

**GEOLOGY OF THE SITE**

THE STRUCTURE SITE IS LOCATED ON THE GLACIATED LAKE PLAIN REGION, IN AN AREA WHERE MODERATELY DEEP GLACIAL-DERIVED SOIL OVERLIES BEDROCK, OF DEVONIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS, MADE ON JANUARY 31 AND FEBRUARY 1, 1973.

**INVESTIGATIONAL FINDINGS**

THE BORINGS ENCOUNTERED SILTS AND CLAYS, CONTAINING VARIOUS AMOUNTS OF GRAVEL, SAND AND SOME COBBLES, INCREASING IN DENSITY WITH INCREASE IN DEPTH. THE BORINGS WERE TERMINATED AT 26 AND 36-FOOT DEPTHS, ELEVATIONS 600 AND 591 FEET, AFTER PENETRATING IN EXCESS OF 10 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

BEDROCK SURFACE WAS NOT ENCOUNTERED.

- 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

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone

**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.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° 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.

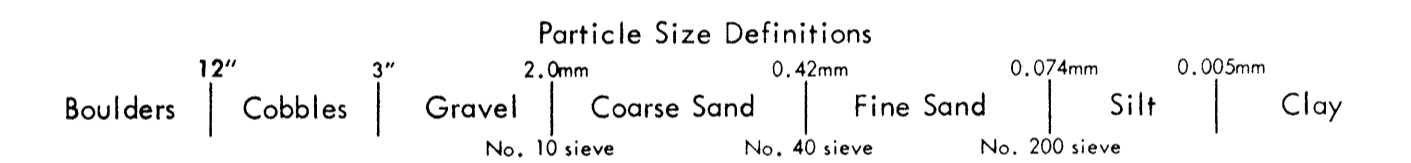
**Drive Sample Borings - Drive-Press Sample Borings**

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-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.



Date Started: 1-31-73, Date Completed: 1-31-73, Boring No.: B-1, Station & Offset: 288+49, 75' RT. (ABUTMENT), Surface Elev.: 627.1'

Elev	Depth	Std Pen (N)	Rac ft	Loss ft	Description	Sample No	Physical Characteristics										SHTL Class		
							% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	WC	U	CI		MI	
627.1	0																		
624.6	2.5	7/8			BROWNISH-GRAY SANDY GRAVELLY CLAY	1	31	11	12	25	21	28	11	10					A-6a
622.1	5	8/9			BROWN SANDY GRAVELLY SILT	2	28	6	11	32	23	25	7	21					A-4a
617.1	10	6/11			GRAY SANDY CLAY	3	7	7	11	38	37	27	11	16					A-6a
614.6	12.5	7/9			GRAY SANDY CLAY	4	10	9	10	38	33	28	12	16					A-6a
612.1	15	7/13			GRAY SANDY SILT	5	4	7	10	39	40	25	9	15					A-4a
609.6	17.5	8/14			GRAY SANDY CLAY	6	4	9	11	36	40	28	11	16					A-6a
607.1	20	10/14			GRAY CLAYEY SILT	7	3	5	6	39	47	27	9	20					A-4a
602.1	25	16/24			GRAY SANDY SILT	8	9	8	13	39	31	24	8	13					A-4a
597.1	30	17/20			GRAY SANDY SILT	9	10	10	13	36	31	22	4	13					A-4a
592.1	35	13/20			GRAY SANDY SILT	10	12	11	12	34	31	23	7	13					A-4a

BOTTOM OF BORING

Date Started: 1-31-73, Date Completed: 2-1-73, Boring No.: B-2, Station & Offset: 288+97, 63' LT. (ABUTMENT), Surface Elev.: 626.5'

Elev	Depth	Std Pen (N)	Rac ft	Loss ft	Description	Sample No	Physical Characteristics										SHTL Class			
							% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	WC	U	CI		MI		
626.5	0																			
621.5	5	6/7			GRAY SANDY GRAVELLY CLAY	1	18	6	9	30	37	31	12	18						A-6a
619.0	7.5	13/17			GRAY CLAYEY SILT	2	3	7	2	47	41	29	10	19						A-4a
616.5	10	15/23			GRAY GRAVELLY CLAY WITH COBBLES	3	31	5	8	29	27	30	11	20						A-6a
614.0	12.5	10/12			GRAY SANDY SILT	4	5	6	10	40	39	27	9	16						A-4a
611.5	15	16/22			GRAY SANDY SILT	5	9	8	16	37	30	22	7	14						A-4a
609.0	17.5	16/21			GRAY SANDY GRAVELLY CLAY	6	21	7	10	33	29	28	11	13						A-6a
606.5	20	18/25			GRAY SILT AND CLAY	7	0	0	0	46	54	34	14	21						A-6a
601.5	25	17/25			GRAY SILT AND CLAY	8	0	2	4	42	52	30	12	24						A-6a

BOTTOM OF BORING

TRACINGS TO J. JUSTIN 2-11-73

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  
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LAK-91-0547  
PEDESTRIAN OVERPASS  
SEC. LAK-91-5.47

CHECKED BY: R. D. R. REVIEWED BY: G. P. H. DATE: 2/9/73