LETTER OF TRANSMITTAL

LANDMARK
ENGINEERING SCIENCES, INC.

119 Coolidge Avenue - Suite 100, Waukesha, WI 53186-6602
Telephone: 414-719-2769
Email: LandMark-Engineering@live.com

To: David Vorpagel
The Victory Companies
N118W18531 Bunsen Drive
Germantown, WI 530222

C:

Date: December 8, 2024
Project No.: 4075.00 – Ahles site
Description: *Engineering Services – Soil Assessment*
Lot 2 of CSM #7849
Vacant Parcel on W. Cold Spring Road
Greenfield, WI 53228

WE ARE SENDING YOU the following items via: ☐ **U. S. Mail** ☐ **Overnight** ☐ **Hand Deliver** ☐ **Other:**
☐ **Fax** 19 pages ☑ **E-Mail** dave.vorpagel@vci-wi.com

Copies/Qty.	Date	Description
1	08 DEC 2024	Soil Assessment Report

THESE ARE TRANSMITTED as checked: ☐ **For Approval** ☑ **For Your Use** ☐ **For Review & Comment**
☐ **As Requested** ☐ **Other:**

Message:

Attached is the report summarizing the field observations and construction recommendations for the referenced lot, as requested.

If you have any questions or comments on the *Soil Assessment Report*, please call. Thank you.

Copy to: file

Signed: 

If enclosures are not as noted, kindly notify us at once.

LANDMARK
ENGINEERING SCIENCES, INC.

119 COOLIDGE AVENUE - SUITE 100, WAUKESHA, WISCONSIN 53186-6602
TELEPHONE: 414-719-2769
EMAIL: LandMark-Engineering@live.com

Soil Assessment Report – 08 OCT 2024

Project:	Ahles Single-Family Residential Construction	**Project No.:**	4075.00
Location(s):	Vacant Lot – W Cold Spring Rd, Greenfield, WI 53228	**Dates on Site:**	09OCT & 25NOV 2024
Client:	The Victory Companies	**Weather:**	low 40s °F
Present:	Logan Mohr – Associates Soil Testing Drilling crew – J&J Soil Testing Mark Augustine – LandMark Engineering Sciences, Inc.	**Equipment:**	Backhoe Rotary Drill Rig Soil penetrometers

OBSERVATIONS:

At the request of Dave Vorpagel of The Victory Companies (client), LANDMARK ENGINEERING SCIENCES, INC. (LandMark) met Associates Soil Testing's crew at the site on October 9, 2024 to conduct a soil assessment for the referenced, single-family, residential development. Three (3) soil test pits were advanced to evaluate foundation subgrade limitations for the residential building construction.

Due to the site conditions encountered, LandMark later met J&J Soil Testing's crew at the site on November 25, 2024 to conduct additional soil assessment fieldwork utilizing a rotary drill rig. One (1) soil boring was advanced to further evaluate foundation subgrade limitations at greater depths for the residential building construction.

LandMark assumes that the proposed structure will utilize load-bearing exterior walls and interior steel columns. Based on this type of construction, the structural loads are anticipated to be light to moderate.

A review of the *Soil Survey of Milwaukee and Waukesha Counties, Wisconsin*, prepared by the U.S. Department of Agriculture - Natural Resources Conservation Service, indicates the soils within the site building area are primarily Ozaukee silt loam (OuD2) and Sebewa silt loam (Sm) series (see the attached *Soil Survey Map*).

Generally, Ozaukee soils consist of organic silt loam ("topsoil"), underlain by silty clay loam, then silty clay, before transitioning to silty clay loam within the upper 5' depth. Ozaukee soil is moderately well drained, moderately low to moderately high water transmissive soils (hydrologic soil group C) found on the backslope of ground and end moraines. Ozaukee soil is formed of a thin mantle of loess over silty clayey till. Depth to the groundwater table for this soil type is reported to be about 2' to 3.5' depth below surface grade; i.e., these soils are **not** considered hydric soils (soils typically associated with wetlands).

Generally, Sebewa soils consist of organic silt loam ("topsoil"), underlain by clay loam, before transitioning to coarse sand within the upper 6.6' depth. Sebewa soil is poorly drained, moderately high to high water transmissive soils (hydrologic soil group B/D) found in the dip of depressions. Sebewa soil is formed of loamy outwash over sandy and gravelly outwash. Depth to the groundwater table for this soil type is reported to be about 0' to 1' depth below surface grade; i.e., these soils **are** considered hydric soils (soils typically associated with wetlands).

The soil test pits were conducted via a tractor-mounted backhoe. Soil samples were collected from the exposed soil layers. Soil column profiles were determined via observing and characterizing the soil samples according to USDA Soil Classification Standards (USDA SCS).

Test pit B1 was located on the front left (southwesterly) side of the probable house location. The actual subsurface soils encountered (approximate surface elevation 771.30) down to test pit termination depth due to excavation refusal of 9.00' (approx. elev. 782.30) was yellowish brown, moist, non-native, clay loam mixed into slabs of broken concrete ("fill"). High chroma soil redoxification indicators (redox) were observed in the fill soil layers for the entire depth of the excavation. Groundwater was *not* observed within the test pit down to termination depth.

Test pit B2 was located on the back right (northeasterly) side of the probable house location. The actual subsurface soils encountered (approximate surface elevation 772.45) was 4.00' of yellowish brown with high chroma redox, soft, moist, non-native, clay loam with some construction debris ("fill"); underlain by 6.83' of very dark grey, soft, moist, non-native, gravelly loam with some construction debris ("fill"). Below this and extending to test pit termination depth of 14.00' (approx. elev. 758.45) was 3.17' of black, soft, very moist to saturated with increasing depths, organic, loam ("buried topsoil"). High chroma redox was observed throughout the buried topsoil layer from 10.83' to the 14.00' termination depth. Groundwater ***was*** present beginning at 12.67' depth (approx. elev. 759.78).

Test pit B3 was located on the back (northerly) side of the probable house location. The actual subsurface soils encountered (approximate surface elevation 771.05) was 2.67' of yellowish brown with high chroma redox, soft, moist, non-native, clay loam with some construction debris ("fill"); underlain and extending to test pit termination depth of 13.00' (approx. elev. 758.05) was 10.33' of black with high and low chroma redox, soft, very moist to saturated with increasing depths, non-native, organic, gravelly loam ("buried topsoil fill"). Redox was observed throughout the fill soil layers from surface to the 13.00' termination depth. Groundwater ***was*** present beginning at 11.42' depth (approx. elev. 759.63).

Sampling for the soil boring was conducted via a truck-mounted, rotary head, drilling rig utilizing 4.25" and 2.25" inside diameter hollow stem augers (4.25" & 2.25" i.d. HSA). LandMark observed and characterized soil samples collected at standard ASTM D1586 split spoon soil sampling techniques and intervals, providing standard penetrometer test (SPT) results. The SPT blow counts (N-values) indicate corresponding consistencies/relative densities of the soils. Soil samples were then classified via Visual-Manual methods (ASTM 2387) according to USCS guidelines. All soil samples will be retained for 60 days from date of collection before disposal.

Boring B1 was drilled within the proposed house footprint. The actual subsurface soils encountered (approximate surface elevation 772.0) was 0.08' of very dark grayish brown, soft, moist, non-native, organic, silty loam ("topsoil fill"); underlain by 4.42' of brown, medium stiff, moist, non-native, silty clay ("fill"). Below this was 11.5' of very dark reddish brown to black, very loose to loose, very moist to saturated with increasing depth, non-native, fine to medium sand with trace cinders ("foundry sand fill"); underlain by 2.0' of dark yellowish brown, medium dense, saturated, silty fine to medium sand and gravel ("fill"). Below this and extending to boring termination depth of 30' (approx. elev. 742.0) was 12.0' of dark grayish brown, very stiff to hard, moist, clay. Groundwater ***was*** observed in the boring during drilling at about 11' depth (approx. elev. 761.0).

See attached *Soil Evaluation Report* and *Soil Boring Log* for additional subsurface soil information.

CONCLUSIONS / RECOMMENDATIONS:

LandMark concludes that:

1) **Groundwater *was* observed in two of the test pits and in the boring during field soil testing activities. However, the native clay layer present in the boring starting at 18' depth (approx. elev. 754.0) was**

not wet. This is indicative of soils acting as a restrictive layer to further downward vertical infiltration of water within the upper soil layers, typically referred to as an "aquitard layer", which means the observed groundwater levels are park of a "perched" water condition. That said, the groundwater conditions used for minimum basement floor grade design recommendations must still be set at the highest observed groundwater level present within either the test pits or the boring. That highest observed groundwater elevation is 761.0.

2) **Based on the above information and regional engineering standards for foundation designs to reduce the potential for wet and/or damp basement conditions, LandMark recommends the lowest floor grade be set no lower than elevation 762.0 for a standard residential foundation drainage system.**

3) **The observed native, non-organic, clay subsoils present in the boring at and below 18.0' depth (approx. elev. 754.0) are considered suitable to support a static, structural design load of at least 8,000 pounds per square foot (psf) unconfined compressive strength resistance. The varied fill materials present above this depth are *not* considered acceptable structural material for foundation support.**

   NOTE: Foundry sand fill was present in the boring samples collected from 4.5' to 16.0' depths (approx. elev. range 767.5 to 756.0). Construction of any building structure on this site will require approval of an *Historic Fill Site Exemption Application (Form 4400-226)* from the Wisconsin Department of Natural Resources. Any foundry sand subsequently removed from the site must be disposed of at a licensed landfill facility.

4) **This site's residential structural foundation design will require either combination end-bearing & friction-bearing deep foundation piles and/or end-bearing helical piers to support the strip footing grade beam and column pad footing loads.**

5) **The organic soils and loose foundry sands observed are not suitable load support material below a standard garage floor or floor slab for the house due to the probability of secondary consolidation ("settling"). Also, off-gases of methane may be caused by ongoing organic matter decay. Thus, it is strongly recommended that a SpanCrete or similar structural floor slab design be used for the house and garage floors to minimize the potential of floor settlement failures. It is also recommended that a vapor mitigation (subsurface vacuum) system be incorporated below the basement floor slab to capture potential organic decay off-gases for ambient air dispersion discharge above the roofline.**

6) **Site dewatering activities during excavation activities are not expected to be required based on the observed soil characteristics, groundwater conditions and the surrounding topography. If dewatering activities are necessary due to wet weather conditions, the discharge waters must be handled in accordance with Wisconsin DNR Erosion Control for Construction Site standards.**

7) **Non-organic excavation spoils that may be utilized for foundation backfill material are assumed to be a mix of the separate soil profiles encountered in the test pits and the boring. As such, this backfill soils would likely be classified by the Unified Soil Classification System (USCS) as a sand-silt-clay mix with slightly plastic fines (SM-SC). The range of maximum dry densities for this soil classification is between 110 to 130 lb/cu.ft. Per *SPS Table 321.18-A - Soil Lateral Load*, the resultant estimated design lateral soil load per foot of depth of these soils for 8' or less of unbalanced backfill onto a foundation wall is 45 psf/ft and for more than 8' of unbalanced backfill is 100 psf/ft. Per *ACI 332-14*, additional vertical reinforcement is not required for <8' of unbalanced backfill against an 8' foundation wall using 2,500 psi/28-day cure strength concrete with ≥7.5-inch thick walls or for a 9' foundation wall with ≥9.5-inch thick walls.**

Foundation loads from the proposed residence may be supported by deep pile and/or helical pier foundation systems, which transfer the foundation loads directly the deeper, very stiff to hard, subsoil layer. Other project specifications

for foundation preparation must also be followed. Any subgrade soils that later become wet, soft, loose, or disturbed (possibly due to precipitation, frozen conditions, or construction traffic) should be reevaluated by a geotechnical engineer and the footing designs appropriately evaluated before foundations are formed and concrete is poured.

Client must recognize that subsurface conditions can change across the proposed building footprint. LandMark recommends that the actual foundation pile and/or pier load bearing capacity be verified during construction by a qualified geotechnical engineer to ensure they are founded within suitable vertical and lateral load resistant subsoils. Because both the exterior grade beams and the interior grade beams within heated portions of the building will be structurally joined to the deep foundation piles and/or piers, these grade beams can be located directly below the floor slab provided they remain compatible with the architectural and structural considerations discussed previously.

Any areas over-excavated to remove unsuitable soils below structural load-bearing areas should be backfilled in maximum twelve inch (12") thick, loose lifts. Backfill materials should be suitable, granular fill material with little to no fines, compacted in-place to at least 95% of the Modified Proctor maximum dry density (ASTM D-1557). Native subsoils may **not** be suitable to be used as engineered fill. Another option to address these undercut areas would be to backfill the undercut area with a lean mix concrete fill founded on the underlying soils.

After over-excavation, the underlying support soils should be observed, assessed and approved by a geotechnical engineer before the engineered fill materials are placed. Fill materials must be set in place as quickly as possible to avoid exposing the underlying support soils to wetting and drying effects and/or freezing conditions. Over-excavated areas are likely to require water removal prior to fill placement. Surface runoff water should be directed away from the excavation and not allowed to pond or discharge into any water bodies prior to treatment for suspended solids removal. If possible, the fill material should be placed during the same day the excavation is made. If it is required that the excavation be left open for more than a day, the exposed soil should be protected to reduce evaporation or entry of moisture and to prevent frost from setting into the soil during winter months.

To minimize frost penetration below foundations after the building is constructed, LandMark recommends the exterior grade beam footings incorporate an engineered frost protection design. Interior footings within heated portions of the building can be located directly below the floor slab, compatible with the architectural and structural considerations previously discussed.

LandMark assumes that the topography observed would require some grade changes around the building foundation to achieve a probable final yard grade. Before placing any new fill or constructing new slabs, any unsuitable load-bearing surface materials must be removed (stripped) from a minimum of 5' beyond all proposed building and pavement areas. Unsuitable load-bearing surface materials include such items as vegetation, topsoil, root-balls of trees and bushes, existing buildings and pavements, deleterious debris, etc. The actual topsoil removal/stripping depths need to be based on organic content, soil stability and site conditions.

A minimum four-inch (4") thick layer of well-graded, free-draining gravel with less than five percent (5%) passing the No. 200 sieve is recommended to be placed under the lowest grade floor slab to serve as a capillary break and to improve drainage to the foundation underdrain system. A minimum six-millimeter (6-mil) thick plastic vapor barrier should also be placed directly beneath the concrete course, per state building code.

Per state building codes, LandMark recommends that an underdrain system be included at the base of all subgrade (basement or crawlspace) wall areas to prevent the buildup of hydrostatic pressures below the floor slab or laterally onto the foundation walls. The underdrain system should be designed by a firm specializing in this type of work, but at a minimum should include perforated or slotted drain tiles along the interior and exterior of the foundation walls. Interior drain lines should be connected to a sump pit from which water can be pumped or drained, as required. All foundation drain lines should be surrounded by at least 12 inches of free-draining aggregate, such as

clean sand or gravel containing no more than 2% fines passing a No. 200 sieve. Also consider utilizing a suitable filter fabric surrounding the drainage aggregate to prevent the system clogging over time with fine soil particles.

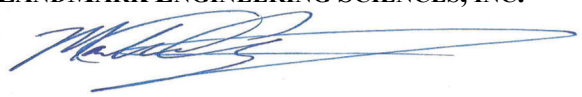
Backfilling should not take place until the below-grade walls have had adequate curing time (typically 10 to 14 days after concrete pour date, based on concrete mix and time of year). The below-grade walls must be braced during backfill placement operations and must remain braced until the top and bottom of the walls are secured. The backfill materials not supporting structural loads should be placed in uniform layers no greater than 12" thick (loose measured) and compacted to between 90% and 95% of the Standard Proctor (ASTM D-698) maximum dry density. The backfill should be compacted using light, hand-operated vibratory plates or rollers only.

NOTE: Heavy compaction and grading equipment should not be operated within 10' of the below-grade (basement foundation) walls, as they may induce excessive temporary or long-term lateral pressures onto those walls that can cause foundation wall cracking.

In general, the performance of the potential single-family, residential foundation system on this site will depend on the various factors discussed above. The soil bearing pressures recommended should be used for preliminary planning only in the evaluation of the general site feasibility.

The conclusions and recommendations in this report are made only with respect to the soils observed during our site visit and may not be indicative of a thorough foundation analysis or geotechnical study. A thorough foundation analysis or geotechnical study may include additional soil test pits/borings and soil parameter testing.

LANDMARK ENGINEERING SCIENCES, INC.





Mark D. Augustine, PE, PLS, CHMM
President

encl: Milwauke County GIS 2024 Aerial Photograph
Milwaukee County GIS Topography Information
USDA Soil Survey Information
Land Surveys Inc. Plat of Survey
Soil Evaluation Report
Boring Log
Boring Location Map
General Notes

C:\Documents\Landmark\4075 - VCI_Ahles (Greenfield-Geo)\4075 - Soil Assessment Report.Docx

Map Title



Legend

Parcels

Tax Parcels

Administrative

Municipal Boundaries

Notes

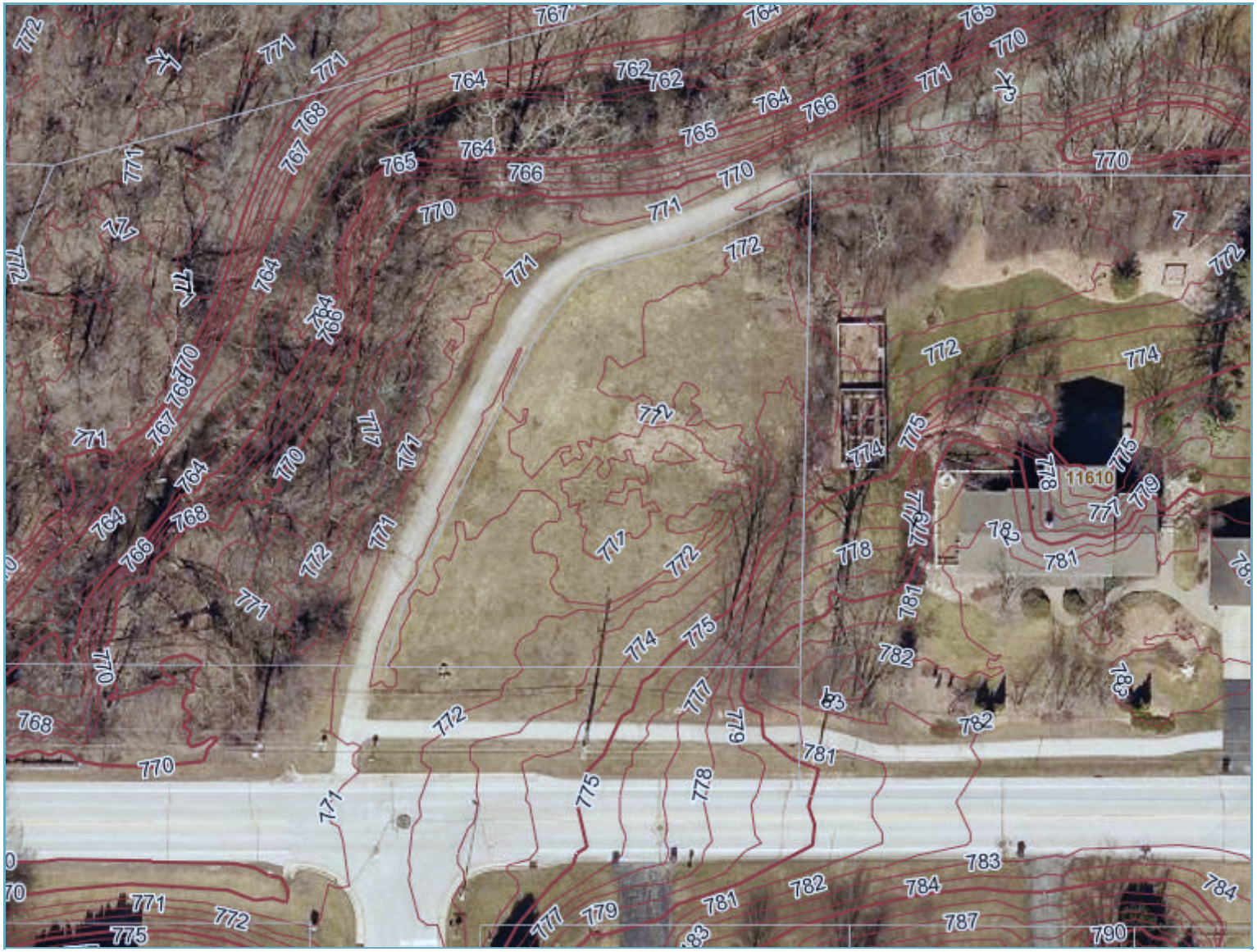
2024 aerial photo

0 25 50 ft

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

MILWAUKEE COUNTY GIS AND LAND INFORMATION

Map Title



Legend

Parcels

Tax Parcels

Administrative

Municipal Boundaries

Topographic

Contour Lines

Index Contour

Index Contour

Intermediate Contour

Intermediate Contour

Notes

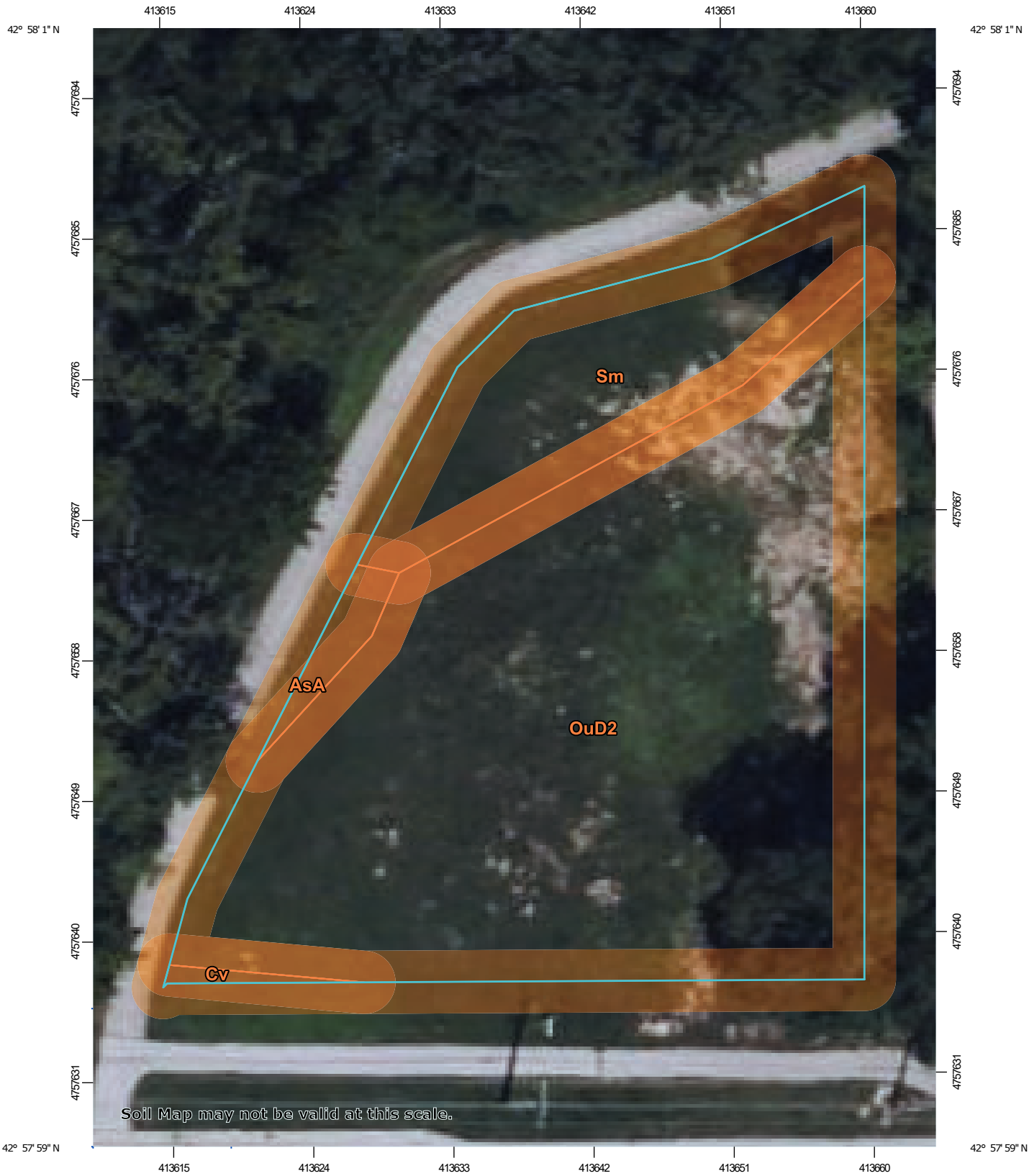
elevation contours

0 50 100 ft

This map is a user generated static output from an Internet mapping site and is for reference only.
Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

MILWAUKEE COUNTY GIS AND LAND INFORMATION

Soil Map—Milwaukee County, Wisconsin



Map Scale: 1:349 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 15 30 60 90

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Milwaukee County, Wisconsin
Survey Area Data: Version 1, Sep 3, 2024

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

Date(s) aerial images were photographed: Jul 25, 2022—Aug 24, 2022

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
AsA	Ashkum silty clay loam, 0 to 2 percent slopes	0.0	1.7%
Cv	Clayey land	0.0	0.5%
OuD2	Ozaukee silt loam, high carbonate substratum, 12 to 20 percent slopes, eroded	0.3	79.0%
Sm	Sebewa silt loam, 0 to 2 percent slopes	0.1	18.9%
Totals for Area of Interest		**0.4**	**100.0%**

Plat of Survey

Property Description: Document No. 11409226
LOT 2 OF CERTIFIED SURVEY MAP NO. 7849, RECORDED ON DECEMBER 11, 2006 AS DOCUMENT NO. 9351197. BEING A PART OF THE SOUTHWEST 1/4 AND NORTHWEST 1/4 OF THE NORTHEAST 1/4 AND THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 19, TOWNSHIP 6 NORTH, RANGE 21 EAST, IN THE CITY OF GREENFIELD, COUNTY OF MILWAUKEE, STATE OF WISCONSIN; EXCEPTING OUT THAT PART CONVEYED IN A QUIT CLAIM DEED RECORDED ON MAY 19, 2015 AS DOCUMENT NO. 10461780 AND CORRECTED BY AN AFFIDAVIT OF CORRECTION RECORDED ON JUNE 15, 2015 AS DOCUMENT NO. 10470229. FURTHER EXCEPTING THEREFROM THAT PART CONVEYED IN A QUIT CLAIM DEED RECORDED ON MAY 1, 2015 AS DOCUMENT NO. 10457196 AND CORRECTED BY AN AFFIDAVIT OF CORRECTION RECORDED ON JUNE 15, 2015 AS DOCUMENT NO. 10470227.

LAND SURVEYS INC.
260 Regency Court Suite L100
Brookfield, WI 53045 (262) 312-1034
landsurveysinc.com

Graphic Scale 1" = 30'
0' 30' 60'

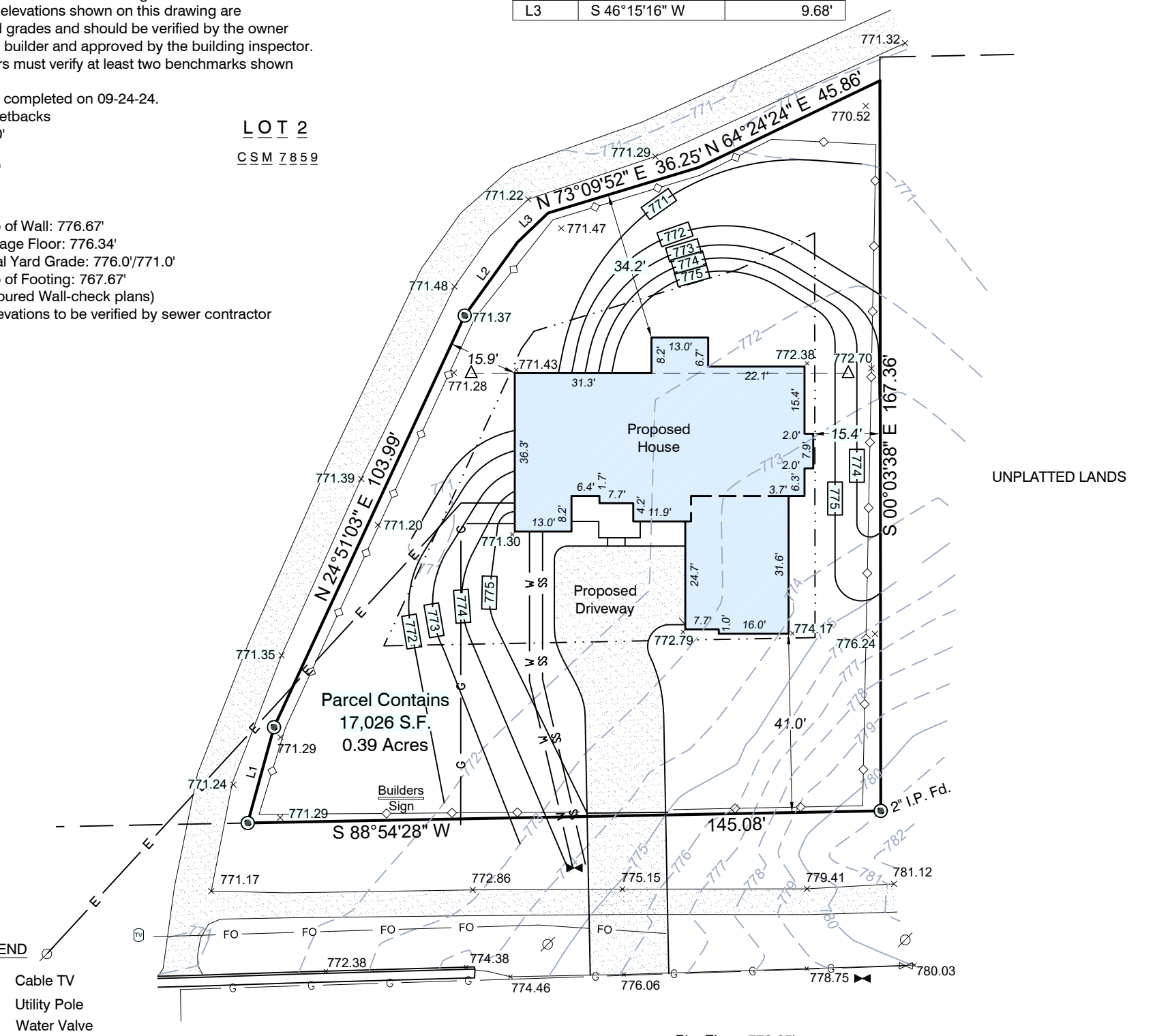
Notes:

1. A title commitment has not been provided and this parcel may be subject to, or benefit from, easements or agreements, written or otherwise, not shown hereon.
2. Outside diameter measured on all monuments.
3. ( ) Indicates recorded as bearings and dimensions.
4. Proposed elevations shown on this drawing are suggested grades and should be verified by the owner and/or the builder and approved by the building inspector.
5. Contractors must verify at least two benchmarks shown hereon.
6. Field work completed on 09-24-24.
7. Building Setbacks
   Front = 40'
   Side = 15'
   Rear = 25'

LOT 2
CSM 7859

Suggested Top of Wall: 776.67'
Suggested Garage Floor: 776.34'
Suggested Final Yard Grade: 776.0'/771.0'
Suggested Top of Footing: 767.67'
(Assuming 9' Poured Wall-check plans)
Sewer invert elevations to be verified by sewer contractor

LINE	BEARING	DISTANCE
L1	N 15°20'13" E	22.77'
L2	N 35°45'45" E	20.71'
L3	S 46°15'16" W	9.68'



WEST COLDSPRING ROAD
(60' R.O.W.)

LEGEND

- Cable TV
- Utility Pole
- Water Valve
- Gas Valve
- Curb Inlet
- 10' Offset
- Proposed Well
- Utility Pedestals
- Sanitary Manhole
- Storm Manhole
- Catch Basin
- Monument Found as Noted
- 3/4"X18" Iron Rod Set
- × 733.57 Existing Spot Grade
- 735 Proposed Grade
- 735 Proposed Contour
- 735 Existing Contour
- Building Setback Line
- SD Existing Storm Sewer
- SD Proposed Sump Drain
- W Proposed Water Line
- SS Proposed Sewer Line
- G Proposed Gas Line
- E Proposed Electric Line
- Proposed Silt Fence

REVISIONS

PREPARED FOR:

Victory Homes of Wisconsin, Inc.
N118W18531 Bunsen Dr
Germantown, WI 53022

AHLES RESIDENCE

BEARINGS ARE REFERENCED TO C.S.M. #7849, SOUTH LINE LOT 2 BEARS S 88°54'28" W

Drawn By: PL | Job# 24432

Sheet 1 of 1

SURVEYOR'S CERTIFICATE

I hereby certify that we surveyed the property described above and that the map is a true representation thereof and shows the size and location of the property, it's exterior boundaries. Said survey meets the minimum standards for property surveys of the Wisconsin Administrative Code (A-E7) and the map hereon is correct to the best of my knowledge and belief. This Survey is solely for the use of the present owners of the property at the date below.

WISCONSIN
PHILLIP J. LANDRY S-3176 BROOKFIELD WI
LAND SURVEYOR

Dated this 3rd Day of October, 2024: Phillip J. Landry S-3176

Wisconsin Department of Safety and Professional Service
Division of Industry Services

SOIL EVALUATION REPORT

In accordance with SPS 385, Wis. Adm. Code

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent slope, scale or dimensions, north arrow, and location and distance to nearest road.

Please print all information.

Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04(1)(m)).

County	
Milwaukee	
Parcel I.D.	
5659955011	
Reviewed by	Date

Property Owner	Property Location			☒ E (or) ☐ W
James Cruz & Maria Cruz	Govt. Lot SE ¼ NW¼ S 19 T 6 N R 21			
Property Owner's Mailing Address	Lot # 2	Block #	Subd. Name or CSM# CSM 7849	
City / State / Zip Code / Phone Number	☒City Greenfield	☐Village -----	☐Town -----	Nearest Road Cold Spring Road

☒New Construction Use: ☒ Residential / Number of bedrooms: Unknown Code derived design flow rate ----- GPD

☐Replacement ☐ Public or commercial – Describe: _____

Parent material Glacial Till Flood Plan elevation if applicable ------- ft.

General comments and recommendations:

Site Suitable For:
☐ Conventional
☐At-Grade
☐Mound
☐ Holding Tank
☒

1 Boring # ☐Boring ☒Pit Ground surface elev. 95.95 ft Depth to limiting factor 0 in. / elev. 95.95 ft.

Horizon	Depth In.	Dominant Color Munsell	Redox Description Qu. Az. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	Roots	Soil Application Rate GPD/Ft² *Eff#1	*Eff#2
1	0-108 Fill	10yr5/4	f2f10yr5/6	CL	0M	Mfi	---------	1VF	0.0	0.0
			Fill Contained							
			Slabs of Concrete							

2 Boring # ☐Boring ☒Pit Ground surface elev. 97.1 ft Depth to limiting factor 0 in. / elev. 97.1 ft.

Horizon	Depth In.	Dominant Color Munsell	Redox Description Qu. Az. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	Roots	Soil Application Rate GPD/Ft² *Eff#1	*Eff#2
1	0-48 Fill	10yr5/4	fif10yr5/6	CL	0M	Mfi	AS	1VF	0.0	0.0
2	48-130 Fill	10yr3/1	----------	GrL	1fsbk	Mfr	GW	-------	0.4	0.6
3	130-168	10yr2/1	f2f10yr5/6	L	1fsbk	Mfr	---------	-------	0.4	0.6
			H20 @152"							
			Fill Had Construction							
			Debris							

CST Name (Please Print)		CST Number
Logan Mohr	Logan Mohr ORIGINAL Signature	1410637
Address	Date Evaluation Conducted	Telephone Number
W4644 Pine Creek Drive Elkhorn WI 53121	10/9/2024	262 495 7004

* Effluent #1 = BOD, > 30 ≤ 220 mg/L and TSS > 30 ≤ 150 mg/L * Effluent #2 = BOD, > 30 ≤ 220 mg/L and TSS > 30 ≤ 150 mg/L

3 Boring # ☐Boring ☒ Pit Ground surface elev. 95.7 ft. Depth to limiting factor 0 in. / elev. 95.7 ft.

Horizon	Depth In.	Dominant Color Munsell	Redox Description Qu. Az. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	Roots	Soil Application Rate GPD/Ft²	
									*Eff#1	*Eff#2
1	0-32 Fill	10yr5/4	fif10yr5/6	CL	0M	Mfi	AS	1VF	0.0	0.0
2	32-156 Fill	10yr3/1	c2d10yr 5/6 6/8	GrL	1fsbk	Mfr	-----	-------	0.4	0.6
			H20 @ 137"							
			Fill Had Construction							
			Debris							

4 Boring # ☐Boring ☐Pit Ground surface elev. ____ft Depth to limiting factor_____in. / elev._____ft.

Horizon	Depth In.	Dominant Color Munsell	Redox Description Qu. Az. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	Roots	Soil Application Rate GPD/Ft²	
									*Eff#1	*Eff#2

5 Boring # ☐Boring ☐Pit Ground surface elev.____ ft. Depth to limiting factor_____in. / elev._____ft.

Horizon	Depth In.	Dominant Color Munsell	Redox Description Qu. Az. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	Roots	Soil Application Rate GPD/Ft²	
									*Eff#1	*Eff#2

* Effluent #1 = BOD, > 30 ≤ 220 mg/L and TSS > 30 ≤ 150 mg/L

* Effluent #2 = BOD, > 30 ≤ 220 mg/L and TSS > 30 ≤ 150 mg/L

Associates Septic Services and Associates Soil Testing

ORIGINAL

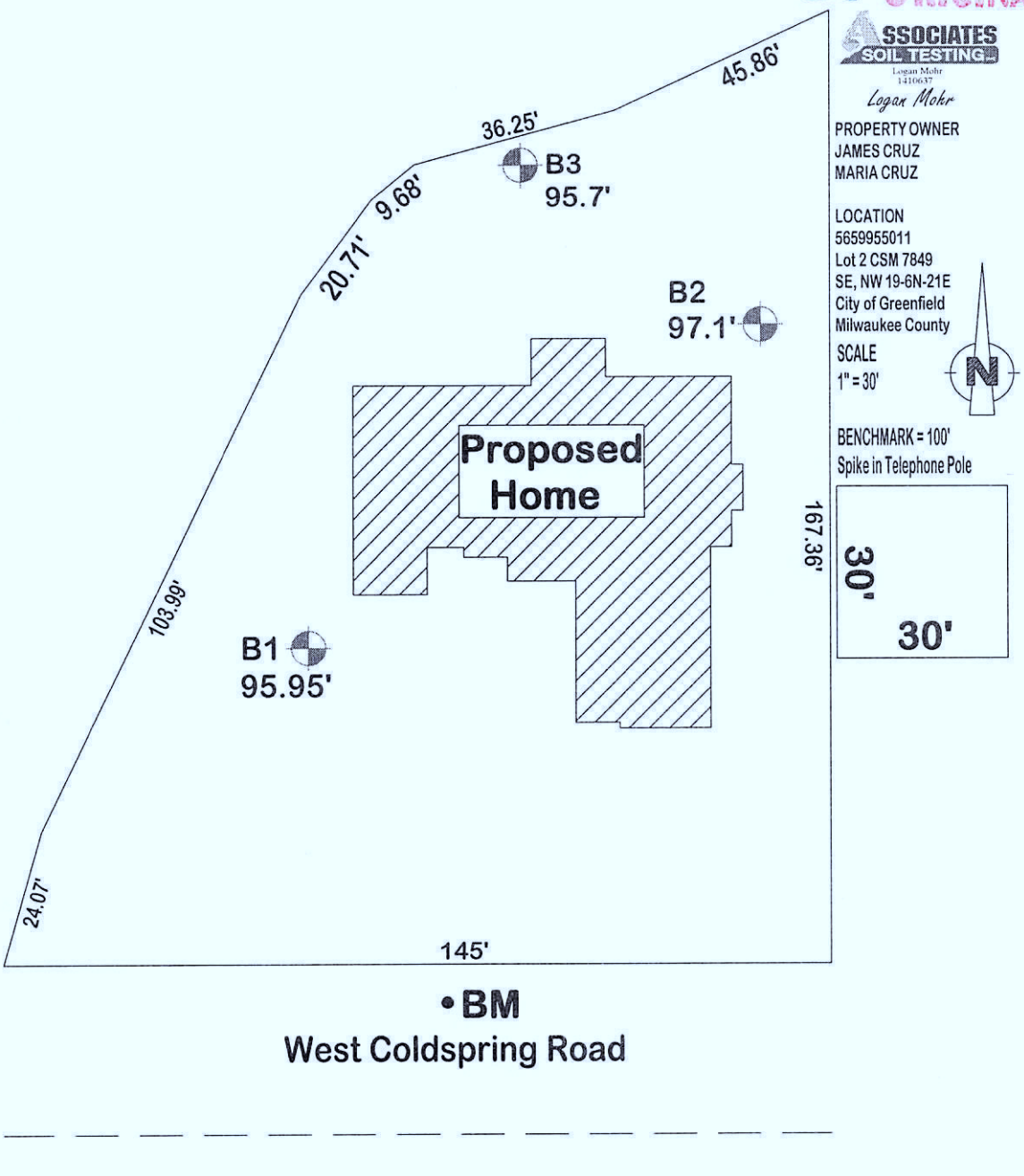
ASSOCIATES SOIL TESTING
Logan Mohr
1410637
Logan Mohr

PROPERTY OWNER
JAMES CRUZ
MARIA CRUZ

LOCATION
5659955011
Lot 2 CSM 7849
SE, NW 19-6N-21E
City of Greenfield
Milwaukee County

SCALE
1" = 30'

BENCHMARK = 100'
Spike in Telephone Pole



J&J SOIL TESTING, LTD.

Sheet 1 Of 1

FOR _____ JOB NO. _____

LOCATION Greenfield Elev. _____ BORING NO. 1

GROUND WATER: While drilling 11' +/- | Before casing removal NW | After casing removal _____ | Time after drilling _____ | Depth to water X | Depth to cave-in X

Start 11-25-24 | Unit CME-45 | Chief JP

Sample Number	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION	Unconfined Strength	REMARKS
						FILL: 1" Dk Br Cl TOPSOIL, M		
						FILL: Br Ln CLAY, Li F Sa, Tr Ty, Tr F-C Gr, M		Drilled @ Lath
		3	X					
1	M	4		18	8		2.50	2¼" HSA/Plug
			X					Cathead/Rope
2	M	6	27	15	33		4.25	
						5	5	
		2	2			FILL: Blk Foundry SAND, Tr Cinder, M/W		
3	M	X		18	6		NA	
			1					
4	M	2	X	18	6		NA	
						10	10	
		1	1					
5	W	2		18	3		NA	
			2					
6	W	5	3	14	8		NA	
						15	15	
		10	15			Possible FILL: Br Si SAND + GRAVEL, W		
7	W	11		6	26		NA	
			7			Hard Gray Ln CLAY, Li F Sa, Tr F-C Gr, M		
8	M	11	14	18	25		4.5+	
						20	20	
		11	16					
9	M	22		18	38		4.5+	
			14					
10	M	19	25	18	XX		4.5+	
						25	25	
		8	12					
11	M	20		18	32		4.5+	
			10					
12	M	13	16	18	29		4.5+	
						30	30	
						EOB: 30'		
						Backfilled w/Bent. 11-25-24		
						35	35	
						40	40	
						45	45	
						50	50	

Department of Natural Resources | Form 3300-5B | Rev. 7-89

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location | County

___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

(If applicable) ___ Gov't Lot ___ Grid Number

Grid Location ___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Civil Town Name

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known)

Present Well Owner

Street or Route

City, State, Zip Code

Facility Well No. and/or Name (If Applicable): B- 1 | WI Unique Well No.: _ _ _ _ _ _

Reason For Abandonment: Geotech. Soil Boring

Date of Abandonment: 11-25-24

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On

(Date) 11-25-24

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? ~~☐ Yes ☐ No~~ N/A

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) ___

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

~~Total Well Depth (ft.)~~ N/A (From groundsurface)

~~Casing Diameter~~ Bit Diameter (ins.) 6

~~Casing Depth~~ Borehole Depth (ft.) 30

~~Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown~~
~~If Yes, To What Depth?~~ N/A Feet

(4) Depth to Water (Feet) ___

Pump & Piping Removed?	☐ Yes	☐ No	☐ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☐ Not Applicable
Screen Removed?	☐ Yes	☐ No	☐ Not Applicable
Casing Left in Place?	☐ Yes	☐ No	

If No, Explain ___

Was Casing Cut Off Below Surface?	☐ Yes	☐ No
Did Sealing Material Rise to Surface?	☐ Yes	☐ No
Did Material Settle After 24 Hours?	☐ Yes	☐ No
If Yes, Was Hole Retopped?	☐ Yes	☐ No

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☐ Other (Explain)

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☒ Bentonite-Sand Slurry
☐ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
Bentonite Chips	Surface	30		

(8) Comments: ___

(9) Name of Person or Firm Doing Sealing Work
J & J Soil Testing, Ltd.

Signature of Person Doing Work | Date Signed: 11-25-24

Street or Route: 2398 Ball Drive | Telephone Number: (262) 689-6658

City, State, Zip Code: Richfield, WI 53076

(10) FOR DNR OR COUNTY USE ONLY

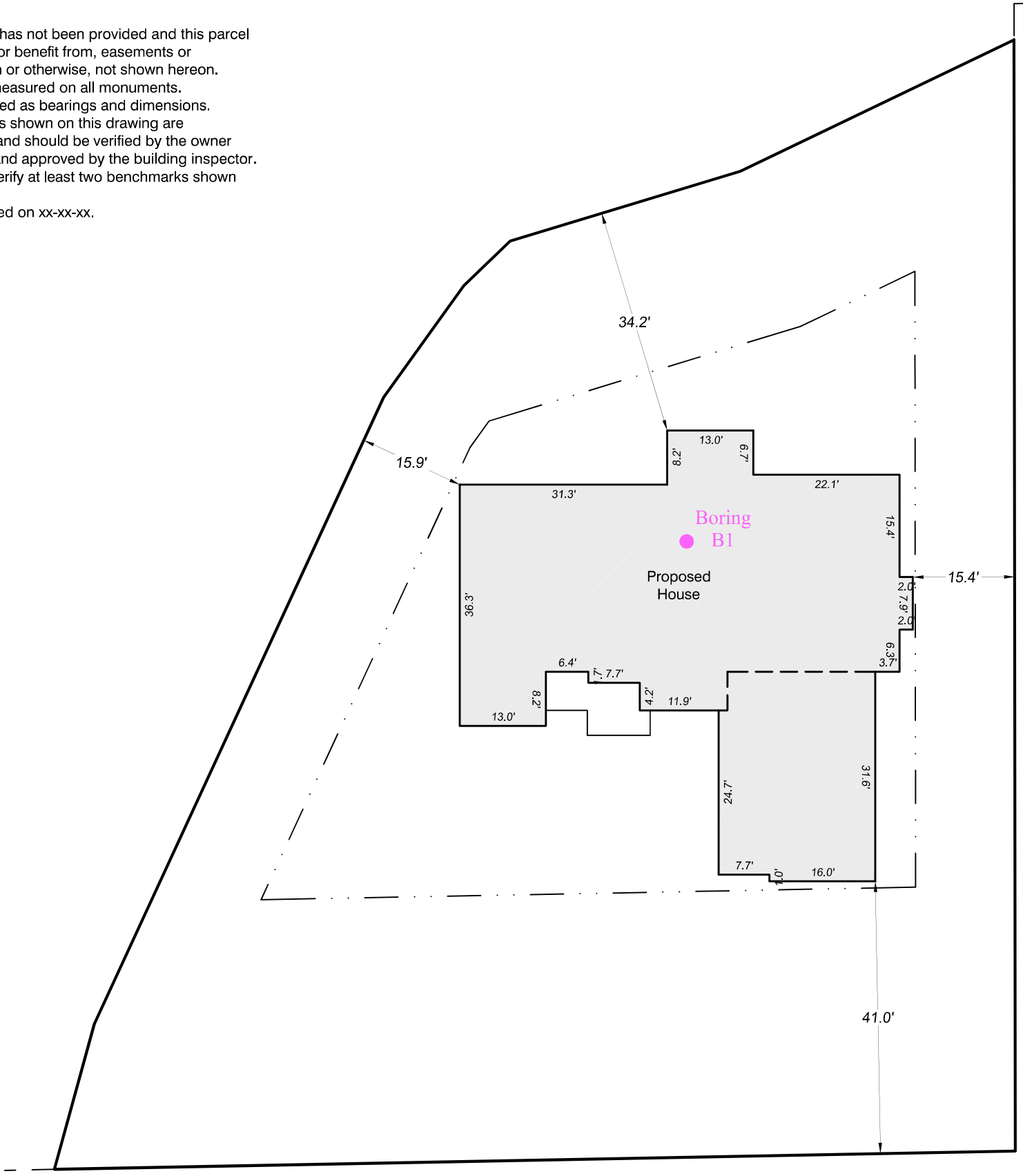
Date Received/Inspected | District/County

Reviewer/Inspector

Follow-up Necessary

ED ON JUNE 15, 2015 AS DOCUMENT NO. 10470227.

e commitment has not been provided and this parcel
be subject to, or benefit from, easements or
ements, written or otherwise, not shown hereon.
ide diameter measured on all monuments.
dicates recorded as bearings and dimensions.
osed elevations shown on this drawing are
ested grades and should be verified by the owner
or the builder and approved by the building inspector.
ractors must verify at least two benchmarks shown
on.
work completed on xx-xx-xx.
ing Setbacks
= 40'
= 15'
= 25'



LEGEND

10' Offset
Proposed Well
Utility Pedestals
Sanitary Manhole
Storm Manhole
Catch Basin
Monument Found as Noted

WEST COLDSPRING ROAD
(60' R.O.W.)

Suggested Top of Wall: xxx.xx'
Suggested Garage Floor: xxx.xx'
Suggested Final Yard Grade: xxx.x'
Suggested Top of Footing: xxx.xx'

GENERAL NOTES

SAMPLE IDENTIFICATION

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

PARTICLE SIZE ±

Boulders: 8 inches Cobbles: 3 to 8 inches Gravel: 5 mm to 3 inches	Coarse Sand: 2mm to 4 mm Medium sand: 0.42mm to 2mm Fine Sand: 0.074 to 0.42mm	Silt: 0.005mm to 0.074mm Clay: -0.005mm

DRILLING & SAMPLING SYMBOLS

SS:	Split-spoon, 2" O.D. by 1 3/8" I.D.		
ST:	Shelby Tube, 2" O.D. or 3" O.D., as noted in text	RB:	Roller Bit
AU:	Auger Sample	WS:	Wash Sample
DB:	Diamond Bit	BS:	Bag Sample
CB:	Carbide Bit	HA:	Hand Auger

SOIL PROPERTY SYMBOLS

N: Standard penetration count, indicating number of blows of a 140lb. hammer with a 30 inch drop, required to advance a split-spoon sampler one foot.
Qu: Unconfined compressive strength, tons per square foot (tsf)
Qp: Calibrated hand penetrometer resistance, tsf
MC: Moisture Content, %
LL: Liquid Limit PL: Plastic Limit PI: Plasticity Index
Dd: Dry Density, pounds per cubic foot (pcf)
PID: Photoionization Detector (Hnu meter) volatile vapor level, ppm

SOIL RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

NON-COHESIVE SOILS		COHESIVE SOILS		
Classifier	N-Value Range	Classifier	Qu Range (tsf)	N-Value Range
very loose	0 – 3	very soft	0 – 0.25	0 – 2
loose	3 – 7	soft	0.25 – 0.5	2 – 5
medium dense	7 – 15	medium stiff	0.5 – 1.0	5 – 10
dense	15 – 38	stiff	1.0 – 2.0	10 – 14
very dense	38 +	very stiff	2.0 – 4.0	14 – 32
		hard	4.0 +	32 +

GROUNDWATER

▼ Approximate Groundwater level at time noted on soil boring log, measured in open bore hole unless otherwise noted. Groundwater levels often vary with time, and are affected by soil permeability characteristics, weather conditions, & lateral drainage conditions.