service	3.00
Manley Osgood, postage purchased	3.00
Frank B. DeVine, expenses paid	6.25
Total Supplies, etc.	\$806.55
Contingent fund total, including salaries	\$2,603.96

Fire Fund

Raymond Gelispie, substitute	\$ 39.60
Washtenaw Gas Co., light	8.45
The Detroit Edison Co., light	5.45
Dean & Co., Ltd., gasoline	61.60
Jno. C. Fischer Co., supplies	13.02
Kyer & Whitker, supplies	.45
D. J. Malloy, supplies	2.00
Muehlig & Schmid, supplies	22.27
Schumacher Hardware Co., supplies	1.35
Gus J. Vogel, supplies	.90
Staebler & Son, coal	207.63
Adolf Walters, hay	73.67
Mich. Milling Co., bran	1.60
The City Ice Co., straw	8.90
Theo. F. Prochnow, lunch at fire	4.50
The Machine Specialty Co., repairs	.75
C. W. Cornell, horseshoeing	6.70
Seybold & Esslinger, horseshoeing	5.70
Total supplies, etc.	\$464.54
Fire fund total, including salaries	\$1,228.49

Police Fund

Harvey Stofflet, subscriptions	\$ 11.00
Eberbach & Son Co., supplies	5.40
Gus J. Vogel, supplies	.60
Yellow Bonnet Taxi Line, taxi service	1.50
Saul Taxicab Co., taxi service	1.00
Stanger Furniture Co., repairs	.25
D. J. Malloy, repairs	9.05
City Taxicab Co., repairs auto	5.56
Total supplies, etc.	\$ 34.96
Police fund total, including salaries	\$467.21

Poor Fund

Alice Woodbridge, Treas. Old Ladies' Home	\$ 12.00
A. M. Spathelf, supplies	14.57
Theurer & Walker, supplies	8.17
F. J. Muehlig, burial	10.00
G. C. Rohde, stove	5.00
Ann Arbor Taxi and Transfer Co., ambulance calls	11.00
Total supplies, etc.	\$ 60.74
Poor fund total, including salary	\$95.74

Cemetery Fund

Jno. C. Fischer Co., supplies	\$ 2.20
Cemetery fund total, including salary	\$ 62.20

Dog Fund

Joseph Wickliffe, burials	\$ 2.00
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Street Lighting Fund

The Detroit Edison Co., light	\$1,620.87
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Entertainment Fund

Harry S. Clark, labor	\$1.50
A. L. LeGraves, labor	3.00
Washtenaw Electric Shop, wiring, etc.	34.65
C. E. Godfrey, cartage	3.50
Entertainment fund total	\$ 42.65

Park Fund

Harry S. Clark, labor	\$ 2.70
J. R. Cromwell, labor	1.50
A. L. LeGraves, labor	28.50
V. H. Parks, labor	7.38
George E. Shimel, labor	2.81
Total labor	\$ 42.89
S. A. Elsifor, cartage	\$ 1.50
A. C. Marquardt Garage, repairs to auto	5.05
E. A. Wisdom, repairs to auto	10.15
Ray E. Bassett, supplies, etc., paid	1.20
Total supplies, etc.	\$ 17.90
Park fund total, including salary	\$185.79

Water Works Fund

Schumacher Hardware Co., supplies	\$ 2.35
Crane Co., supplies	.41
Hammond-Byrd Iron Co., pipe	8,484.03
Mich. Central R. R. Co., freight	1,613.67
C. J. Snyder & Sons, unloading pipe	207.02
Ann Arbor Railroad Co., demur	1.00
Detroit Edison Co., lights and power	460.12
American Express Co., express	2.66
H. J. Abbott, P. M., postage	1.15
Total supplies, etc.	\$10,772.41
F. Rhodenbecker, labor	\$ 4.13
C. Lau, labor	2.50
Harry Willsher, labor	3.15
Leslie Bush, labor	3.15
John Ford, labor	3.15
Total labor	\$ 16.08
Water Works fund total, including salaries	\$11,653.49

Street Fund

Sam. Kalmbach, labor	\$ 5.33
Mat. Koch, labor	6.00
James Mason, labor	2.34
W. H. Romig, labor	3.56
Eugene Schlanderer, labor	37.38
A. G. Schneeberger, labor	7.11
Jacob F. Staebler, labor	2.00
Fred Ulrich, labor	34.34
Martin Walsh, labor	1.94
Jno. Wendland, labor	9.56

Jas. Blades, team	14.00
Chas. Flewelling, team	7.00
W. G. Harselman, team	22.22
Jno. E. Herrst, team	14.00
John Miller, team	12.00
Carl Rehberg, team	16.44
F. R. Schaffer, team	16.00
M. M. Wheelock, team	16.00
Jos. Williams, team	5.00
Claud Young, team	15.06

Total labor	\$247.28
The Studebaker Corporation of America, supplies	\$ 18.00
Jno. C. Fischer Co., supplies	1.60
D. J. Malloy, supplies	14.25
Schumacher Hardware Co., supplies	2.35
Adolph Burkhardt, hay	54.09
Hertler Bros., straw	5.43
The Cadillac Garage Co., storage of car, etc.	6.25
Michael F. Finkbeiner, repairs.....	12.95
F. A. Wisdom, repairs	6.29
W. Cornell, horseshoeing	3.20
Central R. R. Co., freight.....	.72

Street lighting, etc.	\$125.13
Street fund total	\$372.41

Bridge Cul. and C. W.

H. H. Phillips, services	\$ 10.50
Labor Acc. Sewer Dist. No. 72	
F. L. Feiner, services	\$ 56.00

Recapitulation

Contingent fund	\$ 2,603.96
Fire fund	1,228.49
Police fund	467.21
Poor fund	95.74
Cemetery fund	62.20
Dog License fund	2.00
Street lighting fund	1,620.87
Contingent fund	42.65
Water Works fund	11,653.49
Street fund	372.41
Bridge Cul. and C. W.	10.50

Total City funds	\$18,345.31
Labor Acc. Sewer Dist. No. 72..	56.00

Grand total

Ann Arbor, Mich., Feb. 5, 1917.

To the Finance Committee of the Common Council: Gentlemen—I have examined the foregoing accounts against the city of Ann Arbor, and I hereby certify that they are correct to the best of my knowledge. ISAAC G. REYNOLDS, City Clerk.

To the Honorable, the Common Council: Gentlemen—Your Finance committee has reviewed the foregoing report. Warrants for salaries were drawn Feb. 1, 1917. We recommend that same be approved and that warrants be ordered drawn for the foregoing accounts.

GEO. LUTZ, ALBERT FIEGEL, Finance Committee.

Ald. Geo. Lutz moved the adoption of the report which was adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

Engineer's Estimates.

Ann Arbor, Mich., Jan. 3, 1917.

To the Board of Public Works, Ann

Arbor, Michigan: Sirs—I present the following final estimate of the cost of construction of storm and sanitary sewers on Glen ave., and recommend payment of the amount now due to Messrs. Eddy & Son, contractors:

47 lin. ft. 16-in. cast iron pipe at \$3.50	\$ 164.50
48 lin. ft. 30-in. cast iron pipe, at \$6.00	288.00
6 lin. ft. 8-in. vit. pipe at 24c	1.44
993 lin. ft. 15-in. vit. tile at 42c	417.05
1,029 l.n. ft. 30-in. segment block, at \$1.99	204.71
1,118 lin. ft. 18-in. vit. pipe, at 40c	447.20
1,124 l.n. ft. 36-in. segment block sewer, at \$2.26....	2,540.24
1,134 lin. ft. 12-in. vit. pipe, at 22c	249.48
28 elbows, at 68c	19.04
23 C. I. inlets, at \$11.00....	253.00
11,976 M ft. lumber, at \$28.00	335.33
89 cu. yds. concrete, at \$5.00	445.00
5 catch basins, manholes, 0-6 ft. at \$30.00	150.00
1 catch basin, manhole, 6-8 ft. at \$34.00	34.00
2 storm sewer manholes, 6-8 ft. at \$34.00	68.00
3 catch basin manholes, 8-10 ft. at \$36.00.....	108.00
2 sanitary manholes, 8-10 ft. at \$36.00	72.00
3 sanitary sewer manholes, 10-12, at \$38.00	114.00
1 combination manhole, 12-14, at \$80.00	80.00
1 combination manhole, 14-16, at \$90.00	90.00
1 combination manhole, 18-20, at \$110.00	110.00
1 combination manhole, 22-24, at \$125.00	125.00
1 combination manhole, 26-28, at \$135.000	135.00
Excavation and backfilling—	
2,329 cu. yds 0-6 at 65c....	\$ 1,513.85
614 cu. yds 6-8 at 75c.....	460.50
527 cu. yds. 8-10 at 85c....	447.95
362 cu. yds. 10-12 at 95c....	343.90
267 cu. yds. 12-14 at \$1.05..	280.25
227 cu. yds. 14-16 at \$1.15..	261.05
186 cu. yds. 16-18, at \$1.25	232.50
153 cu. yds. 18-20, at \$1.35	206.55
109 cu. yds, 20-22, at \$1.45	158.05
70 cu. yds. 22-24, at \$1.55	108.50
44 cu. yds. 24-26, at \$1.85	81.40
24 cu. yds. 26-28, at \$1.95	46.80

Total	\$12,375.40
Less 5 percent for one year	618.77

Balance

Add for—

Rebuilding manholes, at M. C. R. R.	\$ 87.89
Hospital connections	27.12
Ann st. lateral connections	17.64
Connections at Fuller st...	50.68
Connecting up power house down spouts	9.75
Inlets at Washington and Huron	10.82
Connecting old University sewer into new sewer south of Huron st.	222.92

Total\$ 462.82

Deduct for—

Previous payments	\$11,137.86
Half cost of supporting M. C. tracks	151.81
Work done by Street Commissioner	43.06

Total\$11,332.73

Amount now due contractor \$ 850.72
Respectfully submitted, Manley Osgood, City Engineer.

Approved by Board of Public Works Jan. 17, 1917.

Moved by Ald. George Lutz, that estimate as approved by Board of Public Works be accepted and City Clerk instructed to draw warrant in favor of Wm. Eddy & Son for the amount now due.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Shek, Freeman, Geo. Lutz, 10. Nays, none.

Ald. George Lutz presented second estimate from the City Engineer for construction on work on Sewer D st. No. 72, and moved that same be allowed and City Clerk draw warrant in favor of Ray D. Baker, the contractor, for \$411.30, being amount now due.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Shek, Freeman, Geo. Lutz, 10. Nays, none.

Special Committee.

By Ald. Geo. Lutz: Resolved, that consent be and is hereby given to C. E. Lewis, to transfer and assign his lease on the property known as the Steere farm to Clarence D. Lennon, and that the acting Mayor and City Clerk be authorized to accept said assignment on behalf of the city.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring,

Shek, Freeman, Geo. Lutz, 10. Nays, none.

Ald. Geo. Lutz informed the Council that Clarence D. Lennon had offered to pay \$50.00 more per year if the house on Steere farm is suitably repaired.

The matter was referred to Finance committee.

Officers' Reports.

ANNUAL REPORT OF THE CITY ENGINEER 1916.

City of Ann Arbor, Michigan, Jan. 1, 1917.

To the Board of Public Works, Ann Arbor, Michigan: Sirs—I submit the following report of work done, under my direction, in your Engineer's department, during the year ending Dec. 31, 1916. It is,

Very respectfully submitted, Manley Osgood.

PAVING.

CATHERINE ST. AND MILLER AVE., DISTRICT NO. 36: From Main street to Gott street. You were asked by the Common Council to submit plans and specifications for this district from Main street to Seventh street. Under the charter provisions which allows an outstanding paving bond indebtedness of \$150,000 the city of Ann Arbor could this year raise and spend for such improvements only \$23,939.87. I therefore estimated the cost of paving in this district in four different ways, in order that you might choose between them. The estimates are given in the proceedings of the Common Council under date of May 15, 1916. You were on that date authorized by the Common Council to advertise for bids and proceed with construction of vitrified brick pavement on concrete base as far as possible, staying within the limits of outstanding pavement bond indebtedness provided by Section No. 186 of the charter. The work was advertised for bidding on June 7, 1916, and four bids were received. The contract was awarded to Messrs. Barnes & O'Neil who commenced work early in August and completed same so that they were awarded final estimate on December 20, 1916. The construction is of the highest grade vitrified brick surface, laid on a concrete foundation which is mixed in the proportion of one part cement to two-and-a-half parts of sand and five parts of gravel, a one inch sand cushion being provided between the concrete

foundation and the brick surface. The spaces between brick are filled with grout mixed in the proportion of one part cement to one part of fine sand. Messrs. Barnes & O'Neil contracted for sand and gravel with Mr. Herrst of this city, who after the concrete work had progressed as far as Allen's creek, failed to supply the contractors with this material. I personally endeavored to obtain this material from other plants for them, but found it impossible to do so. They were therefore allowed to use bank-run gravel from the Sheppard gravel pit for the remainder of the construction. The city placing an inspector at the gravel pit to see that only the best material was obtained, and charging the cost of such inspection to the contractors. The concrete base was made six inches thick from Main street to the west line of Fountain street and five inches thick from Fountain street to Gott street. The contract unit prices were as follows:

Per sq. yd. for vitrified brick pavement, including sand cushion and grouted brick surface	\$1.25
Per cu. yd. for concrete foundation	4.10
Per l n. ft. for concrete curbing .....	.35
Per l n. ft. for stone headers....	.70
Per cu. yd. for excavation .....	.50

The amount paid to the contractors in this district was \$21,825.12, the cost of inspection was \$347.47, and the cost for engineering was \$456.72. This makes a total cost of \$22,629.31. The cost for inspection amounted to 1.6 percent of the construction cost, or \$.036 per square yard. The cost for engineering was 2.1 percent of the construction cost or \$.0475 per square yard.

The unit costs were as follows:

Cost per square yard complete	\$2.36
Cost per square yd for paving only, not including curbing or grading	\$1.95

These unit costs were based on a total area of 9,596 square yards. This includes the areas and costs of driveways, for which a total amount of \$188.94 is being collected by the City Treasurer. This leaves a total cost of \$22,434.42 for the pavement, chargeable to the district and city.

The contractors, Barnes & O'Neil, are under bond in the sum of \$10,466.78, to maintain this pavement, and the pavement constructed by

them on Liberty street, for a period of five years after the final payment, and to make any necessary repairs at the end of the five years to place these pavements in practically as good a condition as at the time of completion of the work.

REPAVING EAST LIBERTY STREET: From the west line of Fourth avenue to the east line of Fifth avenue. On May 15, 1916, you were authorized by the Common Council to advertise for bids and proceed with the repaving of East Liberty street, from the west line of Fourth avenue to the east line of Fifth avenue and at the same Council meeting the sum of \$4,961.45 was provided in the annual budget as a special fund for that purpose. The work was advertised for bids on June 7, 1916, together with the pavement on Catherine street and Miller avenue, and the contract was awarded to Messrs. Barnes & O'Neil, who commenced work on about the first of August and completed same about Sept. 5, 1916, so that they were awarded final estimate on Dec. 20, 1916, at the time of awarding final estimate on the pavement on Catherine street and Miller avenue. This construction is also of the highest grade vitrified brick surface laid on a concrete foundation, which is mixed in the proportion of one part of cement to two and one-half parts of sand and five parts of gravel, a one inch sand cushion being provided between the concrete foundation and the brick surface. The spaces between brick are filled with sand grout mixed in the proportion of one part cement to one part of fine sand. All concrete used in this work was mixed with washed sand and gravel supplied from J. W. Herrst's plant in this city. The contract unit prices were as follows:

Per sq. yd. for vitrified brick pavement, including sand cushion and grouted brick surface	\$1.30
Per. l n. ft. for stone curbing reset .....	.27
Per cu. yd. for concrete foundation	4.25
Per l n. ft. for stone headers..	.70
Per sq. yd. for old paving removed .....	.11
Per cu. yd. for excavation.....	.60

The amount paid to the contractor in this district was \$4,885.56; the cost for inspection was \$131.26, and the cost for engineering was \$87.80.

This makes a total cost of \$5,104.62. The cost for inspection amounts to 2.7 percent of the cost of construction or \$.065 square yard. The cost for engineering was 1.8 percent of the cost of construction or \$.044 per square yard.

The unit costs were as follows:

Cost per square yard complete	\$2.54
Cost per square yard for paving only, not including curbing or grading	\$2.18

These unit costs are based on total area of 2,011 square yards. As above explained, the contractors, Barnes & O'Neil, are under bond in the sum of \$10,466.78, to maintain this pavement and the pavement constructed by them on Catherine street and Miller avenue for a period of five years, and to make all necessary repairs at the end of the five years to place these pavements in practically as good a condition as at the time of completion of the work.

You will notice that on account of the small area and cost involved that the engineering and inspection percentages and cost per square yard are higher than on Catherine street and Miller avenue pavement, but are still considerably under the cost for work of this character in other places.

JEFFERSON AND DIVISION STREETS, DISTRICT NO. 33 AND 34, RESP.: The Good Roads Construction company, contractors on these two districts, succeeded in straightening out their financial affairs and paying local bills so that on March 14, 1916, you recommended to the Council the payment of the amount still due them, and on June 5, 1916, the Council concurred in your recommendation. They received the following:

Jefferson St., Dist. No. 33...	\$ 816.14
Division St., Dist. No. 34...	2,361.58
Sidewalk extensions on Jefferson and Division streets	338.76

The payments of these amounts concluded the relations of the Good Roads Construction company and the city of Ann Arbor, with the exception of the guarantee relation under which they are bonded, to maintain this paving for a period of five years from and after date of final payment and to leave it at the expiration of five years in practically as good a condition as at the time of completing the work.

Under the guarantee and maintenance bond it has already been necessary for the Bonding Company to make some repairs. The northerly

two blocks on Division street were laid without inspection, and the asphaltic surface was applied only about one inch thick instead of the specified two inches. On account of this thinness, the surface made brittle by the winter weather broke through and came off in several large patches. Also a patch the full width of the street and about fifteen feet long on Division street just north of Washington was replaced on account of lack of sufficient asphalt in the original mixture. These repairs together with other minor repairs were made by the Globe Construction Company employed by the Chicago Bonding and Surety Company and cost the city of Ann Arbor nothing.

MAINTENANCE: All of the repairs or maintenance of pavements, with the exception of repaving East Liberty street, from Fourth avenue to Fifth avenue, heretofore described, was taken care of by the Street Department. Some of the pavements constructed many years ago are beginning to wear out and in 1914 and again this year it has been necessary to replace part of the asphalt-block-on-sand pavement laid in 1902 and 1903 with modern brick-on-concrete construction. Pavements, like everything else, will wear out in time and the expense of reconstructing them will increase rapidly in the future until the annual cost for same will become quite large. The expense of this reconstruction in the two instances already cited has been borne by the city at large and taken out of the general tax levy for that year. This maintenance, resurfacing, and reconstructing is a matter for careful consideration and scientific study and each particular case should be separately investigated in order that the most economical method, considering traffic and location, may be adopted. This will undoubtedly save a part of this expensive burden.

GENERAL: Again this year the City of Ann Arbor has built pavements in strict accordance with standard engineering practice. Great care has been exercised to see that all material used was strictly first class and that the pavements were properly constructed from this material.

Again this year the paving work was awarded to contract and none of the work, new or repaving, was done by City Force Account. For that reason the prevailing prices for work of this character must be given rather than the prices actually paid by the

contractors. These prevailing prices are as follows:

Cement, per bbl. net, allowance deducted for sacks returned.	\$ 1.60
Brick, per M., f. o. b. Ann Arbor	22.50
Washed sand from Herrst's pit, per load of about 11-3 cu. yds. delivered on street.	1.25
Washed gravel from Herrst's pit, per load of about 11-3 cu. yds. delivered on street.	1.50
Water, per 100 cu. ft. of completed concrete	.25
Day labor, per hour	.30
Teams, per hour	.60

STATEMENT OF KIND OF PAVEMENT IN ANN ARBOR:

Brick on concrete, square yards	37,224
Brick on sand, square yards	1,589
Asphaltic block on sand, square yards	30,868
Bitulithic, square yards	7,519
Asphaltic concrete, square yards	19,297
Reinforced concrete, square yards	5,358
Ann Arbor Tarred Concrete:	

Square Yards:

Laid in 1909	1,883
Laid in 1910	16,557
Laid in 1911	64,089
Laid in 1912	11,537
Laid in 1913	33,463
Laid in 1914	11,832
	<hr/>
	139,361

Total 241,216

SUMMARY: The cost of pavements constructed this year was:

New pavements on Catherine and Miller avenue	\$22,629.31
Repaving Liberty street	5,104.62

Total \$27,733.93

The total original cost of pavements constructed to date, exclusive of macadamizing Detroit street and South University avenue, is \$391,023.39 and the total cost of repaving done to date is \$9,677.60.

GRADING.

For many years that part of Edward street, between Summit street and Charles street, dedicated to the city in Hiscock's Second Addition, has been an unsightly gravel pit and of absolutely no service as a city street. There was a dangerous condition of affairs in the form of a hole or step-off at the side of the Summit street sidewalk and at the approximate location of the Edward street east gutter line. For these reasons it was proposed by the Common Council to close this street entirely and steps were taken in that direction. In the

meantime, however, a house had been built on property at the top of the gravel bank, and fronting on this street, and when the proposed action of the Council was made public, the owner, with other citizens interested in this locality, protested against the closing of the street. You were therefore instructed on June 5, 1916, to advertise for bids for grading said street in accordance with plans and specifications previously prepared, the city to pay 20 per cent of the cost and the benefited property owners 80 per cent of the cost. This work was advertised for bidding on June 14, 1916, and the contract awarded to Messrs. Markey & Herrst, of this city, at a unit price of 44 1/2 c per cubic yard. The dirt taken from this street was delivered by the contractor to that part of First street, between Summit street and Hiscock street and that part of Hiscock street, between Summit and First streets, thus improving these streets as well as the one which was graded. The total cost of this work was as follows:

Payments to contractor	\$1,943.76
Inspection	2.46
Engineering	46.79

Total \$1,993.01

The cost for engineering and inspection together was 2 1/2 per cent of the total cost. The work was completed and final estimate awarded on November 1, 1916.

Since the completion of this work, the property owner who built a house fronting on this street and at the top of the former gravel bank, and who protested most vigorously against the closing of this street, has, through his attorney, filed claim for damages caused to his property by the grading and cutting down of this street. The matter has been referred to the City Attorney.

SANITARY SEWERS

Nine new sanitary sewer districts were established this year profiles, estimates, and boundaries for assessment districts prepared, and the work let to contract. Four sewer districts established in 1915 remained incomplete at the beginning of this year. One other district was established and plans and profiles prepared but because it was necessary in this district, on account of previous sewer assessment, that the benefited property owners sign an agreement to pay the cost of the sewer, which they re-

fused to do, this district was never awarded to contract, nor have the boundaries been prepared. Work has progressed on all of the four districts remaining incomplete last year and all of the nine districts established and awarded to contract this year, and of these thirteen districts, eight have been completed, leaving five incomplete. Work on all but one of these five have been tied up for the winter on account of the frozen conditions of the ground but on one the work is still progressing. All the work let to contract this year has been let under the specifications prepared during 1915, and the results financially and otherwise have been very satisfactory. The cost of construction has been materially lessened under these specifications.

The progress of the work on the various districts is given in the following paragraphs:

DISTRICT NO. 68, SEVENTH STREET FROM HURON TO MILLER AVE. AND ON BATH AND WILLOW STREETS, WEST OF SEVENTH STREET: This district was completed and reported upon in the report for 1915, but during 1916 the additional amount of \$2.73 has been spent for completing the records filed in this office. In addition the 5 percent retained for one year, with proper deductions for work done by City employees, has been paid, as shown later in this report.

DISTRICT NO. 69, MOSELEY STREET, SECOND TO THIRD STREET: This is an eight inch extension of the sewer on Moseley street, east of Second street. The flushtank at Second street was changed into a manhole and a new flushtank constructed at the Third street end. The contract for this sewer was awarded to Tom Joyce, of Kokomo, Indiana, on Sept. 29, 1915, together with contract for Districts No. 71, 70, and 72. During the early part of 1916 work was done in this district until frozen condition of the ground made further work impossible. The trench was excavated, tile laid, flushtanks and manholes constructed, but the back filling was not completed, and as soon as the excavated material thawed and softened sufficiently this unfinished backfilling was completed, by City Force Account. Inasmuch as Mr. Joyce, defaulted on his contract and settlement has not yet been made with the Bonding Company, which

condition is again referred to in this report, the final estimate has not been awarded Mr. Joyce, nor his assignees on this contract. The cost to date has been distributed as follows:

Payment to contractor	.....\$122.02
Inspection	..... 15.91
Engineering	..... 22.73
Work done for contractor by	
City	..... 15.89

Total\$176.55

There is still due to his assignees on this contract \$74.08, from which 5 percent of the entire contract cost, will be retained for one year. This entire contract cost amounts to \$211.99. The cost for engineering and clerical work amounted to 10.7 percent of the contract cost, and the cost of inspection to 7 1-2 percent of the contract cost.

The payment of the amount still due Mr. Joyce will necessarily be made to his assignees, on settlement of amount due under his bonds guaranteeing the completing of contract and the payment for all labor and material.

Sanitary tees with four inch openings were left in the line of this sewer for the connection from each building site.

DISTRICT NO. 70, WEST STREET. From Main street about 550 feet west: This is an eight inch vitrified tile sewer emptying into the eight inch sewer of the same material on South Main street. The contract for this sewer was also awarded to Tom Joyce on Sept. 29, 1915, but he did no work whatever in this district. After due procedure the contract was declared abandoned and forfeited and the work in this district re-advertised and let on Sept. 6, 1916, to Wm. Eddy & Son, now local contractors. This contract has been completed by Messrs. Eddy & Son, and the final estimate to them was allowed by you on Jan. 3, 1917. The cost has been distributed as follows:

Contract cost	.....\$570.74
Engineering	..... 24.09
Inspection	..... 27.35

Total\$622.18

On the above contract cost, 5 percent, or \$28.54, has been retained for one year, as a fund from which to deduct any repairs to the sewer or street, made necessary by the construction of the sewer, which may become apparent within the year. The

balance of this 5 percent, after these deductions have been made, will become due to Messrs. Eddy & Son, Jan. 2, 1918. The cost of all engineering and clerical work in this district amounts to 4.2 percent of the contract cost, and the cost of inspection amounts to 4.8 percent of the contract cost.

Sanitary tees with four inch openings were left in the line of the sewer for the connection from each building site.

The total cost of this sewer was distributed, between district and city, as follows:

DISTRICT NO. 72, HAMILTON, ROSE & SHEEHAN ADDITION: The sewer for the Hamilton Rose and Sheehan Addition and that part of Granger avenue between this Addition and Packard street, is the largest sanitary sewer contract awarded since 1897. Because the sewer already existing on State street, from Edwin to Granger avenue had been laid on too steep a grade to serve this territory, it was necessary to parallel this sewer on a flatter grade, from Edwin street to the north line of the Hamilton, Rose & Sheehan Addition. The contract for this district was awarded to Mr. Tom Joyce, of Kokomo, Indiana, on Sept. 29, 1915, and the contract approved by the Common Council on Oct. 4, 1915, together with the contract for districts No. 69, 70, and 71. Mr. Joyce commenced work on this district on Nov. 8, 1915, and progressed on State street from Edwin street to Dewey avenue during the remainder of 1915, and in the early part of 1916. Mr. Joyce abandoned his contract at this point, as hereafter related, and after due procedure the contract for completing the work in this district was awarded to Mr. R. D. Baker, of Detroit. Work was again commenced by Mr. Baker in Nov. 1916, and has progressed off from State street and into the Hamilton, Rose and Sheehan Addition about half way between State street and White street. The cost to date in this district has been as follows:

Payment to contractor Tom Joyce	\$1046.88
Payment to contractor R. D. Baker	607.95
Work done and labor furnished from city for contractor Tom Joyce	152.21
Inspection	245.43

Engineering	219.90
Total	<u>\$2,272.34</u>

Mr. Baker expects to continue construction throughout the winter and is supplying himself with necessary equipment to facilitate the handling of this work. After proper deductions for all labor and material furnished contractor Tom Joyce, the remainder due his assignees for work completed in this district, the sum of \$103.75 will be payable, as above stated, on proper settlement with his bondsmen under the material and indemnity bonds.

DISTRICT NO. 73, EBER WHITE ADDITION: The sewer construction in this district is of eight inch vitrified tile emptying into the eight inch sewer of the same material on West Liberty street. The contract for this district was awarded to Messrs. Hochrein & Co., on Aug. 19, 1916. They have completed the work and were allowed the final estimate on Dec. 4, 1916. The cost has been distributed as follows:

Contract cost	\$2501.32
Engineering	39.96
Inspection	122.54
Total	<u>\$2663.82</u>

Five percent of the above contract cost, amounting to \$125.06, has been retained for one year as a fund from which to deduct the cost of any repairs to the sewer or the street made necessary by the construction of the sewer and which may become apparent during the year. The balance of this five percent, after those deductions have been made will be due Hochrein & Co. on Dec. 4, 1917. The cost of all engineering and clerical work in this district amounts to 1.6 percent of the contract cost, and the cost of inspection amounts to 4.9 percent of the contract cost.

Sanitary tees with four inch openings were left in the line of the sewer for the connection from each building site, and from each of these sanitary tees the four inch connecting sewers were constructed as far as the curb lines on each side of the street.

The total cost of this sewer was distributed, between district and the City, as follows:

Cost to city for intersections	\$ 275.00
Cost to be assessed against	

district 2,388.82

Total\$2,663.82

DISTRICT NO. 74, LINCOLN STREET, MAIN TO FOURTH AVENUE: This is two eight inch vitrified tile sewers emptying into eight inch sewers of the same material on Fourth avenue and Brown street. The contract for this sewer was awarded to Messrs. Hochrein & Co. on Aug. 19, 1916. The cost has been divided as follows:

Contract cost\$610.28

Engineering 15.91

Inspection 14.70

Total\$640.89

Of the above contract cost, 5 percent, or \$30.51, has been retained for one year out of which to make deductions for any repairs to the sewer or the street made necessary by the construction of the sewer and which may become apparent within a year. The balance of the 5 percent, after these deductions have been made, will become due Hochrein & Co. on Oct. 2, 1917. The cost of all engineering and clerical work in this district amounts to 2.6 percent of the contract cost, and the cost for inspection amounts to 2.4 percent of the contract cost.

Sanitary tees with four inch openings were left in the line of the sewer for the connection from each buildings site.

The total cost of this sewer was distributed, between district and the city as follows:

Cost to city for intersections\$ 38.00

Cost to be assessed against district 602.89

Total\$640.89

DISTRICT NO. 75, HILL, ONANDAGA, GEDDES AND BERKSHIRE ROAD: This is two eight inch vitrified tile sewers emptying into the eight inch sewer of the same material on Hill street, at Onandaga and east thereof. The contract for this sewer was awarded to Messrs. Eddy & Son, on Sept. 20, 1916. Work was commenced on this sewer district the latter part of September and continued until weather conditions prevented further prosecution of the work. Messrs. Eddy & Son expect to resume work on this district as soon as the condition of the ground will permit. The cost to date in this district is as follows:

Payment to contractor\$453.56

Engineering 30.03

Inspection 32.36

Total\$515.95

DISTRICT NO. 76, WASHINGTON STREET, TWELFTH TO FOURTEENTH STREETS: This is a vitrified tile sewer emptying from both east and west into the eighteen inch sanitary sewer of the same material completed earlier in the year and herein reported upon under the heading of "Glen Avenue Storm and Sanitary Sewers." The sewer extending east from the trunk sewer down Glen avenue is eight inches in diameter because it accommodates only the few residences on Washington street between the University spur track crossing and Fourteenth street, but the sewer extending west from the trunk sewer was made fifteen inches in diameter to accommodate the sewage from the University. The contract was awarded to Messrs. Hochrein & Co. on Aug. 19, 1916. Work was commenced on this sewer district about the middle of November and continued until weather conditions prevented further prosecution of the work. Messrs. Hochrein & Co. expect to resume work on this job as soon as the condition of the ground will permit. The cost to date in this district is as follows:

Payments to contractor\$568.32

Inspection 43.29

Engineering 20.24

Total\$631.85

In order that the old University sewer might be properly connected into this new sewer on Washington street, the new sewer was extended some sixty or seventy feet to its intersection with the old sewer. The cost of this extension, amounting to \$111.95, has already been paid to the city by the University.

DISTRICT NO. 77, JOHN K. AVENUE: This is an eight inch vitrified tile sewer emptying into the eight inch sewer of the same material on Main street. The contract for this sewer was awarded to Messrs. Hochrein & Co. on August 19, 1916. They have completed the work and were allowed a final estimate on Oct. 2, 1916. The cost has been distributed as follows:

Contract cost\$1,012.16

Inspection 42.63

Engineering 27.55

Total\$1,082.34

Five percent of the above contract cost, amounting to \$50.61, has been retained for one year as a fund from which to deduct the cost of any repairs to the sewer or the street made necessary by the construction of the sewer and which may become apparent during the year. The balance of this five percent, after deductions have been made, will be paid to Hochrein & Co. on Oct. 2, 1917. The cost of all engineering and clerical work in this district amounts to 2.7 percent of the contract cost, and the cost of inspection amounts to 4.2 percent of the contract cost.

Sanitary tees with four inch openings were left in the line of the sewer for the connection from each building site.

The total cost for this sewer was distributed, between district and city, as follows:

Cost to city for intersections	\$ 75.00
Cost to be assessed against district	1,007.34

Total\$1,082.34

DISTRICT NO. 78, FIFTH STREET, South of Madison street: This is an eight inch vitrified tile sewer emptying into eight inch sewer of the same material on Madison street. The contract for this sewer was awarded to Messrs. Eddy & Son, on July 19, 1916. The work was completed by them and final estimate allowed on Dec. 4, 1916. The cost has been distributed as follows:

Contract cost	\$800.72
Inspection	59.44
Engineering	14.64

Total\$874.80

Of the above contract cost, 5 percent, or \$40.04, has been retained for one year out of which to make deductions for any repairs to the sewer or the street, made necessary by the construction of the sewer, which may become apparent within a year. The balance of the 5 percent after these deductions have been made, will become due Messrs. Eddy & Son on Dec. 4, 1917. The cost of all engineering and clerical work in this district amounts to 1.8 percent of the contract cost, and the cost of inspection amounts to 7.4 percent of the contract cost.

Sanitary tees with four inch openings were left in the line of the sewer for the connection from each building site.

The total cost of this sewer was distributed, between district and city, as follows:

Cost to city for intersections	\$ 25.00
Cost to be assessed against district	849.80

Total \$874.80

DISTRICT NO. 79, HISCOCK ST., Summit to Spring street: This is an eight inch vitrified tile sewer emptying into the eight inch sewer of the same material on Summit street. The contract for this work was awarded to Messrs. Eddy & Son on Aug. 19, 1916. The work was completed by them and final estimate allowed on Dec. 4, 1916. The cost has been distributed as follows:

Contract cost	\$1,161.60
Inspection	66.67
Engineering	23.00

Total\$1,251.27

Of the above cost, 5 percent, or \$58.08, has been retained for one year out of which to make deductions for any repairs to the sewer or the street, made necessary by the construction of the sewer, which may become apparent within a year. The balance of the 5 percent retained, after these deductions have been made, will be due Messrs. Eddy & Son on Dec. 4, 1917. The cost of all engineering and clerical work in this district amounts to 2 percent of the contract cost, and the cost of inspection amounts to 5.7 percent of the contract cost.

Sanitary tees with four inch openings were left in the line of the sewer for the connection from each building site.

The total cost of this sewer was distributed, between district and City, as follows:

Cost to city for intersection \$	73.00
Cost to be assessed against district	1,178.27

Totals\$1,251.27

DISTRICT NO. 80, SEVENTH ST., Liberty to Jefferson: The contract for this work was awarded to Messrs. Hochrein & Co. on Aug. 19, 1916. Work was commenced on this sewer district on Oct. 26, 1916, and continued until weather conditions prevented further prosecution of the work. Messrs. Hochrein & Co. expect to resume work on this job as soon as the condition of the ground

will permit. The cost to date in this district is as follows:

Paid to contractor	\$658.77
Inspection	59.04
Engineering	47.97

Total	\$765.78
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DISTRICT NO. 81, WELLS STREET, Baldwin avenue to Ferdon road: This is an eight inch vitrified tile sewer emptying into eight inch sewer of the same material on Baldwin avenue. The contract for this sewer was awarded to Messrs. Eddy & Son on September 20, 1916. Work was commenced on this sewer on Dec. 6, 1916, and continued until weather conditions prevented further prosecution of the work. Messrs. Eddy & Son expect to resume work on this district as soon as the condition of the ground will permit. The cost to date is as follows:

Engineering	\$ 8.31
Inspection	15.15
Pa.d to contractor	275.49

Total	\$298.95
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NINTH STREET SANITARY SEWER: Property owners on Ninth street, between Washington street and Huron street, petitioned the Council for the construction of a sanitary sewer in that block. At the time of building the sanitary sewers on Huron street and Washington street it was evidently thought that all the buildings adjoining Ninth street could be connected into one or the other of these two sewers for the property lying between was entirely assessed. Since then, three new houses have been built facing on Ninth street, and without convenient access to either of the sewers on Huron street or Washington street. The Council ordered plans and specifications to be prepared, and upon presentation of these to the sewer committee it was decided that an agreement must be entered into whereby the property owners benefitted would pay the cost of construction of this sewer. This agreement was never entered into and consequently the sewer was never ordered built by the Council. The cost of plans and specifications was \$8.17.

SCOTTWOOD SECOND ADDITION SANITARY SEWER: The Scottwood Realty Co., which is subdividing a parcel of land adjoining and southeast of Washtenaw avenue, has built, by day labor, sanitary sewers in the streets which they expect hereafter

to have accepted by the city. Due to the press of other work in this office, the engineering work in connection with these sewers has been done by the Washtenaw Engineering company. Their drawings correspond with our standards and will be filed in our office. The laying of tile and inspecting has been handled by this department and bill for the cost thereof plus 10 percent, amounting to \$29.00, has been rendered against the Scottwood Realty company.

ABANDONED CONTRACTS OF TOM JOYCE: On Sept. 29, 1915, contract for sanitary sewers in Districts No. 69, 70, 71 and 72 were awarded to Tom Joyce of Kokomo, Indiana. Mr. Joyce commenced work on this contract on Nov. 8, 1915. The work progressed until the middle of February, 1916, at which time he was permitted to discontinue work for the winter, but with the distinct understanding that work would be recommenced by him not later than April 1st. He failed to put in an appearance until May 1st, when, after considerable correspondence, he returned to Ann Arbor and sought to sublet the work under his contract at an advanced figure. Arrangements were made whereby Messrs. Eddy & Son were to continue this work, but after Mr. Joyce had left town Mr. Eddy went over the work thoroughly and decided he did not care to undertake same. After further correspondence with Mr. Joyce, he again returned to Ann Arbor and about the first of June entered into contract with Mr. Hochrein, of Hochrein & Co., to complete the work on a day labor basis. After Mr. Hochrein had proceeded for four weeks Mr. Joyce notified him and notified me that, on account of financial conditions, it would be impossible for him to continue the work. The contract was thereupon declared abandoned by you and Mr. Joyce and the bonding company were notified. After due time the uncompleted districts, 70 and 72, were re-advertised and the contract for District No. 70 was awarded to Messrs. Eddy & Son, and Dist. No. 72 to R. D. Baker of Detroit, as heretofore related under the account of respective districts. Mr. Joyce was bonded with the Chicago Bonding & Surety company in the sum of \$5,409.00, to complete this contract, and the bonding company have been notified by the City Attorney that the settlement of this amount was expected. In addition to

th's bond Mr. Joyce was further bonded in the sum of \$7,212.00 to insure payment for all labor and material. The total amount paid to Mr. Joyce under these contracts amounts to \$1,340.61. After proper deductions have been made for material and labor furnished by the city of Ann Arbor the remainder due to Mr. Joyce or his assignees is the sum of \$186.87, from which a small further deduction may be necessary to cover the cost of cleaning sand from the sewer on State street. For labor and material furnished by Mr. Hochrein, of Hochrein & Co., Mr. Joyce is indebted to him in the amount of \$749.49 and other bills for material furnished by local people brings the amount of his local indebtedness up to nine hundred or one thousand dollars, not including the amount due the First National bank, to whom this contract was assigned and who furnished him funds to the amount of approximately \$1,400.00 more than was returned to them under the contract. The Chicago Bonding & Surety company, who were paid by Mr. Joyce to take the risk of this contract, were guaranteed against loss by some man in Kokomo, Indiana, Mr. Joyce's home city, and, claiming that as their reason, will undoubtedly wait for action to be brought in court before making settlement under the two bonds heretofore referred to.

TAPPING SANITARY SEWERS: Under a ruling made by you in July, 1914, all tapping of sanitary sewers during the past year has been done by a city employe. The total amount for this work during the year has been \$47.01.

SANITARY SEWER RECORDS FOR STATE SANITARY ENGINEER: By adoption of the report of the Sewer committee on March 20, 1916, the Common Council ordered that such plans of the sanitary sewer system as are required by the State Sanitary Engineer be prepared and forwarded to him at Lansing. This is a task of considerable magnitude, requiring the taking of levels and measurements in the field. On account of the large amount of other work during the past year, the work on these plans has not been pushed and the amount spent during the year was only \$88.34. Work on these plans is now being pushed as rapidly as possible and your Engineer has hopes that they may be submitted to the State Sanitary Engineer by about March 1, 1917.

SANITARY SEWER RELIEF AND SEWAGE DISPOSAL REPORT: On July 3, 1916, the Council resolved that the City Engineer make a report containing suggestions for the relief of the main sanitary sewer and for sewage disposal for the city of Ann Arbor, giving estimates of the cost of such improvement, and that in the preparation of same the said City Engineer obtain what expert advice he may deem necessary. This resolution was caused by the condition of the main sewer on certain days and in certain seasons of the year when it flows under pressure and backs up in the low connection of the Ann Arbor Abbatoir company on Depot street. The low water conditions during the year of 1916, when the water was drawn from the Geddes pond for reconstruction purposes, offered a most excellent opportunity to study the condition of the river. For this reason a study of these conditions were made. It is proposed next to construct a wier in the main sewer at some point on Fuller street to obtain accurate gaugings of the flow therein. We expected to install this wier some time during the month of December, but due to the low condition of the city's finances this has not been undertaken and further work on this project will be deferred until after the replenishing of the funds by the 1917 budget. The cost of the work to date has been \$59.56.

SANITARY SEWER MAINTENANCE: The care and maintenance of existing sanitary sewers during the year 1916 has cost the sum of \$1153.43. This includes the cost of material labor, tools, and supplies and everything except the amount paid to the Ann Arbor Water Department for water for flushing. The cost for general cleaning in all parts of the City amounts to \$788.37, approximately \$100.00 more than during 1915. As time goes by and the age of existing sewers becomes greater this amount will materially increase due principally to accumulations or roots in the sewers. Whenever the cleaning of a sewer is impossible under existing conditions cleaning is affected in such a way, and the sewer left in such a condition, that further cleaning of the same sewer will be possible with tools and appliances at hand.

On account of the backing of water in the main sewer into the cellar of

the Ann Arbor Abbatoir Company, previously referred to, the cleaning of this main sewer has been undertaken from the outlet in the Huron river near the Fuller street bridge as far as the corner of Fourth avenue and Depot street, in order to insure that the backing up is not caused by any obstruction in this main sewer, which has not been cleaned since 1893. Stoppage in this sewer was found in two places, caused by roots and in one section by the accumulation of gravel. An outlet for the sewage was constructed at the foot of Glen avenue to the River in order to make possible cleaning of the section clogged by gravel, and in order to insure that the sewer west of this point would not flow under head until this section could be cleaned. The cleaning with the exception of this one section clogged by gravel has now progressed as far as the Michigan Central Railway Passenger Sta-

tion. The cost of this cleaning of the main sewer in 1916 has been \$374.74. It is not, as yet, completed.

General repairs to the sewer equipment belonging to the City of Ann Arbor, in order to keep it in condition for its proper use, cost during the year \$42.91.

FIVE PERCENT RETAINED: The only sanitary sewer completed during the year 1915 was Dist. No. 68 on Seventh street, between Huron and Miller avenue. Maintenance of this sewer ditch during the year 1916 cost the city \$4.00, which amount was deducted from the 5 percent retained, and the balance, amounting to \$153.73, was paid to Messrs. Eddy & Son, the contractors, on Jan. 2, 1917.

SUMMARY OF SANITARY SEWER DISTRICTS: A tabulated summary of the above report on sanitary sewer districts, No. 69 to 81 inclusive, is given on the following page with information and costs of same.

SUMMARY OF SANITARY SEWERS BUILT DURING 1916

Streets and Limits	District	No. house connections	Total length house con.	Length of Main	Manholes	Flush tanks	Lightholes	Total Cost	City To Pay	Property To Pay	Amount of Contract	5% Retained On Contract	When Due	Contractors
Mosley st., 2nd st. to 3rd st. West st., from Main west Roosevelt ave.	69	14		250		1	1	\$ 250.63	\$ 3.00	\$247.63	\$211.99			Tom Joyce
Church to Forest Hamilton, Rose & Sheehan Add.	70	24		552	3	1		622.18	28.00	594.18	570.74	\$28.54	Jan. 2, 1918	Wm. Eddy & Son
Eber White Add. Lincoln st., 4th st. to Main st.	71	9		222		1		204.92	18.68	182.24	180.75	9.04		Tom Joyce
Hill, Onondaga, etc. Washington st. 12th st. to 14th John K ave. and 1st st.	72		(Not Completed)					2,272.37		(Cost to Date)				Ray D. Baker Hochrein & Co.
Fifth st. south of Madison	73	48	1064	1766	10	2		2,663.82	275.00	2388.82	2501.32	125.06	Dec. 4, 1917	Hochrein & Co.
Hiscock st., Sum- mit to Spring st.	74	20		564	2	2		640.89	38.00	602.89	610.28	30.51	Oct. 2, 1917	Hochrein & Co.
Seventh st., Lib- erty to Jefferson	75		(Not Completed)					515.95		(Cost To Date)				Wm. Eddy & Son
Wells st., Baldwin to Ferdon	76		(Not Completed)					631.85		(Cost To Date)				Hochrein & Co.
Totals	77	36		995	4	2		1,082.34	75.00	1007.34	1012.16	50.61	Oct. 2, 1917	Hochrein & Co.
	78	38		882	3	1		874.80	25.00	849.80	800.72	40.04	Dec. 4, 1917	Wm. Eddy & Son
	79	39		1080	6	1		1,251.27	73.00	1178.27	1161.60	58.08	Dec. 4, 1917	Wm. Eddy & Son
	80		(Not Completed)					765.77		(Cost To Date)				Hochrein & Co.
	81		(Not Completed)					298.95		(Cost To Date)				Wm. Eddy & Son
		228	1064	6311	28	11	1	\$12,075.84						

**STORM SEWER
AND
CARE OF STORM WATER.**

EDWIN & MCKINLEY AVENUE STORM WATER CULVERT: In 1911, concrete box storm water culvert was constructed on State street, Arch street, White street, and McKinley avenue from Packard street to Edwin street. A section of this on McKinley avenue about 232 feet long was not constructed, but left as an open ditch, because the property owners would not sign an agreement to pay ten cents per square foot for the sidewalk top on the culvert. The property has since changed hands and the present owners deposited with the City Attorney, as did the owners on Edwin street, sufficient money to pay for the sidewalk at the above rate. The council ordered the construction of this section of the culvert on McKinley avenue and the extension of the culvert along Edwin street from State street to Division street on Sept. 20, 1915. Bids were received on Sept. 22, 1915, but the bids were rejected and others received on Oct. 4th, 1915, on which date contract was awarded to Messrs. Barnes & O'Neil. Construction work was commenced about Nov. 1, 1915, and proceeded until Dec. 9th, when winter weather made it necessary to discontinue work until spring. Work proceeded again this year as early as weather conditions would permit and the contract was completed so that the contractors were awarded the final estimate on June 1, 1916. That part of the culvert on McKinley avenue was made to fit the width and the grades of invert and sidewalk of the culverts at the ends of the opening previously left. The culvert on Edwin street is made five feet wide inside and with a flow line having a uniform grade of 0.3 percent. The sidewalk grade varies to fit the conditions of adjoining property. The section is uniformly six inches thick except at street crossings, where the thickness of the top is increased to eight inches. The top slab is provided with 0.15 square inches of reinforcing per foot of width and this reinforcing is doubled at street crossings. At street intersection, also, the top is dropped to form a six inch curb. The cost of this work has been as follows:

Contract cost\$6051.10
Inspection 253.79

Engineering 143.05

Total\$6447.94

Of the above contract cost, 5 percent or \$302.55, has been retained for one year, and will be due on June 1, 1917. However, due to being frozen during construction in 1915, a part of the sidewalk top between Division street and Sybil street, on Edwin street, is in such condition that reports to it must be made. The contractors will be notified to make these repairs and unless they do so, the same will be made by the City and deducted from the above five percent retained. The cost for engineering and clerical work in connection with this storm sewer amounts to 2.4 percent of the contract cost, and the cost of inspection amounts to 4.2 percent of the contract cost.

STORM AND SANITARY SEWERS ON GLEN AVENUE: The sanitary sewer on Glen avenue which was built by the University of Michigan about 1889 was used by the University buildings and by a large area tributary to Glen avenue for both storm and sanitary drainage, and carried so much storm water that at times of severe rains the water was forced into cellars along Glen avenue and even spouted out from the manholes. To relieve this condition a storm sewer for this district was first proposed in 1913, when some engineering work was done upon it. This same University sewer constructed in 1889 was not deep enough to accommodate the low property on Washington street, between 12th and 14th streets, and in the planning of this storm sewer it was decided that it should be constructed deep enough to take care of the storm water drainage tributary to this low part of Washington street. It was also decided that inasmuch as the trench for this storm sewer must be excavated to a depth, at one place, of 28 feet, it was advisable to construct in the same trench, and underneath the storm sewer, a sanitary sewer, which would also accommodate this low property on Washington street and which would be large enough to accommodate future University sewer needs. On July 6, 1915, this sewer was finally ordered by the Council, to extend from the Huron River to the south side of Huron street. Bids were received on Sept. 22nd, and on Sept. 29th, the contract was awarded to

Messrs. Eddy & Son, of Saginaw. On Dec. 30, 1915, the City accepted the proposition of the University of Michigan that they would pay for the extension of these sewers across their property from Huron street to Washington street, if it was constructed under the same contract with Eddy & Son, who at that time expressed a willingness to accept same and later in 1916, entered into a formal supplemental contract covering the construction of same.

The sanitary sewer in this district was originally planned to empty into the old University sewer approximately at Catherine street, but during the early part of 1916 a cave-in occurred under one of the Michigan Central Ry. tracks at the foot of Glen avenue, caused by broken tile in this old University sewer. It was therefore recommended by you and ordered by the Common Council, on Feb. 7, 1916, that the vitrified tile part of this sewer underneath the Michigan Central Ry. tracks be replaced with sixteen inch cast iron pipe. The contract with the Michigan Central Ry. giving permission for this construction was received on March 20, 1916. Inasmuch as new sanitary sewer was to be constructed from the main sewer underneath the Michigan Central tracks to Fuller street, and from Washington street down Glen avenue to Catherine street, it was decided to also parallel, with new construction this old University sewer between Catherine and Fuller streets. The contractors were notified of this addition to their contract on April 5, 1916. They started work on the contract April 17, 1916, and completed same so that final estimate was prepared and submitted for your approval on Jan. 3, 1917. At this same meeting Messrs. Eddy & Son presented a bill in the amount of \$541.62 claiming that the section of sanitary sewer between Catherine street and Fuller street should be paid for under the provision of the specifications designated as "extra work," rather than under the provision for "additions to the contract." After considering this bill the committee appointed by you recommended that Messrs Eddy & Son be awarded the sum of \$275.00 in addition to the amount allowed in the Engineer's final estimate for this work and this report was adopted by your body. In figuring the contract cost of this

work this amount of \$275.00 has been added to the amount of the final estimate as submitted by you. The cost of this work has been as follows:	
Contract cost	\$12458.45
Engineering	280.71
Inspection	459.36
Half cost of supporting Michigan Central Railway tracks	151.81

Total \$13350.33

Out of this amount, \$618.77 has been retained for one year, as a fund from which to deduct for any repairs to the sewer or the street, made necessary by the construction of the sewer and which may become apparent within a year. The balance of the five percent, after these deductions have been made, will become due to Messrs Eddy & Son, Jan. 3, 1918. The cost of the engineering and clerical work in this district amounts to 2.3 percent and the cost for inspection to 3.7 percent of the contract cost. The cost for inspection is quite high, due to the small number of men and comparatively slow progress of the contract in this district, and the cost of engineering and clerical work has been increased by the preliminary proceedings from 1914 until the date of the final order for the construction of this sewer. Of the above cost the University of Michigan, under their agreement have paid to the City of Ann Arbor \$2292.93 for the construction of that part of the sewer on their property, between the south side of Huron street and the end of the construction on Washington street.

MILLER AVENUE STORM SEWER: On March 6, 1916, the Council ordered the construction of storm sewer on Miller avenue, from Allen's Creek to Brooks street, to care for the storm water from the district laying north and west of Miller avenue and Spring street. In order that this sewer might be constructed before the paving of this street commenced, bids were received on April 5, 1916 and the contract was awarded to A. H. Prange of Grand Rapids, Michigan. This sewer is constructed of 39", 36" and 30" segmental block from Allen's Creek to Gott street and of 24" tile from Gott street to Brooks street. It empties directly into Allen's Creek at the Miller avenue cluvert. The work was completed and the contractor was

awarded final estimate on July 26, 1916. The cost of this sewer was distributed as follows:

Contract cost	\$7191.10
Engineering	70.97
Inspection	148.53
Total	\$7410.60

Of the above cost five percent, or \$359.55, has been retained for one year out of which to deduct for any repairs to the sewer or the street, made necessary by the construction of the sewer and which may become apparent within a year. From this fund work amounted to \$7.22 has already been done by this department. All remaining of this fund will be due Mr. Prange on July 26, 1917. The cost for engineering and clerical work in this district is less than one percent and the cost of inspection amounts to 2.1 percent of the contract cost. The cost for engineering was materially reduced because profiles had been run and plans prepared for pavement construction and the plans for the storm sewer were detailed on the same tracings. The cost for inspection was reduced by the very rapid and efficient work of the contractor, an inspector being retained on the work for less than 60 days.

WEST JEFFERSON STREET STORM SEWER: On July 3, 1916, the Common Council ordered the construction of storm sewer on Jefferson street from Third street to Sixth street. Bids were received on July 19, 1916, and the contract awarded to Messrs. Hochrein & Company of this city. This sewer varies in size from 24-in. tile at the Third street end down to 18-in. tile at the Sixth street end. It empties into the 24-in. tile sewer constructed in 1914 on Jefferson street between Second street and Third street. Work in this district has progressed between Third street and Fourth street, and was abandoned during the month of December on account of frozen condition of the ground. It will be resumed as soon as possible in the spring. The cost to date has been as follows:

Payments to contractor.....	\$218.07
Engineering	25.18
Inspection	25.40

Total

WEST MADISON STREET STORM SEWER: The storm sewer on Madison street from First street to Fourth

street was ordered by the Council on July 3, 1916. It is to be 30-in. segment block construction from First street to Second street, and of 24-in. vitrified tile from Second street to Fourth street. It empties into the 24-in. tile sewer on Madison street at the corner of First street, which sewer must be enlarged some time in the future to care for the greater amount of storm water which will come to it. Bids were received on July 19, 1916, and contract awarded to Messrs. Hochrein & Co. of this city. No work on this sewer has been done by the contractor to date. The cost for engineering thus far has been \$14.89.

ARCH STREET STORM SEWER: In August of the past year it was proposed by the sewer committee to use what money was left in the Bridge, Crosswalk & Culvert fund for the building of storm sewer on Arch street from Packard street to Oakland avenue, and the construction of storm sewer on Cambridge road from Lincoln avenue east as far as possible and stay within the limits of the appropriation in this fund. It was found, upon figuring the cost of work already contracted for, that only enough money would be left in this fund to complete the sewer on Arch street. This sewer was accordingly ordered on August 21st, 1916, and bids were received on Sept. 20, 1916, the contract being awarded to Messrs. Eddy & Son of this City. This is a twelve inch vitrified tile sewer and empties into the storm sewer of the same size and material extending on Arch street from Packard street to the concrete culvert. Work in this district has progressed and is practically completed except for the setting of inlets. On account of frozen condition of the ground, the work was abandoned and will be completed as soon as weather will permit in the spring. The cost to date has been as follows:

Payments to contractor	\$442.08
Engineering	12.25
Inspecting	16.35

Total

STORM SEWER ON CAMBRIDGE ROAD AND BALDWIN AVENUE; FROM LINCOLN AVENUE TO WASHTEAW: This is the sewer referred to above, which was contemplated but abandoned for the year 1916 on account of lack of

money in the Bridge, Culvert & Crosswalk fund. Engineering work to the extent of \$8.86 was done in connection with same, before the lack of funds was discovered.

ALLEN'S CREEK MAIN STORM SEWER: By adopting the Sewer Committee's report of March 20, 1916, the Common Council ordered your engineer to make a survey of Allen's Creek and all its branches and to make plans and report on converting this creek into a main storm sewer, the report to include the necessary sizes of such sewer. This is a project that has needed the attention of the city for some time but the work of preparing such a report is of considerable magnitude. It was necessary to prepare a map of the entire area drained by the creek and to subdivide this into areas drained by both the natural and artificial tributaries. The area and time of concentration of the run-off from these areas had to be figured and from this the necessary area of sewer section from place to place along the main creek. The survey of the entire creek with its tributaries had to be made and mapped and the location sizes and grades of the proposed structure shown on the map. This work has progressed to the point where the necessary sectional areas for the proposed sewer have been obtained and the map is about ready for location of the route of the proposed sewer. We expect, if present plans do not miscarry, to submit a report on this project in February. The cost of this

work to date has been entirely for engineering and amounts to \$313.89.

CARE OF STORM WATER; AND STORM SEWER MAINTENANCE: For the care of storm water in various parts of the City, a total of \$647.03 has been spent through this department, of which \$159.45 was spent in preparing with inlets, manholes, etc, for the pavement on Catherine street and Miller avenue. The other miscellaneous care of storm water includes the setting of inlets on Summit street between Main street and the Ann Arbor Railway; on Carey street, at the corner of State and Detroit streets; the laying of tile at the corner of Cambridge road and Lincoln avenue; and on Hiscock street at the corner of First street. Also the widening of ditch on Division street, between Edwin and Hill streets; setting of stakes for laying tile on Olivia and Granger avenues; and the extension of tile through the new rip-rap placed by the Detroit Edison Company on the east side of the Broadway bridge. The general care and cleaning of storm sewers cost \$216.94.

PAYMENTS OF FIVE PERCENT RETAINED: On sewers completed by contractors during 1915 and reported in my reports for that year, the following amounts have been expended in payments to the contractor and for work done by the city in the repair of streets made necessary by this sewer construction. In all cases these amounts aggregate the sum of five percent which was retained for one year.

Location	Paid to Contractor.	Expended for Repairs.	Contractor
East Jefferson	\$ 24.47	.....	Dederich & Eddy
Madison, Division & Jefferson	127.51	44.64	Dederich & Eddy
Geddes Avenue	50.50	.....	E. L. Schneider

NEED FOR STORM SEWERS: During the past two years 31,000 dollars has been appropriated in the Bridge, Crosswalk and Culvert fund and contracts for storm sewers aggregating this amount entered into. These appropriations have done a great deal to improve the condition. There is still, however, much need for further storm sewers extension in all parts of the City. The action taken toward converting Allen's Creek into a main storm sewer, if followed up and carried out, together with the necessary extensions of tributary sewers in various parts of the City, will require the expenditure of

amount within the next few years. This work has been, in the past, greatly neglected and as a result there is being thrown on the City in a short period of time work which might have been spread over a considerable period of years. This work, together with the other necessary public improvements can not help but increase the amount of money necessary to be raised by taxes and bonded indebtedness.

SUMMARY: Summary of storm sewer work completed during the past year, together with storm sewer contracts remaining uncompleted, and a summary of all storm sewers in the entire city will be found on the

SUMMARY OF STORM SEWERS BUILT DURING 1916

Street and Limits	Length of Main	Length of Inlet Con.	Inlets				Total Cost	Amount of Contract	5% Retained On Contract	When Due	Contractors
			Regular	Alley	Special	Manholes					
Edwin st. and McKinley ave.	1330	110	7				\$ 6,447.94	\$6,051.10	\$302.55	June 1, 1917	Barnes & O'Neil
Glen ave., Huron river to Wash. st.	2201	1134	23		4	21	13,350.33	12,456.45	618.77	Jan. 3, 1918	Wm. Eddy & Son
Miller ave., Allens creek to Brooks st.	2124	986	28			12	7,410.60	7,191.10	359.55	July 26, 1917	A. H. Prange
W. Jefferson st., 3rd to 6th							(Not Completed)	268.65	Cost To Date		Hochrein & Co.
W. Madison st., 1st to 4th							(Not Completed)	14.89	Cost To Date		Hochrein & Co.
Arch st., Packard st. to Oakland							(Not Completed)	470.68	Cost To Date		Wm. Eddy & Son.
New inlets, etc., on Miller ave., in connection with pavement		130	10	1		2	159.45				City Force Acct.
Totals	5655	2360	68	1	4	35	\$28,122.54				

SUMMARY OF STORM SEWERS IN THE CITY OF ANN ARBOR.

Date.	Sewer.	Cost.
Built prior to 1900	.....	\$26,411.72
	Catherine street, Allen's Creek to Main street	1898
	Ann street, Allen's Creek to Main street	1898
	Huron street, Allen's Creek to 12th street	1898-9
	Washington street, Allen's Creek to 5th Ave.	1898-9
	Liberty street, Allen's Creek to Main street	1898
	Liberty street, Main street to State street	1899
	State street, Liberty street to N. University	1899
	Williams street, Allen's Creek to Main street	1898
	Hill street, Allen's Creek to 12th street	1899
	Twelfth street, Hill street to Monroe street	1899
	Monroe street, Thayer street to E. University	1899
	East University avenue, Monroe to S. University	1899
	South University avenue, E. University to Linden	1899
	Linden street, S. University to Geddes Ave.	1899
	Washtenaw Ave., from Wilmot to Damon's East line	1899
	South Main street to Madison street	1899
	Madison street, Main street to First	1899
	First street, Madison to Moseley	1899
1902,	State street, Hill to S. University	1,667.22
1902,	Ann street, Main street to 4th Ave.	543.95
1905,	North University, State street to 12th street	361.00
1905,	East William street, Main street to Maynard street	3,014.67
1906 and 1907,	Roosevelt avenue and across Judson's land	1,710.41
1906,	East Washington St., Fifth Ave. to State street	3,781.82
1909,	Washtenaw Ave. and Hill St., from Baldwin to Oxford Rd.	653.90
1910,	Washington street, State street to Ingalls street	536.37
1911.	Ann street, 4th Ave. to 5th Ave., and alley in B. 1 N., R. 4 East	443.14
1911,	Alley in B. 3 S., R. 3 East	250.92
1911,	Hill street, Oxford Rd. to Cambridge Road	116.87
1911,	Packard street, Hill St. to Monroe street	868.97
1911,	Hill street, Cambridge Rd. to Oswego street	340.66
1911,	North Main street, at Summit street	207.47
1911,	Mary street and Benjamin, from Edwin to Division streets	884.78
1911,	Church street, Washtenaw avenue to S. University	1,291.44
1911,	Concrete culvert on State, Arch, White, McKinley and Packard	3,422.95
1911.	Other storm sewer work, including the sewer on Packard street at Dewey avenue	1,552.01
1912,	Church St., S. University Ave. to Roosevelt Ave.	2,776.43
1912,	Willard St., Church street 144 feet west	168.53
1912,	Ashley street in connection with pavement	267.00
1912-1914,	Alley in B. 2 S., R. 2 E.	63.99
1913,	Liberty street, Allen's Creek to City Limits	4,077.47
1913,	W. Huron street, Allen's Creek to Forks	4,420.37
1913,	E. Washington St., low point in street to Cat Hole	439.35
1913,	Liberty St. and 1st St. in connection Liberty St. pavement	103.46
1913.	W. Huron St. east of Allen's Creek, in connection with Huron street pavement	62.75
1914,	Cambridge Rd., Forest Ave. to Lincoln avenue	2,397.22
1914,	W. Jefferson St., Second St. to Third street	1,095.62
1914,	North Division St., Detroit St. to Ann street	2,309.81
1914,	Alley in B. 1 N., R. 3 east	59.64
1914,	Catch basin, inlets and extension on Packard, Arch, and State streets	168.40
1915.	Madison, Division and Jefferson, from Allen's Creek to State street	3,646.17
1915,	E. Jefferson, from 5th Ave. to Hamilton Place	506.23
1915,	Geddes Ave. from Linden St. to Boulevard	1,056.21
1915,	Care of stormwater on Division at Liberty St., William St. and Detroit St. in connection with pavement	253.70
1915,	Small extension and new inlets	352.60

1916, Concrete culvert on Edwin St. and McKinley Ave.	6,447.94
1916, Storm and sanitary sewers on Glen Ave. and University property from Huron river to Washington St.	13,350.33
1916, Miller Ave. from Allen's Creek to Brooks St.	7,410.60
1916, Inlets, manholes, and extensions on Catherine St. from Main St. to Allen's Creek in connection with paving	159.45
Total	\$99,687.99

SUMMARY OF SEWERS AND PAVEMENTS.

The total cost of sewers and pavements completed in Ann Arbor to date is divide among such improvements as follows:

Pavements	\$391,023.39
Sanitary sewers	224,185.74
Storm sewers	99,687.99

Total

The total cost of pavements and sewers completed in Ann Arbor to date is divided according to the year of completion as follows:

Prior to 1900	\$176,616.21
1900	28,372.81
1901	3,704.93
1902	36,850.85
1903	34,229.39
1904	5,024.40
1905	18,744.79
1906	12,986.96
1907	34,931.94
1908	10,489.40
1909	11,867.30
1910	24,166.12
1911	82,549.47
1912	20,022.31
1913	54,369.77
1914	51,218.16
1915	51,163.82
1916	57,588.48

Total

The total cost of repaving of streets completed in Ann Arbor to date is divided according to the year of completion as follows:

1914—State street	\$4,572.98
1916—Liberty street	5,104.62

Total

PUBLIC IMPROVEMENTS OTHER THAN SEWERS AND PAVEMENTS, HEATING PLANT, NEW DOORS, AND REPAIRS FOR FIRE STATION NO. 1: On Nov. 15, 1915, by adopting the report of the Fire committee, the Commoun Council ordered that Engine House No. 1 be repaired with new doors and with entire new heating plant. Plans and specificat'ons for the doors were presented to you and by you recommended to the Council on Jan. 17, 1916. Bids were received on Feb. 21, 1916, and you recom-

mended to the Council the bid of L. F. Zells, which was concurred in and the contract awarded to him. Mr. Zells completed the work and was awarded final estimate on April 17, 1916. The cost for these doors was: Engineering and inspection..\$ 46.00 Contract cost

Totals

For the heating plant, we prepared and submitted estimate of cost in two different ways: (1), new boiler installed in the present boiler room in the City Hall, and piping to heat both the City Hall and the Fire Station; (2), new boiler installed in a new pit to be constructed in the rear of the Fire Station and piping arranged to heat both the Fire Station and the City Hall. On account of the excessive cost of the second, you directed that we prepare the plans and specifications under the first system. These plans were presented to you on May 15, 1916, and by you referred to a committee which met with a committee of the Council and returned the recommendation that the heating plant be installed in a pit to be constructed at the rear of the Fire Station to heat only that building, leaving the heating plant in the City Hall as at present. A new set of plans and specifications were prepared under this recommendation. When these were submitted to you they were rejected and the original plans to heat both buildings from the boiler room located in the City Hall were recommended to the Common Council for construction. This recommendation was rejected by the Council on Aug. 7, 1916, and the board instructed to prepare plans and specification for a plant for the Fire Station only. The plans formerly submitted for this arrangement were again submitted to you on August 21, and by you recommended to the Council. Bids were received by you Sept. 6, 1916, and the contract awarded to

G. A. Raser, for \$2,452.81. Work has progressed and the heating plant is now in operation, heating the building. The contract is not yet entirely completed, but will be in a comparatively short time. The cost to date has been as follows:

Engineering\$ 162.68
 Payments to contractor1,800.00

Total\$1,962.68

The cost for engineering is extremely high on account of the preparation of two complete sets of plans and specifications.

Downspouts on the front of the Station formerly discharged into the gravel underneath the sidewalk on Huron st. and in times of heavy rain or in the winter when the ground was frozen, it discharged onto the ground on to the sidewalk. In order to remedy this difficulty a connection from one of the downspouts was made to the storm sewer on Huron street, at a cost of \$39.59. After this connection was made the Chief of the Fire department had downspouts re-arranged in accordance therewith.

BROADWAY BRIDGE: By resolution on Oct. 4, 1915, the Council ordered that the Engineer prepare plans and specifications and estimate costs of concrete bridge across the Huron river at Broadway, suitable for vehicles, pedestrians, and street car traffic, and present the same to the Council as soon as possible. On March 20, tentative plans and the elements of the specifications for such a bridge were submitted to the Council with an estimate of \$25,000 for the cost of construction. These plans and specifications were accepted by the Council. On this same date the Council called for special election to raise the sum of \$25,000.00 by loan, such sum to be used for the purpose of constructing the bridge on Broadway in accordance with the plans and specifications heretofore adopted. The money was voted at the special election and the details of the plans and specifications heretofore presented were worked out and they were again submitted to the Council on June 19, 1916, at which time the Council instructed the Board of Public Works to advertise for bids on same. On account of irregular proceedings, you requested the Council to have these plans and specifications pass through the procedure provided by the charter for cases of this kind,

and these same plans and specifications were submitted to you and by you to the Council on Aug. 7, 1916, at which time they were again adopted by the Council and you were instructed to advertise for bids.

On account of its spanning the tail race at the Argo Power plant, the Detroit Edison company were approached, through their Mr. Marshall, vice president of Detroit, to pay a portion of the cost of this bridge. Under date of May 25, 1916, they formally offered the Common Council the sum of five thousand dollars toward the construction of the bridge, the only condition being that the structure be of concrete and of the general design and dimension shown on the engineer's drawings. At the same time, as property owners on both sides of Broadway at this point, they waived any objection to the raising of the grade of the street, or of the M. C. siding at that point which would be required by the design of the new bridge. This offer was formally accepted at their meeting of June 5, 1916.

Bids were received on Sept. 6, 1916, the low bidder being A. H. Prange, of Grand Rapids, whose bid amounted to \$54,867.00. On account of all bids being in excess of the amount of money available by more than \$20,000 the matter was dropped and nothing further done during the year 1916.

The total cost to date of all work in connection with the preparation of the plans and specifications, advertising for bids, conferences with Mr. Marshall, etc., has been \$587.66.

BRIDGE AT ISLAND PARK: When the budget was adopted in May, 1916, the Park department asked for and were awarded by the Council the sum of \$500.00 for the purpose of building a concrete bridge over the Huron river at Island park. This department was requested by the Park department to prepare the plans and specifications for this bridge and did so at a cost of \$65.69. When bids were received on this bridge only one bid was submitted and this, also, was very much in excess of the amount appropriated. The Park committee at that time decided that rather than undertake the building of this bridge by City Force account, they would re-advertise at the time of re-advertising the Broadway bridge, hoping that bids received at that time would be closer to the amount of money appropriated. This matter will perhaps

be taken up again when the matter of the new bridge for Broadway is again active.

BRIDGE AND VIADUCT MAINTENANCE: As related in the 1915 report, plans and specifications were prepared for new flooring on the present bridge over the Huron river at Broadway, and when no bids were received the engineer and street commissioner were instructed to proceed with construction of same. When the old flooring was removed from the bridge it was decided that inasmuch as a new bridge was to be built in a comparatively short space of time, only the timbers which were rotted or otherwise impaired in strength should be replaced and that those which were in fairly good condition should be allowed to remain. This was followed out and some of the lumber bought for the reflooring of this bridge was taken to the City Yards for storage, and used for other purposes. The cost of this work is shown in the Street Commissioner's report.

The bridge at Fuller street was gone over by employes of this department and tightened up, and the bridge put in as good a condition as possible. The cost of this work was \$8.24.

BARN AT THE CITY YARDS: On Aug. 29, 1916, the people of the City voted to raise \$6,000 to be spent for a motor-pick-up sweeper and other street equipment, together with the construction of a barn at the City Yards. On Sept. 18th you were instructed to prepare plans and specifications for this barn and the work was assigned to this department. These plans and specifications were prepared at a cost of \$34.63. The size of the barn designated in the original motion of the Board of Public Works was 20 feet by 30 feet, and the barn was designed as cheaply as possible, adhering to these dimensions. A barn constructed under these specifications, it is now estimated, would cost approximately \$1,500.00, on account of the increase in the cost of material and labor. The matter of raising additional funds or changing the plans of the barn are still under your advisement.

GARBAGE DISPOSAL: On Dec. 4, 1916, the Council resolved that the Board of Public Works be directed to prepare the necessary plans and specifications for a garbage disposal plant for the city of Ann Arbor and report the same to the Common Council at their earliest convenience. The mat-

ter of finding a site for the proposed plant was taken to the Council by a representative of your body and referred to a committee consisting of Mr. Cornwell, the City Attorney, and your Engineer. After due deliberation an appropriate place was found. Work in connection with the locating of this site, corresponding with and obtaining information from builders of plants of this kind, and other general work in connection therewith has cost \$20.16.

SIDEWALKS, CURBING AND STREET GRADES: Sidewalks in all cases and curbing except in paving districts are paid for by the property owners abutting, this department furnishing the line and grade for same. More work of this nature has been done this year than any year since my connection with the city. This department also sets all stakes needed by the Street Department in grading or graveling streets, deepening gutters, building crosswalks, etc. The total costs for this work during the past year has been as follows:

Sidewalk grades and lines....	\$415.58
Curb grades and lines.....	99.51
Street grades and lines	399.27

Total\$914.6

This work has been scattered in all parts of the city, and the above cost would have been much greater had it not been for the automobile.

The cost of street lines and grades has been increased to a large extent by the necessity in several cases of locating street lines in additions laid out many years ago and not properly monumented. This was notably true on Fuller street, between State and Glen; on N. Main street, north of the Ann Arbor Railway crossing; and on Beakes street.

STEERE FARM MAINTENANCE: At the Steere farm, the gathering of some additional information in connection with the suit in the Circuit Court in January, 1916, including the repairing of weirs and reading of gauges, together with other general work done in connection with the property owned by the city in that locality, has cost the city \$174.34. This does not include the time of your Engineer while in attendance at the above stated trial.

SUMMARY OF YEARLY COST OF ALL NEW PUBLIC WORK.

The cost to the city and special assessment districts of all new im-

provements completed this year has been as follows:

Cost of public improvements	
as per previous summary	\$57,588.48
Repaving on Liberty street	5,104.62
Grading Edward street	1,993.01

Total \$64,684.11

Of the above amount, \$3,342.45 was spent in 1915 on work not completed until 1916. In 1916, there has been expended \$7,283.49 on work which is not yet completed. This leaves the net amount paid during the past year, exclusive of payments of percentage retained on contracts, \$68,625.15. The uncompleted work now under contract will amount to \$34,000.00. The above work has all been designed, laid out, superintended, inspected, etc., by this department.

In amount of public work accomplished and contracted for this has been the biggest year the city of Ann Arbor has ever experienced. The amount paid for public improvements exceeds by some \$8,000.00 the amount of such payments for any other year since I have been City Engineer and the amount of such payments plus the cost of work contracted for but not completed will exceed \$102,000.00. This does not include work which has been fully or partially designed but not awarded to contract. In addition, more than \$50,000.00 worth of work has been prepared for bidding but not as yet awarded to contract.

GENERAL.

ASSESSORS PLATS: On April 24, 1916, by the adoption of the sewer committee's recommendation, the Council ordered that Assessor's plats be made of all unplatted property within the City limits now being sold as lots. This was caused by Act No. 131 of the Public Acts of 1915, which provides that in case of land platted or laid out as a town, city, or village, or as an addition to a town, city, or village, the same shall be described by reference to such plat and by the number of the lot and block thereof, it being understood thereby, according to employees of the Auditor General's office, that all City property must be described in this way for tax assessment purposes, and not by metes and bounds. Some preliminary work on these assessors plats was done during the summer months at a cost of \$59.22, but all work in connection with them was abandoned

when it became apparent that funds would not be available for all of the work assigned to this department. The work will be resumed and carried to completion after additional money has been appropriated from next years tax receipts.

SURVEY OF CITY PROPERTY:

At the request of Mr. Ray, the Manager of the School Board, the north line of the Second Ward School property was located for them at a cost of \$5.49.

CLAIMS AND LAW SUITS: In connection with the Steere Farm case, in which it was sought to enjoin the City of Ann Arbor from drawing on this source of water supply, the sum of \$66.32 was expended through this department, including the time of your Engineer while in attendance at the trial. This case was reviewed by the Supreme Court at the October term and is practically the only case reviewed at that time on which decision has not been rendered. It is hoped that such decision will be handed down early in February.

In connection with the case of E. L. Schneider, vs. City of Ann Arbor, in which he has sued the City for money which he claims due him under his contract for the construction of sewers in Districts No. 56 and 60, the sum of \$5.28 has been expended by this department. This case will be reviewed by the Supreme Court early in January, 1917. The decision in the lower court, after hearing only the Plaintiff's testimony, was favorable to the City of Ann Arbor.

WORK FOR OTHER DEPARTMENTS: For street work, including some work on relaying asphalt block where it joins with the Division and Jefferson street pavements; the laying of tile on Hiscock street at the corner of First street; the flushing of alley in Block 2 S. R. 4 East; cleaning storm sewer inlets, etc., the sum of \$77.10 was expended.

For the Board of Park Commissioners, in addition to the bridge at Island Park, heretofore reported upon, work was done in West Park, and at the Fair Grounds in connection with the tennis courts, property lines, etc. amounting to \$45.07.

For the Board of Water Commissioners during the past year this department has furnished labor in flushing hydrants amounting to \$17.20.

For the Police Department, a shed was built on the south bank of the Huron River for the purpose of storing life boat, grappling hooks, and other life saving paraphernalia. The cost for same was \$21.64.

TOOLS, MACHINERY & SUPPLIES: One car of sewer pipe was purchased and stored at the City Yards for general use at a cost of \$175.78.

The purchase of tools and material for general purposes, including the engineer's time in connection with the Committee meeting in Detroit to investigate street cleaning machinery, cost \$15.15.

AUTOMOBILE: On March 1, 1915, the Common Council ordered the purchase of a Ford run-about for the use of this department. This car was used during the year 1915, and in April 1916, you recommended and the council approved the trading of this car in as part payment for a new machine of the same kind. You also authorized the equipment of the car at this time with demountable rims. This car has been one of the greatest assets the department ever had, and had it not been for its use the expenses of the department for labor would have run considerable higher than they have. The car has been run several thousand miles during the year and the total cost in connection with same has been distributed as follows:

Tire repairs	\$ 33.49
General repairs	65.95
Cleaning and oiling	9.88
Gasoline and oil	156.50
Trade cost	179.51

Total\$445.33
ENGINEER'S OFFICE: The

amount chargeable directly to the running of your Engineer's office this year, including all equipment and supplies purchased for same and all that part of my own time and that of my assistants devoted to the several duties listed below has been distributed as follows:

Office accounts	\$ 127.73
Office records	587.30
Correspondence	200.55
Annual and monthly reports	111.67
Council, Board, and Committee meetings	113.35
Inspecting plumbing	135.86
Numbering houses (including new numbers purchased)	76.80
Information given to public.	477.75
Information from others....	60.60
Cleaning and arranging about office	47.33
Cleaning and arranging about City Yards and automobile shed	17.89
Office supplies	528.94
Office equipment, new and repairs	124.19
Surveying supplies, stakes etc	133.88
Surveying equipment, including new transit	340.87
Directing work of department	552.90
Convention and society meetings	119.71
Sickness and vacations	92.57

Total\$3,849.89

The total cost of all labor for Engineering, inspection and sewer and other work is shown on the summary of my twelve monthly reports given on a following page. The total of all payments to Contractors is also shown in table following.

SUMMARY OF PAYMENTS TO CONTRACTORS DURING 1916.

(Including cost of any labor or material furnished and deducted.)

Contractor.	For.	Amount.
Good Roads Construction Co., Division & Jefferson St. pavements		\$ 3,177.72
Good Roads Construction Co., Extension walks		338.76
Barnes & O'Neil, Miller Ave. pavement.		21,825.12
Barnes & O'Neil, E. Liberty St. pavement		4,885.56
Barnes & O'Neil, Edwin St. and McKinley Ave. culvert		3,717.60
A. H. Prange, Miller Ave. storm sewer.....		6,838.77
Herrst & Markey, Edward St. Grading.....		1,943.76
Tom Joyce, Sewer District No. 69.....		137.91
Tom Joyce, Sewer District No. 71.....		171.71
Tom Joyce, Sewer District No. 72.....		538.94
Rav D. Baker, Sewer District No. 72.....		607.95
William Eddy & Son, Sewer District No. 70.		542.20
Hochrein & Co., Sewer District No. 73.....		2,376.26
Hochrein & Co., Sewer District No. 74.....		579.77

Wm. Eddy & Son, Sewer District No. 75	453.56
Hochrein & Co., Sewer District No. 76.....	568.32
Hochrein & Co., Sewer District No. 77.....	961.55
Wm. Eddy & Son, Sewer District No. 78	760.68
Wm. Eddy & Son, Sewer District No. 79	1,103.52
Hochrein & Co., Sewer District No. 80.....	658.77
Wm. Eddy & Son, Sewer District No. 81	275.49
Wm. Eddy & Son, 5 percent retained.....	157.73
Wm. Eddy & Son, Glen Ave. sewers.....	11,839.68
Hochrein & Co., Jefferson St. storm sewer	218.07
Wm. Eddy & Son, Arch St. storm sewer	422.08
L. F. Zells, Doors at Fire Station.....	335.00
G. A. Raiser, Heating Plant at Fire Station	1,800.00
Dederich & Eddy, 5 percent retained.....	196.62
E. L. Schneider, 5 percent retained.....	50.50
Total	\$67,583.60

**SUMMARY OF EXPENDITURES
FOR LABOR DURING 1916.**

ENGINEERING:

Manley Osgood	\$1,800.00
W. C. Russell	765.00
G. H. Sandenberg ..	733.00
F. E. Williams	565.48
R. A. Dodge	317.31
C. F. Seymour	234.00
H. H. Phillips	298.80
A. A. Burrell	235.00
H. H. Person	166.17
W. B. Russell.....	302.97
C. J. Rash	219.10
E. D. Glatzel	208.75
O. E. McMullen ...	42.25
A. L. Quackenbush.	50.38
H. Sherman	13.38
J. D. Ballard	7.88
M. E. Webster	22.95
W. Gay	6.53
G. Gay	3.00
E. W. Merenda ...	7.00
J. R. Pollock	2.13
J. J. Meldazis	4.88
M. S. Charlton	15.18
	<u>\$6,021.14</u>

INSPECTING:

F. L. Feiner	\$ 735.18
H. H. Person	423.34
E. R. Seabolt	283.50
W. E. Code	147.00
Wm. Rumsey	142.50
J. W. Van Brunt.	109.40
C. W. Smedburg ..	91.00
H. C. Worfel	80.50
Jno. Schmid	64.00
L. L. LeVeque	21.00
	<u>\$2,097.42</u>

SEWER AND OTHER WORK:

Julius Loehrke	\$ 960.00
Street Commission- er's rolls	810.57
	<u>\$1,770.57</u>
Total	\$9,889.13

ADDENDUM.

RECOMMENDATIONS: I would again suggest that all gas and water mains placed in the public street be laid out accurately with a transit and level and an accurate record of their location furnished and kept in this office. Much annoyance and present expense and a considerable future expense would be saved in this way. I would also suggest that the ordinance which has been referred to the Ordinance committee covering the oiling of streets be worked out in such time that these streets may be properly prepared for oiling before conditions arise which will cause people to expect all parts of the city to be oiled at the same time.

COMPARISON: There are a few facts to be gained by a comparison of this year's report with that of last year, to which I wish to call your particular attention. The total cost for labor in your engineer's department during 1916 was \$1,059.51 more than in 1915. Of this additional amount the cost for inspecting of contract work during 1916, exceeded the cost during 1915 by \$849.92; the total cost for sewer and other work in this department during 1916 was \$168.83 less than the cost for the same work in 1915; and the cost for engineering and clerical work during 1916 was only \$378.42 more than the cost during 1915. When the vast amount of special work, costing approximately \$1,700.00 which has been handled by this department during the past year is considered and the increased amount of sidewalk, curbing, and street grades, costing \$125.96 more than in 1915; and the engineering in connection with contract work which exceeds the contract work of 1915 by more than

\$14,000.00, is taken into consideration it is quite evident that the department during 1916, compared with our previous record, has been very efficient and economical. We believe that for the amount of work we have handled, the manner in which it has been done and the service we have rendered, the expenses have been remarkably low and very much below those of any other city of which we have knowledge. Some of the work has been referred to this department has been work of considerable magnitude and great importance to the city of Ann Arbor.

SUMMARY OF SANITARY SEWERS IN THE CITY OF ANN ARBOR

District No.	Street	Date	Total Length of Main	No. Manholes	No. Flush-tanks	No. Lightholes	8-inch Tile	10-inch Tile	No. of House Connections	Length of House Conn.	Plustank changed to Manhole	Total Cost
1	Main sewer	1893					(No Record)	(No Record)				\$ 41,252.83
1	Liberty, E. of main sewer	1894	1804	5	1	5	(No Record)	(No Record)	66	998		3,954.44
2	Washington, E. of main sewer	1894	631		1	1	(No Record)	(No Record)	22	256		6,831.08
2	Hill st., district E. of main sewer	1895	1370	4	2	2	(No Record)	(No Record)	50	988		27,912.80
4	Huron, E. of main sewer	1895	1266	3	1	1	(No Record)	(No Record)	35	630		4,303.19
5	William, E. of main sewer	1895	918	3	1	1	(No Record)	(No Record)	27	508		8,454.98
6	Detroit	1897	1527	4	1	1	(No Record)	(No Record)	40	678		12,587.00
7	W. Liberty, to near Seventh	1897	4204	8	7	7	2706	1498	137	2316		1,887.84
8	E. Catherine, Division to State	1900	1393	3	2	2	1393		69	1444		527.43
9	Ann, Huron, 13th and 14th	1901	1487	3	2	2	1487		28	707		2,163.46
10	14th and Volland	1901	1352	3	1	1	1352		40	726		1,541.47
11	First, Madison to Jefferson	1903	602	1	1	1	602		19	328		1,169.51
12	W. William St.	1903	3509	8	1	1	2942	567	102	2066		2,083.02
13	Beakes, 4th av., 5th av., Kingsley	1904	444	1	1	1	444		22	376		5,024.40
14	N. Main, main sewer to Catherine	1905	2224	9	1	1	1737	487	57	987		2,322.48
15	Cambridge, Washtenaw, Vinewood, Ferdon	1905	1252	4	1	1	688	564	*32			1,735.64
16	W. Liberty extension to city limits	1906	2834	8	2	2	2834		*88			1,265.68
17	3rd, William to Jefferson	1905	200	1	1	1	200		8	160		590.84
18	W. Huron	1906	1730	5	2	2	1730		*30			4,111.52
19	Church	1906	3134	3	2	2	2882	242	*88			574.76
20	Miller ave.	1906	5682	20	2	2	3571	2111	*143			2,147.27
21	Spring, Miller to Hiscock	1907	2834	8	2	2	2834		*88			1,070.92
22	S. Washington and 3rd	1907	200	1	1	1	200		8			2,369.03
23	S. Division—(note)	1906										250.00
24	Geddes av., Hill and Oswego	1907	1730	5	2	2	1730		*30			1,530.50
25	State and Dewey ave.	1907	3134	3	2	2	2882	242	*88			2,186.57
26	Broadway and Wall st.	1907	5682	20	2	2	3571	2111	*143			4,989.01
27	Second Ward	1908	11470	24	13	13	3540	1930	*337			8,035.98
28	Belser, Observatory, Volland	1907	2380	4	3	3	2380		*39			1,895.50
29	Spring st. extension	1908	896	3	1	1	896		*26			632.32
30	E. Catherine and Clark	1908	1498	3	2	2	1498		*38			1,148.36
31	Fuller and Elizabeth	1907	1080	2	2	2	1080		*22			943.60
32	S. Main, Mosley, Ashley	1909	3679	8	3	3	3108	571	*98			2,229.03
33	Arch, White, McKinley	1909	1458	3	3	3	1458	1458	*58			513.49
34	Packard, Granger, Ferdon	1909	10128	27	7	7	7030	3098	*376			6,300.06
35	Second, William to Liberty	1909	321	1	1	1	321		*12			240.49

SUMMARY OF PAVEMENTS IN THE CITY OF ANN ARBOR

District No.	Street	When Laid	No. sq. yds.	Total Cost	Total Cost per sq. yd.	Cost per sq. yd. pavement only	Kind
1&2	Main	1898	12,730	\$ 31,375.15	\$2.46	\$1.64	Brick on concrete
3	Washington, Ashley to 5th av.	1899	5,140	11,645.17	2.27	1.73	Brick on concrete
4	Huron, Ashley to State	1900	10,791	27,845.38	2.58	2.17	Asphalt block on sand
5	State, Huron to Monroe	1902	12,484	31,778.98	2.55	2.16	Asphalt block on sand
6	Ann, Main to 4th av.	1902	1,589	2,860.70	1.80	1.39	Brick on sand
7	Liberty, Ashley to State	1903	9,140	24,486.06	2.68	2.19	Asphalt block on sand
8	Fourth av., Huron to Liberty	1903	2,431	6,490.80	2.67	2.19	Asphalt block on sand
9	William	1907	7,519	19,092.01	2.54	2.03	Bithulithic
10	N. University	1905	5,045	10,720.16	2.03	1.63	Brick on concrete
11	Alley	1908	350	672.74	1.92	1.50	Brick on concrete
12	Maynard	1909	1,883	1,930.13	1.03	.78	Ann Arbor tar-concrete
13	N. Fourth av., Huron to Ann	1910	1,159	1,351.34	1.17	.88	Ann Arbor tar-concrete
14	E. Huron and Twelfth	1910	6,765	6,685.50	.99	.76	Ann Arbor tar-concrete
15	Washington, 5th av. to 12th	1910	8,633	8,189.73	.95	.71	Ann Arbor tar-concrete
16	Washtenaw av.	1911	12,092	12,392.81	1.03	.78	Ann Arbor tar-concrete
17	State, Packard to Arch	1911	2,587	2,672.49	1.03	.84	Ann Arbor tar-concrete
18	S. Main and Packard	1911	20,826	23,172.05	1.11	.78	Ann Arbor tar-concrete
19	N. Main, Catherine st. north	1911	10,117	11,110.86	1.10	.82	Ann Arbor tar-concrete
20	Hill and Oswego	1913	5,682	7,726.41	1.36	.93	Ann Arbor tar-concrete
21	Fifth av.	1911	10,483	11,678.31	1.12	.84	Ann Arbor tar-concrete
22	Alley	1911	293	314.84	1.07	.84	Ann Arbor tar-concrete
23	Alley	1911	920	1,029.38	1.12	.77	Ann Arbor tar-concrete
24	Arch and Thayer	1911	1,833	1,747.35	.95	.77	Ann Arbor tar-concrete
25	State, Monroe to Packard	1911	3,158	3,181.57	1.01	.78	Ann Arbor tar-concrete
26	Mary	1912	2,407	2,703.08	1.12	.89	Ann Arbor tar-concrete
27	Ashley	1912	7,711	9,071.92	1.18	.91	Ann Arbor tar-concrete
28	W. Liberty, Ashley to city limit	1913	15,612	20,836.90	1.34	.98	Ann Arbor tar-concrete
29	W. Huron st., Ashley to Forks Church, Washtenaw to Prospect	1913	14,131	19,257.61	1.36	1.01	Ann Arbor tar-concrete
30	Hill st., State st. to Washtenaw av.	1914	11,832	14,802.93	1.25	.98	Ann Arbor tar-concrete
31	Ann st., Main st. to First st.	Not Completed					
32	Jefferson st., 5th av. to State st.	1915	2,085	2,740.80	1.33	1.02	Reinforced concrete
33	Division st., Detroit to Packard	1915	4924.2	8,665.40	1.62	1.30	Asphaltic concrete
34	Geddes av., Oxford to Oswego	1915	14372.5	24,733.97	1.60	1.29	Asphaltic concrete
35	Catherine st. and Miller av.	1915	3273.0	5,431.55	1.66	1.19	Reinforced concrete
36	Totals	1916	9,596	22,629.31	2.36	1.95	Brick on concrete base
			239592.7	\$391,023.39			

NOTE—The pavement between the rails of the street car track and for a distance of 18 inches out on either side of the track on West Huron street is of brick on concrete and is not included in the above statement.

NOTE—The pavement between the rails of the street car track on Washtenaw ave. and between the rails and for a distance of 18 inches out on either side of the track on Packard and Main sts. is of brick on concrete, and is not included in the above statement.

**ANNUAL REPORT OF THE STREET COMMISSIONER TO THE BOARD
OF PUBLIC WORKS, CITY OF ANN ARBOR, MICH., 1916.**

Office of Street Commissioner, Ann Arbor, Mich., Jan. 8, 1917.

Hon. Board of Public Works, Andrew Reule, President: Gentlemen—

I herewith submit the annual report of the Street Department for the year ending December, 1916, including care of streets and sidewalks, building and repairs of sidewalk extensions, crosswalks, inlets, etc., and paving work and materials used:

STREET WORK—

Cleaning paved streets, labor.....	\$ 3,641.36	
Cleaning alleys	11.87	
Cleaning leaves from paved streets.....	330.48	
Taking care of snow:		
Cleaning snow from crosswalks and gutters	\$229.10	
Plowing snow from sidewalks.....	253.50	
Plowing snow from gutters.....	34.78	
Sanding extensions and sidewalks.....	9.11	
Salt for frozen inlets, etc.....	1.45	
		527.94
Oiling street intersections and city frontage (paid to C. R. Henderson)		397.46
Paving repairs, labor	\$738.53	
29015 brick and block at \$10.00 per M.	290.15	
194 sacks; 48.5 bbls., cement at \$1.47.....	71.30	
19 loads sand at 25c	4.75	
40 loads gravel at 25c	10.00	
		1,114.73
Grading streets with scraper and street drag		618.50
Graveling, patching and grading dirt streets	\$3,595.02	
555 loads gravel	592.55	
212 loads gravel (delivered)	224.83	
54.1 cubic yards gravel (delivered).....	954.10	
17 loads cinders	8.50	
1005 loads filling	288.70	
		5,663.70
Cleaning gutters on dirt streets		2,086.53
Cleaning leaves from gutters, dirt streets		27.00
Mowing weeds from streets and lawn extensions		319.97
Grading dirt streets:		
Intersection Pearl and Gott street....	\$ 18.68	
Intersection 4th ave. and Summit st.	21.71	
Baldwin, Cambridge Road to Wells.....	39.85	
Washtenaw avenue between Ferdon Road and city limits	644.48	
Ferdon Road	117.67	
Grading Vinewood Boulevard	\$89.96	
And filling Day street	88.00	
		177.96
White street, (grading and filling).....	107.42	
Eighth street south of Washington.....	51.72	
Madison between 5th and 7th streets....	29.95	
John street	54.63	
Felch between Miner and Gott sts.....	16.03	
Miner, Felch to Hiscock (grading and widening)	89.81	
Chubb Road (and laying tile in gutter)	144.64	
Glen avenue (amount returned to city by sewer contractor)	43.06	
Grading and widening 7th st., south of Madison st.	183.22	
Grading and widening Philip street east of South 4th ave.	\$152.09	
Filling Philip street:		
Material	\$173.40	
Spreading	18.00	
		191.40
		343.49
Crest avenue	\$303.94	

W. Washington east of Crest ave.....	27.87		
Various small jobs		331.81	
		144.02	
			2,560.15
Total Street Work			\$17,299.69
CULVERTS—			
Minor repairs		\$	3.45
Railing culvert, 3rd street, labor and materials			31.35
Total Culvert Work			\$ 34.80
SIDEWALKS—			
Grading for sidewalks, labor		\$	891.77
Minor repairs sidewalks		\$	1.55
Repairs tar sidewalks (3 pieces), B. Mast		36.00	
			37.55
Sidewalks built by city under contract:			
For property owners—			
By C. M. Thompson & Son:			
33 pieces; 2666.98 lin. ft.; 13316.6 sq. ft.		\$1,425.47	
By Thos. Hession:			
35 pieces; 2563.33 lin. ft.; 12816.65 sq. ft.		1,346.81	
			2,771.28
For City—			
By C. M. Thompson & Son:			
12 pieces; 526.8 lin. ft.; 2870.99 sq. ft.		\$	206.84
By Thos. Hession:			
6 pieces; 251.35 lin. ft.; 1257.31 sq. ft.		131.75	
			338.59
Total Sidewalk Work			\$ 4,039.19
SIDEWALK EXTENSIONS, CROSSWALKS, ETC.—			
Building sidewalk extensions, crosswalks, cement cul-			
verts, etc., labor		\$1,265.33	
160.5 loads gravel at 25c		40.13	
12.5 loads sand at 25c		3.13	
62 loads filling at 25c.....		9.30	
816 sacks cement; 201.5 bbls.:			
87 bbls at \$1.27		110.49	
31.5 bbls. at \$1.47		46.31	
83 bbls. at \$1.51		125.33	
Lumber		58.45	
Culvert irons		223.75	
Crossing plates		85.91	
15727 brick and block at \$10.00 per M.		157.27	
			2,125.40
Sidewalk extensions laid by contract—			
By C. M. Thompson & Son:			
9 pieces; 306.15 sq. ft.		\$33.65	
By Thos. Hession:			
14 pieces; 457.5 sq. ft.		50.20	
By A. E. Gibson:			
1 piece; 64.5 sq. ft.		7.10	
			90.95
Curbing set—			
By C. M. Thompson & Son, 1 piece; 24.6 lin. ft.			6.15
Tar extensions repaired—			
By G. B. Marsden, 4 pieces; (abt.) 5½ rods			8.25
Cleaning crosswalks			28.70
Unloading cement			15.06
Cleaning bridges			2.17
Repairs curb (Main near William).....			4.01
Repairs bridges, labor		\$176.81	
Handling lumber		21.97	
Material purchased locally		61.50	

Lumber used on No. 1 bridge (Est.).....	\$500.00	
Freight on same	112.96	
		612.96
		873.24
Total Sidewalk Extensions, Etc.....		\$ 3,153.93
INLETS, STORM WATER SEWERS, ETC.—		
Repairs and cleaning inlets and gutter boxes, laying tile etc., labor	\$233.81	
Tile bought	283.44	
		\$ 517.25
Miller ave. repairs after flood, labor.....	\$ 79.87	
41 loads gravel to fill wash-outs (delivered)	51.25	
		131.12
		\$ 648.37
GENERAL WORK AND REPAIRS—		
Miscellaneous work and repairs	\$	74.16
Filling street sweeper brooms.....	\$117.34	
Material bought	50.50	
		167.84
Taking ashes from city hall basement....		17.21
Handling coal for poor master (not including time of city team)		7.72
Repairs and cleaning cement mixer and steam road roller..	\$18.70	
Repairs by Machine shop	25.05	
		43.75
Cleaning Chubb road property for Health Department ..		7.22
Repairs snow plows		1.00
Hauling broken trees and branches for City Forester		3.25
Handling empty cement sacks		12.25
Flooding ice ponds, with Park Superintendent		2.00
Cutting trees in streets		16.66
Unloading tile		8.89
Sprinkling streets (Labor day)		2.22
Building fences (Wright, Traver, Swift sts.)	\$83.19	
Lumber	30.96	
		64.15
		\$ 428.32
PAVING—		
Paving intersections of Liberty and Eber White and Buchanan avenues, labor	\$ 58.56	
141 sacks cement; 35.25 bbls. at \$1.47.....	51.82	
20 loads gravel at 25c.	5.00	
6 loads washed gravel at 25c.	1.50	
1 load pebbles at 25c. ....	.25	
		\$ 117.13
Paving alley north of Cambridge Road, east of Forest ave- nue, running north about 200 feet, labor	\$ 59.19	
4500 block at \$10.00 per M.	45.00	
3 loads sand at 25c. ....	.75	
		104.94
		\$ 222.07
SUPPLIES—		
Supplies, repairs, etc.	\$	1,317.91
RECAPITULATION—		
Street work		\$17,299.69
Culverts		34.80
Sidewalks		4,039.19
Sidewalk extensions, crosswalks, etc.....		3,153.93
Inlets, laying tile, etc.		648.37
General work and repairs.....		428.32
Paving		222.07

Supplies	1,317.91
Total	\$27,144.28
Culverts repaired	1
Crosswalks built	16
Sidewalk extensions built (by city).....	58
Sidewalk extensions built (by contract)	24
Crosswalks repaired and relaid.....	27
Sidewalk extensions repaired	17
Gutter boxes built	27
Storm water culverts at intersections (about 578 lineal feet)	17
Cement sidewalks built by city under contract:	
For property owners	68
Lineal feet	5230.31
Square feet	26133.25
For City	18
Lineal feet	778.15
Square feet	4128.3
Sidewalks repaired (by city)	1
Sidewalks repaired (by contract).....	3
Pieces curb set (by contract)	1
Pieces curb repaired (by city).....	2
Notices served:	
To repair sidewalks	335
To remove obstructions in streets.....	11
To fill holes in streets.....	1
To cut weeds	22
To sand sidewalks.....	1
	<u>370</u>

GRAVEL ACCOUNT—	Loads
Graveling and patching streets in the several wards	2947.5
Filling	1575
Graveling streets (cubic yards)	954
Extension and crosswalk work:	
Concrete gravel	160.5
Filling	62
	<u>222.5</u>
Paving repairs	40
Paving work	27

Total loads gravel used 5566

CEMENT ACCOUNT—	Bbls.
On hand Jan. 1, 1916	87.5
Bought:	
Michigan P. C. Co.	135
Sauer & Co.	3.5
From paving contractor	83.75
	<u>222.25</u>
Total bought and on hand	309.75

Used:	Sacks.
Extension and crosswalk work.....	816
Paving repairs	194
City Engineer's Dep't, sewer, etc., work	73
Paving	141
	<u>1224</u>

On hand Jan. 1, 1917 3.75

Total used and on hand 309.75

Respectfully submitted, ALFRED J. PAUL, Street Commissioner.

INVENTORY—STREET DEPARTMENT—	
1 team horses	\$ 150.00
1 double harness	20.00
Horse blankets	12.00

Stable blankets	3.00
Steam road roller	1,000.00
2 street sweepers	200.00
2 tin pumps; 1 large pump	10.00
1 pair bobs	20.00
Stencil and alphabet	1.00
1 hack	6.00
1 road scraper	75.00
19 wood snow plows	95.00
2 patent snow plows	25.00
1 steel snow plow	10.00
1 60-gal. oil can	4.00
3 small oil cans .....	.60
2 galv. tin pails .....	.50
1 two-horse mower	5.00
1 large tar tank on wheels	45.00
1 sand wagon	15.00
1 small tar tank on wheels	100.00
1 tar tank and boiler near Gas works)	1,200.00
50 feet hose	2.50
Sidewalk building outfit	4.00
1 patent street drag	20.00
1 street drag	10.00
1 lot sewer jacks	5.00
1 rooter	5.00
1 street brush .....	.60
Stencil for marking concrete	4.00
1 ladder	1.00
5 street sweeper brooms (filled)	50.00
6 spindles for same	6.00
425 lbs. bamboo splints	38.25
5 lbs. bolts (Est.) .....	.20
Paint brushes .....	.50
1 plow	5.00
1 sand screen .....	.50
1 cross-cut; 1 one-man saw	2.50
1 sprinkling tank	150.00
2 dump wagons	150.00
3 carts	60.00
1 bolt cutter	1.00
1 brace and bits	1.00
13 red lanterns	7.80
6 lantern frames	1.50
1 iron; 3 wood, levels	2.00
5 wheelbarrows	13.75
12 grub hoes	6.00
3 scythes and handles	3.00
2 comb. pick and grub hoe	1.50
1 sidewalk roller	5.00
1 iron vice and bench	3.00
Set platform scales (at fire house)	150.00
1 tool box on wheels	20.00
1 batch cement mixer	100.00
2 slip scrapers	10.00
1 two-wheeled scraper	15.00
1 square wood tamper	1.00
3 hand saws	3.00
3 tool boxes	9.00
2 mortar boxes	2.00
3 scoop shovels	1.50
8 cement shovels	3.20
3 iron tampers	3.00
2 wood pounders	1.00
3 paving hammers	2.00
3 mauls	1.50

7 crow bars	3.50
3 hammers	1.50
3 axes	1.50
3 shovels .....	.75
11 picks	5.50
7 street shovels	5.25
1 toilet for street use.....	4.00
1 lot rope	1.00
1 lot iron pipe and fittings	25.00
2 Knowell street scrapers	2.00
2 Century street scrapers	5.00
1 tar kettle	10.00
1 Twentieth century horse grader.....	100.00
1 tar distributor attachment	15.00
2 large hose nozzles.....	2.00
3 rakes	1.00
4 supports for red lights.....	1.00
5 cold chisels	1.00
1 pliers .....	.75
2 pliers	1.00
1 long-handled shovel .....	.60
½ bbl. salt .....	.50
2 pair rubber boots	3.00
1 wrench	1.00
1 wagon jack	4.00
2 post hole diggers	1.00
2 pitch forks	1.00
3 barley forks	1.50
2 brick tongs	2.50
1 stone boat	1.00
1 lot old fire hose	5.00
1 grindstone	2.00
1 hoe .....	.40
1 stone hammer .....	.35
1 snow shovel .....	.50
1 pipe spade .....	.40
2 old wood trowels .....	.25
Creasers and edgers .....	.75
Steel trowels .....	.75
3 hatchets	1.50

Total \$ 4,094.55

Building materials, etc.—

4189 paving block	\$ 87.37
25,000 old paving brick at \$5.00 per M.	125.00
52 barrels pitch	169.00
3.75 bbls. cement	5.67
Old bridge timbers.....	15.00
1 lot wing bars for cement work.....	10.00
1 lot sewer tile	108.00
300 wood paving blocks	2.00
1 lot 12-inch plank	6.00
3 pc. 8-inch iron pipe	10.00
1 lot old manhole and inlet frames.....	20.00
1 lot stone curbing, etc.	30.00
800 ft. oak plank	24.00
3850 old asphalt block	19.25
2940 ft. maple plank, 3".....	95.55
4704 ft. maple plank, 4".....	185.80

912.64

Total \$ 5,007.19.

Correct: A. J. PAUL, Street Commissioner.

City of Ann Arbor, Michigan, January 31st., 1917.

The Common Council of the City of Ann Arbor, Michigan: Gentlemen—I desire to submit, herewith, a report of the expenses of the Municipal Christmas tree celebration, which was held on the Court House square at Christmas time. At a regular meeting of the Common Council on Dec. 4th., 1916 an amount not to exceed \$85.00 was appropriated from the Entertainment fund for the above purpose.

The total expense as submitted to the Finance committee in bills amounts to \$80.55. This amount does, in no way, represent the total service rendered in connection with the event, as a great many citizens and business firms gave of their time and service without any charge. The Detroit Edison Co. have no bill to submit for their services in moving the tree, supplying the current, etc., and, likewise, no bill from the University for use of electricians and reservation of Hill Auditorium, and the merchants for decorations, etc., as well as Mr. T. W. Peck for the tree itself, and many others that could be mentioned. A communication was placed in the local paper shortly after Christmas, thanking those individuals and organizations which helped in making the event a success.

The electrical supplies, such as wiring, etc., for the most part, had to be prepared and purchased outright, and, consequently, are being kept for future occasions of this kind. It is hoped that a small appropriation may be set aside each year, possibly as an item in the Park budget, for the purpose of making the Municipal Christmas tree celebration an annual custom in our city.

The following is an abstract of the expenses as presented:

For labor paid, in moving tree, preparing decorations and wires, decorating, etc	\$36.90
For slides, rentals, telegrams, correspondence, etc	5.50
For cartage	3.50
For electrical supplies from Washtenaw Electrical Shop	34.65

Total \$80.55

Respectfully submitted, Ray E. Bassett, Superintendent of Parks.

The annual report of the Board of Public Works, consisting of annual reports of City Engineer and Street

Commissioner, and also the report of Acting City Marshal for month of January, and report of Superintendent of Parks, relative to expenses of Municipal Christmas tree, were received and ordered to take usual course.

City Assessor.

Ann Arbor, Mich., Jan. 30, 1917.

To the Honorable, the Common Council: Gentlemen—I transmit for your further order valuations in pavement district No. 36, Miller ave., and Catherine st.; and in sanitary sewer districts No. 69, Moseley st., from Second to Third sts.; No. 70, West st., from Main st. West; No. 73, Eber White Addition; No. 74, Lincoln st., from Fourth ave., to Main st.; No. 75, Hill, Onandaga, Geddes and Berkshire road; No. 76, East Washington st., from Twelfth to Fourteenth st.; No. 77, John K and First st.; No. 78, South Fifth st., from Madison st. to end; No. 79, Hiscock st., from Summit to Spring st.; No. 80, South Seventh st., between Liberty and Jefferson sts.; No. 81, Wells st., from Baldwin ave., to Ferdon road; and the grading of Edward st. Respectfully submitted, Herbert W. Crippen, City Assessor.

By Ald. Mayer: Resolved, that Tuesday, Feb. 27, 1917, be and the same is fixed as the day, 2 p. m. the hour, and the council room the place, for the review of the assessment roll of pavement district No. 36, and the assessment rolls of sanitary sewer districts, Nos. 69, 70, 73, 74, 75, 76, 77, 78, 79, 80, 81; and the assessment roll of the grading of Edward st.

Resolved, further, that the City Clerk do advertise the same according to law.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

City Engineer requested permission of the Council to investigate the methods of garbage disposal at Lansing and Bensor Harbor.

Moved by Ald. Geo. Lutz, that request of City Engineer be granted and expenses be paid by city.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

Resolutions.

By Ald. Sherk: Resolved, that the Board of Public Works be authorized to purchase one carload of 24 inch

tile and proceed with repair of main sewer at once.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

By Ald. Sherk: Resolved, that the Board of Park Commissioners be requested to cut down all willow and poplar trees on Park property on streets along the main sewer.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

By Ald. Manwaring: Resolved, that the Board of Park Commissioners be authorized to collect taxes be extended to and including February 8th 1917.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

By Ald. Manwaring: Resolved, and it is hereby ordered that the City Clerk draw warrants for Water Works coupons due February 1st, 1917, when presented.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

By Ald. A. Lutz: Resolved, that the City Clerk make all necessary arrangements for the coming elections and registration, same to be held in usual places and according to the city charter and state law, polls to be open until 8 o'clock in the evening.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

By Ald. Andres: Resolved that a

safeguard be placed on Spring st. at culvert on east side, between Hiscock and Summit streets.

Referred to Street committee.

Moved by Ald. Manwaring, that Prof. H. G. Raschbacher and Prof. W. C. Hoad be invited to address the Council, relative to garbage disposal, at such time as the Mayor may appoint. Adopted.

By Ald. Manwaring: Whereas, the Council must soon determine the matter of garbage disposal, and all the members should be fully informed regarding the various methods, therefore

Resolved, that the committee, composed of all members of the Council who are willing to go, the City Engineer and Mr. Wirt Cornwell, be authorized to inspect the various methods for disposal of garbage at Highland Park, Mt. Clemens, French Landing and other nearby places, and expense to be paid by the city.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

By Ald. Geo. Lutz: Resolved, that warrant No. 7318, \$8.00, drawn on contingent fund in favor of C. L. Staffan, be and is hereby cancelled; and the City Clerk is hereby instructed to draw warrant in favor of C. L. Staffan for \$8.00 as the former warrant has been destroyed.

Adopted by the following vote: Yeas, Ald. Fiegel, Heusel, A. Lutz, Mayer, Andres, Flynn, Manwaring, Sherk, Freeman, Geo. Lutz, 10. Nays, none.

The Council adjourned.

ISAAC G. REYNOLDS
City Clerk.