

REVISION

PILE PENETRATION CURVES

1-9-50

West Abut. Pier

County Carroll

T.H. 10 Date 5-6-42

S.H. 762 Sec. A

Sta. 81+54 Offset 6' Rt.

Bridge No. CA-542-15

Water Elev. Water Flowed From Test Hole

over Br. of Indian Fork Cr.

SOIL LOG ELEV. DEPTH

Fed. No. _____

933.5

Ground Line

929.0

Proposed Footer Elev.

Piling Steel Shell { 12" butt dia.
9 ga.

Hammer Vulcan 30-C Differential

Formula $R = \frac{2F}{St + 0.1}$

Reference

Hardin-228-A, Br. No. HA-31-36

925.0

Fill

921.0

Natural Ground Line

Soil Samples taken with 1 1/2" dia auger

Yellow

917.0

Test Rod

Sandy

Clay

(Wet)

913.0

Piling Prediction

909.0

Dark Blue Clay and Broken rock or Shale
Shale

905.0

Pile # 8

Pile # 7

Avg.

901.0

897.0

10 20 30 40 50 60 70 80 90 100 110 120 130

Akron Expressway

Br. No. 50-5-124

4-163 FILE 14 BR SHD RAVENNA 1-35 PM 1-18-4/ 50 MLM

SHD COLUMBUS ORTH ATT. SCHULER

REF. YOUR TT 779 OF 1017-50

DIAMOND PORTLAND CEMENT CO QUOTES CEMENT AT \$2.65 BBL AT PLANT
MIDDLEBRANCH, OHIO PLUS 5 CENSXX CENTS COST OF TRANSFER TO TRUCK PLUS
36 CENTS COST OF TRUCK HAUL. TOTAL COST OF UNIT AT PROJECT \$3.01
PER BBL.

J R LOOMIS COAL AND SUPPLY CO. AKRON QUOTES SAND M-2.1 AT \$2.40 PER
TON AT PROJECT. CLEVELAND SLAG CO. CLEVELAND QUOTES AGGREGATE M-3.6
AT \$1.55 PER TON PLUS \$1.13 FREIGHT PLUS 30 CENTS COST OF TRANSFER
TO TRUCK TO WHICH SHOULD BE ADDED 50 CENTS FOR 1.5 MILES TRUCK
HAUL MAKING A TOTAL OF \$3.48 PER TON.

SHD RAVENNA TURNER RUPERT

Dir. Port. Cem

Bbl. F.O.B. ¹⁸ 265 Middlebranch plus fit.

Rail Int. .14 cost or .55 bbl net.

Truck Int. ¹⁸ .31 per bbl. + .05 handling

55

SH 779 FILE 14 BR SHD COLS 11-12 AM 1-17-50 BB

SHD RAVENNA W. L. TURNER, D/E ATTN. H. L. RUPERT, DBE

PLEASE CHECK PRICES FOR CEMENT, SAND AND COARSE AGGREGATE YOU SUBMITTED JANUARY 10, 1950, FOR BRIDGE NO. SU-5-124, AS THEY ARE CONSIDERABLY HIGHER THAN PRICES USED ON OTHER JOBS IN SUMMIT COUNTY. THERE WILL BE OVER 12,000 CU. YDS. OF CONCRETE IN THE SUBSTRUCTURE OF THIS BRIDGE.

SHD COLS RICHARD ORTH, C/E BY V. E. SCHULER, COORD & EST. ENGR.

11:25 AM
BJR

State of Ohio - Department of Highways
Bureau of Bridges and Railroad Crossings

Division: 4

County: Summit

Memo To: **W. L. Turner, Division Engineer**

Route:

Attention: **H. L. Rupert, Div. Br. Engr.**

Section: **SUM-5-12.31**

From: **Richard Orth, Chief Engineer of Bridges**

Bridge No. **SU-5-124**
XXRX
Main Viaduct,
Akron Express-
way.

By: **V. E. Schuler, Coord. & Est. Engr.**

Date: **January 9, 1950**

Subject: **COST OF CEMENT AND AGGREGATE**

Please furnish us the costs of cement and aggregate for the preparation of an estimate for the bridge described above. Fill in the information indicated below and return to this office as soon as possible. Return one copy. *Please rush.*

V.E.S./jh

V. E. Schuler
V. E. Schuler

	Cement	Sand	Coarse Aggregate
Specification Section No.	M-1.1	M-2.1	M-3.6
Purchase unit	Bbl.	Ton	Ton
Cost of unit (including freight charges, if any)	2.65		1.55 1.13 frt. 2.68
At (give location of plant, yard or railroad siding)	Middlebranch, Ohio	Akron Ohio	Cleveland Ohio
Cost of transfer to truck	.05		.30
Length of truck haul, miles	2	1	1.5
Cost of truck haul	.36		.50
Total cost of unit at project	4.30	2.40	4.80 348

Quotation for cement is for cloth _____, or paper bags.

If for cloth bags, has deduction been made for return of bags?

Source of Materials (Name and location of producer):

Cement: Diamond Portland Cement Co. Middlebranch, O.

STATE HIGHWAY DEPT.

Sand: J.P. Loomis Coal and Supply Co. Akron O.

DIVISION No. 4

Coarse aggregate: Cleveland Slag Co. Cleveland O.

JAN 11 1950

Information furnished by

H. L. Rupert
(Name)

Div. Bridge Engr.
(Title)

RAVENNA, OHIO

Jan. 10-1950
(Date)

*J. R. Loomis Coal & Supply Co. Akron, Ohio quotes transit mixed concrete as follows:
Class "C" concrete \$13.25 F.O.B. job site.
Class "E" 12.70 "
Materials from sources shown on this sheet,*

CITY OF AKRON, OHIO

DEPARTMENT OF PUBLIC SERVICE

203 MUNICIPAL BUILDING

JEFFERSON 7111

MARVIN L. DAVIS
DIRECTOR OF PUBLIC SERVICE

August 31, 1949

Mr. W. L. Turner
Division Deputy Director
State Highway Department
Ravenna, Ohio

Re: Akron's Expressway

Dear Sir:

For your information and further handling we are handing you herewith the following data with reference to a portion of Akron's Expressway System.

1. Copy of memorandum of meeting held in Columbus (on Aug 11th) between Mr. Bergendoff and members of the State's Bridge Department.
2. Copy of Mr. Bergendoff's letter dated August 25th relative to Item 9 of the memorandum of the meeting.
3. Copy of Mr. Bergendoff's letter dated August 25th to Mr. Orth relative to the same matter.
4. Eight copies of Drawings S6, S7, S8 and S9 with external loads noted in red ink.

Very truly yours,

M. L. Davis
Director of Public Service

CPS:ru

Attachments

MEMORANDUM

AKRON EXPRESSWAY

Copy

In Columbus on August 11th, Mr. Sours and I spent considerable time with Mr. Overman and Mr. Rabe. Mr. Overman is Assistant to the Bridge Engineer and both Mr. Overman and Mr. Rabe expressed appreciation of the plans which had been submitted on the substructure and the T. S. & L. and other reports.

They had not had opportunity to review the plans directly. Several comments were made, however, concerning the review as far as they had opportunity to go.

1. On the detail of the slab drain as shown in our Sheet S-2, Report No. 6, it is felt that the edge of the asphalt pavement might be moved toward the centerline of roadway to leave a concrete shoulder at roadway surface level wider than the width of the edge channel flange. This will simplify the placing of the concrete in the upper layer of the slab to the depth of the asphalt pavement. Some discussion was held as to making the channel shallower and running the asphalt surfacing to the edge. The Department has been doing this but agreed that it gives a very rough and unfinished appearance to the edge of the asphalt pavement.

2. For the median strip on the approach roadway it was decided to leave off the tar paper joint as shown on T. S.L.-18 of Report No. 5. It was felt that the temporary median strip could be constructed merely with the construction joint between the slab and the median strip introducing certain steel dowels between the two constructions.

3. The asphaltic concrete surface course on the bridge and abutments shall be 2-1/2 ins. and not 2-3/4 ins. as indicated on some of the plans. The 2-1/2 ins. is the maximum thickness of the asphaltic surface course.

4. Mr. Overman raised the question as to the necessity for the transverse expansion joints at the abutments. I told him that this had been done in order to reduce the monolithic area of the abutments. We will make no change until we have further comments from the State Highway Department.

5. On the concrete pedestals for Piers 4 and 5, Mr. Overman advised that in similar mass concrete they had introduced vertical concrete pipe sections in order to eliminate cracking resulting from setting of the concrete. I suggested the possibility of using moderate heat of hardening cement. It was agreed that this would be looked into further.

6. The Department does not follow a policy of showing any boring data on plans. The boring logs are filed in the Bridge Department at Columbus and prospective bidders are given the opportunity to review and inspect all boring data.

3

7. We are to finish the checking on the substructure, bringing the plans into final stage. The State will advise us as to any suggested changes which are agreed to and which shall be incorporated on the plans in order that the plans may be formally presented through the proper channel.

8. On Sheet 23 of the drawings the footing for Pier 3 overlaps the north track of the A. C. & Y. Railroad. This pier as shown will require killing the track during construction operations. We should investigate the possibility of revising this footing in order that construction might be carried out without interfering with traffic on the northerly A. C. & Y. Railroad track.

9. In order that the P. R. A. may have design information for checking the substructure units, it was agreed that we would furnish a drawing or a tabulation which would show the superimposed loads on all substructure units.

10. The practice of the Ohio State Highway Department is to show the weights of bars in the bar bending tables. It is believed that a column can be added to each of the bar bending tables and weights shown in accordance with State practice.

R. N. Bergendoff

RNB:skd

August 15, 1949

CC: Mr. E. L. Davis
Mr. H. G. Sours
Mr. D. H. Overman

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

Kansas City 6, Mo.

August 25, 1949

Mr. M. L. Davis
Director of Public Service
City of Akron
203 Municipal Building
Akron, Ohio

Re: Little Cuyahoga River Valley Viaduct
Akron Expressway

Dear Mr. Davis:

As noted in Item 9 of my memorandum of August 15, 1949, regarding a conference held in Columbus with Messrs. Overman and Rabe of the Highway Department, we were to prepare tabulations showing external loads on substructure units. The purpose of furnishing this data was to permit checking of all substructure design features.

We have accordingly superimposed in red Drawings S6, S7, S8 and S9 of Report No. 6, the calculated external loads for which each substructure unit was designed. Fifteen sets of these drawings are being mailed to you.

The purpose of Report No. 6, transmitted with our letter of August 4, 1949, was to provide a record of the general design features which we understood had been approved by the City, State and Bureau of Public Roads. Suggested designs for lighting were also included and submitted for the first time in the report.

Should it be decided to proceed with advertising for bids on the substructure contract before superstructure plans are completed, Report No. 6 supplemented with copies of Drawings S6, S7, S8 and S9 transmitted herewith will provide data covering superstructure design to permit review and checking of the substructure plans.

Detailed design calculations have all been completed for the superstructure design. Copies of any part or all of such calculations can be furnished on request.

Very truly yours,

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

R. N. BERGENDOFF (SIGNED)

R. N. Bergendoff

RNB:akd
Separate Cover - 15 sets of drawings
CC: Mr. H. G. Sours

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

Kansas City 6, Mo.
August 25, 1949

WMM
Mr. Richard Orth
Chief Engineer of Bridges and Railroad Crossings
State of Ohio
Department of Highways
Columbus 15, Ohio

Re: Akron Expressway

Dear Mr. Orth:

Pursuant to our conference with Mr. Overman and Mr. Rabe of your Department on August 11, 1949, we have prepared drawings to show the external loads used in the design of each substructure unit for the Little Cuyahoga River Valley Viaduct.

Three copies of prints of Drawings S6, S7, S8 and S9 taken from Report No. 6 are transmitted herewith. On these drawings we have superimposed in red the calculated external loads for which each of the substructure units were designed.

Detailed design calculations for the design of the entire superstructure are completed, and should you desire copies of such calculations, we would be pleased to furnish them on request.

A number of copies have been forwarded directly to Mr. Davis, Director of Public Service, Akron, Ohio, in accordance with procedure previously agreed to for distribution. Copies are being mailed direct to you with the thought that some time might be saved in transmittal.

Very truly yours,

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

R. N. BERGENDOFF (SIGNED)
R. N. Bergendoff

RNB:skd
Separate Cover - 3 sets of drawings
CC: Mr. M. L. Davis
Mr. H. G. Sours