GME TESTING

A UES Company

Geotechnical Report

GME Project No. G26-013296

Proposed New Building

Just South of 1494 West Tyson Road Portland, IN

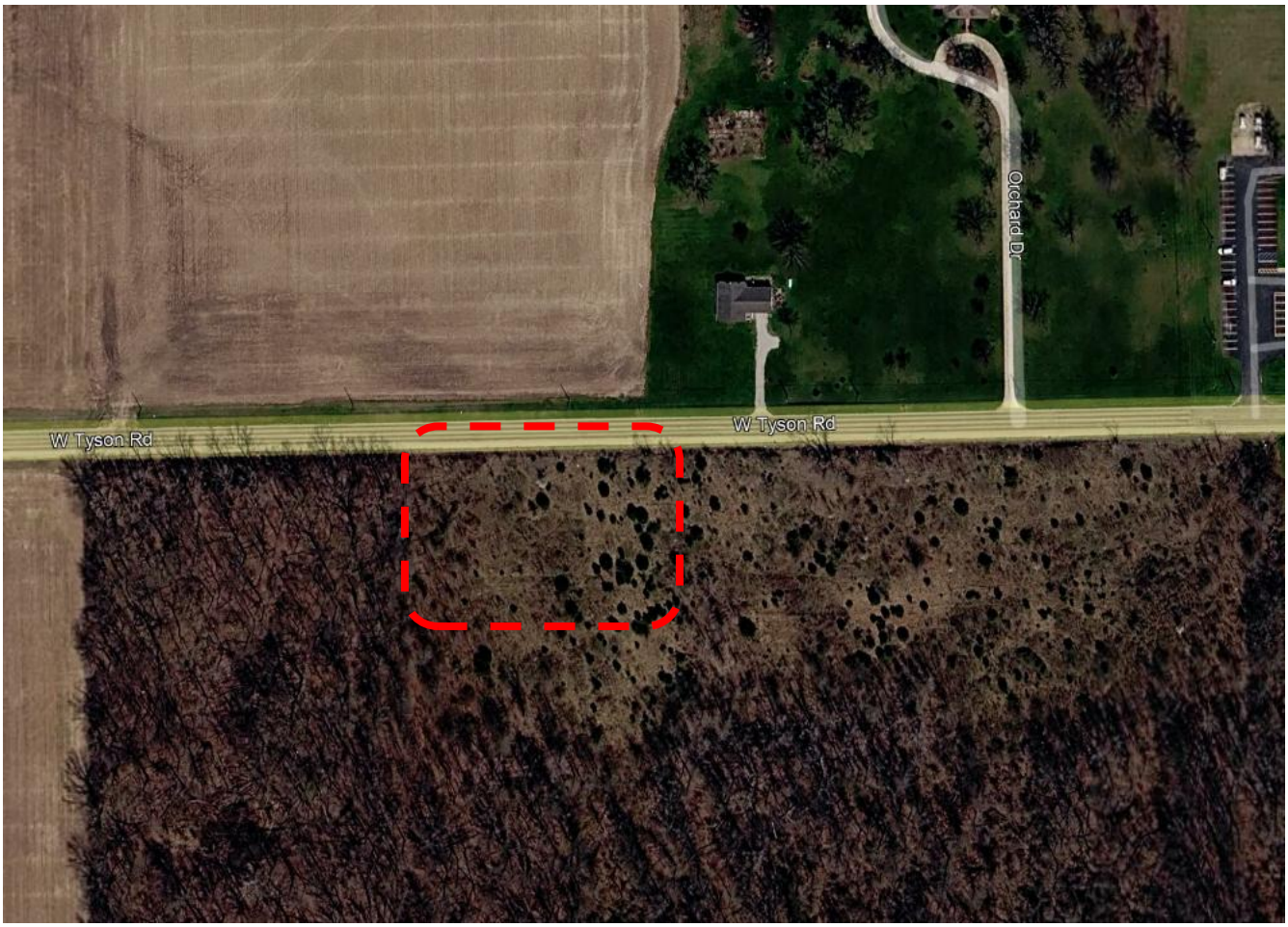
February 2, 2026

Prepared For:

MSS Engineering
414 West 5th Street
Auburn, Indiana 46706
Attn: Holly Woollweever - Office Administrator

Prepared By:

GME Testing
3517 Focus Dr
Fort Wayne, IN 46818



GME TESTING

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MSS Engineering
414 West 5th Street
Auburn, Indiana 46706
Attn: Holly Woollweever - Office Administrator

REF: SUBSURFACE EXPLORATION AND RECOMMENDATIONS
Proposed New Building
Just South of 1494 West Tyson Road
Portland, IN

Dear Ms. Woollweever:

In compliance with your recent request, ***GME Testing*** is pleased to submit this report on our subsurface exploration and recommendations for the design and construction of the proposed new building.

SITE CONDITIONS

The Site is an undeveloped and covered with dense vegetation. Mature trees were observed in the stie vicinity. Based on available Google Earth maps, the existing ground surface elevation was approximately El. 917 feet to El. 919 feet and characterized as relatively level. The approximate surface elevations at boring locations were estimated and included on the bore logs in Appendix B.

According to the USDA Web Soil Survey, near-surface soils at the site consist of Blount-Glynwood, thin solum complex and Pewamo silty clay. The Pewamo type soils are generally moist and were found near the surface. A copy of the *Custom Soil Resource Report for Jay County, Indiana*, is included in Appendix B.

PROJECT DESCRIPTION

Based on the available information, we understand that the proposed project will consist of a proposed 60-feet by 140-feet building that is anticipated to be pre-engineered metal, one story with slabs on grade (with no basement).

Based on the preliminary site plan provided by MSS Engineering, shown in **Figure 1**, associated parking and driveway are anticipated. Moreover, a truck ramp/loading dock is planned on the west side of the building and is anticipated to be 5 feet below the planned Finished Floor Elevation (FFE).

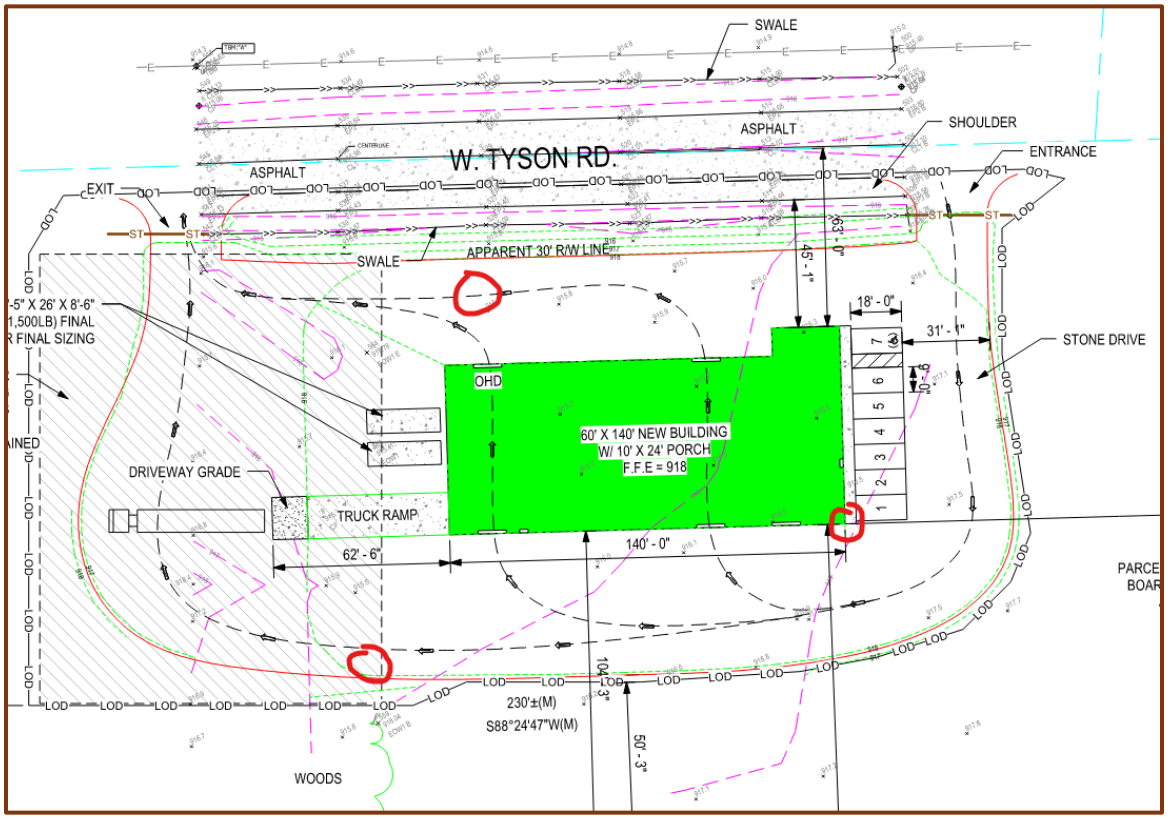


Figure 1: Preliminary Site Plan Provided by Client

The FFE of the proposed building is anticipated to be established at El. 918 feet. Based on our site reconnaissance, approximately 2 feet of grade change has been assumed to establish the proposed building finished floor elevation. Once grading plans are developed, we should review to determine if any changes to the recommendations provided in this report are necessary.

Structural loads were not available at the time of writing. Structural loads for columns, walls, and slabs are anticipated to be light to moderate, with maximum loads of 75 kip/column, 5 kips per linear foot, and 150 psf, respectively.

Floor slabs are expected to be floating slabs, isolated from foundations except where locally thickened to support interior load-bearing elements. Final slab thickness, jointing, and reinforcement details will be provided by the project structural engineer.

Pavement subgrade preparation recommendations are provided in this report. The structural design of pavement will be the responsibility of others.

GME Testing should be contacted to review design information that conflicts with our stated understanding presented in this report.

SUBSURFACE INVESTIGATION

Our field exploration program consisted of drilling three (3) vertical soil test borings to depths of approximately 20 feet below the existing ground surface (bgs) as shown on the borehole logs. GME Testing personnel established the test boring locations in the field based on the provided site plan. Relocation of boring B-3 was necessary do to existing mature trees present. The boring locations presented in Exhibit A and included in Appendix A in this report are approximate.

Our subsurface exploration was performed in accordance with the Standard Penetration Test, ASTM D-1586. Representative soils collected using a split spoon sampler. Our laboratory testing program included performing **a)** visual soil classifications according to ASTM D-2487 and ASTM D-2488, **b)** natural moisture content tests according to ASTM D-2216 on all samples, and **c)** unconfined compressive strength tests and calibrated spring hand penetration tests in general accordance with ASTM D-2166

Surficial Material: Test borings encountered approximately 7 to 9 inches of surficial topsoil. The topsoil thicknesses across the site are anticipated to vary, and the exact stripping depth will not be known until the time of construction.

Native Soils: The native soils encountered in test borings primarily consisted of medium stiff, stiff, and very stiff or greater clay, silty clay, lean clay, and sandy silty clay that extended to the termination depths of the borings. Boring B-1 disclosed medium dense clayey silt and fine silty clay below a depth of 12 feet bgs.

The **General Notes** sheet, which follows the boring log included in Appendix B, explains the consistencies relative density correlations based on SPT N-values in accordance with ASTM D-1586.

Groundwater Measurements: Groundwater was encountered in test boring B-1 at a depth of about 15 feet bgs during and after drilling. The remaining test borings were dry at the time of drilling. The groundwater depths shown on the boring logs reflect groundwater levels **only** for the date on which the borings were drilled. Based on the engineering characteristics of the encountered soils, water infiltration following heavy precipitations may be encountered.

GEOTECHNICAL RECOMMENDATIONS

Soil Analysis and Considerations

The existing near surface clay soils disclosed in test borings B-1 through B-3 are moisture sensitive and depending on weather and time of year earthwork will take place, remediation of these soils may be required. Extending footing excavations below any very moist and low strength clay soils should be expected.

Building Foundation Recommendations

Our findings indicated that the proposed building can be supported over approved native, stiff to very stiff soils and/or on compacted engineered fill extending from approved native soils. Footings prepared as discussed above can be designed for maximum net allowable soil bearing pressures of **2,500 pounds per square foot (psf)** for column (square type) and **2,000 psf for** wall (strip type) footings. The provided soil-bearing capacity values must be confirmed by performing tests at the time of construction.

A GME Testing geotechnical engineer or designee should be retained on site to evaluate that all footings bear on suitable bearing soils as recommended in this report. Under no circumstances should new foundations bear on weak soils, undocumented fill materials, or any unsuitable material.

Where unsuitable soils are encountered, footing may extend deeper to firm, native soils or replace with a lean concrete mix. It is recommended that the lean concrete mix consists of 2,000 psi compressive strength after 28 days. Exhibit B, included in Appendix A of this report, provides this illustration.

When using net pressure, the weight of the footing and backfill over the footing, including the weight of the floor slab, need not be considered. Hence, only loads applied at or above the finished floor must be used to dimension the footings.

New fill soil below, above, and surrounding footings shall consist of approved materials, and then placed and compacted in accordance with this report.

Provided that our recommendations in this report and project specifications are followed, total foundation settlements should not exceed 1 inch with differential settlements of up to ½ inch. Careful field control and proper footing proportions will contribute substantially to minimizing total and differential settlements. Therefore, it is recommended that GME Testing be retained to inspect the bottom of the footings before forming and placing steel or concrete. Field control and proper footing proportions will contribute substantially to reducing total and differential settlements.

Foundation Frost Depth

All approved foundations resting on competent-bearing soils must be protected during and post-construction. All exterior footings and footings in unheated areas should be located at a depth of 3.5 feet or more below the final exterior grade for frost protection and bear on approved, firm materials.

Seismicity Classification

Based on the ASCE 7-10 criteria, a seismic site class “D” may be applied for this project site and is assigned to “Risk Category III”. The project site falls within “Seismic Design Category B”. The resulting seismic design parameters for the site are S_{DS} = 0.163 and S_{D1} = 0.113. The seismic report for the project site is included in Appendix B for further details.

Ground-Supported Floor Slabs

The floor slabs may be constructed as slabs-on-grade, supported by natural, firm soils or well-compacted engineered fill material.

The floor slabs should be prepared as discussed in the subsequent ***Site Preparation*** section of this report, which include subgrade inspection and the needs to provide a satisfactory proofrolling evaluation to determine that suitable subgrade is present. A qualified structural engineer should design the floor slabs for the anticipated loadings.

We recommend that compacted granular material be placed beneath all floor slabs consisting of approximately 8 inches or more of free-draining granular material (i.e., crushed limestone meeting INDOT No. 53 gradation requirements).

Provided that the subgrade is satisfactory prepared and the floor slab will be underlain by a suitable thickness of compacted granular materials, a subgrade modulus K of 110 pci may be used for design. The floor slab subgrade should be compacted to achieve 95 percent or more, as determined by ASTM D-1557. The slab subgrade should be adequately protected from inclement weather and disturbance by construction traffic.

The use of a vapor retarder should be considered when slabs will receive moisture-sensitive or impervious floor coverings (e.g., wood, tile, or carpet), when installed in humidity-controlled environments. In such cases, the slab designer should refer to ACI 302 and ACI 360 for proper vapor retarder selection, placement, and related precautions.

Loading Dock Walls

If loading dock walls will be included, it is recommended that the backfill material behind the wall consist of INDOT No. 53 crushed limestone aggregate. Such material must be placed in loose 8 inches lifts and compacted to a minimum of 95 percent of the maximum dry density (ASTM D-1557). The lateral backfill distance behind the wall should meet or exceed wall height.

Perimeter drainage pipes, if needed, should be located behind the walls to collect any water entering the walls and should be directed away and outside loading dock walls and footings. Incorporation of additional waterproofing features and sub-drainage provisions is recommended to prevent moisture intrusion and to provide redundancy.

Parking and Driveway Subgrade Areas

Based on soils encountered in the test borings, a preliminary California Bearing Ratio (CBR) value of approximately 3 percent (corresponding to a resilient modulus of approximately 4,500 psi) is provided for preliminary pavement design and estimating purposes.

Remediation of unstable areas within pavement areas may consist of undercutting and replacement with a large open-graded stone choked with dense-graded aggregate, in conjunction with geogrid. Therefore, it is recommended that an undistributed quantity of dense-graded aggregate and geogrid be included in the project contract documents to facilitate subgrade stabilization where necessary.

GENERAL EARTHWORK AND CONSTRUCTION RECOMMENDATIONS

Site Preparation

The removal of existing topsoil, vegetation, tree root mass and any unsuitable soils should be anticipated. The exposed subgrade should then be proofrolled, prior to placing compacted engineered fill, to identify any unstable areas that will require remediation.

The existing near surface clay soils observed in the test borings are moisture sensitive and anticipated to be unstable under wet weather conditions and heavy construction traffic. If unstable clay soil subgrades exhibit moisture contents exceeding approximately 2 percent above optimum, as determined in accordance with ASTM D-1557, scarification and moisture conditioning followed by compaction may be necessary. If localized instability (e.g., pumping or yielding) of subgrades is encountered, it should be corrected removal and replacement with approved compacted engineered fill.

Adverse weather or heavy construction traffic may reduce soil workability. Heavy traffic should be limited to designated haul routes to prevent subgrade instability. It is recommended that earthwork and site preparation be performed during warm, dry weather conditions.

Engineered Fill

Any engineered fill used to replace undercuts or backfill foundations should be approved by a GME engineer and should be compacted using suitable equipment to a dry density of 95 percent or more of the maximum density obtained in accordance with ASTM D-1557. The compaction moisture content should generally be within 2 percent of the optimum.

To achieve the recommended compaction limit of the structural fill, the fill material should be placed and compacted in layers not exceeding 8 inches in loose thickness (the loose lift thickness should be reduced to 6 inches when utilizing small hand compactors). GME Testing should be retained to provide continuous inspection and documentation of the earthwork process.

Temporary Excavations and Trenches

All excavation and trenching operations shall comply with OSHA 29 CFR 1926, Subpart P. Excavations shall be monitored by a qualified “Competent Person,” and appropriate sloping or shoring shall be provided to prevent cave-ins.

Surface Water

Maintaining positive drainage of surface water away from the structure's foundations during and post-construction is essential for preventing water infiltration, deterioration of moisture sensitive subgrades, and potential damage to the structure. Surface water should be directed toward designated outfalls to ensure proper runoff management.

GENERAL COMMENTS

This field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical investigation report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. Although individual test borings are representative of the subsurface conditions at the boring locations on the dates drilled, they are not necessarily representative of the subsurface conditions between boring locations or subsurface conditions during other seasons of the year.

The lines of demarcation shown on the logs represent approximate boundaries between the various classifications. The stratification of soils, as shown on the accompanying test borehole logs, represents the soil conditions at the drilled borehole locations, and variations may occur between the boreholes. In-situ strata changes could occur gradually or at different levels. Also, it should be noted that the boreholes depict conditions at the particular locations and times indicated.

The report was prepared by GME Testing solely for the use of the Client in accordance with an executed contract. The Client's use of or reliance on this report is limited by the terms and conditions of the contract and by the qualifications and limitations stated in the report. It is also acknowledged that the Client's use of and reliance of this report is limited for reasons which include actual site conditions that may change with time; hidden conditions, not discoverable within the scope of the assessment may exist at the site; and the scope of the investigation may have been limited by time, budget and other constraints imposed by the client.

Neither the report nor its contents, conclusions, or recommendations are intended for the use of any party other than the Client. GME Testing and the Client assume no liability for any reliance placed on this report by such party. The rights of the client under contract may not be assigned to any person or entity, without the consent of GME Testing which shall not be unreasonably withheld.

Our services have been provided consistent with its professional standards of care. No other warranties are made, either expressed or implied.

Should you have any questions related to this report, please contact us at your convenience.

Sincerely,
GME Testing

Rami M. Anabtawi, P.E., BC.GE

RAMI M. ANABTAWI
920294
REGISTERED
PROFESSIONAL
ENGINEER
STATE OF INDIANA

Moe Kyaw, E.I.

APPENDIX A

I. FIELD EXPLORATION

Drilling and Sampling Procedures

The test borings were drilled using conventional augers to advance the holes and representative samples of the soils were obtained employing split-barrel sampling techniques in accordance with ASTM procedures D-1586-84. After completion of the borings and water level readings, the auger holes were backfilled with auger cuttings.

The description and depths of soil strata encountered and levels at which samples were recovered are indicated on the accompanying borehole log sheets in the Appendix B. In the column “Soil/Material Description” on the drill borehole log, the horizontal lines represent stratum changes. A solid line represents an observed change, and a dashed line represents an estimated change. An explanation of the symbols and terms used on the boring log sheets is given in Appendix B of this report.

Field Tests and Measurements

Standard Penetration Test: During the sampling procedures, Standard Penetration Test (SPT) was performed at regular intervals through the depth of the borings. The SPT value (“N”-value) is defined as the number of blows required to advance a 2-inch O.D., split-barrel sampler a distance of one foot by a 140-pound hammer falling 30-inches. These values provide a useful preliminary indication of the consistency or relative density of most soil deposits and are included on the Borehole Logs in Appendix B.

Water Level Measurements: Groundwater level observations were made in the boring holes during and upon completion of the boring operations. The groundwater level measurements are noted on the boring logs presented herein.

All recovered samples were returned to GME Testing laboratory for visual examination and subsequent laboratory testing.

II. LABORATORY TESTING

Selected soil samples obtained from the drilling and sampling program were tested in the laboratory to evaluate additional pertinent engineering characteristics of the foundation materials necessary in estimating the engineering properties of these materials.

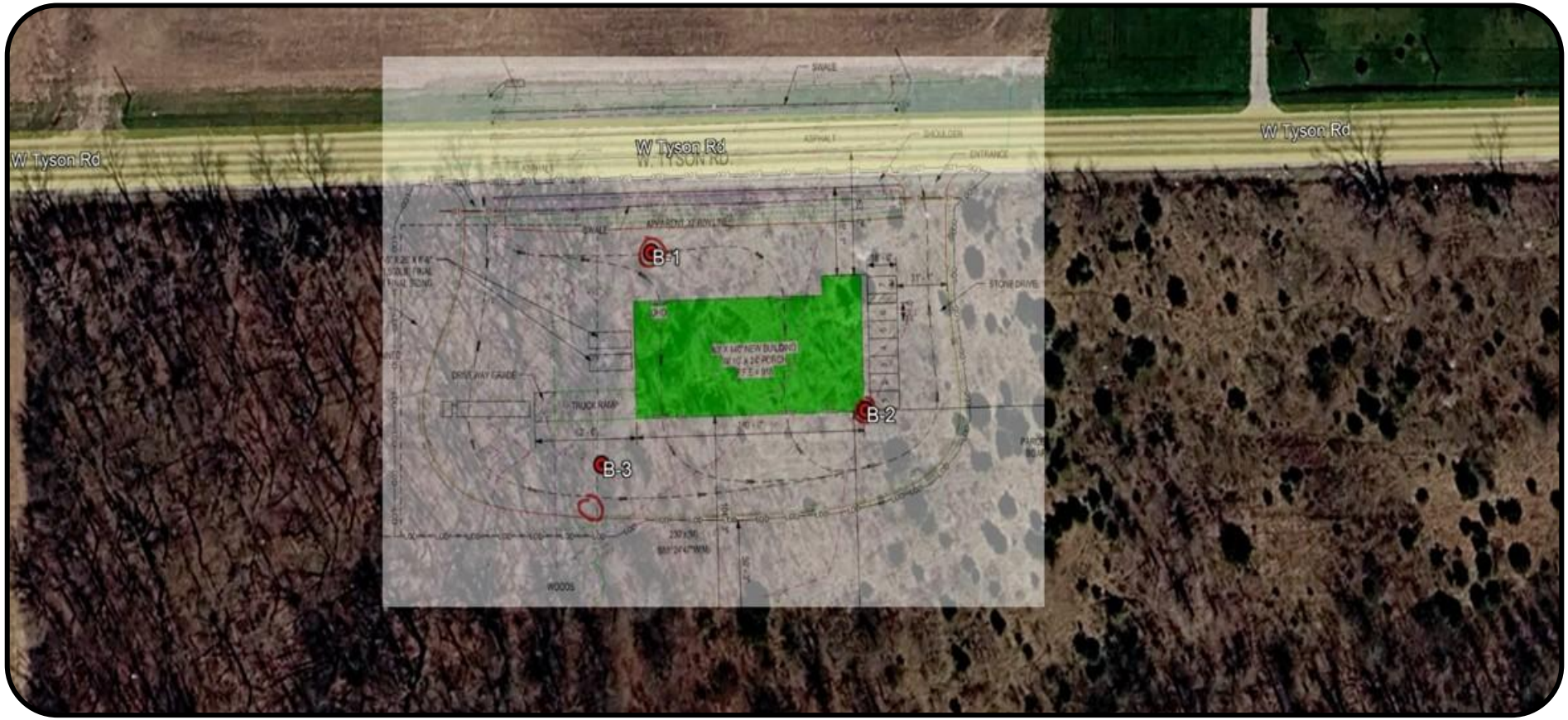
Soil Laboratory Tests and Measurements

Visual Classification: All samples were visually classified by a geotechnical engineer in general accordance with ASTM D-2488, and on the Borehole Logs, which are located in Appendix B of this report.

Moisture Content Tests: The natural moisture content of selected samples was determined by ASTM method D-2216 and is recorded on the Borehole Logs as a percentage of dry weight of soil under the "MC".

Hand Penetration Tests: Samples of cohesive soils obtained from the split spoon sampler were tested with a calibrated hand penetrometer to aid in evaluating the soil strength characteristics. The results from this testing are tabulated on the Borehole Logs under the heading "Q_P".

Unconfined Compressive Strength Tests: The undrained shear strengths of the cohesive soils were evaluated utilizing unconfined compressive tests on specimens obtained from the split-barrel and/or thin wall tube sampler. The values of strength tests performed on soil samples obtained from the split-barrel sampler are considered approximate recognizing that the sampler provides a representative but somewhat disturbed sample. The test results are tabulated on the Borehole Logs under the heading "Q_u".



N

0’ 100’ 200’

GRAPHIC SCALE: 1” = 100’

LEGEND

APPROXIMATE BORING LOCATION

NOTE:

1. AERIAL IMAGE TAKEN FROM GOOGLE EARTH WITH AN IMAGE DATE OF 04/11/2025.

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EXHIBIT A

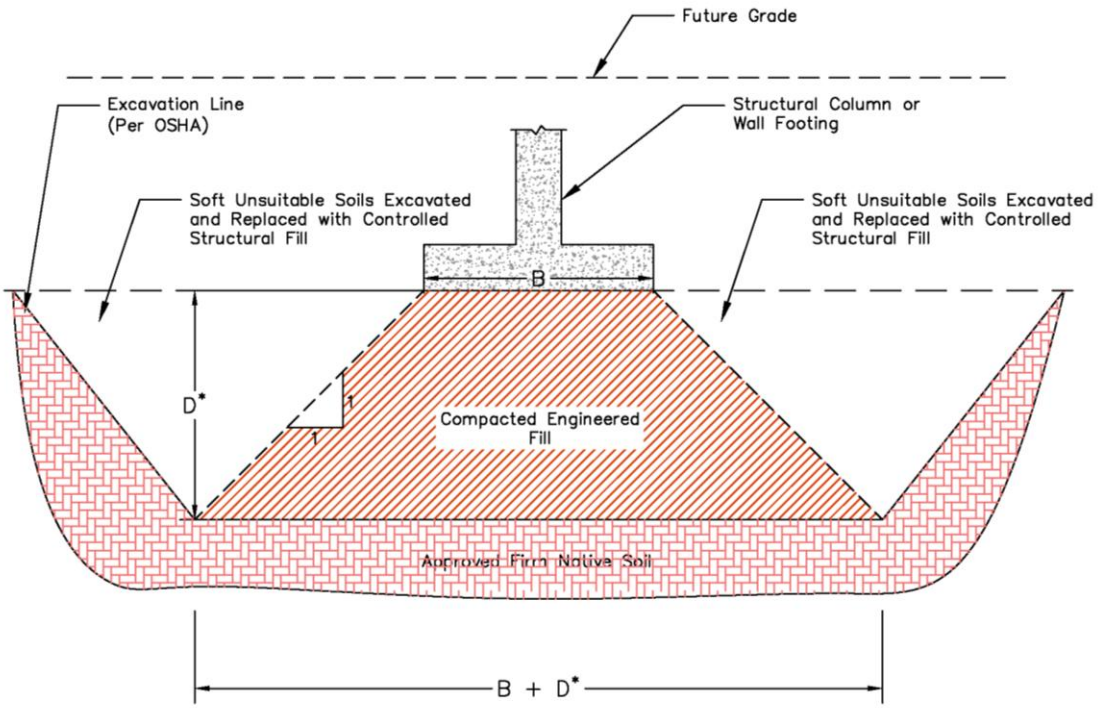
BORING LOCATION DIAGRAM

Proposed New Building

Just South of 1494 West Tyson Road, Portland, IN

No.	Revision Date	Date: 2/2/26
		Prepared By: MK
		Scale: AS NOTED
		Client: MSS Engineering
		Project: G26-013296

UNDERCUT EXCAVATION FOR FOOTINGS IN UNSTABLE MATERIALS REPLACED WITH COMPACTED STRUCTURAL FILL



UNDERCUT EXCAVATION FOR FOOTINGS IN UNSUITABLE MATERIALS REPLACED WITH LEAN CONCRETE

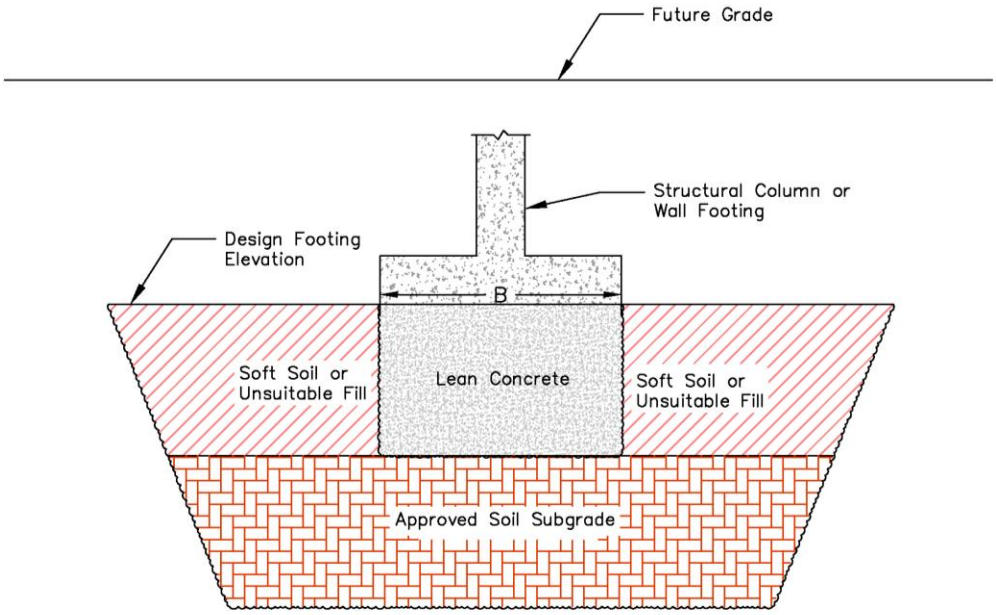


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EXHIBIT B - UNDERCUT EXCAVATION BELOW FOOTINGS

GME PROJECT NO.

G26-013296

APPENDIX B

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TEST BORING LOG

BORING NO.: **B-1**
SHEET 1 OF 1
GME PROJECT NO: G26-013296
STRUCTURE
DATUM :
DATE STARTED : 01-21-26
DRILLER/INSP : JS/AB

CLIENT: MSS Enginering
PROJECT TYPE : Proposed New Building
LOCATION : Just South of 1494 West Tyson Road, Portland, IN

ELEVATION	: 917.0	BORING METHOD	: ASTM D-1586	LATITUDE	: 40.431575
STATION	:	RIG TYPE	: Skid	LONGITUDE	: -85.009444
OFFSET	:	CASING DIA.	: 3.3 in		
LINE	:	HAMMER	: Auto		
DEPTH	: 20.0 ft				

GROUNDWATER: ▽ Encountered at 15.0 ft ▼ At completion 15.0 ft ▨ Caved in at 16.0 ft

STRATUM ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6" (N)	% RECOVERY	% MOISTURE CONTENT	UNCONF. COMP., tsf	Qp (tsf)	REMARKS
916.3		±9" Dark Brown, Clayey TOPSOIL. 0.8							
	2.5	Dark Gray and Gray, Moist, CLAY, Trace Roots.	SS 1	4-4-5 (9)	100	23.1	1.6	1.5	
914.5		2.5							
	5.0		SS 2	6-6-7 (13)	100	19.3		4.5+	
	7.5	Brown and Gray, Moist, SILTY CLAY.	SS 3	14-18-24 (42)	100	17.1			
	10.0		SS 4	12-17-22 (39)	100	18.4		4.5+	
905.0		12.0							
	12.5	Gray, Very Moist, CLAYEY SILT.							
902.5		14.5	SS 5	6-8-10 (18)	100	22.3			
	15.0 ▼ ▨								
	17.5	Gray, Wet, Fine SILTY SAND.							
897.0	20.0	20.0	SS 6	7-10-14 (24)	100				
		Bottom of Boring at 20.0 ft							
	22.5								
	25.0								

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TEST BORING LOG

BORING NO.: **B-2**
SHEET 1 OF 1
GME PROJECT NO: G26-013296
STRUCTURE
DATUM :
DATE STARTED : 01-21-26
DRILLER/INSP : JS/AB

CLIENT: MSS Enginering
PROJECT TYPE : Proposed New Building
LOCATION : Just South of 1494 West Tyson Road, Portland, IN

ELEVATION	: 919.0	BORING METHOD	: ASTM D-1586	LATITUDE	: 40.431333
STATION	:	RIG TYPE	: Skid	LONGITUDE	: -85.008961
OFFSET	:	CASING DIA.	: 3.3 in		
LINE	:	HAMMER	: Auto		
DEPTH	: 20.0 ft				

GROUNDWATER: ▽ Encountered at Dry ▼ At completion Dry

STRATUM ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6" (N)	% RECOVERY	% MOISTURE CONTENT	UNCONF. COMP., tsf	Qp (tsf)	REMARKS
918.4		±7" Brown, Clayey TOPSOIL. 0.6							
	2.5	Brown and Gray, Moist, CLAY.	SS 1	4-4-6 (10)	100	22.6		2.5	
915.5		3.5							
	5.0		SS 2	6-8-11 (19)	100	15.4		4.5+	
	7.5		SS 3	7-7-12 (19)	100	18.1		4.5+	
		Brown and Gray, Moist, SILTY CLAY, Trace Sand Lenses @ ±4'.							
	10.0		SS 4	10-11-16 (27)	100	17.7			
	12.5								
905.5		13.5							
	15.0		SS 5	8-9-10 (19)	100	11.6		3.0	
		Gray, Moist, SANDY SILTY CLAY, Trace Gravel.							
	17.5								
899.0	20.0	20.0	SS 6	7-9-11 (20)	100	15.9		2.5	
		Bottom of Boring at 20.0 ft							
	22.5								
	25.0								

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TEST BORING LOG

BORING NO.: **B-3**
SHEET 1 OF 1
GME PROJECT NO: G26-013296
STRUCTURE
DATUM :
DATE STARTED : 01-21-26
DRILLER/INSP : JS/AB

CLIENT: MSS Enginering
PROJECT TYPE : Proposed New Building
LOCATION : Just South of 1494 West Tyson Road, Portland, IN

ELEVATION	: 918.0	BORING METHOD	: ASTM D-1586	LATITUDE	: 40.431249
STATION	:	RIG TYPE	: Skid	LONGITUDE	: -85.009556
OFFSET	:	CASING DIA.	: 3.3 in		
LINE	:	HAMMER	: Auto		
DEPTH	: 20.0 ft				

GROUNDWATER: ▽ Encountered at Dry ▼ At completion Dry

STRATUM ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6" (N)	% RECOVERY	% MOISTURE CONTENT	UNCONF. COMP., tsf	Qp (tsf)	REMARKS
917.3		±8.5" Dark Brown, Clayey TOPSOIL. 0.7							
	2.5		SS 1	7-9-10 (19)	100	18.8	9.4	4.5+	
	5.0		SS 2	11-17-23 (40)	100	15.7		4.5+	
		Brown and Gray, Moist, SILTY CLAY.							
	7.5		SS 3	14-20-28 (48)	100	16.8		4.5+	
	10.0		SS 4	16-23-31 (54)	100	18.1		4.5+	
906.0		12.0							
	12.5								
	15.0		SS 5	6-7-10 (17)	100	22.2	3.9	3.5	
		Gray, Moist, LEAN CLAY, Trace Fine Gravel.							
	17.5								
898.0	20.0	20.0	SS 6	7-9-11 (20)	100	24.1		2.0	
		Bottom of Boring at 20.0 ft							
	22.5								
	25.0								

GENERAL NOTES

SAMPLE IDENTIFICATION

Visual soil classifications are made in general accordance with the United States Soil Classification System on the basis of textural and particle size categorization, and various soil behavior and characteristics. Visual classifications should be made by appropriate laboratory testing when more exact soil identification is required to satisfy specific project applications criteria.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1-10 %
Little	11-20 %
Some	21-35 %
And	36-50 %

WATER LEVEL MEASUREMENT

NE	No Water Encountered
BF	Backfilled upon Completion

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4-15 %
Organic Soil (A-8)	16-30 %
Peat (A-8)	More than 30%

LABORATORY TESTS

Qp	Penetrometer Reading, tsf
Qu	Unconfined Strength, tsf
MC	Moisture Content, %
LL	Liquid Limit, %
PL	Plastic Limit, %
PI	Plastic Index
SL	Shrinkage Limit, %
pH	Measure of Soil Alkalinity/Acidity
γ	Dry Unit Weight, pcf
LOI	Loss of Ignition, %

DRILLING AND SAMPLING SYMBOLS

AS	Auger Sample
BS	Bag Sample
PID	Photo ionization Detector (Hnu meter) volatile vapor level,(PPM)
COA	Clean-Out Auger
CS	Continuous Sampling
FA	Flight Auger
HA	Hand Auger
HAS	Hollow Stem Auger
NR	No Recovery
PT	3” O.D. Piston Tube Sample
RB	Rock Bit
RC	Rock Coring
REC	Recovery
RQD	Rock Quality Designation
RS	Rock Sounding
S	Soil Sounding
SS	2”O.D. Split-Barrel Sample
2ST	2”O.D. Tin-Walled Tube Sample
3ST	3” O.D. Thin-Walled Tube Sample
VS	Vane Shear Test
DB	Diamond Bit
WS	Wash Sample
RB	Roller Bit
ST	Shelby Tube, 2” O.D. or 3” O.D.
CB	Carbide Bit
WOH	Weight of the Hammer

GRAIN SIZE TERMINOLOGY

Soil fraction	Particle size	Us standard sieve size
Boulders	larger than 75 mm	Larger than 3”
Gravel	2mm to 75 mm	#10 to 75 mm
Coarse Sand	0.425 mm to 2 mm	#40 to #10
Fine Sand	0.075mm to 0.425 mm	#200 to #40
Silt	0.002 mm to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

RELATIVE DENSITY

Term	“N” Value
Very Loose	0-5
Loose	6-10
Medium Dense	11-30
Dense	31-50
Very Dense	51+

CONSISTENCY

Term	“N” Value
Very Soft	0-3
Soft	4-5
Medium Stiff	6-10
Stiff	11-15
Very Stiff	16-30
Hard	31+

PLASTICITY

Term	Plastic Index
None to Slight	0-4
Slight	5-7
Medium	8-22
High/Very High	Over 22

Note(s):
The penetration resistance, “N” Value, is the summation of the number of blows required to effect two successive 6-inch penetrations of the 2-inch split-barrel sampler. The sampler is driven with a 140-lb. weight falling 30-inches and is seated to a depth of 6-inches before commencing the standard penetration test.
Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils

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Fort Wayne, IN 46818
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Division of ***GEOTECHNICAL & MATERIALS ENGINEERS, INC.***
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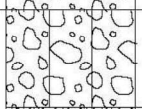
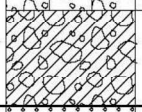
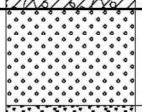
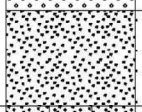
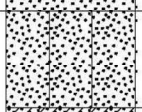
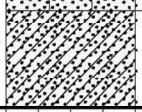
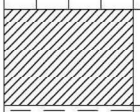
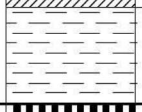
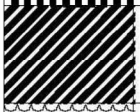
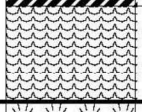
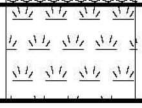
SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

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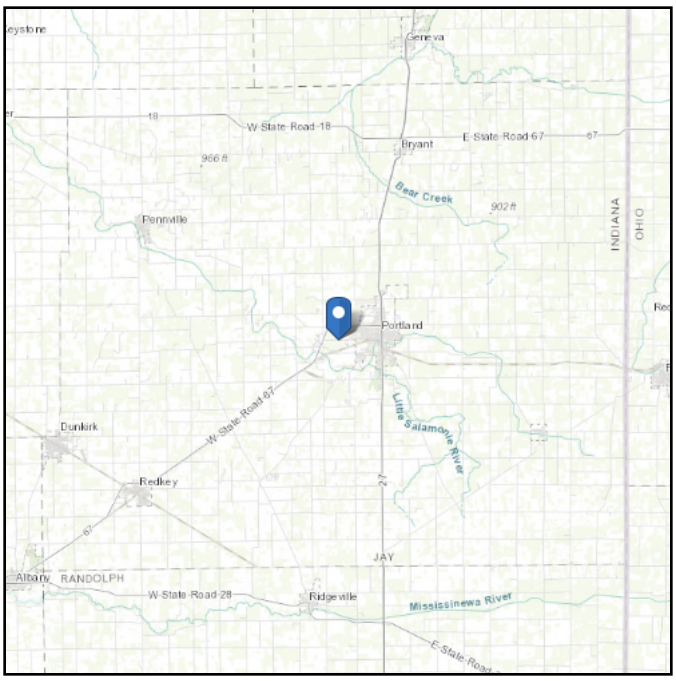
ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Latitude:**	40.431333
Risk Category:	III	**Longitude:**	-85.008961
Soil Class:	D - Stiff Soil	**Elevation:**	917.1515730726028 ft (NAVD 88)



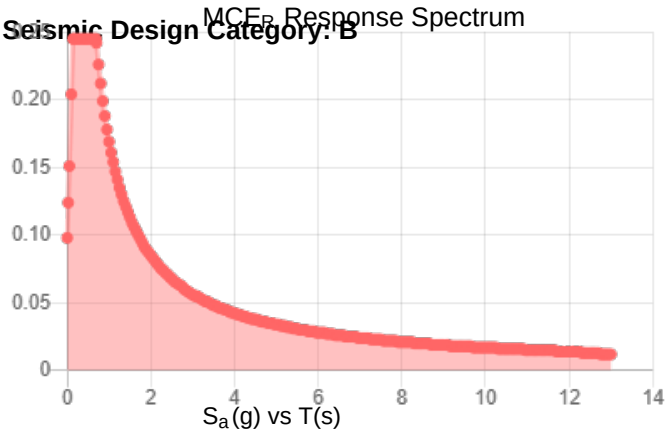
Seismic

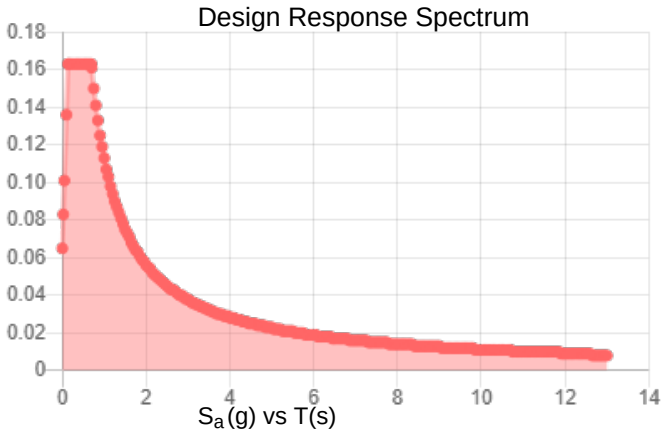
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.153	S_{D1} :	0.113
S_1 :	0.071	T_L :	12
F_a :	1.6	PGA :	0.076
F_v :	2.4	PGA_M :	0.122
S_{MS} :	0.245	F_{PGA} :	1.6
S_{M1} :	0.169	I_e :	1.25
S_{DS} :	0.163		

Seismic Design Category: B





Data Accessed: **Wed Jan 28 2026**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

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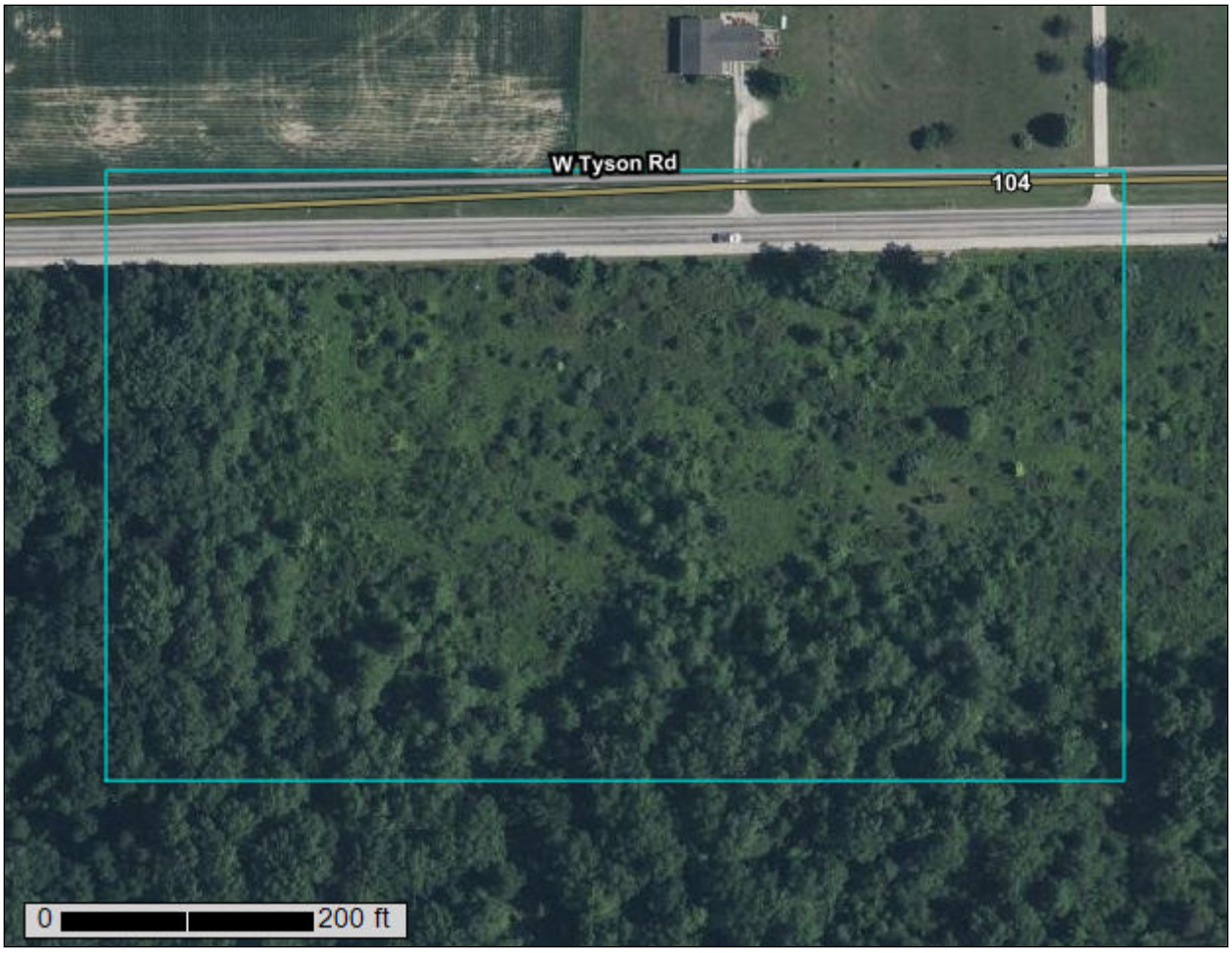
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Jay County, Indiana



January 28, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,350 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jay County, Indiana
Survey Area Data: Version 27, Sep 3, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2023—Aug 4, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BlA	Blount-Glynwood, thin solum complex, 0 to 3 percent slopes	6.6	73.7%
Pm	Pewamo silty clay, 0 to 2 percent slopes	2.4	26.3%
Totals for Area of Interest		**8.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Jay County, Indiana

BlA—Blount-Glynwood, thin solum complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 725n
Elevation: 640 to 1,150 feet
Mean annual precipitation: 34 to 39 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 165 to 175 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount and similar soils: 75 percent
Glynwood and similar soils: 20 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount

Setting

Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over moderately fine-textured, wisconsin till

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 24 inches: silty clay
BCt - 24 to 34 inches: silty clay loam
Cd - 34 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XB502IN - Wet Till Ridge
Hydric soil rating: No

Description of Glynwood

Setting

Landform: Till plains, Moraines
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey till

Typical profile

Ap - 0 to 9 inches: clay loam
Bt - 9 to 21 inches: clay
Cd - 21 to 60 inches: clay loam

Properties and qualities

Slope: 2 to 3 percent
Depth to restrictive feature: 16 to 40 inches to densic material
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F111XE503IN - Till Ridge
Hydric soil rating: No

Minor Components

Bono

Percent of map unit: 3 percent
Landform: Depressions on lake plains
Hydric soil rating: Yes

Pewamo

Percent of map unit: 2 percent
Landform: Depressions on till plains, Depressions on moraines
Hydric soil rating: Yes

Pm—Pewamo silty clay, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t6m0
Landscape: Till plains
Elevation: 700 to 1,300 feet
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pewamo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pewamo

Setting

Landscape: Till plains
Landform: Depressions on till plains, Drainageways on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 11 inches: silty clay
Bg1 - 11 to 34 inches: silty clay
Bg2 - 34 to 47 inches: silty clay
BCg - 47 to 57 inches: clay loam
Cg - 57 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XB501IN - Till Depression
Hydric soil rating: Yes

Minor Components

Blount

Percent of map unit: 9 percent
Landscape: Till plains
Landform: Ground moraines on till plains, End moraines on till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111XB502IN - Wet Till Ridge
Hydric soil rating: No

Minster

Percent of map unit: 6 percent
Landscape: Till plains
Landform: Depressions on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F111XB101IN - Lacustrine Flatwood
Hydric soil rating: Yes

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