

*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 5 June 1956

Lab. Number: 904321-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4-25-56 Time: 11:30 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155

No. of Samples: One- 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co., -Concrete Sand  
Fine Aggregate Check No. 229

Black & Veatch, Cons. Engrs.

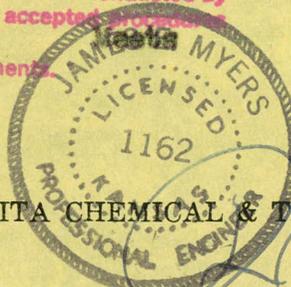
RESULTS OF TEST (Date Molded 4-27-56)  
 A.S.T.M. Mortar Strength Tests  
 (28 Day Results)

A. Dolese Bros Sand	<u>LC-229-4</u>	<u>LC-229-5</u>	<u>LC-229-6</u>	
Specimen No	<u>6425</u>	<u>6075</u>	<u>6125</u>	
28 Day Strength				<u>6208</u>
Average P.S.I.				<u>99.7%</u>
% of Standard				
 B. Standard Ottawa Sand				
Specimen No	<u>LC-135-S-4</u>	<u>LC-135-S-5</u>	<u>LC-135-S-6</u>	
28 Day Strength	<u>6150</u>	<u>6300</u>	<u>6200</u>	
Average P.S.I.				<u>6217</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M C-33-52T-"Not Less than 95 % of Standard."

CERTIFIED

We certify the above test was conducted by  
 us in accordance with accepted  
 and that this material  
 specification requirements.



CC: 1-Lock Joint @ Colwich  
Weller  
1-Kroll  
1-Hess  
 Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. PHILLIPS

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 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 5 June 1956

Lab. Number: 904358-7

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4-27-56

Time: 11:00 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 21-55

No. of Samples: One- 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros Co-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 230

RESULTS OF TEST (Date Molded 4-27-56)

A.S.T.M. Mortar Strength Tests  
 (28 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-230-4</u>	<u>LC-230-5</u>	<u>LC-230-6</u>	
28 Day Strength	<u>6325</u>	<u>5800</u>	<u>6225</u>	
Average B.S.I.				<u>6117</u>
% of Standard				<u>98.5%</u>
B. Standard Ottawa Sand				
Specimen No.	<u>LC*135-8-4</u>	<u>LC-135-8-5</u>	<u>LC-135-8-6</u>	
28 Day Strength	<u>6150</u>	<u>6300</u>	<u>6200</u>	
Average F.S.I.				<u>6217</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M. C-39-52 T- "Not Less than 95 % of Standard."

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material Meets specification requirements.



1-Lock Joint @ Colwich  
 2-Miller  
 CC: 1-Knoll  
 1-Hess

Reference: A.S.T.M. C-39

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: R. L. PHILLIPS

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 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: **Lock Joint Pipe Co.**  
 P.O. Box 137  
 Colwich, Kansas

Date: 8 June 1956

Lab. Number: 904362-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4-30-56

Time: 10:30 A.M.

Material Tested: **CONCRETE SAND**  
**66" Water Transmission Lines**  
**Project 2155**  
**Black & Veatch, Cons. Engrs.**

No. of Samples: **One-100 lbs.**

Sample Designations:

**Periodic Aggregate Check**

**Dolese Bros. Co.-Concrete Sand**

**Fine Aggregate Check No 231**

RESULTS OF TEST (Date Molded 5-2-56)

A.S.T.M. Mortar Strength Tests  
 ( 28 Day Results )

A. Dolese Bros Sand	Specimen No	<u>LC-231-4</u>	<u>LC-231-5</u>	<u>LC-231-6</u>	
	28 Day Strength	6000	5900	5750	
	Average P.S.I.				5833
	% of Standard				103.0%
B. Standard Ottawa Sand	Specimen No	<u>LC-136-S-4</u>	<u>LC-136-S-5</u>	<u>LC-136-S-6</u>	
	28 Day Strength	5750	5850	5675	
	Average P.S.I.				5758
	% of Standard				100.0%

To Meet A.S.T.M. C-33-52 T-"Not Less Than 95 % of Standard."

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material Meets specification requirements.

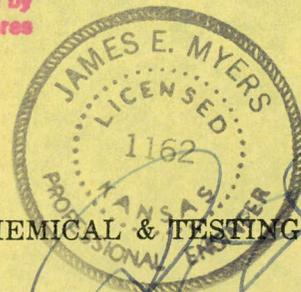
1-Lock Joint @ Colwich  
 CC:2-Weller  
 1-Knoll  
 1-Hess

Reference: A.S.T.M. C-87

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. PHILLIPS



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MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 5 June 1956

Lab. Number: 904213-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4-18-56 Time: 11:00 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 21-55  
Black & Veatch-Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros Co.-Concrete Sand  
Fine Aggregate Check No. 226

RESULTS OF TEST (Date Molded 4-18-56)  
 A.S.T.M. Mortar Strength Tests  
 (28 Day Strengths)

A. Dolese Bros Sand				
Specimen No	<u>LC-226-4</u>	<u>LC-226-5</u>	<u>LC-226-6</u>	
28 Day Strength	<u>7150</u>	<u>6825</u>	<u>6525</u>	
Average P.S.I.				<u>6825</u>
% of Standard				<u>99.4 %</u>
B. Standard Ottawa Sand				
Specimen No	<u>LC-133-S-4</u>	<u>LC-133-S-5</u>	<u>LC-133-S-6</u>	
28 Day Strength	<u>7100</u>	<u>7025</u>	<u>6500</u>	
Average P.S.I.				<u>6875</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M. C-33-52 T - " Not Less than 95 % of Standard."

**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material  
 specification requirements.



1-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

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REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: **Loek Joint Pipe Co.**  
 P.O. Box 137  
 Colwich, Kansas

Date: 5 June 1956

Lab. Number: 905028-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 5-2-56 Time: 11:00 A.M.

Material Tested: **CONCRETE SAND**  
**66" Water Transmission Lines**  
**Project 21-55**  
**Black & Veatch, Cons., Engrs.**

No. of Samples: **One- 100lbs**  
 Sample Designations:  
**Periodic Aggregate Check**  
**Dolese Bros Co- Concrete Sand**  
**Fine Aggregate Check No. 232**

RESULTS OF TEST (Date Molded 5-2-56)

A.S.T.M. Mortar Strength Tests  
 (28 Day Results)

A. Dolese Bros Sand				
Specimen No	<u>LC-232-4</u>	<u>LC-232-5</u>	<u>LC-232-6</u>	
28 Day Strength	<u>6150</u>	<u>6175</u>	<u>5850</u>	
Average P.S.I.				6058
% of Standard				114.0%
B. Standard Ottawa Sand				
Specimen No	<u>LC-136-S-4</u>	<u>LC-136-S-5</u>	<u>LC-136-S-6</u>	
28 Day Strength	<u>5750</u>	<u>5850</u>	<u>5675</u>	
Average P.S.I.				5758
% of Standard				100.0%

To Meet A.S.T.M. C-39-55T-"Not Less than 95% of Standard."

**CERTIFIED**

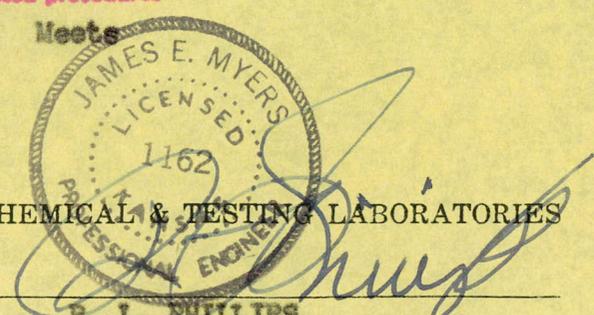
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

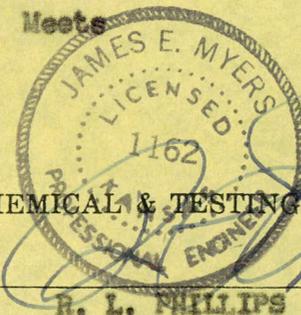
CC: 1-Loek Joint @ Colwich  
 2-Weller  
 1-Kroll  
 1-Hess

Reference: A.S.T.M. C-37

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By:   
 R. L. PHILLIPS



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
WICHITA 4, KANSAS

J. E. MYERS  
MANAGER  
W. H. CAMPEN  
J. R. SMITH  
J. J. REMAR  
ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: 16 May 1956

Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Lab. Number: 905121-h

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 5/7/56

Time: 11:00 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Com. Engrs.

No. of Samples: One - 100 lbs.  
Sample Designations:

Periodic Aggregate Check  
Delese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 234

### RESULTS OF TEST (Date Molded 5/7/56)

#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Delese Bros. Sand  
Speciman No.  
7 Day Strength  
Average PSI  
% of Standard

LC-234-1  
3100

LC-234-2  
3350

LC-234-3  
3250

3233  
95.8%

B. Standard Ottawa Sand  
Speciman No.  
7 Day Strength  
Average PSI  
% of Standard

LC-137-8-1  
3300

LC-137-8-2  
3450

LC-137-8-3  
3350

3367  
100.0%

To Meet ASTM C-33-52F "Not less than 95% of Standard".

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

meets



1 Lock Joint @ Colwich  
2 Weller  
CC: 1 Knoll  
1 Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

1  
File:  
FORM 501

By: \_\_\_\_\_

R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 16 May 1956

Lab. Number: 905093-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 5/4/56

Time: 10:30 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 233

## RESULTS OF TEST (Date Molded 5/7/56)

### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-233-1</u>	<u>LC-233-2</u>	<u>LC-233-3</u>	
7 Day Strength	3325	3500	3400	
Average PSI				3408
% of Standard				101.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-137-8-1</u>	<u>LC-137-8-2</u>	<u>LC-137-8-3</u>	
7 Day Strength	3300	3450	3350	
Average PSI				3367
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

CC: 1 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

meets  
  
 R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: 16 May 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 904164-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4/13/56

Time: 11:30 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doles Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 224

### RESULTS OF TEST (Date Molded 4/13/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Doles Bros. Sand				
Speciman No.	<u>LC-224-4</u>	<u>LC-224-5</u>	<u>LC-224-6</u>	
28 Day Strength	5900	5775	5600	
Average PSI				5758
% of Standard				104.3%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-132-S-4</u>	<u>LC-132-S-5</u>	<u>LC-132-S-6</u>	
28 Day Strength	5425	5525	5575	
Average PSI				5508
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material

meets

CC: 1 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

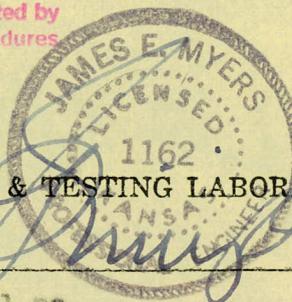
Reference: ASTM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_

R. L. Phillips



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AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: 11 May 1956

Lock Joint Pipe Co.  
P.O. Box 137  
Galvich, Kansas

Lab. Number: 905022-b  
(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 5/2/56 Time: 11:00 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Conc. Engrs.

No. of Samples: One - 100 lbs.  
Sample Designations:  
Periodic Aggregate Check  
Dolase Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 232

### RESULTS OF TEST (Date Mailed 5/3/56)

#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolase Bros. Sand				
Speciman No.	<u>LC-232-1</u>	<u>LC-232-2</u>	<u>LC-232-3</u>	
7 Day Strength	3325	3525	3600	
Average PSI				3463
% of Standard				100.4%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-136-8-1</u>	<u>LC-136-8-2</u>	<u>LC-136-8-3</u>	
7 Day Strength	3450	3550	3350	
Average PSI				3450
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

CC: 2 Lock Joint @ Galvich  
2 Weller  
1 Knoll  
1 Voss  
Reference: ASTM C-87

File: 1  
FORM 501

**CERTIFIED**  
We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements were met.



**WICHITA CHEMICAL & TESTING LABORATORIES**

By: [Signature]  
N. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

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 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:

AMERICAN CHEMICAL SOCIETY

AMERICAN SOCIETY FOR TESTING MATERIALS

AMERICAN SOCIETY OF CIVIL ENGINEERS

ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 11 May 1956

Lab. Number: 904192-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/11/56 Time: 11:00 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolose Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 231

### RESULTS OF TEST (Date Molded 4/11/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Strength)

A. Dolose Bros. Sand				
Specimen No.	<u>LC-231-1</u>	<u>LC-231-2</u>	<u>LC-231-6</u>	
7 Day Strength	3450	3200	3400	
Average PSI				3350
% of Standard				97.2%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-136-1</u>	<u>LC-136-2</u>	<u>LC-136-3</u>	
7 Day Strength	3450	3550	3350	
Average PSI				3450
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-33

File: 1  
 FORM 501

**CERTIFIED**  
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 us in accordance with accepted procedures  
 and that this material  
 meets specification requirements.

meets



WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 11 May 1956

Lab. Number: 904175-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/11/56 Time: 11:00 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 223

### RESULTS OF TEST (Date Mailed 4/11/56) A.S.T.M. MORTAR STRENGTH TESTS ( 28 Day Results)

Dolese Bros. Sand				
Specimen No.	<u>LC-223-4</u>	<u>LC-223-5</u>	<u>LC-223-6</u>	
28 Day Strength	5575	5900	6050	
Average PSI				5842
% of Standard				95.4%
Standard Ottawa Sand				
Specimen No.	<u>LC-131-8-4</u>	<u>LC-131-8-5</u>	<u>LC-131-8-6</u>	
28 Day Strength	6075	6050	6075	
Average PSI				6067
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

2 Lock Joint - Colwich  
 2 Keller  
 1 Anoll  
 1 Hess

Reference: ASTM C-37

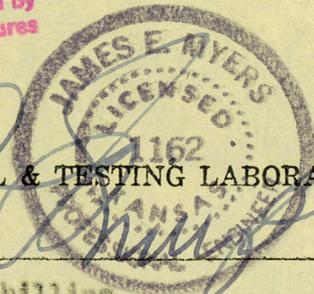
File: 1  
 FORM 501

**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material meets  
 specification requirements.

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

R. L. Phillips



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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 11 May 1956

Lab. Number: 904113-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/10/56 Time: 9:30 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Blak & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolesse Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 222

### RESULTS OF TEST (Date Molded 4/11/56) A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

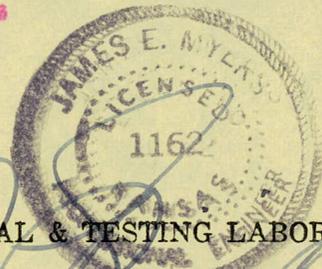
A. Dolesse Bros. Sand				
Speciman No.	<u>LC-222-4</u>	<u>LC-222-5</u>	<u>LC-222-6</u>	
28 Day Strength	5700	6025	6075	
Average PSI				5933
% of Standard				97.7%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-131-8-4</u>	<u>LC-131-8-5</u>	<u>LC-131-8-6</u>	
28 Day Strength	6075	6050	6075	
Average PSI				6257
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material  
 specification requirements.

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

meets



Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

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By: R. L. Phillips

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## REPORT OF TEST

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 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: 9 May 1956

Leak Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 904352-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/27/56 Time: 11:00 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Deless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 200

### RESULTS OF TEST (Date Molded 4/27/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Deless Bros. Sand				
Specimen No.	<u>LC-230-1</u>	<u>LC-230-2</u>	<u>LC-230-3</u>	
7 Day Strength	3300	3275	3250	
Average PSI				3275
% of Standard				95.6%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-135-S-1</u>	<u>LC-135-S-2</u>	<u>LC-135-S-3</u>	
7 Day Strength	3600	3400	3275	
Average PSI				3425
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.

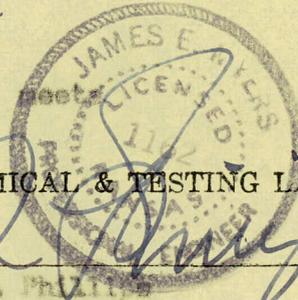
CC: 2 Leak Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ATM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: *[Signature]*  
 E. L. Phillips



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## REPORT OF TEST

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 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 9 May 1956

Lab. Number: 904051-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/5/56 Time: 8:00 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Line  
 Project 2155  
 Elsak & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Dolere Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 220

### RESULTS OF TEST (Date Mailed 4/6/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolere Bros. Sand				
Specimen No.	<u>LC-220-4</u>	<u>LC-220-5</u>	<u>LC-220-6</u>	
28 Day Strength	5100	5075	5175	
Average PSI				5117
% of Standard				95.0%

B. Standard Ottawa Sand				
Specimen No.	<u>LC-120-0-4</u>	<u>LC-120-0-5</u>	<u>LC-120-0-6</u>	
28 Day Strength	5350	5275	5325	
Average PSI				5323
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-37

File: 1  
 FORM 501

**CERTIFIED**  
 We certify the above test was conducted by  
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WICHITA CHEMICAL & TESTING LABORATORIES

By: *[Signature]*

R. L. Phillips



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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 9 May 1956

Lab. Number: 904321-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/25/56 Time: 11:30 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolson Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 229

### RESULTS OF TEST (Date Molded 4/27/56)

A.S.T.M. MORTAR COMPRESSIVE TESTS  
 (7 Day Results)

A. Dolson Bros. Sand				
Specimen No.	<u>10-229-1</u>	<u>10-229-2</u>	<u>10-229-3</u>	
7 Day Strength	3300	3350	3325	
Average PSI				3325
% of Standard				97.15
B. Standard Ottawa Sand				
Specimen No.	<u>10-135-0-1</u>	<u>10-135-0-2</u>	<u>10-135-0-3</u>	
7 Day Strength	3600	3600	3275	
Average P.S.I.				3605
% of Standard				100.00

To meet ASTM C-39-52T "Not less than 95% of Standard".

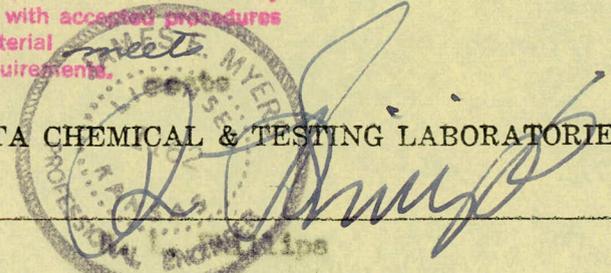
CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

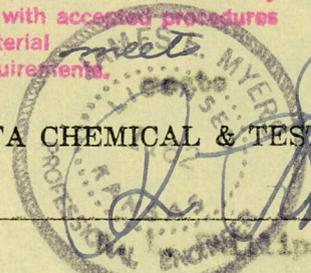
**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

Reference: ASTM C-39

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: 



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: May 4, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 904034-8

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4/4/56

Time: 8:45 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. En rs.

Sample Designations:

Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 219

### RESULTS OF TEST (Date Mailed 4/4/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolese Bros. Sand				
Specimen No.				
28 Day Strength	<u>LC-219-4</u>	<u>LC-219-5</u>	<u>LC-21966</u>	
Average PSI	7740	7335	7360	7445
% of Standard				100.3%
B. Standard Ottawa Sand				
Specimen No.				
28 Day Strength	<u>LC-129-8-4</u>	<u>LC-129-8-5</u>	<u>LC-129-8-6</u>	
Average PSI	7360	7360	7490	7403
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

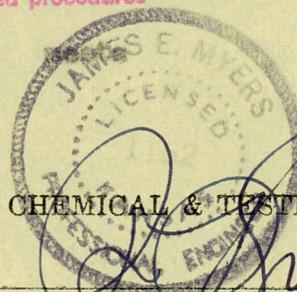
2 Lock Joint @ Colwich  
 CC: 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-67

File: 1

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



*Wichita* CHEMICAL AND TESTING *Laboratories*  
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REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 904070-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4-6-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co-Concrete Sand  
Fine Aggregate Check No. 221

RESULTS OF TEST (Date Molder 4-6-56)

A.S.T.M. ~~XXXXXX~~ Mortar Strength Tests  
 (7 Day Results)

A. Dolese Bros Sand				
Speciman No.	<u>LC-221-1</u>	<u>LC-221-2</u>	<u>LC221-3</u>	
7 Day Strength	<u>3075</u>	<u>3000</u>	<u>3100</u>	
Average PSI				<u>3058</u>
% of Standard				<u>99.2 %</u>
B. Standard Ottawa Sand L				
Speciman No.	<u>LC-130-S-1</u>	<u>LC-130-S-2</u>	<u>LC-130-S-3</u>	
7 Day Strength	<u>3025</u>	<u>3050</u>	<u>3125</u>	
Average PSI				<u>3067</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M. C-33-52T- "Not Less Than 95% of Standard."

CONTRACT EXTENSION

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.

2-Lock Joint @ Colwich  
 2-Weller  
 CC: 1-Knoll  
 1-Mess

Reference: A.S.T.M C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

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AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 904051-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4-5-56

Time: 8:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One - 100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Doless Bros. Co.- Concrete Sand

Black & Veatch, Cons. Engrs

Fine Aggregate Check No. 220

### RESULTS OF TEST (Date Molded 4-6-56)

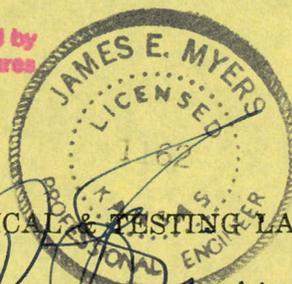
A.S.T.M. Mortar Strength Tests  
(7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-220-1</u>	<u>LC-220-2</u>	<u>LC-220-3</u>	
7 Day Strength	2825	3125	2850	
Average P.S.I.				2933
% of Standard				95.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-130-S-1</u>	<u>LC-130-S-2</u>	<u>LC-130-S-2</u>	
7 Day Strength	3025	3050	3125	
Average PSI				3067
% of Standard				100.0%

To Meet A.S.T.M C-39-52T-"Not Less Than 95 % of Standard."

2-Lock Joint @ Colwich  
2-Weller  
1-Knoll  
CC: 1-Hess

**CERTIFIED**  
We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



Reference: A.S.T.M C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
FORM 501

By: \_\_\_\_\_

*R. L. Phillips*  
R. L. PHILLIPS

*Wichita* CHEMICAL AND TESTING *Laboratories*  
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REPORT OF TEST

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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 903244-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-19-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.

Sample Designations:

Periodic Aggregate Check

Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 207

RESULTS OF TEST (Date Molded 3-19-56)  
 A.S.T.M Mortar Strength Tests  
 28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-207-4</u>	<u>LC-207-5</u>	<u>LC-207-6</u>	
28 Day Strength	<u>4975</u>	<u>4925</u>	<u>4675</u>	
Average PSI				<u>4858</u>
% of Standard				<u>98.3%</u>
B. Standard Ottawa Sand				
Speciman No.	<u>LC-122-S-4</u>	<u>LC-122-S-5</u>	<u>LC-122-S-6</u>	
28 Day Strength	<u>4825</u>	<u>5025</u>	<u>5000</u>	
Average PSI				<u>4948</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M C-33-52T-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

CC:

Reference: A.S.T.M. C-87

File: 1  
 FORM 501

CONTRACT EXTENSION  
**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material *meets*  
 specification requirements.



WICHITA CHEMICAL TESTING LABORATORIES

By: *[Signature]*  
 R. L. PHILLIPS

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 903291-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 3-21-56

Time: 10:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.  
Sample Designations:

Black & Veatch, Cons., Engrs.

Periodic Aggregate Check  
Dolese Bros 22224 Co.-Concrete Sand  
Fine Aggregate Check No. 209

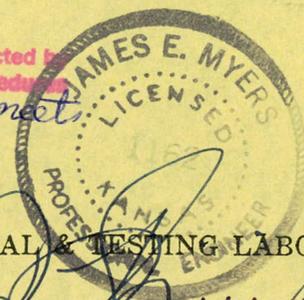
### RESULTS OF TEST (Date Mailed 3-21-56) A.S.T.M Mortar Strength Tests (28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-209-4</u>	<u>LC-209-5</u>	<u>LC-209-6</u>	
28 Day Strength	6205	6155	6405	
Average PSI				6277
% of Standard				93.1%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-123-S-4</u>	<u>LC-123-S-5</u>	<u>LC-123-S-6</u>	
28 Day Strength	6508	6718	6930	
Average P.S.I.				6719
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material *Does Not meet* specification requirements.



2-Lock Joint @ Colwich  
2-Weller  
1-Mnoll  
1-Hess

CC:

Reference: A.S.T.M C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: *[Signature]*

*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 30, 1956

Lab. Number: 904113-4b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4-10-56 Time: 9:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros Co.-Concrete Sand  
Fine Aggregate Check No. 2224

Black & Veatch, Cons. Engrs.

RESULTS OF TEST (Date Molded 4-11-56)

A.S.T.M Mortar Strength Testes  
 ( 7 Day Results)

A. Dolese Bros Sand				
Speciman No.	<u>LC-222-1</u>	<u>LC-222-2</u>	<u>LC-222-3</u>	
7 Day Strength	<u>3088</u>	<u>3013</u>	<u>3038</u>	
Average PSI				<u>3040</u>
% of Standard				<u>95.7%</u>
B. Standard Ottawa Sand				
Speciman No.	<u>LC-131-S-1</u>	<u>LC-131-S-2</u>	<u>LC-131-S-3</u>	
7 Day Strength	<u>3285</u>	<u>3235</u>	<u>3038</u>	
Average PSI				<u>3186</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M C-39-52T-"Not Less Than 95% of Standard."

**CERTIFIED**

We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material *meets*  
 specification requirements.

2-Lock Joint @ Colwich  
 2-Keller  
 CC: 1-Knoll  
 1-Hess

CONTRACT EXTENSION



Reference: A.S.T.M C-39

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: *[Signature]*

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 904132-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4-11-56

Time: 11:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 223

### RESULTS OF TEST (Date Mailed 4-11-56)

#### A.S.T.M Mortar Strength Tests (7 Day Results)

A.	Dolese Bros. Sand			
	Specimen No.	<u>LC-223-1</u>	<u>LC-223-2</u>	<u>LC-223-3</u>
	7 Day Strength	3063	3038	3088
	Average PSI			3063
	% of Standard			96.1%
B. /	Standard Ottawa Sand			
	Specimen No.	<u>LC-131-S-1</u>	<u>LC-131-S-2</u>	<u>LC-131-S-3</u>
	7 Day Strength	3285	3235	3038
	Average PSI			3186
	% of Standard			100.0%

To Meet A.S.T.M C-93-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



2-Lock Joint @ Colwich  
 2-Weller  
 CC: 1-Mooll  
 1-Hess

Reference: A.S.T.M C-07

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: *J. E. Myers*

*Wichita* CHEMICAL AND TESTING *Laboratories*  
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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 903265-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-20-56 Time: 8:15 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 208

RESULTS OF TEST (Date Molded 3-21-56)  
 A.S.T.M Mortar Strength Tests  
 (28 Day Results.)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-208-4</u>	<u>LC-208-5</u>	<u>LC-208-6</u>	
28 Day Strength	<u>6490</u>	<u>6653</u>	<u>6405</u>	
Average PSI				<u>6516</u>
% of Standard				<u>97.1%</u>
B. Standard Ottawa Sand				
Speciman No.	<u>LC-123-8-4</u>	<u>LC-123-8-5</u>	<u>LC-123-8-6</u>	
28 Day Strength	<u>6508</u>	<u>6718</u>	<u>6930</u>	
Average PSI				<u>6719</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M C-33-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 CC: 1-Hess

**CERTIFIED**  
 We certify the above test was conducted  
 us in accordance with accepted procedure  
 and that this material *meets*  
 specification requirements.

Reference: A.S.T.M C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 April 1956

Lab. Number: 902249-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-26-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.  
Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 212

### RESULTS OF TEST (Date Molded 3-26-56) A.S.T.M. Mortar Strength Tests (28 Day Results)

A. Dolese Bros Sand				
Specimen No.	<u>LC-212-4</u>	<u>LC-212-5</u>	<u>LC-212-6</u>	
28 Day Strength	6150	6275	6225	
Average PSI				6217
% of Standard				94.4%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-125-S-4</u>	<u>LC-125-S-5</u>	<u>LC-125-S-6</u>	
28 Day Strength	6400	6100	6195	
Average PSI				6225
% of Standard				100.0%

To Meet A.S.T.M. C-33-52t-"Not Less Than 95% of Standard."

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedure and that this material *Does Not Meet* specification requirements.

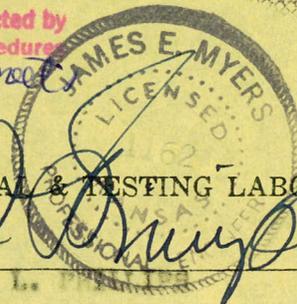
2-Lock Joint @ Colwich  
2-Weller  
1-Knoll  
CC: 1-Hess

Reference: A.S.T.M C-97

WICHITA CHEMICAL & TESTING LABORATORIES

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FORM 501

By: \_\_\_\_\_



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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 1 May 1956

Lab. Number: 904176-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4-16-56 Time: 10:00 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co- Concrete Sand  
 Fine Aggregate Check No. 225

RESULTS OF TEST (Date Molded 4-12-56)  
 A.S.T.M. Mortar Strength Tests  
 ( 7 Day Results)

A.	Doless Bros Sand				
	Speciman No.	<u>LC-225-1</u>	<u>LC-225-2</u>	<u>LC-225-3</u>	
	7 Day Strength	<u>3650</u>	<u>3525</u>	<u>4050</u>	
	Average PSI				3908
	% of Standard				99.3%
B.	Standard Ottawa Sand				
	Speciman No.	<u>LC-133-S-1</u>	<u>LC-133-S-2</u>	<u>LC-133-S-3</u>	
	7 Day Strength	<u>3800</u>	<u>3800</u>	<u>4175</u>	
	Average PSI				3925
	% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Keller  
 1-Knoll  
 1-Test

Reference: A.S.T.M C-87

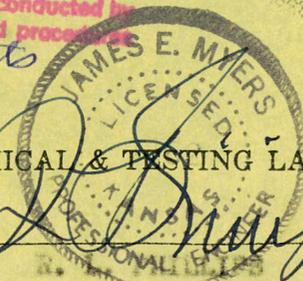
File: 1  
 FORM 501

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.

CONTRACT EXTENSION

WICHITA CHEMICAL & TESTING LABORATORIES

By: *J. E. Myers*



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 1 May 1956

Lab. Number: 904213-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4-18-56 Time: 11:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One- 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.- Concrete Sand  
Fine Aggregate Check No. 226

### RESULTS OF TEST (Date Molded 4-18-56)

A.S.T.M Mortar Strength Tests  
 ( 7 Day Results)

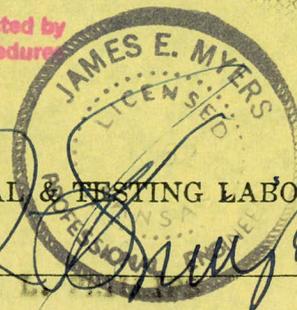
A. Dolese Bros. Sand				
Speciman No.	<u>LC-226-1</u>	<u>LC-226-2</u>	<u>LC-226-3</u>	
7 Day Strength	3750	3825	3825	
Average PSI				3800
% of Standard				96.6%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-133-S-1</u>	<u>LC-133-S-2</u>	<u>LC-133-S-3</u>	
7 Day Strength	3800	3800	4175	
Average PSI				3925
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



2-Lock Joint @ Colwich  
 2-Miller  
 CC: 1-Knoll  
 1-Hess

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 1 May 1956

Lab. Number: 903423-6

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-30-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros Co., Concrete Sand  
Fine Aggregate Check No. 216

RESULTS OF TEST (Date Molding 3-30-56)  
 A.S.T.M. Mortar Strength Tests  
 (28 Day Results)

A. Dolese Bros. Sand				
Specimen No	<u>LC-216-4</u>	<u>LC-216-5</u>	<u>LC-216-6</u>	
28 Day Strength	<u>5250</u>	<u>5350</u>	<u>5525</u>	
Average PSI				<u>5375</u>
% of Standard				<u>103.2%</u>
B. Standard Ottawa Sand				
Specimen No	<u>LC-127-8-4</u>	<u>LC-127-8-5</u>	<u>LC-127-8-6</u>	
28 Day Strength	<u>5300</u>	<u>5350</u>	<u>5225</u>	
Average PSI				<u>5292</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

CERTIFIED

We certify the above test was conducted in accordance with accepted procedures and that this material meets specification requirements.

CC: 2-Lock Joint @ Colwich  
 2-Yeller  
 1-Kroll  
 1-Hess

Reference: A.S.T.M. C-87

File:  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: *[Signature]*



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 WICHITA 4, KANSAS

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 127  
Colwich, Kansas

Date: 1 May 1956

Lab. Number: 904283-b

(REFER TO THIS NUMBER)

Submitted By: Lab Inspector Date Received At Lab.: 4-23-56 Time: 11:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros Co.-Concrete Sand  
Fine Aggregate Check No.-228

### RESULTS OF TEST (Date Molded 4-23-56)

A.S.T.M. Mortar Strength Tests  
 ( 7 Day Results)

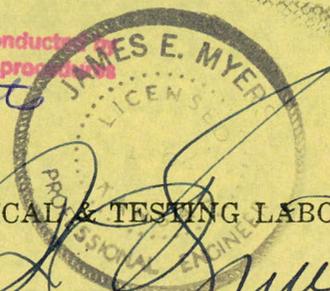
A. Dolese Bros. Sand				
Specimen No	<u>LC-228-1</u>	<u>LC-228-2</u>	<u>LC-228-3</u>	
7 Day Strength	3500	3650	3575	
Average PSI				3575
% of Standard				101.8%
B. Standard Ottawa Sand				
Specimen No	<u>LC-134-S-1</u>	<u>LC-134-S-2</u>	<u>LC-134-S-3</u>	
7 Day Strength	3600	3525	3500	
Average PSI				3542
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-Not Less Than 95% of Standard."

CONTRACT EXTENSION

CERTIFIED

We certify the above test was conducted  
 in accordance with accepted procedures  
 and that this material *meets*  
 specification requirements.



CC: 2-Lock Joint @ Colwich  
 2-eller  
 1-Knoll  
 1-Hess

Reference: A.S.T.M. C-67

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: *[Signature]*

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 1 May 1956

Lab. Number: 904233-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4-20-56

Time: 10:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.

Sample Designations:

Periodic Aggregate Check

Dolese Bros Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 227

### RESULTS OF TEST (Date Mailed 4-23-56)

A.S.T.M. Mortar Strength Tests  
 (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-227-1</u>	<u>LC-227-2</u>	<u>LC-227-3</u>	
7 Day Strength	3600	3575	3525	
Average PSI				3567
% of Standard				101.2%
B. Standard Ottawa Sand				
Speciman No	<u>LC-134-S-1</u>	<u>LC-134-S-2</u>	<u>LC-134-S-3</u>	
7 Day Strength	3600	3525	3500	
Average PSI				3542
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Meller  
 1-Kroll  
 1-Kess

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.

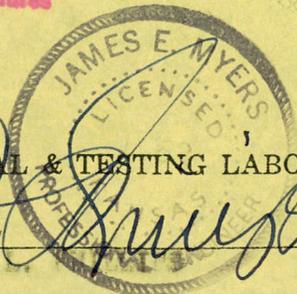
CC:

Reference: A.S.T.M. C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 17, 1956

Lab. Number: 904034-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4/4/56

Time: 8:45 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Const. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 219

### RESULTS OF TEST (Date Molded 4/4/56)

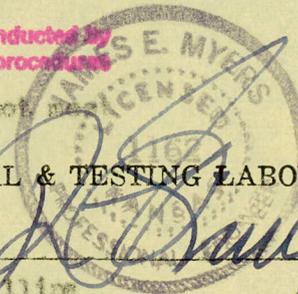
#### A.S.T.M. MORTAR STRENGTH TESTS

A. Dolese Bros. Sand				
Speciman No.	<u>LC-219-1</u>	<u>LC-219-2</u>	<u>LC-219-3</u>	
7 Day Strength	4150	3875	4025	
Average PSI				4013
% of Standard				92.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-129-S-1</u>	<u>LC-129-S-2</u>	<u>LC-129-S-3</u>	
7 Day Strength	4350	4400	4275	
Average PSI				4341
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material does not meet specification requirements.



CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hesse

Reference: ASTM C-37

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. Phillippe

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 13, 1956

Lab. Number: 904019-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 4/3/56

Time: 8:30 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 218

### RESULTS OF TEST (Date Molded 4/4/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-218-1</u>	<u>LC-218-2</u>	<u>LC-218-3</u>	
7 Day Strength	4300	4500	4100	
Average PSI				4300
% of Standard				99.3%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-129-S-1</u>	<u>LC-129-S-2</u>	<u>LC-129-S-3</u>	
7 Day Strength	4350	4400	4275	
Average PSI				4341
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".  
 CONTRACT EXTENSION

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

1  
 File:  
 FORM 501

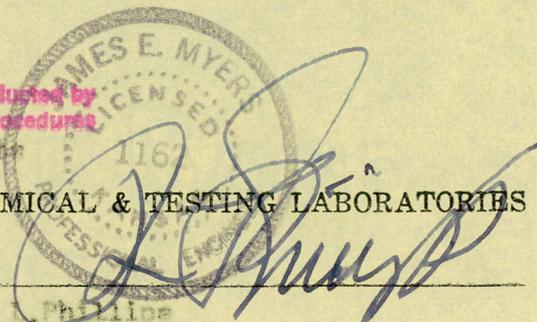
### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

R. I. Phillips



*Wichita* CHEMICAL AND TESTING *Laboratories*  
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REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: April 11, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 902434-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/30/56 Time: 8:30 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 216

RESULTS OF TEST (Date Molding 3/30/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-216-1</u>	<u>LC-216-2</u>	<u>LC-216-3</u>	
7 Day Strength	3300	3325	3250	
Average PSI				3292
% of Standard				97.8%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-127-S-1</u>	<u>LC-127-S-2</u>	<u>LC-127-S-3</u>	
7 Day Strength	3300	3450	3350	
Average PSI				3367
% of Standard				100.0%

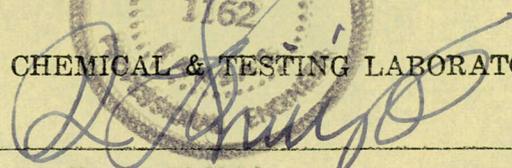
To Meet ASTM C-39-52T "Not less than 95% of Standard".  
 CONTRACT EXTENSION

2 Lock Joint @ Colwich  
 2 Yeller  
 1 Knoll  
 1 Pass

Reference: ASTM C-37

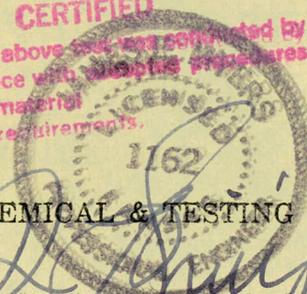
File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: 

H. L. Phillips

CERTIFIED  
 We certify the above test was performed by  
 us in accordance with ASTM procedures  
 and that this material  
 Specification requirements.



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 J. J. REMAR  
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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 11, 1956

Lab. Number: 903604-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/29/56 Time: 8:45 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Con. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 215

RESULTS OF TEST (Date Mailed 3/30/56)  
 A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

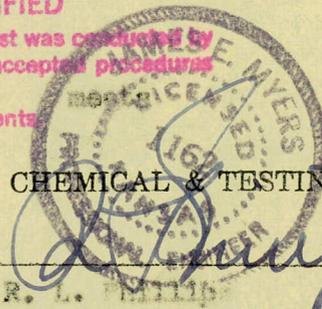
A. Dolese Bros. Sand				
Specimen No.	<u>LC-215-1</u>	<u>LC-215-2</u>	<u>LC-215-3</u>	
7 Day Strength	<u>3450</u>	<u>3250</u>	<u>3350</u>	
Average PSI				<u>3350</u>
% of Standard				<u>99.5%</u>
B. Standard Ottawa Sand				
Specimen No.	<u>LC-127-S-1</u>	<u>LC-127-S-2</u>	<u>LC-127-S-3</u>	
7 Day Strength	<u>3300</u>	<u>3650</u>	<u>3350</u>	
Average PSI				<u>3367</u>
% of Standard				<u>100.0%</u>

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CONTRACT EXTENSION

2 Lock Joint @ Colwich  
 2 Weller  
 CC: 1 Knoll  
 1 Hess

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.



Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: April 11, 1956

Leak Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 903134-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 3/9/56

Time: 8:30AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Deless Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 202

### RESULTS OF TEST <sup>(Date Moulded 3/9/56)</sup> A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Deless Bros. Sand				
Speciman No.	<u>LC-202-4</u>	<u>LC-202-5</u>	<u>LC-202-6</u>	
28 Day Strength	6275	6075	6325	
Average PSI				6225
% of Standard				100.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-118-S-4</u>	<u>LC-118-S-5</u>	<u>LC-118-S-6</u>	
28 Day Strength	6275	6100	6300	
Average PSI				6225
% of Standard				100.0%

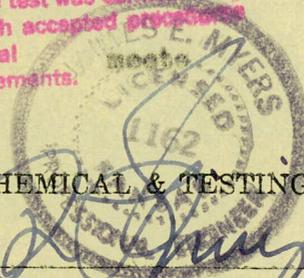
To Meet ASTM C-33-52T "Not less than 95% of Standard".

CONTRACT EXTENSION

2 Leak Joint Colwich  
 2 " 11er  
 1 Kroll  
 CC: 1 Mess

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]  
 M. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

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 WICHITA 4, KANSAS

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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: April 11, 1956

Lock Joint Pipe Co.  
 P.O. Box 177  
 Colwich, Kansas

Lab. Number: 903967-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/27/56 Time: 8:45 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 213

### RESULTS OF TEST (Date Mailed 3/28/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-213-1</u>	<u>LC-213-2</u>	<u>LC-213-3</u>	
7 Day Strength	3550	3850	3375	
Average PSI				3592
% of Standard				102.6%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-126-S-1</u>	<u>LC-126-S-2</u>	<u>LC-126-S-3</u>	
7 Day Strength	3550	3475	3575	
Average PSI				3500
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



2 Lock Joint @ Colwich  
 CC: 2 Weller  
 1 Knoll  
 1 Hase

Reference: ASTM C-37

WICHITA CHEMICAL & TESTING LABORATORIES

1  
 File:  
 FORM 501

By: R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 MANAGER

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 J. J. REMAR  
 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 11, 1956

Lab. Number: 903382-8  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/28/56 Time: 8:15 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 214

### RESULTS OF TEST (Date Mailed 3/28/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-214-1</u>	<u>LC-214-2</u>	<u>LC-214-3</u>	
7 Day Strength	3400	3100	3975	
Average PSI				3625
% of Standard				103.5%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-126-S-1</u>	<u>LC-126-S-2</u>	<u>LC-126-S-3</u>	
7 Day Strength	3550	3475	3975	
Average PSI				3500
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CONTRACT EXTENSION

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

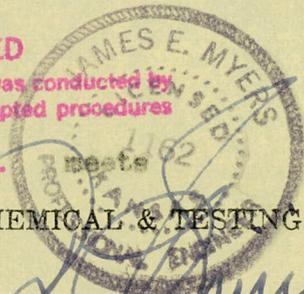
File: 1  
 FORM 501

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

WICHITA CHEMICAL & TESTING LABORATORIES

By: E. L. Gilline



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 11, 1956

Lab. Number: 903071-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 3/6/56

Time: 8:45 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 200

### RESULTS OF TEST (Date Molded 3/8/56) A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-200-4</u>	<u>LC-200-5</u>	<u>LC-200-6</u>	
28 Day Strength	6075	6025	6100	
Average PSI				6067
% of Standard				99.6%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-117-S-4</u>	<u>LC-117-S-5</u>	<u>LC-117-S-6</u>	
28 Day Strength	6000	6075	6200	
Average PSI				6092
% of Standard				100.0%

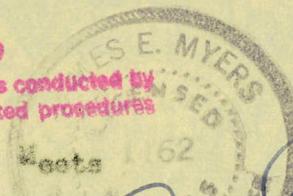
To Meet ASTM C-33-52T "Not less than 95% of Standard".

#### CONTRACT EXTENSION

2 Lock Joint @ Colwich  
2 Weller  
CC: 1 Knoll  
1 Hess

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.



Reference: ASTM C-27

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
FORM 501

By: \_\_\_\_\_

R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: April 11, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 904005-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 4/2/56 Time: 8:00 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 217

### RESULTS OF TEST (Date Mailed 4/2/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-217-1</u>	<u>LC-217-2</u>	<u>LC-217-3</u>	
7 Day Strength	3250	3100	3275	
Average PSI				3208
% of Standard				97.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-128-8-1</u>	<u>LC-128-8-2</u>	<u>LC-128-8-3</u>	
7 Day Strength	3325	3375	3225	
Average PSI				3308
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CONTRACT EXTENSION

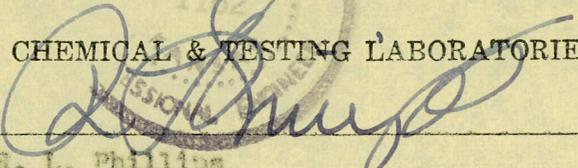
CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By:   
 R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 6, 1956

Lab. Number: 903349-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Insp. Date Received At Lab.: 3/29/56 Time: 8:30 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lb.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 212

### RESULTS OF TEST (Date Molded 3/29/56)

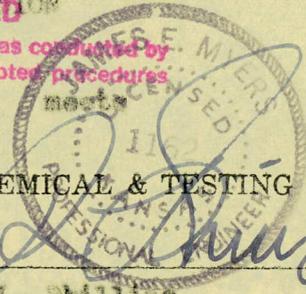
A.S.T.M. MORTAR STRENGTH TESTS  
 ( 7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-212-1</u>	<u>LC-212-2</u>	<u>LC-212-3</u>	
7 Day Strength	3200	3275	3075	
Average PSI				3183
% of Standard				97.3%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-125-S-1</u>	<u>LC-125-S-2</u>	<u>LC-125-S-3</u>	
7 Day Strength	3275	3200	3250	
Average PSI				3275
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

CONTRACT CERTIFICATION

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. Phillips

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 11 Ness

Reference: ASTM C-87

File: 1  
 FORM 501

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 4, 1956

Lab. Number: 903308-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/22/56 Time: 8:30 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Doless Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 210

### RESULTS OF TEST (Date Molderd 3/23/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-210-1</u>	<u>LC-210-2</u>	<u>LC-210-3</u>	
7 Day Strength	3225	3300	3375	
Average PSI				3300
% of Standard				101.3%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-124-S-1</u>	<u>LC-124-S-2</u>	<u>LC-124-S-3</u>	
7 Day Strength	3275	3175	3325	
Average PSI				3258
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".  
 CONTRACT EXTENSION

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]  
 R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: April 4, 1956

Lab. Number: 903016-C  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/1/56 Time: 9:00 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 197

### RESULTS OF TEST (Date Molded 3/2/56) A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-197-4</u>	<u>LC-197-5</u>	<u>LC-197-6</u>	
28 Day Strength	4325	4175	4050	
Average PSI				4193
% of Standard				101.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-115-S-4</u>	<u>LC-115-S-5</u>	<u>LC-115-S-6</u>	
28 Day Strength	4200	4050	4175	
Average PSI				4142
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".  
 CONTRACT EXTENSION

2 Lock Joint @ Colwich  
 CC: 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-37

File: 1  
 FORM 501

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements. meet

WICHITA CHEMICAL & TESTING LABORATORIES

By: [Signature]  
 JAMES E. MYERS  
 LICENSED PROFESSIONAL ENGINEER

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
WICHITA 4, KANSAS

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ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: April 8, 1956

Lab. Number: 903332-B  
(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/23/56 Time: 9:15 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.  
Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co - Concrete Sand  
Fine Aggregate Check No. 211

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

### RESULTS OF TEST (Date Molded 3/23/56)

A.S.T.M. MORTAR STRENGTH TESTS  
(7 Day Strength)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-211-1</u>	<u>LC-211-2</u>	<u>LC-211-3</u>	
7 Day Strength	3650	3600	3775	
Average PSI				3675
% of Standard				112.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-124-S-1</u>	<u>LC-124-S-2</u>	<u>LC-124-S-3</u>	
7 Day Strength	3275	3175	3325	
Average PSI				3258
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CONTRACT EXTENSION

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

CC: 2 Lock Joint @ Colwich  
2 Keller  
1 Knoll  
1 Hess

Reference: ASTM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
FORM 501

By: [Signature]

R. J. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Leek Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 16 March 1956

Lab. Number: 903134-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-9-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 202

### RESULTS OF TEST (Date Molded 3-9-56) A.S.T.M. Mortar Strength Tests ( 7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-202-1</u>	<u>LC-202-2</u>	<u>LC-202-3</u>	
7 Day Strength	3100	3150	3375	
Average PSI				3208
% of Standard				92.5%
B. Standard Ottawa Sand				
Speciman No	<u>LC-118-S-1</u>	<u>LC-118-S-2</u>	<u>LC-118-S-3</u>	
7 Day Strength	3550	3500	3350	
Average PSI				3467
% of Standard				100.0%

To Meet A.S.T.M. C-39-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Leek Joint @ Colwich  
 2-Meller  
 1-Knoll  
 CC: 1-Hess

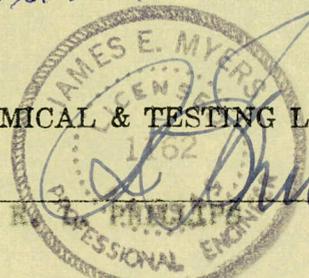
**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material Does Not meet specification requirements.

Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 19 March 1956

Lab. Number: 903159-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-12-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Doless Bros. Co. -Concrete Sand  
  
Fine Aggregate Check No. 203

### RESULTS OF TEST (Date Molded 3-12-56) A.S.T.M. Mortar Strength Tests ( 7 Day Results)

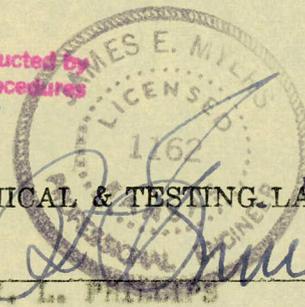
A. Doless Bros Sand				
Speciman No.	<u>LC-203-1</u>	<u>LC-203-2</u>	<u>LC-203-3</u>	
7 Day Strength	3300	3250	3275	
Average PSI				3275
% of Standard				101.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-119-S-1</u>	<u>LC-119-S-2</u>	<u>LC-119-S-3</u>	
7 Day Strength	3175	3225	3300	
Average PSI				3233
% of Standard				100.0%

To Meet A.S.T.M. C-33-52 T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 CC: 1-Hess

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_  
*(Signature)*

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 21 March 1956

Lab. Number: 903172-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-13-56 Time: 8:45 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engros

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.- Concrete Sand  
Fine Aggregate Check No. 204

### RESULTS OF TEST (Date Molded 3-14-56)

A. S.T.M. Mortar Strength Tests  
 ( 7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-204-1</u>	<u>LC-204-2</u>	<u>LC-204-3</u>	
7 Day Strength	3025	3000	3075	
Average PSI				3093
% of Standard				99.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-120-S-1</u>	<u>LC-120-S-2</u>	<u>LC-120-S-3</u>	
7 Day Strength	3025	3100	3050	
Average PSI				3058
% of Standard				100.0%

To Meet A.S.T.M. C-39-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Teller  
 1-Knoll  
 1-Hess  
 CC:

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



Reference: A.S.T.M. C-67

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: R. L. PHILLIPS

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 21 March 1956

Lab. Number: 903189-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-14-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. Concrete Sand  
Fine Aggregate Check No. 205

### RESULTS OF TEST (Date Molded 3-14-56) A.S.T.M. Mortar Strength Tests (7 Day $R_c$ results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-205-1</u>	<u>LC-205-2</u>	<u>LC-205-3</u>	
7 Day Strength	3125	3225	3075	
Average PSI				3142
% of Standard				103.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-120-S-1</u>	<u>LC-120-S-2</u>	<u>LC-120-S-3</u>	
7 Day Strength	3025	3100	3050	
Average PSI				3058
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

CC:

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: *[Signature]*

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 March 1956

Lab. Number: 903218-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 3-16-56

Time: 9:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Dolase Bros. Co.-Concrete Sand

Fine Aggregate Check No. 206

### RESULTS OF TEST (Date Mailed 3-16-56)

A.S.T.M. Mortar Strength Tests  
 (7 Day Results)

A. Dolase Bros. Sand

Specimen No.  
 7 Day Strength  
 Average P.S.I.  
 % of Standard

LC-206-1  
3150

LC-206-2  
3075

LC-206-3  
3125

3117  
 103.3%

B. Standard Ottawa Sand

Specimen No.  
 7 Day Strength  
 Average P.S.I.  
 % Of Standard

LC-121-S-1  
2875

LC-121-S-2  
3325

LC-121-S-3  
2850

3017  
 100.0%

To Meet A.S.T.M. C-33-52t-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

CC:

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material *Meets* specification requirements.



Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
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 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 30 March 1956

Lab. Number: 903244-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-19-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Delese Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 207

### RESULTS OF TEST Date Molded 3019-56) A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Delese Bros. Co.				
Speciman No.	<u>LC-207-1</u>	<u>LC-207-2</u>	<u>LC-207-3</u>	
7 Day Strength	3350	3525	3500	
Average PSI				3458
% of Standard				95.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-122-31</u>	<u>LC-122-3-2</u>	<u>LC-122-3-3</u>	
7 Day Strength	3500	3725	3525	
Average PSI				3617
% of Standard				100.0%

To Meet A.S.T.M. C-33-52b-"Not Less Than 95% of Standard."

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess  
 CC:

### CERTIFIED

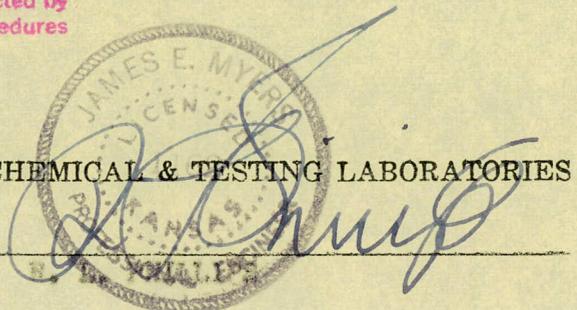
We certify the above test was conducted by us in accordance with accepted procedures and that this material *Meets* specification requirements.

Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
WICHITA 4, KANSAS

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MANAGER  
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J. R. SMITH  
J. J. REMAR  
ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 30 March 1956

Lab. Number: 902316-c

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2-27-56 Time: 9:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.  
Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 194

Black & Veatch, Cons. Engrs.

### RESULTS OF TEST (Date Molded 2-27-56) A.S.T.M. Mortar Strength Tests (28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-194-4</u>	<u>LC-194-5</u>	<u>LC-194-6</u>	
28 Day Strength	4550	4700	4850	
Average PSI				4700
% of Standard				102.1%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-113-S-4</u>	<u>LC-113-S-5</u>	<u>LC-113-S-6</u>	
28 Day Strength	4700	4525	4575	
Average PSI				4600
% of Standard				100.0%

To Meet A.S.T.M. C-33-52b-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
2-Weller  
1-Knoll  
1-Hess  
CC:

**CERTIFIED**  
We certify the above test was conducted by  
us in accordance with accepted procedures  
and that this material *Meets*  
specification requirements.

Reference: A.S.T.M C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: \_\_\_\_\_

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 30 March 1956

Lab. Number: 903265-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 3-20-56

Time: 8:15 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.

Sample Designations:

Periodic Aggregate Check

Dolese Bros. Co.-Concrete Sand

Fine Aggregate Check No. 208

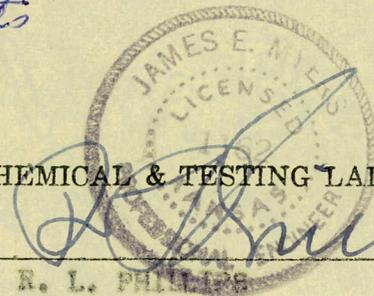
### RESULTS OF TEST (Date Molded 3-21-56) A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-208-1</u>	<u>LC-208-2</u>	<u>LC-208-3</u>	
7 Day Strength	<u>3650</u>	<u>3625</u>	<u>3600</u>	
Average PSI				3625
% of Standard				95.7%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-123-S-1</u>	<u>LC-123-S-2</u>	<u>LC-123-S-3</u>	
7 Day Strength	<u>3775</u>	<u>4000</u>	<u>3575</u>	
Average PSI				3783
% of Standard				100.0%

To Meet A.S.T.M. C-33-52B-"Not Less Than 95% of Standard."

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material *meets* specification requirements.



WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

R. L. PHILLIPS

- 2-Lock Joint @ Colwich
- 2-Weller
- 1-Knoll
- 1-Hess

CC:

Reference: A.S.T.M. C-87

File: 1

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
PO Box 137,  
Colwich, Kansas

Date: 30 March 1956

Lab. Number: 903291-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-21-56 Time: 10:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros Co.-Concrete Sand  
Fine Aggregate Check No. 209

### RESULTS OF TEST (Date Mailed 3-21-56) A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-209-1</u>	<u>LC-209-2</u>	<u>LC-209-3</u>	
7 Day Strength	3500	3575	3600	
Average PSI				3558
% of Standard				94.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-123-0-1</u>	<u>LC-123-0-2</u>	<u>LC-123-0-3</u>	
7 Day Strength	3775	4000	3575	
Average PSI				3783
% of Standard				100.0%

To Meet A.S.T.M. C-39-52T-"Not Less Than 95 % of Standard.

CONTRACT EXTENSION

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knell  
 CC:1-Hess

**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted practices  
 and the results are as shown above.  
 SPECIAL AGENT

Does Not Meet

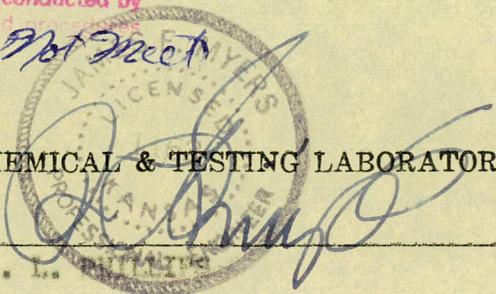
Reference: A.S.T.M. C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_

R. L. SMITH



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: March 16, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 903115-3  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/8/56 Time: 9:00 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Consulting Engr.

No. of Samples: One - 100 lb.  
 Sample Designations:  
Peri die Aggregate Check  
Dolave Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 201

### RESULTS OF TEST (Date Molded 3/8/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolave Bros. Sand				
Specimen No.	<u>LC-201-1</u>	<u>LC-201-2</u>	<u>LC-201-3</u>	
7 Day Strength	3350	3500	3525	
Average PSI				3458
% of Standard				105.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-117-S-1</u>	<u>LC-117-S-2</u>	<u>LC-117-S-3</u>	
7 Day Strength	3250	3300	3325	
Average PSI				3292
% of Standard				100.0%

#### CONTRACT EXTENSION

To Meet ASTM C-33-52T "Not less than 95% of Standard".

2 Lock Joint @ Colwich  
 2 Keller  
 CC: 1 Snell  
 1 Hens

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

WICHITA CHEMICAL & TESTING LABORATORIES

Reference: ASTM C-33

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

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 WICHITA 4, KANSAS

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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: March 16, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 903001-8

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3/6/56 Time: 9:45 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Dolase Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 200

### RESULTS OF TEST (Date Mailed 3/8/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolase Bros. Sand				
Speciman No.	<u>LC-200-1</u>	<u>LC-200-2</u>	<u>LC-200-3</u>	
7 Day Strength	3100	3300	3250	
Average PSI				3217'
% of Standard				97.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-117-S-1</u>	<u>LC-117-S-2</u>	<u>LC-117-S-3</u>	
7 Day Strength	3250	3300	3325	
Average PSI				3292
% of Standard				100.0%

To Meet ASTM C-93-52T "Not less than 95% of Standard".

CONTRACT EXTENSION  
**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

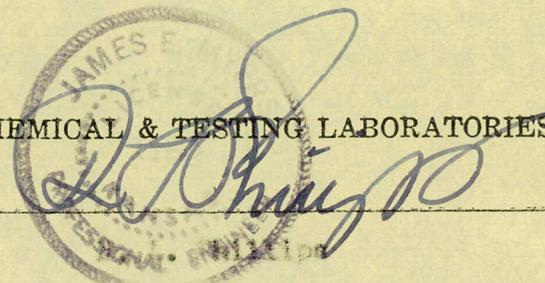
2 Lock Joint @ Colwich  
 CC: 2 Waller  
 1 Knoch  
 1 Hess

Reference: ASTM C-93

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

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 WICHITA 4, KANSAS

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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: March 16, 1956

Lab. Number: 902179-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/15/56 Time: 9:00 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. Concrete Sand  
Fine Aggregate Check No. 186

### RESULTS OF TEST (Date Molder 2/15/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-186-4</u>	<u>LC-186-5</u>	<u>LC-186-6</u>	
28 Day Strength	4900	5000	4950	
Average PSI				4950
% of Standard				100.4%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-108-5-4</u>	<u>LC-108-5-5</u>	<u>LC-108-5-6</u>	
28 Day Strength	5025	4800	5075	
Average PSI				4933
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

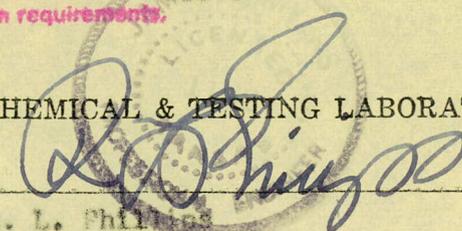
CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

1  
 File:  
 FORM 501

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

WICHITA CHEMICAL & TESTING LABORATORIES

By: 

R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

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 WICHITA 4, KANSAS

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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 13 March 1956

Lab. Number: 902316-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2-27-56 Time: 9:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One- 100 lbs  
 Sample Designations:  
Periodic Aggregate Check  
Doless Bros. Co., Concrete Sand  
Fine Aggregate Check No. 19A

### RESULTS OF TEST (Date Molded 2-27-56)

#### A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-194-1</u>	<u>LC-194-2</u>	<u>LC-194-3</u>	
7 Day Strength	<u>2675</u>	<u>2725</u>	<u>2775</u>	
Average PSI				<u>2725</u>
% of Standard				<u>96.4%</u>
B. Standard Ottawa Sand				
Speciman No.	<u>LC-113-S-1</u>	<u>LC-113-S-2</u>	<u>LC-113-S-3</u>	
7 Day Strength	<u>2775</u>	<u>2825</u>	<u>2875</u>	
Average PSI				<u>2825</u>
% of Standard				<u>100.0%</u>

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material **MEETS** specification requirements.

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-iless

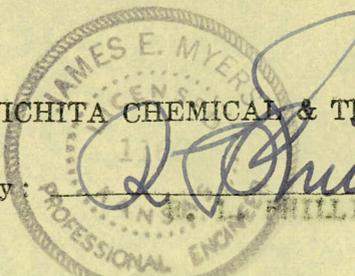
CC:

Reference: A.S.T.M. C-87

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: *J. E. Myers*



# Wichita CHEMICAL AND TESTING Laboratories

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 WICHITA 4, KANSAS

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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 13 March 1956

Lab. Number: 902080-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1-7-56 Time: 8:30 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155  
 Black & Vetsch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co.-Concrete Sand  
 Fine Aggregate Check No. 180

### RESULTS OF TEST (Date Molded 2-8-56) A.S.T.M. Mortar Strength Tests (28 Day Results)

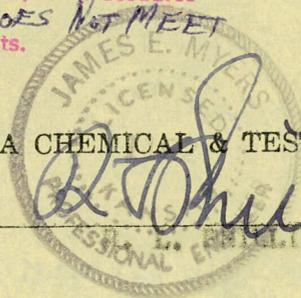
A. Doless Bros Sand				
Speciman No.	<u>LC-180-4</u>	<u>LC-180-5</u>	<u>LC-180-6</u>	
28 Day Strength	5175	5025	5075	
Average PSI				5092
% of Standard				94.4%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-105-S-4</u>	<u>LC-105-S-5</u>	<u>LC-105-S-6</u>	
28 Day Strength	5425	5325	5375	
Average PSI				5368
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knell  
 1-Hess  
 CC:

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material **Does Not Meet** specification requirements.



WICHITA CHEMICAL & TESTING LABORATORIES

Reference: A.S.T.M. C-97

By: [Signature]

# Wichita CHEMICAL AND TESTING LABORATORIES

ANALYTICAL CHEMISTS • BACTERIOLOGISTS • TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137,  
 Colwich, Kansas

Date: 13 March 1956

Lab. Number: 902090-c

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2-8-56 Time: 8:00 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155

No. of Samples: One-100 lbs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs

Fine Aggregate Check No. 161

### RESULTS OF TEST (date Moided 2-8-56) A.S.T.M. Mortar Strength Tests (28 Day Results)

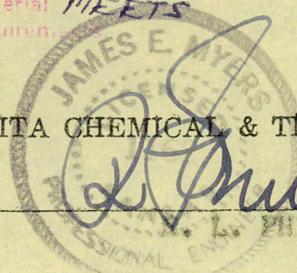
A. Dolese Bros. Sand				
Speciman No.	<u>LC-181-4</u>	<u>LC-181-5</u>	<u>LC-181-6</u>	
28 Day Strength	5150	5125	5125	
Average PSI				5133
% of Standard				95.5%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-105-S-4</u>	<u>LC-105-S-5</u>	<u>LC-105-S-6</u>	
28 Day Strength	5325	5325	5375	
Average PSI				5368
% of Standard				100.0%

To Meet A.S.T.M. C-93-52T-"Not Less Than 95% of Standard."

- 2-Lock Joint @ Colwich
- 2-Veller
- 1-Knoll
- 1-Hess

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material **MEETS** specification requirements.



CC:

Reference: A.S.T.M C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS • BACTERIOLOGISTS • TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 13 March 1956

Lab. Number: 902329-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-28-56

Time: 9:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100lbs

Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 195

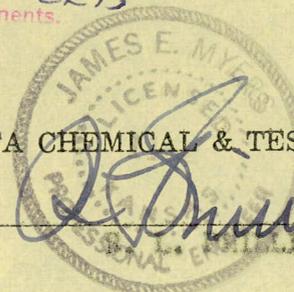
### RESULTS OF TEST (Date Molded 2-29-56) A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-195-1</u>	<u>LC-195-2</u>	<u>LC-195-3</u>	
7 Day Strength	2850	2800	2875	
Average PSI				2842
% of Standard				99.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-114-S-1</u>	<u>LC-114-S-2</u>	<u>LC-114-S-3</u>	
7 Day Strength	2800	2875	2825	
Average PSI				2867
% of Standard				100.0%

To Meet A.S.T.M. C-33-52 7-"Not Less Than 95% of Standard."

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material **MEETS** specification requirements.



WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

2-Lock Joint @Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

CC:

Reference: A.S.T.M. C-37

File: 1

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 13 March 1956

Lab. Number: 902345-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2-29-56 Time: 8:45 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 Lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Doless Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 196

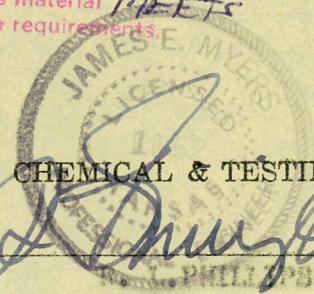
### RESULTS OF TEST (Date Molded 2-29-56) A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-196-1</u>	<u>LC-196-2</u>	<u>LC-196-3</u>	
7 Day Strength	3050	2775	2850	2892
Average PSI				100.8%
% of Standard				
B. Standard Ottawa Sand				
Speciman No.	<u>LC-114-3-1</u>	<u>LC-114-3-2</u>	<u>LC-114-3-3</u>	
7 Day Strength	2800	2875	2825	2867
Average PSI				100.0%
% of Standard				

To Meet A.S.T.M. C-33-52t-"Not Less Than 95 % of Standard."

- 2-Lock Joint @Colwich
- 2-Waller
- 1-Knoll
- 1-Hess

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material **MEETS** specification requirements.



CC:

Reference: A.S.T.M. C-67

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: \_\_\_\_\_

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS • BACTERIOLOGISTS • TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137,  
 Colwich, Kansas

Date: 13 March 1956

Lab. Number: 909016-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-1-56 Time: 9:00 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One -100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolase Bros. Co.-Concrete Sand  
 Fine Aggregate Check No. 197

### RESULTS OF TEST (Date Molded 3-2-56) A.S.T.M. Mortar Strength Tests ( 7 Day Results)

A. Dolase Bros. Sand				
Speciman No.	<u>LC-197-1</u>	<u>LC-197-2</u>	<u>LC-197-3</u>	
7 Day Strength	2425	2350	2325	
Average PSI				2433
% of Standard				91.5%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-115-8-1</u>	<u>LC-115-8-2</u>	<u>LC-115-8-3</u>	
7 Day Strength	2700	2600	2675	
Average PSI				2658
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

CC:

**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material **DOES NOT MEET**  
 specification requirements.

Reference: A.S.T.M. C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: 

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 13 March 1956

Lab. Number: 903035-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 3-2-56

Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 198

### RESULTS OF TEST (Date Molded 3-2-56) A.S.T.M. Mortar Strength Tests ( 7 Day Results)

A. Dolese Bros Sand				
Speciman No.	<u>LC-198-1</u>	<u>LC-198-2</u>	<u>LC-198-3</u>	
7 Day Strength	<u>2525</u>	<u>2700</u>	<u>2650</u>	
Average PSI				2625
% of Standard				97.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-115-S-1</u>	<u>LC-115-S-2</u>	<u>LC-115-S-3</u>	
7 Day Strength	<u>2700</u>	<u>2600</u>	<u>2675</u>	
Average PSI				2658
% of Standard				100.0%

To Meet A.S.T.M. C-39-52 T - "Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

CC:

### CERTIFIED

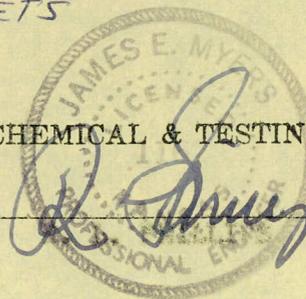
We certify the above test was conducted by us in accordance with accepted procedures and that this material **MEETS** specification requirements.

Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 13 March 1956

Lab. Number: 903061-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 3-5-56 Time: 8:45 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.- Concrete Sand  
Fine Aggregate Check No. 199

Black & Veatch, Cons. Engrs.

### RESULTS OF TEST ( Date Moulded 3-5-56 ) A.S.T.M. Mortar Strength Tests ( 7 Day Results )

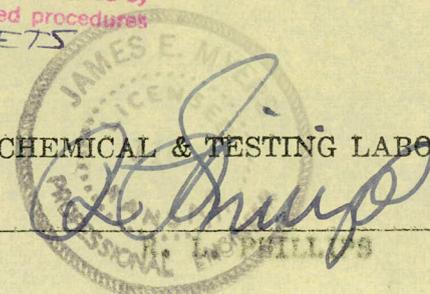
A. Dolese Bros. Sand				
Specimen No.	<u>LC-199-1</u>	<u>LC-199-2</u>	<u>LC-199-3</u>	
7 Day Strength	2925	2800	2850	
Average PSI				2858
% of Standard				102.8%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-116-S-1</u>	<u>LC-116-S-2</u>	<u>LC-116-S-3</u>	
7 Day Strength	2825	2800	2700	
Average PSI				2775
% of Standard				100.0%

To Meet A.S.T.M. C-33-52E-"Not Less Than 95% of Standard."

- 2-Lock Joint @ Colwich
- 2-Yeller
- 1-Knoll \*
- 1-Hess

CC:

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material **MEETS** specification requirements.



Reference: A.S.T.M. C-67

WICHITA CHEMICAL & TESTING LABORATORIES

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*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902294-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-24-56

Time: 8:45 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Dolase Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Pine Aggregate Check No. 193

RESULTS OF TEST (Date Mailed 2-22-56)  
 A.S.T.M. Mortar Strength Tests  
 ( 7 Day Results)

A. Dolase Bros Sand				
Specimen No.	<u>LC-193-1</u>	<u>LC-193-2</u>	<u>LC-193-3</u>	
7 Day Strength	<u>3725</u>	<u>3650</u>	<u>3575</u>	
Average PSI				<u>3650</u>
% Of Standard				<u>103.0%</u>
B. Standard Ottawa Sand				
Specimen No.	<u>LC-112-S-1</u>	<u>LC-112-S-2</u>	<u>LC-112-S-3</u>	
7 Day Strength	<u>3550</u>	<u>3650</u>	<u>3575</u>	
Average PSI				<u>3542</u>
% Of Standard				<u>100.0%</u>

To Meet A.S.T.M C-27-52T-"Not Less Than 95% of Standard."

- 2-Lock Joint @ Colwich
- 2-Teller
- 1-Knoll
- 1-Hess

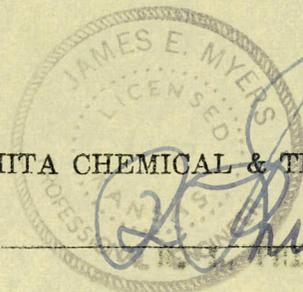
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Reference: A.S.T.M C-37

WICHITA CHEMICAL & TESTING LABORATORIES

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 LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902279-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-23-56

Time: 9:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One-100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs

Fine Aggregate Check No. 192

RESULTS OF TEST (Date Mailed 2-24-56)

A.S.T.M Mortar Strength Tests  
 (7 Day Results)

A. Dolese Bros Sand.

Specimen No.	<u>LC-192-1</u>	<u>LC-192-2</u>	<u>LC-192-3</u>	
7 Day Strength	3600	2525	2625	
Average PSI				3583
% Of Standard				101.2%

B. Standard Ottawa Sand

Specimen No.	<u>LC-112-S-1</u>	<u>LC-112-S-2</u>	<u>LC-112-S-3</u>	
7 Day Strength	3550	3650	3525	
Average PSI				3575
% Of Standard				100.0%

To Meet A.S.T.M C-33-52T-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Kroll  
 1-Hans

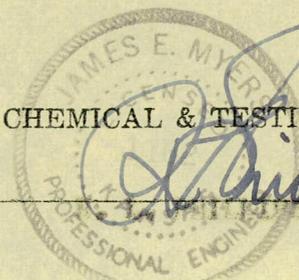
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Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

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By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 MANAGER  
 W. H. CAMPEN  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902053-a  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2-3-56 Time: 10:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand  
Fine Aggregate Check No. 178

### RESULTS OF TEST (Date Mailed 2-3-56)

#### A.S.T.M. Mortar Strength Tests (28 Day Results)

A. Dolese Bros Sand				
Specimen No.	<u>LC-178-4</u>	<u>LC-178-5</u>	<u>LC-178-6</u>	
28 Day Strength	4600	4825	4750	
Average PSI				4750
% Of Standard				104.5%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-103-8-4</u>	<u>LC-103-8-5</u>	<u>LC-103-8-6</u>	
28 Day Strength	4575	4550	4525	
Average PSI				4550
% Of Standard				100.0%

To Meet A.S.T.M C-33-52 T-"Not Less Than 95 % of Standard."

- 2-Lock Joint @ Colwich
- 2-Keller
- 1-Knoll
- 1-Hess

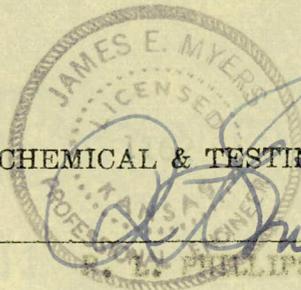
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Reference: A.S.T.M C-87

File: 1  
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WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
WICHITA 4, KANSAS

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LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902258-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-22-56

Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Delese Bros. Co.-Concrete Sand

Fine Aggregate Check No.191

### RESULTS OF TEST (Date Molded 2-22-56) A.S.T.M. Mortar Strength Tests (7 Day Results)

A. Delese Bros Sand				
Speciman No.	<u>LC-191-1</u>	<u>LC-191-2</u>	<u>LC-191-3</u>	
7 Day Strength	3075	3275	3250	
Average PSI				3200
% of Standard				100.5%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-112-S-1</u>	<u>LC-112-S-2</u>	<u>LC-112-S-3</u>	
7 Day Strength	3175	3125	3250	
Average PSI				3100
% Of Standard				100.0%

To Meet A.S.T.M. C-39-52 T-"Not Less Than 95% Of Standard."

2-Lock Joint @ Colwich  
2-Weller  
1-Knoll  
1-Hess

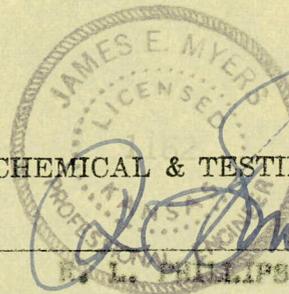
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Reference: A.S.T.M. C-87

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# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137,  
 Colwich, Kansas

Date: 9 March 1956

Lab. Number: ~~902244-b~~ 902244-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2-21-56 Time: 8:45 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolose Bros. Co-Concrete Sand  
 Pine Aggregate Check No. 190

### RESULTS OF TEST (date Molded 2-22-56)

A.S.T.M. Mortar Strength Tests  
 (7 Day Results)

A.. Dolose Bros Sand				
Specimen No.	<u>LC-190-1</u>	<u>LC-190-2</u>	<u>LC-190-3</u>	
7 Day Strength	<u>3200</u>	<u>3075</u>	<u>3175</u>	
Average PSI				3183
% of Standard				100.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-112-6-1</u>	<u>LC-112-6-2</u>	<u>LC-112-6-3</u>	
7 Day Strength	<u>3175</u>	<u>3125</u>	<u>3250</u>	
Average PSI				3183
% Of Standard				100.0%

To Meet A.S.T.M. C-39-52 T-"Not Less Than 95 % of Standard."

2-Lock Joint @ Colwich  
 2-Waller  
 1-Knoll  
 1-Hess

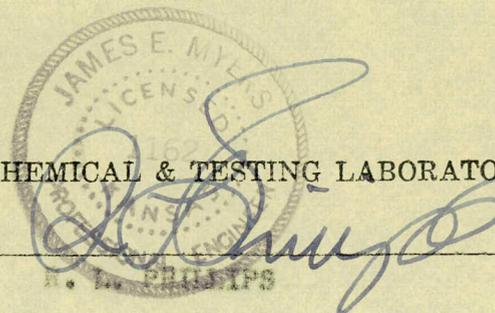
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Reference: A.S.T.M. C-87

File: 1  
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WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



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ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 J. J. REMAR  
 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:

AMERICAN CHEMICAL SOCIETY

AMERICAN SOCIETY FOR TESTING MATERIALS

AMERICAN SOCIETY OF CIVIL ENGINEERS

ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902020-c

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-1-56

Time: 10:00 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155

No. of Samples: One- 100 lbs.

Sample Designations:

Periodic Aggregate Check

Dolese Bros. Co.-Concrete Sand

Black & Veatch, Cons. Engrs.

Fine Aggregate Check No. 177

### RESULTS OF TEST (Date Moulded 2-1-56)

A.S.T.M. Mortar Strength Tests  
 ( 28 Day Results)

A.. Dolese Bros. Sand

Speciman No.

LC-177-4  
4900

LC-177-5  
4950

LC-177-6  
4850

28 Day Strength

Average PSI

% of Standard

4900

98.9%

B. Standard Ottawa Sand

Speciman No.

LC-102-S-4  
4800

LC-102-S-5  
5075

LC-102-S-6  
5000

28 Day Strength

Average PSI

% of Standard

4958

100.0%

To Meet A.S.T.M. C-33-52T-" Not Less Than 95 % of Standard."

2-Lock Joint @ Colwich

2-Yeller

1-Knoll

1-Ross

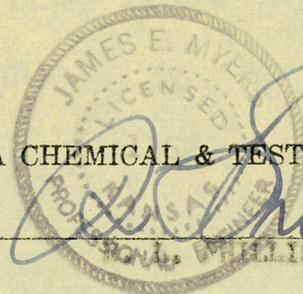
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Reference: A.S.T.M. C-87

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By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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## REPORT OF TEST

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 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137,  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 901293-a  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1-28-56 Time: 10:15 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolse Bros. Co.-Concrete Sand  
Pine Aggregate Check No. 174

### RESULTS OF TEST (Date Molder 1-30-56)

A.S.T.M. Mortar Strength Tests  
 ( 28 Day Results)

A. Dolse Bros. Sand				
Speciman No.	<u>LC-174-4</u>	<u>LC-174-5</u>	<u>LC-174-6</u>	
28 Day Strength	5150	4950	5325	
Average PSI				5142
% of Standard				102.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-101-S-4</u>	<u>LC-101-S-5</u>	<u>LC-101-S-6</u>	
28 Day Strength	4925	5050	5025	
Average PSI				5000
% Of Standard				100.0%

To Meet A.S.T.M C-33-52T-"Not Less Than 95% of Standard."

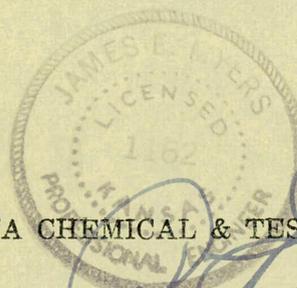
2-Lock Joint @ Colwich  
 2-Heller  
 1-Knoll  
 1-Hess  
 CC:

Reference: A.S.T.M. C-67

WICHITA CHEMICAL & TESTING LABORATORIES

File:  
 FORM 501

By:   
 R. L. PHILLIPS



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137,  
 Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902227-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-20-56

Time: 8:30 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One-100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co.-Concrete Sand  
 Fine Aggregate Check No. 189

### RESULTS OF TEST (Date Molded 2-20-56) A.S.T.M. Mortar Strength Tests ( 7 Day Results)

A. Dolese Bros Sand				
Specimen No.	<u>LC-189-1</u>	<u>LC-189-2</u>	<u>LC-189-3</u>	
7 Day Strength	3100	3225	3175	
Average PSI				3167
% of Standard				99.7%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-110-S-1</u>	<u>LC-110-S-2</u>	<u>LC-110-S-3</u>	
7 Day Strength	3100	3250	3175	
Average PSI				3175
% of Standard				100.0%

To Meet A.S.T.M. C-39-52T-"Not Less Than 95% of Standard."

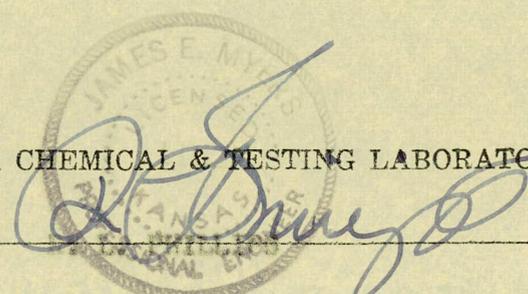
2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 1-Hess

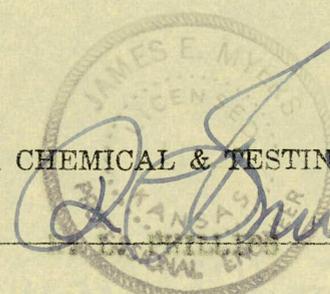
CC:

Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: 



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: 9 March 1956

Lab. Number: 902206-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2-17-56

Time: 8:30 A.M.

Material Tested: Concrete Sand  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons Engr.s

No. of Samples: One-100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co.-Concrete Sand

Fine Aggregate Check No. 185

### RESULTS OF TEST (Date Molded 2-17-56)

A.S.T.M. Mortar Strength Tests  
 ( 7 Day Results)

A. Dolese Bros. Sand Specimen No. 7 Day Strength Average PSI % of Standard	<u>LC-188-1</u> 3075	<u>LC-188-2</u> 2900	<u>LC-188-3</u> 3050	3008 101.1%
B. Standard Ottawa Sand Specimen No. 7 Day Strength Average PSI % of Standard	<u>LC-109-S-1</u> 3075	<u>LC-109-S-2</u> 2775	<u>LC-109-S-3</u> 3050	2967 100.0%

To Meet A.S.T.M. C-33-52T-"Not Less Than 95% of Standard."

2-Lock Joint @ Colwich  
 2-Weller  
 1-Knoll  
 CC: 1-Hess

Reference: A.S.T.M. C-87

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1426 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: 8 March 1956

Lab. Number: 902189-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2/16/56

Time: 8:30 A.M.

Material Tested: Concrete Sand  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One- 100 lbs.

Sample Designations:  
 Periodic Aggregate Check  
 Delese Bros. Co.-Concrete Sand

Fine Aggregate Check No. 187

RESULTS OF TEST (Date Molded 2-17-56)  
 A.S.T.M. Mortar Strength Tests  
 (7 Day Results)

A. Delese Bros Sand				
Speciman No.	<u>LC-187-1</u>	<u>LC-187-2</u>	<u>LC-187-3</u>	
7 Day Strength	2975	3075	2925	
Average PSI				2992
% of Standard				100.4%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-109-S-1</u>	<u>LC-109-S-2</u>	<u>LC-109-S-3</u>	
7 Day Strength	3075	2775	3050	
Average PSI				2967
% of Standard				100.0%

To Meet A.S.T.M. C-33-52T-" Not Less Than 95% of Standard".

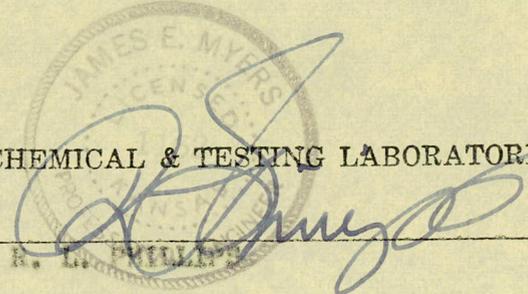
2-Lock Joint @ Colwich  
 2-Schler  
 1-Knoll  
 1-Hess

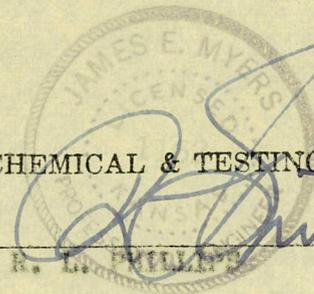
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Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: 



*Wichita* CHEMICAL AND TESTING *Laboratories*  
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 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 27, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 90219-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/15/56 Time: 9:00 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 186

RESULTS OF TEST (Date Molded 2/15/56)  
 A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

/A. Dolese Bros. Sand	<u>LC-186-1</u>	<u>LC-186-2</u>	<u>LC-186-3</u>	
Speciman No.	2925	3050	2950	
7 Day Results				2975
Average PSI				97.4%
% of Standard				
B. Standard Ottawa Sand	<u>LC-108-S-1</u>	<u>LC-108-S-2</u>	<u>LC-108-S-3</u>	
Speciman No.	3050	3100	3025	
7 Day Results				3058
Average PSI				100.0%
% of Standard				

To Meet ASTM C-33-52T "Not less than 95% of Standard."

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

meets

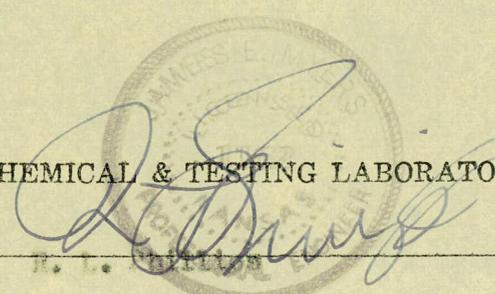
CC: 2 Lock Joint @ Colwich  
 2 Waller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

File: 1

WICHITA CHEMICAL & TESTING LABORATORIES

By: *[Signature]*  
 H. L. Miller



*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 24, 1956

Lab. Number: 902167-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Insp. Date Received At Lab.: 2/26/56 Time: 8:45 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolèse Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 185

RESULTS OF TEST (Date Molded 2/15/56)  
 A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolèse Bros. Sand				
Speciman No.	<u>LC-185-1</u>	<u>LC-185-2</u>	<u>LC-185-3</u>	
7 Day Results	3150	3075	3000	
Average PSI				3075
% of Standard				101.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-108-S-1</u>	<u>LC-108-S-2</u>	<u>LC-108-S-3</u>	
7 Day Results	3050	3100	3025	
Average PSI				3058
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



2 Lock Joint @ Colwich  
 2 Weller  
 CC: Knoll  
 1 Hess

Reference: ASTM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]  
 R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 MANAGER  
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 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Leak Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 24, 1956

Lab. Number: 901266-C  
 (REFER TO THIS NUMBER)

Submitted By: Lab Inspector Date Received At Lab.: 1/25/56 Time: 9:00 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 171

### RESULTS OF TEST (Date Molded 1/25/56) A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-171-4</u>	<u>LC-171-5</u>	<u>LC-171-6</u>	
28 Day Results	4800	5075	5125	
Average PSI				5000
% of Standard				95.9%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-99-8-4</u>	<u>LC-99-8-5</u>	<u>LC-99-8-6</u>	
28 Day Results	5300	5200	5150	
Average PSI				5216
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

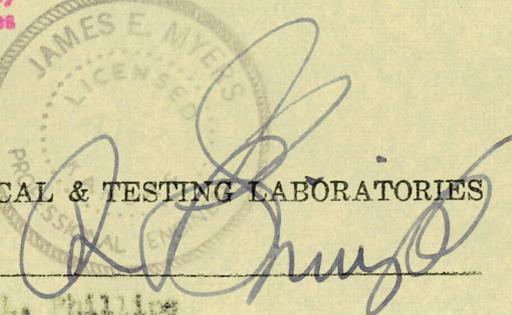
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

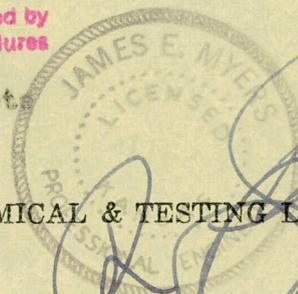
2 Leak Joint @ Colwich  
 2 Valler  
 1 Snoll  
 1 Hess

Reference: ASTM C-87

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By:   
 R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 22, 1956

Lab. Number: 902152-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/13/56 Time: 8:30 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 184

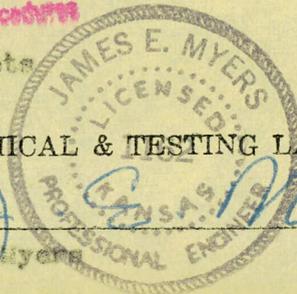
### RESULTS OF TEST (Date Molded 2/13/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-184-1</u>	<u>LC-184-2</u>	<u>LC-184-3</u>	
7 Day Strength	2400	2525	2575	
Average PSI				2500
% of Standard				100.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-107-S-1</u>	<u>LC-107-S-2</u>	<u>LC-107-S-3</u>	
7 Day Strength	2350	2500	2425	
Average PSI				2425
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: J. E. Myers

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 21, 1956

Lock Joint Pipe Co.  
 P. O. Box 137  
 Colwich, Kansas

Lab. Number: 902090-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/8/56 Time: 8:00 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Sand  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 181

### RESULTS OF TEST (Date tested 2/8/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

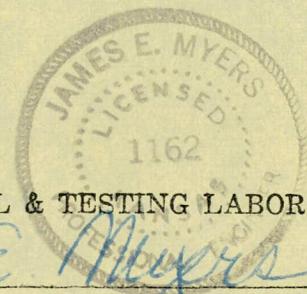
A. Dolese Bros. Sand				
Speciman No.	<u>LC-181-1</u>	<u>LC-181-2</u>	<u>LC-181-3</u>	
7 Day Strength	2725	2425	2450	
Average PSI				2533
% of Standard				101.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-105-S-1</u>	<u>LC-105-S-2</u>	<u>LC-105-S-3</u>	
7 Day Strength	2550	2525	2425	
Average PSI				2500
% of Standard				100.0%

To Meet ASTM C-33-52B "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint - Colwich  
 2 Weller  
 CC: Kell  
 1 Ness



Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: J. E. Myers  
 J. E. Myers

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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J. J. REMAR  
ASSOCIATES

LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 21, 1956

Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Lab. Number: 902080-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2/7/56

Time: 8:30 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Line  
Project 2155  
Black & Veatch, Cons. Engrs.

Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 180

### RESULTS OF TEST (Date Moulded 2/8/56)

A.S.T.M. MORTAR STRENGTH TESTS  
(7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-180-1</u>	<u>LC-180-2</u>	<u>LC-180-3</u>	
7 Day Strength	<u>2375</u>	<u>2500</u>	<u>2725</u>	
Average PSI				<u>2533</u>
% of Standard				<u>101.28</u>

B. Standard Ottawa Sand				
Speciman No.	<u>LC-105-S-1</u>	<u>LC-105-S-2</u>	<u>LC-105-S-3</u>	
7 Day Strength	<u>2550</u>	<u>2525</u>	<u>2425</u>	
Average PSI				<u>2500</u>
% of Standard				<u>100.00</u>

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**  
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

meets

CC: 2 Lock Joint @ Colwich  
2 Weller  
1 Knoll  
1 Hess

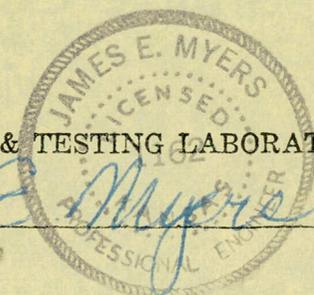
Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
FORM 501

By: J. E. Myers

J. E. Myers



WILKINS CHEMICAL AND TESTING LABORATORIES  
1234 N. W. 10th St., Miami, Fla.  
Phone: 555-1234

MEMBER OF THE  
AMERICAN SOCIETY OF  
TESTING MATERIALS  
INCORPORATED

REPORT OF TEST

TEST MADE FOR  
BY  
DATE

LABORATORY NO.

LAB. NUMBER

DATE

DATE RECEIVED AT LAB.

NAME OF CLIENT

NO. OF SAMPLES  
SAMPLE IDENTIFICATION

TESTS PERFORMED

RESULTS OF TESTS

ALL TESTS MADE IN ACCORDANCE WITH  
ASTM SPECIFICATIONS

WILKINS CHEMICAL AND TESTING LABORATORIES  
*J. E. Wilkins*

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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J. E. MYERS  
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 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 21, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 902131-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/10/56 Time: 8:30 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engr.

Sample Designations:  
 Periodic Aggregate Check  
 Delese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 183

### RESULTS OF TEST (Date Mailed 2/10/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Delese Bros. Sand				
Specimen No.	<u>LC-183-1</u>	<u>LC-183-2</u>	<u>LC-183-3</u>	
7 Day Strength	2575	2325	2500	
Average PSI				2467
% of Standard				104.6%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-106-S-1</u>	<u>LC-106-S-2</u>	<u>LC-106-S-3</u>	
7 Day Strength	2325	2500	2350	
Average PSI				2358
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

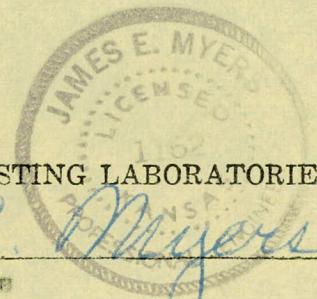
2 Lock Joint @ Colwich  
 2 Roller  
 1 Knoll  
 1 Hess

Reference: ASTM C-39

WICHITA CHEMICAL & TESTING LABORATORIES

File:  
 FORM 501

By: J. E. Myers  
 J. E. Myers



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 21, 1956

Lab. Number: 902119-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 2/9/56

Time: 8:45 AM

Material Tested: CONCRETE SAND

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolase Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 182

### RESULTS OF TEST (Date Mailed 2/10/56) S.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolase Bros. Sand				
Specimen No.	<u>LC-182-1</u>	<u>LC-182-2</u>	<u>LC-182-3</u>	
7 Day Strength	2500	2350	2425	
Average PSI				2425
% of Standard				102.7%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-106-S-1</u>	<u>LC-106-S-2</u>	<u>LC-106-S-3</u>	
7 Day Strength	2325	2500	2350	
Average PSI				2358
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Keller  
 1 Kell  
 1 Hess

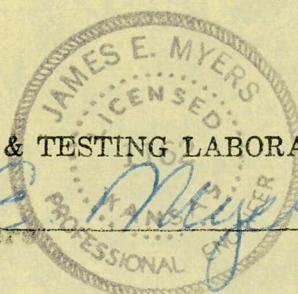
CC:

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_

  
*J. E. Myers*  
 J. E. Myers  
 PROFESSIONAL ENGINEER

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 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 21, 1956

Lock Joint Pipe Co.  
 P.O. Box 197  
 Colwich, Kansas

Lab. Number: 901228-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/20/56 Time: 8:15 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Line  
Project 2155  
Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
Dolase Bros. Co. - Concrete Sand  
Fine Aggregate Check # 170

### RESULTS OF TEST (Date Molded 1/20/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolase Bros. Sand				
Speciman No.	<u>LC-170-4</u>	<u>LC-170-5</u>	<u>LC-170-6</u>	
28 Day Strength	5275	5325	5200	
Average PSI				5267
% of Standard				105.3%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-98-8-4</u>	<u>LC-98-8-5</u>	<u>LC-98-8-6</u>	
28 Day Strength	4925	5050	5000	
Average PSI				4992
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements. meets

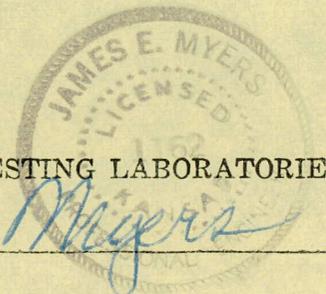
2 Lock Joint @ Colwich  
 2 Weller  
 CC: Knoll  
 1 Hess

Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: J. E. Myers  
 J. E. Myers





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REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 21, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901211-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/19/56 Time: 8:45 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolase Bros. Co. - Concrete Sand  
 Fine Aggregate Check # 169

RESULTS OF TEST (Date Mailed 1/20/56)  
 A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolase Bros. Sand				
Speciman No.	<u>LC-169-4</u>	<u>LC-169-5</u>	<u>LC-169-6</u>	
28 Day Strength	<u>5325</u>	<u>4975</u>	<u>4875</u>	
Average PSI				<u>4725</u>
% of Standard				<u>94.8%</u>
B. Standard Ottawa Sand				
Speciman No.	<u>LC-98-S-4</u>	<u>LC-98-S-5</u>	<u>LC-98-S-6</u>	
28 Day Strength	<u>4925</u>	<u>5050</u>	<u>5000</u>	
Average PSI				<u>4992</u>
% of Standard				<u>100.0%</u>

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material *does not* meet specification requirements.

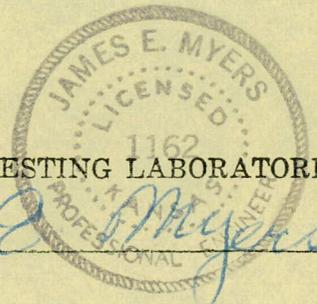
CC: 2 Lock Joint - Colwich  
 2 Weller  
 1 Kroll  
 1 Hess

Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: J. E. Myers



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REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Look Joint Pipe Co. Date: February 16, 1956  
P.O. Box 137 Lab. Number: 902052-B  
Colwich, Kansas (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/3/56 Time: 10:00 AM

Material Tested: CONCRETE SAND No. of Samples: One - 100 lbs.  
66" Water Transmission Lines Sample Designations:  
Project 2155 Periodic Aggregate Check  
Black & Veatch, Cons. Engrs. Dolsee Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 178

RESULTS OF TEST (Date Molded 2/3/56)  
 A.S.T.M MORTAR STRENGTH TESTS  
 (7 Day Results)

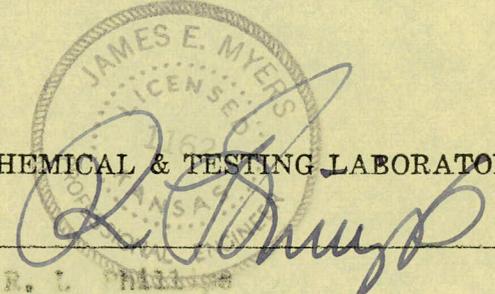
A. Dolsee Bros. Sand				
Specimen No.	<u>LC-178-1</u>	<u>LC-178-2</u>	<u>LC-178-3</u>	
7 Day Strength	<u>2900</u>	<u>2975</u>	<u>3025</u>	
Average PSI				<u>2900</u>
% of Standard				<u>96.3%</u>
B. Standard Ottawa Sand				
Specimen No.	<u>LC-103-8-1</u>	<u>LC-103-8-2</u>	<u>LC-103-8-3</u>	
7 Day Strength	<u>2975</u>	<u>3075</u>	<u>3000</u>	
Average PSI				<u>3013</u>
% of Standard				<u>100.0%</u>

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements. meas

2 Look Joint - Colwich  
 CC: Miller  
 1 K oll  
 1 Hase  
 Reference: ASTM C-33

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES  
 By:   
 R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: February 16, 1956

Lab. Number: 901138-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/12/56 Time: 9:30 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check # 165

### RESULTS OF TEST

(Date Mailed 1/13/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-165-4</u>	<u>LC-165-5</u>	<u>LC-165-6</u>	
28 Day Strength	5200	4950	4950	
Average PSI				5033
% of Standard				97.6%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-96-8-4</u>	<u>LC-96-8-5</u>	<u>LC-96-8-6</u>	
28 Day Strength	5300	5225	4975	
Average PSI				5167
% of Standard				100.0%

To Meet ASTM C-93-52T "Not less than 95% of Standard".

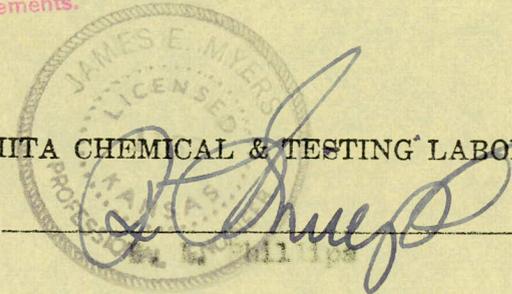
**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

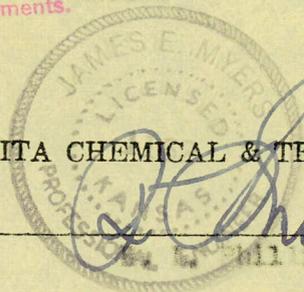
2 Lock Joint Pipe Co. Colwich  
 2 Voller  
 CC: 1 Knoll  
 1 Hess

Reference: ASTM C-87

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: 



# Wichita CHEMICAL AND TESTING Laboratories

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 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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## REPORT OF TEST

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 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 16, 1956

Lab. Number: 902068-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/6/56 Time: 9:00 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Perl die Aggregate Check  
 Delese Bros. Concrete Sand  
 Pine Aggregate Check No. 179

## RESULTS OF TEST

A.S.T.M. COMPACT STRENGTH TESTS  
 (7 Day Results)

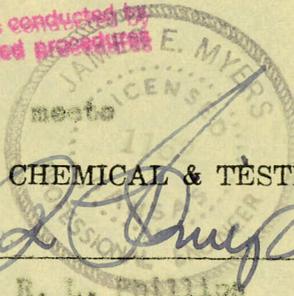
A. Delese Bros. Sand				
Specimen No.	<u>LC-179-1</u>	<u>LC-179-2</u>	<u>LC-179-3</u>	
7 Day Strength	2800	2975	3000	
Average PSI				2925
% of Standard				111.4%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-104-S-1</u>	<u>LC-104-S-2</u>	<u>LC-104-S-3</u>	
7 Day Strength	2800	2525	2550	
Average PSI				2625
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard."

2 Lock Joint @ Colwich  
 2 Keller  
 CC: 1 Anoll  
 1 Hess

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



Reference: ASTM C-27

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]  
 E. L. Phillips

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 ENGINEERS

**REPORT OF TEST**

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 10, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901071-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/6/56 Time: 8:15 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 161

**RESULTS OF TEST (Date Molded 1/6/56)**  
 A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-161-4</u>	<u>LC-161-5</u>	<u>LC-161-6</u>	
28 Day Results	5725	5950	5925	
Average PSI				5900
% of Standard				99.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-93-S-4</u>	<u>LC-93-S-5</u>	<u>LC-93-S-6</u>	
28 Day Results	5975	6000	5900	
Average PSI				5950
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

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 us in accordance with accepted procedures  
 and that this material meets  
 specification requirements.

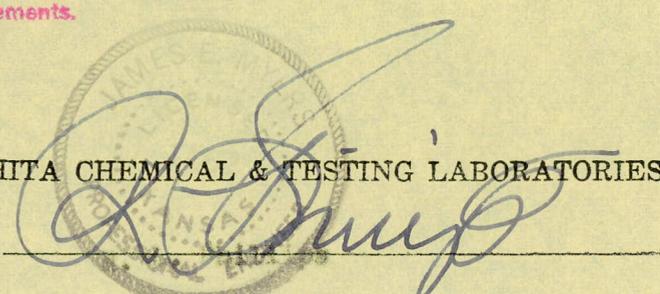
2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

CC:

Reference: ASTM C-67

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: 

# Wichita CHEMICAL AND TESTING Laboratories

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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 10, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901276-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/26/56

Time: 8:15 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:

Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 172

### RESULTS OF TEST (Date Molded 1/27/56)

#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-172-1</u>	<u>LC-172-2</u>	<u>LC-172-3</u>	
7 Day Strength	3500	3125	3275	
Average PSI				3300
% of Standard				102.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-100-S-1</u>	<u>LC-100-S-2</u>	<u>LC-100-S-3</u>	
7 Day Strength	3050	3250	3325	
Average PSI				3208
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.



2 Lock Joint @ Colwich  
 2 Weller  
 CC: Knoll  
 1 Hess

Reference: A.S.T.M. C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]

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 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 30, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901290-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/27/56

Time: 8:30 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 173

RESULTS OF TEST (Date Moulded 1/27/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-173-1</u>	<u>LC-173-2</u>	<u>LC-173-3</u>	
7 Day Strength	<u>3275</u>	<u>3100</u>	<u>3250</u>	
Average PSI				3208
% of Standard				100.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-100-S-1</u>	<u>LC-100-S-2</u>	<u>LC-100-S-3</u>	
7 Day Strength	<u>3050</u>	<u>3250</u>	<u>3325</u>	
Average PSI				3208
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material  
 specification requirements. meets

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll

CC: Hees

Reference: ASTM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: *R. L. Phillips*

Wichita  
CHEMICAL  
AND  
TESTING  
LABORATORY  
NATIONAL FIRE & MARINE INSURANCE  
1155 N. MOBILE AVE.  
WICHITA, KANSAS

ALL TESTS ARE  
CONDUCTED IN ACCORDANCE WITH  
THE LATEST  
TESTING METHODS  
AND PROCEDURES  
AS SPECIFIED IN THE  
APPLICABLE  
SPECIFICATIONS

REPORT ON TEST

TEST MADE FOR:  
SUBMITTED BY:  
MATERIAL TESTED:  
DATE OF TEST:  
TESTER:

Test Made For:

Submitted By:

Material Tested:

RESULTS OF TEST

CERTIFIED

That the above test was conducted by  
this laboratory with proper procedure  
and that this material  
specification requirements.

WICHITA CHEMICAL AND TESTING LABORATORY

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 9, 1956

Lab. Number: 901057-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/5/56 Time: 8:15 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 160

### RESULTS OF TEST (Date Mailed 1/6/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-160-4</u>	<u>LC-160-5</u>	<u>LC-160-6</u>	
28 Day Results	5925	6025	5900	
Average PSI				5950
% of Standard				99.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-92-3-4</u>	<u>LC-92-3-5</u>	<u>LC-92-3-6</u>	
28 Day Strength	5975	6000	5900	
Average PSI				5958
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Mess

Reference: ASTM C-87

File: 1  
 FORM 501

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.



WICHITA CHEMICAL & TESTING LABORATORIES

By: J. E. Myers  
 J. E. Myers

*Wichita* **CHEMICAL AND TESTING** *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

**REPORT OF TEST**

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Look Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 9, 1956

Lab. Number: 901302-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/30/56 Time: 10:50 A.M.

Material Tested: CONCRETE SAND No. of Samples: One - 100 lbs.  
 Sample Designations:  
 66" Water Transmission Lines Periodic Aggregate Check  
 Project 2155 Dolsea Bros. Co. - Concrete Sand  
 Black & Veatch, Cons. Engrs. Fine Aggregate Check No. 175

**RESULTS OF TEST (Date Molded 1/30/56)**

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolsea Bros. Sand				
Speciman No.	<u>LC-175-1</u>	<u>LC-175-2</u>	<u>LC-175-3</u>	
7 Day Strength	<u>2600</u>	<u>2800</u>	<u>2875</u>	
Average PSI				<u>2758</u>
% of Standard				<u>100.8%</u>
B. Standard Ottawa Sand				
Speciman No.	<u>LC-101-5-1</u>	<u>LC-101-5-2</u>	<u>LC-101-5-3</u>	
7 Day Strength	<u>2775</u>	<u>2900</u>	<u>2550</u>	
Average PSI				<u>2742</u>
% of Standard				<u>100.0%</u>

To meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

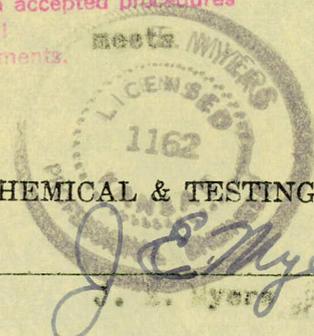
CC: 2 Look Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: J. E. Myers



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 9, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901293-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/28/56 Time: 10:15 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Dolase Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 174

### RESULTS OF TEST (Date Molded 1/30/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolase Bros. Sand				
Speciman No.	<u>LC-174-1</u>	<u>LC-174-2</u>	<u>LC-174-3</u>	
7 Day Strength	2750	2550	2775	
Average PSI				2692
% of Standard				97.9%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-101-8-1</u>	<u>LC-101-8-2</u>	<u>LC-101-8-3</u>	
7 Day Strength	2775	2900	2550	
Average PSI				2742
% of Standard				100.0%

To meet ASTM C-39-52T "Not less than 95% of Standard."

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements. meets

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

CC:

Reference: ASTM C-67

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: 



# Wichita CHEMICAL AND TESTING Laboratories

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: February 9, 1956

Lab. Number: 901088-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/9/56

Time: 8:45 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolson Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 162

### RESULTS OF TEST (Date Mailed 1/9/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Dolson Bros. Sand  
 Specimen No.  
 28 Day Strength  
 Average PSI  
 % of Standard

LC-162-4  
4825

LC-162-5  
4800

LC-162-6  
5100

4908  
104.2%

B. Standard Ottawa Sand  
 Specimen No.  
 28 Day Strength  
 Average PSI  
 % of Standard

LC-94-3-4  
4825

LC-94-3-5  
4675

LC-94-3-6  
4800

4700  
100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard."

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

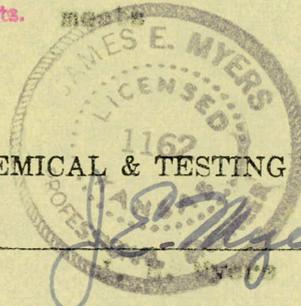
CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Enoll  
 1 Hess

Reference: ASTM C-27

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: J. E. Myers



# Wichita CHEMICAL AND TESTING Laboratories

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
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 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 9, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901103-G

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/10/56

Time: 9:30 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:

Periodic Aggregate Check  
 Dolse Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 163

### RESULTS OF TEST (Date Molded 1/11/56)

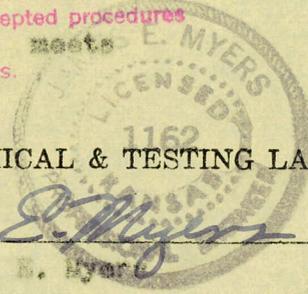
#### A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Dolse Bros. Sand				
Speciman No.	<u>LC-163-4</u>	<u>LC-163-5</u>	<u>LC-163-6</u>	
28 Day Strength	5775	5675	5750	
Average PSI				5725
% of Standard				102.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-95-8-4</u>	<u>LC-95-8-5</u>	<u>LC-95-8-6</u>	
28 Day Strength	5575	5475	5850	
Average PSI				5600
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard".

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



CC: 2 Lock Joint @ Colwich  
 2 Feller  
 1 Knoll  
 1 Hess

Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: J. E. Myers  
 J. E. Myers

# Wichita CHEMICAL AND TESTING Laboratories

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J. J. REMAR  
ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 9, 1956

Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Lab. Number: 901125-C

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/11/56

Time: 11:00 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

Sample Designations:

Periodic Aggregate Check  
Doless Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 164

## RESULTS OF TEST (Date Mailed 1/11/56)

A.S.T.M. MORTAR STRENGTH TESTS  
(28 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-164-4</u>	<u>LC-164-5</u>	<u>LC-164-6</u>	
28 Day Strength	5675	5775	5575	
Average PSI				5675
% of Standard				101.4%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-95-8-4</u>	<u>LC-95-8-5</u>	<u>LC-95-8-6</u>	
28 Day Strength	5575	5475	5850	
Average PSI				5600
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
2 Weller  
1 Knoll  
1 Hess

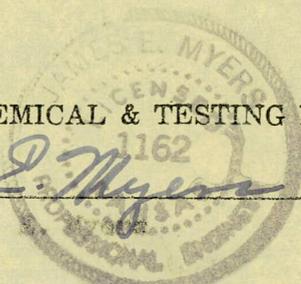
CC:

Reference: ASTM C-37

File: 1  
FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: J. E. Myers



*Wichita* CHEMICAL AND TESTING *Laboratories*  
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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 9, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 902020-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/1/56 Time: 10:00 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Dolase Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 177

RESULTS OF TEST (Date Molds 2/1/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolase Bros. Sand				
Specimen No.	<u>LC-177-1</u>	<u>LC-177-2</u>	<u>LC-177-3</u>	
7 Day Strength	<u>2975</u>	<u>2925</u>	<u>3050</u>	
Average PSI				<u>2983</u>
% of Standard				<u>97.8%</u>
B. Standard Ottawa Sand				
Specimen No.	<u>LC-102-1</u>	<u>LC-102-2</u>	<u>LC-102-3</u>	
7 Day Strength	<u>3075</u>	<u>2975</u>	<u>3100</u>	
Average PSI				<u>3050</u>
% of Standard				<u>100.0%</u>

To meet ASTM C-39-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material  
 specification requirements.

2 Lock Joint & Colwich  
 2 Keller  
 CC: 1 Kroll  
 1 Hees

Reference: ASTM C-97

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: J. E. Myers

meets



J. E. Myers

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
WICHITA 4, KANSAS

J. E. MYERS  
MANAGER  
W. H. CAMPEN  
J. R. SMITH  
J. J. REMAR  
ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: February 9, 1956

Lab. Number: 901301-B  
(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/31/56 Time: 9:00 A.M.

Material Tested: CONCRETE SAND No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

Sample Designations:  
Periodic Aggregate Check  
Dolan Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 176

### RESULTS OF TEST (Date Molds 2/ /56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolan Bros. Sand				
Speciman No.	<u>LC-176-1</u>	<u>LC-176-2</u>	<u>LC-176-3</u>	
7 Day Strength	3025	3125	2925	
Average PSI				3058
% of Standard				10.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-102-1</u>	<u>LC-102-2</u>	<u>LC-102-3</u>	
7 Day Strength	3075	2975	3100	
Average PSI				3050
% of Standard				100.0%

To Meet ASTM C-93-52T "Not less than 95% of Standard".

CC: 2 Lock Joint @ Colwich  
2 Weller  
1 Koll  
1 Hess

CERTIFIED

We certify the above test was conducted on us in accordance with accepted procedures and that this material meets specification requirements.

Reference: ASTM C-17

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
FORM 501

By: R. L. Phillips  
R. L. Phillips

*Wichita* CHEMICAL AND TESTING *Laboratories*  
 ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 2, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Mo.

Lab. Number: 901044-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/4/56 Time: 8:45 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

60" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Delese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 159

RESULTS OF TEST (Date Mailed 2/4/56)  
 A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Delese Bros. Sand				
Specimen No.	<u>LC-159-4</u>	<u>LC-159-5</u>	<u>LC-159-6</u>	
28 Day Strength	<u>5925</u>	<u>5750</u>	<u>5950</u>	
Average PSI				5908
% of Standard				99.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-92-S-4</u>	<u>LC-92-S-5</u>	<u>LC-92-S-6</u>	
28 Day Strength	<u>6025</u>	<u>5900</u>	<u>5975</u>	
Average PSI				5967
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

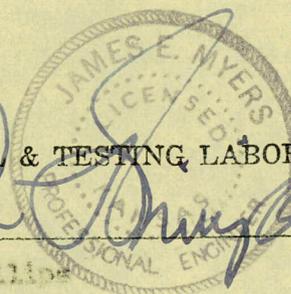
2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 CC: 1 Hess

Reference: LC-159-007

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: *R. L. Phillips*  
 R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: February 2, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901276-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 2/25/56 Time: 9:00 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

60" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check # 171

### RESULTS OF TEST (Date Molded 1/25/56) A.S.T.M. WENTZ STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-171-1</u>	<u>LC-171-2</u>	<u>LC-171-3</u>	
7 Day Strength	3175	3250	3000	
Average PSI				3142
% of Standard				98.7%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-99-S-1</u>	<u>LC-99-S-2</u>	<u>LC-99-S-3</u>	
7 Day Strength	3200	3375	3075	
Average PSI				3183
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

meets

CC: 2 Lock Joint @ Colwich  
 2 Wells  
 1 Knoll  
 1 Hess

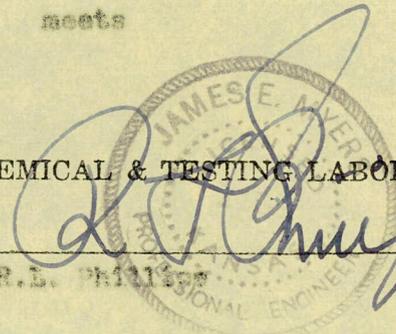
Reference: 1956 C-107

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. Phillips

R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 30, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 9012285

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/20/56 Time: 8:15 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

60" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Delese Bros. Co. - Concrete Sand  
 Fine Aggregate Check # 170

### RESULTS OF TEST (Date Molded 1/20/56)

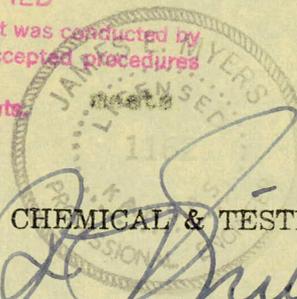
#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Delese Bros. Sand				
Speciman No.	<u>LC-170-1</u>	<u>LC-170-2</u>	<u>LC-170-3</u>	
7 Day Strength	3100	3000	3225	
Average PSI				3108
% of Standard				96.3%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-98-8-1</u>	<u>LC-98-8-2</u>	<u>LC-98-8-3</u>	
7 Day Strength	3100	3300	3250	
Average PSI				3217
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.



2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: A.S.T.M. C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: R. L. Phillippe  
 R. L. Phillippe

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 30, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901211B

(REFER TO THIS NUMBER)

Submitted By: Lab. Insp.

Date Received At Lab.: 1/19/56

Time: 8:45 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolesse Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 169

### RESULTS OF TEST (Date Molded 1/20/56)

#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolesse Bros. Sand				
Speciman No.	<u>LC-169-1</u>	<u>LC-169-2</u>	<u>LC-169-3</u>	
7 Day Strength	3200	3125	3225	
Average PSI				3183
% of Standard				98.7%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-98-S-1</u>	<u>LC-98-S-2</u>	<u>LC-98-S-3</u>	
7 Day Strength	3160	3300	3250	
Average PSI				3217
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

CC: 2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_

R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 30, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901196-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/18/56 Time: 9:30 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 168

### RESULTS OF TEST (Date Mailed 1/18/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-168-1</u>	<u>LC-168-2</u>	<u>LC-168-3</u>	
7 Day Strength	3050	3100	3175	
Average PSI				3108
% of Standard				100.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-97-S-1</u>	<u>LC-97-S-2</u>	<u>LC-97-S-3</u>	
7 Day Strength	3200	3050	3075	
Average PSI				3108
% of Standard				100.0%

To Meet ASTM C-39-52F "Not less than 95% of Standard".

### CERTIFIED

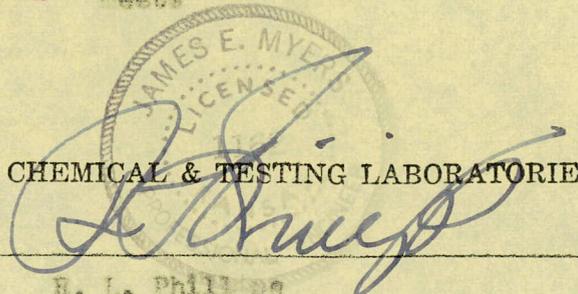
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 CC: 1 Knoll  
 1 Ness

Reference: ASTM C-39

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By:   
 R. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 30, 1956

Lab. Number: 901194-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/17/56 Time: 11:00 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check # 167

### RESULTS OF TEST (Date Moulded 1/18/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-167-1</u>	<u>LC-167-2</u>	<u>LC-167-3</u>	
7 Day Strength	3225	3400	3525	
Average PSI				3383
% of Standard				108.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-97-8-1</u>	<u>LC-97-8-2</u>	<u>LC-97-8-3</u>	
7 Day Strength	3200	3050	3075	
Average PSI				3108
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

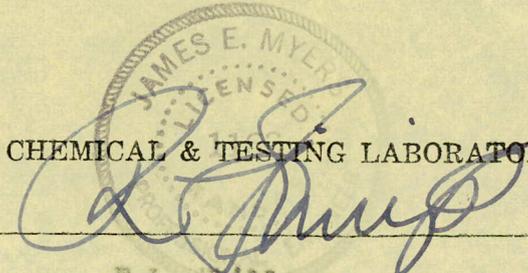
**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint Colwich  
 2 Weller  
 1 Knoll  
 1 News

Reference: ASTM C-97

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By:   
 R.L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 25, 1956

Lab. Number: 812316-3

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/27/55 Time: 8:45 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 153

66" Water Transmission Line  
 Project 2155  
 Black & Veatch, Cons. Engrs.

### RESULTS OF TEST (Date Molded 12/28/55)

#### A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Doless Bros. Sand				
Specimen No.	<u>LC-153-4</u>	<u>LC-153-5</u>	<u>LC-153-6</u>	
28 Day Strength	5700	5575	5725	
Average PSI				5667
% of Standard				96.2%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-89-3-4</u>	<u>LC-89-3-5</u>	<u>LC-89-3-6</u>	
28 Day Strength	5875	5900	5925	
Average PSI				5900
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

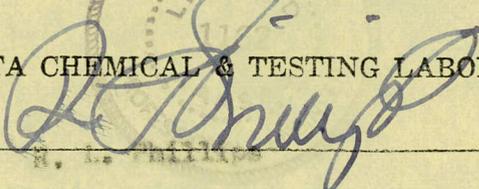
We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

2 Lock Joint @ Colwich  
 2 Feller  
 1 Knoll  
 CC: 1 Hess

Reference: 1001 C-67

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By:   
 J. E. Myers



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 23, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901153-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/13/56 Time: 9:15 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 166

### RESULTS OF TEST (Date Moulded 1/13/56)

A.S.T.M. MORTAR STRENGTH TEST  
 (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-166-1</u>	<u>LC-166-2</u>	<u>LC-166-3</u>	
7 Day Results	3175	3050	3250	
Average PSI				3158
% of Standard				100.0%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-96-S-1</u>	<u>LC-96-S-2</u>	<u>LC-96-S-3</u>	
7 Day Results	3025	3200	3250	
Average PSI				3158
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1

By: [Signature]

H. L. Phillips

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: January 23, 1956

Lab. Number: 901138-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/12/56 Time: 9:30 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Pines Aggregate Check No. 165

### RESULTS OF TEST

(Date Molder 1/13/56)

A.S.T.M. METHOD STRENGTH TEST  
 (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-165-1</u>	<u>LC-165-2</u>	<u>LC-165-3</u>	
7 Day Results	2975	3050	3100	
Average PSI				3042
% of Standard				96.4%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-96-8-1</u>	<u>LC-96-8-2</u>	<u>LC-96-8-3</u>	
7 Day Results	3025	3200	3250	
Average PSI				3158
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

CERTIFIED

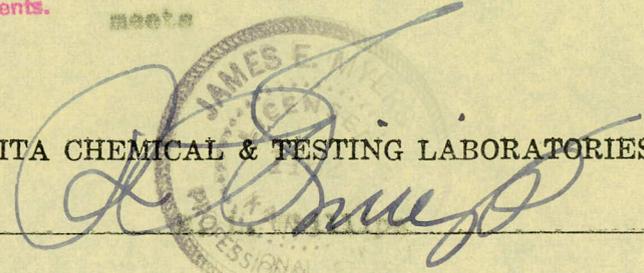
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 CC: Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

1  
 File:

By: 

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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 W. H. CAMPEN  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 23, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812288-3

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 12/22/55

Time: 9:00 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Peridot Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 151

### RESULTS OF TEST (Date Molded 12/23/55) A.S.T.M. MORTAR STRENGTH TEST (28 Day Result)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-151-4</u>	<u>LC-151-5</u>	<u>LC-151-6</u>	
28 Day Results	5650	5600	5725	
Average PSI				5658
% of Standard				99.4%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-88-8-4</u>	<u>LC-88-8-5</u>	<u>LC-88-8-6</u>	
28 Day Strength	5575	5775	5700	
Average PSI				5683
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

meets

2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

CC:

Reference: ASTM C-97

File: 1

WICHITA CHEMICAL & TESTING LABORATORIES

By: 

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 197  
 Colwich, Kansas

Date: January 23, 1956

Lab. Number: 901125

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/11/56 Time: 11:00 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. Concrete Sand  
 Fine Aggregate Check No. 164

### RESULTS OF TEST (Date Molded 1/11/56)

#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-164-1</u>	<u>LC-164-2</u>	<u>LC-164-3</u>	
7 Day Strength	3350	3150	3275	
Average PSI				3258
% of Standard				97.9%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-95-S-1</u>	<u>LC-95-S-2</u>	<u>LC-95-S-3</u>	
7 Day Strength	3625	3275	3300	
Average PSI				3333
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File:

By:

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: January 18, 1956

Lab. Number: 901101-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/10/56 Time: 9:30 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Con. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 163

### RESULTS OF TEST (Date Mailed 1/11/56)

#### A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-163-1</u>	<u>LC-163-2</u>	<u>LC-163-3</u>	
7 Day Strength	3200	3300	3250	
Average PSI				3250
% of Standard				98.8%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-95-S-1</u>	<u>LC-95-S-2</u>	<u>LC-95-S-3</u>	
7 Day Strength	3425	3275	3300	
				3333
				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

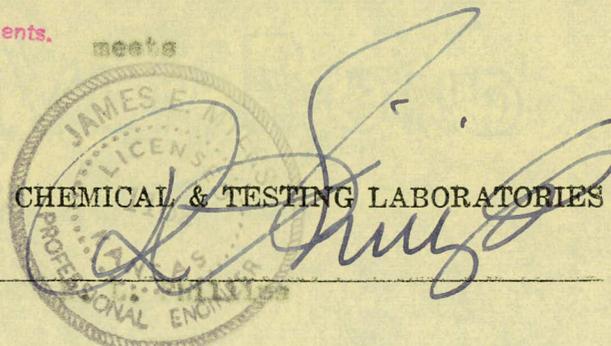
2 Lock Joint Colwich  
 2 Teller  
 1 Knoll  
 1 Hess

Reference: ASTM C-97

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 23, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812277-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/21/55 Time: 8:30 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. Concrete Sand  
 Fine aggregate Check No. 150

## RESULTS OF TEST (Date Molded 12/21/55)

### A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-150-4</u>	<u>LC-150-5</u>	<u>LC-150-6</u>	
28 Day Results	5300	5575	5850	
Average PSI				5575
% of Standard				93.5%

B. Standard Ottawa Sand				
Speciman No.	<u>LC-87-8-4</u>	<u>LC-87-8-5</u>	<u>LC-87-8-6</u>	
28 Day Strength	5925	5975	6025	
Average PSI				5975
% of Standard				10.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

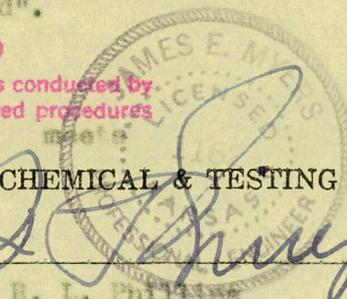
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Bass  
 Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
 MANAGER  
 W. H. CAMPEN  
 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 17, 1956

Lab. Number: 901088-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/12/56 Time: 9:30 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Delese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 162

### RESULTS OF TEST (Date Molded 1/9/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Delese Bros. Sand				
Speciman No.	<u>LC-162-1</u>	<u>LC-162-2</u>	<u>LC-162-3</u>	
7 Day Strength	3450	3400	3225	
Average PSI				3358
% of Standard				100.2%

B. Standard Ottawa Sand				
Speciman No.	<u>LC-94-S-1</u>	<u>LC-94-S-2</u>	<u>LC-94-S-3</u>	
7 Day Strength	3250	3450	3350	
Average PSI				3350
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]  
 J. H. Phillips

**Wichita**  
**CHEMICAL AND TESTING LABORATORIES**  
 ANALYTICAL CHEMIST & TESTING ENGINEER  
 1428 N. MOORE AVE. PHONE HO 6-7438  
 WICHITA - KANSAS

REFERENCE TO THIS NUMBER  
 IN ALL CORRESPONDENCE  
 SHOULD BE MADE TO THE  
 NUMBER OF THIS REPORT  
 AND NOT TO THE NUMBER  
 OF THE ORIGINAL ORDER

REPORT OF TEST

ANALYTICAL CHEMIST & TESTING ENGINEER  
 WICHITA - KANSAS  
 PHONE HO 6-7438

Test Made for:

Date:

Lab. Number:

REF. TO THIS NUMBER

Date Received At Lab.:

Requested By:

No. of Samples:  
 Sample Designation:

Material Tested:

RESULTS OF TEST

CERTIFICATE

This report was prepared by  
 a duly qualified person  
 and the results are  
 given in accordance with  
 standard procedures

WICHITA CHEMICAL & TESTING LABORATORIES

Reference:

Date:

By:

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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 J. J. REMAR  
 ASSOCIATES  
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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: January 16, 1956

Lab. Number: 901071-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/5/56 Time: 8:15 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 161

### RESULTS OF TEST (Date Molded 1/6/56) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-161-1</u>	<u>LC-161-2</u>	<u>LC-161-3</u>	
7 Day Strength	2950	2800	3050	
Average PSI				2933
% of Standard				96.0%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-93-3-1</u>	<u>LC-93-3-2</u>	<u>LC-93-3-3</u>	
7 Day Strength	3100	3050	3025	
Average PSI				3058
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 MANAGER  
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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 16, 1956

Look Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 901057-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/5/56

Time: 8:15 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Beck & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.

Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 160

### RESULTS OF TEST (Date Molded 1/6/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-160-1</u>	<u>LC-160-2</u>	<u>LC-160-3</u>	
7 Day Strength	3225	2975	3075	
Average PSI				3092
% of Standard				101.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-92-S-1</u>	<u>LC-92-S-2</u>	<u>LC-92-S-3</u>	
7 Day Strength	3100	3050	3025	
Average PSI				3058
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95 % of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

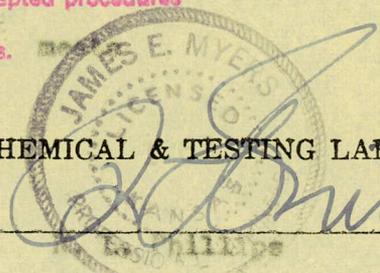
CC: 2 Look Joint @ Colwich  
 2 Keller  
 2 Knoll  
 1 Mess ASTM C-27

Reference: \_\_\_\_\_

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
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## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 16, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812202-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/15/55 Time: 9:00 A.M.

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Vatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 146

### RESULTS OF TEST (Date Molded 12/16/55)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Doless Bros. Sand				
Speciman No.	<u>LC-146-4</u>	<u>LC-146-5</u>	<u>LC-146-6</u>	
28 Day Strength	5700	5750	5650	
Average PSI				5700
% of Standard				99.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-85-8-4</u>	<u>LC-85-8-5</u>	<u>LC-85-8-6</u>	
28 Day Strength	5875	5575	5775	
Average PSI				5742
% of Standard				101.0%

To meet ASTM C-39-52T "Not less than 95% of Standard".

**CERTIFIED**  
 We certify the above test was conducted by  
 us in accordance with accepted procedures  
 and that this material  
 meets specification requirements.

2 Lock Joint Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

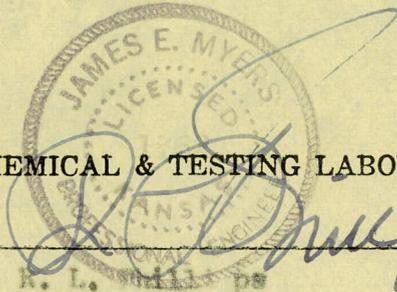
CC:

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: \_\_\_\_\_



K. L. Smith ps

# Wichita CHEMICAL AND TESTING Laboratories

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 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 J. J. REMAR  
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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 13, 1956

Lab. Number: 901011-9  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/4/56 Time: 8:45 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 159

### RESULTS OF TEST (Date Mailed 1/4/56)

A.S.T.M. MORTAR STRENGTH TEST  
 (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>10-159-1</u>	<u>10-159-2</u>	<u>10-159-3</u>	
7 Day Strength	3200	3375	3075	
Average PSI				3217
% of Standard				97.25

B. Standard Ottawa Sand				
Specimen No.	<u>10-92-S-1</u>	<u>10-92-S-2</u>	<u>10-92-S-3</u>	
7 Day Strength	3350	3300	3275	
Average PSI				3308
% of Standard				100.0%

To meet ASTM C-39-52T "Not less than 95% of Standard".

### CERTIFIED

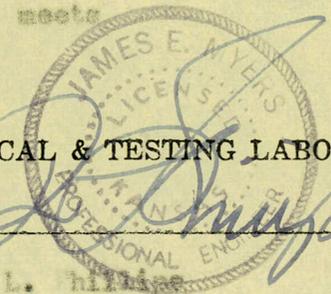
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint 4 Colwich  
 CC: Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-39

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

  
 R. L. Hillis

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 13, 1956

Lab. Number: 901029-B

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 1/3/56 Time: 6:30 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check H.C. 158

### RESULTS OF TEST (Date Molded 1/4/56)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-158-1</u>	<u>LC-158-2</u>	<u>LC-158-3</u>	
7 Day Strength	3425	3400	3300	
Average PSI				3375
% of Standard				101.6%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-92-9-1</u>	<u>LC-92-9-2</u>	<u>LC-92-9-3</u>	
7 Day Strength	3350	3300	3275	
Average PSI				3308
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard".

CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements. meets

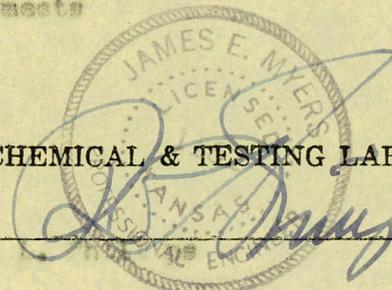
2 Lock Joint @ Colwich  
 2 Waller  
 1 K oil  
 1 H&S

Reference: ASTM C-33

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

J. E. MYERS  
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 J. R. SMITH  
 J. J. REMAR  
 ASSOCIATES  
 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 13, 1956

Lab. Number: 912162-0  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/13/55 Time: 9:15 AM

Material Tested: CONCRETE SAND No. of Samples: One - 100 lbs.  
 Sample Designations:  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 144

### RESULTS OF TEST (Date Molded 12/14/55) A.S.T.M. MORTAR STRENGTH TESTS (28 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-144-4</u>	<u>LC-144-5</u>	<u>LC-144-6</u>	
28 Day Strength	5325	5500	5700	
Average PSI				5508
% of Standard				99.3%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-84-8-4</u>	<u>LC-84-8-5</u>	<u>LC-84-8-6</u>	
28 Day Strength	5650	5475	5525	
Average PSI				5550
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard."

**CERTIFIED**  
 We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements. meets

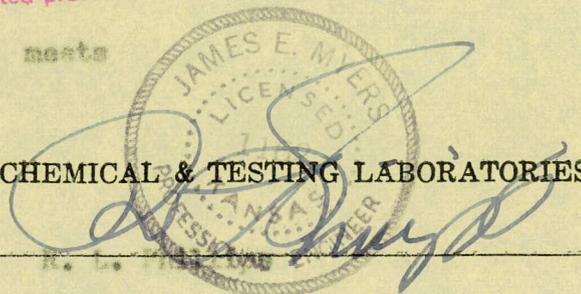
2 Lock Joint @ Colwich  
 2 Keller  
 1 Knoll  
 1 Hess

Reference: ASTM C-37

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 13, 1956

Lab. Number: 901002-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 1/2/56

Time: 9:00 AM

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

Sample Designations:

66" Water Transmission Lines  
Project 2155  
Black & Veatch, Conc. Engrs.

Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 157

### RESULTS OF TEST (Date Mailed 1/2/56)

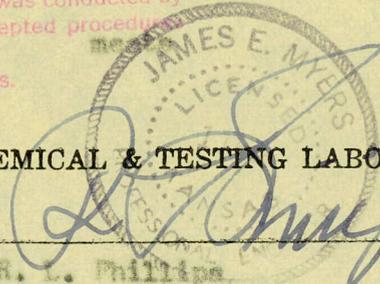
A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-157-1</u>	<u>LC-157-2</u>	<u>LC-157-3</u>	
7 Day Strength	2850	2975	3000	
Average PSI				2942
% of Standard				103.8%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-91-S-1</u>	<u>LC-91-S-2</u>	<u>LC-91-S-3</u>	
7 Day Strength	2775	2900	2825	
Average PSI				2833
% of Standard				100.0%

To Meet ASTM C-33-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.



WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_

R. L. Phillips

CC: 2 Lock Joint @ Colwich  
 2 Miller  
 1 Knoll

Reference: ASTM C-27

File: 1

# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
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 ASSOCIATES

LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 10, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812103-0

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 12/8/55

Time: 8:30 AM

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Delese Bros. Col. Concrete Sand  
Fine Aggregate Check No. 140

### RESULTS OF TEST (Date Mailed 12/9/55)

A.S.T.M. MORTAR STRENGTH TESTS  
 (28 Day Results)

A. Delese Bros. Sand				
Specimen No.	<u>LC-140-4</u>	<u>LC-140-5</u>	<u>LC-140-6</u>	
28 Day Results	5925	6050	5925	
Average PSI				5967
% of Standard				103.0%

B. Standard Ottawa Sand				
Specimen No.	<u>LC-82-4</u>	<u>LC-82-5</u>	<u>LC-82-6</u>	
28 Day Results	5700	6050	5325	
Average PSI				5692
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard"

#### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-39

WICHITA CHEMICAL & TESTING LABORATORIES

File: 1  
 FORM 501

By: [Signature]  
 A. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
 1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
 WICHITA 4, KANSAS

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 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 10, 1956

Leak Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 012351-B  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/30/55 Time: 8:30 AM

Material Tested: CONCRETE SAND  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Dolese Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 156

### RESULTS OF TEST (Date Molded 12/30/55)

#### A.S.T.M. MORTAR STRENGTH TESTS ( 7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-156-1</u>	<u>LC-156-2</u>	<u>LC-156-3</u>	
7 Day Results	3300	3400	3525	
Average PSI				3408
% of Standard				110.0%

B. Standard Ottawa Sand				
Specimen No.	<u>LC-90-S-1</u>	<u>LC-90-S-2</u>	<u>LC-90-S-3</u>	
7 Day Results	2800	3275	3225	
Average PSI				3100
% of Standard				100.0%

To Meet ASTM C-39-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material specification requirements.

CC: 2 Leak Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. Phillips



# Wichita CHEMICAL AND TESTING Laboratories

ANALYTICAL CHEMISTS - BACTERIOLOGISTS - TESTING ENGINEERS  
1428 N. MOSLEY AVE. PHONE HOBART 4-3948  
WICHITA 4, KANSAS

J. E. MYERS  
MANAGER  
W. H. CAMPEN  
J. R. SMITH  
J. J. REMAR  
ASSOCIATES  
LICENSED PROFESSIONAL  
ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
AMERICAN CHEMICAL SOCIETY  
AMERICAN SOCIETY FOR TESTING MATERIALS  
AMERICAN SOCIETY OF CIVIL ENGINEERS  
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for: Lock Joint Pipe Co.  
P.O. Box 137  
Colwich, Kansas

Date: January 10, 1956

Lab. Number: 812341-B  
(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/29/55 Time: 8:30 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch Cons. Engrs.

No. of Samples: One - 100 lbs.  
Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 155

### RESULTS OF TEST (Date Molded 12/30/55) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Speciman No.	<u>LC-155-1</u>	<u>LC-155-2</u>	<u>LC-155-3</u>	
7 Day Results	3250	3325	3225	
Avg. of PSI Standard				3267
% of Standard				105.2%
B. Standard Ottawa Sand				
Speciman No.	<u>LC-90-S-1</u>	<u>LC-90-S-2</u>	<u>LC-90-S-3</u>	
7 Day Results	2800	3275	3225	
Avg. PSI				3100
% of Standard				100.0%

To Meet ASTM C-33-52T "N t less than 95% of Standard."

2 Lock Joint @ Colwich  
CC: 2 Weller  
1 Knoll  
1 Hess

Reference: ASTM C-87

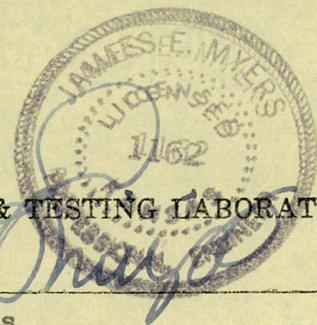
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FORM 501

**CERTIFIED**  
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

meets

WICHITA CHEMICAL & TESTING LABORATORIES

By: R. L. Phillips



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 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:  
 Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Date: January 6, 1956

Lab. Number: 812323-b  
 (REFER TO THIS NUMBER)

Submitted By: Lab. Inspector Date Received At Lab.: 12/28/55 Time: 8:30 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 154

### RESULTS OF TEST (Date Mailed 12/28/55) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-154-1</u>	<u>LC-154-2</u>	<u>LC-154-3</u>	
7 Day Strength	3225	3425	3400	
Average PSI				3350
% of Standard				99.4%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-89-S-1</u>	<u>LC-89-S-2</u>	<u>LC-89-S-3</u>	
7 Day Strength	3300	3450	3375	
Average PSI				3375
% of Standard				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard".

2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

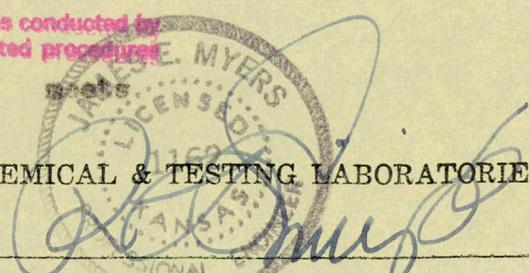
Reference: ASTM C-87

File: 1  
 FORM 501

CERTIFIED

We certify the above test was conducted in accordance with accepted procedures and that this material meets specification requirements.

WICHITA CHEMICAL & TESTING LABORATORIES

By:   
 R. L. Phillips

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 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 6, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812316 - b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 12/27/55

Time: 8:45 A.M.

Material Tested: CONCRETE SAND

No. of Samples: One - 100 lbs.

66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

Sample Designations:  
 Periodic Aggregate Check  
 Doless Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 153

RESULTS OF TEST (Date Mailed 12/28/55)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Doless Bros. Sand Specimen No. 7 Day Strength Average PSI % of Standard	<u>LC-153-1</u> 3275	<u>LC-153-2</u> 3200	<u>LC-153-3</u> 3325	3267 97.1%
B. Standard Ottawa Sand Specimen No. 7 Day Strength Average PSI % of Standard	<u>LC-89-S-1</u> 3300	<u>LC-89-S-2</u> 3450	<u>LC-89-S-3</u> 3375	3375 100.0%

To meet ASTM C-93-52T "Not less than 95% of Standard".

**CERTIFIED**

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

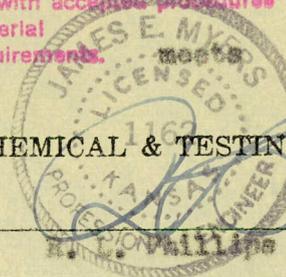
CC: 2 Lock Joint @ Colwich  
 2 Weller  
 1 Knoll  
 1 Hess

Reference: ASTM C-37

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



H. L. Phillips

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 LICENSED PROFESSIONAL  
 ENGINEERS

## REPORT OF TEST

MEMBERS OF:  
 AMERICAN CHEMICAL SOCIETY  
 AMERICAN SOCIETY FOR TESTING MATERIALS  
 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 4, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812304-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 12/23/55

Time: 8:00 A.M.

Material Tested: **CONCRETE SAND**  
 66" Water Transmission Lines  
 Project 2155  
 Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.  
 Sample Designations:  
 Periodic Aggregate Check  
 Doles Bros. Co. - Concrete Sand  
 Fine Aggregate Check No. 152

### RESULTS OF TEST (Date Molded 12/23/55) A.S.T.M. MORTAR STRENGTH TESTS (7 Day Results)

A. Doles Bros. Sand				
Specimen No.	<u>LC-152-1</u>	<u>LC-152-2</u>	<u>LC-152-3</u>	
7 Day Strength	3600	3425	3400	
Average PSI				3475
% of Standard				103.5%
B. Standard Ottawa Sand				
Specimen No.	<u>LC-88-S-1</u>	<u>LC-88-S-2</u>	<u>LC-88-S-3</u>	
7 Day Strength	3550	3550	2975	
Average PSI				3358
% of Standard				100.0%

To meet ASTM C-39-52T "Not less than 95% of Standard".

### CERTIFIED

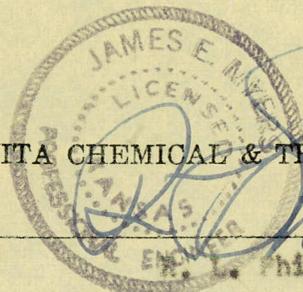
We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 CC: 1 Knoll  
 1 Hess

Reference: ASTM C-87

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_



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 AMERICAN SOCIETY OF CIVIL ENGINEERS  
 ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS

Test Made for:

Date: January 4, 1956

Lock Joint Pipe Co.  
 P.O. Box 137  
 Colwich, Kansas

Lab. Number: 812388-b

(REFER TO THIS NUMBER)

Submitted By: Lab. Inspector

Date Received At Lab.: 12/22/55

Time: 9:00 A.M.

Material Tested: CONCRETE SAND  
66" Water Transmission Lines  
Project 2155  
Black & Veatch, Cons. Engrs.

No. of Samples: One - 100 lbs.

Sample Designations:  
Periodic Aggregate Check  
Dolese Bros. Co. - Concrete Sand  
Fine Aggregate Check No. 151

### RESULTS OF TEST (Date Molding 12/23/55)

A.S.T.M. MORTAR STRENGTH TESTS  
 (7 Day Results)

A. Dolese Bros. Sand				
Specimen No.	<u>LC-151-1</u>	<u>LC-151-2</u>	<u>LC-151-3</u>	
7 Day Strength	3450	3375	3050	
Average PSI				3292
% of Standard				98.1%

B. Standard Ottawa Sand				
Specimen No.	<u>LC-88-S-1</u>	<u>LC-88-S-2</u>	<u>LC-88-S-3</u>	
7 Day Strength	3550	3550	2975	
				3358
				100.0%

To meet ASTM C-33-52T "Not less than 95% of Standard".

### CERTIFIED

We certify the above test was conducted by us in accordance with accepted procedures and that this material meets specification requirements.

2 Lock Joint @ Colwich  
 2 Weller  
 CC: 1 Knoll  
 1 Hess

Reference: ASTM C-37

File: 1  
 FORM 501

WICHITA CHEMICAL & TESTING LABORATORIES

By: \_\_\_\_\_