

GENERAL INFORMATION

INTRODUCTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF 6.0 MILES OF SR 32, BEGINNING APPROXIMATELY 1000 FEET SOUTH OF COUNTY ROAD 12 AT ARKOE, EXTENDING EASTWARD TO NORTHEASTWARD AND TERMINATING 550 FEET WEST OF TOWNSHIP ROAD 343, APPROXIMATELY 390 FEET NORTH OF SR-772. INCLUDED IN THIS REPORT ARE SOIL PROFILE FILES OF PROPOSED SERVICE ROAD A, RELOCATED TOWNSHIP ROAD 541, RELOCATED COUNTY ROAD 35, PROPOSED TOWNSHIP ROAD 288, PROPOSED SERVICE ROAD B, RELOCATED SR 772, PROPOSED COUNTY ROAD 12, PROPOSED TOWNSHIP ROAD 343 CONNECTOR, AND PROPOSED CHANNEL RELOCATION.

FOR MAXIMUM PROPOSED CUTS AND FILL EMBANKMENTS, SEE THE PROJECT INDEX ON THIS SHEET.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

THE ALIGNMENT TRAVERSES THE VALLEY AND PORTIONS OF THE SOUTH VALLEY WALL OF CHENOWETH FORK, AND THE FLOODPLAIN OF SUNFISH CREEK, IN AN AREA WHERE THIN TO MODERATELY DEEP RESIDUAL SOILS (ON THE VALLEY WALL) AND MODERATELY DEEP ALLUVIAL AND OUTWASH DEPOSITS (IN THE VALLEY AND ON THE FLOODPLAIN) OVERLIE SHALE AND SANDSTONE BEDROCK, OF UPPER DEVONIAN AND LOWER MISSISSIPPIAN AGES. ROCK EXPOSURES WERE OBSERVED AND MEASURED ALONG THE SOUTH VALLEY WALL AND BANKS OF CHENOWETH FORK.

EXPLORATION

EXPLORATORY BORINGS WERE MADE BY MEANS OF TRUCK-MOUNTED MECHANICAL SOIL AUGER, HAND AUGER (IN DIFFICULT ACCESS AREAS) AND ROTARY-TYPE DRILL RIG, BETWEEN SEPTEMBER 20 AND OCTOBER 25, 1967.

INVESTIGATIONAL FINDINGS

MATERIALS ENCOUNTERED IMMEDIATELY BELOW PROPOSED GRADE WERE COMPRISED OF SANDY SILT (A-4a), SILT CLAY (A-6a), WITH OCCASIONAL SANDY GRAVEL (A-2-4), GENERALLY HAVING LOW MOISTURE CONTENTS AND MOISTURE CONTENTS IN THE LOWER PORTIONS OF THE PLASTIC RANGE, AS WELL AS SHALE BEDROCK.

SHALE BEDROCK IS ANTICIPATED IN THE FOLLOWING EXCAVATION AREAS:

- SR 32- STATIONS 207+00 TO 211+00 - POSSIBLY IN THE RIGHT DITCH.
- STATIONS 222+50 TO 227+50 - IN THE RIGHT DITCH AND LOWER PORTION OF THE RIGHT BACKSLOPE.
- STATIONS 230+00 TO 231+00 - POSSIBLY IN THE RIGHT DITCH AND LOWER PORTION OF THE RIGHT BACKSLOPE.
- STATIONS 256+50 TO 260+50 - AT RIGHT GRADE AND IN THE RIGHT DITCH AND LOWER PORTION OF THE RIGHT BACKSLOPE.
- STATIONS 260+50 TO 261+50 - IN THE RIGHT DITCH AND LOWER PORTION OF THE RIGHT BACKSLOPE.
- STATIONS 284+00 TO 290+00 - POSSIBLY IN THE RIGHT DITCH AND LOWER PORTION OF THE RIGHT BACKSLOPE.
- STATIONS 302+50 TO 304+50 - POSSIBLY IN THE RIGHT DITCH.
- STATIONS 360+50 TO 364+50 - AT RIGHT GRADE AND IN THE RIGHT DITCH AND RIGHT BACKSLOPE.

SERVICE ROAD A- STATIONS 29+50 TO 31+50 - POSSIBLY IN THE DITCHES.

RELOCATED TOWNSHIP ROAD 541- STATIONS 15+50 TO 19+00 - AT GRADE AND IN THE DITCHES AND LOWER PORTIONS OF THE BACKSLOPES.

RELOCATED COUNTY ROAD 35- STATIONS 19+00 TO 24+00 - AT GRADE AND IN THE DITCHES AND BACKSLOPES.

FROST SUSCEPTIBLE SILTS WERE ENCOUNTERED WITHIN THREE FEET BELOW PROPOSED GRADE AT SR 32 STATION 441+55, SERVICE ROAD A STATION 30+50.

IN THE EMBANKMENT FOUNDATION AREAS, MATERIALS WERE PREDOMINANTLY COMPRISED OF SANDY SILTS (A-4a AND A-4b) AND SILT CLAY (A-6a), WITH SOME SANDY GRAVELS (A-1-b AND A-2-4) AND CLAY (A-7-5), GENERALLY HAVING LOW MOISTURE CONTENTS AND MOISTURE CONTENTS IN THE LOWER PORTION OF THE PLASTIC RANGE.

WET MATERIALS (SOME CONTAINING ORGANIC MATTER) WERE ENCOUNTERED AT SR 32 STATIONS 176+00, 180+00, 188+00, 192+00, 208+00, 212+00, 230+00, 244+00, 248+50, 272+00, 296+00, 299+00, 308+20, 312+25, 316+00, 320+00, 340+00, 380+00, 408+00, 413+75, 433+20, 438+80, 448+00, 456+00, 458+75, 461+00, AND THROUGHOUT THE FLOODPLAIN OF SUNFISH CREEK BETWEEN STATIONS 424+00 AND 430+50 PROPOSED TOWNSHIP ROAD 288 STATION 20+72.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS—608 SAMPLES TESTED

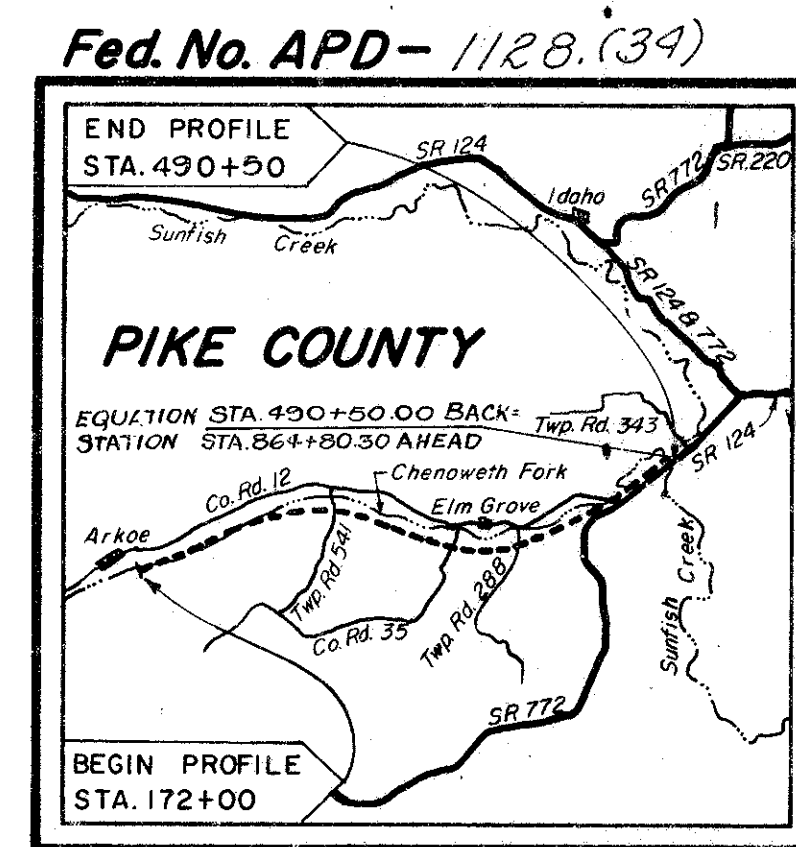
DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL	A-1-a(0)	A-1-a	66	15	6	-	13	-	NP	14	8
GRAVEL OR STONE FRAGMENTS WITH SAND	A-1-b(0)	A-1-b	61	12	6	-	21	-	NP	13	16
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4(0)	A-2-4	54	10	7	17	12	27	2	14	40
GRAVEL OR STONE FRAGMENTS WITH SAND SILT, AND CLAY	A-2-6(0)	A-2-6	62	7	4	14	13	37	13	21	2
SANDY SILT	A-4(4)	A-4a	28	9	10	31	22	27	3	15	154
SILT	A-4(8)	A-4b	1	1	6	56	36	29	6	23	147
ELASTIC SILT AND CLAY	A-5(9)	A-5	0	0	1	31	68	43	9	34	1
SILT AND CLAY	A-6(9)	A-6a	10	4	5	38	43	33	12	20	174
SILTY CLAY	A-6(11)	A-6b	1	1	1	45	52	39	17	20	6
ELASTIC CLAY	A-7-5(14)	A-7-5	1	3	8	39	49	52	20	32	9
CLAY	A-7-6(12)	A-7-6	4	2	3	34	57	44	18	27	36
WEATHERED SHALE											9
SHALE											6
BOULDERY ZONE											-
VARIOUS OTHER MATERIALS											-
SOD AND/OR TOPSOIL=X' - APPROXIMATE DEPTH.											-

- ⊕ INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT.
  - //— FREE WATER.
  - |— STATIC WATER LEVEL.
  - ⊗ NUMBER OF BLOWS FOR "STANDARD PENETRATION" TEST.  
X=NUMBER OF BLOWS FOR FIRST 6 INCHES.  
Y=NUMBER OF BLOWS FOR SECOND 6 INCHES.
  - B INDICATES BROKEN ROCK INTERVAL.
  - WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT.
- NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT, E.G., 15

SOIL PROFILE

PIKE COUNTY  
PIK-32-3.21  
OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.



LOCATION MAP  
Recon - J.F.S. - 8/8/67 to 8/18/67.  
Auger - L.M.D., J.A.G., T.R.S. - 9/20/67 to 9/29/67,  
10/12/67 to 10/25/67, 10/11/67 to 10/25/67.  
Drilling - D.W.B. - 10/5/67 to 10/9/67, 10/11/67 to 10/24/67.  
Drafting - M.S.F., K.J.S., C.L.L. - 4/12/68.

FROM STATIONS	TO	PROJECT INDEX					
		PLAN VIEW SHEET	PROFILE SHEET	CUT MAX.	FILL EMB. MAX.		
<b>MAINLINE</b>							
172+00	-	204+00	-	4	4	5'	11'
204+00	-	236+00	-	5	5	30'	13'
236+00	-	268+00	-	6	6	32'	14'
268+00	-	300+00	-	7	7	29'	16'
300+00	-	332+00	-	8	8	16'	15'
332+00	-	364+00	-	9	9	20'	11'
364+00	-	396+00	-	10	10	3'	10'
396+00	-	428+00	-	11	11	2'	9'
428+00	-	460+00	-	12	12	20'	26'
460+00	-	490+50	-	13	13	7'	38'
<b>PROPOSED SERVICE ROAD A</b>							
0+00	-	37+00	-	4	14	6'	10'
<b>RELOCATED TOWNSHIP ROAD 541</b>							
9+00	-	22+00	-	7&15	15	21'	2'
<b>RELOCATED COUNTY ROAD 35</b>							
11+00	-	28+00	-	9&15	15	25'	10'
<b>PROPOSED TOWNSHIP ROAD 288</b>							
15+00	-	23+00	-	10	16	6'	2'
<b>PROPOSED SERVICE ROAD B</b>							
0+00	-	10+00	-	10	16	5'	7'
<b>RELOCATED SR 772</b>							
550+00	-	568+00	-	11&16	16	6'	-
<b>PROPOSED COUNTY ROAD 12</b>							
3+00	-	6+00	-	12	17	12'	-
<b>PROPOSED TOWNSHIP ROAD 343 CONNECTOR [PIK-32&amp;124-(9.65)(17.12)]</b>							
16+66	-	22+66	-	14	17	-	12'
<b>PROPOSED CHANNEL RELOCATION</b>							
5+00	-	37+00	-	13	17	36'	2'

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. \*DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

Main data table with columns: STATION & OFFSET, DEPTH, % FROM TO AGG., % C.S., % F.S., % SILT, % CLAY, L.L., P.I., % W.C., % SHTL CLASS. Includes three columns of data for stations 230+00 to 336+00.

SOIL PROFILE

PIKE COUNTY PIK-32-3.21

OHIO STATE HIGHWAY TESTING LABORATORY 1620 W BROAD ST COLUMBUS 23, OHIO

2 32

24

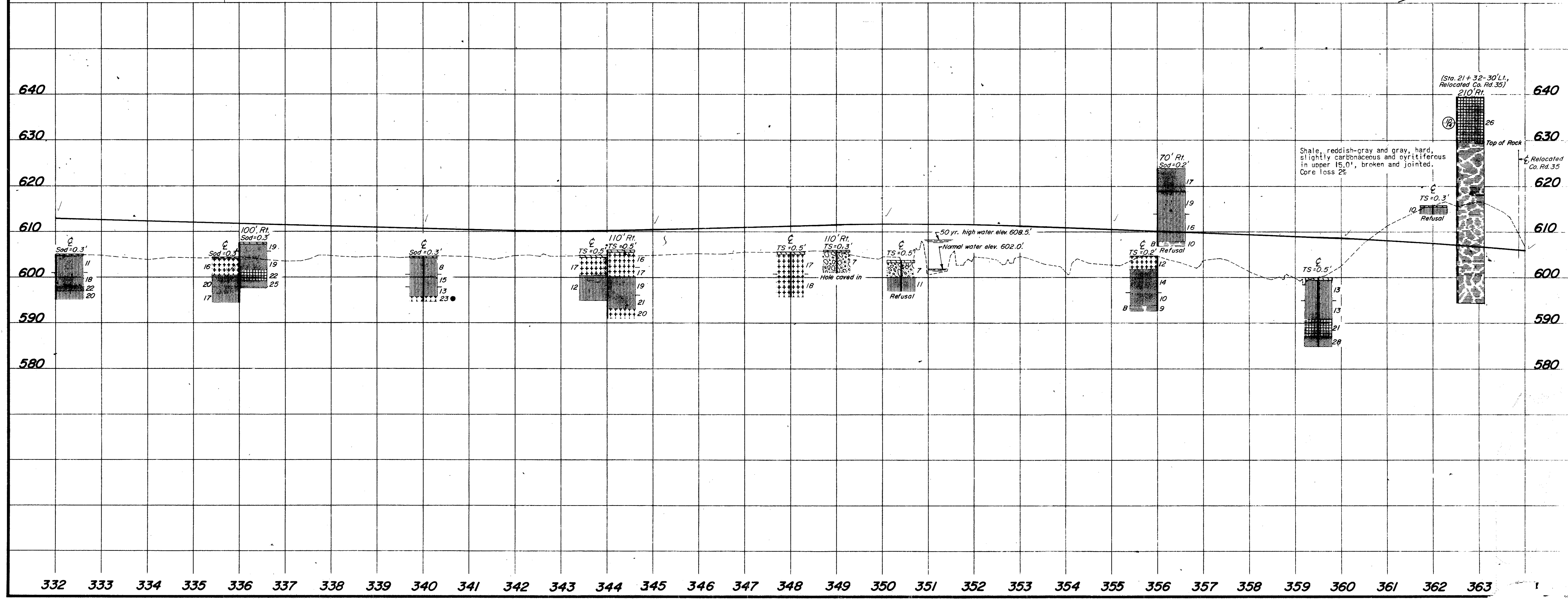
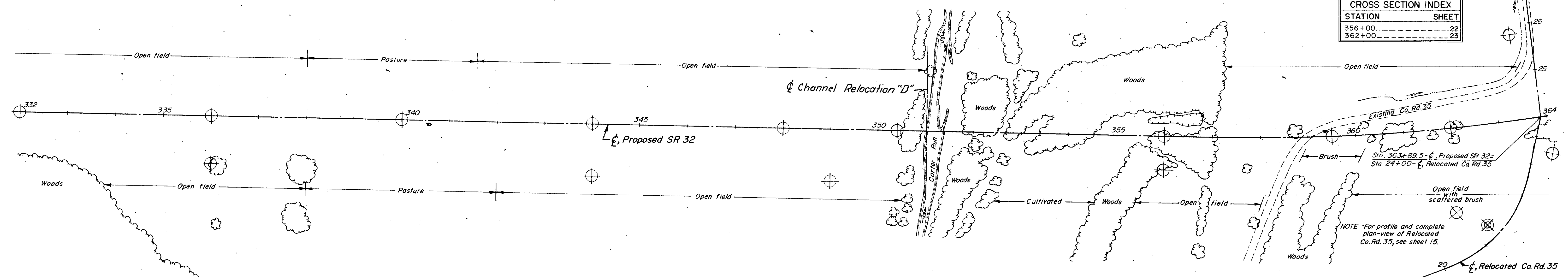
Summary table with columns: STATION & OFFSET, DEPTH, % FROM TO AGG., % C.S., % F.S., % SILT, % CLAY, L.L., P.I., % W.C., % SHTL CLASS. Includes three columns of data for stations 336+00 to 408+00.

**SOIL PROFILE**  
**PIKE COUNTY**  
**PIK-32- 321**  
**OHIO STATE HIGHWAY TESTING**  
**LABORATORY**  
 1620 W. BROAD ST. COLUMBUS, OHIO 43223

9  
32  
9  
24

**CROSS SECTION INDEX**

STATION	SHEET
356+00	22
362+00	23



GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE FLOODPLAIN OF CARTERS RUN AND CHENOWETH FORK, NEAR THEIR CONFLUENCE, IN AN AREA WHERE MODERATELY DEEP ALLUVIUM AND OUTWASH OVERLIES SHALE AND SANDSTONE BEDROCK, OF DEVONIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE BETWEEN MARCH 18 AND 20, 1968 AND SIX DRIVE ROD PENETRATION TESTS, MADE ON APRIL 30 AND MAY 1, 1968.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED LOOSE TO VERY DENSE INTERVALS OF SANDS, SILTS, GRAVELS, AND BOULDERS TO BEDROCK SURFACE, ENCOUNTERED AT 31 AND 40-FOOT DEPTHS, ELEVATIONS 574 AND 564 FEET. THE BORINGS WERE TERMINATED AT 40 AND 50-FOOT DEPTHS, ELEVATIONS 565 AND 554 FEET, AFTER PENETRATING 9 AND 10 FEET OF BEDROCK.

THE ROD SOUNDINGS ENCOUNTERED GENERALLY MEDIUM LOW RESISTANCE TO PENETRATION WITH INCREASING DEPTH, AND WERE TERMINATED DUE TO NEAR-REFUSAL TO PENETRATION AT 30 TO 33-FOOT DEPTHS, ELEVATIONS 574 TO 571 FEET, CONSIDERED TO BE ON BEDROCK SURFACE IN THE FORWARD PORTION OF THE SITE, AND IN DENSE SANDS, SILTS AND GRAVELS IN THE REAR PORTION, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN THE ROD SOUNDING HOLES.

- Auger Boring Location - Plan View.
Press and / or Drive Sample and / or Core Boring Location - Plan View.
Drive Rod Penetration Resistance Sounding Location - Plan View.
Capped Pile
Footing
Footing on Pile
Top of Rock

LEGEND

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
Drive Rod Penetration Resistance Sounding Log - Profile
Resistance 'R' < 10,000 lbs.
Resistance 'R' > 10,000 lbs.
Indicates Final Measurement of Penetration, in Inches.
Indicates Free Water Elevation.
Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
Weathered Indurated Clay
Indurated Clay
Weathered Shale
Shale
Boulders
Weathered Sandstone
Sandstone
Leached Dolomite
Dolomite
Leached Limestone
Limestone

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45 degree cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity 'R', in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value 'R' against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

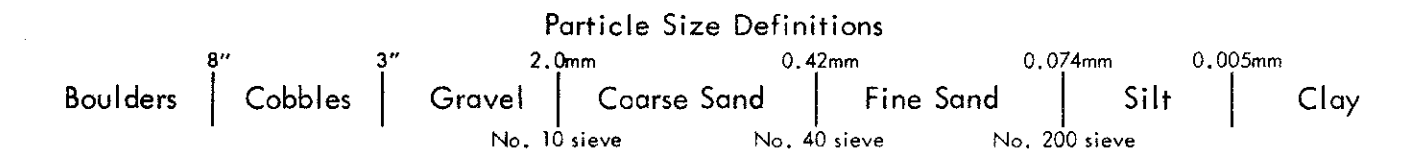
Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



LOG OF BORING
Date Started 3-18-68
Date Completed 3-19-68
Boring No. B-1
Sampler Type SS
Casing Length 40'
Station & Offset 350+45, 54' Lt. (Rear Abutment)
Water Elev.
Surface Elev. 603.6'

Table with columns: Elev., Depth, Snd. Pen (N), Rec. ft., Loss ft., Description, Sample No., Physical Characteristics (Agg, C.S., F.S., Silt, Clay, L.L., P.I., W.C.), SHTL Class. Data points include descriptions like 'Brown Silty Sandy Gravel' and 'Gray Silty Gravel'.

LOG OF BORING
Date Started 3-20-68
Date Completed 3-20-68
Boring No. B-16
Sampler Type SS
Casing Length 30'
Station & Offset 351+68, 54' Rt. (Forward Abutment)
Water Elev.
Surface Elev. 604.8'

Table with columns: Elev., Depth, Snd. Pen (N), Rec. ft., Loss ft., Description, Sample No., Physical Characteristics (Agg, C.S., F.S., Silt, Clay, L.L., P.I., W.C.), SHTL Class. Data points include descriptions like 'Brown Silty Sandy Gravel with Boulders' and 'Gray Silty Gravel with Boulders'.

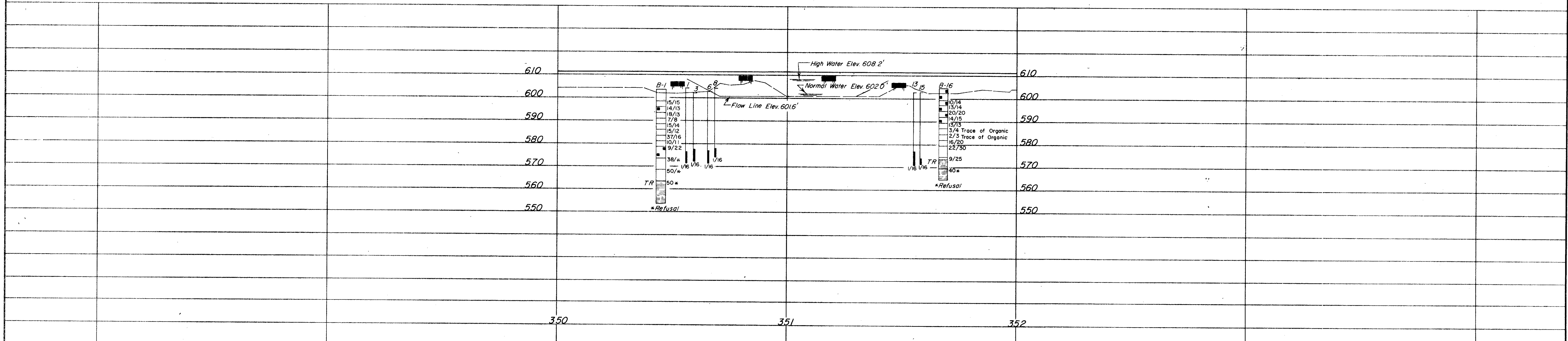
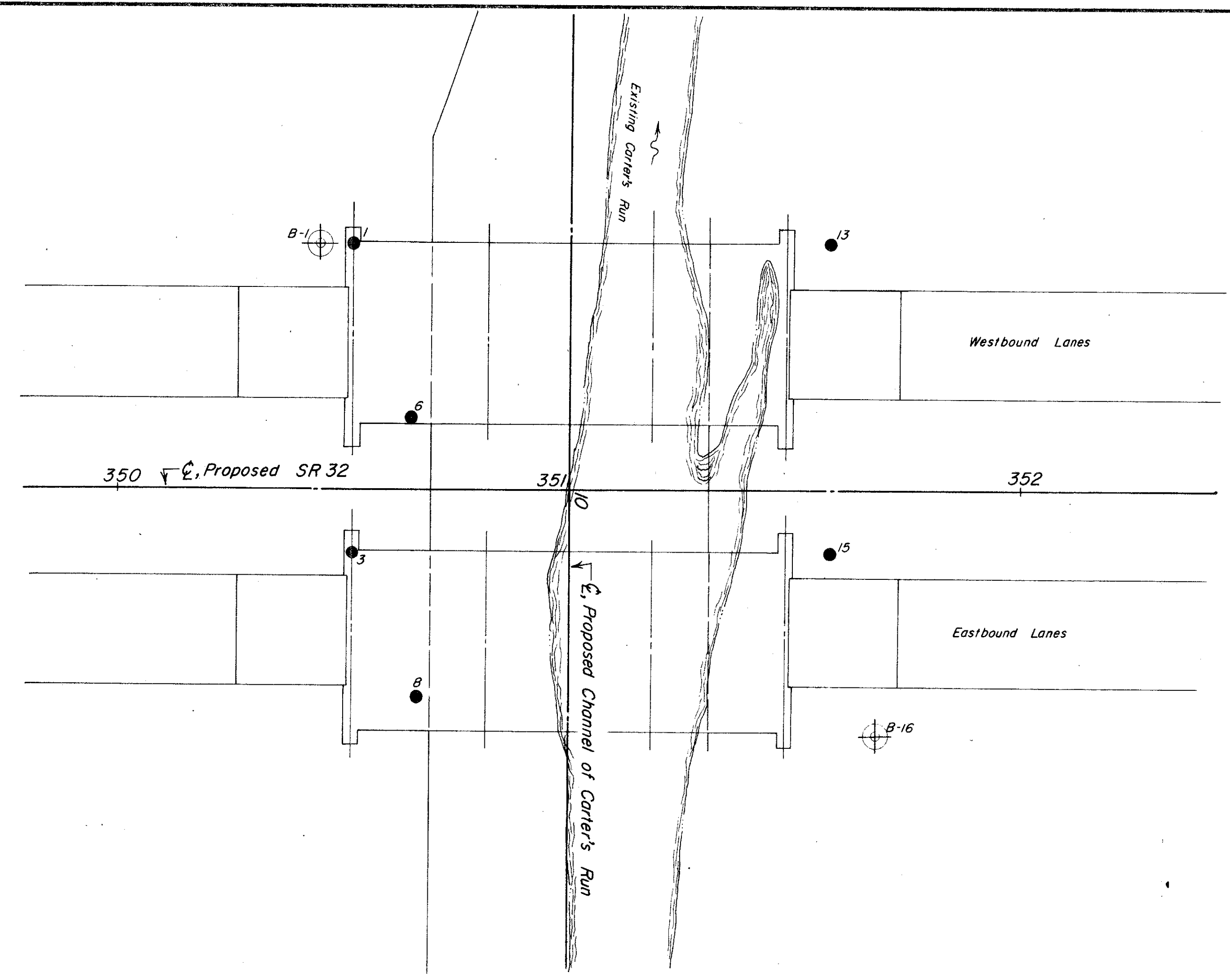
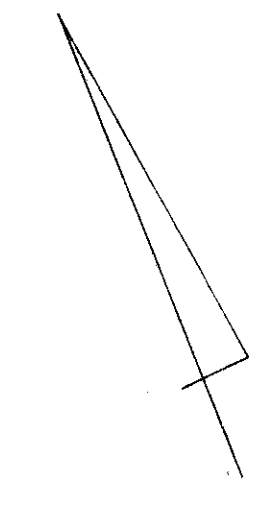
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. PIK-32-0669 L/R
OVER CARTER'S RUN
SEC. PIK-32-321

CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 5/10/68

MICROFILMED  
DEC 31 1965



OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

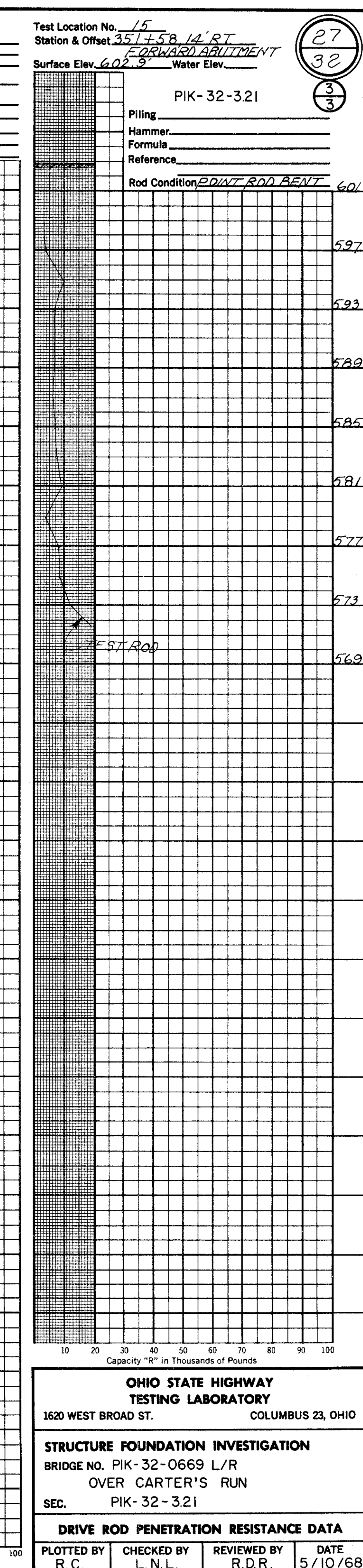
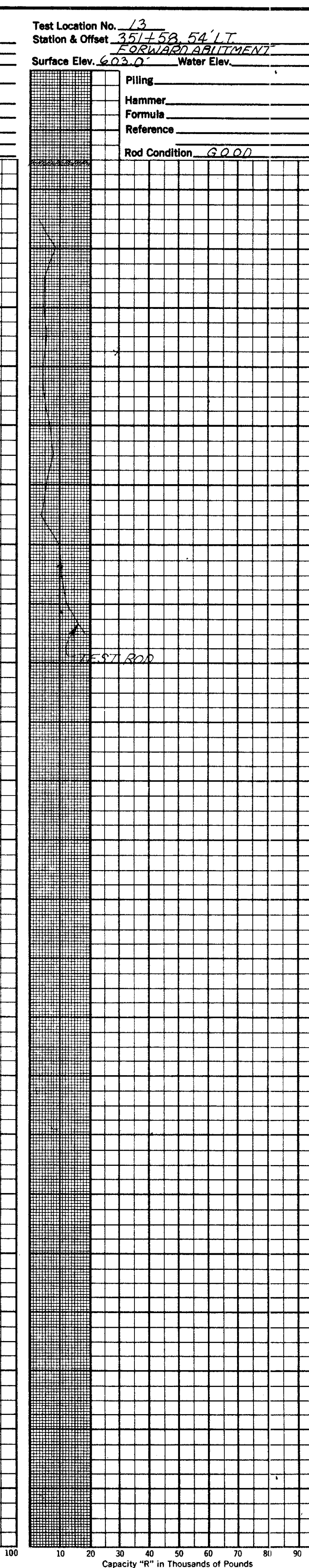
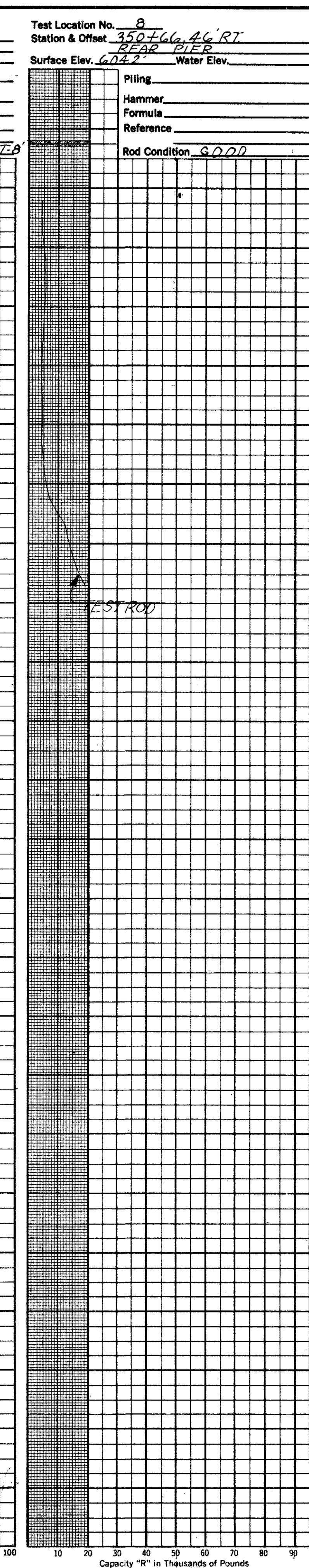
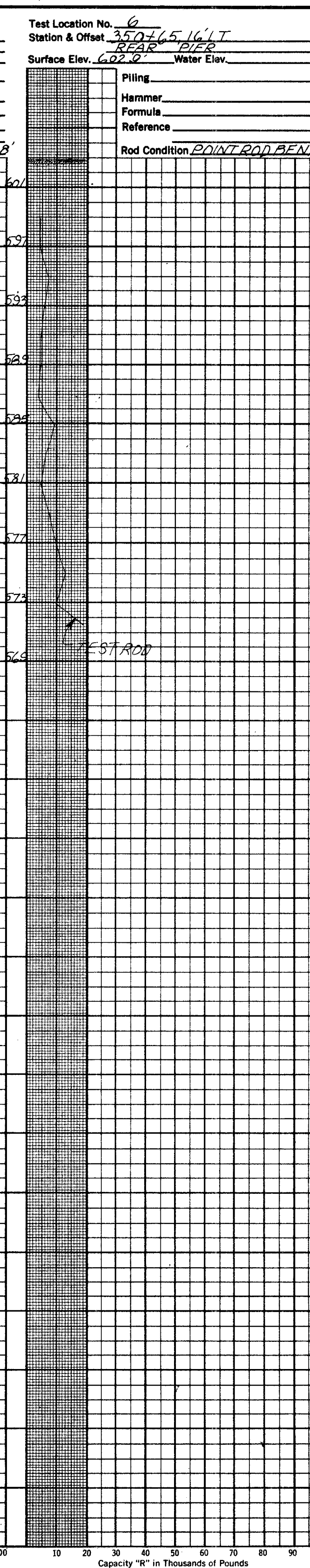
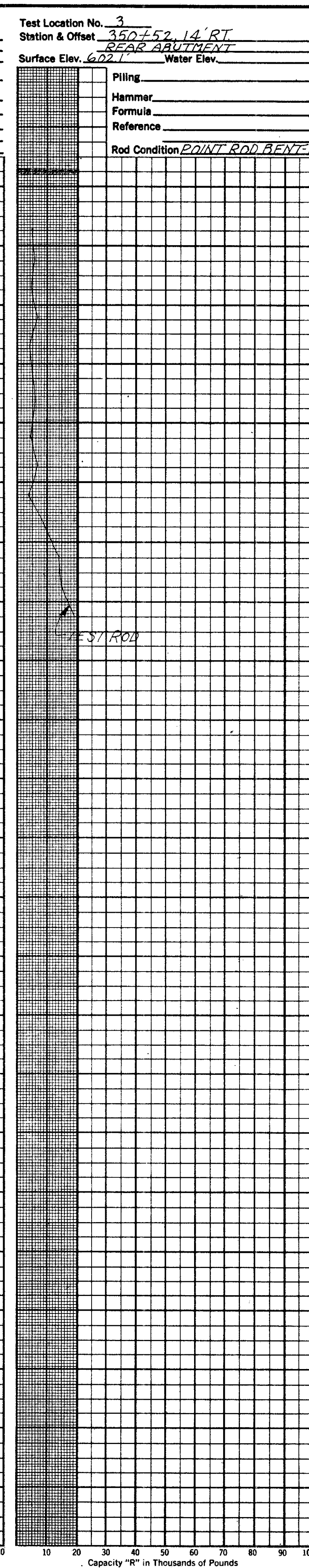
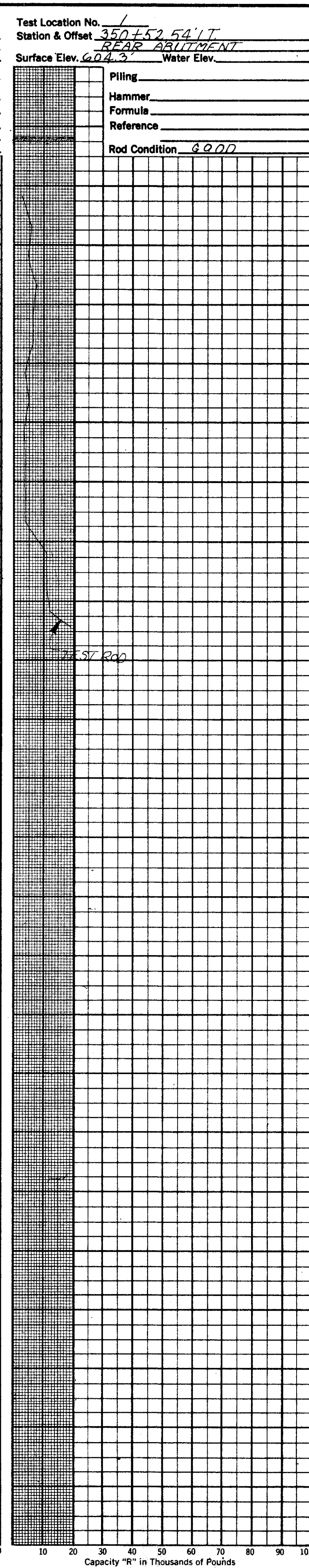
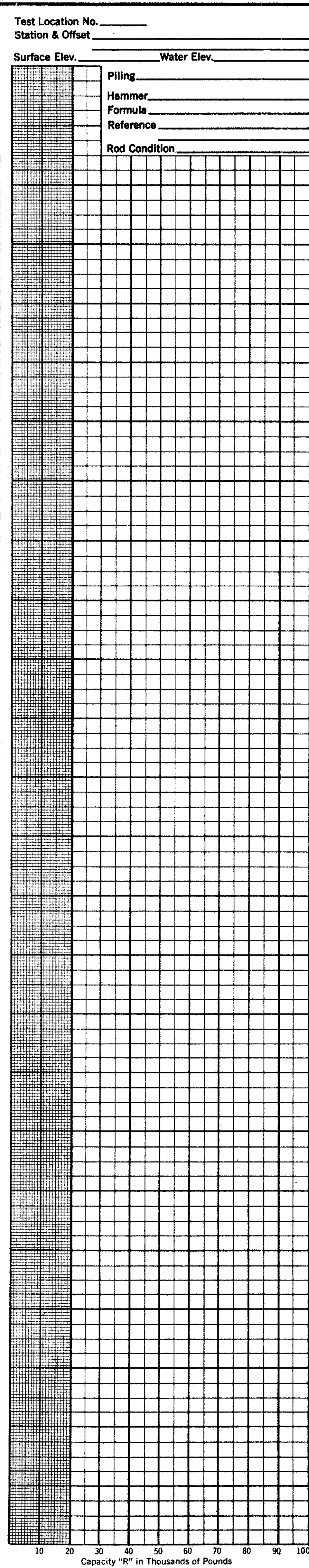
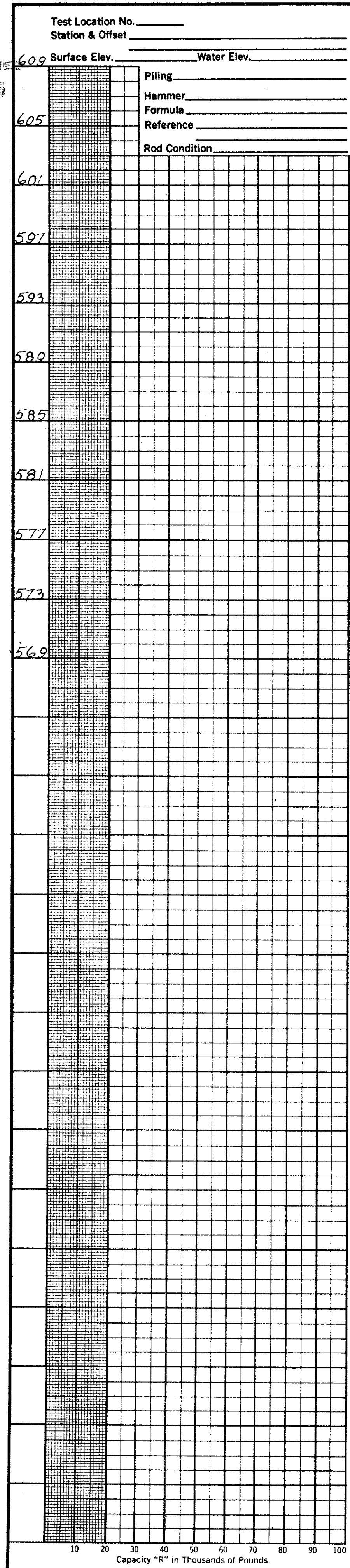
STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. PIK-32-0669 L/R  
OVER CARTER'S RUN  
SEC. PIK-32-321

PLAN AND PROFILE

DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 5/10/68
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SCALE: 1" = 20'

30  
MICROFILMED  
DEC 31 1985



27  
32  
3  
3

**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. PIK-32-0669 L/R  
OVER CARTER'S RUN  
SEC. PIK-32-321

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 5/10/68
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