TESTING SERVICE CORPORATION

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Rockford, Illinois

May 24, 2023

Mr. Brian Converse, P.E., S.E.
Willett, Hofmann & Associates, Inc.
809 East Second Street
Dixon, Illinois 61021-0367

RE: TSC Job No. L-94,767
Geotechnical Exploration Report
Project Rock!
Proposed Multi-Use Path over the Rock River
Section 22-00183-00-BR
Dixon, Illinois

Dear Mr. Converse:

This letter report presents results of a Geotechnical Exploration performed in connection with the proposed "Project Rock!" in Dixon, Illinois. These geotechnical services have been performed in general accordance with Testing Service Corporation (TSC) Proposal Number 69,663, dated September 21, 2022.

It is understood that "Project Rock!" will consist of the design and construction of a new Multi-Use Path over the Rock River in Dixon, Illinois. The proposed pedestrian bridge will connect the south side of Dixon, including a pedestrian-bicycle trail currently under development, with Page Park located on the north side of the Rock River and just west of the Dixon High School. The portion of the planned path and bridge on south side of the river will be located near the intersection of West First Street and Monroe Avenue. It is further understood that portions of the Multi-Use Path on the north side of the river will consist of an elevated boardwalk. According to a "Site Plan", identified as sheet number 01 and dated March 6, 2023, by Willett, Hofmann & Associates, Inc. (WHA), the project will begin at station 9+81.79 on the south side of the Rock River at/near the intersection of W. First Street and Monroe Avenue and continue north to end at station 41+77.26, located on the north side of the river at/near the intersection of Illinois Route 2 (Lincoln Highway/Palmyra Street) and Third Avenue.

Field Exploration and Laboratory Testing

Per your request, a total of five (5) soil borings have been performed as part of this exploration. The borings were numbered B-1 through B-4 and PR01 (Rock Probe). Boring 1 was drilled on the south end of the proposed pedestrian bridge on the south side of the Rock River at station 16+42. Boring 2 was made at the north end of the proposed bridge at station 26+75, located on the north side of the river. Borings 3 and 4 were drilled in the areas of the proposed elevated boardwalk on the north side of the project. Boring PR01 (or Rock Probe) was also drilled on the north side of the river along the proposed path at station 29+00. The boring locations were made at the locations staked/marked in the field by WHA. Reference is made to the attached Boring Location Plan for the approximate boring locations.

The ground surface elevation at each boring location was determined and provided by WHA. The ground surface elevation at each boring location is shown on the attached boring logs.

Borings 1 and 2 were drilled to the planned drilling termination depth of 70 feet below existing grade(s), with B-2 extended slightly below this depth to 75 feet. Borings 3, 4 and PR01 were terminated at depths of 34.0, 23.5 and 68.0 feet, respectively, below existing grade(s) in very dense bedrock or probable rock when auger refusal was encountered at these depths. Boring 4 was continued below the auger refusal depth, as the rock was subsequently cored to a depth of 28.5 feet at this location.

The borings were drilled and samples tested according to currently recommended American Society for Testing and Materials (ASTM) specifications. Soil sampling was performed at 2½ foot depth intervals to a depth of 30 feet and at not greater than 5-foot intervals below this depth in Borings 1 - 4. Sampling in these borings was in conjunction with the Standard Penetration Test (SPT), for which driving resistance to a 2" split-spoon sampler ("N" value in blows per foot) provides an indication of the relative density of granular material and consistency of cohesive soils.

As Boring PR01 was a rock probe to determine the depth of rock only at this test location, no samples were obtained at this location. The soils observed in the auger cuttings brought to the ground surface were used by our drillers to identify the soils in Boring PR01. A split spoon was driven into the rock materials once auger refusal was encountered at the end of Boring PR01; however, no sample recovery was achieved.

As noted above, the bedrock encountered in Boring 4 was sampled using an NX core barrel fitted with a diamond bit. Rotary drilling procedures using water to flush the cuttings were used to advance the core barrel. The sample distance and recovery, as well as the description of the rock, are contained in the appropriate column on the log of B-4 in the Appendix. The Rock Quality Designation (RQD) also appears as part of the description.

Water level readings were taken during and following completion of drilling operations in Boring 1 and PR01, as well as during drilling operations to varying depths in Borings 2 - 4. However, the use of "wash" water during drilling operations at and below depths of 5.5 to 23.5 feet in Borings 2 - 4 precluded taking water level readings upon completion in these borings. Water level readings and observations may be found on the attached boring logs.

Soil samples retained by TSC were examined in the laboratory to verify field descriptions and to classify them in accordance with the Unified Soils Classification System (USCS). Laboratory testing included moisture content determinations and estimates of unconfined compressive strengths by direct or indirect methods, as appropriate. Dry unit weight tests were also performed upon samples of clay fill, as well as a select sample of native cohesive soil encountered shallowly in B-3.

Reference is made to the attached boring logs which indicate subsurface stratigraphy and soil descriptions, results of field and laboratory tests, as well as water level observations. Definitions of descriptive terminology are also included. While strata changes are shown as definitive lines on the boring logs, the actual transition between material layers will probably be more gradual. It should also be noted that in the absence of foreign substances, it is very difficult to distinguish disturbed samples of native soil from fill materials. Fluctuations in the groundwater level may also occur due to variations in precipitation (short-term and seasonal) as well as rises or drops in nearby surface water features, i.e., water levels at a future date may be higher or lower than those recorded at the time of drilling.

Discussion of Test Data

The following is a generalized description of the soil conditions found in the borings. The reader should refer to the attached individual boring logs for more specific details.

Boring 1, Station 16+42 - South Side of Rock River

Man-made fill materials were found at and below the existing ground surface in Boring 1, extending to a depth of 38.0 feet below existing grade. The fill was rather variable and generally consisted of a surficial layer of clayey topsoil overlying layers of silty, very silty or sandy clays, silty sands and silty sands/gravels. The clay fill contained variable amounts of sand, gravel and/or crushed stone. Some of the layers of clay fill also contained trace amounts of organic material. Unconfined compressive strengths of the clay fill in B-1 varied from 1.5 to 4.5+ tons per square foot (tsf) at moisture contents between 11 and 24 percent. Dry unit weights of the clay fill were determined to vary from 99 to 118 pounds per cubic foot (pcf). The silty sand or silty sand/gravel fill materials encountered in B-1 had Standard Penetration Test "N" values varying from 2 to 13 blows per foot (bpf). Trace amounts of cinders were noted within the sandy clay fill in the depth interval of 1.2 to 3 feet, while trace amounts of wood fragments were observed in the sample of silty sand fill encountered from 17 to 18 feet in depth below existing grade. It was noted that an apparent, possible void was encountered within the fill materials in the depth interval of 11 to 17 feet below existing grade in B-1. Accordingly, no SPT "N" values were recorded for the sample intervals for split spoon samples #5 and #6, as noted by the "WOH" (Weight of Hammer) notations in the "N" column on the log for B-1.

Apparent native fine- and coarse-grained soils were encountered below the man-made fill materials in Boring 1, beginning at a depth of 38 feet and extending to the end of the boring at a depth of 70 feet below existing grade. The native soils consisted of layers of clayey sands, very silty clays and sands/gravels with occasional cobbles. Loose clayey sand, with "N" value of 6 bpf, was found in the depth interval of 38 to 43 feet, while stiff very silty clay with little sand and trace to little gravel was encountered from 43 to 44 feet below existing grade. The very silty clay exhibited an unconfined compressive strength of 1.25 tsf at an approximate moisture content of 29 percent. At and below a depth of 44 feet, loose to dense sand and gravel soil with occasional cobbles and trace amounts of silt was found extending to the boring termination depth of 70 feet. The SPT "N" values of the sand/gravel varied from 8 to 49 bpf.

Free water was noted during drilling operations at a depth of 38.0 feet (Elevation 640.6) below existing grade in Boring 1. Shortly after completion of drilling B-1, groundwater was observed to have risen to a depth of 30.0 feet (Elevation 648.6). It may anticipated that the groundwater level at Boring 1 will be at or near the water level of the Rock River.

Borings 2 - 4 and PR01 - North Side of Rock River

Man-made fill (or probable fill) materials were found at and below the existing ground surface in Boring 2, extending to a depth of 26 feet below existing grade. The fill in B-2 consisted of a surficial layer of clayey topsoil overlying layers of sandy clays, silty sands and clayey or sandy silts with varying amounts of gravel and/or dolomite fragments. Unconfined compressive strengths of the clay fill varied from 1.0 to 2.75 tsf at moisture contents between 12 and 15 percent. The "N" values of the silty sand

or silt probable fill in B-2 were found to vary from 7 to 22 bpf. Dry unit weights of the fill (or probable fill) were determined to range from 110 to 124 pcf.

Apparent native fine- and coarse-grained soils were encountered below the surficial man-made fill (or probable fill) materials in Boring 2, as well as at and below the existing ground surface in Borings 3, 4 and PR01, extending to the ends of these borings at depths varying from 28.5 to 75.0 feet below existing grade(s). Layers of sandy clays (with clayey sand seams), sands, silty sands and sands/gravels with occasional cobbles were encountered below the fill/probable fill in B-2, beginning at a depth of 26 feet and extending to a depth of 57 feet. The consistency of the sandy clay in Boring 2 was found to be soft to medium stiff (Qp = 0.5 tsf) at an approximate moisture content of 25 percent. The relative densities of the sands, silty sands and sands/gravels encountered in B-2 varied from loose to very dense, with "N" values ranging from 6 bpf to 50 blows per 1 inch of penetration. Very dense to loose silty sand and gravel with dolomite fragments, judged to be possible weather rock material, was encountered at and below a depth of 57 feet in Boring 2. The SPT "N" values of this granular deposit varied from 8 bpf to 50 blows per 2 inches of penetration.

Native clayey topsoil was found at the surface of Borings 3, 4 and PR01, extending to depths varying from 0.5 to 4.0 feet below existing grade(s). A sample of the topsoil material in B-3 was determined to have a dry unit weight of 97 pcf at a moisture content of 26 percent. The surficial topsoil in Borings 3 and 4 is underlain by layers of silty or very silty clays, clayey silts, silty sands, sands, sands/gravels and/or gravels, extending to depths of 13.0 feet and 21.0 feet, respectively. The clays in B-3 exhibited unconfined compressive strengths of 0.5 and 1.25 tsf, characterizing them as soft to stiff, and moisture contents of approximately 22 and 28 percent. The silts, "loamy" sands, sands and gravels in B-3 and B-4 were found to have "N" values of 2 to 19 bpf, characterizing them as very loose to medium dense.

The aforementioned soils in B-3 and B-4 are underlain by probable weathered rock materials. The weathered dolomite exhibited "N" values of 51 bpf to 100 blows per 0 inches, characterizing it as dense to very dense. Auger refusal was encountered in the rock materials at depths of 34.0 feet (Elevation 610.2) in B-3 and 23.5 feet (Elevation 621.2) in B-4. The rock was cored in the depth interval of 23.5 to 28.5 feet in Boring 4. The dolomite in the core sample was noted to be fine to medium bedded and slightly vesicular with a few vugs. The rock was observed to be very weathered and severely broken and fractured with many fragments and pieces of rock noted throughout the core sample. The Rock Quality Designation (RQD) of the rock core sample was determined to be 7.5 percent. Please note that it is often difficult to determine whether the samples obtained from the boring process, or the observation of rock fragments in the sampler or high "N" values, indicate the presence of bedrock, boulders or soil deposits with rock fragments.

Weathered rock was noted directly below the surficial layer of topsoil in Boring PR01, extending from a depth of 0.5 to 68.0 feet below existing grade. The rock appeared to be rather weathered as we did not encounter auger drilling refusal until we reached a depth of 68.0 feet below existing grade at which the boring was terminated.

Boring PR01 was observed to be "dry" to the depth drilled during and upon completion of the drilling process. Borings 2 and 4 were observed to be "dry" to depths of 23.5 feet and 5.5 feet, respectively, during drilling operations. However, "wash" drilling methods, that involved introducing water into the hollow stem augers, were used in Borings 2 and 4 at and below depths of 23.5 and 5.5 feet, respectively. Accordingly, no further groundwater measurements were made in B-2 and B-4 during drilling or upon completion of these borings. Free water was noted during drilling operations at a depth

of 8.0 feet below existing grade in B-3. "Wash" drilling methods were also used in B-3 at and below a depth of 8.5 feet; Therefore, no further groundwater observations were made in Boring 3. It may be anticipated that the groundwater level at the project site will be at or near the water level of the Rock River.

Closure

It is understood that no engineering analyses or further geotechnical engineering design services or recommendations have been requested/required of TSC. The information submitted in this report is based upon the data obtained from five (5) soil borings for the proposed bridge and path performed at the approximate locations shown on the Boring Location Plan. This report does not reflect any variations which may occur between or beyond these borings, the nature and extent of which may not become evident until during the course of construction. It is recommended that piling installation and foundation construction be observed/tested by a representative of TSC during the construction phase of this project.

We are able to review this report with you at your convenience.

Respectfully submitted,

TESTING SERVICE CORPORATION

Reviewed by:

Megan K. Conway, P.E.
Project Engineer

Prepared by:

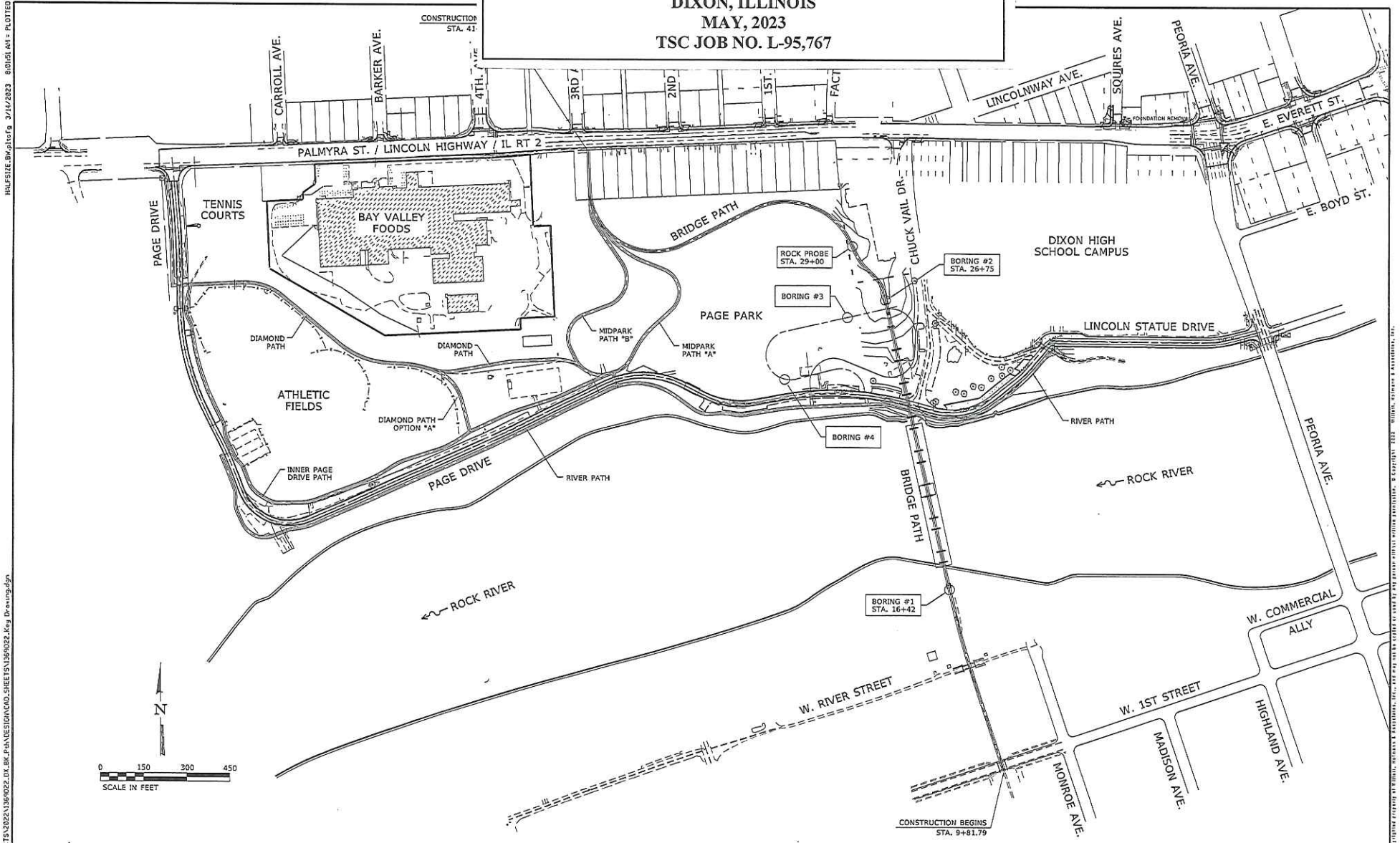
Jeffrey L. Martin, P.E.
Rockford Branch Manager and
Senior Geotechnical Engineer

JLM/rb

Enc: Boring Location Plan
Boring Logs for B-1 through B-4 and PR01 (Rock Probe)
Unified Classification Chart
Legend for Boring Logs

cc: Mr. Michael R. Leslie, P.E., S.E.
Willett, Hofmann & Associates, Inc.
Via email: mleslie@willetthofmann.com

BORING LOCATION PLAN
PROPOSED MULTI-USE PATH OVER THE ROCK RIVER
"PROJECT ROCK!"
SECTION 22-00183-00-BR
DIXON, ILLINOIS
MAY, 2023
TSC JOB NO. L-95,767



REVISION	DATE	BY	REMARKS

DESIGNED CFS
DRAWN DLB
REVIEWED CFS
APPROVED CFS

CITY OF DIXON
RIVER CROSSING MULTI-USE PATH
2023

WILLETT HOFMANN & ASSOCIATES, LTD.

SITE PLAN

SHEET 1 OF 1

PHASE
■ PRELIM □ FINAL □ CONST
□ PERMIT □ BID □ ___

WHA No. 1369D22
DATE 3-6-23

SHEET No. 01

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PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **1** DATE STARTED **3-27-23** DATE COMPLETED **3-27-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **678.6**

END OF BORING **608.6**

WATER LEVEL OBSERVATIONS

▼ WHILE DRILLING **38.0 '**

▽ AT END OF BORING **30.0 '**

▼ 24 HOURS

Station 16+42

SAMPLE NO.	SAMPLE TYPE	LENGTH RECOVERY	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0		
							1.2	677.4	FILL - Black clayey TOPSOIL, trace sand, very moist (OL)
1	SS		5	13.5	1.5*	116			FILL - Light brown, brown and black sandy CLAY, little gravel and crushed stone, trace cinders, moist (CL-ML)
							3.0	675.6	
2	SS		4	19.6	1.75*	102			FILL - Light brown and brown very silty CLAY, little to some sand, trace gravel and crushed stone, moist (CL)
							6.0	672.6	
3	SS		11	11.2	4.5+*	112			FILL - Light brown and brown very silty CLAY, some sand, little crushed stone, moist (CL-ML)
4	SS		9	14.2	4.5+*	104			
							11.0	667.6	
5	SS		WOH						Possible Void (Note: "WOH" = Weight of Hammer)
6	SS		WOH						
7	SS		2	23.2			17.0	661.6	
							18.0	660.6	FILL - Brown and light brown silty SAND, little gravel, trace clay and wood fragments, very moist (SM)
8	SS		12	14.4	4.0*	118			FILL - Brown and light brown sandy CLAY, little gravel and crushed stone, moist (CL-ML)
							20.5	658.1	
9	SS		13	4.2					FILL - Light brown silty SAND and GRAVEL, moist (SM/GM)
							23.0	655.6	
10	SS		11	6.8					FILL - Brown and dark brown silty SAND, some gravel and crushed stone, moist (SM)
							26.0	652.6	
11	SS		8	23.8	1.75*	99			FILL - Brown and dark brown silty CLAY, little sand, trace to little gravel, trace organic, moist (CL)
							28.0	650.6	
12	SS		6	20.4	2.0*	101			▽ FILL - Dark brown and brown very silty CLAY, trace sand and organic, moist (CL)
							33.0	645.6	
13	SS		6	20.5	1.75*	103			FILL - Light brown and dark brown very silty CLAY, trace sand and organic, moist (CL)
							38.0	640.6	▼
14	SS		6	9.4					Loose brown clayey SAND, some gravel, very moist to wet (SC)
							40		End of Boring at 70.0'

DISTANCE BELOW SURFACE IN FEET

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **1** DATE STARTED **3-27-23** DATE COMPLETED **3-27-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **678.6**

END OF BORING **608.6**

WATER LEVEL OBSERVATIONS

▼ WHILE DRILLING **38.0 '**

▽ AT END OF BORING **30.0 '**

▼ 24 HOURS

Station 16+42

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
									Loose brown clayey SAND, some gravel, very moist to wet (SC)
							43.0	635.6	
	A 15 B	SS	8	29.2	1.25*		44.0	634.6	Stiff light brown and bluish-gray very silty CLAY, little sand, trace to little gravel, very moist (CL)
	16	SS	49						
	17	SS	31						Loose to dense light brown SAND and GRAVEL, occasional Cobbles, trace silt, wet (SP-SM/GP-GM)
	18	SS	27						
	19	SS	24						
	20	SS	32						

DISTANCE BELOW SURFACE IN FEET

40 45 50 55 60 65 70 75 80

* Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

End of Boring at 70.0'

TSC_EOB 94767.GPJ TSC_ALL.GDT 5/24/23

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **2** DATE STARTED **3-22-23** DATE COMPLETED **3-22-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **683.2**

END OF BORING **608.2**

WATER LEVEL OBSERVATIONS

WHILE DRILLING **Dry to 23.5'**

AT END OF BORING **N/A - wash boring**

24 HOURS

Station 26+75

SAMPLE NO.	SAMPLE TYPE	LENGTH RECOVERY	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS		6	8.6					FILL - Black sandy, clayey TOPSOIL very moist (OL)
							3.0	680.2	
2	SS		7	15.0	1.0*	110			FILL - Brown and light brown sandy CLAY, little gravel and dolomite fragments and silty SAND, very moist (CL/SM)
3	SS		8	12.7	1.5*	110			
4	SS		16	13.9	2.75*	121			
							10.5	672.7	
5	SS		15	12.6	4.5*	117			Medium dense brown to light brown clayey SILT, little sand, trace gravel and dolomite fragments, moist (ML) (Probable Fill)
6	SS		16	13.2	4.5+*	114			
7	SS		18	8.9	4.5+*	124			
8	SS		19	13.9	4.5+*	115			
9	SS		13	18.6	4.25*				
							23.0	660.2	
10	SS		22	9.4					Medium dense light brown sandy SILT and silty SAND, some dolomite fragments, moist (ML/SM) (Probable Fill)
							26.0	657.2	
11	SS		6						Loose brown SAND, little gravel, trace silt, wet (SP-SM)
12	SS		7						
13	SS		8						
							37.0	646.2	
14	SS		8	13.1					Loose brown silty SAND, little gravel, trace clay, wet (SM)
									End of Boring at 75.0'

DISTANCE BELOW SURFACE IN FEET

0, 5, 10, 15, 20, 25, 30, 35, 40

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **2** DATE STARTED **3-22-23** DATE COMPLETED **3-22-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **683.2**

END OF BORING **608.2**

Station 26+75

WATER LEVEL OBSERVATIONS

▼ WHILE DRILLING **Dry to 23.5'**

▽ AT END OF BORING **N/A - wash boring**

▼ 24 HOURS

DISTANCE BELOW SURFACE IN FEET	LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
40										Loose brown silty SAND, little gravel, trace clay, wet (SM)
								43.0	640.2	
45		15	SS	3	24.6	0.5*				Soft to medium stiff brown sandy CLAY, trace gravel with clayey sand seams, very moist (CL/SC)
								48.0	635.2	
50		16	SS	13						Medium dense to very dense light brown SAND and GRAVEL, occasional Cobbles, wet (SP/GP)
		17	SS	50/1"						
55										
								57.0	626.2	
60		18	SS	50/2"						Very dense to loose light brown silty SAND and GRAVEL with dolomite fragments, wet (SM/GM) (possible weathered rock)
65		19	SS	20						
70										
75		20	SS	8						* Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.
80										End of Boring at 75.0'

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

TSC_EOB 94767.GPJ TSC_ALL.GDT 5/24/23

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **3** DATE STARTED **3-24-23** DATE COMPLETED **3-24-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **644.2**

END OF BORING **610.2**

WATER LEVEL OBSERVATIONS

▼ WHILE DRILLING **8.0 '**

▽ AT END OF BORING **N/A - wash boring at 8.5'**

▼ 24 HOURS

SAMPLE NO.	SAMPLE TYPE	LENGTH RECOVERY	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
1	SS		5	32.4					Dark brown to black clayey TOPSOIL, trace to little sand, very moist (OL)
A	SS		4	26.0	1.25*	97	4.0	640.2	
2				22.2	0.5*				Soft to medium stiff grayish-brown very silty CLAY, trace to little sand, very moist (CL)
B							6.0	638.2	
3	SS		3	28.4	1.25*				Stiff grayish-brown silty CLAY, trace sand, very moist (CL)
							8.0	636.2	
4	SS		8						Loose brown SAND, trace gravel and silt, wet (SP-SM)
							10.5	633.7	
5	SS		8						Loose brown SAND, little gravel, trace silt, wet (SP-SM)
							13.0	631.2	
6	SS		51						Very dense light brown and light yellowish-brown silty, sandy DOLOMITE, wet (probable weathered rock)
7	SS		60						
8	SS		53						
9	SS		50/3"						
10	SS		50/3"						
11	SS		76						
12	SS		100/6"						
13	SS		100/0"						

DISTANCE BELOW SURFACE IN FEET

0, 5, 10, 15, 20, 25, 30, 35, 40

* Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

Auger refusal encountered at a depth of 34.0 feet.

End of Boring at 34.0'

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

TSC_EOB 94767.GPJ TSC_ALL.GDT 5/24/23

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **4** DATE STARTED **3-23-23** DATE COMPLETED **3-23-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **644.7**

END OF BORING **616.2**

WATER LEVEL OBSERVATIONS

WHILE DRILLING **Dry to 5.5'**

AT END OF BORING **N/A - wash boring**

24 HOURS

SAMPLE NO.	SAMPLE TYPE	LENGTH RECOVERY	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0		
1	SS		5	21.2	1.5*				Dark grayish-brown clayey TOPSOIL, trace sand, moist (OL)
							3.0	641.7	
2	SS		2	24.0	0.75*				Very loose grayish-brown clayey SILT, trace to little sand, very moist (ML)
							5.5	639.2	
3	SS		3						Very loose light brown silty SAND, wet (SM)
							8.0	636.7	
4	SS		12						Medium dense light brown SAND, trace silt, wet (SP-SM)
							10.5	634.2	
5	SS		17						Medium dense light brown SAND and GRAVEL, wet (SP/GP)
							13.0	631.7	
6	SS		5						Loose light brown SAND, trace gravel and silt, wet (SP-SM)
							16.0	628.7	
7	SS		19						Medium dense light brown GRAVEL, little sand, wet (GP)
							18.0	626.7	
8	SS		18						Medium dense light brown SAND, trace gravel and silt, wet (SP-SM)
							21.0	623.7	
9	SS		50/4"	10.2					Very dense light brown and light yellowish-brown silty, sandy DOLOMITE, wet (probable weathered rock)
							23.5	621.2	
10	SS		100/3"						Tan and light yellowish-brown DOLOMITE, fine to medium bedded, slightly vesicular and few vugs, severely broken and fractured throughout with many fragments/pieces, RQD = 7.5%
Run 1	RC								

* Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

Auger refusal encountered at a depth of 23.5 feet.

End of Boring at 28.5'

DISTANCE BELOW SURFACE IN FEET

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

TSC_EOB 94767.GPJ TSC_ALL.GDT 5/24/23

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **PRO1** DATE STARTED **3-21-23** DATE COMPLETED **3-21-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **702.0**

END OF BORING **634.0**

Station 29+00

WATER LEVEL OBSERVATIONS

▼ WHILE DRILLING **Dry**

▽ AT END OF BORING **Dry**

▼ 24 HOURS

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.5	701.5	Black clayey TOPSOIL (OL)
									Weathered Rock (Augered Drilled - no samples taken)

DISTANCE BELOW SURFACE IN FEET

0 5 10 15 20 25 30 35 40

End of Boring at 68.0'

DRILL RIG NO. **334**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT **Project Rock!, Multi-Use Path over Rock River, Dixon, Illinois**

CLIENT **Willett, Hofmann & Associates, Dixon, Illinois**

BORING **PRO1** DATE STARTED **3-21-23** DATE COMPLETED **3-21-23** JOB **L-94,767**

ELEVATIONS

GROUND SURFACE **702.0**

END OF BORING **634.0**

Station 29+00

WATER LEVEL OBSERVATIONS

▼ WHILE DRILLING **Dry**

▽ AT END OF BORING **Dry**

▼ 24 HOURS

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
									Weathered Rock (Augered Drilled - no samples taken)
	1	SS	100/0"						Auger refusal encoutered at a depth of 68.0 feet.

DISTANCE BELOW SURFACE IN FEET

40 45 50 55 60 65 70 75 80

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

End of Boring at 68.0'

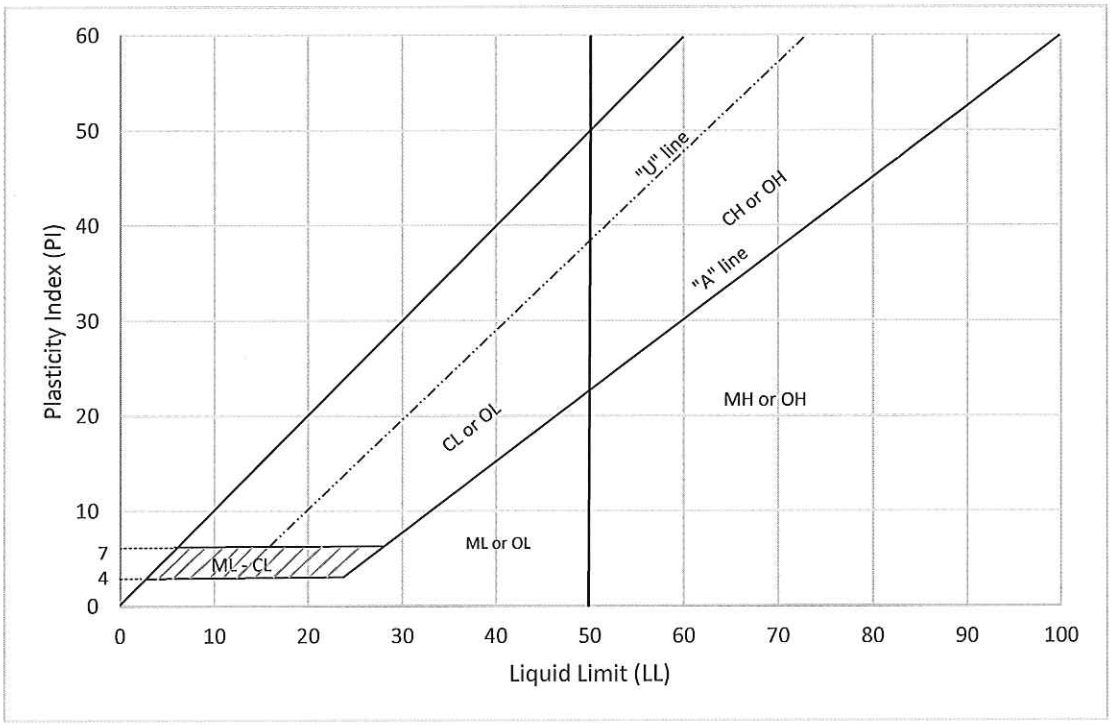
DRILL RIG NO. **334**

TSC_EOB 94767.GPJ TSC_ALL.GDT 5/24/23

Testing Service Corporation
Unified Classification Chart

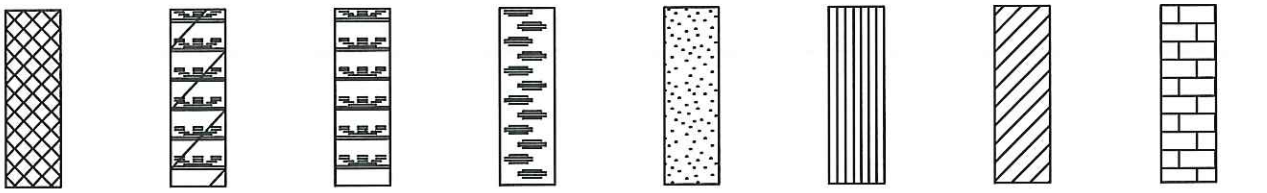
CRITERIA FOR ASSIGNING GROUP SYMBOLS AND GROUP NAMES USING LABORATORY TEST [a]				SOIL CLASSIFICATION	
				Group Symbol	GROUP NAME [b]
COARSE - GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS less than 5% fines [c]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [e]	GW	Well-graded gravel [f]
			$C_u < 4$ and/or $1 > C_c > 3$ [e]	GP	Poorly-graded gravel [f]
		GRAVELS WITH FINES more than 12% fines [c]	Fines classify as ML or MH	GM	Silty gravel [f, g, h]
			Fines classify as CL or CH	GC	Clayey gravel [f, g, h]
	SANDS 50% or more of coarse fraction passes No. 4 sieve	CLEAN SANDS less than 5% fines [d]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [e]	SW	Well-graded sand [i]
			$C_u < 6$ and/or $1 > C_c > 3$ [e]	SP	Poorly-graded sand [i]
		SANDS WITH FINES more than 12% fines [d]	Fines classify as ML or MH	SM	Silty sand [g, h, f]
			Fines classify as CL or CH	SC	Clayey sand [g, h, f]
FINE - GRAINED SOILS 50% or more passed the No. 200 sieve	SILTS & CLAYS Liquid limit less than 50%	Inorganic	PI > 7 or plots on or above "A" line j	CL	Lean clay [k, l, m]
			PI < 4 or plots below "A" line j	ML	Silt [k, l, m]
		Organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OL	Organic clay [k, l, m, n] Organic silt [k, l, m, o]
	SILTS & CLAYS Liquid limit 50% or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [k, l, m]
			PI plots below "A" line	MH	Elastic silt [k, l, m]
		Organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OH	Organic clay [k, l, m, p] Organic silt [k, l, m, q]
Highly organic soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

a. Based on the material passing the 3-inch (75-mm) sieve.
b. If field sample contained cobbles and/or boulders, add "with cobbles and/or boulders" to group name
c. Gravels with 5 to 12% fines required dual symbols
GW-GM well graded gravel with silt
GW-GC well graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
d. Sands with 5 to 12% fines require dual symbols
SW-SM well graded sand with silt
SW-SC well graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
e. $C_u = D_{60}/D_{10}$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
f. If soils contains ≥ 15% sand, add "with sand" to group name.
g. If fines classify as CL-ML, use dual symbol GC-GM, SC-SM
h. If fines are organic, add "with organic fines" to group name
i. If soils contains ≥ 15% gravel, add "with gravel" to group name
j. If Atterberg Limits plot in hatched area, soil is a CL – ML, silty clay
k. If soils contains 15 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soils contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name
n. PI ≥ 4 and plots on or above "A" line
o. PI ≥ 4 and plots below "A" line
p. PI plots on or above "A" line
q. PI plots below "A" line



TESTING SERVICE CORPORATION

LEGEND FOR BORING LOGS



FILL **TOPSOIL** **PEAT** **GRAVEL** **SAND** **SILT** **CLAY** **DOLOMITE**

SAMPLE TYPE

SS = Split Spoon
ST = Thin-Walled Tube
A = Auger
MC = Macro-Core (Geo Probe)

WATER LEVELS:

▼ While Drilling
▽ End of Boring
▼ 24 Hours

FIELD AND LABORATORY TEST DATA

N = Standard Penetration Resistance in Blows per Foot
WC = In-Situ Water Content
Qu = Unconfined Compressive Strength in Tons per Square Foot
* Pocket Penetrometer Measurement: Maximum Reading = 4.5 tsf
γ_{DRY} = Dry Unit Weight in Pounds per Cubic Foot

SOIL DESCRIPTION

MATERIAL	PARTICLE SIZE RANGE
BOULDER	Over 12 inches
COBBLE	12 inches to 3 inches
Coarse GRAVEL	3 inches to ¾ inch
Small GRAVEL	¾ inch to No. 4 Sieve
Coarse SAND	No. 4 Sieve to No. 10 Sieve
Medium SAND	No. 10 Sieve to No. 40 Sieve
Fine SAND	No. 40 Sieve to No. 200 Sieve
SILT and CLAY	Passing No. 200 Sieve

COHESIVE SOILS

CONSISTENCY	Qu (tsf)
Very Soft	Less than 0.25
Soft	0.25 to 0.5
Medium Stiff	0.5 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	4.0 and over

COHESIONLESS SOILS

RELATIVE DENSITY	N (bpf)
Very Loose	0 - 3
Loose	4 - 9
Medium Dense	10 - 29
Dense	30 - 49
Very Dense	50 and over

MODIFYING TERM	PERCENT BY WEIGHT
Trace	1 - 10
Little	10 - 20
Some	20 - 35