



May 19, 2023

ODOT District 12
5500 Transportation Boulevard
Garfield Heights, OH 44125

Attention: Mr. Kyle J. Dohlen, P.E.

Reference: **District 12/3 Subsurface Investigation for Pavement & Bridges
PID No. 114573 Agreement No. 36312**

**Pavement Core Exploration – Data Report
Task Order No. D12-17
LAK-640-0.00 Pavement Cores (PID 89274)**
Willowick and Eastlake, Lake County, Ohio
S&ME Project No. 216069T

Mr. Dohlen:

S&ME, Inc. (S&ME) has completed the scope of work requested in the March 8, 2023, ODOT District 12 (D12) Task Order Request for Proposal (RFP) for the above referenced LAK-640-0.00 pavement coring project. S&ME's proposal for this work, dated March 24, 2023, was authorized by D12 via email on April 6, 2023.

Scope of Work

The authorized scope of work included performing seven (7) cores through the existing pavement along Vine Street (State Route 640) between Lakeshore Boulevard and State Route 2 in Willowick and Eastlake, Lake County, Ohio. Approximate locations for the cores were provided by ODOT D12. A Vicinity Map (Plate 1 in the Attachments) presents the general project location, and Plates 2A through 2G present a more detailed view of the approximate locations of the completed pavement cores.

Field Exploration

S&ME visited the site on May 5, 2023, to select and mark the core locations. Ohio 811 was contacted to locate and mark underground utilities in the vicinity of the proposed core locations. S&ME and our sub-consultant, Ohio Concrete Sawing and Drilling visited the site on May 9, 2023, to perform the pavement coring.

At each location, the pavement was cored with a nominal 4-inch diameter diamond tipped core bit. The pavement cores were retrieved, and the length of the recovered pavement cores were measured and recorded. After recovering the cores at X-003-0-23, X-004-0-23, and X-005-0-23, S&ME observed the presence of a sandy material beneath the pavers. S&ME then explored an additional 2 to 6 inches below the bottom of the brick pavers to investigate whether additional pavement layers were present beneath the brick. No such materials were encountered.



The recovered cores were examined and photographed in the field, and their general conditions were noted. The cores were labeled, packaged, and delivered to S&ME's facility in Solon, Ohio. A publicly available mapping program was used to convert measurements taken from the core locations to nearby side streets and curbs to obtain approximate latitude/longitude coordinates. Prior to demobilizing from the site, each core hole was backfilled with cold-patch asphalt.

Findings and Observations

An abbreviated summary of the observations of the recovered cores is as follows:

- Asphalt was encountered at the pavement surface at each location, ranging from 3 to 10¼ inches thick. Asphalt thicknesses in the left travel lanes (X-003-0-23, X-004-0-23, and X-005-0-23) were 4½, 8, and 10 inches, respectively. The asphalt thicknesses at the locations along the right lanes (X-001-0-23, X-002-0-23, X-006-0-23, and X-007-0-23) ranged from 3 to 3¾ inches.
- Geosynthetic fabric was observed between the upper asphalt courses in cores X-001-0-23 and X-002-0-23, at the depths of 1¾ and 1½ inches, respectively.
- Slag concrete was encountered beneath the asphalt at X-001-0-23 and X-002-0-23, with thicknesses of 8¼ and 7¾ inches, respectively. Reinforcing steel was observed in the concrete at X-001-0-23 and X-002-0-23, approximately 3¾ and 2¼ inches beneath the top of concrete, respectively.
- Concrete was encountered beneath the asphalt at X-006-0-23 and X-007-0-23, with thicknesses of 8¾ and 8¼ inches, respectively.
- Approximate 4-inch-thick brick pavers were encountered beneath the asphalt at cores X-003-0-23, X-004-0-23, and X-005-0-23.

The core location coordinates, material thicknesses, and general descriptions of the encountered materials are summarized on the *Pavement Core Identification Summary* sheet included as Plate 3 in the Attachments. Photographs of the recovered cores are presented on Plates 4 through 7 in the Attachments.

We appreciate being given the opportunity to be of service. Please do not hesitate to contact our office if you have any questions concerning our report.

Sincerely,

S&ME, Inc.

Shawn H. Smith, P.E.
Project Engineer

Richard S. Weigand, P.E.
Principal Engineer/Senior Reviewer

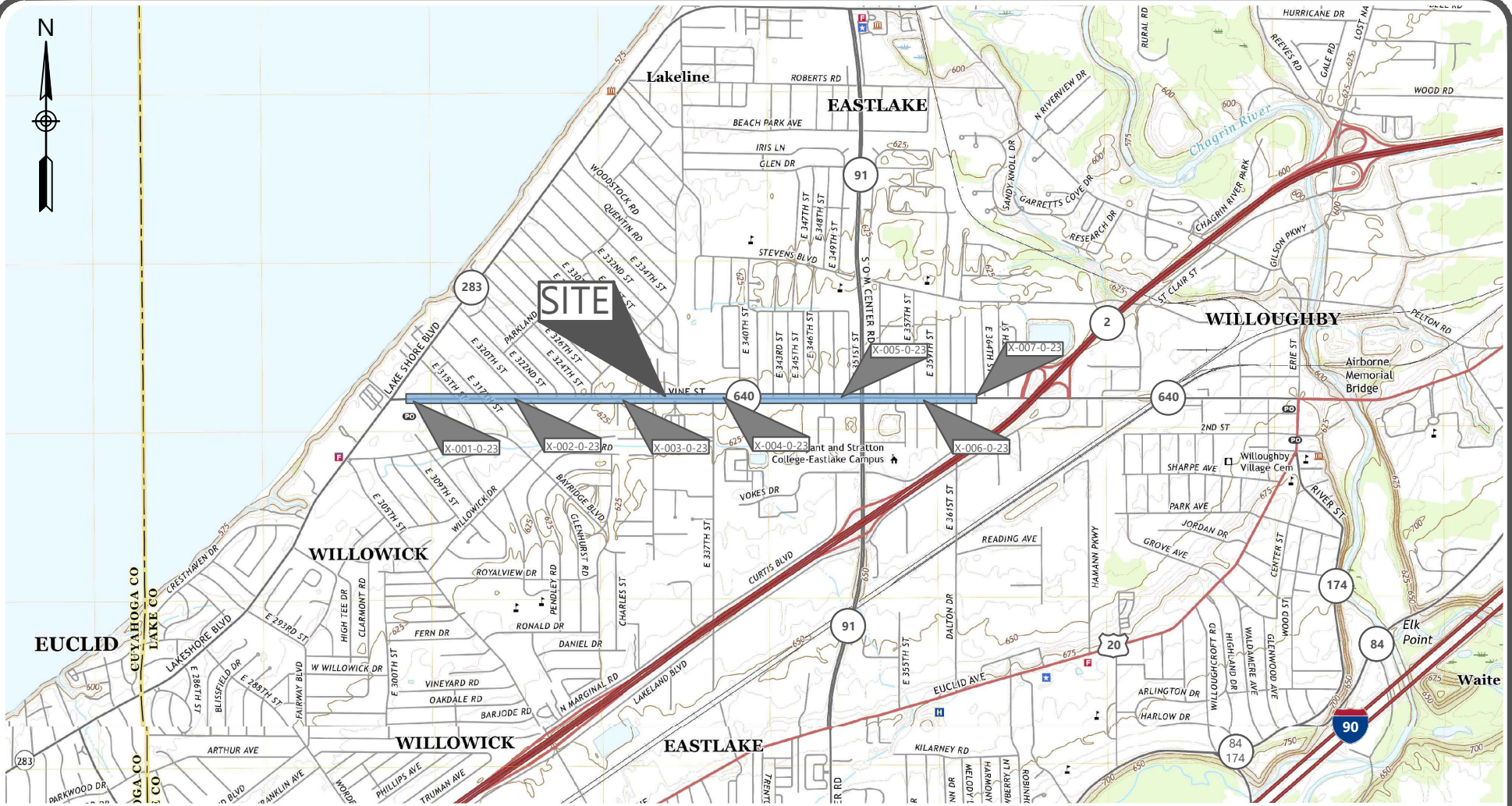
Attachments: Vicinity Map (1 sheet)
Plans of Cores (7 sheets)
Pavement Core Identification Summary (1 sheet)
Pavement Core Photos (4 sheets)

Submitted: Email Copy (Kyle.Dohlen@dot.ohio.gov)



District 12/3 Subsurface Investigation for Pavement & Bridges
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio
S&ME Project No. 216069T


Attachments

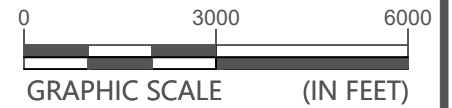


Project Location
Lake County, Ohio

USGS Mapping:
Eastlake and Mayfield Heights USGS Quads

LEGEND

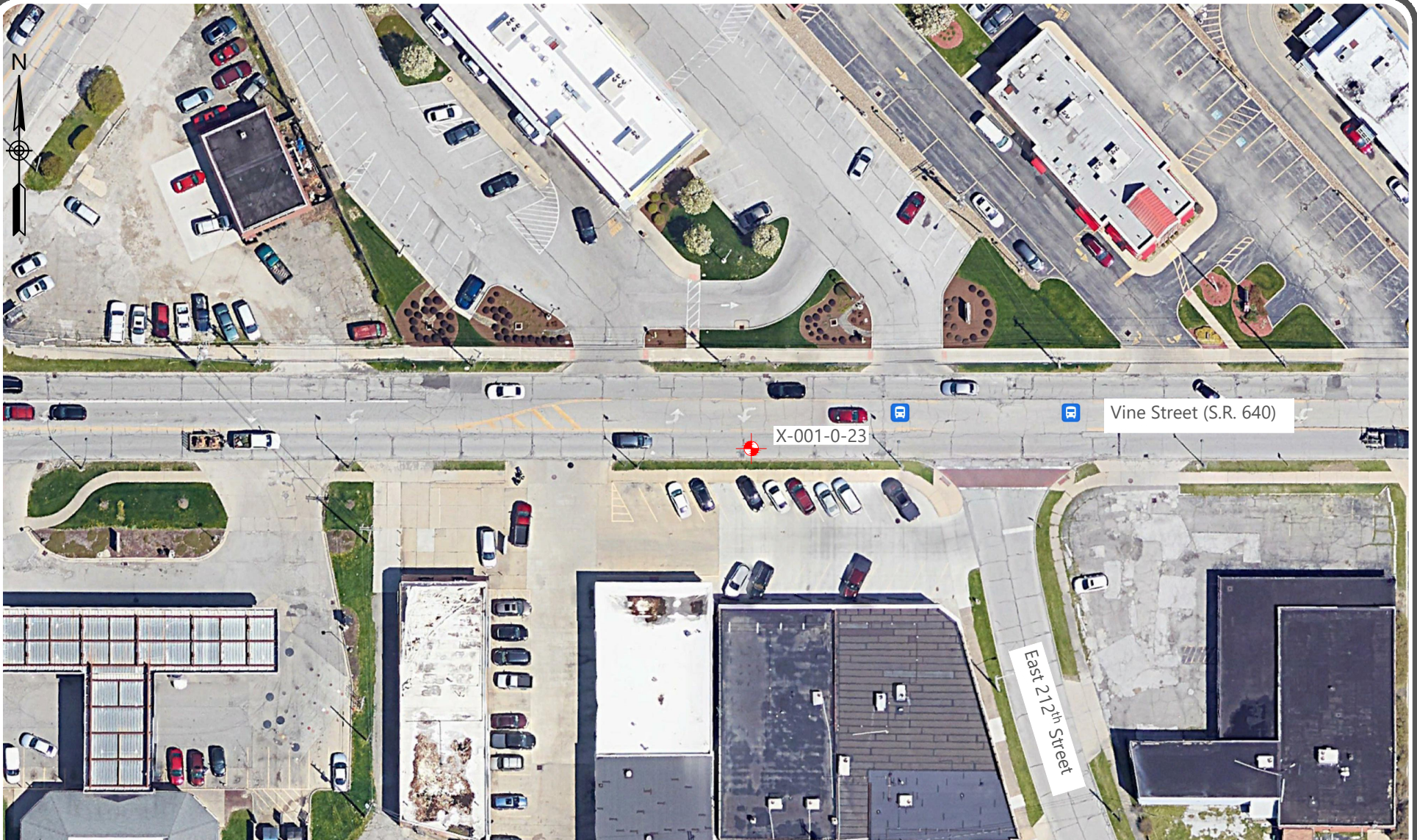
 Approximate core locations



Vicinity Map

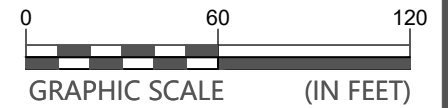
Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:	FIGURE NO.
GRAPHIC	1
DATE:	
PROJECT NUMBER	
216069T	



LEGEND

 X-001-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

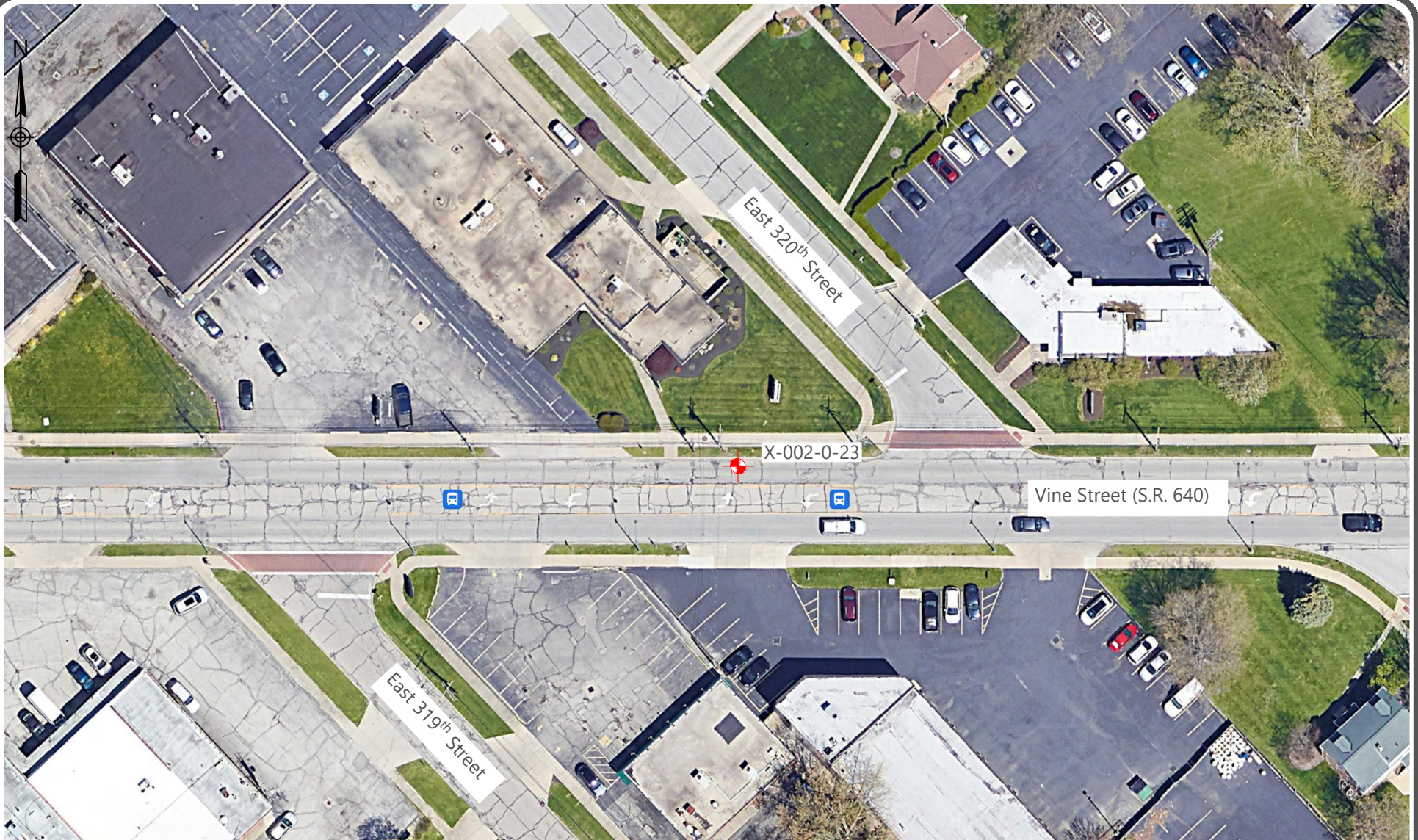
05-17-2023

PROJECT NUMBER


216069T

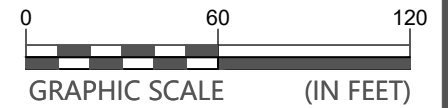
FIGURE NO.

2A



LEGEND

 X-002-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

05-17-2023

PROJECT NUMBER


216069T

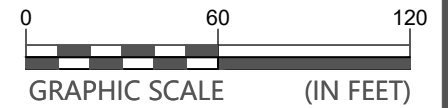
FIGURE NO.

2B



LEGEND

 X-003-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

05-17-2023

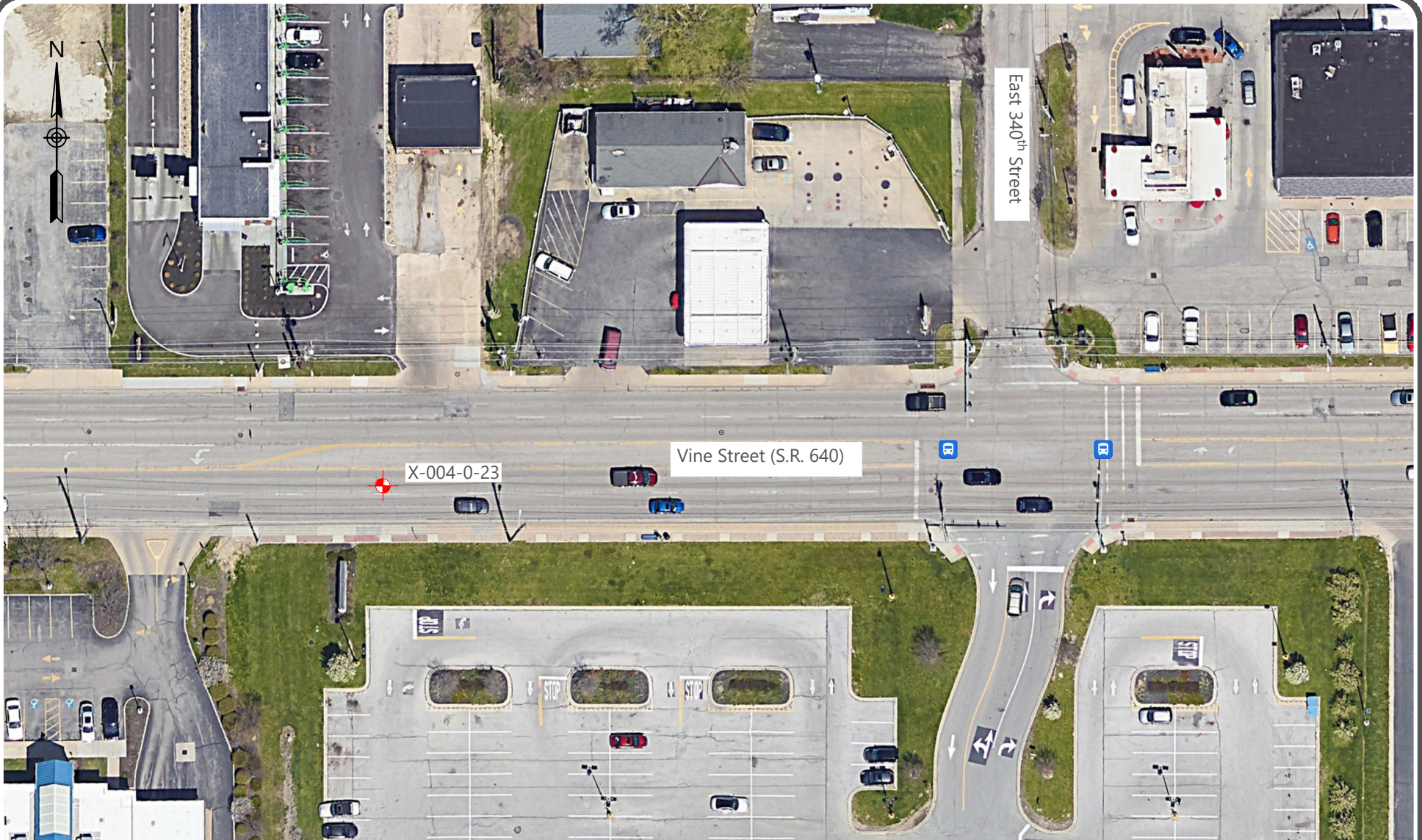
PROJECT NUMBER

216069T

FIGURE NO.

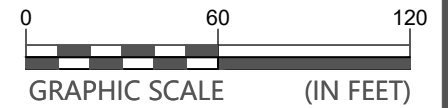
2C





LEGEND

 X-004-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
 LAK-640-0.00 Pavement Cores (PID 89274)
 Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

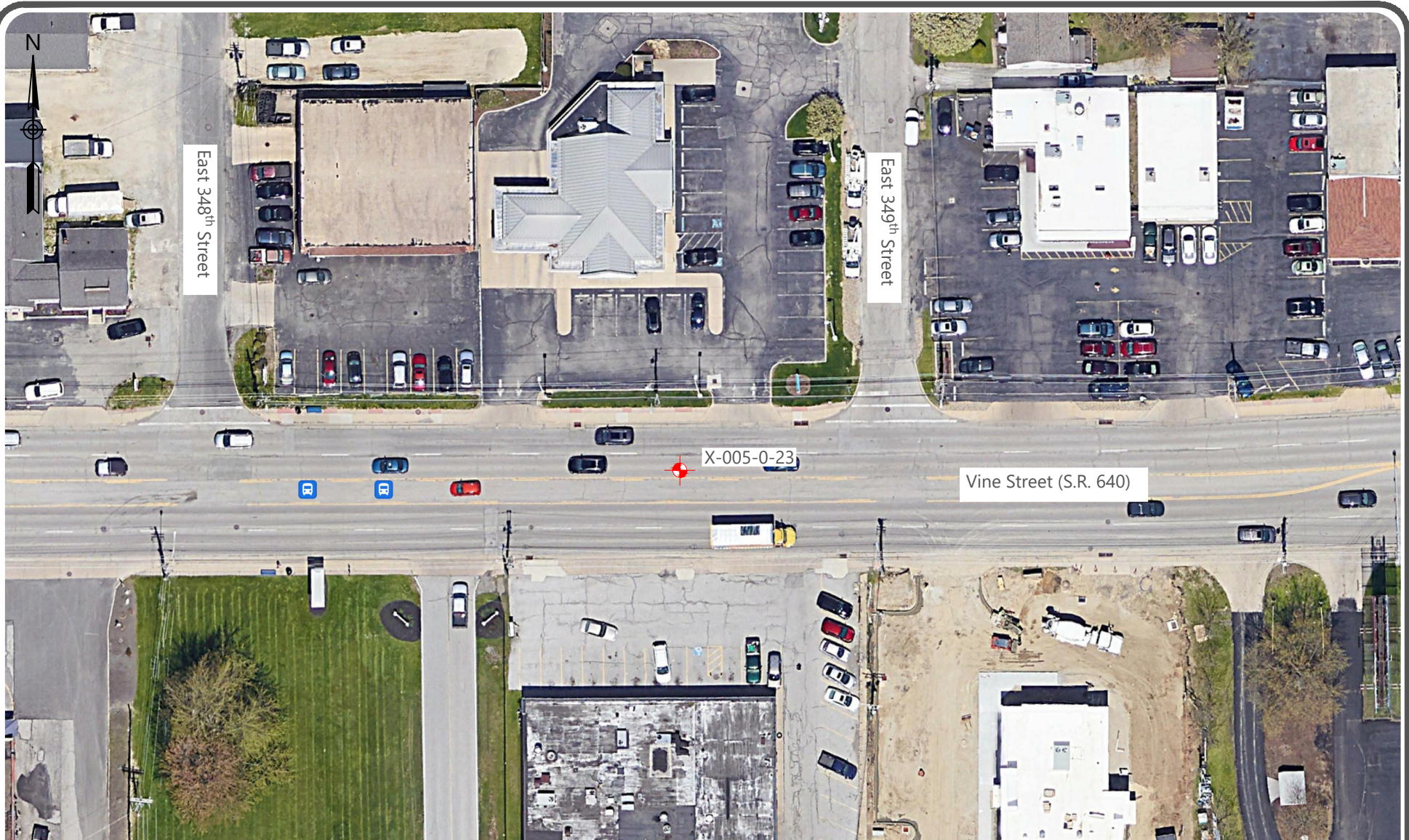
05-17-2023

PROJECT NUMBER

216069T

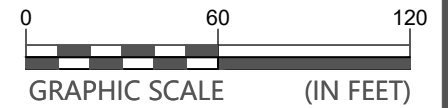
FIGURE NO.

2D



LEGEND

 X-005-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

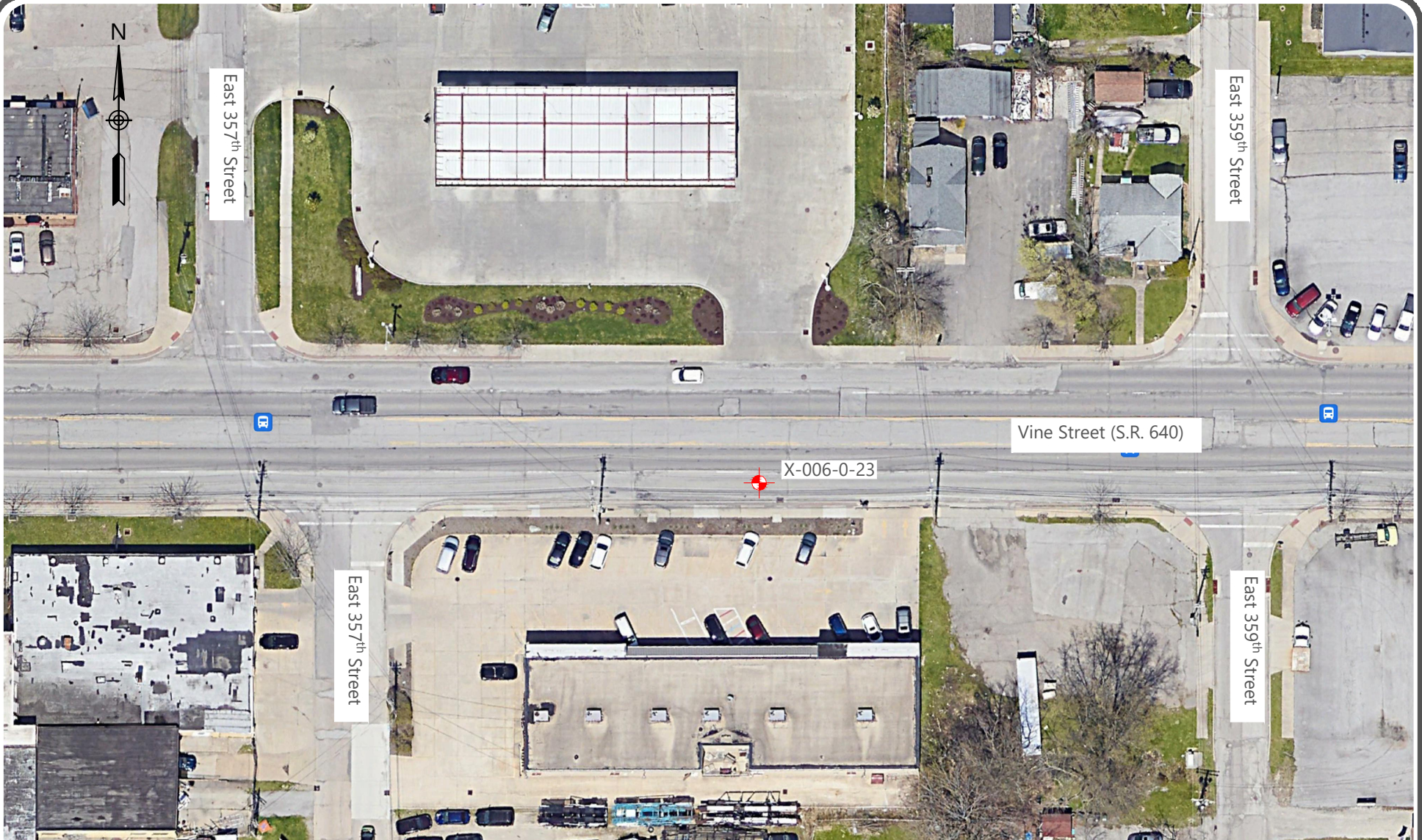
05-17-2023

PROJECT NUMBER


216069T

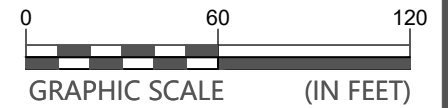
FIGURE NO.

2E



LEGEND

 X-006-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

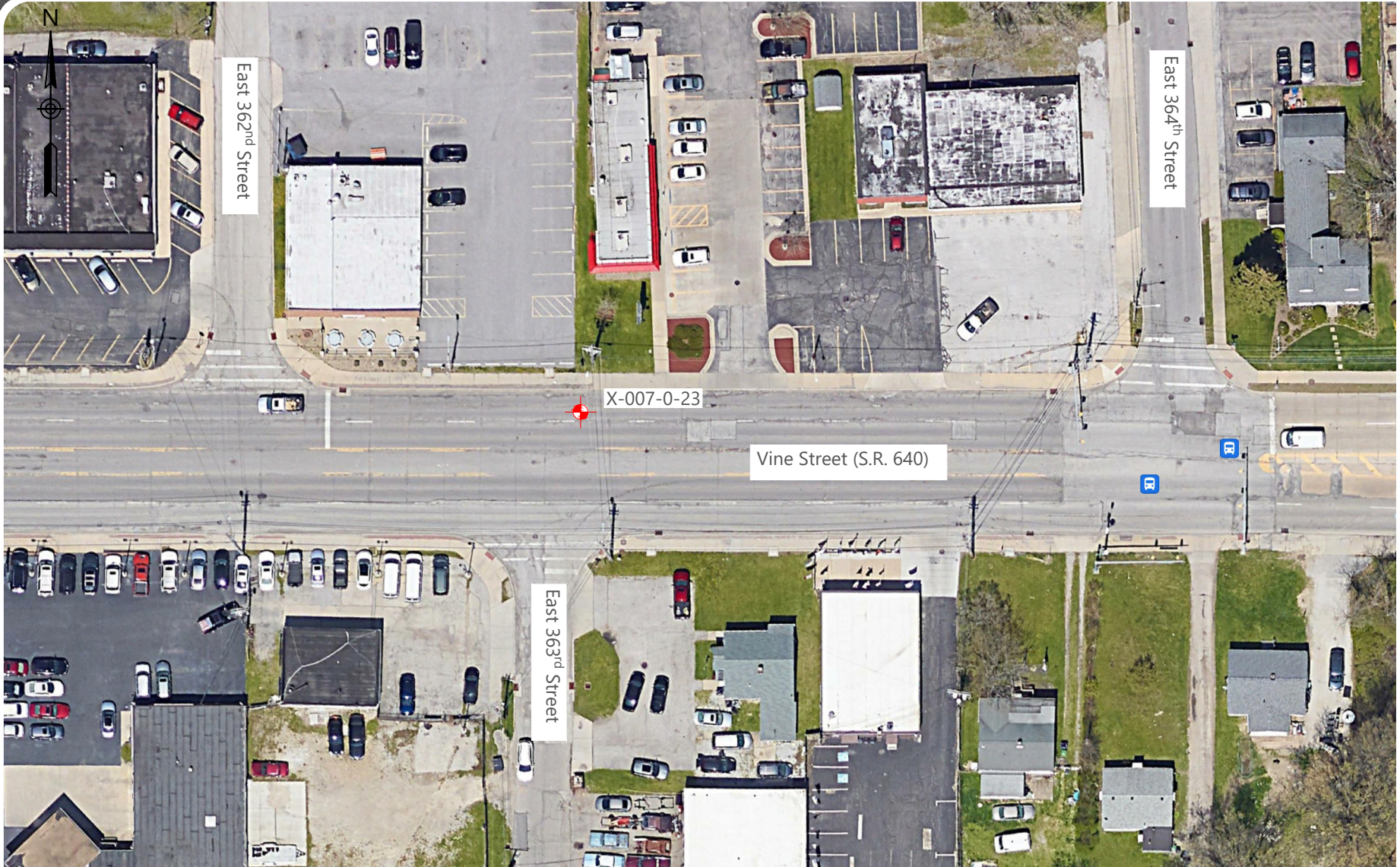
05-17-2023

PROJECT NUMBER


216069T

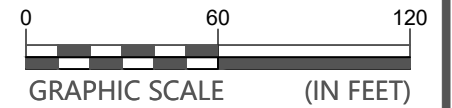
FIGURE NO.

2F



LEGEND

 X-007-0-23 Core Location and Number



Plan of Cores

Pavement Core Exploration
LAK-640-0.00 Pavement Cores (PID 89274)
Willowick and Eastlake, Lake County, Ohio

SCALE:

GRAPHIC

DATE:

05-17-2023

PROJECT NUMBER

216069T

FIGURE NO.

2G

Pavement Core Summary



Date(s) Cored: 5/9/2023

Identified By: Shawn Smith

Date(s) Identified: 5/10/2023

S&ME Project No.: 216069T

Project Name: LAK-640-0.00 Pavement Cores (PID 89274)

Project Location: Willowick and Eastlake, Lake County, Ohio

Client: ODOT District 12

Project Area	Core	Latitude/Longitude		Location	Asphalt (in.)	Brick Paver (in.)	Slag Concrete (in.)	Concrete (in.)	Total Core Thickness (in.)	Notes:
City of Willowick	X-001-0-23	41.642488°	-81.469625°	Eastbound Vine Street, Right Lane 90 feet west of E. 212th St.	3¼	-	8¼	-	11½	Geosynthetic fabric was observed approximately 1¾" below the asphalt surface. Reinforcing steel was observed approximately 3¾" below the top of concrete.
	X-002-0-23	41.642563°	-81.462362°	Westbound Vine Street, Right Lane 65 feet west of E. 230th St.	3	-	7¾	-	10¾	Geosynthetic fabric was observed approximately 1½" below the asphalt surface. Steel was observed approximately 2¼" below the top of concrete.
City of Eastlake	X-003-0-23	41.642520°	-81.454870°	Eastbound Vine Street, Left Lane 30 feet east of E. 328th St.	4¼	4	-	-	8¼	The core encountered a joint between the pavers. The joint appeared to be filled with cracked mortar.
	X-004-0-23	41.642550°	-81.446759°	Westbound Vine Street, Left Lane 460 feet west of E. 340th St.	8	4	-	-	12	The core encountered a joint between the pavers. Horizontal cracks were observed in the paver, and a corner piece broke off during coring.
	X-005-0-23	41.642569°	-81.439921°	Westbound Vine Street, Left Lane 80 feet west of E. 349th St.	10¼	4	-	-	14¼	The core encountered a joint between the pavers.
	X-006-0-23	41.642505°	-81.433082°	Eastbound Vine Street, Right Lane 160 feet east of E. 357th St.	3¾	-	-	8¾	12½	
	X-007-0-23	41.642618°	-81.429774°	Westbound Vine Street, Right Lane Just east of E. 363rd St.	3½	-	-	8¼	11¾	

District 12/3 Subsurface Investigation for Pavement Bridges

LAK-640-0.00 Pavement Cores (PID 89274)

Willowick and Eastlake, Lake County, Ohio

SE Project No. 216069T



fabric

Reinforcing Steel

Date: 5/10/2023

Photographer: SHS

1	Core Number / Thickness	X-001-0-23 / Asphalt = 3¼" Slag Concrete = 8¼"
	Remarks	Geosynthetic fabric was observed approximately 1¾" below the asphalt surface. Reinforcing steel was observed approximately 3¾" below the top of concrete.



fabric

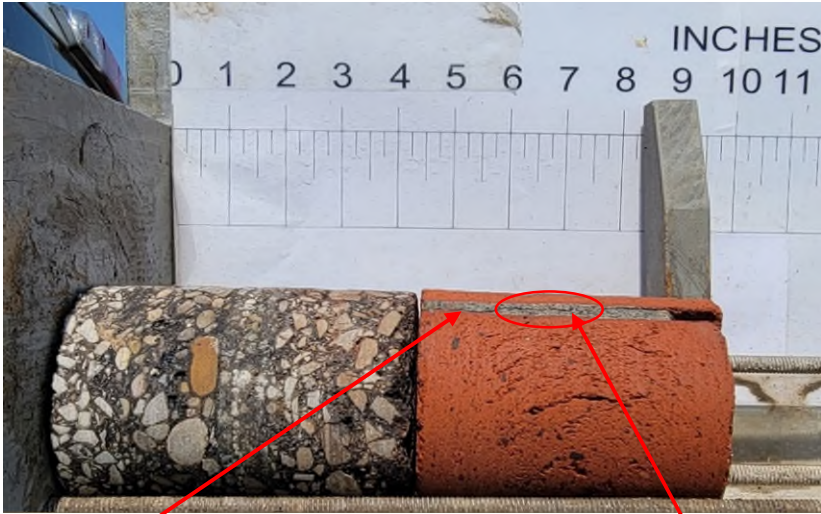
Reinforcing Steel

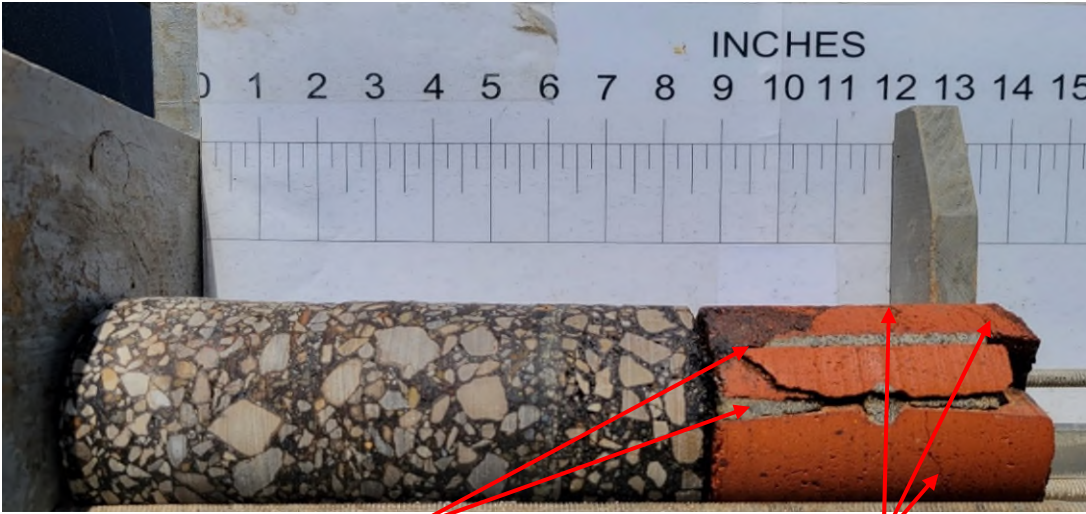
Date: 5/10/2023

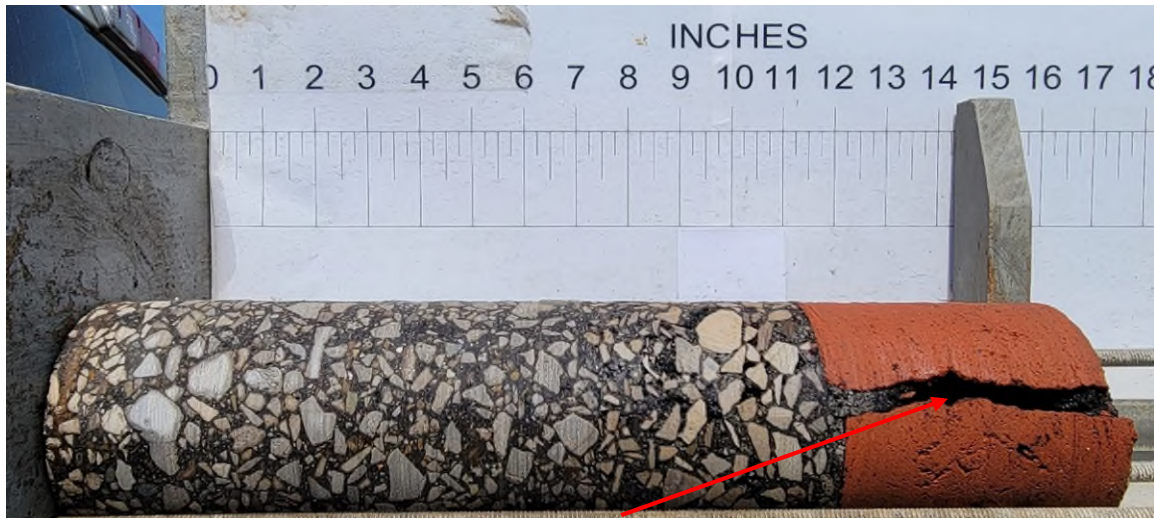
Photographer: SHS

2	Core Number / Thickness	X-002-0-23 / Asphalt = 3 " Slag Concrete = 7¾"
	Remarks	Geosynthetic fabric was observed approximately 1½" below the asphalt surface. Steel was observed approximately 2¼" below the top of concrete.



 <p style="text-align: center;"> Joint between bricks Vertical crack in mortar </p>		Date: 5/10/2023
		Photographer: SHS
3	Core Number / Thickness	X-003-0-23 / Asphalt = 4¼" Brick Paver = 4"
	Remarks	The core encountered a joint between the pavers. The joint appeared to be filled with cracked mortar.

 <p style="text-align: center;"> Joints between bricks Horizontal cracks </p>		Date: 5/10/2023
		Photographer: SHS
4	Core Number / Thickness	X-004-0-23 / Asphalt = 8" Brick Paver = 4"
	Remarks	The core encountered a joint between the pavers. Horizontal cracks were observed in the paver, and a corner piece broke off during coring.



Joint between bricks

Date: 5/10/2023

Photographer: SHS

5	Core Number / Thickness	X-005-0-23 / Asphalt = 10¼" Brick Paver = 4"
	Remarks	The core encountered a joint between the pavers.



Date: 5/10/2023

Photographer: SHS

6	Core Number / Thickness	X-006-0-23 / Asphalt = 3¾" Concrete = 8¾"
	Remarks	

District 12/3 Subsurface Investigation for Pavement Bridges

LAK-640-0.00 Pavement Cores (PID 89274)

Willowick and Eastlake, Lake County, Ohio

SE Project No. 216069T



Date: 5/10/2023

Photographer: SHS

7	Core Number / Thickness	X-007-0-23 / Asphalt = 3½" Concrete = 8¼"
	Remarks	