PRELIMINARY DEVELOPMENT PLAN
FOR

WESTBROOK ESTATES SUBDIVISION

2001 E. WESTBROOK ROAD
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO

SHEET INDEX

SITE DATA

EXISTING SITE ZONING:	RSD (RESIDENTIAL SINGLE UNIT DISTRICT)
PROPOSED SITE ZONING:	PDD (PLANNED DEVELOPMENT DISTRICT)
PROJECT SITE AREA:	29.76 AC
PROPOSED PUBLIC RIGHT-OF-WAY:	4.59 AC (15.42%)
OPEN SPACE:	5.90 AC (19.83%)
TOTAL LOT AREA:	16.35 AC
TOTAL LOTS:	103
LOT DIMENSIONS:	52'X126' (MIN.)
GROSS AREA DENSITY:	5.57 LOTS / ACRE
MIN. LOT AREA:	6,552 SF
MIN. SETBACKS (FRONT/SIDE/REAR):	20'/6'/30'
PAD (WIDTH/DEPTH):	40'/70'
LOCAL ROAD LENGTH:	±3,845 LF
ROAD LENGTH / LOT RATIO:	±42 LF / LOT
TYPICAL R/W WIDTH:	50'

*LOT DEPTHS MAY VARY SLIGHTLY ON FINAL DESIGN

WASTEWATER DISPOSAL TO BE SERVED BY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES WASTEWATER TREATMENT PLANTS.

BASIS OF BEARING

BEARINGS SHOWN HEREON ARE BASED ON SOUTH 86 DEGREES 09 MINUTES 55 SECONDS EAST FOR THE CENTERLINE OF MCCUTCHEON ROAD, MEASURED FROM GRID NORTH, REFERENCED TO THE OHIO STATE PLANE COORDINATE SYSTEM (SOUTH ZONE) AND THE NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT), AS ESTABLISHED UTILIZING A GPS SURVEY AND AN NGS OPUS SOLUTION

HORIZONTAL CONTROL

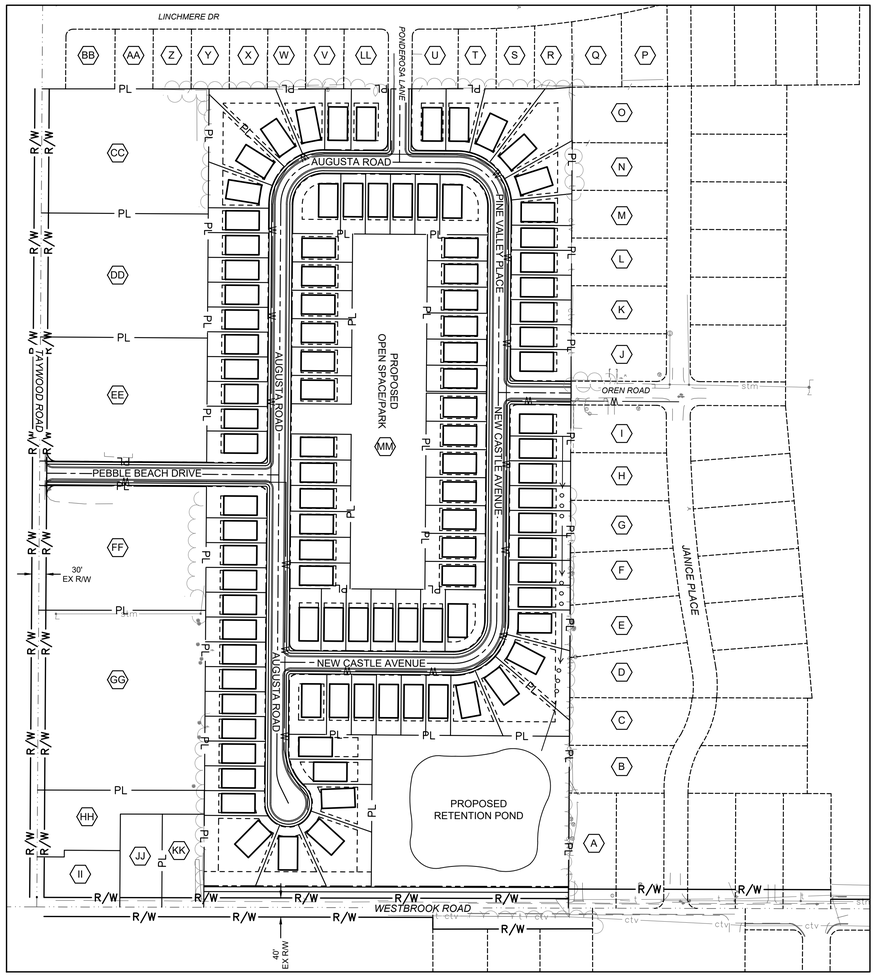
COORDINATES ARE BASED ON OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT), AS ESTABLISHED UTILIZING A GPS SURVEY AND AN NGS OPUS SOLUTION. A PROJECT ADJUSTMENT FACTOR OF 1.00007251 WAS APPLIED ABOUT CONTROL POINT 5000 TO OBTAIN GROUND COORDINATES.

C.P.	DESCRIPTION	NORTHING (GROUND)	EASTING (GROUND)	ELEVATION
5000	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	673626.648	1465383.392	932.72
5001	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	673404.493	1465302.930	933.89
5003	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	674532.629	1465315.683	938.07
5004	MAG NAIL SET	674528.636	1466045.733	931.91
5005	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	674510.894	1466615.691	917.55
5006	MAG SPIKE SET	673714.396	1466417.065	908.89
5007	MAG SPIKE SET	673706.350	1466664.574	900.50
5008	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	672619.993	1466615.905	888.14
5009	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	672648.687	1466934.500	888.31
5010	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	672624.637	1465298.042	934.38
5011	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	672657.354	1465899.426	923.62

VERTICAL CONTROL

ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, AS DERIVED FROM GNSS OBSERVATIONS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT) AND GEOID 18, AND AN NGS OPUS SOLUTION FOR CONTROL POINT 5000. THE ELEVATIONS FOR ALL OTHER CONTROL POINTS AND BENCHMARKS LISTED HEREON WERE ESTABLISHED UTILIZING A DIFFERENTIAL LEVEL CIRCUIT ORIGINATING FROM CONTROL POINT 5000.

B.M.	DESCRIPTION	NORTHING (GROUND)	EASTING (GROUND)	ELEVATION
CP 5000	5/8" IRON PIN SET W/ "ASI CONTROL POINT" CAP	673626.648	1465383.392	932.72
TBM 500	CUT "X" ON FIRE HYDRANT "OPEN" BOLT, LOCATED ON THE EAST SIDE OF TAYWOOD ROAD, 7.5 FEET EAST OF THE EAST EDGE OF PAVEMENT, 16.5 FEET NORTHWEST OF #6100 TAYWOOD ROAD APARTMENTS SIGN	N/A	N/A	934.34
TBM 501	CUT"X" ON FIRE HYDRANT ARROW BOLT, LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF TAYWOOD ROAD AND LINCHMERE DRIVE, 9.5 FEET NORTH OF THE BACK OF CURB, 13 FEET WEST OF WEST EDGE OF SIDEWALK	N/A	N/A	940.04
TBM 502	CUT "X" ON FIRE HYDRANT ARROW BOLT, LOCATED ON THE NORTH SIDE OF LINCHMERE DRIVE, 22 FEET EAST OF THE EAST EDGE OF DRIVE FOR #4397 LINCHMERE DRIVE	N/A	N/A	930.45
TBM 503	CUT "X" ON FIRE HYDRANT ARROW BOLT, LOCATED ON THE NORTH SIDE OF WESTBROOK ROAD, 13 FEET WEST OF #1631 WESTBROOK ROAD	N/A	N/A	896.69
TBM 504	MAG SPIKE FOUND IN UTILITY POLE, LOCATED 14 FEET WEST OF THE WEST DEAD-END OF OREN ROAD	N/A	N/A	912.30
TBM 505	CUT "X" ON FIRE HYDRANT ARROW BOLT, LOCATED ON THE EAST SIDE OF JANICE PLACE, 12.5 FEET NORTH OF A PIPE OUTLET, LOCATED NORTH OF # 6158 JANICE PLACE	N/A	N/A	899.40
TBM 506	CUT "X" ON FIRE HYDRANT ARROW BOLT, LOCATED ON THE NORTH SIDE OF WESTBROOK ROAD, ACROSS FROM DRIVE FOR 1600 WESTBROOK ROAD	N/A	N/A	891.67
TBM 507	CUT "X" ON FIRE HYDRANT ARROW BOLT, LOCATED ON THE NORTH SIDE OF WESTBROOK ROAD, 56 FEET EAST OF CONTROL POINT # 5011	N/A	N/A	926.74



INDEX MAP
1" = 150'

VICINITY MAP
NTS

PARCEL INFO

A	PID M60116416-0001 HARPER MATTHEW LEE 1631 WESTBROOK RD	N	GEBHART MARCIA PID: M60116416-0020 6299 JANICE PLACE 0.4591 ACRES LOT 20	CC	PID: M60103209-0071 NOAH GABRIEL RABE JESSICA FAITH RABE I.N. 2023-00003489 2.099 ACRES
B	VARNER CHARLES K & CATHERINE VARNER PID: M60116416-0009 DEED: 1999-007755B012 6059 JANICE PLACE 0.5014 ACRES LOT 9	O	ROBINSON HENRY JR PID: M60116416-0021 6315 JANICE PLACE 0.5418 ACRES LOT 21	DD	PID: M60103209-0073 MICHAEL L. GARRON ELIZABETH Q. GARRON I.N. 2023-00026479 2.089 ACRES
C	NUNNARI RONALD A PID: M60116416-0008 6081 JANICE PLACE 0.6035 ACRES LOT 8	P	KEITH JUSTIN ANDREW PID: M6025213-0003 4336 LINCHMERE DR 0 ACRES LOT 14	EE	PID: M60103209-0074 BJM-R LTD DEED 96-0765 B08 2.089 ACRES
D	NUNNARI RONALD A PID: M60116416-0010 6101 JANICE PLACE DEED: 1993-00384D012 0.604 ACRES LOT 10	Q	HAFFNER KITCHEN DISTRIBUTING INC PID: M6025213-0002 4356 LINCHMERE DR DEED: 2000-00297B012 0 ACRES LOT 13	FF	PID: M60103209-0072 BJM-R LTD DEED 96-0765 B08 2.093 ACRES
E	D'ORAZIO MICHAEL & MARLENE M PID: M60116416-0011 6121 JANICE PLACE DEED: 1998-00699D010 0.5651 ACRES LOT 11	R	BROWN WILLIAM E. IV & MORIAH L PID: M6025213-0001 4376 LINCHMERE DR 0 ACRES LOT 12	GG	PID: M60103209-0026 DAYTON METROPOLITAN HOUSING AUTHORITY DEED 83-0362 D07 3.031 ACRES
F	GLOBAL HOUSING LTD PID: M60116416-0012 6141 JANICE PLACE 0.5096 ACRES LOT 12	S	MCCLOSKEY KEVIN W & ROXANNE R PID: M6025214-0005 4396 LINCHMERE DR DEED: 1991-00388C011 0 ACRES LOT 11	HH	PID: M60103209-0044 XBO PROPERTIES, LLC I.N. 2020-00059833 0.725 ACRES
G	ROBINSON TRAVIS PID: M60116416-0013 6161 JANICE PLACE DEED: DEED-09-054214 0.5328 ACRES LOT 13	T	BARRERA ANGELA PID: M6025214-0004 4416 LINCHMERE DR 0 ACRES LOT 10	II	PID: M60103209-0116 XBO PROPERTIES, LLC I.N. 2020-00059832 0.456 ACRES
H	HAMDI WAFAA YASMINE & YOUSSF PID: M60116416-0014 6181 JANICE PLACE 0.466 ACRES LOT 14	U	DENLINGER CHERYL B PID: M6025214-0003 4434 LINCHMERE DR 0 ACRES LOT 9	JJ	PID: M60103209-0029 ANTHONY DAVIS I.N. 2021-00094723 0.400 ACRES
I	RIZZO SAMUEL M & ALICE L PID: M60116416-0015 6191 JANICE PLACE 0.4247 ACRES LOT 15	V	GRAY JOSEPH PID: M6025214-0001 4478 LINCHMERE DR 0 ACRES LOT 7	KK	PID: M60103209-0027 BETTY M. MYERS DEED 01-0686 E06 0.400 ACRES
J	MOODY TESSA MARIE ANN & TYLER RAY MILLER PID: M60116416-0016 6221 JANICE PLACE 0.4591 ACRES LOT 16	W	HOUSTON JEROME & JENE N CALDWELL PID: M6025215-0006 4498 LINCHMERE DR 0 ACRES LOT 6	LL	GILL JAMES M & GINA M PID: M6025214-0002 4454 LINCHMERE DR DEED: 1981-00223A012 0 ACRES LOT 8
K	BROWN ERIC S PID: M60116416-0017 6241 JANICE PLACE DEED: 1994-00418E004 0.4591 ACRES LOT 17	X	LEE LORI & SHOTZI PID: M6025215-0005 4532 LINCHMERE DR 0 ACRES LOT 5	MM	PID: M60103209-0025 NICHOLAS ALBERT I.N. 2022-00067662 30.466 ACRES (DEED) 30.490 ACRES (MEAS.)
L	HAJDUK STANLEY J & KATHRYN L PID: M60116416-0018 6261 JANICE PLACE DEED: 1986-00667C011 0.4591 ACRES LOT 18	Y	SIMMONS ANGELA N & VICTOR L PID: M6025215-0004 4546 LINCHMERE DR 0 ACRES LOT 4		
M	TANNER FRANCES P PID: M60116416-0019 6281 JANICE PLACE DEED: 1992-00187D003 0.4591 ACRES LOT 19	Z	VINEBROOK HOMES BORROWER 2 LLC PID: M6025215-0003 4564 LINCHMERE DR 0 ACRES LOT 3		
		AA	TIPTON SCOTT E PID: M6025215-0002 4574 LINCHMERE DR 0 ACRES LOT 2		
		BB	MAYS MARK A SR & LATONIA R PID: M6025215-0001 6360 TAYWOOD RD DEED: 1999-00721C012 0 ACRES LOT 1		

OWNER/ DEVELOPER
MR. JASON LIU
10279 WELLINGTON BLVD.
POWELL, OHIO 43065
CONTACT: JASON LIU
PHONE: (614) 313-1268
EMAIL: JASONLIU1218@YAHOO.COM

SURVEYOR
AMERICAN STRUCTUREPOINT
2550 CORPORATE EXCHANGE DRIVE, SUITE 300
COLUMBUS, OHIO 43231
CONTACT: MIKE WARD
PHONE: 614-901-2235
EMAIL: MWARD@STRUCTUREPOINT.COM

ENGINEER
AMERICAN STRUCTUREPOINT
2550 CORPORATE EXCHANGE DRIVE, SUITE 300
COLUMBUS, OHIO 43231
CONTACT: BENJAMIN D. SCHILLING
PHONE: 614-901-2235
EMAIL: BSCHILLING@STRUCTUREPOINT.COM

STATE OF OHIO
MATTHEW J LILIE
E-86125
REGISTERED PROFESSIONAL ENGINEER

05/05/2025
DATE

REGISTERED ENGINEER
MATTHEW J. LILIE, E-86125, P.E.

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PRELIMINARY DEVELOPMENT PLAN
FOR
WESTBROOK ESTATES
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
TITLE SHEET

REVISIONS	DATE	SHEET NO.	DESCRIPTION

APPROVAL PENDING NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

DATE:	5/1/2025
DRAWN BY:	DA
CHECKED BY:	MJL
JOB NUMBER:	2024.00508

PLOT SCALE: 1:1 EDIT DATE: 5/5/25 - 3:19 PM EDITED BY: DANUGERAH DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024.00508 TS.DWG

This existing conditions plat was prepared by others based on an actual field survey of the premises performed by American Structurepoint, Inc., in April, 2024, and is true and correct to the best of my knowledge and belief.

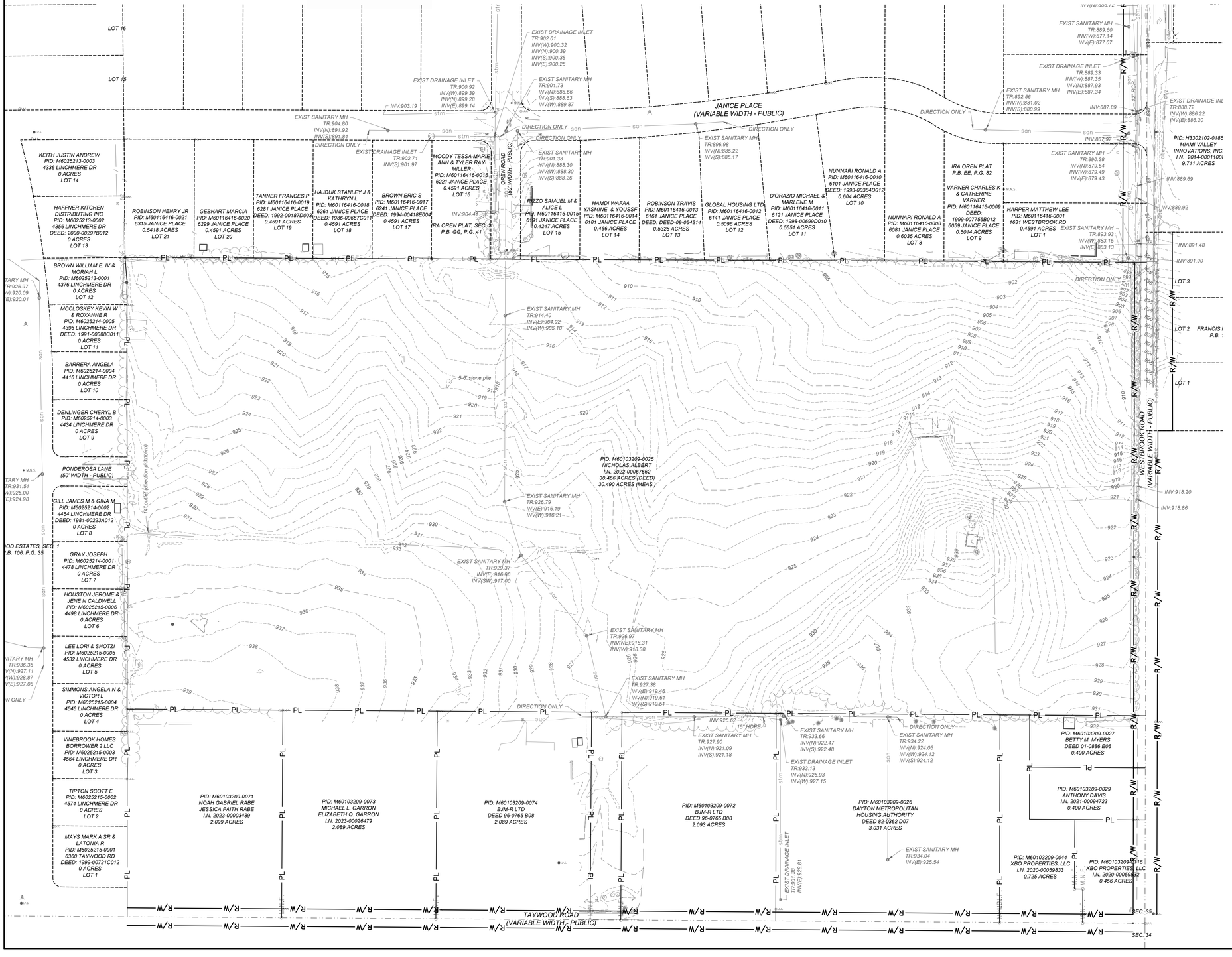
Dalton L. Bischoff
Professional Land Surveyor 8874

Date

STATE OF OHIO
DALTON L BISCHOFF
S-8874
REGISTERED
PROFESSIONAL SURVEYOR

EXISTING LEGEND

- PL — PROPERTY LINE
- R/W — RIGHT-OF-WAY
- PAVEMENT/SIDEWALK
- PAVEMENT STRIPING
- CURB
- ROAD CENTERLINE
- TREE DRIP LINE
- FENCE
- STREAM
- san — SANITARY SEWER
- w — WATER LINE
- g — GAS LINE
- fo — FIBER OPTIC LINE
- e — ELECTRIC
- ohe — OVERHEAD ELECTRIC
- t — TELECOMMUNICATION
- ctv — CABLE TELEVISION
- stm — STORM SEWER



HORZ 1"=80' 0 80 160

PLOT SCALE: 1:1 EDIT DATE: 5/4/25 - 10:19 PM EDITED BY: DANIJGERAH DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D_DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024 00508 EC&DP.DWG

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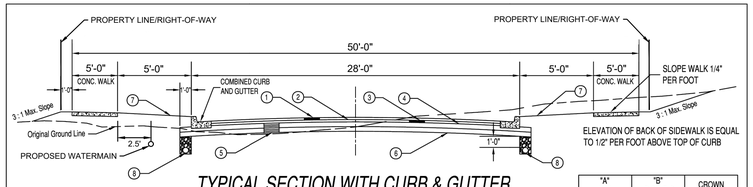
PRELIMINARY DEVELOPMENT PLAN
FOR
WESTBROOK ESTATES
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
EXISTING CONDITIONS

REVISIONS	DATE	SHEET NO.	DESCRIPTION

APPROVAL PENDING NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

DATE:	5/1/2025
DRAWN BY:	DA
CHECKED BY:	MJL
JOB NUMBER:	2024.00508



TYPICAL SECTION WITH CURB & GUTTER
LOCAL - RESIDENTIAL STREET

"A" R/W	"B" B/C - B/C	CROWN
50'	28'-0"	1/4" PER FOOT

PAVEMENT WIDTH = 27'-0"

1. ITEM 448 ASHALT CONCRETE (1.5" COURSE) TO BE APPLIED 9 MONTHS AFTER 1.5" 448 COURSE IS APPLIED
2. ITEM 407 TACK COAT 0.10 GAL. PER SQUARE YARD
3. ITEM 448 ASPHALT CONCRETE (1.5" COURSE) AT THE END OF 5 DAYS AFTER 408
4. ITEM 408 PRIME COAT 0.50 GAL. PER SUARE YARD
5. ITEM 304 AGGREGATE BASE (2 - 5" COURSES)
6. ITEM 204 SUBGRADE COMPACTION
7. ITEM 659 SEEDING AND MULCHING
8. ITEM 605 6" PIPE UNDER DRAIN

NOTES

1. THE FINAL COURSE OF ITEM 448 ASPHALT CONCRETE SHALL NOT BE APPLIED UNTIL THE FIRST COURSE OF ITEM 448 ASPHALT CONCRETE HAS BEEN IN PLACE AT LEAST 9 MONTHS. ANY ITEM 448 DETERIORATION OR SETTLEMENT THAT HAS DEVELOPED DURING THIS PERIOD SHALL BE REMOVED AND REPLACED BEFORE THE FINAL COURSE OF ITEM 448 IS APPLIED.
2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECS.
3. ALL TRENCHES WITHIN THE RIGHT OF WAY MUST BE BACKFILLED WITH COMPACTED GRANULAR MATERIAL.
4. ALL 448 ASPHALT SHALL CONTAIN NEW MATERIALS.
5. APPLY A 4" RIBBON OF LIQUID ASPHALT WHERE THE FINAL COURSE OF ITEM 448 MEETS THE CURB WITHIN FIVE (5) DAYS AFTER PAVING.

MINIMUM REQUIREMENTS FOR NEW STREETS WITH CURB & GUTTER

MONTGOMERY COUNTY ENGINEER'S OFFICE
451 WEST THIRD STREET
DAYTON, OHIO 45422

Montgomery County Subdivision Regulations Drawing # 4-H-1-3
Sheet 1 of 1 Date 9-08-04

TYPICAL SECTION NOTES

1. MODIFIED MONTGOMERY COUNTY TYPICAL SECTION PER CODIFIED ORDINANCES OF CLAYTON 1161.06 TABLE 1

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PRELIMINARY DEVELOPMENT PLAN
FOR
WESTBROOK ESTATES
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
TYPICAL SECTION

REVISIONS	DATE	SHEET NO.	DESCRIPTION

APPROVAL PENDING NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

DATE:	5/1/2025
DRAWN BY:	DA
CHECKED BY:	MJL
JOB NUMBER:	2024.00508

PLOT SCALE: 1:1 EDIT DATE: 5/5/25 - 3:19 PM EDITED BY: DANUGERAH DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D_DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024.00508 TS.DWG

SITE LEGEND

—PL— PROPERTY LINE

—R/W— RIGHT-OF-WAY

CURB AND GUTTER

JANICE PLACE
(VARIABLE WIDTH - PUBLIC)

OREN ROAD
(50' WIDTH - PUBLIC)

PINE VALLEY PLACE

NEW CASTLE AVENUE

AUGUSTA ROAD

PONDEROSA LANE
(50' WIDTH - PUBLIC)

PEBBLE BEACH DRIVE

NEW CASTLE AVENUE

WESTBROOK ROAD
(VARIABLE WIDTH - PUBLIC)

TAYWOOD ROAD
(VARIABLE WIDTH - PUBLIC)

PROPOSED
RETENTION POND
RESERVE A
Area: 3.00 AC

PROPOSED
OPEN SPACE/PARK

RESERVE B
Area: 2.87 AC

KEITH JUSTIN ANDREW
PID: M6025213-0003
0 ACRES
LOT 14

HAFFNER KITCHEN DISTRIBUTING INC
PID: M6025213-0002
4356 LINCHMERE DR
0 ACRES
DEED: 2000-00297B012
LOT 13

BROWN WILLIAM E. IV & MORIAH L
PID: M6025213-0001
4376 LINCHMERE DR
0 ACRES
LOT 12

MCCLOSKEY KEVIN W & ROXANNE R
PID: M6025214-0005
4396 LINCHMERE DR
DEED: 1991-00388C011
0 ACRES
LOT 11

BARRERA ANGELA
PID: M6025214-0004
4416 LINCHMERE DR
0 ACRES
LOT 10

DENLINGER CHERYL B
PID: M6025214-0003
4434 LINCHMERE DR
0 ACRES
LOT 9

GILL JAMES M & GINA M
PID: M6025214-0002
4454 LINCHMERE DR
DEED: 1981-00223A012
0 ACRES
LOT 8

GRAY JOSEPH
PID: M6025214-0001
4478 LINCHMERE DR
0 ACRES
LOT 7

HOUSTON JEROME & JENE N CALDWELL
PID: M6025215-0006
4498 LINCHMERE DR
0 ACRES
LOT 6

LEE LORI & SHOTZI
PID: M6025215-0005
4532 LINCHMERE DR
0 ACRES
LOT 5

SIMMONS ANGELA N & VICTOR L
PID: M6025215-0004
4546 LINCHMERE DR
0 ACRES
LOT 4

VINEBROOK HOMES BORROWER 2 LLC
PID: M6025215-0003
4564 LINCHMERE DR
0 ACRES
LOT 3

TIPTON SCOTT E
PID: M6025215-0002
4574 LINCHMERE DR
0 ACRES
LOT 2

MAYS MARK A SR & LATONIA R
PID: M6025215-0001
6360 TAYWOOD RD
DEED: 1999-00721C012
0 ACRES
LOT 1

ROBINSON HENRY JR
PID: M60116416-0021
6315 JANICE PLACE
0.5418 ACRES
LOT 21

GEBHART MARCIA
PID: M60116416-0020
6299 JANICE PLACE
0.4591 ACRES
LOT 20

TANNER FRANCES P
PID: M60116416-0019
6281 JANICE PLACE
DEED: 1992-00187D003
0.4591 ACRES
LOT 19

HAJDUK STANLEY J & KATHRYN L
PID: M60116416-0018
6261 JANICE PLACE
DEED: 1986-00667C011
0.4591 ACRES
LOT 18

BROWN ERIC S
PID: M60116416-0017
6241 JANICE PLACE
DEED: 1994-00418E004
0.4591 ACRES
LOT 17

MOODY TESSA MARIE ANN & TYLER RAY MILLER
PID: M60116416-0016
6221 JANICE PLACE
0.4591 ACRES
LOT 16

IRA OREN PLAT, SEC. 2
P.B. GG, P.G. 41

RIZZO SAMUEL M & ALICE L
PID: M60116416-0015
6181 JANICE PLACE
0.4247 ACRES
LOT 15

HAMDI WAFAA YASMINE & YOUSSF
PID: M60116416-0014
6181 JANICE PLACE
0.466 ACRES
LOT 14

ROBINSON TRAVIS
PID: M60116416-0013
6161 JANICE PLACE
DEED: DEED-09-0542141
0.5328 ACRES
LOT 13

GLOBAL HOUSING LTD
PID: M60116416-0012
6141 JANICE PLACE
0.5096 ACRES
LOT 12

D'ORAZIO MICHAEL & MARLENE M
PID: M60116416-0011
6121 JANICE PLACE
DEED: 1998-00699D010
0.5651 ACRES
LOT 11

NUNNARI RONALD A
PID: M60116416-0010
6101 JANICE PLACE
DEED: 1993-00394D012
0.604 ACRES
LOT 10

NUNNARI RONALD A
PID: M60116416-0008
6081 JANICE PLACE
0.6035 ACRES
LOT 8

IRA OREN PLAT
P.B. EE, P.G. 82

VARNER CHARLES K & CATHERINE VARNER
PID: M60116416-0009
DEED: 1999-00755B012
6059 JANICE PLACE
0.5014 ACRES
LOT 9

HARPER MATTHEW LEE
PID: M60116416-0001
1631 WESTBROOK RD
0.4591 ACRES
LOT 1

PID: H3302102-0185
MIAMI VALLEY INNOVATIONS, INC.
I.N. 2014-0001100
9.711 ACRES

LOT 3

LOT 2 FRANCIS I
P.B. 1

LOT 1

PID: M60103209-0025
NICHOLAS ALBERT
I.N. 2022-00067662
30.466 ACRES (DEED)
30.490 ACRES (MEAS.)

PID: M60103209-0071
NOAH GABRIEL RABE
JESSICA FAITH RABE
I.N. 2023-00003489
2.099 ACRES

PID: M60103209-0073
MICHAEL L. GARRON
ELIZABETH Q. GARRON
I.N. 2023-00026479
2.089 ACRES

PID: M60103209-0074
BJM-R LTD
DEED 96-0765 B08
2.089 ACRES

PID: M60103209-0072
BJM-R LTD
DEED 96-0765 B08
2.093 ACRES

PID: M60103209-0026
DAYTON METROPOLITAN HOUSING AUTHORITY
DEED 82-0362 D07
3.031 ACRES

PID: M60103209-0027
BETTY M. MYERS
DEED 01-0886 E06
0.400 ACRES

PID: M60103209-0029
ANTHONY DAVIS
I.N. 2021-00094723
0.400 ACRES

PID: M60103209-0044
XBO PROPERTIES, LLC
I.N. 2020-00059933
0.725 ACRES

PID: M60103209-0115
XBO PROPERTIES, LLC
I.N. 2020-00059932
0.456 ACRES

SEC. 35

SEC. 34

HORZ 1"=80' 0 80 160

PLOT SCALE: 1:1 EDIT DATE: 5/5/25 - 3:28 PM EDITED BY: DANIGERAH DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D. DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024.00508 OSP.DWG

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www.structurepoint.com

PRELIMINARY DEVELOPMENT PLAN
FOR
WESTBROOK ESTATES
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
OVERALL SITE PLAN

REVISIONS	DATE	SHEET NO.	DESCRIPTION

APPROVAL PENDING NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

DATE:	5/1/2025
DRAWN BY:	DA
CHECKED BY:	MJL
JOB NUMBER:	2024.00508

SITE LEGEND

PL —— PROPERTY LINE

R/W —— EXISTING RIGHT-OF-WAY

- - - PROPOSED RIGHT-OF-WAY

CURB AND GUTTER

CONCRETE WALK

HAFFNER KITCHEN DISTRIBUTING INC
PID: M6025213-0002
4356 LINCHMERE DR
DEED: 2000-00297B012
0 ACRES
LOT 13

ROBINSON HENRY JR
PID: M60116416-0021
6315 JANICE PLACE
0.5418 ACRES
LOT 21

GEBHART MARCIA
PID: M60116416-0020
6299 JANICE PLACE
0.4591 ACRES
LOT 20

TANNER FRANCES P
PID: M60116416-0019
6281 JANICE PLACE
DEED: 1992-00187D003
0.4591 ACRES
LOT 19

HAJDUK STANLEY J & KATHRYN L
PID: M60116416-0018
6261 JANICE PLACE
DEED: 1986-00667C011
0.4591 ACRES
LOT 18

BROWN ERIC S
PID: M60116416-0017
6241 JANICE PLACE
DEED: 1994-00418E004
0.4591 ACRES
LOT 17

MOODY TESSA MARIE
ANN & TYLER RAY MILLER
PID: M60116416-0016
6221 JANICE PLACE
0.4591 ACRES
LOT 16

IRA OREN PLAT, SEC. 2
P.B. GG, P.G. 41

OREN ROAD
(50' WIDTH - PUBLIC)

RIZZO SAMUEL M & ALICE L
PID: M60116416-0015
6191 JANICE PLACE
0.4247 ACRES
LOT 15

HAMDI WAFAA YASMIN & YOUSSR
PID: M60116416-0014
6181 JANICE PLACE
0.466 ACRES
LOT 14

ROBINSON TRA
PID: M60116416-(
6161 JANICE PLA
DEED: DEED-09-0(
0.5328 ACRES
LOT 13

BROWN WILLIAM E. IV & MORIAH L
PID: M6025213-0001
4376 LINCHMERE DR
0 ACRES
LOT 12

MCCLOSKEY KEVIN W & ROXANNE R
PID: M6025214-0005
4396 LINCHMERE DR
DEED: 1991-00388C011
0 ACRES
LOT 11

BARRERA ANGELA
PID: M6025214-0004
4416 LINCHMERE DR
0 ACRES
LOT 10

DENLINGER CHERYL B
PID: M6025214-0003
4434 LINCHMERE DR
0 ACRES
LOT 9

PONDEROSA LANE
(50' WIDTH - PUBLIC)

GILL JAMES M & GINA M
PID: M6025214-0002
4454 LINCHMERE DR
DEED: 1981-00223A012
0 ACRES
LOT 8

GRAY JOSEPH
PID: M6025214-0001
4478 LINCHMERE DR
0 ACRES
LOT 7

HOUSTON JEROME & JENE N CALDWELL
PID: M6025215-0006
4498 LINCHMERE DR
0 ACRES
LOT 6

LEE LORI & SHOTZI
PID: M6025215-0005
4532 LINCHMERE DR
0 ACRES
LOT 5

SIMMONS ANGELA N & VICTOR L
PID: M6025215-0004
4546 LINCHMERE DR
0 ACRES
LOT 4

VINEBROOK HOMES BORROWER 2 LLC
PID: M6025215-0003

PINE VALLEY PLACE

NEW CASTLE AVENUE

AUGUSTA ROAD

RESERVE B
Area: 2.87 AC

15' SANITARY EASEMENT

PID: M60103209-0025
NICHOLAS ALBERT
I.N. 2022-00067662
30.466 ACRES (DEED)
30.490 ACRES (MEAS.)

PID: M60103209-0074
BJM-R LTD
DEED 96-0765 B08
2.089 ACRES

PID: M60103209-0072
BJM-R LTD
DEED 96-0765 B08
2.093 ACRES

PEBBLE BEACH DRIVE

TAYWOOD ROAD
(VARIABLE WIDTH - PUBLIC)

MATCHLINE SEE SHEET 6

MATCHLINE SEE LEFT

MATCHLINE SEE RIGHT

HORZ 1"=50' 0 50 100

PLOT SCALE: 1:1 EDIT DATE: 5/5/25 - 3:54 P.M. EDITED BY: DANUGERAH DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D. DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024.00508 S&UP.DWG

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PRELIMINARY DEVELOPMENT PLAN
FOR
WESTBROOK ESTATES
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO

SITE PLAN

REVISIONS	DATE	SHEET NO.	DESCRIPTION

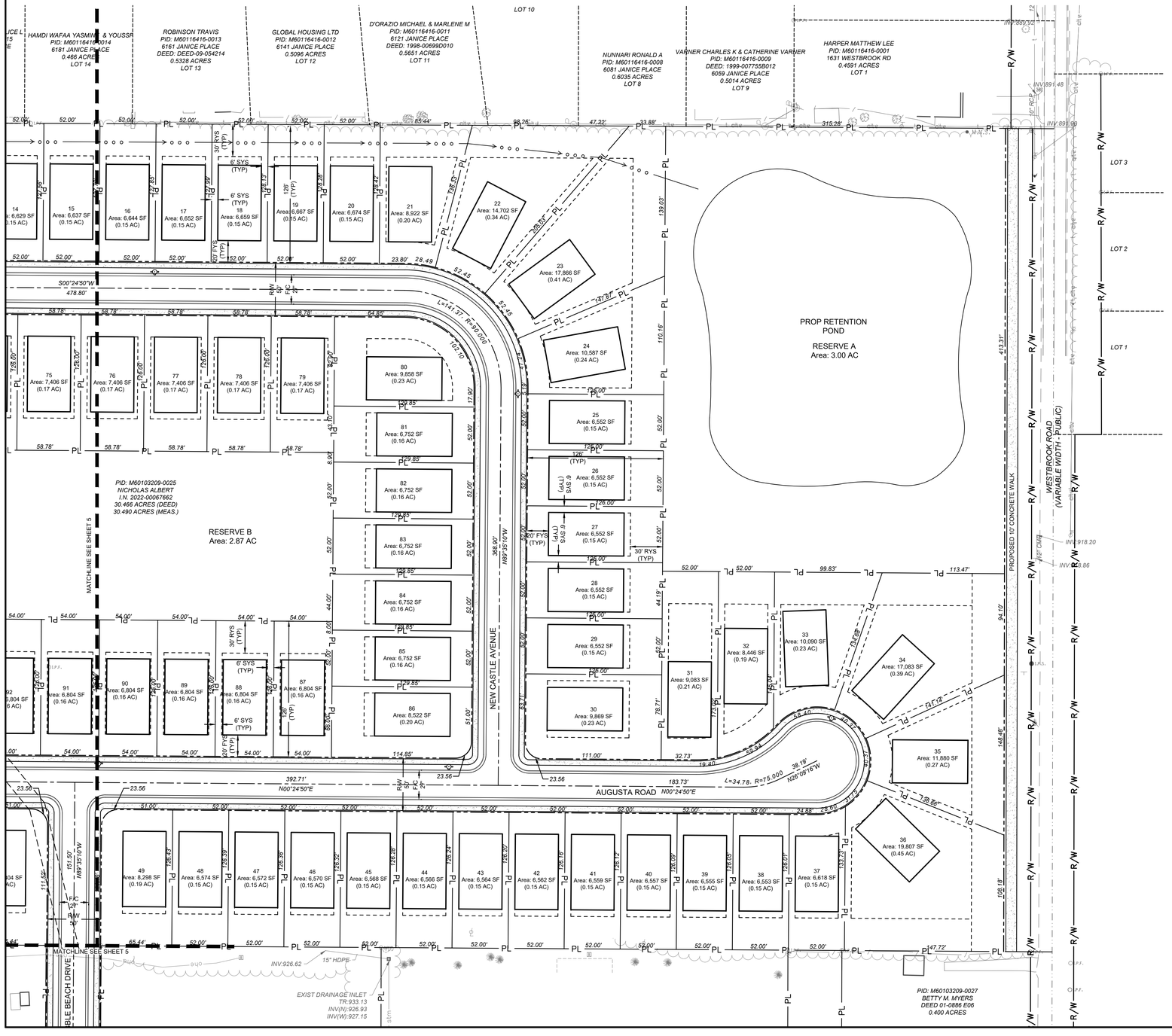
APPROVAL PENDING NOT FOR CONSTRUCTION

IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

DATE:	5/1/2025
DRAWN BY:	DA
CHECKED BY:	MJL
JOB NUMBER:	2024.00508

SITE LEGEND

- PL — PROPERTY LINE
- R/W — EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- CURB AND GUTTER
- CONCRETE WALK



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HORZ 1"=50' 0 50 100

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PRELIMINARY DEVELOPMENT PLAN
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WESTBROOK ESTATES
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
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JOB NUMBER:	2024.00508

UTILITY LEGEND

- SAN — SANITARY MAIN
- STM — STORM SEWER
- CATCH BASIN
- HEADWALL
- SANITARY MANHOLE
- FIRE HYDRANT
- W — WATER MAIN

JANICE PLACE (VARIABLE WIDTH - PUBLIC)

AUGUSTA ROAD (50' WIDTH - PUBLIC)

PINE VALLEY PLACE

NEW CASTLE AVENUE

PONDEROSA LANE (50' WIDTH - PUBLIC)

WESTBROOK ROAD (VARIABLE WIDTH - PUBLIC)

TAYWOOD ROAD (VARIABLE WIDTH - PUBLIC)

PEBBLE BEACH DRIVE

PROPOSED RETENTION POND RESERVE A Area: 3.00 AC

PROPOSED OPEN SPACE/PARK RESERVE B Area: 2.87 AC

KEITH JUSTIN ANDREW PID: M6025213-0003 4336 LINCHMERE DR 0 ACRES LOT 14

HAFFNER KITCHEN DISTRIBUTING INC PID: M6025213-0002 4356 LINCHMERE DR DEED: 2000-00297B012 0 ACRES LOT 13

ROBINSON HENRY JR PID: M60116416-0021 6315 JANICE PLACE 0.5418 ACRES LOT 21

GEBHART MARCIA PID: M60116416-0020 6299 JANICE PLACE 0.4591 ACRES LOT 20

TANNER FRANCES P PID: M60116416-0019 6281 JANICE PLACE DEED: 1992-00187D003 0.4591 ACRES LOT 19

HAJDUK STANLEY J & KATHRYN L PID: M60116416-0018 6261 JANICE PLACE DEED: 1986-00667C01F 0.4591 ACRES LOT 18

BROWN ERIC S PID: M60116416-0017 6241 JANICE PLACE DEED: 1994-00418E004 0.4591 ACRES LOT 17

MOODY TESSA MARIE ANN & TYLER RAY MILLER PID: M60116416-0016 6221 JANICE PLACE 0.4591 ACRES LOT 16

IRA OREN PLAT, SEC. 2 P.B. GG, P.G. 41

RIZZO SAMUEL M & ALICE L PID: M60116416-0015 6181 JANICE PLACE 0.4247 ACRES LOT 15

HAMDI WAFAA YASMINE & YOUSSF PID: M60116416-0014 6181 JANICE PLACE 0.466 ACRES LOT 14

ROBINSON TRAVIS PID: M60116416-0013 6161 JANICE PLACE DEED: DEED-09-0542141 0.5328 ACRES LOT 13

GLOBAL HOUSING LTD PID: M60116416-0012 6141 JANICE PLACE 0.5096 ACRES LOT 12

D'ORAZIO MICHAEL & MARLENE M PID: M60116416-0011 6121 JANICE PLACE DEED: 1998-00699D010 0.5651 ACRES LOT 11

NUNNARI RONALD A PID: M60116416-0010 6101 JANICE PLACE DEED: 1993-00384D012 0.604 ACRES LOT 10

NUNNARI RONALD A PID: M60116416-0008 6081 JANICE PLACE 0.6035 ACRES LOT 8

IRA OREN PLAT P.B. EE, P.G. 82

VARNER CHARLES K & CATHERINE VARNER PID: M60116416-0009 DEED: 1999-00775B012 6059 JANICE PLACE 0.5014 ACRES LOT 9

HARPER MATTHEW LEE PID: M60116416-0001 1631 WESTBROOK RD 0.4591 ACRES LOT 1

PID: H3302102-0185 MIAMI VALLEY INNOVATIONS, INC. I.N. 2014-00011000 9.711 ACRES

BROWN WILLIAM E. IV & MORIAH L PID: M6025213-0001 4376 LINCHMERE DR 0 ACRES LOT 12

MCCLOSKEY KEVIN W & ROXANNE R PID: M6025214-0005 4396 LINCHMERE DR DEED: 1991-00388C011 0 ACRES LOT 11

BARRERA ANGELA PID: M6025214-0004 4416 LINCHMERE DR 0 ACRES LOT 10

DENLINGER CHERYL B PID: M6025214-0003 4434 LINCHMERE DR 0 ACRES LOT 9

GILL JAMES M & GINA M PID: M6025214-0002 4454 LINCHMERE DR DEED: 1981-00223A012 0 ACRES LOT 8

GRAY JOSEPH PID: M6023214-0001 4478 LINCHMERE DR 0 ACRES LOT 7

HOUSTON JEROME & JENE N CALDWELL PID: M6025215-0006 4498 LINCHMERE DR 0 ACRES LOT 6

LEE LORI & SHOTZI PID: M6025215-0005 4532 LINCHMERE DR 0 ACRES LOT 5

SIMMONS ANGELA N & VICTOR L PID: M6025215-0004 4546 LINCHMERE DR 0 ACRES LOT 4

VINEBROOK HOMES BORROWER 2 LLC PID: M6025215-0003 4564 LINCHMERE DR 0 ACRES LOT 3

TIPTON SCOTT E PID: M6025215-0002 4574 LINCHMERE DR 0 ACRES LOT 2

MAYS MARK A SR & LATONIA R PID: M6025215-0001 6360 TAYWOOD RD DEED: 1999-00721C012 0 ACRES LOT 1

PID: M60103209-0025 NICHOLAS ALBERT I.N. 2022-00067662 30.466 ACRES (DEED) 30.490 ACRES (MEAS.)

PID: M60103209-0071 NOAH GABRIEL RABE JESSICA FAITH RABE I.N. 2023-00003489 2.099 ACRES

PID: M60103209-0073 MICHAEL L. GARRON ELIZABETH Q. GARRON I.N. 2023-00026479 2.089 ACRES

PID: M60103209-0074 BJM-R LTD DEED 96-0765 B08 2.089 ACRES

PID: M60103209-0072 BJM-R LTD DEED 96-0765 B08 2.093 ACRES

PID: M60103209-0026 DAYTON METROPOLITAN HOUSING AUTHORITY DEED 82-0262 D07 3.031 ACRES

PID: M60103209-0027 BETTY M. MYERS DEED 01-0886 E06 0.400 ACRES

PID: M60103209-0029 ANTHONY DAVIS I.N. 2021-00094723 0.400 ACRES

PID: M60103209-0044 XBO PROPERTIES, LLC I.N. 2020-00059833 0.725 ACRES

PID: M60103209-0116 XBO PROPERTIES, LLC I.N. 2020-00059832 0.456 ACRES

HORZ 1"=80' 0 80 160

PLOT SCALE: 1:1 EDIT DATE: 5/5/25 - 12:58 PM EDITED BY: DANIGERAH DRAWING FILE: \\COLLIFS2\PROJECTS\2024\00508\D_DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024.00508 CUP.DWG

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PRELIMINARY DEVELOPMENT PLAN FOR

WESTBROOK ESTATES

CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO

UTILITY PLAN

REVISIONS	DATE	SHEET NO.	DESCRIPTION

APPROVAL PENDING NOT FOR CONSTRUCTION

IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

DATE:	5/1/2025
DRAWN BY:	DA
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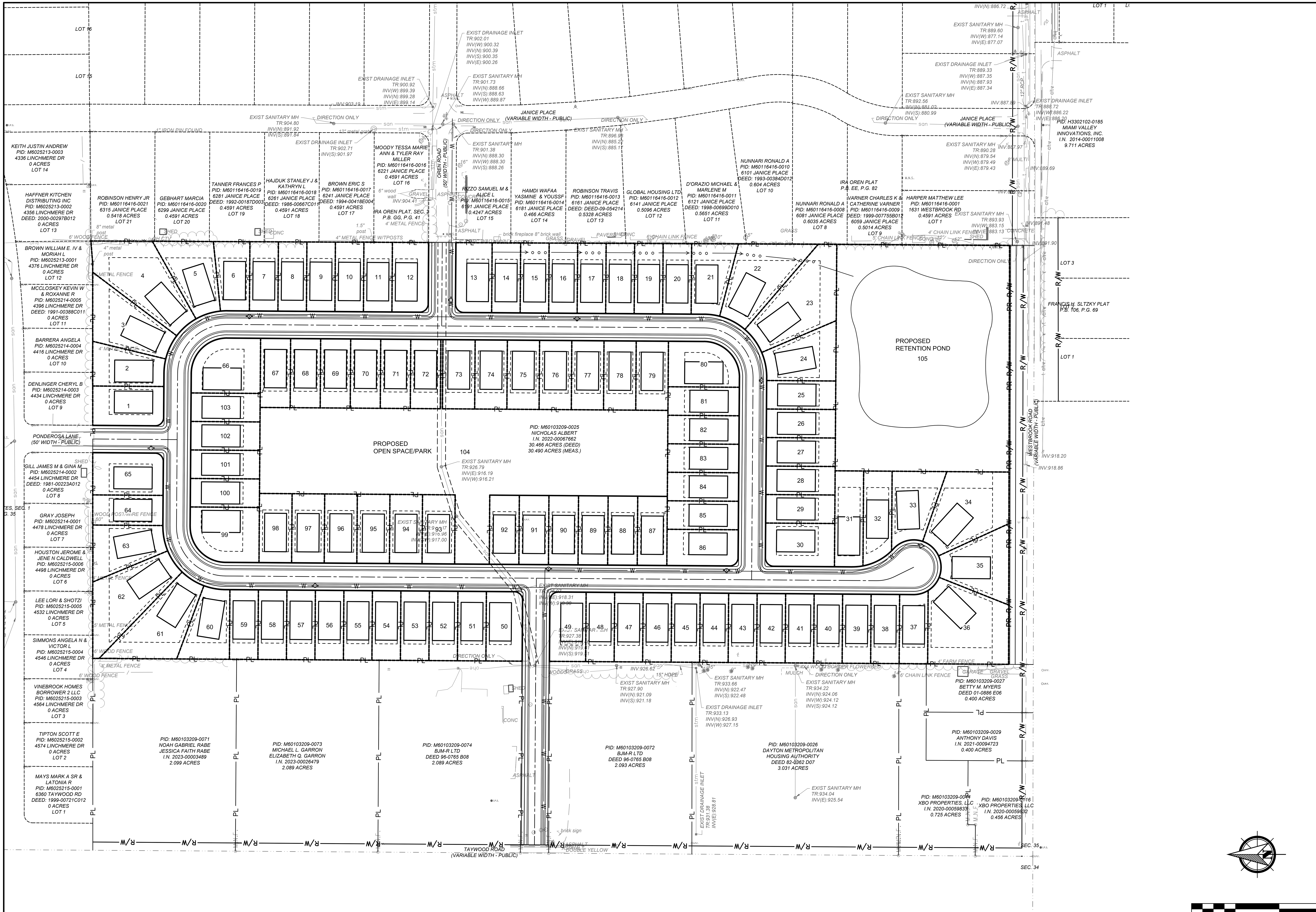
JOB NUMBER:	2024.00508



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PRELIMINARY DEVELOPMENT PLAN
FOR
CLAYTON SINGLE FAMILY
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
OVERALL SITE PLAN

REVISIONS	DATE	SHEET NO.	DESCRIPTION

APPROVAL PENDING NOT FOR CONSTRUCTION
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DATE:	10/30/2024
DRAWN BY:	DA
CHECKED BY:	MJL
JOB NUMBER:	2024.00508

3

SITE LEGEND

- PL — PROPERTY LINE
- R/W — RIGHT-OF-WAY
- STRAIGHT CURB
- CURB AND GUTTER
- CONCRETE WALK

PID: M60103209-0025
NICHOLAS ALBERT
I.N. 2022-00067662
30.466 ACRES (DEED)
30.490 ACRES (MEAS.)

5/8" capped iron pin found HALEYDUSA7143
3/4" loose and bent iron pipe found
5/8" iron pin found

HORZ 1"=50' 0 50 100

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PRELIMINARY DEVELOPMENT PLAN
FOR
CLAYTON SINGLE FAMILY
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
SITE PLAN

REVISIONS	DATE	SHEET NO.	DESCRIPTION

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DRAWN BY:	DA
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JOB NUMBER:	2024.00508

4

PLOT SCALE: 1:1 | EDIT DATE: 11/1/24 - 10:16 AM | EDITED BY: DANUGERAH | DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D. DRAWINGS\CIVIL\CONSTRUCTION DOCUMENTS\PDP\2024.00508 S&UP.DWG

SITE LEGEND

- PL — PROPERTY LINE
- R/W — RIGHT-OF-WAY
- STRAIGHT CURB
- CURB AND GUTTER
- CONCRETE WALK

PID: M60103209-0025
NICHOLAS ALBERT
I.N. 2022-00067662
30.466 ACRES (DEED)
30.490 ACRES (MEAS.)

PID: M60103209-0027

105
Area: 130,674 SF
(3.00 AC)

WESTBROOK ROAD
(VARIABLE WIDTH - PUBLIC)

DIRECTION ONLY

AMERICAN STRUCTUREPOINT INC.
2550 Corporate Exchange Dr. Ste 300 | Columbus, Ohio 43231
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PRELIMINARY DEVELOPMENT PLAN
FOR
CLAYTON SINGLE FAMILY
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
SITE PLAN

REVISIONS	DATE	SHEET NO.	DESCRIPTION

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HORZ 1"=40' 0 40 80

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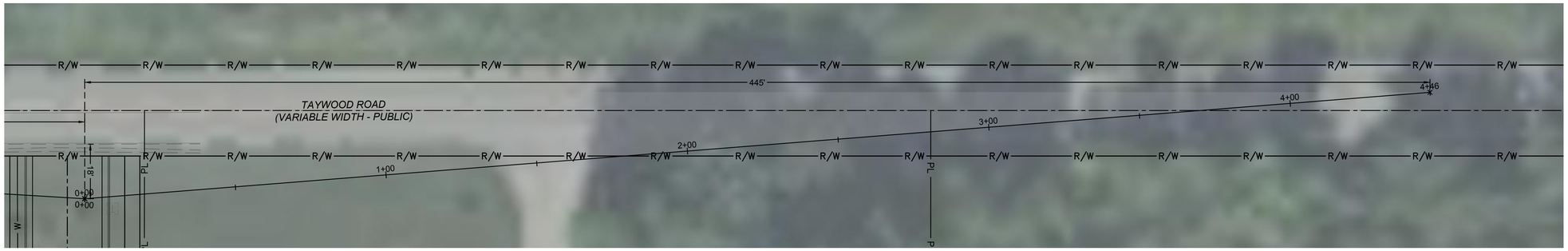
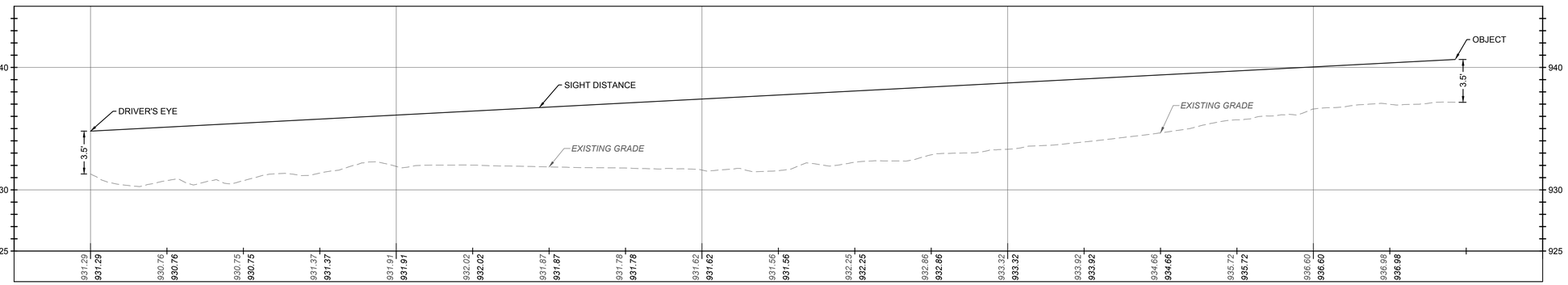
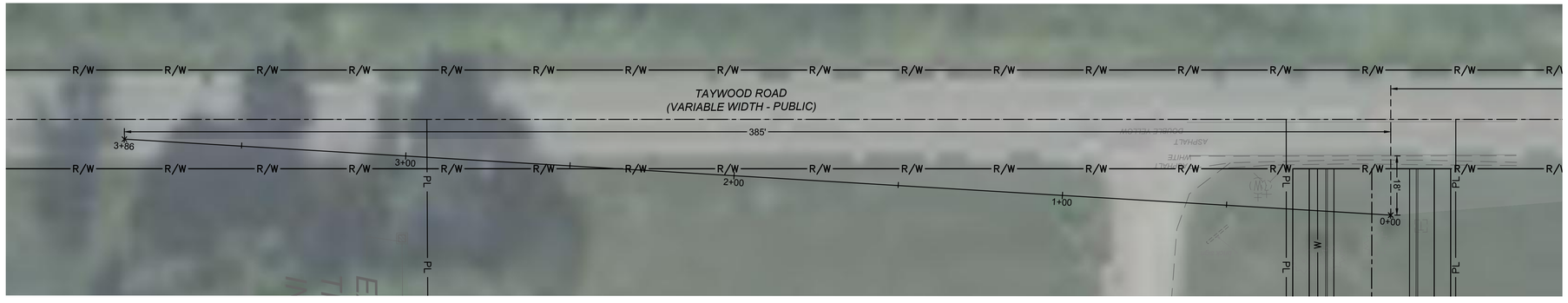
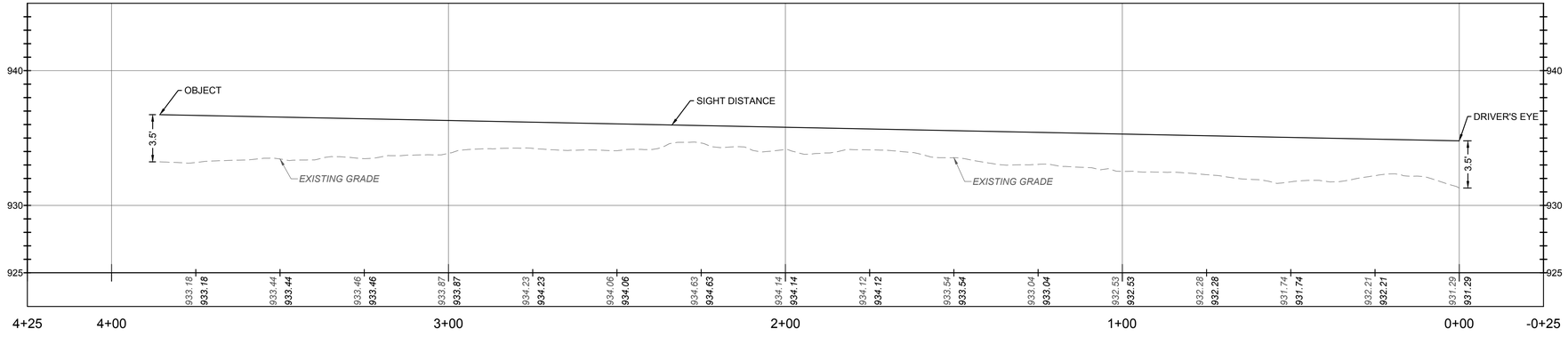




TAYWOOD ROAD - LEFT TURN
SCALE: H:1"=20', V:1"=5'





TAYWOOD ROAD - RIGHT TURN
SCALE: H:1"=20', V:1"=5'

VERT 1"=5' 0 5 10
HORZ 1"=20' 0 20 40

AMERICAN STRUCTUREPOINT INC.
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SIGHT DISTANCE PLAN
FOR
CLAYTON SINGLE FAMILY
CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO
TAYWOOD RD

REVISIONS	DATE	SHEET NO.	DESCRIPTION

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DATE:	3/18/2025
DRAWN BY:	HSR
CHECKED BY:	DA
JOB NUMBER:	2024.00508

1/1

PLOT SCALE: 1:1 EDIT DATE: 3/18/25 - 11:19 AM EDITED BY: DANJGERAH DRAWING FILE: \\COLUFS2\PROJECTS\2024\00508\D. DRAWINGS\CIVIL\EXHIBITS\SIGHT DISTANCE - TAYWOOD RD\2024.00508 SIGHT DISTANCE - TAYWOOD RD.DWG

Intertek-PSI
2341 Spencerville Road
Lima, Oh 45805

Tel +1 419 999 5660
Fax +1 419 999 6029
intertek.com/building

January 16, 2025

Mr. Benjamin D. Schilling, P.E.
American Structurepoint Inc.
2550 Corporate Exchange Drive
Suite 300
Columbus, Ohio 43231

Re: **Geotechnical Exploration Report**
Clayton Single Family Subdivision
1745 East Westbrook Road
Between Taywood Road and Janice Place
Dayton, Ohio
PSI Report No. 01253343

Dear Mr. Schilling:

Per your request, **Professional Service Industries, Inc. (PSI), an Intertek Company**, is pleased to submit this Geotechnical Exploration Report for the proposed new Clayton Single Family Subdivision project to be located at 1745 East Westbrook Road between Taywood Road and Janice Place in Dayton, Ohio. Included in this report are the results of the geotechnical exploration and recommendations concerning design and construction of the proposed development.

It is considered imperative that the geotechnical engineer and/or their representative be present during earthwork operations, foundation, and floor slab installations to observe the field conditions with respect to the design assumptions and specifications. PSI will not be held responsible for interpretations and field quality control observations made by others.

We appreciate the opportunity to have provided you with our geotechnical engineering services and look forward to participation in the construction phase of this project. If you have any questions concerning this report or if we may be of further service in any manner, please contact our office.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Brandon France
Project Manager

Christopher L. Carson, P.E.
Principal Consultant

STATE OF OHIO
CHRISTOPHER
CARSON
E-89524
REGISTERED
PROFESSIONAL ENGINEER
01/17/2025

The above signatures are an electronic reproduction of the original. An original hard copy is available upon request. This electronic reproduction shall not be construed as an original or certified document.

Enclosures

Geotechnical Exploration Report

For

Clayton Single Family Subdivision
1745 East Westbrook Road
Between Taywood Road and Janice Place
Dayton, Ohio

Prepared for

American Structurepoint Inc.
2550 Corporate Exchange Drive
Suite 300
Columbus, Ohio 43231

Brandon France

Project Manager

Prepared by

Intertek-PSI
2341 Spencerville Road
Lima, OH 45805

Christopher L. Carson, P.E.
Principal Consultant

Report Date: January 16, 2025

PSI Project No. 01253343

TABLE OF CONTENTS

LIST OF APPENDICES

1 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

Professional Service Industries, Inc. (PSI) has completed the geotechnical exploration for the proposed new Clayton Single Family Subdivision project to be located at 1745 East Westbrook Road between Taywood Road and Janice Place in Dayton, Ohio. This geotechnical engineering study was authorized via task order No. 1 for 2024.00508 dated April 24, 2024, pursuant to the Master Agreement between American Structurepoint and PSI, in reference to PSI Proposal Number 0125-420540R2, dated April 12, 2024.

1.2 PROJECT DESCRIPTION

Based on the provided information, a summary of our understanding of the proposed project is provided below in the Project Description table.

Table 1: Project Description

Project Items	Single-family housing spanning across a site measuring approximately 1.3 million square feet or 30 Acres in plan area. To include: - 101 Single Family Lots - One (1) new detention/retention areas New pavement and parking areas (Provided by Client)
Building Construction Types	Wood framed, vinyl siding, masonry or cast stone veneer, and slab-on-grade floors. (no basements) (Report Basis)
Estimated Overall Site Existing Grade Change	± 36 Feet (approximately 904’ to 940’ slopping Northwest to Southeast), based on the provided topography drawing.
Finished Floor Elevations	Not provided at time of proposal, PSI estimates a max cut/fill within individual lots between 1 to 3 feet from existing surface grades. (Report Basis)
Requested or Anticipated Foundation Types	Shallow spread and continuous (Report Basis)
Maximum Design Column Loads	50 to 75 kips (Report Basis)
Maximum Design Wall Loads	3 kips per Lineal Foot (Report Basis)
Maximum Design Floor Loads	100 pounds per square foot (Report Basis)
Pavement Type	Flexible pavement

The geotechnical recommendations presented in this report are based on the available project information, the proposed location and orientation of the development, and the subsurface materials described in this report. If any of the information we have is incorrect, please contact us so that we may amend the recommendations presented accordingly. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 SCOPE OF SERVICES

The purpose of this study was to explore the subsurface conditions at the site to prepare recommendations for foundation systems and other design parameters for the proposed development. PSI's contracted scope of services included drilling soil test borings, a select laboratory testing program, and preparation of this geotechnical report. This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- General site development and subgrade preparation recommendations.
- Estimated potential soil movements associated with collapsing, shrinking, and swelling soils and methods to reduce these movements to acceptable levels.
- Recommendations for site excavation, fill compaction, and the use of on-site and imported fill material under the structure.
- Recommendations for building pad preparation for ground supported slabs having a maximum movement potential, due to heave or settlement, of 1-inch.
- General recommendations for the design of foundations for supporting the proposed structures-no specific bearing capacities for each building.
- Pavement section thickness design and construction recommendations.
- Estimated seismic site classification as per IBC 2021.

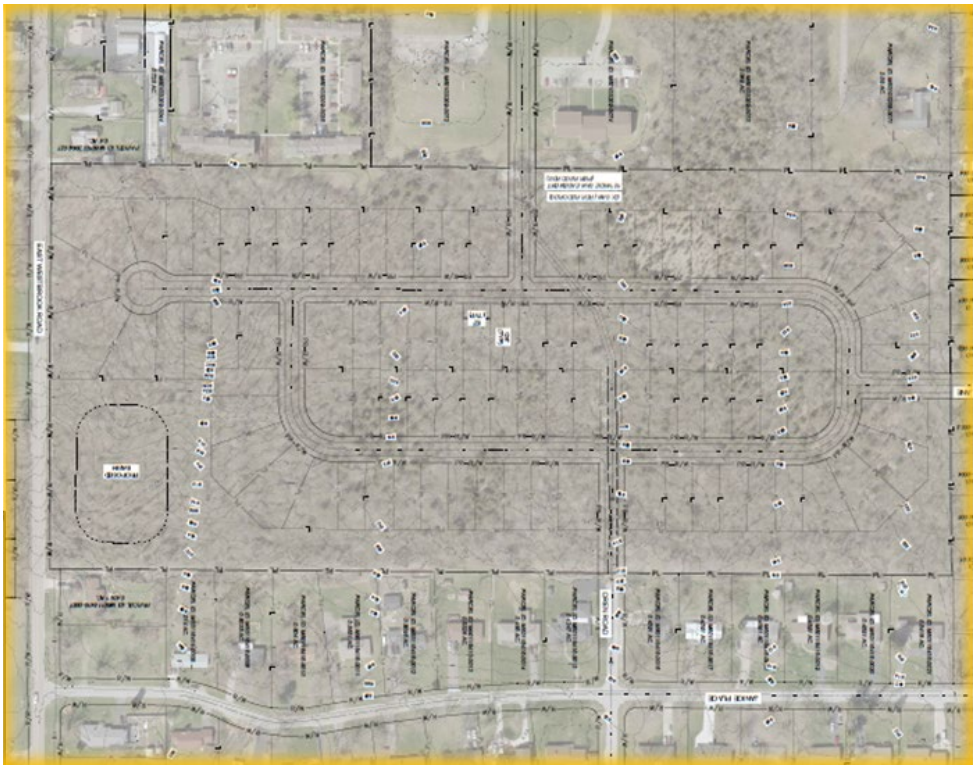
The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on, below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to further development of this site, an environmental assessment is advisable.

PSI's scope also did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. The Client should be aware that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. The Client should also be aware that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or reoccurrence of mold amplification.

2 SITE AND SUBSURFACE CONDITIONS

2.1 SITE LOCATION AND CONDITIONS

The proposed project site area is located at 1745 East Westbrook Road between Taywood Road and Janice Place in Dayton, Ohio. Specifically, the center of the proposed site's latitude and longitude are 39.8356 and -84.2894, respectively. The site plan shown below was provided by the client showing the proposed parcel/lot layout.



The following table provides a generalized description of the existing site conditions based on the available information.

Table 2: Site Description

Site History	Has been a wooded area since at least March 1994 (Google Earth Pro)
Existing Site Ground Cover	Topsoil, brush
Existing Site Features	Densely wooded area, the trees were razed prior to the drilling operations.
Site Boundaries/Neighboring Development	Residential properties
Site Drainage	It appears that site drainage is primarily surface runoff and infiltration

2.2 SITE GEOLOGY

Based on the on-line geologic map provided by the Ohio Geological Survey, the proposed site area is located in the Central Lowland Province, Till Plains Section, Southern Ohio Loamy Till Plain Region, with Ground moraine topography supported by Sub-Lockport Undifferentiated, Silurian age bedrock as part of the Wisconsinan Glaciation Period.

A review of the ODNR Quaternary Geology of Ohio Map No. 2, the area is noted as "G2" Ground moraine, flat to gently undulating.

Additionally, based on a review of the ODNR Karst Map program the project site area does not appear to be within known karst areas.

Based on our field drilling operations, the area's apparent limestone/sandstone rock formation was encountered at each test boring location, at depths ranging from about 3.0 to 19.25 feet beneath the existing surface grades. Some of the test boring locations also encountered limestone/sandstone formations prior to refusal, see Table 3 for additional information. The rock formation encountered at test boring location B-02 was cored upon refusal, please refer to the core photo log in the appendix of this report for specific information.

Additional soil information can be found on the USDA Web Soil Survey Map in the appendix.

2.3 SUBSURFACE CONDITIONS

PSI's subsurface exploration program for this project consisted of drilling and Standard Penetration Testing (SPT) at twenty-nine (29) locations throughout the proposed site, each drilled to depths of about 20 feet each beneath the existing surface grade or to auger refusal. Proposed boring location B-30 was not drilled as it was not accessible at the time of drilling operations. The test boring locations were proposed and field located by PSI. Please see the soil boring logs in the appendix of this report.

The borings were advanced utilizing a 3¼ inch inside diameter, hollow-stem auger drilling methods. Soil samples were routinely obtained during the drilling process. Select soil samples were later tested in the laboratory to obtain soil material properties for the foundation, concrete slab-on-grade, and pavement. Drilling, sampling, and laboratory testing was accomplished in general accordance with ASTM procedures.

SURFICIAL MATERIALS: The surficial materials encountered at the test boring locations consisted of topsoil with thicknesses ranging between approximately 3 to 12 inches but should be expected to vary across the site. Topsoil thickness is included in this report for informational purposes only and should not be used for bidding or estimating purposes.

COHESIVE SOILS: Underlying the surficial materials, cohesive soils consisting of Sandy Lean Clay (CL), Lean Clay with Sand (CL), Fat Clay (CH), Sandy Silty Clay (CL-ML) and Lean Clay (CL) were encountered within the explored depths. The Standard Penetration Test values ("N_{60}"-values) for the cohesive soils ranged from six (6) to fifty blows per one inch or penetration (50/1") indicating "firm" to "very hard" consistencies, generally getting stiffer with depth. The natural cohesive soils exhibited moisture contents ranging from eight (8) to thirty-nine (39) percent with wetter soils being present closer to the ground surface.

GRANULAR SOILS: Also underlying the surficial materials at test boring locations B-02, B-10, B-13, B-19 and B-21, granular soils consisting of Clayey Sand (SC) and Clayey Gravel with Sand (GC) were encountered. The Standard Penetration Test values ("N_{60}"-values) for the granular soils ranged from six (6) to fifty blows per three inches of penetration (50/3") indicating "loose" to "extremely dense" relative densities, generally getting stiffer with depth. The natural granular soils exhibited moisture contents ranging from four (4) to thirty-four (34) percent. It must be recognized that sand/gravel seams and layers are common and may be present in areas and thicknesses other than those encountered during field operations. It is possibile that boulders and/or cobbles were part of the stone encountered prior to refusal.

ROCK: The area's bottom most formation was sandstone or limestone and was encountered at all the test boring locations. The depths at which limestone was encountered and auger or split spoon refusal varied throughout the test boring locations are shown in the following table. At each of the test boring locations, highly weathered rock was noted as mechanically fractured during the drilling process.

TABLE 3: ROCK INFORMATION

Boring No.	Depths Rock Initially Encountered (from existing grade) (Feet)	Auger Refusal Depths (Feet)	Split Spoon Refusal Depths (Feet)	Type of Rock Encountered (Feet)
B-01	---	11.2	11.5	Limestone
B-02**	---	10.0	10.0	Limestone
B-03*	2.0	3.0	3.3	Sandstone
B-04*	1.5	7.5	7.5	Limestone
B-05	---	12.5	12.8	Limestone
B-06*	1.5	5.0	5.0	Sandstone
B-07	---	12.5	12.6	Limestone
B-08	---	8.5	---	Limestone
B-09*	1.5	3.5	3.6	Limestone
B-10*	6.0	16.0	16.3	Limestone & Sandstone
B-11	---	12.5	12.7	Limestone
B-12*	6.0	9.0	---	Limestone
B-13*	1.5	6.0	6.2	Limestone
B-14*	6.0	8.0	8.3	Limestone
B-15*	3.5	18.3	---	Limestone & Sandstone
B-16*	8.5	16.0	16.1	Limestone
B-17*	3.0	5.0	5.0	Limestone
B-18*	0.33	5.0	5.0	Limestone
B-19*	1.5	14.5	---	Sandstone
B-20	---	8.5	8.6	Limestone
B-21	---	11.4	11.5	Limestone
B-22*	6.0	13.0	13.3	Limestone
B-23*	8.5	13.0	13.3	Limestone
B-24	---	6.0	6.33	Limestone
B-25*	1.5	13.0	13.3	Sandstone
B-26*	6.0	8.5	9.3	Limestone
B-27*	6.0	8.0	8.2	Sandstone
B-28*	8.5	10.0	---	Sandstone
B-29*	8.5	19.3	---	Sandstone

*Rock initially encountered depths are approximate and were determined by N-values greater than 50 blows/6 inches and/or fractured fragments in lab samples.
**Boring B-02's rock elevation was cored 5 feet, see attached rock core log for additional information.

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the appendix should be reviewed for specific information at individual boring locations. These records include soil/rock descriptions, stratifications, penetration resistances, and locations of the samples and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during the field operations is also shown on these boring logs. The samples that were not altered by laboratory testing will be retained for sixty (60) days from the date of this report and then will be discarded.

2.4 GROUNDWATER LEVEL MEASUREMENTS

Groundwater was encountered during drilling at test boring locations B-05, B-07, B-16, B-19 and B-22 at depths ranging between 6 to 13 feet beneath the existing surface grade. Groundwater was also encountered upon completion of the drilling operations at test boring locations B-05, B-07, B-16, B-19 and B-22 at depths ranging between 3 to 13 feet beneath the existing surface grade. It must be recognized that free groundwater levels can significantly fluctuate (seasonally) and as a function of rainfall and may be present at other locations or to depths shallower than those encountered. Weather conditions and seasonal changes may cause a considerable change in the water table, or the occurrence of groundwater where not previously encountered. Furthermore, the free groundwater levels in the boreholes often are not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. In fine-grained glacial soils, the depth of the soil color change from brown to gray can be an indicator of the prevailing groundwater level. Above the prevailing groundwater level, fine-grained soils oxidize to a brown color. Change in color of soil from brown to gray was observed during our field investigation at test boring locations B-05, B-07 and B-11 at depths ranging from 6 to 8.5 feet beneath the existing surface grades. To obtain longer-term measurements, it is necessary to install water level observation wells or piezometers. The water level measurements presented in this report are the levels that were measured at the time of PSI's field activities. Therefore, we recommend that the contractor determine the actual groundwater levels at the time of construction to evaluate groundwater impact on the construction procedures.

3 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical related recommendations have been developed based upon the subsurface conditions encountered, our experience with similar soils and site conditions, and PSI's understanding of the proposed development. Should changes in the project criteria occur, a review must be made by PSI to determine if modifications to our recommendations will be required.

3.1 SITE PREPARATION

Prior to PSI's field investigation, the proposed project site was covered with mature trees. The mature trees have the potential to have an extensive subsurface root system. Due to these associated root systems, there exists the potential for significant variations in the stripping depth during the clearing and grubbing phase of the project. In addition to the stripping of the surficial materials, PSI recommends that the root systems associated with the mature trees are removed from the project site.

PSI recommends that all topsoil, tree root systems, soft/loose, organic, frozen, or otherwise objectionable soils, within the construction areas be removed from the site and properly disposed of or stockpiled for later use in non-structural areas. It should be noted that it is not unusual for surficial material or other objectionable material thicknesses to vary from the values observed in the soil test borings.

In this region, these otherwise competent sands, silts and lean clays can undergo a significant loss of stability when construction activities are performed during wetter portions of the year. PSI anticipates that the soils in the project area can become easily disturbed if subjected to conventional rubber tire or narrow track-type equipment. Soils that become disturbed would need to be excavated and replaced; however, this remedial excavation may expose progressively wetter soils with depth, thus compounding the situation. Therefore, a normal approach to subgrade preparation may not be possible. Appropriate wide-track equipment selection should aid in minimizing potential disturbance.

After stripping to the proposed subgrade level and replacing unsuitable fill soils and/or objectionable soils if present, with engineered fill, as required, the building and paving areas should be proof-rolled with a loaded tandem-axle dump truck or similar heavy rubber-tired vehicle (typically with a load greater than nine (9) tons per axle). Soils that are observed to rut or deflect excessively (typically greater than one (1) inch) under the moving load should be undercut and replaced with properly compacted low plasticity fill material. The proof-rolling and undercutting activities should be witnessed by a representative of the geotechnical engineer and should be performed during a period of dry weather. If the earthwork activities take place during wet seasons, lime stabilization of the subgrade could be required prior to engineered fill placement. Care should be taken during construction activities not to allow excessive drying or wetting of exposed soils. The subgrade soils should be scarified and compacted to at least 98% of the materials' standard Proctor maximum dry density, in general accordance with ASTM procedures, to a depth of at least twelve (12) inches below the surface. Additionally, new fill for building structures, asphalt, and concrete should not be placed on soft or frozen ground.

3.2 STRUCTURAL FILL

After subgrade preparation and observation have been completed, fill placement required to establish grade may begin. Low plasticity structural fill materials should be free of organic or other deleterious materials, have a maximum dry density greater than 100 pounds per cubic foot, and have a maximum particle size of less than three (3) inches. Low-plasticity soils are defined as having a liquid limit less than forty-five (45) and plasticity index between ten (10) and twenty (20). Samples of the proposed fill materials should be provided to PSI well in advance of their use to verify suitability for use at the project and to perform proctor testing prior to placement. Additionally, a representative of PSI should be on-site to observe, test, and document placement of the fill. If the fill is too dry, water should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Close moisture content control will be required to achieve the recommended degree of compaction. If wet or cool season earthwork is necessary, PSI recommends the use of imported fill materials meeting the requirements of Ohio Department of Transportation (ODOT) No. 304 aggregate.

Fill should be placed in maximum loose lifts of eight (8) inches and compacted to at least 98% of the materials' standard Proctor maximum dry density, and within a range of the optimum moisture content as designated in the table below, as determined in general accordance with ASTM procedures. Each lift of compacted-engineered fill should be tested and documented by a representative of the geotechnical engineer prior to placement of subsequent lifts. The edges of compacted fill should extend a minimum of five (5) feet beyond the building footprint, or a distance equal to the depth of fill beneath the footings, whichever is greater. Additionally, the edges of structural fill should extend a minimum of ten (10) feet beyond the building footprint at a maximum 2:1 slope. The measurement should be taken from the outside edge of the footing to the toe of the excavation prior to sloping.

In utility trenches, shallow foundation excavations, and other areas where large compaction equipment cannot be used, granular structural fill should be placed as backfill. PSI recommends the use of material meeting Ohio Department of Transportation (ODOT) No. 304, for use as granular structural fill. Structural fill should be placed in accordance with the recommendations stated in this section of the report.

The fill placed should be tested and documented by a geotechnical technician and directed by a geotechnical engineer to evaluate the placement of fill material. It should be noted that the geotechnical engineer of record can only certify the testing that is performed, and the work observed by that engineer or staff in direct report to that engineer. The fill should be evaluated in accordance with the following table:

Table 4

MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	PLACEMENT MOISTURE CONTENT RANGE	FREQUENCY OF TESTING *1
Structural Lean Clay Fill (Cohesive)	Standard	98%	-2 to +3 %	1 per 1,500 ft^2 of fill placed / lift
Structural Fill (Granular)	Standard	98%	-2 to +2 %	1 per 1,500 ft^2 of fill placed / lift
Random Fill (non-load bearing)	Standard	90%	-3 to +3 %	1 per 6,000 ft^2 of fill placed / lift
Utility Trench Backfill	Standard	98%	-2 to +2 %	1 per 150 lineal foot / lift

*1 Minimum 2 per lift.

Tested fill materials that do not achieve either the required dry density or moisture content range shall be recorded, the location noted and reported to the Contractor and Owner. A re-test of that area should be performed after the Contractor performs remedial measures and prior to the placement of additional fill material.

3.3 GEOTECHNICAL DISCUSSION

Based on the test boring results, laboratory test results, and the proposed construction, our analysis indicates one geotechnical-related issue that exists at this site, which may affect the performance of the foundations for these structures or could adversely impact construction activities.

Relatively Shallow Rock Formation / Water Levels

The area's rock formation was encountered during drilling at all the test boring locations at depths ranging from one-half (1/2) foot to eight and one-half feet (8-1/2) feet beneath the existing surface grades. Additionally, based on our field investigation, water was encountered in some of the test boring locations and generally along the soil to rock interface (Please see the groundwater section of this report). The water levels are short term and can change due to seasonal conditions.

Finish design site grades were not available at the time of this report. Therefore, depending on the final grading, it is possible that the proposed structures or underground utility elevations may be impacted by the encountered rock or water levels. PSI recommends that additional test pit excavations be considered to verify the specific depths and elevations of the rock formation be obtained so grading plans can account for this condition. PSI would recommend that the contractor obtain additional water level information prior to construction and determine a proper dewatering plan if necessary for the development.

Please refer to the following "Foundation Recommendation" and "Drainage and Groundwater" sections of this report for further details.

If additional information regarding the depth and rip ability of rock would be beneficial, PSI recommends utilizing Refraction Microtremor Testing (ReMi) to determine the sheer wave velocity characteristics of the subsurface profile for defining the Seismic Site Class and determining general rock properties regarding excavation methods. The ReMi method is described in Louie, 2001 (Louie, J.N., 2001, Faster, Better: Shear-wave velocity to 100 meters depth from refraction microtremor arrays: Bulletin of the Seismological Society of American, v. 91, p. 347-364). The method uses standard P-wave recording equipment and ambient noise to produce average one-dimensional shear-wave profiles to depths on the order of 100 meters (+300 feet). No specific energy source is required to record ambient background noise.

A wavefield transformation data processing technique and an interactive Rayleigh-wave dispersion modeling tool exploits the most effective aspects of the microtremor, spectral analysis of surface waves. The slowness-frequency wavefield transformation is particularly effective in allowing accurate picking of Rayleigh-wave phase-velocity dispersion curves despite the presence of waves propagating across the linear array at high apparent velocities, higher mode Rayleigh waves, body waves, air waves, and incoherent noise. It has been very effective for determining 30-m average shear wave-velocity (V_{30}) and thus the NEHRP (National Earthquake Hazard Reduction Program) soil classification. Following completion of the test, the data will be analyzed, and the Seismic Site Class will be determined. It has been PSI's experience that the use of this geophysical test methodology will typically improve the Seismic Site Classification by at least one category, which can result in a significant reduction of the cost for design and construction of the proposed structure.

3.4 FOUNDATION RECOMMENDATIONS

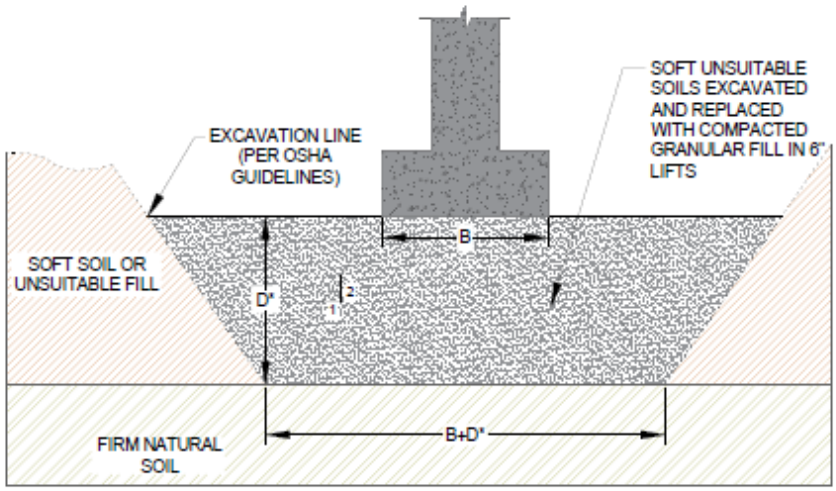
PSI has based this report on the maximum column and wall loads being 50 to 75 kips and 3 kips per lineal foot, respectively, for the proposed structure. Accordingly, the structure can be supported on conventional spread-type and continuous footing foundations bearing on either competent naturally deposited soil or properly compacted, tested, and documented structural fill. If it is desired for the planned foundations to bear on properly compacted and documented fill, the geotechnical engineer should be allowed to review the material to determine its consistency with the recommended bearing pressures. Spread footings for structure columns and continuous footings for bearing walls can be designed using a maximum allowable soil bearing pressure of **3,500 pounds per square foot (psf) for individual column footings and continuous wall footings** based on dead load plus design live load. These values contain a safety factor of 3 against ultimate soil failure. PSI recommends a minimum dimension of twenty-four (24) inches for square footings and eighteen (18) inches for continuous footings to minimize the possibility of a local bearing capacity failure.

Footings for each structure should be excavated and bear into the same soil strata. If based on the final grading plans a portion of a structure's bottom of footing elevation is bearing in the area's competent rock formation then that entire structure's foundation should bear in the competent rock formation. If additional soil removal is required to reach the bedrock elevation, the excavated areas could then be backfilled with lean concrete having a compressive strength of at least 1,000 psi to the planned bottom of footing elevation.

Similarly, if based on the final grading plans a structure's bottom of footing elevation can bear in natural soil or properly placed, compacted, and tested engineered fill, then that entire structure's foundation should bear in the same soil condition.

Exterior footings and footings in unheated areas should be located at a depth of thirty-six (36) inches or deeper below the final exterior grade to provide adequate frost protection. If the building is to be constructed during the winter months or if footings will likely be subjected to freezing temperatures after foundation construction, then the footings should be protected from freezing. PSI recommends that interior footings be a minimum depth of eighteen (18) inches below the finished floor elevation.

The foundation excavations should be observed and documented by a representative of PSI prior to steel or concrete placement to determine that the foundation materials are consistent with the materials discussed in this report, and therefore can support the design loads. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed to the level of suitable natural soils and replaced with adequately compacted (granular) structural fill. Fill placed below the foundations where unsuitable materials are removed should extend one half (½) foot outside the foundation limits for every one (1) foot in thickness between the intended bearing surface and the underlying, suitable natural soils. Alternately, the foundations may be extended through unsuitable soils to bear on the underlying suitable material. Cavities formed because of excavation of soft or loose soil zones should be backfilled with lean concrete or dense graded compacted crushed stone.



D* IS DEPTH FOR SUITABLE SOILS

After opening, footing excavations should be observed, and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. If possible, the foundation concrete should be placed during the same day the excavation is made. If it is required that footing excavations be left open for more than one day, they should be protected to reduce evaporation or entry of moisture by placing a relatively thin seal slab of concrete.

Based on the known subsurface conditions and site geology, laboratory testing and past experience, PSI anticipates that properly designed and constructed footings supported on the recommended materials should experience total and differential settlement between adjacent columns of less than one (1) inch and ¾ inch, respectively.

Be advised that as a part of the foundation selection process, there is a cost/benefit evaluation. Although PSI is recommending a specific foundation type, we have not accomplished the cost/benefit evaluation.

3.5 EARTHQUAKE AND SEISMIC DESIGN CONSIDERATION

The 2021 International Building Code requires a site class for the calculation of earthquake design forces. This class is a function of soil type (i.e., depth of soil and strata types). Based on the depth to rock and the estimated shear strength of the soil at the test boring locations, Site Class "C" is recommended. The United States Geological Survey National Earthquake Hazard Reduction Program (USGS-NEHRP) probabilistic ground motion values "C" are as follows:

Table 5
For Latitude 39.8356°N / Longitude -84.2894°W

Period (seconds)	Site Coefficients	Max. Spectral Acceleration Parameters	Design Spectral Acceleration Parameters
0.152 (S_s)	F_a = 1.3	S_{ms} = 0.198	S_{Ds}= 0.132
0.071 (S_1)	F_v = 1.5	S_{m1} = 0.107	S_{D1}= 0.071

According to IBC 2021, the Site Coefficients, F_a and F_v were interpolated from ASCE7-16 as a function of the site classifications and the mapped spectral response acceleration at the short (S_s) and 1 second (S_1) periods.

If a **Seismic Design Category B** is selected by the architect or structural engineer for this structure, Section 1802 of the Code does not require an assessment of slope stability, liquefaction potential, and surface rupture due to faulting or lateral spreading.

3.6 FLOOR SLAB RECOMMENDATIONS

The floor slab should be supported on properly placed, compacted, and tested fill or native low plasticity soil. Once the site area has been prepared in accordance with the "Site Preparation" section of this report, the floor slab can be grade supported on a minimum 2 feet non-expansive structural fill. Proof-rolling, as discussed earlier in this report, should be accomplished to identify soft or unstable soils that should be removed from the floor slab area prior to fill placement and/or floor slab construction. These soils should be replaced with properly compacted structural fill as described earlier in this report. Alternately, fat clays may be chemically stabilized in the top 16 inches of the subgrade.

PSI recommends that a minimum six (6) inch thick trimmable, compactable granular material be placed beneath the floor slab to enhance drainage. The soil surface shall be graded to drain away from the building without low spots that can trap water prior to placing the granular drainage layer. Polyethylene sheeting should be placed to act as a vapor retarder where the floor will be in contact with moisture sensitive equipment or products such as tile, wood, carpet, etc., as directed by the design engineer. The decision to locate the vapor retarder in direct contact with the slab or beneath the layer of granular fill should be made by the design engineer after considering the moisture sensitivity of subsequent floor finishes, anticipated project conditions, and the potential effects of slab curling and cracking. The floor slabs should have an adequate number of joints to reduce cracking resulting from differential movement and shrinkage.

For subgrade prepared as recommended and properly compacted fill, a modulus of subgrade reaction, *k* value, of **150 pounds per cubic inch (pci)** may be used in the grade slab design based on correlation to values typically resulting from a 1 ft. x 1 ft. plate load test. However, depending on how the slab load is applied, the value should be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

$$\text{Modulus of Subgrade Reaction, } k_s = \left(\frac{k}{B}\right) \text{ for cohesive soil and}$$

$$k_s = k\left(\frac{B+1}{2B}\right)^2 \text{ for cohesionless soil}$$

where:
- k_s = coefficient of vertical subgrade reaction for loaded area,
- k = coefficient of vertical subgrade reaction for 1 square foot area, and
- B = effective width of area loaded, in feet

The precautions listed below should be followed for construction of slab-on-grade pads. These details will not reduce the amount of movement but are intended to reduce potential damage should some settlement of the supporting subgrade take place. Some increase in moisture content is inevitable because of development and associated landscaping. However, extreme moisture content increases can be largely controlled by proper and responsible site drainage, building maintenance and irrigation practices.

Cracking of slab-on-grade concrete is normal and should be expected. Cracking can occur not only because of heaving or compression of the supporting soil and/or bedrock material, but also because of concrete curing stresses. The occurrence of concrete shrinkage cracks, and problems associated with concrete curing may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement, finishing, and curing, and by the placement of crack control joints at frequent intervals, particularly where re-entrant slab corners occur. The American Concrete Institute (ACI) recommends a maximum panel size (in feet) equal to approximately three times the thickness of the slab (in inches) in both directions. For example, joints are recommended at a maximum spacing of twelve (12) feet based on having a four-inch slab. PSI also recommends that the slab be independent of the foundation walls. Using fiber reinforcement in the concrete can also control shrinkage cracking.

Areas supporting slabs should be properly moisture conditioned and compacted. Backfill in all interior and exterior water and sewer line trenches should be carefully compacted to reduce the shear stress in the concrete extending over these areas.

Exterior slabs should be isolated from the building. These slabs should be reinforced to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.

3.7 PAVEMENT RECOMMENDATIONS

PSI's scope of work did not include performing a CBR analysis or specific pavement design for the proposed project. However, based on the laboratory results, a California Bearing Ratio (CBR) value of four (4) can be utilized for design of the pavement structures provided the following conditions are met. The subgrade materials should consist of structural fill or natural soils (excluding Fat Clay) and are compacted to the recommended density and moisture content and these soils should be verified by PSI prior to the placement of the aggregate base course.

Pavement Subgrade Preparation

The subgrade should be prepared per the "Site Preparation" section of this report. Prior to paving, the prepared subgrade should be proof rolled using a loaded tandem axle dump truck or similar type of pneumatic tired equipment with a minimum gross weight of nine (9) tons per single axle. Localized soft areas identified should be repaired prior to paving. Moisture content of the subgrade should be maintained between -2% and +3% of the optimum at the time of paving. It may require rework when the subgrade is either desiccated or wet. Compaction of fill materials intended to support pavement should meet or exceed 98% of the maximum dry density as determined by ASTM D698 (Standard Proctor). The moisture content at the time of compaction should be within -2% and +3% of the optimum value. Any removed soils should be replaced with compacted structural fill to arrive at the desired grade.

Construction traffic should be minimized to prevent unnecessary disturbance of the pavement subgrade. Disturbed areas, as verified by PSI, should be removed, and replaced with properly compacted material.

The edges of compacted fill should extend a minimum of two (2) feet beyond the edges of the pavement, or a distance equal to the depth of fill beneath the pavement, whichever is greater. The measurement should be taken from the outside edge of the pavement to the tow of the excavation prior to sloping.

General Pavement Information

PSI was not provided any design information or daily traffic volume at the time of this report. The following additional pavement design parameters were used by PSI as the report basis to calculate the recommended minimum thicknesses that are shown in the tables below:

- Design Life = 20 years
- Reliability = 80%
- Overall Deviation = 0.49
- Initial Serviceability = 4.5
- Terminal Serviceability = 2.0

Flexible Pavement

The aggregate base should comply with the gradation requirements of ODOT No. 304 (or similar) dense-graded aggregate. It should be compacted to 98 percent of the maximum dry density as determined by ASTM D698 (standard Proctor). The granular base course should be built at least 2 feet wider than the pavement on each side to support the tracks of the slip form paver. This extra width is structurally beneficial for wheel loads applied at pavement edge. The asphalt base course should be compacted to a minimum of 92% of the Maximum Theoretical Density as determined by ASTM D2041. Careful attention will be required in fine grading the subgrade surfaces to eliminate undulations and depressions that would tend to collect water.

In heavy truck lanes or turn areas or where refuse containers or other similar objects are to be placed on the pavement so that a considerable load is transferred from relatively small steel supports, it is recommended that 8 inches of rigid concrete pavement be provided. This will provide for the proper distribution of loads to the subgrade without causing deformation of the surface especially during hot weather. It will also resist the wear resulting from dumpster loading and vehicle traffic.

Based on the provided information, design values discussed above, estimated pavement design information, and a CBR value of 3, minimum flexible pavement thickness values for the proposed development are as follows.

Table 6: Flexible Pavement Sections

Layer	Light-Duty	Heavy-Duty
Surface Course (ODOT #448 Type 1)	1.5 inches	1.5 inches
Intermediate Course (ODOT #448 Type 2)		1.5 inches
Bituminous Aggregate Base (ODOT #301)	2.0 inches	2.0 inches
Aggregate Base Course (ODOT #304)	8.0 inches	8.0 inches

**Subgrade compaction required in the upper 12 inches of subgrade.*
***Automobile Parking stalls only. Trailer parking requires a 12-inch reinforced concrete pad for the trailer stands.*

For parking stalls that allow free movement through them (i.e. no parking block or curbs), PSI recommends constructing the recommended heavy-duty asphalt section. Lanes subject to bus or heavy trucks should be designed as Heavy-duty pavements. Allowances for proper drainage and proper material selection of base materials are most important for performance of asphaltic pavements. Ruts and birdbaths in the asphalt pavement will allow for quick deterioration of the pavement primarily due to saturation of the underlying base and subgrade. Proper maintenance will be required.

Concrete Pavement

Because the pavement at this site will be subjected to freeze-thaw cycles, PSI recommends that an air entrainment admixture be added to the concrete mix to achieve an air content in the range of 5% to 7% to provide freeze-thaw durability in the concrete. Concrete with a minimum 28 day specified compressive strength of 4,000 psi should be used. The mixture should have a maximum slump of four (4) inches. If a water reducing admixture is used in the mix design, then the slump can be increased. It is recommended that a concrete mix design including any admixtures be submitted to the owner in advance of use at the project site.

Pavement for any dumpster areas or areas subject to consistent heavy loads should be constructed of a minimum 8 inches of Portland cement concrete with load transfer devices installed where construction joints are required. A thickened edge is recommended on the outside of slabs subjected to wheel loads. This thickened edge usually takes the form of an integral curb. Fill material should be compacted behind the curb, or the edge of the outside slabs should be thickened. The following are recommended to enhance the quality of the pavement.

- Moisten subgrade just prior to placement of concrete
- Cure fresh concrete with a liquid membrane-forming curing compound
- Keep automobile traffic off the slab for three (3) days and truck traffic off the slab for seven (7) days, unless tests are made to determine that the concrete has gained adequate strength (i.e., usually 70% of design strength)

The use of concrete for paving has become more prevalent in recent years due to the long-term maintenance cost benefits of concrete compared to asphalt concrete pavements. Should concrete pavement be utilized, the concrete should be properly reinforced and jointed, and should have a 28-day flexural strength of no less than 600 psi and should be air entrained. Expansion joints should be sealed with a polyurethane sealant so that moisture infiltration into the subgrade soils and resultant concrete deterioration at the joints is reduced.

Based on the provided information, assumed, and estimated pavement design information, minimum rigid pavement thickness values for the proposed development are as follows.

Table 7: Rigid Pavement Sections

Layer	Light-Duty	Heavy-Duty
Portland Cement Concrete	5.0 inches	6.0 inches
Thickened Edges	8.5 inches	9.5 inches
Aggregate Base Course (ODOT #304)	6.0 inches	6.0 inches
Compacted Subgrade (ODOT 204)	---	---

**Subgrade compaction required in the upper 12 inches of subgrade.*
***Automobile traffic and light trucks only.*

Because the pavement at this site will be subjected to freeze-thaw cycles, PSI recommends that an air entrainment admixture be added to the concrete mix to achieve an air content in the range of 5% to 7% to provide freeze-thaw durability in the concrete. Concrete with a minimum 28 day specified compressive strength of 4,000 psi should be used. The mixture should have a maximum slump of four (4) inches. If a water reducing admixture is used in the mix design, then the slump can be increased. It is recommended that a concrete mix design including any admixtures be submitted to the owner in advance of use at the project site.

Pavement for any dumpster areas or areas subject to consistent heavy loads should be constructed of a minimum 8 inches of Portland cement concrete with load transfer devices installed where construction joints are required. A thickened edge is recommended on the outside of slabs subjected to wheel loads. This thickened edge usually takes the form of an integral curb. Fill material should be compacted behind the curb, or the edge of the outside slabs should be thickened. The following are recommended to enhance the quality of the pavement.

- Moisten subgrade just prior to placement of concrete
- Cure fresh concrete with a liquid membrane-forming curing compound
- Keep automobile traffic off the slab for three (3) days and truck traffic off the slab for seven (7) days, unless tests are made to determine that the concrete has gained adequate strength (i.e., usually 70% of design strength)

Pavement Drainage & Maintenance

PSI recommends pavements be sloped to provide rapid surface drainage. Water allowed to pond on or adjacent to the pavement could saturate the subgrade and cause premature deterioration of the pavements, and removal and replacement may be required. Consideration should be given to the use of interceptor drains to collect and remove water collecting in the granular base. The interceptor drains could be incorporated with the storm drains of other utilities located in the pavement areas.

Periodic maintenance of the pavement should be anticipated. This should include sealing of cracks and joints and by maintaining proper surface drainage to avoid ponding of water on or near the pavement areas. Underdrains, sub-drains and under slab drains presented in this report will not prevent moisture vapor that can cause mold growth.

Design for drainage is of the utmost importance to minimize detrimental effects that may shorten the service life of the pavements. The pavement should be crowned or sloped in order to promote effective surface drainage and reduce the risk of water ponding. We recommend a minimum slope of 1.5 percent. In addition, the subgrade should be similarly sloped to promote effective subgrade drainage. We recommend “stub” or “finger” drains be provided around catch-basins and in other low areas of the proposed pavements to limit the accumulation of water on the frost susceptible subgrade soils. Subsurface edge drains should be provided at curbs. Where no curbs are proposed, ditches should be provided and the pavement base course should be daylighted through the ditch side slope to facilitate drainage of the base course.

Subsurface “stub” or “finger” drains should be perforated corrugated plastic pipe or an equivalent. The pipe should be surrounded by a minimum of 4 inches of free draining aggregate, with the aggregate fully encased in a non-woven geotextile filter fabric.

3.8 UTILITIES TRENCHING

Excavation for utility trenches shall be performed in accordance with OSHA regulations as stated in 29 CFR Part 1926. It should be noted that utility trench excavations have the potential to degrade the properties of the adjacent fill materials. Utility trench walls that can move laterally can lead to reduced bearing capacity and increased settlement of adjacent structural elements and overlying slabs.

Backfill for utility trenches is as important as the original subgrade preparation or structural fill placed to support either a foundation or slab. Therefore, it is imperative that the backfill for utility trenches be placed to meet the project specifications for the structural fill of this project. PSI recommends that flowable fill or lean mix concrete be utilized for utility trench backfill. If on-site soils are placed as trench backfill, the backfill for the utility trenches should be placed in four (4) to six (6) inch loose lifts and compacted to a minimum of 98% of the maximum dry density achieved by the standard Proctor test. The backfill soil should be moisture conditioned to be within 2% of the optimum moisture content as determined by the standard Proctor test. Up to four (4) inches of bedding material placed directly under the pipes or conduits placed in the utility trench can be compacted to the 90% compaction criteria with respect to the standard Proctor. Compaction testing should be performed for every 200 cubic yards of backfill place or each lift within 150 linear feet of trench, whichever is less. Backfill of utility trenches should not be performed with water standing in the trench. If granular material is used for the backfill of the utility trench, the granular material should have a gradation that will filter protect the backfill material from the adjacent soils. If this gradation is not available, a geosynthetic non-woven filter fabric should be used to reduce the potential for the migration of fines into the backfill material. Granular backfill material shall be compacted to meet the above compaction criteria. The clean granular backfill material should be compacted to achieve a relative density greater than 75% or as specified by the geotechnical engineer for the specific material used.

3.9 SILTATION CONTROL

The Clean Water Act implemented in 1990 includes a federal permit program called the National Pollutant Discharge Elimination System (NPDES). This program requires that projects sites more than one (1) acre or are part of a development which exceeds one (1) acre be covered under a permit. This typically includes the development of a storm water pollution prevention plan (SWPPP) as well as period inspections (typically once a week plus after significant rainfall). PSI is available to assist with these services.

4 CONSTRUCTION CONSIDERATIONS

PSI should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. PSI cannot accept responsibility for conditions that deviate from those described in this report, nor for the performance of the foundation system if not engaged to also provide construction observation and testing for this project.

4.1 MOISTURE SENSITIVE SOILS/WEATHER RELATED CONCERNS

The upper fine-grained soils encountered at this site will be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

4.2 DRAINAGE AND GROUNDWATER CONSIDERATIONS

Groundwater was encountered during drilling at test boring locations B-05, B-07, B-16, B-19 and B-22 at depths ranging between 6 to 13 feet beneath the existing surface grade. Groundwater was also encountered upon completion of the drilling operations at test boring locations B-05, B-07, B-16, B-19 and B-22 at depths ranging between 3 to 13 feet beneath the existing surface grade. However, PSI recommends that the Contractor determine the actual groundwater levels at the site at the time of the construction activities to assess the impact groundwater may have on construction. Water should not be allowed to collect in the foundation excavation, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of collected rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building. Overall site area drainage is to be arranged in a manner such that the possibility of water impounding below slab-on-grade areas and over the structural fill, is prevented at all times during and after construction.

4.3 EXCAVATONS

In Federal Register, Volume 54, Number 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better enhance the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is PSI's understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

Care must be taken to protect adjacent structure foundations and structures during the foundation excavation process, so no structure or foundation is undermined. All existing foundations must be protected during the installation process. In addition, care must be taken to maintain the groundwater level at least 2 feet below the deepest excavation at the site to reduce the potential for unstable soil conditions.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case, should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations. A trench safety plan was beyond the scope of our services for this project.

5 GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform per the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

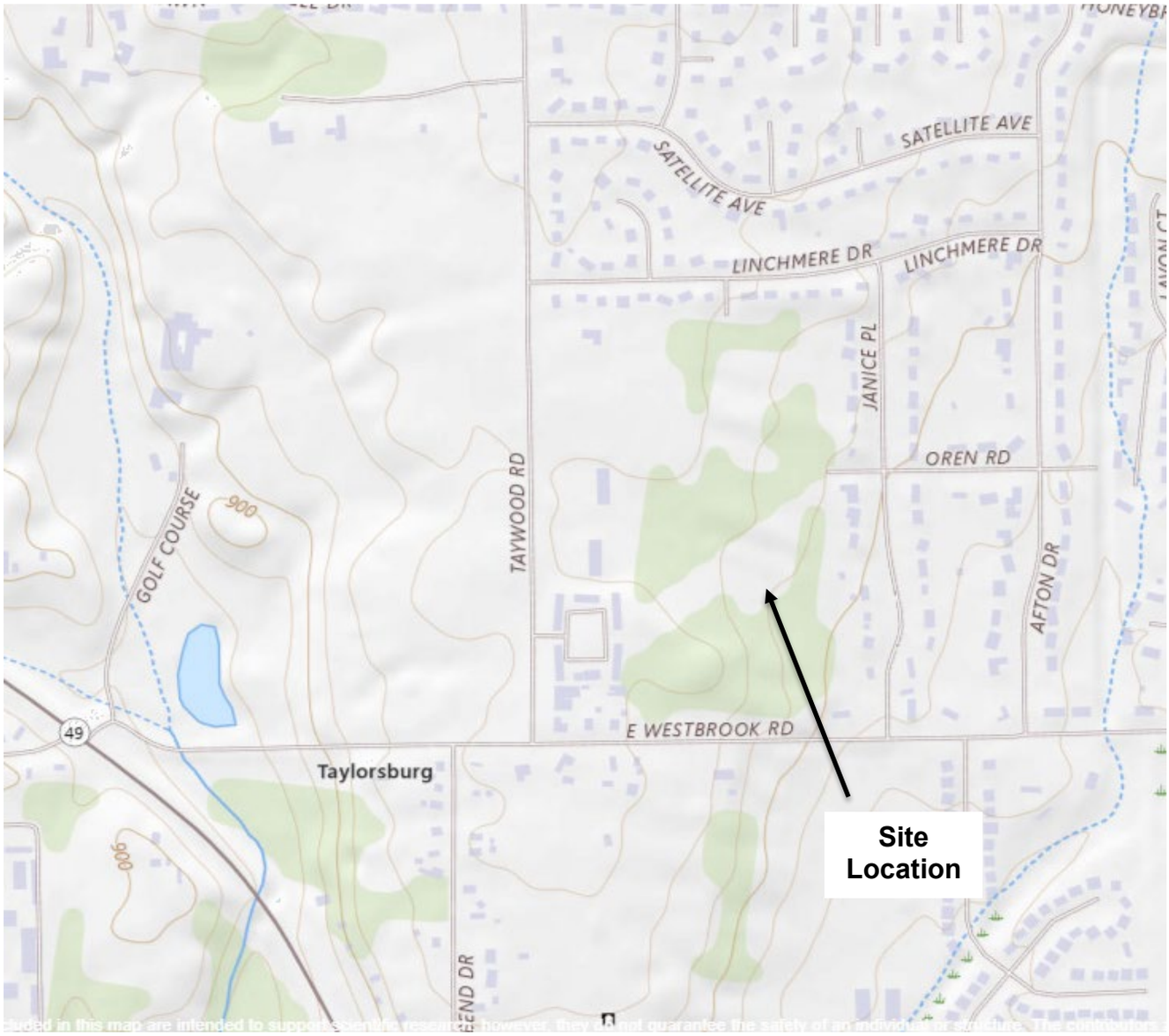
6 REPORT LIMITATIONS

The recommendations submitted in this report are based on the available subsurface information obtained by PSI and design details furnished for the proposed development. If there are any revisions to the plans for the proposed development or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be retained to determine if changes in the recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the geotechnical recommendations for the project.

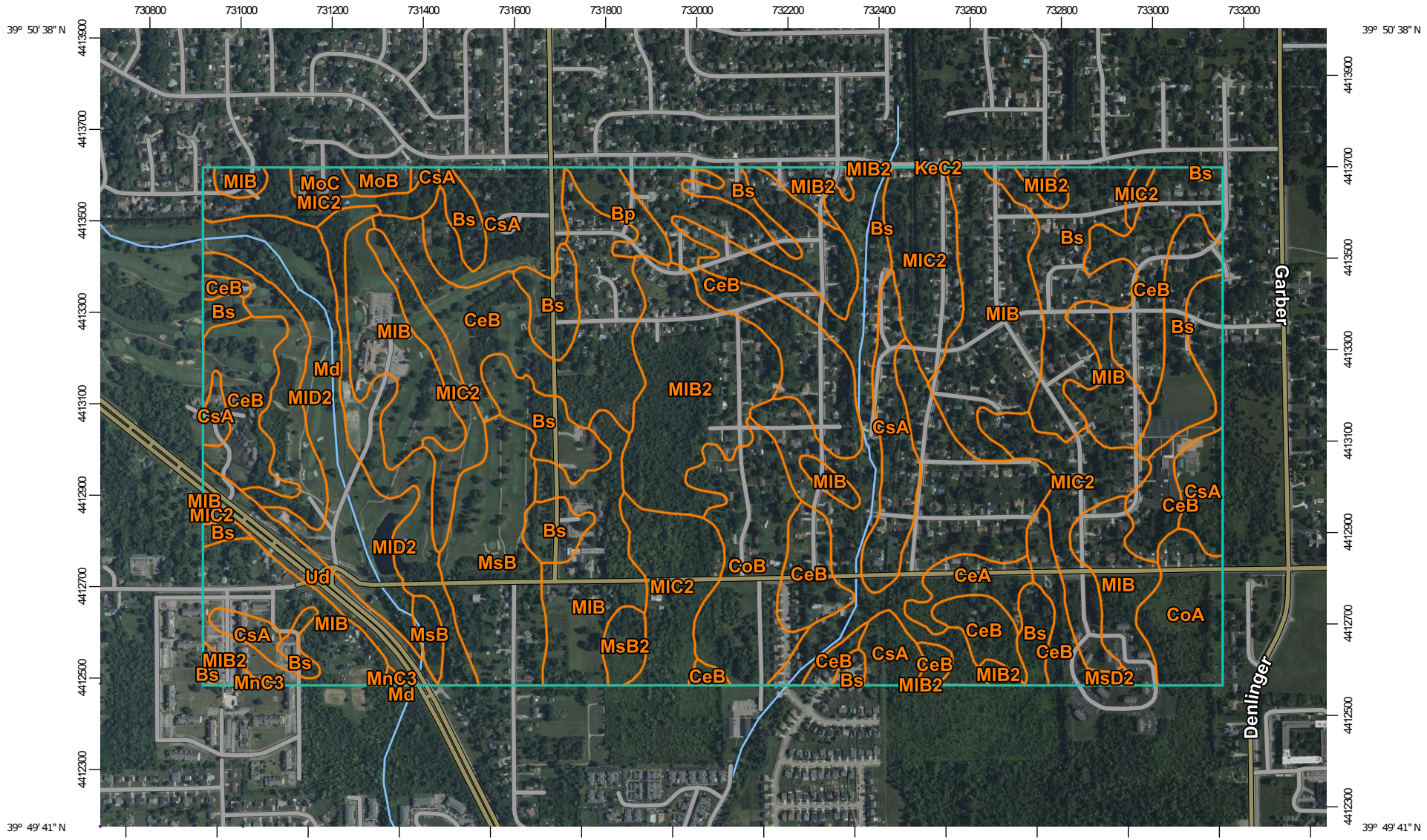
The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein, have been presented after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. No other warranties are implied or expressed.

This report has been prepared for the exclusive use of American Structurepoint, Inc. for the specific application to the proposed new Clayton Single Family Subdivision project to be located at 1745 East Westbrook Road between Taywood Road and Janice Place in Dayton, Ohio.

APPENDIX



intertek psi	**Site Vicinity Map** Clayton Family 1745 East Westbrook Road Dayton, Ohio	Map Cut from USGS website (Locations Approximate) Project No. 01253343



Map Scale: 1:12,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

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.

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: Montgomery County, Ohio
Survey Area Data: Version 23, Aug 28, 2024

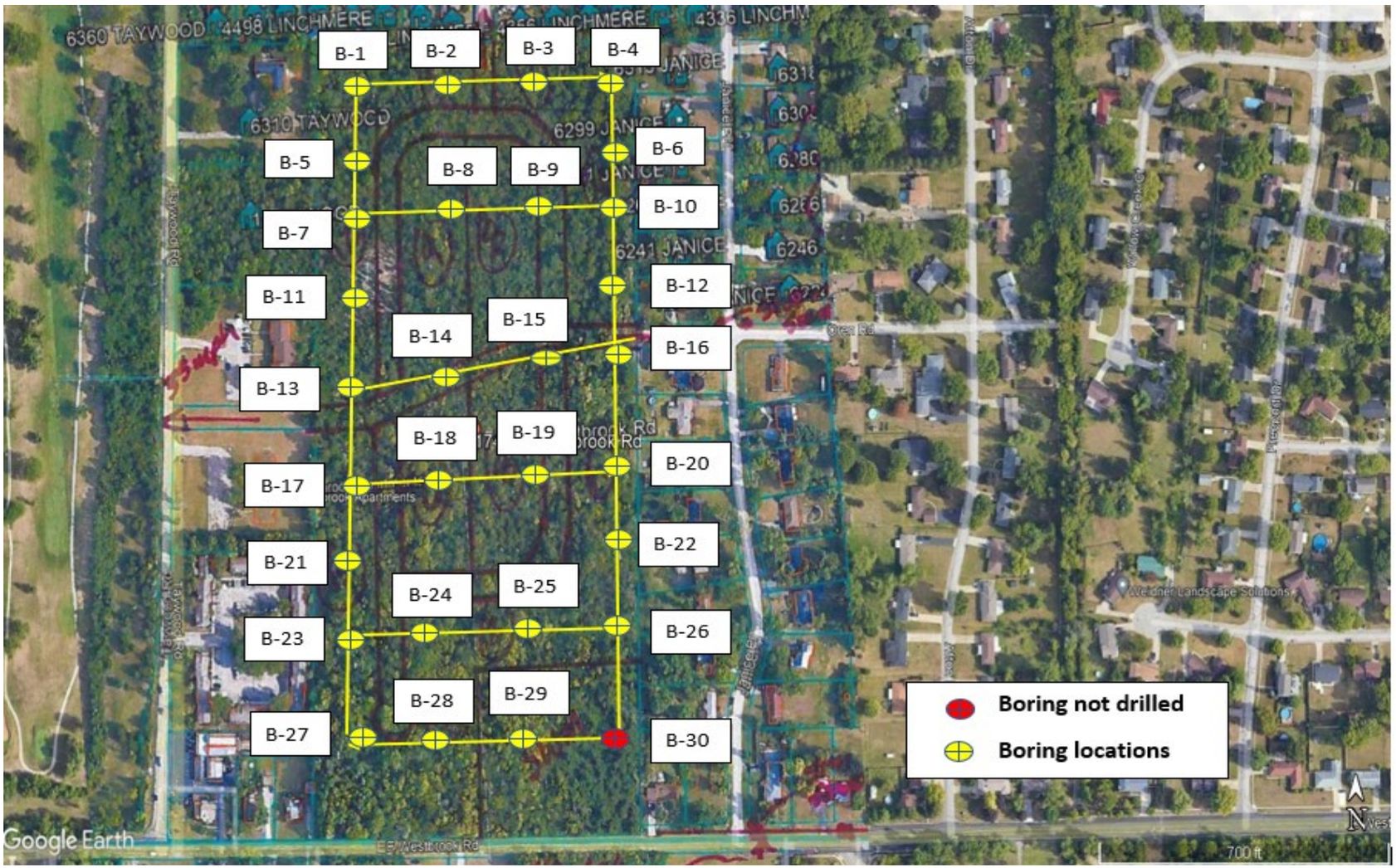
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

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
Bp	Brookston silt loam, fine subsoil, 0 to 2 percent slopes	5.1	0.8%
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	119.8	19.0%
CeA	Celina silt loam, 0 to 2 percent slopes	6.1	1.0%
CeB	Celina silt loam, 2 to 6 percent slopes	121.9	19.4%
CoA	Corwin silt loam, 0 to 2 percent slopes	12.3	2.0%
CoB	Corwin silt loam, 2 to 6 percent slopes	22.6	3.6%
CsA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	39.6	6.3%
KeC2	Kendallville silt loam, 6 to 12 percent slopes, moderately eroded	0.0	0.0%
Md	Medway silt loam	29.7	4.7%
MlB	Miamian silt loam, 2 to 6 percent slopes	99.4	15.8%
MlB2	Miamian silt loam, 2 to 6 percent slopes, eroded	36.9	5.9%
MlC2	Miamian silt loam, 6 to 12 percent slopes, eroded	62.4	9.9%
MlD2	Miamian silt loam, 12 to 18 percent slopes, eroded	28.6	4.5%
MnC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	0.4	0.1%
MoB	Miamian-Urban land complex, undulating	2.0	0.3%
MoC	Miamian-Urban land complex, rolling	2.0	0.3%
MsB	Milton silt loam, 2 to 6 percent slopes	26.3	4.2%
MsB2	Milton silt loam, 2 to 6 percent slopes, moderately eroded	3.3	0.5%
MsD2	Milton silt loam, 12 to 18 percent slopes, moderately eroded	0.7	0.1%
Ud	Udorthents	9.8	1.6%
Totals for Area of Interest		**629.0**	**100.0%**



intertek psi	**Boring Location Plan** Proposed Subdivison 1745 East Westbrook Road Dayton, Ohio	Drawing provided by Client, Overlaid by PSI Project No. 01253343

BORING B-01

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	938 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ Moisture × PL ◪ LL ✚ (0, 25, 50) STRENGTH, tsf Qu ▲ Qp ✳ (0, 2.0, 4.0)	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	10	STIFF, MOIST, BROWN, **LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT		3-2-3 N_{60}=8	32	LL = 49 PL = 21	
935							CL				
	5			2	10	HARD 3.5'		7-10-11 N_{60}=32	27		
				3	11	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**		4-7-10 N_{60}=26	15	>>✳	
930							CL				
	10			4	14			3-8-8 N_{60}=24	13		
				5	0	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/4"		>>◎	
925						**AUGER REFUSAL 11'2"**					
	15					**SPLIT SPOON REFUSAL AND END OF BORING 11.5'**					
920											
	20										
915											
	25										

intertek psi

Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-02

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	934 ft	**SAMPLING METHOD**	2-in SS1.874-in Core Split Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) RQD & Recovery % (NX)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	18	STIFF, MOIST, BROWN, **LEAN CLAY**	CL	2-3-5 N_{60}=12	23		
930	5			2	16	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	2-3-10 N_{60}=20	13		
				3	16	DENSE, MOIST, BROWN, **CLAYEY SAND**	SC	8-16-10 N_{60}=39	8		
925	10			4	9	VERY HARD, MOIST, BROWN, **SANDY LEAN CLAY** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	4-50/3"	11		
				5	53	HARD, GRAY, MODERATELY WEATHERED, **LIMESTONE**	LIMESTONE	RQD=27 Rec=88%			
920	15										
						AUGER AND SPLIT SPOON REFUSAL 10'					
915						**END OF BORING 15'**					
	20										
910	25										

intertek psi

Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-03

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	924 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ (Moisture ×, PL ◪, LL ✚; 0–25–50) STRENGTH, tsf (Qu ▲, Qp ✳; 0–2.0–4.0)	Additional Remarks
	0					**5" TOPSOIL**	TOPSOIL				
				1	9	VERY HARD, MOIST, BROWN, **LEAN CLAY** , WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS	CL	2-50/3"	32	✳ × >>◎	
				2	1	**MECHANICALLY FRACTURED SANDSTONE FRAGMENTS**	SANDSTONE	50/3"		>>◎	
920	5					**AUGER REFUSAL 3'**					
						SPLIT SPOON REFUSAL AND END OF BORING 3'3"					
915	10										
910	15										
905	20										
900	25										

Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-04

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	922 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / Moisture / PL / LL (0, 25, 50) / STRENGTH, tsf Qu / Qp (0, 2.0, 4.0)	Additional Remarks
920	0		SS	1	6	**4" TOPSOIL** HARD, MOIST, BROWN, **FAT CLAY** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	TOPSOIL CH	9-11-15 N_{60}=39	39		
	5		SS	2	12	VERY HARD, MOIST, BROWN, **LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT, WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	12-22-19 N_{60}=62	22		
915			SS	3	6	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	3-20-50/4"			
	10					**AUGER/SPLIT SPOON REFUSAL AND END OF BORING 7.5'**					
910											
	15										
905											
	20										
900											
	25										

Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-05

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	937 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

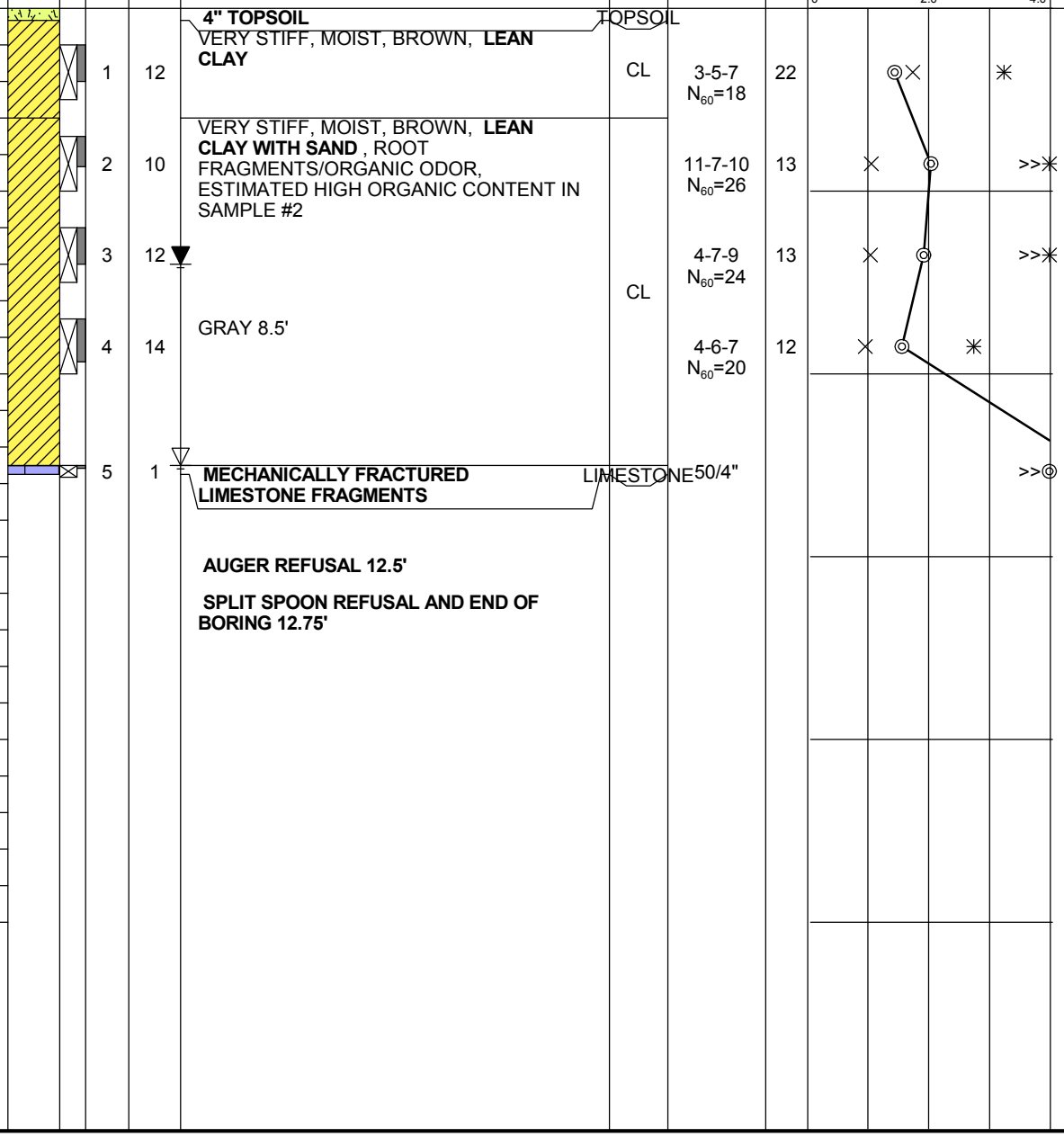
While Drilling	12.5	feet
Upon Completion	7.0	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0			**4" TOPSOIL**	TOPSOIL			
935		1	12	VERY STIFF, MOIST, BROWN, **LEAN CLAY**	CL	3-5-7 N_{60}=18	22	
	5	2	10	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT IN SAMPLE #2		11-7-10 N_{60}=26	13	
930		3	12		CL	4-7-9 N_{60}=24	13	
	10	4	14	GRAY 8.5'		4-6-7 N_{60}=20	12	
925		5	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/4"		
	15			**AUGER REFUSAL 12.5'**				
920				**SPLIT SPOON REFUSAL AND END OF BORING 12.75'**				
	20							
915								
	25							

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
Moisture ✕ PL ◪ LL ✚
0 25 50
STRENGTH, tsf
Qu ▲ Qp ✳
0 2.0 4.0



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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-06

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	919 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	16	HARD, MOIST, BROWN, **LEAN CLAY** , WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS	CL	2-4-27 N_{60}=47	23	× ✳ ◎	
915											
	5			2	16	**MECHANICALLY FRACTURED SANDSTONE FRAGMENTS**	SANDSTONE	36-44-21 N_{60}=98		>>◎	
						AUGER/SPLIT SPOON REFUSAL AND END OF BORING 5'					
910											
	10										
905											
	15										
900											
	20										
895											
	25										

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Lima, OH 45805
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Dayton, Ohio

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BORING B-07

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	937 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	11.25	feet
Upon Completion	11.25	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**8" TOPSOIL**	TOPSOIL				
935				1	12	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**		3-6-10 N_{60}=24	12		
				2	12		CL	5-7-6 N_{60}=20	11	>>✳	
	5										
930				3	18	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**		3-7-4 N_{60}=21	13	>>✳	
				4	16	GRAY 8.5'	CL	2-2-4 N_{60}=9	13		
	10										
925				5	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/1"		>>◎	
						AUGER REFUSAL 12.5'					
	15					**SPLIT SPOON REFUSAL AND END OF BORING 12.6'**					
920											
	20										
915											
	25										

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BORING B-08

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	932 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**7" TOPSOIL**	TOPSOIL				
930				1	14	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**	CL	3-5-8 N_{60}=20	11		
				2	16	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	5-6-11 N_{60}=26	11	>>✳	LL = 24 PL = 14 Fines=56.0%
925	5			3	18			5-10-10 N_{60}=30	10	>>✳	
				4	1	VERY HARD, MOIST, BROWN, **LEAN CLAY WITH SAND** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	50/1"	10	>>◎	
920	10					**AUGER REFUSAL AND END OF BORING 8.5'**					
915	15										
910	20										
	25										

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Lima, OH 45805
Telephone: (419) 999-5660

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PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

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BORING B-09

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	926 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎	Additional Remarks
925	0		SS	1	12	**3" TOPSOIL** TOPSOIL HARD, MOIST, BROWN, **LEAN CLAY** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	2-3-24 N_{60}=41	26		
			SS	2	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS** LIMESTONE **AUGER REFUSAL 3.5'** **SPLIT SPOON REFUSAL AND END OF BORING 3.6'**		50/1"		>>◎	
920	5										
915	10										
910	15										
905	20										
	25										

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-10

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	919 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	14	STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	1-3-6 N_{60}=14	14		
915	5			2	6			6-9-10 N_{60}=29	19		
				3	13	VERY DENSE, MOIST, BROWN, **CLAYEY SAND** , WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS	SC	14-26-21 N_{60}=71	12	>>◎	
910	10			4	14	VERY STIFF, MOIST, BLUE/GREEN, **LEAN CLAY**	CL	7-8-11 N_{60}=29	12	>>✳	
905	15			5	15	VERY HARD 13.5'		8-12-29 N_{60}=62	9	>>◎	
				6	2	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS WITH CLAY**	LIMESTONE	50/4"		>>◎	
900	20					**AUGER REFUSAL 16'**					
						SPLIT SPOON REFUSAL AND END OF BORING 16.33'					
895	25										

STRENGTH, tsf ▲ Qu ✳ Qp (0 – 2.0 – 4.0)

Moisture ✕ PL ◪ LL (0 – 25 – 50)

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road, Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-11

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	936 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE feet
Upon Completion	NONE feet
Delay	N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / Moisture / PL / LL (0, 25, 50) / STRENGTH, tsf Qu / Qp (0, 2.0, 4.0)	Additional Remarks
	0					**7" TOPSOIL**	TOPSOIL				
935				1	12	STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**	CL	4-4-6 N_{60}=15	12		
	5			2	16	STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	3-3-3 N_{60}=9	14		
930				3	18	STIFF, MOIST, GRAY, **LEAN CLAY WITH SAND**	CL	4-3-3 N_{60}=9	13		
	10			4	18	STIFF, MOIST, GRAY, **SANDY LEAN CLAY**	CL	7-6-4 N_{60}=15	10		
925				5	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/2"		>>◎	
	15					**AUGER REFUSAL 12.5'**					
920						**SPLIT SPOON REFUSAL AND END OF BORING 12.7'**					
	20										
915											
	25										

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-12

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	918 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / Moisture / PL / LL (0, 25, 50) / STRENGTH, tsf Qu / Qp (0, 2.0, 4.0)	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	12	STIFF, MOIST, DARK BROWN, **LEAN CLAY WITH SAND** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT	CL	2-5-4 N_{60}=14	19		
915						VERY STIFF, MOIST, BROWN, **SANDY SILTY CLAY**					
	5			2	16		CL-ML	4-6-9 N_{60}=23	11		LL = 23 PL = 17 Fines=61.3%
				3	18	VERY HARD, MOIST, BROWN, **SANDY LEAN CLAY** , ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT, WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	12-47-46 N_{60}=140	14		
910				4	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/3"			
	10					**AUGER REFUSAL AND END OF BORING 9'**					
905											
	15										
900											
	20										
895											
	25										

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
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Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-13

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	930 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0 25 50) STRENGTH, tsf ▲ Qu ✳ Qp (0 2.0 4.0)	Additional Remarks
	0					**8" TOPSOIL**	TOPSOIL				
				1	8	VERY HARD, MOIST, BROWN, **LEAN CLAY WITH SAND** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	2-50/4"	18	× ✳ >>◎	
				2	2	EXTREMELY DENSE, MOIST, LIGHT BROWN, **CLAYEY SAND** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	SC	50/3"	4	× >>◎	
925	5			3	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/2"		>>◎	
						AUGER REFUSAL 6'					
920	10					**SPLIT SPOON REFUSAL AND END OF BORING 6.2'**					
915	15										
910	20										
905	25										

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
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LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-14

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	929 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**7" TOPSOIL**	TOPSOIL				
				1	14	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**		2-6-7 N_{60}=20	10	× ✳	
925	5			2	15	HARD 3.5'	CL	7-10-15 N_{60}=38	7	×	
				3	10	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	23-47-37 N_{60}=126		>>◎	
920				4	3			50/3"		>>◎	
	10					**AUGER REFUSAL 8'**					
915	15					**SPLIT SPOON REFUSAL AND END OF BORING 8.25'**					
910	20										
905	25										

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Lima, OH 45805
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PROJECT NO.: 01253343
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LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-15

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	923 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**8" TOPSOIL**	TOPSOIL				
				1	18	STIFF, MOIST, BROWN, **LEAN CLAY**	CL	3-3-3 N_{60}=9	23		
920				2	10	**MECHANICALLY FRACTURED SANDSTONE FRAGMENTS**		10-40-50/4"			
	5			3	1		SANDSTONE	50/1"		>>◎	
915						HARD, MOIST, GREEN/BLUE, **LEAN CLAY**					
				4	10			12-12-15 N_{60}=41	11	× ◎ >>✳	
	10										
910						BLUE/RED 13.5'	CL				
				5	12			7-14-26 N_{60}=60	8	× >>✳	
	15										
905											
				6	3	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/4"		>>◎	
	20					**AUGER REFUSAL AND END OF BORING 18.75'**					
900											
	25										

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Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.:	01253343
PROJECT:	Clayton Family
LOCATION:	1745 Westbrook Road
	Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-16

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	917 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	10.0	feet
Upon Completion	13.0	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ Moisture × PL ◪ LL ✚ (0, 25, 50) STRENGTH, tsf Qu ▲ Qp ✳ (0, 2.0, 4.0)	Additional Remarks
	0					**5" TOPSOIL**	TOPSOIL				
915				1	18	STIFF, MOIST, BROWN, **LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT	CL	2-3-3 N_{60}=9	17		
	5			2	12	VERY STIFF, MOIST, DARK BROWN, **SANDY LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT	CL	6-10-7 N_{60}=26	26		
910				3	18	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**	CL	7-9-9 N_{60}=27	13	>>✳	
	10			4	10	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	27-20-17 N_{60}=56		>>◎	
905											
	15			5	18	VERY HARD, MOIST, BLUE/GREEN, **LEAN CLAY** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	14-18-26 N_{60}=66	10	✳ >>◎	LL = 23 PL = 15
				6	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/1"	5	>>◎	
900						**AUGER REFUSAL 16'**					
	20					**SPLIT SPOON REFUSAL AND END OF BORING 16.1'**					
895											
	25										

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2341 Spencerville Road
Lima, OH 45805
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PROJECT NO.:	01253343
PROJECT:	Clayton Family
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	Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-17

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	926 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / Moisture / PL / LL (0, 25, 50) / STRENGTH, tsf Qu / Qp (0, 2.0, 4.0)	Additional Remarks
925	0					**12" TOPSOIL**	TOPSOIL				
				1	18	FIRM, MOIST, DARK BROWN, **LEAN CLAY WITH SAND**	CL	2-2-2 N_{60}=6	25		
	5			2	14	VERY HARD, MOIST, BROWN/GRAY, **SANDY LEAN CLAY** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	6-10-39 N_{60}=74	10	>>◎	
920						**AUGER/SPLIT SPOON REFUSAL AND END OF BORING 5'**					
915	10										
910	15										
905	20										
	25										

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	Dayton, Ohio

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BORING B-18

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	922 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE feet
Upon Completion	NONE feet
Delay	N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ (Moisture ×, PL ◪, LL ✚; 0–25–50) STRENGTH, tsf (Qu ▲, Qp ✳; 0–2.0–4.0)	Additional Remarks
920	0					**4" TOPSOIL**	TOPSOIL				
				1	16	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**		14-27-25 N_{60}=78		>>◎	
				2	8		LIMESTONE	47-50/3"		>>◎	
	5										
915						**AUGER/SPLIT SPOON REFUSAL AND END OF BORING 5'**					
	10										
910											
	15										
905											
	20										
900											
	25										

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Lima, OH 45805
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PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

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BORING B-19

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	918 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	6.0	feet
Upon Completion	3.0	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0			**4" TOPSOIL**	TOPSOIL			
915		1	12	MEDIUM DENSE, MOIST, DARK BROWN, **CLAYEY GRAVEL WITH SAND** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT, WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS	GC	3-5-6 N_{60}=17	25	LL = 46 PL = 24 Fines=49.5%
	5	2	12	LOOSE, MOIST, BROWN, **CLAYEY SAND , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT**	SC	4-2-2 N_{60}=6	34	
910		3	14	HARD, MOIST, BLUE/GREEN, **LEAN CLAY**		12-14-15 N_{60}=44	14	
	10	4	18		CL	8-12-14 N_{60}=39	10	
905		5	4	VERY HARD 13.5'		27-50/4"	16	
	15			**AUGER REFUSAL AND END OF BORING 14.5'**				
900								
	20							
895								
	25							

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
Moisture × 0 25 50
PL ◪
LL ✚
STRENGTH, tsf
Qu ▲ 0 2.0 4.0
Qp ✳

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Lima, OH 45805
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PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

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BORING B-20

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	916 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / STRENGTH, tsf	Additional Remarks
915	0					**8" TOPSOIL**	TOPSOIL				
				1	18	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT	CL	3-6-8 N_{60}=21	13		
				2	12	VERY HARD, MOIST, BROWN, **LEAN CLAY WITH SAND**		8-14-50/1"	13		
910	5			3	12		CL	12-24-50/2"	8		
				4	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/1"			
905	10					**AUGER REFUSAL 8.5'**					
						SPLIT SPOON REFUSAL AND END OF BORING 8.6'					
900	15										
	20										
895	25										

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PROJECT NO.: 01253343
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LOCATION: 1745 Westbrook Road
Dayton, Ohio

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BORING B-21

DATE STARTED:	10/8/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	10/8/24	**DRILLER:** TB	**LOGGED BY:** DF
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	7822DT
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	928 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE feet
Upon Completion	NONE feet
Delay	N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**8" TOPSOIL**	TOPSOIL				
				1	11	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	2-7-11 N_{60}=27	10	×	
925											
				2	18	VERY DENSE, MOIST, BROWN, **CLAYEY SAND**	SC	11-21-17 N_{60}=57	6	× >>◎	
	5										
				3	14	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**	CL	8-10-9 N_{60}=29	8	×	
920											
				4	10	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	7-10-9 N_{60}=29	10	×	
	10										
				5	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/1"		>>◎	
915						**AUGER REFUSAL 11.4'**					
						SPLIT SPOON REFUSAL AND END OF BORING 11.5'					
	15										
910											
	20										
905											
	25										

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Lima, OH 45805
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Dayton, Ohio

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BORING B-22

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	912 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

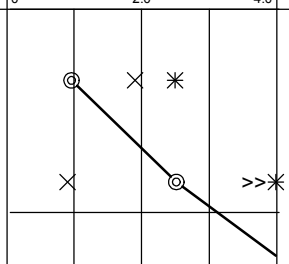
While Drilling	13.0	feet
Upon Completion	9.0	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
910	0	1	16	**3" TOPSOIL** TOPSOIL STIFF, MOIST, BROWN, **LEAN CLAY**	CL	2-4-4 N_{60}=12	24	
	5	2	18	HARD, MOIST, BROWN, **LEAN CLAY WITH SAND**	CL	4-12-9 N_{60}=32	11	
905		3	10	VERY HARD, ESTIMATED HIGH ORGANIC CONTENT, WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS 6'		17-20-18 N_{60}=57	8	
	10	4	16	VERY HARD, MOIST, GREEN/BLUE, **LEAN CLAY** , WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS	CL	8-20-30 N_{60}=75	10	
900		5	1	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS** LIMESTONE		50/3"		
	15			**AUGER REFUSAL 13'**				
895				**SPLIT SPOON REFUSAL AND END OF BORING 13.25'**				
	20							
890								
	25							

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0



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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-23

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	934 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0					**4" TOPSOIL**	TOPSOIL			
				1	16	VERY STIFF, MOIST, DARK BROWN, **LEAN CLAY**	CL	1-5-7 N_{60}=18	30	
930						HARD, MOIST, BROWN, **SANDY LEAN CLAY**				
	5			2	0			12-14-11 N_{60}=38		
				3	18	VERY STIFF 6'	CL	5-5-7 N_{60}=18	12	LL = 25 PL = 15 Fines=61.3%
925										
	10			4	4	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS WITH CLAY**		10-12-13 N_{60}=38	13	
							LIMESTONE			
				5	0	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/4"		>>
920										
	15					**AUGER REFUSAL 13'**				
						SPLIT SPOON REFUSAL AND END OF BORING 13.33'				
915										
	20									
910										
	25									

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

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PROJECT: Clayton Family
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Dayton, Ohio

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BORING B-24

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	926 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
925	0					**6" TOPSOIL**	TOPSOIL				
				1	16	STIFF, MOIST, DARK BROWN, **LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT	CL	2-3-6 N_{60}=14	23		
	5			2	18	STIFF, MOIST, DARK BROWN, **FAT CLAY , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT**	CH	2-3-5 N_{60}=12	36		
920				3	0	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS**	LIMESTONE	50/4"		>>	
						AUGER REFUSAL 6'					
	10					**SPLIT SPOON REFUSAL AND END OF BORING 6.33'**					
915											
	15										
910											
	20										
905											
	25										

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BORING B-25

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	916 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
915	0			1	12	**8" TOPSOIL** TOPSOIL STIFF, MOIST, DARK BROWN, **LEAN CLAY** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT, WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS	CL	3-4-5 N_{60}=14	26		
	5			2	14	VERY HARD, MOIST, BROWN, **LEAN CLAY WITH SAND**	CL	8-16-21 N_{60}=56	8		
910				3	18	VERY STIFF, MOIST, BROWN, **SANDY LEAN CLAY**	CL	8-10-9 N_{60}=29	9		
	10			4	12	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND** , WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS	CL	4-8-12 N_{60}=30	10		
905				5	0	**MECHANICALLY FRACTURED SANDSTONE FRAGMENTS** SANDSTONE		50/4"			
	15					**AUGER REFUSAL 13'**					
900						**SPLIT SPOON REFUSAL AND END OF BORING 13.33'**					
	20										
895											
	25										

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Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.:	01253343
PROJECT:	Clayton Family
LOCATION:	1745 Westbrook Road
	Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-26

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	910 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**5" TOPSOIL**	TOPSOIL				
				1	12	STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**		2-3-2 N_{60}=8	18		
				2	12	ESTIMATED HIGH ORGANIC CONTENT 3.5'	CL	2-2-4 N_{60}=9	16		
905	5			3	12	HARD, WITH MECHANICALLY FRACTURED LIMESTONE FRAGMENTS 6'		12-24-14 N_{60}=57	17	>>◎	
				4	6	**MECHANICALLY FRACTURED LIMESTONE FRAGMENTS WITH CLAY**	LIMESTONE	50-50/3"	8	>>◎	
900	10					**AUGER REFUSAL 8.5'**					
						SPLIT SPOON REFUSAL AND END OF BORING 9.25'					
895	15										
890	20										
885	25										

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-27

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	930 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / STRENGTH, tsf	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	18	STIFF, MOIST, BROWN, **SANDY LEAN CLAY**		2-3-5 N_{60}=12	14		
				2	18		CL	3-3-5 N_{60}=12	16		
925	5										
				3	12	VERY HARD, WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS 6'		5-7-50/1"	10		
				4	2	**MECHANICALLY FRACTURED SANDSTONE FRAGMENTS**	SANDSTONE	50/2"		>>◎	
920	10					**AUGER REFUSAL 8'**					
						SPLIT SPOON REFUSAL AND END OF BORING 8.2'					
915	15										
910	20										
905	25										

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

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PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-28

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	925 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay	N/A	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**6" TOPSOIL**	TOPSOIL				
				1	18	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**		3-5-7 N_{60}=18	11		
				2	18			3-5-9 N_{60}=21	12		
920	5						CL				
				3	18	ESTIMATED MODERATE ORAGNIC CONTENT 6'		3-7-8 N_{60}=23	12		
				4	6	WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS 8.5'		12-24-50/1"	10		
915	10					**AUGER REFUSAL AND END OF BORING 10'**					
910	15										
905	20										
900	25										

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2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253343
PROJECT: Clayton Family
LOCATION: 1745 Westbrook Road
Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-29

DATE STARTED:	12/23/24	**DRILL COMPANY:**	Envirocore
DATE COMPLETED:	12/30/24	**DRILLER:** Toby	**LOGGED BY:** Trey
COMPLETION DEPTH	25.0 ft	**DRILL RIG:**	Mobile B-57
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	920 ft	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	90%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	BF/CC

Water

While Drilling	NONE	feet
Upon Completion	NONE	feet
Delay		N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0			**4" TOPSOIL**	TOPSOIL			
		1	4	STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND** , ROOT FRAGMENTS/ORGANIC ODOR, ESTIMATED HIGH ORGANIC CONTENT	CL	3-3-3 N_{60}=9	30	
		2	12			2-3-4 N_{60}=11	15	
915	5	3	18	STIFF, MOIST, BROWN, **SANDY LEAN CLAY**		2-3-4 N_{60}=11	21	LL = 26 PL = 17 Fines=50.9%
		4	16	HARD, WITH MECHANICALLY FRACTURED SANDSTONE FRAGMENTS 8.5'	CL	5-12-11 N_{60}=35	9	
910	10	5	2	**MECHANICALLY FRACTURED SANDSTONE FRAGMENTS**		50/2"		>>
905	15				SANDSTONE			
		6	7	VERY HARD, MOIST, BLUE/GREEN, **LEAN CLAY**	CL	15-50/3"	9	>>
900	20			**AUGER REFUSAL AND END OF BORING 19.25'**				
895	25							

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

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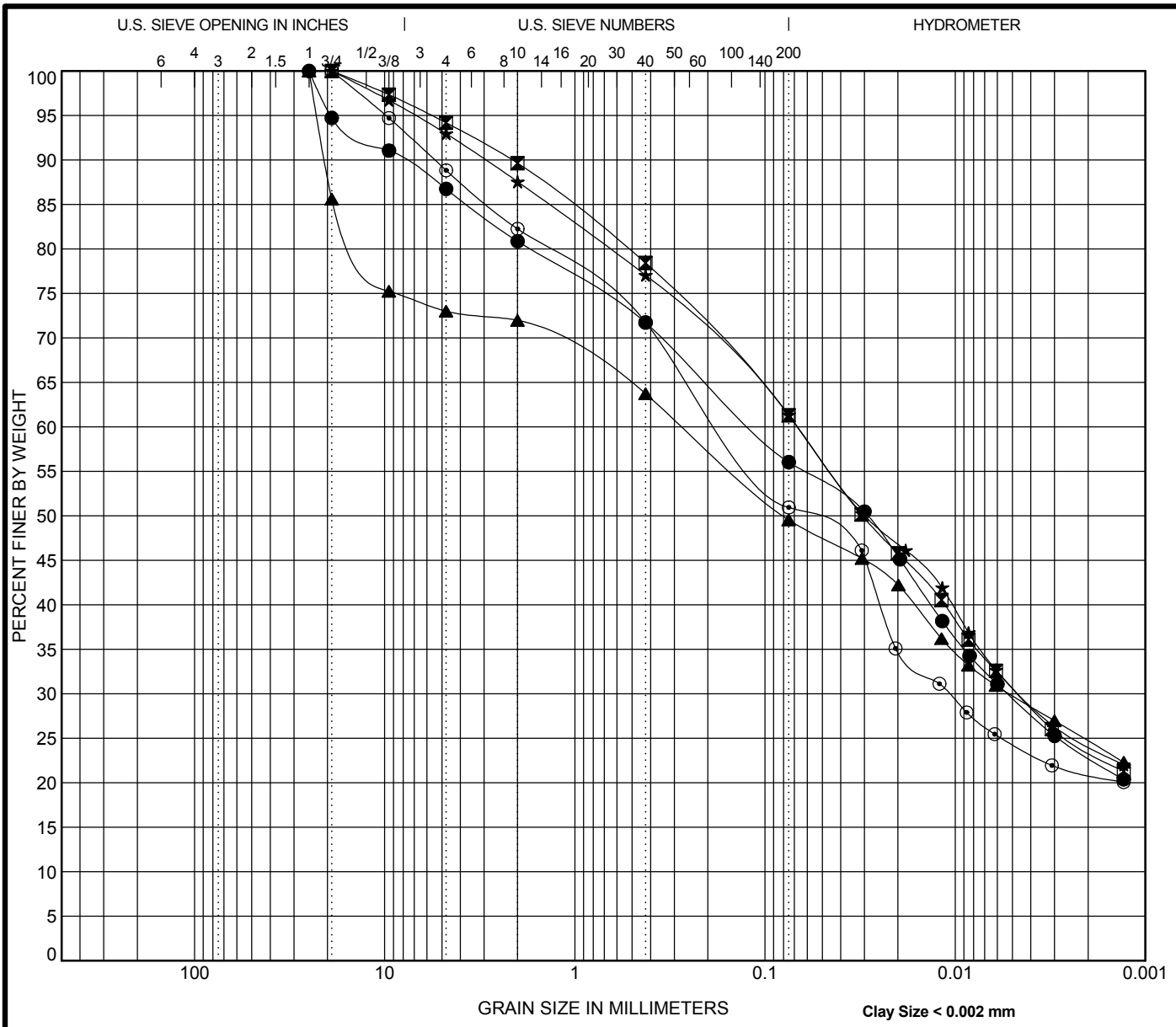
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.:	01253343
PROJECT:	Clayton Family
LOCATION:	1745 Westbrook Road
	Dayton, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-08	4.3	SANDY LEAN CLAY (CL)	24	14	10		
⊠	B-12	4.3	SANDY SILTY CLAY (CL-ML)	23	17	6		
▲	B-19	1.8	CLAYEY GRAVEL WITH SAND (GC)	46	24	22		
★	B-23	6.8	SANDY LEAN CLAY (CL)	25	15	10		
⊙	B-29	6.8	SANDY LEAN CLAY (CL)	26	17	9		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-08	4.3	25	0.116	0.005		13.3	30.7	33.1	22.9
⊠	B-12	4.3	19	0.068	0.005		5.8	32.9	37.6	23.7
▲	B-19	1.8	25	0.269	0.005		27.0	23.5	24.8	24.7
★	B-23	6.8	19	0.067	0.005		7.0	31.7	37.1	24.2
⊙	B-29	6.8	19	0.159	0.011		11.2	37.9	29.9	21.0

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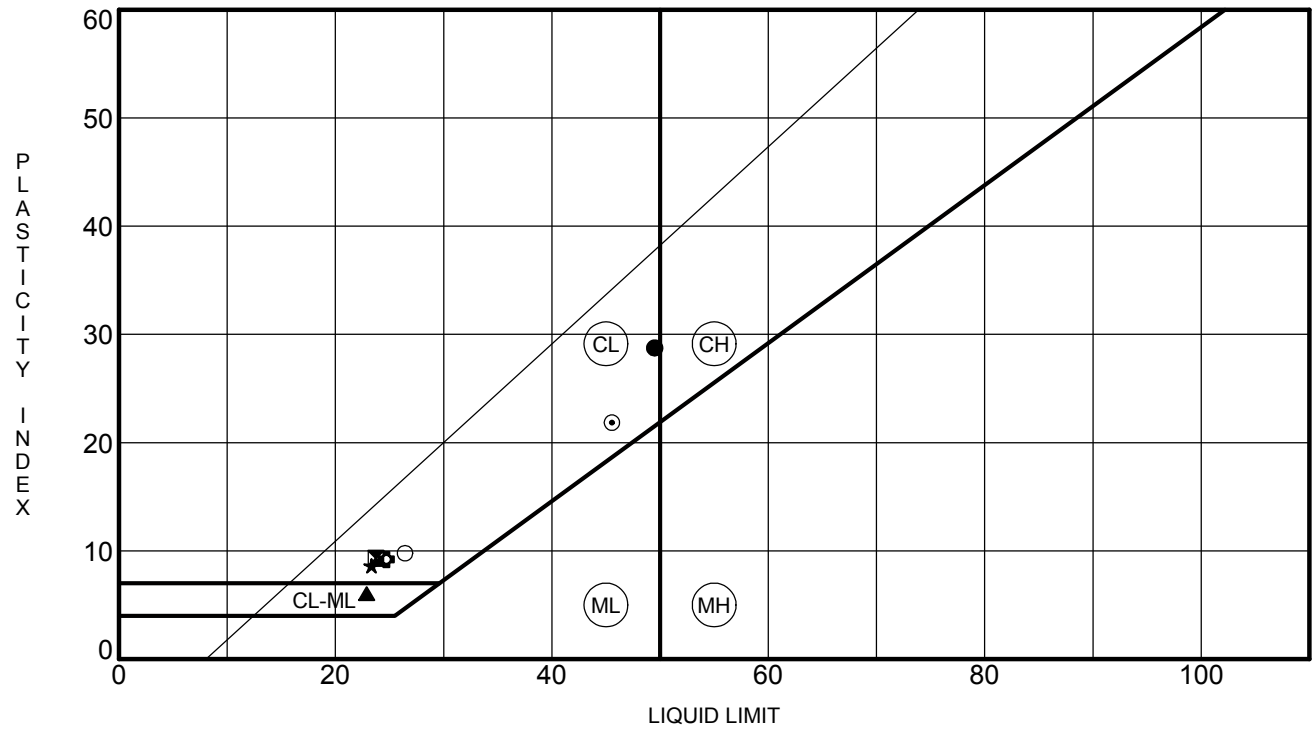
Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660
Fax: (419) 999-6029

GRAIN SIZE DISTRIBUTION

Project: Clayton Family
PSI Job No.: 01253343
Location: 1745 Westbrook Road
Dayton, Ohio



	Boring	Depth (ft)	LL	PL	PI	Fines	Classification (*Visual)
●	B-01	1.8	49	21	28		LEAN CLAY (CL)
⊠	B-08	4.3	24	14	10	56.0	SANDY LEAN CLAY (CL)
▲	B-12	4.3	23	17	6	61.3	SANDY SILTY CLAY (CL-ML)
★	B-16	14.3	23	15	8		LEAN CLAY (CL)
⊙	B-19	1.8	46	24	22	49.5	CLAYEY GRAVEL WITH SAND (GC)
✿	B-23	6.8	25	15	10	61.3	SANDY LEAN CLAY (CL)
○	B-29	6.8	26	17	9	50.9	SANDY LEAN CLAY (CL)

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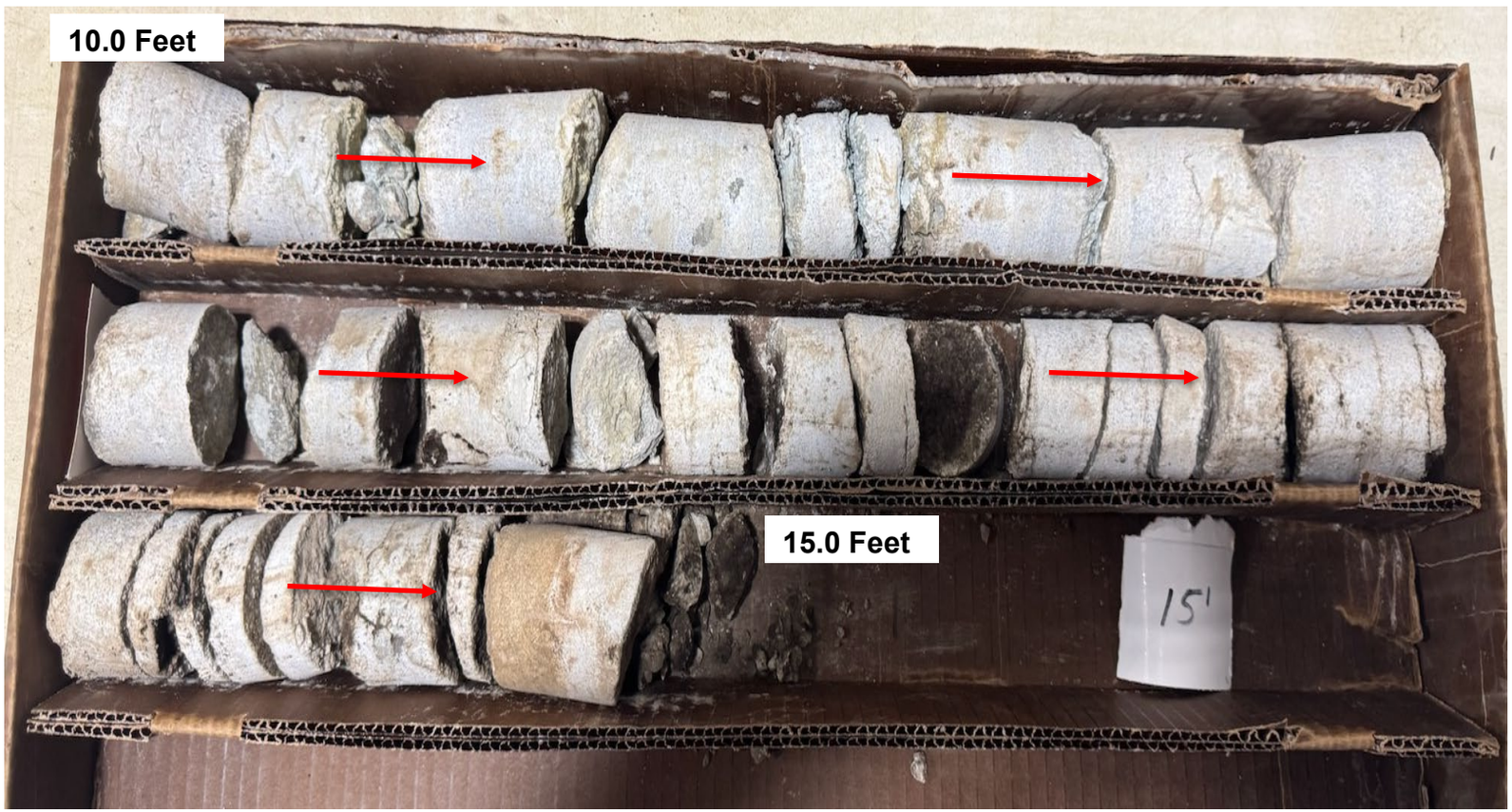
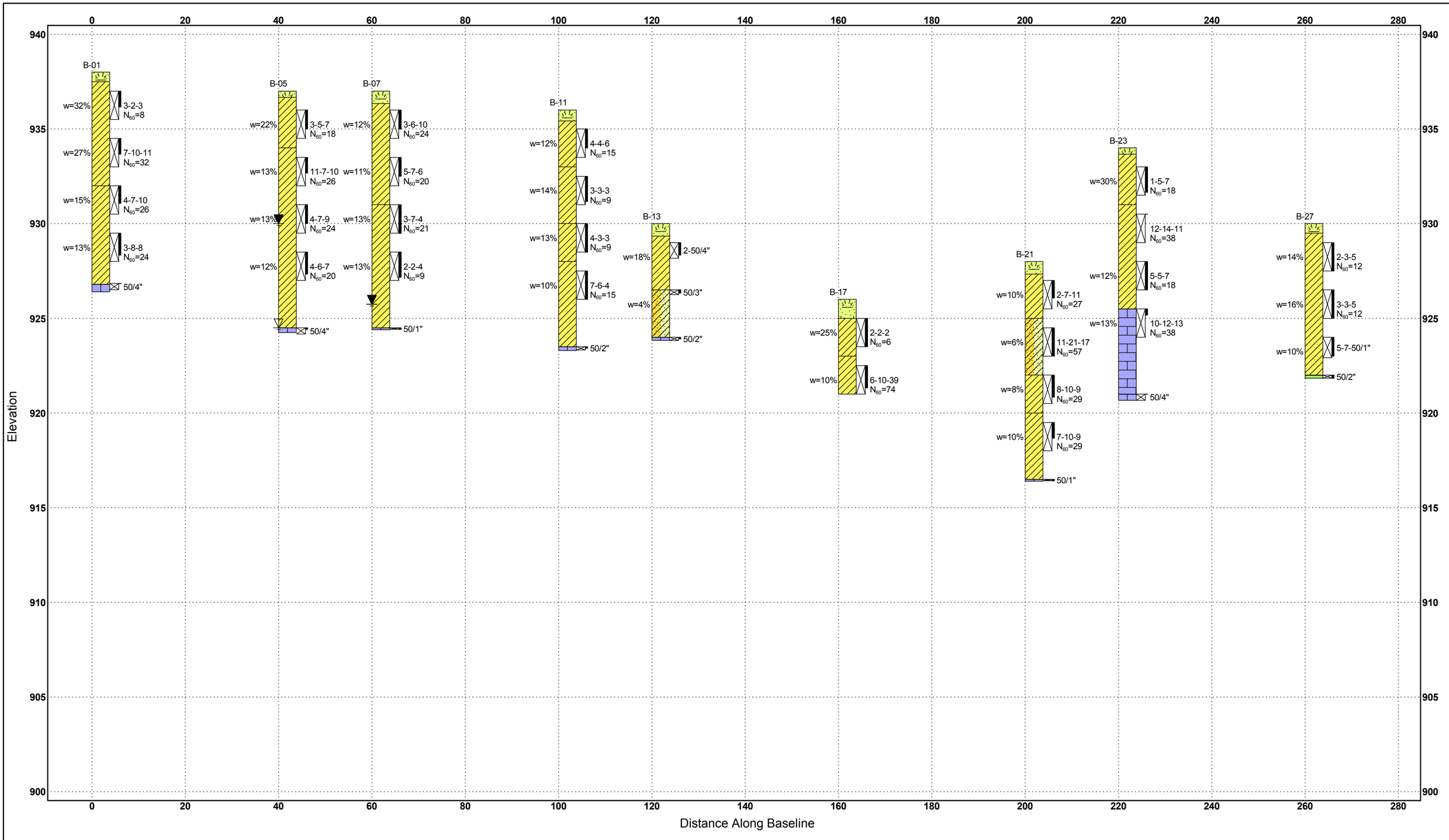
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660
Fax: (419) 999-6029

ATTERBERG LIMIT RESULTS

PSI Job No.: 01253343
Project: Clayton Family
Location: 1745 Westbrook Road
Dayton, Ohio

Core Photo Log B-02





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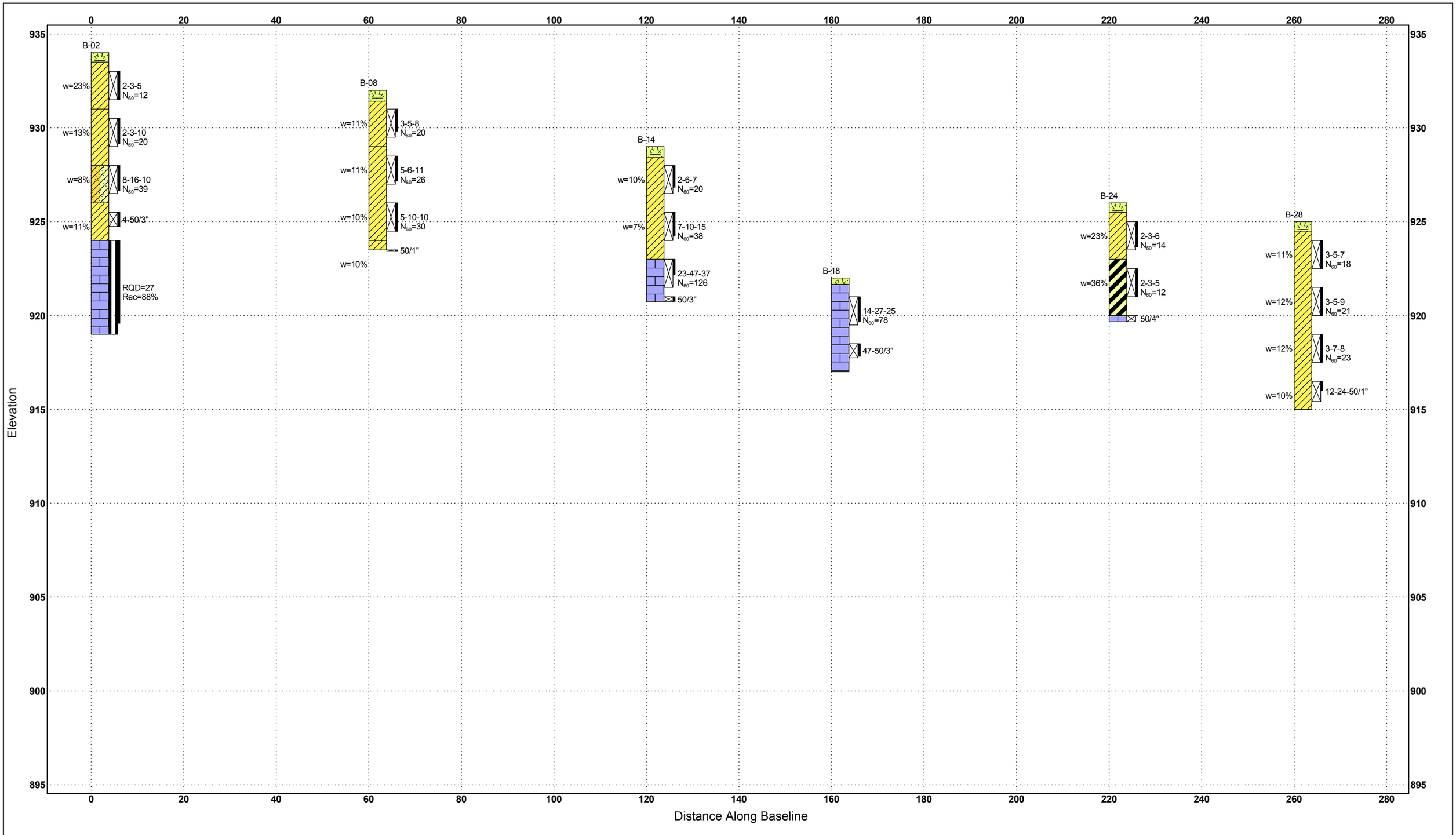
Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805

Profile

Clayton Family
PSI Project Number: 01253343

1745 Westbrook Road
Dayton, Ohio



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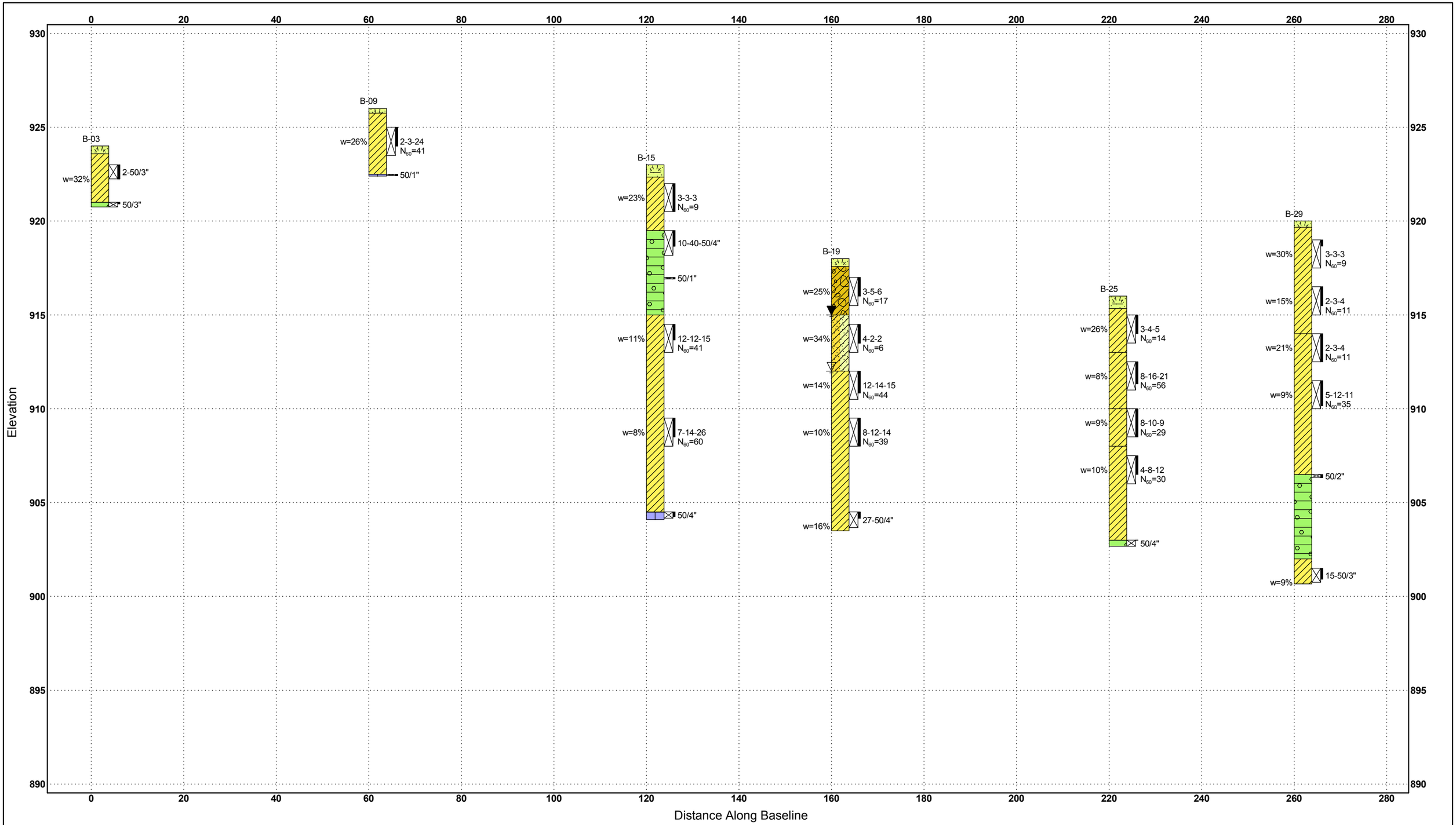
2341 Spencerville Road
Lima, OH 45805

Profile

Clayton Family
PSI Project Number: 01253343

1745 Westbrook Road
Dayton, Ohio



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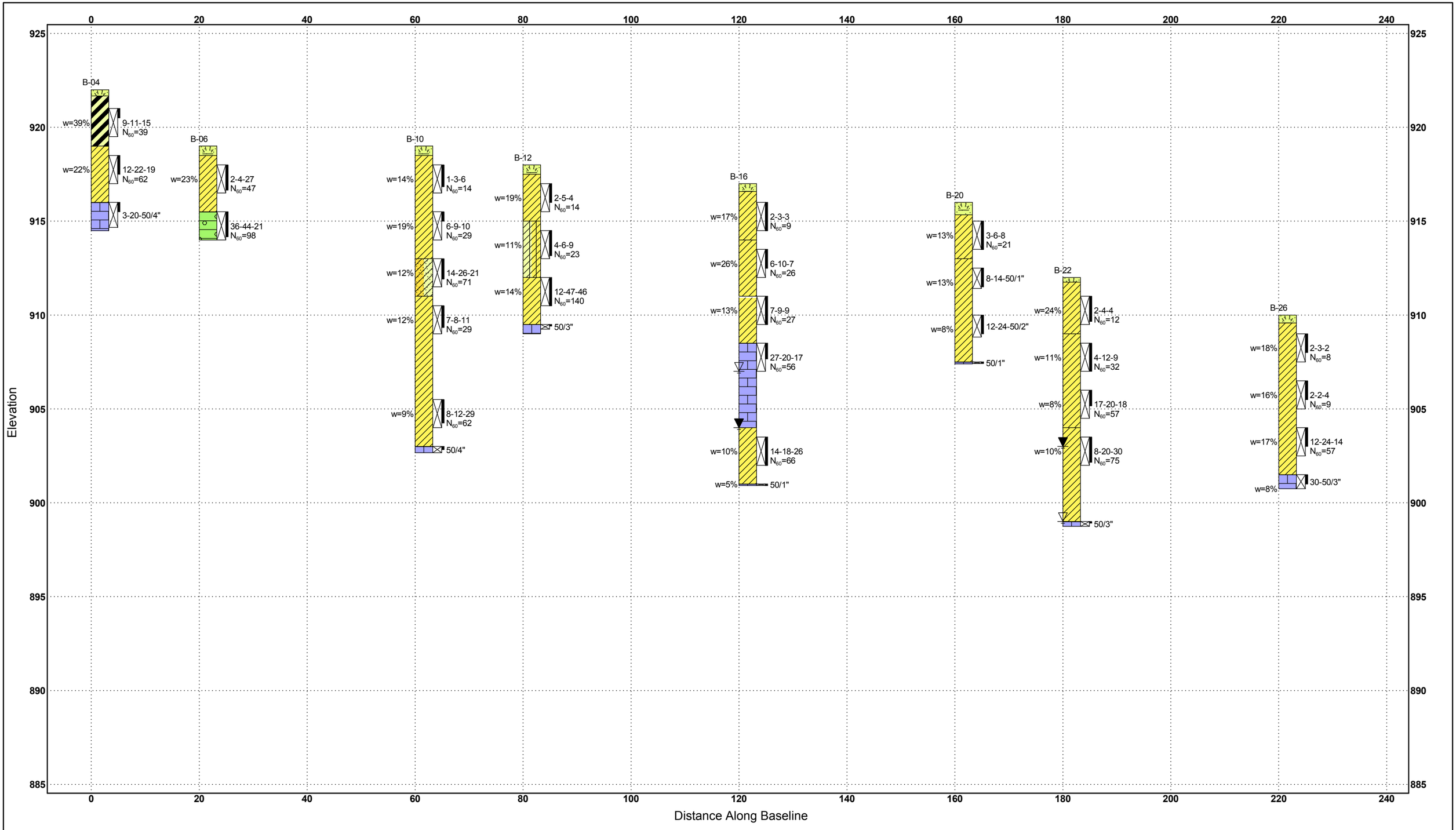
2341 Spencerville Road
Lima, OH 45805

Profile

Clayton Family
PSI Project Number: 01253343

1745 Westbrook Road
Dayton, Ohio

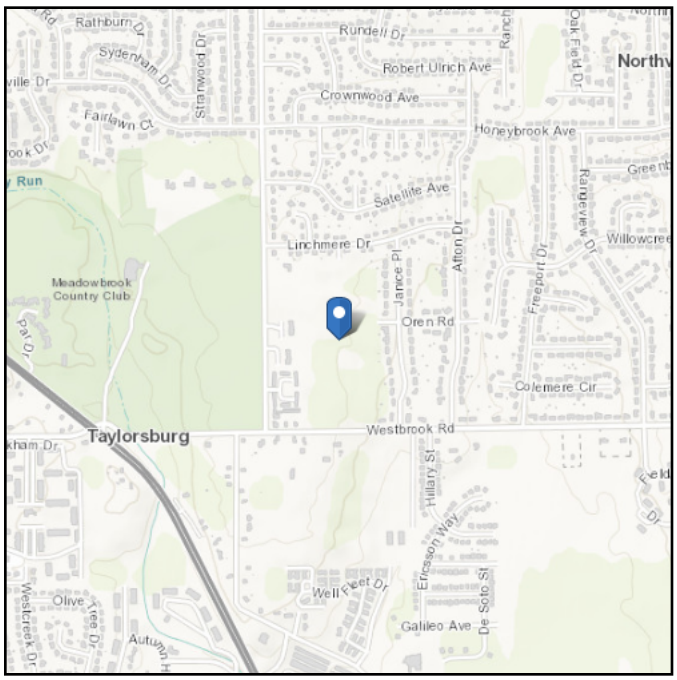


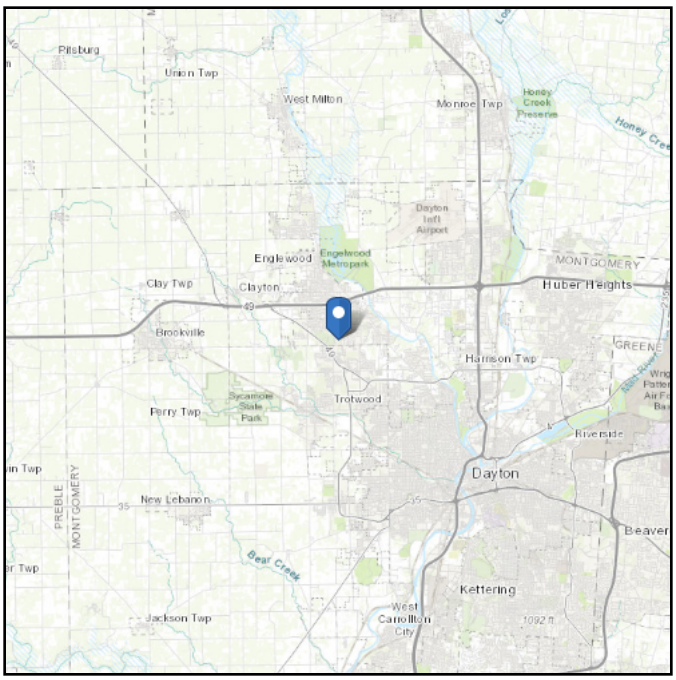
Professional Service Industries, Inc. 2341 Spencerville Road Lima, OH 45805	**Profile**	Clayton Family PSI Project Number: 01253343 1745 Westbrook Road Dayton, Ohio

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	39.8356
Risk Category:	II	**Longitude:**	-84.2894
Soil Class:	C - Very Dense Soil and Soft Rock	**Elevation:**	925.3541736894166 ft (NAVD 88)





Seismic

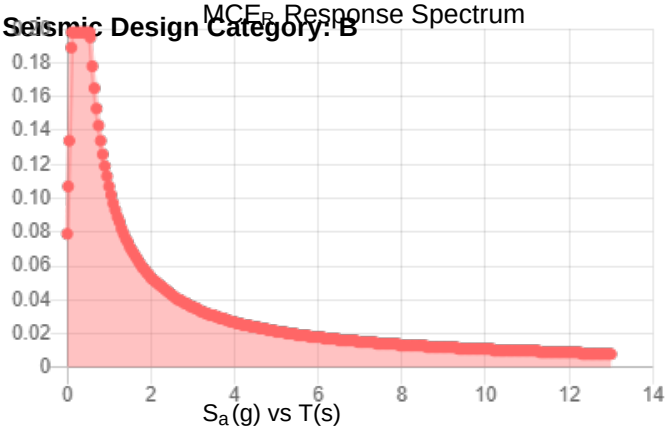
Site Soil Class: C - Very Dense Soil and Soft Rock

Results:

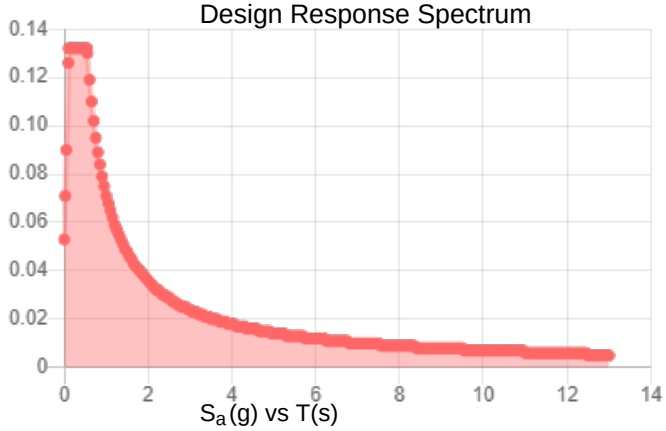
S_S :	0.152	S_{D1} :	0.071
S_1 :	0.071	T_L :	12
F_a :	1.3	PGA :	0.081
F_v :	1.5	PGA_M :	0.105
S_{MS} :	0.198	F_{PGA} :	1.3
S_{M1} :	0.107	I_e :	1
S_{DS} :	0.132	C_v :	0.7

Seismic Design Category: B

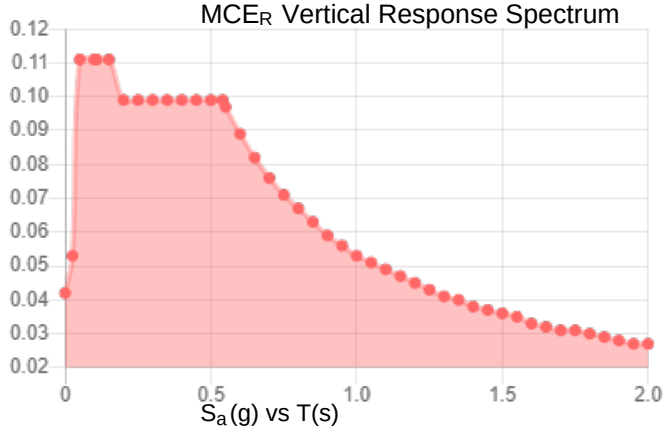
MCE_R Response Spectrum



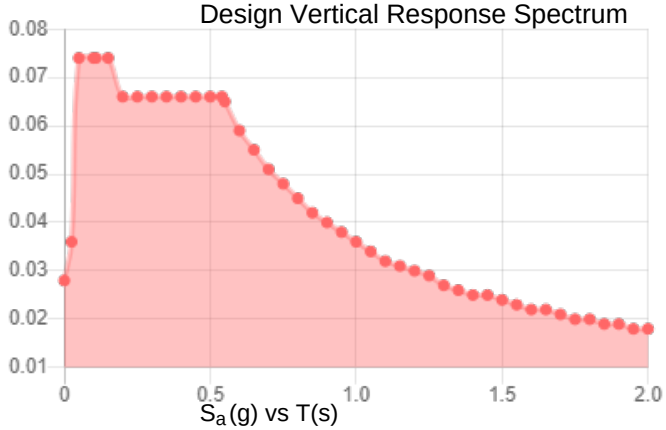
Design Response Spectrum



MCE_R Vertical Response Spectrum



Design Vertical Response Spectrum



Data Accessed: **Mon Jan 06 2025**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

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GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.
HSA: Hollow Stem Auger - typically 3¼" or 4¼ I.D. openings, except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry
R.C.: Diamond Bit Core Sampler
H.A.: Hand Auger
P.A.: Power Auger - Handheld motorized auger

SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
RC: Rock Core
TC: Texas Cone
BS: Bulk Sample
PM: Pressuremeter
CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N_{60}: A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q_u: Unconfined compressive strength, TSF
Q_p: Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL),%
DD: Dry unit weight, pcf
▼,▽,▼ Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (¾ in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to ¾ in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.005 mm to 0.075 mm
Clay:	<0.005 mm

PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

Q_U - TSF	N - Blows/foot	Consistency
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

Description	Criteria
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term	% Dry Weight
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

Description	Criteria
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided:	Fracture planes appear polished or glossy, sometimes striated
Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed:	Inclusion of small pockets of different soils
Layer:	Inclusion greater than 3 inches thick (75 mm)
Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

Q_U - TSF	Consistency
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

Description	Criteria
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

Voids	Void Diameter
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)

Component	Size Range
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

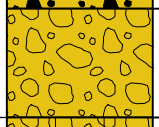
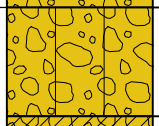
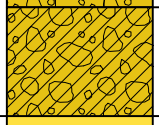
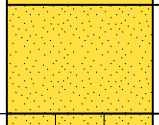
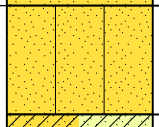
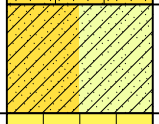
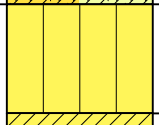
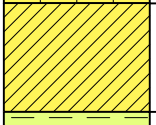
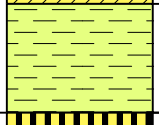
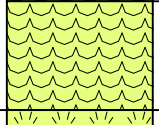
Rock Mass Description	RQD Value
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

DEGREE OF WEATHERING

Slightly Weathered:	Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.
Weathered:	Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.
Highly Weathered:	Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	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
	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

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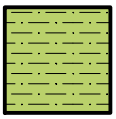
Graphic Symbols for Materials and Rock Deposits

CONCRETE
Portland Cement Concrete

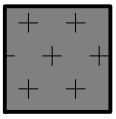
BITUMINOUS CONCRETE



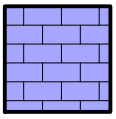
CLAYSTONE

COAL
Coal, Anthracite Coal

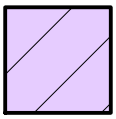
CONGLOMERATE/BRECCIA
Conglomerate, Breccia



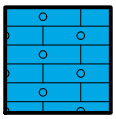
IGNEOUS ROCK
Anorthsite, Basalt, Metabasalt, Diabase (Gabbro), Gabbro, Granite/Granodionite, Homfels, Pegmatite, Rhyolite/Metarhyolite



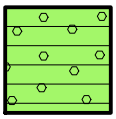
LIMESTONE
Limestone, Dolomite



METAMORPHIC ROCK
Amphibolite, Gneiss, Marble, Phyllite, Quartzite, Schist, Serpentinite, Slate

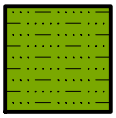


CHERT

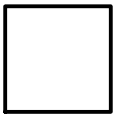


SANDSTONE
Sandstone, Orthoquarzite (Sandstone)

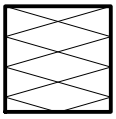
SHALE



SILTSTONE



NO RECOVERY



VOID

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