TOWN OF MONTREAT
NORTH CAROLINA

VARIANCE APPLICATION

Town of Montreat Planning and Zoning
1210 Montreat Road, Black Mountain, NC 28711 | (828) 669-8002
REQUIRED FEE: $350.00 (CASH OR CHECK)

APPLICANT INFORMATION

APPLICANT NAME: John B. Hennis TELEPHONE: 540-319-0500
MAILING ADDRESS: 1905 Fendall Ave CITY: Charlotesville STATE: VA ZIP: 22903
EMAIL: johnbhennis@gmail.com

PROPERTY INFORMATION

ADDRESS: 325 North Carolina Terrace CITY: Montreat STATE: NC ZIP: 28757
PIN# : 0710-96-5982 TOTAL ACREAGE: 0.395 FLOODPLAIN: ☐ YES ☑ NO
ZONING: R-2 OTHER: _____ OVERLAY ZONING: N/A
PROPERTY OWNER: Dowd Montreat LLC TELEPHONE: 540-319-0500
MAILING ADDRESS: 1905 Fendall Ave Charlottesville VA 22903

PROPOSED LAND USE

TYPE OF LAND USE: ☑ Residential ☐ Non-Residential ☐ Other
DESCRIPTION OF PROPOSED DEVELOPMENT: Purpose of the vaiance is to accommodate an addition to an existing single family dwelling, a new driveway and a detached garage on a lot with existing structures that predate the HDO.

VARIANCE REQUEST

MONTREAT ZONING ORDINANCE SECTION: MGO Chapter K Article 4 Section II(4)(i) & (Section II(4)(a)
DESCRIPTION OF REQUESTED VARIANCE: 1. Variance is a request to Montreat General OrdinaceChapter K Article 4 Section II(4)(i) to increase the approved developmentntensity ration from 0.25 to 0.49. 2. Variance is request to the Montreat General Ordinance Chapter K Atrical 4 Section II(4)(a) to increase the approved graded area from 40% to 89.3%

FINDINGS OF FACT

THE TOWN OF MONTREAT'S BOARD OF ADJUSTMENT WILL RENDER A DECISION ON THIS APPLICATION AT A PUBLIC HEARING. IN APPROVING THE REQUEST, THE BOARD OF ADJUSTMENT WILL EXAMINE THE APPLICATION AND MUST FIND THAT THE FOLLOWING SIX ELEMENTS ARE SATISFIED IN THE PROPOSAL:

MZO 310.42(A) *Unnecessary hardship would result from the strict application of the Ordinance. It shall not be necessary to demonstrate that, in the absence of the Variance, no reasonable use can be made of the property.*

MZO 310.42(B) *The hardship results from conditions that are peculiar to the property, such as location, size, or topography. Hardships resulting from personal circumstances, as well as hardships resulting from conditions that are common to the neighborhood or the general public, may not be the basis for granting a Variance.*

MZO 310.42(C) *The hardship did not result from actions taken by the applicant or the property owner. The act of purchasing property with knowledge that circumstances exist that may justify the granting of a Variance shall not be regarded as a self-created hardship.*

MZO 310.42(D) *The Variance is consistent with the spirit, purpose and intent of the Ordinance such that public safety is secured and substantial justice is achieved.*

MZO 310.42(E) *The Variance requested is the minimum Variance that will make possible the requested Use of the land, Building or Structure.*

MZO 310.42(F) *The Variance is not a request to permit a Use of land, Building or Structure which is not permitted in the applicable Zoning District.*

ATTACHMENTS

THIS APPLICATION MUST BE ACCOMPANIED BY THE FOLLOWING ATTACHMENTS:

1. A copy of the deed for the property which is the subject of the application for a Variance, a copy of the plat showing such property if one exists, and any contract to purchase or other relevant documents.
2. A response to the six findings listed above and found in the Montreat Zoning Ordinance Section 310.42.
3. A to scale site plan showing the existing property conditions (including the adjoining road and any existing improvements) and the proposed locations, dimensions, and setbacks of any structure to be built or modified which is the subject of the Variance. If the Variance request concerns the elevation of a building, include an elevation drawing.

SIGNATURES AND ACKNOWLEDGEMENT

I, John B, Hennis, hereby certify that all of the information set forth above is true and accurate to the best of my knowledge.

Signature of Applicant — *Date*: 12/18/23

John B. Hennis (Owners Representative)

Printed Name of Applicant

OFFICE USE ONLY

☐ Complete ☐ Incomplete

Zoning Administrator Signature — *Date*

Printed Name of Zoning Administrator

Fee: $350.00 Paid: ☒ Yes ☐ No Payment Method: Check

Scheduled Board of Adjustment Meeting Date: 01/25/24

Town Of Montreat – Variance Application for 325 North Carolina Terrace:

December 18, 2023

Findings of Fact:

Applicant: John B. Hennis, Owner's Representative for Dowd Montreat LLC

(A) Unnecessary hardship would result from the strict application of the Ordinance. It shall not be necessary to demonstrate that, in the absence of the Variance, no reasonable use can be made of the property.

The owner's intent with regards to the project is to update, expand and modernize the dwelling with an effort to create a more accessible living space for aging homeowners. The strict application of the Ordinance will create a hardship on the owners who plan to retire in Montreat in the coming years. Without these modifications to the house & property the owners will suffer a hardship since living and accessing the home will become difficult as they age.

(B) The hardship results from conditions that are peculiar to the property, such as location, size, or topography. Hardships resulting from personal circumstances, as well as hardships resulting from conditions that are common to the neighborhood or the general public, may not be the basis for granting a Variance.

Due to the existing slope and topography of the property a variance is necessary to provide adequate access and parking to the owners of the property. When the house was originally constructed, the accommodation for access and parking were limited due to the nature of the property. We request this variance to increase the development intensity ratio from 0.25 to 0.49 which includes the existing and proposed impervious surfaces. The impervious ratio is only this high because the HDO requires all impervious surface to be counted (even those which predate the ordinance). We would also like to request this variance to increase the final graded area beyond that which is allowed by the Approved Grading Area limit from 40% to 89.3%. This increase is necessary so that the slope of the new driveway will provide the owners with a safe and more accessible way to access the main house.

C) The hardship did not result from actions taken by the applicant or the property owner. The act of purchasing property with knowledge that circumstances exist that may justify the granting of a Variance shall not be regarded as a self-created hardship.

The hardship did not result from actions taken by the applicant. The existing characteristics of the subject property create a unique design challenge to provide the owners access and parking not allowed for when the house was originally constructed in 1906. The house predates the HDO established on 6/11/09.

(D) The Variance is consistent with the spirit, purpose and intent of the Ordinance such that public safety is secured and substantial justice is achieved.

The variance request and the design of the project have incorporated many detailed elements that are consistent with the spirit, purpose and intent of the Ordinance such as the layout of the new driveway that provides onsite parking and handicap accessibility to the main house. Also, the proposed site design addresses the need to promote erosion prevention and stormwater control that currently doesn't exist on the property. As per the preliminary geotechnical report from Kesslel Group, they concluded that 'based on available project information, data obtained from our field exploration, our experience with similar subsurface conditions, and our preliminary global stability analyses, it is our opinion that, if performed in accordance with the recommendations provided in this report, the proposed driveway and garage construction will have an adequate industry-standard factor of safety with respect to overall site global stability'. Additionally, they recommend that 'Roof drainage should be collected by a system of gutters and downspouts and piped away from structures and slopes. Site grading and paving should result in positive drainage away from structures, site retaining walls, and slopes. Water should not be allowed to pond around structures or in such locations that would lead to saturation of their subgrade'. We believe we have addressed these issues with the proposed design.

(E) The Variance requested is the minimum Variance that will make possible the requested Use of the land, Building or Structure.

This Variance request is the minimum Variance that will make it possible for the owner's use of land and home. Due to the nature of the property the development options are very limited.

(F) The Variance is not a request to permit a Use of land, Building or Structure which is not permitted in the applicable Zoning District

The proposed project and development are allowed in the Town of Montreat Zoning District.

BK 2218 PG 897

REGISTERED
2000 JAN -6 A 10:52
OTTO W. DEBRUHL
REGISTER OF DEEDS
BUNCOMBE COUNTY, N.C.

Excise Tax | Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., ...
by .....

Mail after recording to Perry, Patrick, Farmer & Michaux, P.A. (LLY)
227 West Trade Street, Suite 2200, Charlotte, NC 28202
This instrument was prepared by PPF&M (LLY)
Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of December, 1999, by and between

GRANTOR	GRANTEE
W. Frank Dowd, Jr. and wife, Anne Waters Dowd	Dowd Montreat, LLC P. O. Box 35430 Charlotte, NC 28235-5430

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Black Mountain ..... Township, Buncombe ..... County, North Carolina and more particularly described as follows:

See Exhibit A attached hereto.

000037

BK 2218 PG 898

The property hereinabove described was acquired by Grantor by instrument recorded in .....

.....

A map showing the above described property is recorded in Plat Book ..... page.....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated. Title to the property hereinabove described is subject to the following exceptions:

1999 ad valorem taxes
Easement, restrictions, covenants and conditions of record

Anne Waters Dowd joins in the execution of this deed for the sole purpose of releasing her marital rights to the property and does not join in the covenants and warranties contained herein.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

(Corporate Name)

By: .....

.....President

ATTEST:

.....

.....Secretary (Corporate Seal)

SEAL-STAMP

RUTH DROMGOOLE NOTARY PUBLIC MECKLENBURG COUNTY, N.C.

USE BLACK INK ONLY

W. Frank Dowd Jr. .....(SEAL)
W. FRANK DOWD, JR.

Anne Waters Dowd .....(SEAL)
ANNE WATERS DOWD

.....(SEAL)

.....(SEAL)

NORTH CAROLINA, Mecklenburg County.

I, a Notary Public of the County and State aforesaid, certify that W. Frank Dowd, Jr. and wife, Anne Waters Dowd Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of December, 1999

My commission expires: 11-16-04 Ruth Dromgoole Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, ...County.

I, a Notary Public of the County and State aforesaid, certify that .....,

personally came before me this day and acknowledged that ____ he is ..... Secretary of

..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this .....day of ....., ...

My commission expires: .... Notary Public

The foregoing Certificate(s) of ..... Ruth Dromgoole .....

.....

is/are certified to be correct. This instrument and this certificate are duly registered at the date and time and in the Book and Page shown on the first page hereof.

Otto W. DeBruhl .....REGISTER OF DEEDS FOR Buncombe .....COUNTY

By Linda J Leach .....Deputy/Assistant - Register of Deeds

EXHIBIT A

Being all of Lot 308 and part of Lot 309, as shown on a plat of Mountain Retreat Association, which plat is recorded in the Office of the Register of Deeds for Buncombe County in Plat Book 154 at page 1, and re-recorded in Plat Book 16 at page 95, and being more particularly described as follows:

BEGINNING at a stake in the northern margin of Carolina (North Carolina) Terrace, at the southeast corner of Lot 307 of said plat; and runs thence with the dividing line between said Lots 307 and 308, North 7-10 West 132.33 feet to a stake in the southern margin of West Virginia Terrace; and runs thence with said margin of said last mentioned Terrace, the following two courses and distances: North 68-49 East 90 feet and North 64-19 East 35.5 feet to a stake; thence South 17 West 138 feet to a stake in the northern margin of Carolina (North Carolina) Terrace, and runs thence with said margin of Carolina (North Carolina) Terrace, the following two courses and distances: South 66-22 West 37 feet and South 72-12 West 110.4 feet to the place of BEGINNING.

Being the same property that was conveyed to W. Frank Dowd, Jr. and wife, Sally Carson Dowd, by Deed dated December 9, 1980, and recorded in the Office of the Register of Deeds for Buncombe County, North Carolina.

I, JOHN M. STOLLERY, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN D.B. 2218, P. 987 AND P.B. 16, P. 95,) THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AS BROKEN LINES AS DRAWN FROM INFORMATION FOUND IN OTHER REFERENCE SOURCES; THAT THE RATIO OF PRECISION IS 1:10,000; AND THAT THIS MAP MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600).THIS 17th DAY OF FEBRUARY, 2022.

I, JOHN M. STOLLERY, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GNSS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING WAS USED TO PERFORM THE SURVEY.

1. *CLASS OF SURVEY: CLASS A (HORIZONTAL)*
2. *POSITIONAL ACCURACY: NOT TO EXCEED 0.10 FT H. & V.*
3. *TYPE OF FIELD PROCEDURE: RTK-VRS*
4. *DATES OF SURVEY: 01/05/2022*
5. *DATUM/EPOCH: H-NAD 83-2011 EPOCH 2010, V-NAVD 88*
6. *PUBLISHED/FIXED-CONTROL USED: NC VRS NETWORK*
7. *GEOID MODEL: GEOID 12B*
8. *COMBINED GRID FACTOR: 0.99977046*
9. *UNITS USED: US SURVEY FOOT*

**RTK Observations were used only to tie property to NC Grid.*

NORTH CAROLINA PROFESSIONAL SEAL L-2996 LAND SURVEYOR JOHN M. STOLLERY

DocuSigned by:
John M. Stollery
39A5B113EA644FF...

PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER L-2996

LOCATION MAP

LEGEND

- △ . . NGS GEODETIC MONUMENT
- ⊡ CMF. . . CONCRETE MONUMENT FOUND
- ◉ CNS . . CONCRETE NAIL SET
- ◉ IPF . . IRON PIN FOUND-SIZE AS NOTED
- ◉ RBF . . REBAR FOUND-SIZE AS NOTED
- ◉ RBS . . #5 REBAR W/ ID CAP SET
- ○ . . . CALCULATED POINT-NOT SET
- . . . FIRE HYDRANT
- Ⓒ . . . SEWER CLEANOUT
- Ⓔ . . . ELECTRIC METER
- Ⓖ . . . GAS METER
- Ⓟ . . . PHONE PEDESTAL
- Ⓥ . . . WATER VALVE
- Ⓦ . . . WATER METER
- HP . . . HEAT PUMP
- . . . AREA LIGHT
- Ⓢ S . . . EXISTING MANHOLE & SEWERLINE
- OH U . . . UTILITY POLE & OVERHEAD LINES

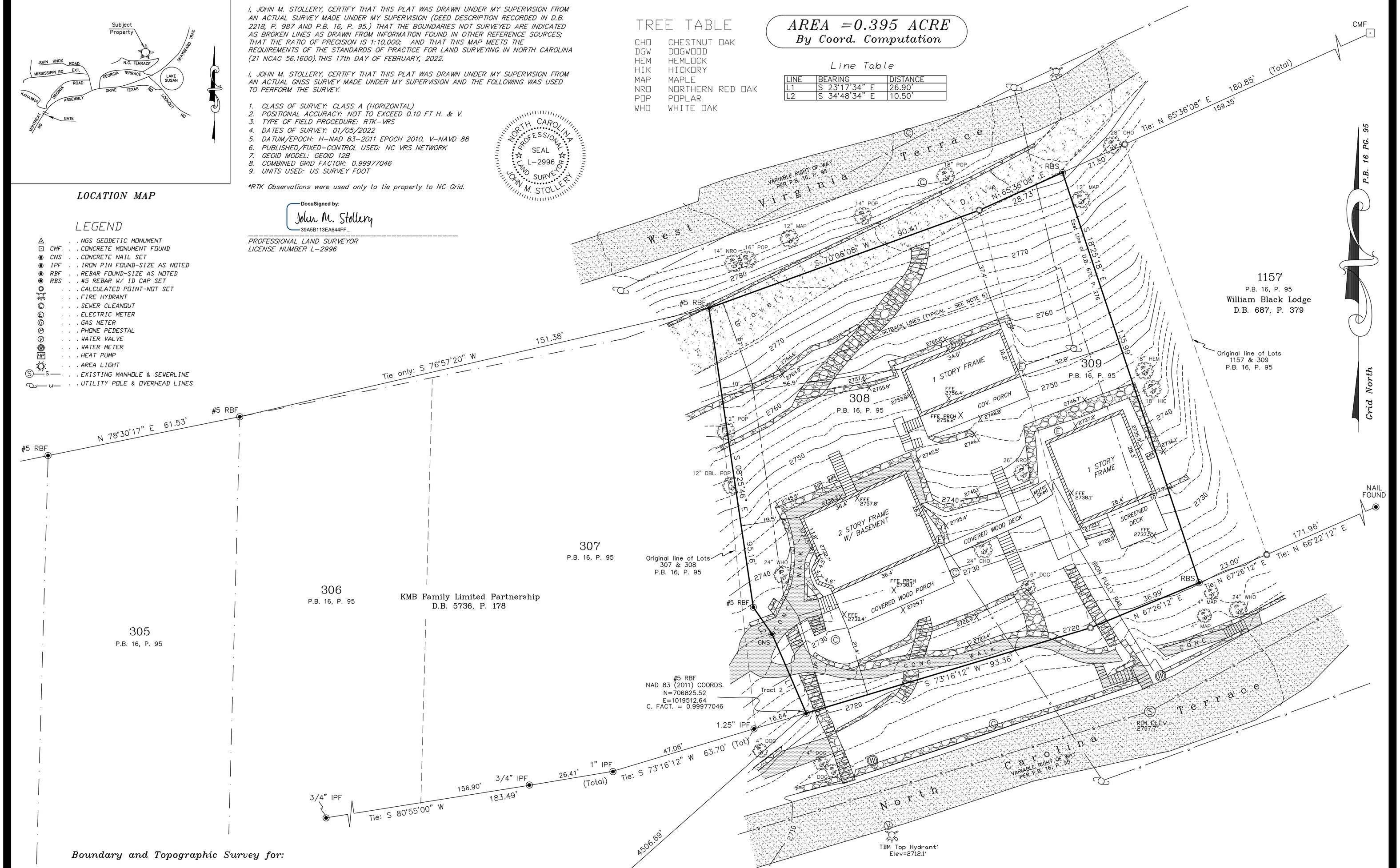
TREE TABLE

CHO	CHESTNUT OAK
DGW	DOGWOOD
HEM	HEMLOCK
HIK	HICKORY
MAP	MAPLE
NRO	NORTHERN RED OAK
POP	POPLAR
WHO	WHITE OAK

AREA =0.395 ACRE
By Coord. Computation

Line Table

LINE	BEARING	DISTANCE
L1	S 23°17'34" E	26.90'
L2	S 34°48'34" E	10.50'



Boundary and Topographic Survey for:

Dowd Montreat, LLC

P.I.N. 0710-96-5982

Town of Montreat, Buncombe County, NC

1 inch = 20' ft. February 17, 2022

20' 0 10' 20' 40' 60'

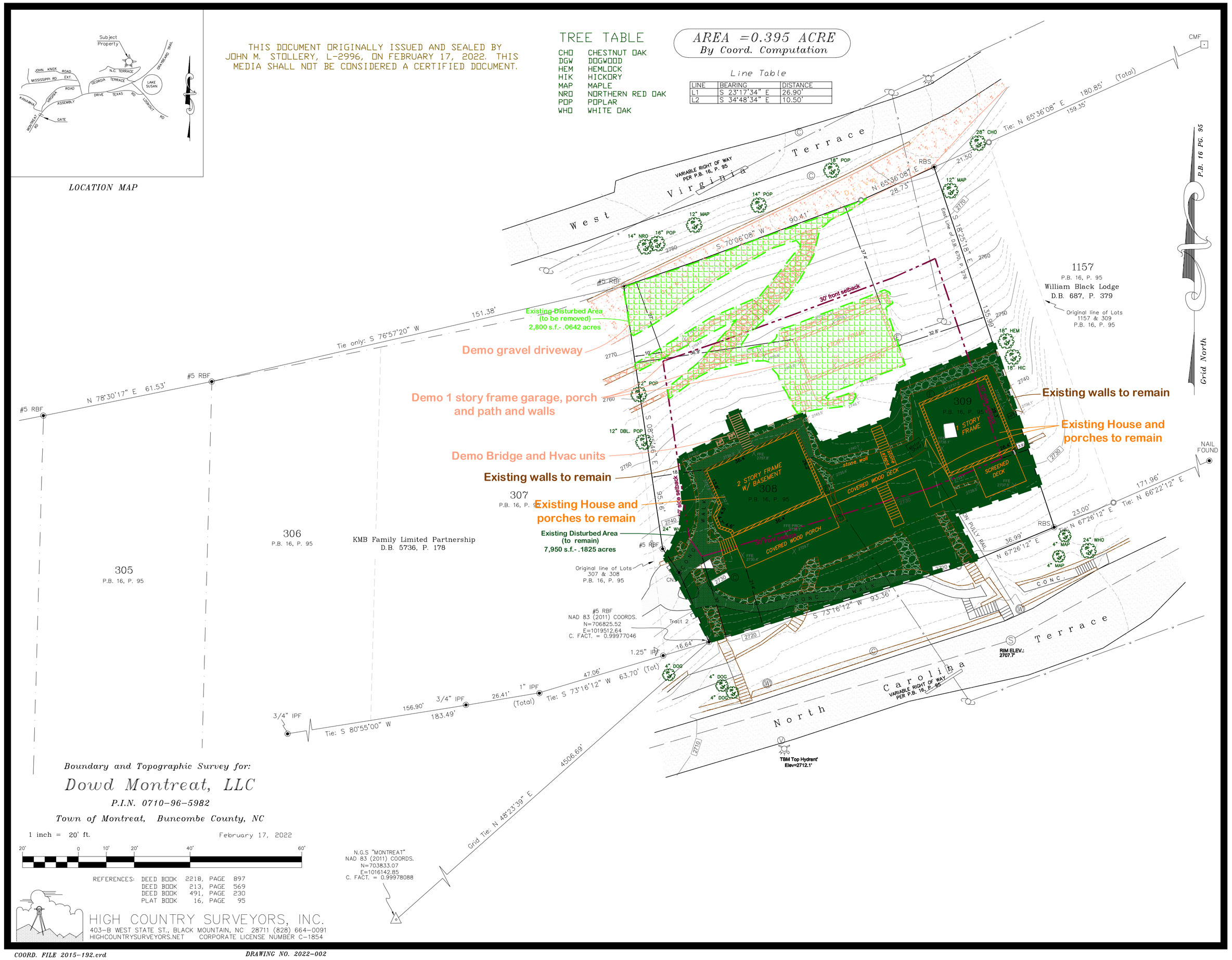
REFERENCES: DEED BOOK 2218, PAGE 897
DEED BOOK 213, PAGE 569
DEED BOOK 491, PAGE 230
PLAT BOOK 16, PAGE 95

HIGH COUNTRY SURVEYORS, INC.
403-B WEST STATE ST., BLACK MOUNTAIN, NC 28711 (828) 664-0091
HIGHCOUNTRYSURVEYORS.NET CORPORATE LICENSE NUMBER C-1854

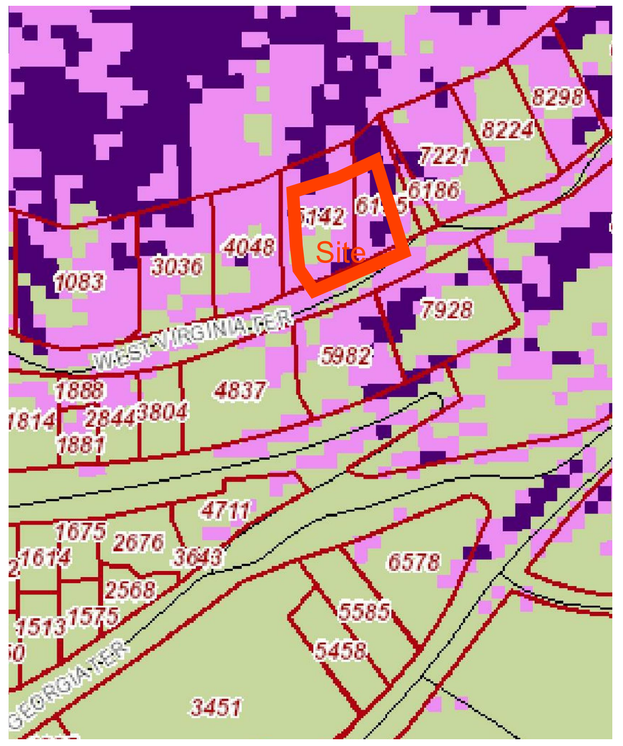
NOTES

1. *THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE SEARCH, AND MAY NOT SHOW ALL EASEMENTS, RESTRICTIONS, RIGHTS OF WAY, ENCUMBRANCES, OR OTHER FACTS THAT MAY BE DISCLOSED BY A FULL TITLE EXAMINATION PERFORMED BY AN ATTORNEY AT LAW. THIS SURVEY SHALL NOT BE CONSIDERED A CERTIFICATION OF OWNERSHIP, ZONING, TITLE, OR GUARANTEE THAT THE PROPERTY IS FREE FROM ENCUMBRANCES.*
2. *THE DISTANCES AND ACREAGE SHOWN ON THIS PLAT ARE GRID MEASUREMENTS TO CONVERT TO GROUND DISTANCES AND ACREAGE, DIVIDE BY THE COMBINED FACTOR OF 0.99977046.*
3. *UNLESS STATED OTHERWISE HEREON, ONLY EVIDENCE OF EASEMENTS, BURIED UTILITIES, PIPELINES, OR STRUCTURES THERETO WHICH ARE READILY APPARENT FROM A CASUAL ABOVE GROUND VIEW OF PREMISES ARE SHOWN. INTERESTED PARTIES SHOULD INVESTIGATE THE EXISTENCE OF EASEMENTS, BURIED UTILITIES, OR PIPELINES,IF ANY, AND VERIFY. NO LIABILITY IS ASSUMED BY HIGH COUNTRY SURVEYORS, INC. FOR ANY LOSS THAT MAY BE ASSOCIATED WITH THE EXISTENCE OF ANY EASEMENT, BURIED UTILITY,OR PIPELINE ON THE PREMISES.*
4. *THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA AS DETERMINED BY FEMA. SEE FIRM 37100710000J DATED 01.06.2010.*
5. *UNDERGROUND SEWERLINE INFORMATION IS TAKEN FROM BUNCOMBE COUNTY MSD GIS INFORMATION, AND HAS NOT BEEN FIELD VERIFIED.*
6. *THIS PROPERTY IS ZONED R-2 BY THE TOWN OF MONTREAT.*
   SETBACKS: 30' FRONT, 10' SIDE, 20% MEAN LOT DEPTH (27') REAR.
   SEE THE MONTREAT ZONING ORDINANCE FOR MORE INFORMATION.
   INTERESTED PARTIES SHOULD INVESTIGATE ALL EXISTING RESTRICTIONS PRIOR TO DESIGN OR CONSTRUCTION. HIGH COUNTRY SURVEYORS, INC MAKES NO CLAIM TO THE EXISTANCE OF ANY RESTRICTIONS OR COVENANTS.
7. *ANY STREAMS, CREEKS, PONDS, LAKES, WETLANDS, ETC. LOCATED ON THIS PROPERTY, SHOWN OR NOT SHOWN HEREON, MAY BE SUBJECT TO BUFFER AREAS. IT IS THE OWNER'S/DEVELOPER'S RESPONSIBILITY TO HAVE THE AREAS DESIGNATED BY THE PROPER AUTHORITIES TO MAKE THESE DETERMINATIONS.*
8. *THIS PLAT IS A REVISION TO CHANGE THE OWNER NAME, AND TO LABEL THE OLD PLAT LINES. ORIGINAL PLAT DATED 02-02-2022.*

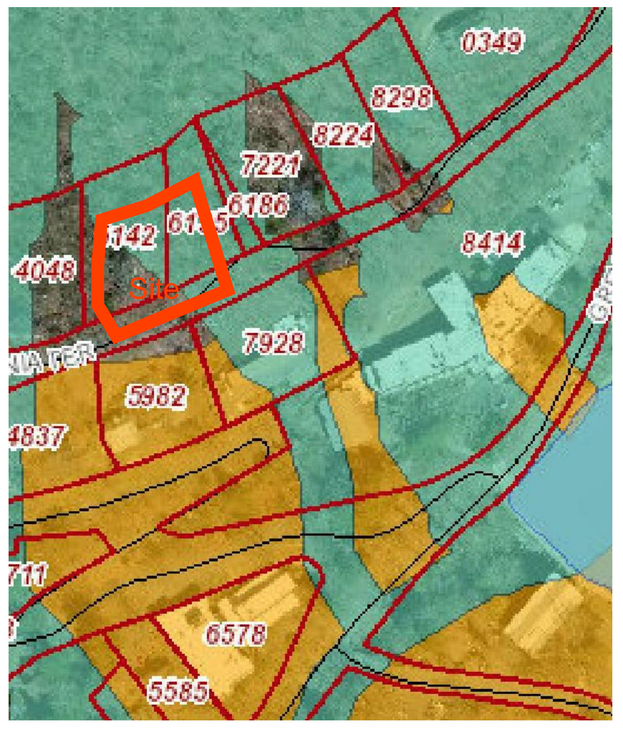
COORD. FILE 2015-192.crd *DRAWING NO. 2022-002*



Regional Map - Not to Scale



Stability Map - NTS



Debris Pathways Map - NTS

Aerial Map - NTS

Topo Map - NTS

North

Survey - by High Country Surveyors

0' 20' 40' 80' 120'

SCALE : 1" = 20'

Other Consultants:
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

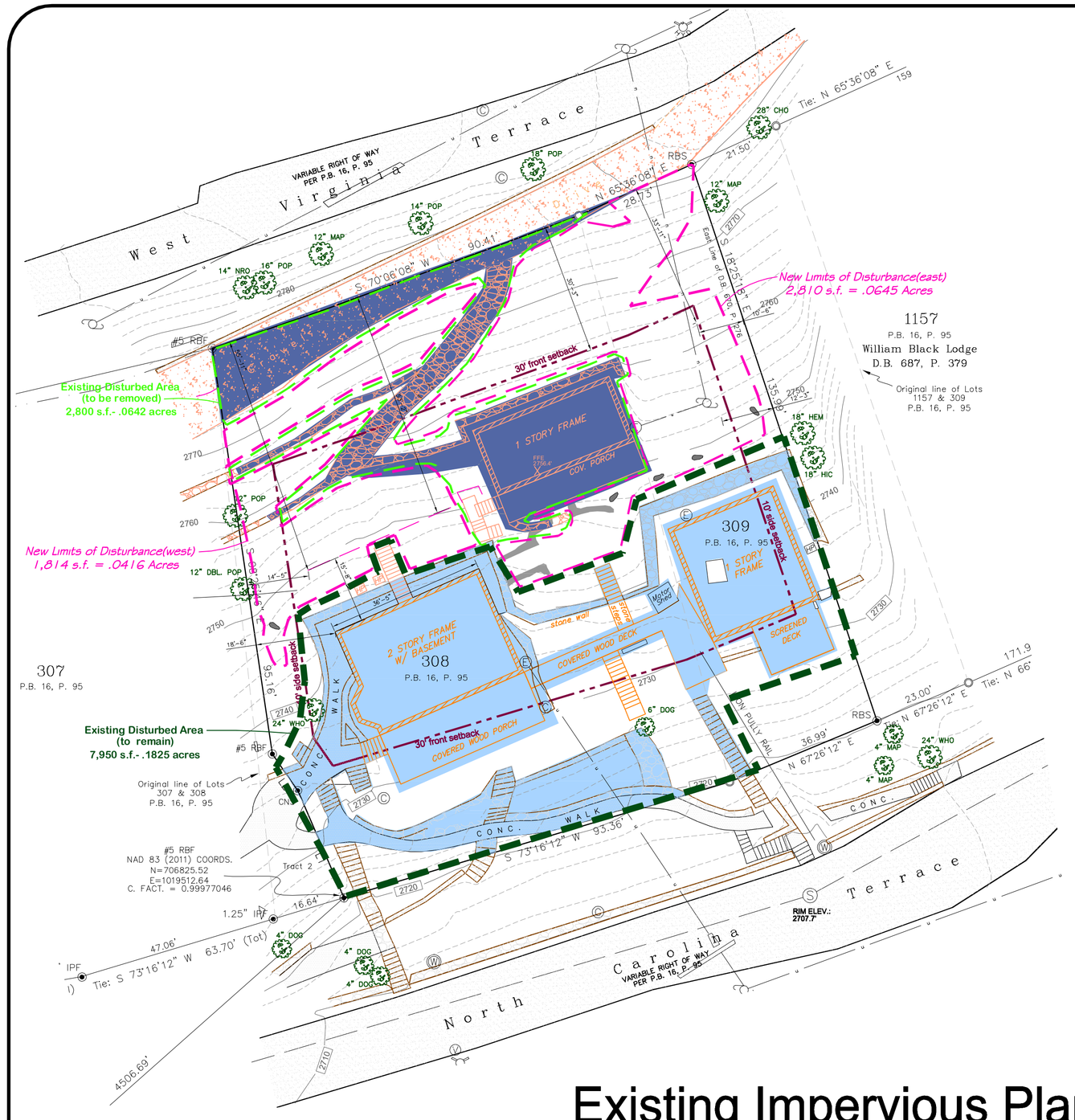
Sheet:
Survey and Base Maps

Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1003 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9954

ISSUE DATE : December 11, 2023
REVISIONS: December 14, 2023 - comments
DESIGNED BY: DB
DRAWN BY: SB
APPROVED BY: DSB

Project Number:

SHEET NUMBER :
L1



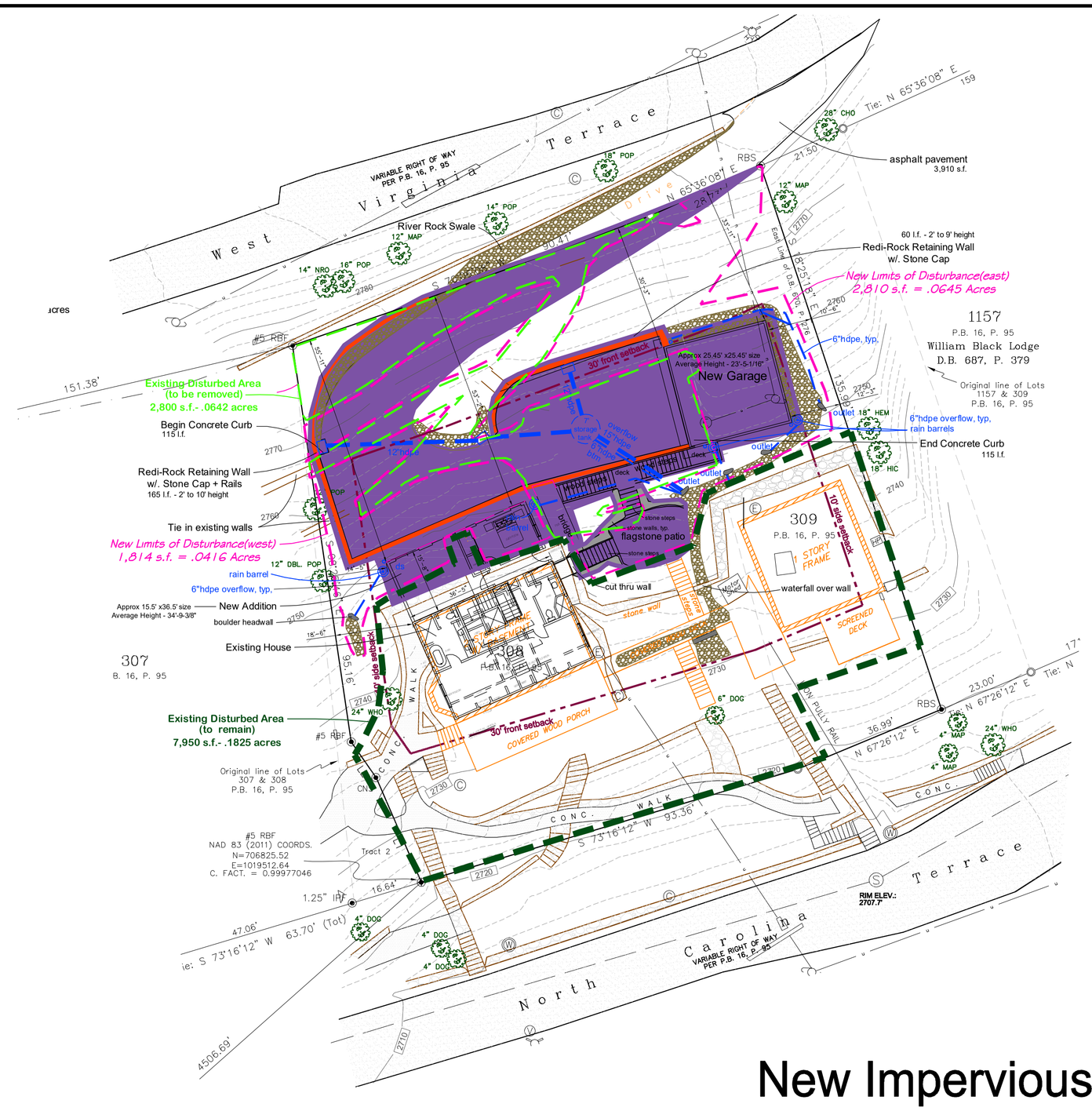
Existing Impervious Plan

Existing Impervious to Remain
5,199 s.f. = .12 acres

Existing Impervious to Remove
2,360 s.f. = .054 acres

0' 20' 40' 80' 120'

SCALE : 1" = 20'



New Impervious Plan

0' 20' 40' 80' 120'

SCALE : 1" = 20'

New Impervious Area
5,603 s.f. = .13 acres

Total New Impervious Area = New Impervious area - Existing Impervious to Remove
5,603 - 2,360 = 3,243 s.f. = .0744 acres

Total Project Impervious Area = Total New Impervious area + Existing Impervious to Remain
3,243 s.f. + 5,199 s.f = 8,442 s.f = .1938 acres

Other Consultants:

Architect - Prudhomme Design and Interiors

Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

Project:
Dowd Montreat, LLC

Town of Montreat, Buncombe County, NC

PIN: 0710-96-5982-00000

Sheet:
Detail Site Plan

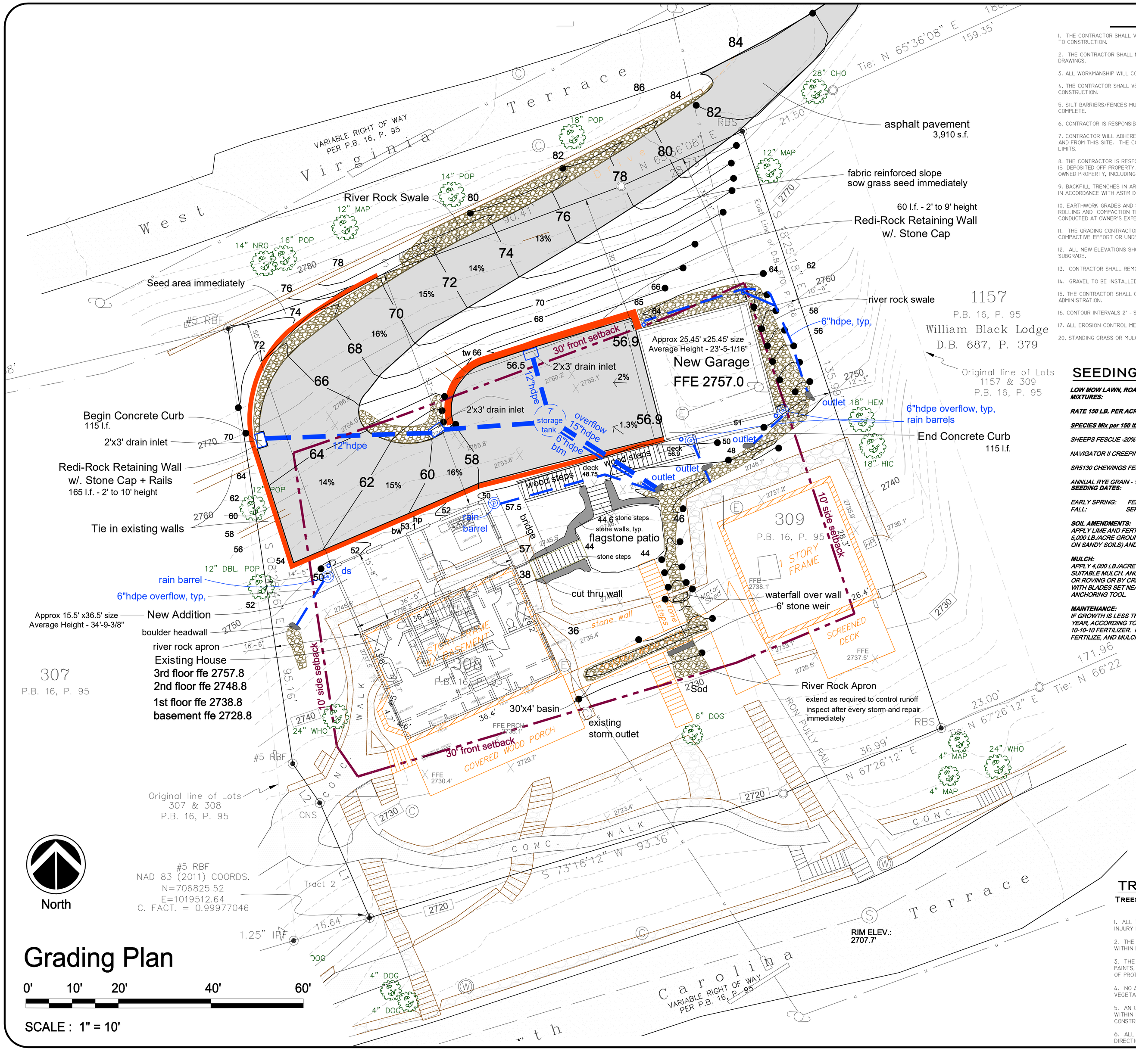
Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1003 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9994

ISSUE DATE : December 11, 2023
REVISIONS: December 14, 2023 - comments

DESIGNED BY: DB
DRAWN BY: SB
APPROVED BY: DSB

Project Number:

SHEET NUMBER :
L2.1



GENERAL PLAN NOTES

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BY CALLING NORTH CAROLINA 811 AT 1-800-632-4949 THREE (3) DAYS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT FOR A REVIEW SHOULD ANY DISCREPANCIES BE DISCOVERED AT THE SITE OR ON THE DRAWINGS.
3. ALL WORKMANSHIP WILL CONFORM TO ALL CODES AND STANDARDS.
4. THE CONTRACTOR SHALL VERIFY INVERT ELEVATIONS FOR EXISTING/PROPOSED PIPES AND EXISTING ROADWAY ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. SILT BARRIERS/FENCES MUST BE IN PLACE PRIOR TO BEGINNING GRUBBING/CLEARING. NO GRADING MAY BEGIN UNTIL SILT BARRIER INSTALLATION IS COMPLETE.
6. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD LAYOUT OF PROPOSED IMPROVEMENTS.
7. CONTRACTOR WILL ADHERE TO THE WEIGHT LIMITS PRESCRIBED ON COUNTY AND STATE MAINTAINED ROADS FOR HAULING EQUIPMENT AND/OR MATERIALS TO AND FROM THIS SITE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO THE STREETS OR UTILITIES DUE TO NON-COMPLIANCE OF WEIGHT LIMITS.
8. THE CONTRACTOR IS RESPONSIBLE TO REMOVE OR CLEAN-OUT ANY SILT, DIRT, OR MUD, OR ANY OTHER TYPE OF DEBRIS THAT COMES OFF THIS SITE AND AND IS DEPOSITED OFF PROPERTY. THE CONTRACTOR IS RESPONSIBLE TO REMOVE ANY OF THE ITEMS MENTIONED THAT ARE DEPOSITED ONTO PRIVATE OR COUNTY OWNED PROPERTY, INCLUDING RIGHT-OF-WAY AREA AND ROADWAYS.
9. BACKFILL TRENCHES IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT +/-3% OF OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-698 (STD. PROCTOR).
10. EARTHWORK GRADES AND SLOPES AS SHOWN ARE APPROXIMATE. ADJUST DRIVEWAY LOCATION AND ELEVATIONS AS REQUIRED TO FIELD CONDITIONS. PROOF ROLLING AND COMPACTION TESTS SHALL BE ACCOMPLISHED IN THE FIELD TO TEST ALL AREAS AS REQUIRED BY OWNER. INITIAL COMPACTION TESTS WILL BE CONDUCTED AT OWNER'S EXPENSE. RETESTING REQUIRED DUE TO POOR COMPACTION SHALL BE CONDUCTED AT CONTRACTOR'S EXPENSE.
11. THE GRADING CONTRACTOR SHALL PROOF ROLL THE DRIVEWAY AREA WITH A SHEEPS FOOT ROLLER. ALL SOFT SPOTS SHALL BE STABILIZED BY FURTHER COMPACTIVE EFFORT OR UNDERCUT AND BACK FILLED WITH COMPACTED STRUCTURAL FILL MATERIAL.
12. ALL NEW ELEVATIONS SHOWN ARE APPROXIMATE FINISH ELEVATIONS. THE GRADING CONTRACTOR SHALL DEDUCT THE APPROPRIATE AMOUNT FOR THE SUBGRADE.
13. CONTRACTOR SHALL REMOVE TOPSOIL AS NECESSARY (MINIMUM OF 4") TO PROVIDE ADEQUATE SUBGRADE FOR ROADWAYS.
14. GRAVEL TO BE INSTALLED IN DRIVEWAY AREA AS SOON AS POSSIBLE AND ADDED TO AS REQUIRED TO CONTROL MUD.
15. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
16. CONTOUR INTERVALS 2' - SEE PLANS
17. ALL EROSION CONTROL MEASURES SHOWN AND STATED ON THIS PLAN ARE TO BE IMPLEMENTED THROUGH COMPLETION.
20. STANDING GRASS OR MULCH OR FARBRIC MUST BE PROVIDED FOR ALL DISTURBED AREAS BEFORE FINAL APPROVAL.

SEEDING SPECIFICATIONS

LOW MOW LAWN, ROAD BANKS, SHOULDERS, AND DITCHLINE SEEDING MIXTURES:

RATE 150 LB. PER ACRE. - Approximately .3 acres TOTAL for entire project

SPECIES Mix per 150 lbs.

SHEEPS FESCUE -20%

NAVIGATOR II CREEPING RED FESCUE - 50%

SR5130 CHEWINGS FESCUE - 15%

ANNUAL RYE GRAIN - 15%

SEEDING DATES:

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15 - MAR. 20	FEB. 15 - APR. 30
FALL:	SEPT. 1 - SEPT. 30	SEPT. 1 - OCT. 31

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 3,000 - 5,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO THE SOIL TESTS OR TOP DRESS WITH 500 LB./ACRE 10-10-10 FERTILIZER. MOW AS NEEDED TO A 6" MINIMUM HEIGHT. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

ADDITIONAL SEEDING NOTES:

1. GRADING CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL DISTURBED AREAS OF THE PROJECT.

2. LOOSEN COMPACTED SUBGRADE AND UNCHANGED SUBGRADE TO A MINIMUM DEPTH OF 4". REMOVE STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER AND LEGALLYBURN THEM. RAKE OR OTHERWISE LIGHTLY SCARIFY SOIL SURFACE TO ENSURE SEED-TO-SOIL CONTACT. AREAS TO BE SEEDED SHALL BE RIPPED AND SPREAD WITH AVAILABLE TOPSOIL 3" DEEP. TOTAL SEEDBED PREPARED DEPTH SHALL BE 4" TO 6" DEEP. SURFACE FOR FINAL SEEDBED PREPARATION, AT FINISH GRADES SHOWN, SHALL BE REASONABLY SMOOTH AND UNIFORM.

3. APPLY SEED BY HYDRO-SEEDING WERE POSSIBLE. ALLOW SEED APPLICATION TO DRY PRIOR TO MULCH APPLICATION TO PREVENT RUN-OFF.

4. SURFACE WATER CONTROL MEASURES TO BE INSTALLED ACCORDING TO PLAN. IF NO SOIL TEST IS TAKEN, FERTILIZE AND LIME ACCORDING TO SEEDING SCHEDULE IF SOIL TEST IS TAKEN PROVIDE LIME AND FERTILIZER ACCORDING TO SOIL TEST REPORT. LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY AND MIXED WITH THE SOIL DURING SEEDBED PREPARATION.

5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH N.C. EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, USDA, & U.S. SCS.

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERMITERS AND HQW ZONES)

STABILIZATION = pavement, buildings, mulch, or wheat straw and grass seeding, or fabric and rip rap to cover all dirt and disturbed areas

TREE PROTECTION NOTES

Trees to Remain not in Limits of disturbance

1. ALL TREES, UNDERSTORY AND OTHER VEGETATION TO REMAIN SHALL BE FLAGGED BY THE OWNER/SURVEYOR AND PROTECTED FROM INJURY DURING ANY LAND CLEARING AND CONSTRUCTION PROCESS.
2. THE CONTRACTOR SHALL NOT PARK VEHICLES, STORE MATERIALS OR TRENCH WITHIN THE DRIPLINE OF TREES TO REMAIN, OR WITHIN BARRIERS PROTECTING ANY VEGETATION TO REMAIN.
3. THE CONTRACTOR SHALL NOT CAUSE OR ALLOW THE CLEANING OF EQUIPMENT, STORAGE OR DISPOSAL OF MATERIALS SUCH AS PAINTS, SOLVENTS, ASPHALT, CONCRETE, OR ANY MATERIAL THAT CAN DAMAGE THE HEALTH OF VEGETATION WITHIN THE DRIPLINE OF PROTECTED VEGETATION.
4. NO ATTACHMENT OF WIRES (EXCLUSIVE OF PROTECTIVE GUIDE WIRES) SIGNS, OR PERMITS SHALL BE FASTENED TO PROTECTED VEGETATION.
5. AN ORANGE HIGH VISIBILITY CONSTRUCTION FENCE OR TEMPORARY SILT BARRIER FENCE SHALL BE INSTALLED AROUND ALL TREES WITHIN 10' OF THE CONSTRUCTION OR AS DIRECTED BY THE OWNER. THE BARRIERS SHALL REMAIN THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.
6. ALL CLEARING AND GRUBBING WITHIN AREAS OF VEGETATION TO REMAIN SHALL BE DONE WITH HAND TOOLS ONLY AND UNDER THE DIRECTION OF THE OWNER.

Other Consultants:
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

Sheet:
Grading Plan

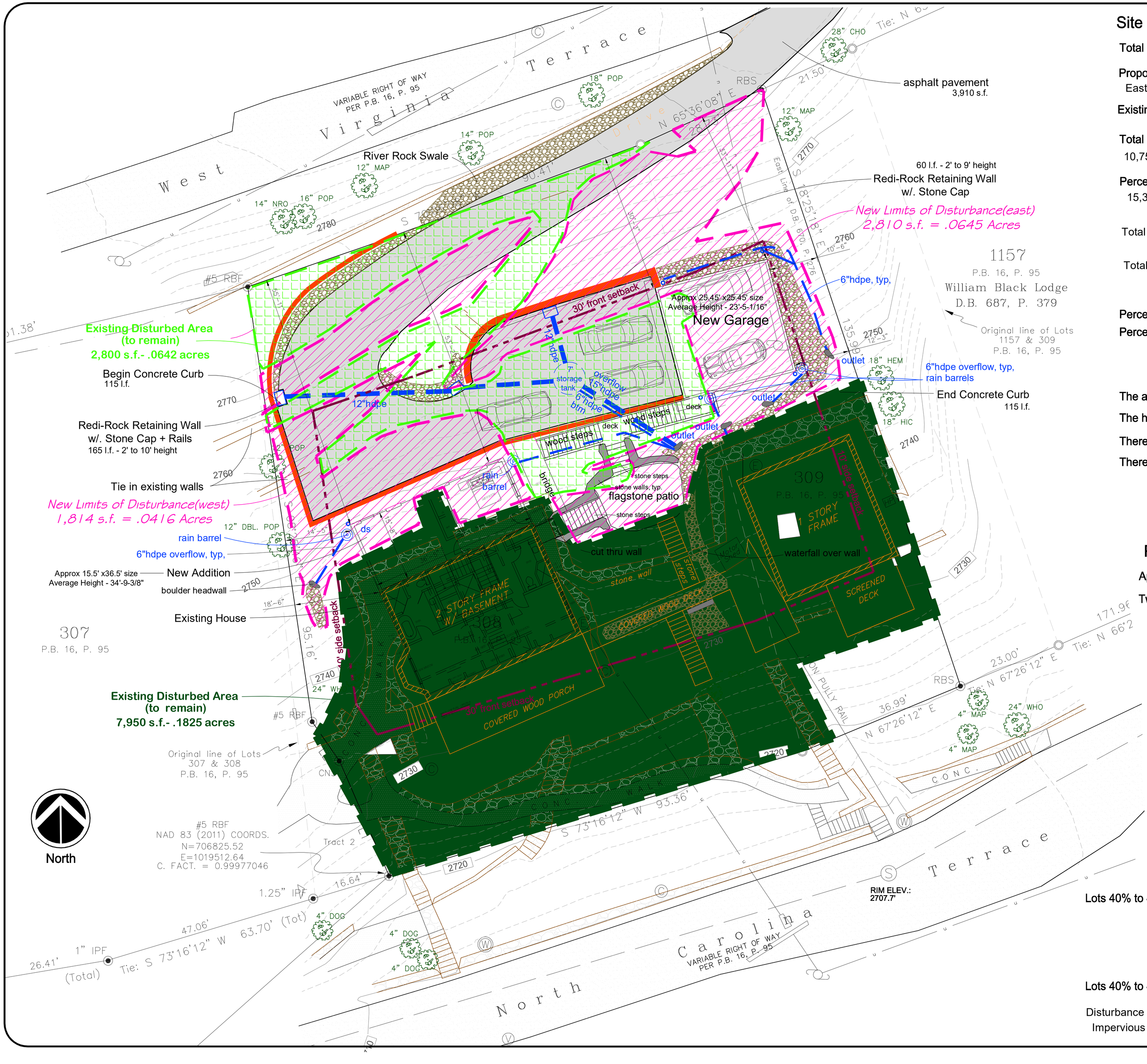
Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1003 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9954

ISSUE DATE : December 11, 2023
REVISIONS: December 14, 2023 - comments

DESIGNED BY:	DB
DRAWN BY:	SB
APPROVED BY:	DSB

Project Number:

SHEET NUMBER :
L3



Site Calculations

Total Property = 17,206 s.f. / .395 acres

Proposed New Disturbed Area = 4,624 s.f. / .1061 acres
East New (2,810 s.f.) + West New (1,814 s.f.) = 4,624 sf / .1061 acres

Existing Disturbed Area (to remain) = 10,750 s.f. / .247 acres

Total Proposed Disturbed Area = 15,374 sf. / .353 acres
10,750 (Existing) + 4,624 (new) = 15,374

Percentage of Lot Disturbed = 89.3%
15,374/17,206 = 89.3%

Total New Impervious Area = New Impervious area - Existing Impervious to Remove
5,603 - 2,360 = 3,243 s.f. = .0744 acres

Total Project Impervious Area = Total New Impervious area + Existing Impervious to Remain
3,243 s.f. + 5,199 s.f = 8,442 s.f = .1938 acres

Percentage of Lot New Impervious Area = 19%
Percentage of Lot Total all Impervious Area = 49%

The average slope of the entire property is 44.82%.

The highest elevation of the lot is 2,780'

There are no floodplains on or adjacent to this property

There are no streams on this property.

Parking Calculations

Approximately 1,200 s.f. of residentail use is added with this project

Two additional parking areas are required. Five total spaces provided.

Montreat Requirements

	Land Disturbance allowed	Impervious allowed
Lots 40% to 45% slope	= 6,882.48 s.f. / .158 acres max.	5,161.86 s.f max.

Residence Project Proposed

	Land Disturbance proposed	Impervious proposed
Lots 40% to 45% slope	15,374 s.f.	8,442 s.f.

Disturbance = Existing to remain (10,750 sf.) + New (4,624 sf.) = 15,374 s.f.
Impervious = Existing to remain (5,199 sf.) + New (3,243 sf.) = 8,442 s.f.

Other Consultants:
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

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Site Plan

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APPROVED BY: DSB

Project Number:

SHEET NUMBER:
L2

December 8, 2023

Mr. Chris Brock
Brock Builders, Inc.
chris@brockbuildersinc.com

Report of Hand Auger Boring Exploration
Hennis Residence – 325 North Carolina Terrace – New Driveway/Garage
Montreat, North Carolina
KEG Project No. JA23-4732-01

Mr. Brock:

Kessel Engineering Group, PLLC (KEG) is pleased to submit this report of hand auger boring exploration for the proposed new driveway and garage construction at the existing Hennis residence located at 325 North Carolina Terrace in Montreat, North Carolina. The purpose of this exploration was to determine general subsurface conditions at the site and to provide preliminary global stability analyses and general geotechnical recommendations for the proposed driveway / site retaining wall design and site preparation. Our services were provided in general accordance with our Proposal No. PA23-4097-01, and receieved/authorized December 4, 2023.

PROJECT INFORMATION

Initial project information was provided by Mr. Chris Brock via email and telephone correspondences with our Mr. Ian Johnson, P.E. Additional information was gathered during multiple visits to the project site by Mr. Johnson. We have also been provided with the following digital documents:

- *Survey and Base Maps: Dowd Montreat, LLC*, Sheet L1, by Creative Development Solutions, dated September 7, 2023.
- *Site Plan and Detail Site Plan: Dowd Montreat, LLC*, Sheets L2 and L2.1, by Creative Development Solutions, dated September 7, 2023.
- *Grading Plan: Dowd Montreat, LLC*, Sheet L3, by Creative Development Solutions, dated September 7, 2023, and showing proposed driveway grading and associated site retaining walls, as well as existing topographic contours.

The project site is located at the existing residence at 325 North Carolina Terrace in Montreat, North Carolina (see Figure 1). Three separate residential buildings are located on the property. The area of proposed construction is on the north/uphill portion of the property adjacent to West Virginia Terrace and is generally sloping and grassed. A gravel driveway is present near the upper/north side, and a stone walkway/stair cuts through the center. Based on our review of the provided topographic information, the area of proposed construction generally slopes downhill to the south at overall inclinations on the order of 2H:1V (horizontal to vertical). Stacked stone site retaining walls are present along the north sides of each existing structure and presumably retain earthwork cuts. Maximum exposed heights of these existing site retaining walls are on the order of 5 to 10 feet. At this time, no documentation has been provided regarding design or construction of these existing stacked stone site retaining walls.

Project plans include demolition of the northernmost structure at the site and construction of a new garage building in the same general area. Also planned are construction of a driveway and two associated site retaining walls at the north half of the parcel accessed from West Virginia Terrace. Based on information provided on Sheet L2, the proposed site retaining walls will each have maximum heights on the order of 9

to 10 feet, and will retain earthwork cuts and/or fills. Redi-rock type wall systems are indicated on project plans.

For the purpose of this report, the new site retaining walls will be identified as Wall 1A/1B, and Wall 2. Wall 1A/1B is shown as an approximately 170 feet long site retaining wall which will be located within the north, west, and south portions of the proposed construction footprint, with Wall 1A comprising the northern portion (retaining earthwork cuts), and Wall 1B comprising the southern portion (retaining earthwork fills). Wall 2 is shown as an approximately 50 feet long site retaining wall retaining earthwork cuts adjacent the northwest corner of the proposed garage building.

Additional project plans include expansion of the existing 2-story structure (main house) located at the southwest corner of the property. This expansion will include foundation construction to the north of the existing structure and will span over the existing stacked stone site retaining wall in the area. We understand the expansion will be constructed over a crawl space, and that the existing stacked stone site retaining wall in this area is to remain in place.

SITE GEOLOGY

The project site is located in the Blue Ridge Physiographic Province. The bedrock in this region is a complex crystalline formation that has been faulted and contorted by past tectonic movements. The rock has weathered to residual soils which form the mantle for the hillsides and hilltops. The typical residual soil profile in areas not disturbed by erosion or grading consists of clayey soils near the surface where weathering is more advanced, underlain by sandy silts and silty sands.

The boundary between soil and rock is not sharply defined and there is often a transitional zone, termed "partially weathered rock" overlying the parent bedrock. Partially weathered rock (PWR) is defined, for engineering purposes, as residual material with a standard penetration resistance in excess of 100 blows per foot. Weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, the profile of the partially weathered rock is irregular even over short horizontal distances. Also, it is not unusual to find lenses and boulders of hard rock and/or zones of partially weathered rock within the soil mantle, well above the general bedrock level.

Soils from higher elevations slough and slide down the slopes through the action of gravity. Soils deposited in such a manner are referred to as colluvial soils. Accumulated colluvial soils, or colluvial deposits, may contain features such as perched ground water and planes of weakness on which sliding took place.

FIELD EXPLORATION

The site was explored by performing a series of five hand auger borings (HAB-1 to HAB-5) at the approximate locations shown on the attached Field Exploration Plan (see Figure 2). The hand auger boring locations were determined by our Mr. Johnson by referencing identifiable site features and scaling distances from the provided site plan. The soils encountered by the hand auger borings were identified in the field from cuttings brought to the surface by the auger equipment. Representative samples of the encountered materials were also collected and transported to the laboratory. In the laboratory, the samples were examined by a geotechnical engineer to verify the soil classifications made in the field. Hand auger borings were backfilled at the completion of the field work.

At regular intervals, the soil consistency of the encountered materials was measured by performing the Dynamic Cone Penetrometer test (DCP). The conical point was first seated to penetrate any loose cuttings and was then driven increments of 1¾ inches with blows from a 15-pound hammer dropped from a height of 20 inches. The number of blows required to achieve the penetration is recorded. The number of blows is then used as an index to the soil strength and foundation supporting capability. Soil descriptions and test data are tabulated on the attached hand auger boring logs.

SUBSURFACE CONDITIONS

Hand auger borings performed during this exploration typically encountered approximately 8 to 12 inches of surficial topsoil. Hand auger boring HAB-3 was performed in the old gravel driveway footprint and encountered approximately 12 inches of surficial gravel blended with topsoil. Surficial topsoil was underlain by colluvial soils at hand auger borings HAB-1 and HAB-4. The encountered colluvial soils extended to depths of approximately 1.5 to 2 feet below the existing ground surface and consisted of loose silty sands (SM). Colluvial soils at HAB-1 and HAB-4 were underlain by residual soils. Surficial gravel/topsoil encountered at HAB-3 was underlain by existing fill soils. Existing fill soils consisted of very loose to loose silty sands with trace organics and extended to a depth of approximate 6 feet, after which residual soils were encountered. Existing fill soils were noted to be slightly moist.

Residual soils were encountered directly below the topsoil layer at HAB-2 and HAB-5, below the colluvial layer at HAB-1 and HAB-4, and below the existing fill layer at HAB-3. The encountered residual soils generally consisted of loose to very firm silty sands (SM). Firm sandy silts (ML) were encountered at HAB-2 and HAB-5 to depths of approximately 2 feet. Trace mica content was encountered in some of the residual soils.

Multiple offsets were performed at hand auger borings HAB-1, HAB-2, and HAB-3 due to shallow refusal prior to encountering residuum. Hand auger borings HAB-1, HAB-3, and HAB-4 extended to their assigned termination depths of 9 feet. Hand auger borings HAB-2 and HAB-5 encountered auger refusal at depths of 6.5 and 7.5 feet below the existing ground surface.

Refusal materials encountered in hand auger borings during this exploration are those materials which are sufficiently hard to prevent the vertical advancement of the auger equipment. Refusal may result from very dense soils, partially weathered rock, boulders, lenses, ledges, or layers of relatively hard rock underlain by partially weathered rock or residual soil; refusal may also represent the surface of relatively continuous bedrock. Power drilling and core drilling procedures are required to penetrate refusal materials and to determine their character and continuity. Power drilling and core drilling were beyond the scope of this exploration.

Groundwater was not encountered in the hand auger borings performed during this exploration. Groundwater levels may fluctuate several feet with season and rainfall variations. Normally, the highest groundwater levels occur in late winter and spring and the lowest levels occur in late summer and fall.

The above descriptions and Table 1 below provide a general summary of the subsurface conditions encountered. The attached logs contain detailed information recorded at each hand auger boring location. These logs represent our interpretation of the field logs based on engineering examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries and the transition between strata may be gradual. Soil conditions may vary between the hand auger boring locations. Locations and elevations provided in this report should be considered approximate.

TABLE 1
SUMMARY OF SUBSURFACE CONDITIONS ENCOUNTERED BY HAND AUGER BORINGS
(MEASURED IN FEET BELOW THE EXISTING GROUND SURFACE)

Hand Auger Boring No.	Surficial Materials (feet)	Existing Fill (feet)	Colluvium (feet)	Residual Soil (feet)		Refusal / Termination Depth (feet)
				Loose Silty SANDS	Firm to V. Firm Silty SANDS or Sandy SILTS	
HAB-1	0 to 0.8	-	0.8 to 1.5	1.5 to 4	4 to 9	9 (t)
HAB-2	0 to 1	-	-	-	1 to 6.5	6.5 (r)
HAB-3	0 to 1	1 to 6	-	6 to 8	8 to 9	9 (t)
HAB-4	0 to 1	-	1 to 2	-	2 to 9	9 (t)
HAB-5	0 to 0.7	-	-	2 to 6	0.7 to 2, 6 to 7.5	7.5 (r)

- Material not encountered in hand auger boring.
* See Figure 2 for approximate locations. See logs for surficial materials.

ANALYSES AND PRELIMINARY DESIGN RECOMMENDATIONS

General Overview and Specifications Review

Careful coordination during design and construction will be required at the project site. In particular, new construction associated with driveway retaining Wall 1B and the main house addition will need to be carefully coordinated such that all structural elements are compatible and properly sequenced into the construction schedule. Furthermore, construction of these items should take place such that they do not negatively impact existing site retaining walls or foundations that are to be left in place. Demolition of the existing northernmost structure and performance of earthwork cuts at the site should be sequenced such that they do not destabilize the project site. We recommend that we be retained to make a review of the foundation and earthwork plans and specifications prepared from the recommendations presented in this report. We would then suggest any modifications so that our recommendations are properly interpreted and implemented. An additional fee would apply for review of plans and specifications.

Topsoil, Colluvium, and Existing Fill

Hand auger borings performed within the proposed construction footprint typically encountered surficial topsoil to depths of 1 foot or less. Surficial topsoil was underlain by existing fill at HAB-3, and colluvium at HAB-1 and HAB-4. Retaining walls, building foundations, driveway pavements, and earthwork fills should not bear on surficial topsoil, existing fill, or colluvium. These materials are susceptible to excessive settlement and instability. Removal of these materials will be required to accommodate the proposed construction. We anticipate a majority of these materials will be removed during proposed grading associated with driveway, site retaining wall, and garage construction.

Shallow Foundations – Garage Building & Site Retaining Walls

Based on the hand auger boring data and our experience with similar subsurface conditions, residuum encountered at the project site is suitable for shallow foundation support of the proposed site retaining wall and garage footing construction. Foundations bearing in residuum similar to that encountered in the hand auger borings with DCP n-values of 7 or better may be sized for an allowable bearing pressure of 2,500 psf. Satisfactory performance of the shallow foundations is subject to the design and site preparation recommendations contained in this report. Some isolated subgrade remediation may be required if pockets of looser/softer residual soils are encountered in foundation excavations. Remediation would likely include localized undercutting and replacement by overpouring with lean concrete. We do not recommend backfilling foundation undercutting on sloping lots with washed stone. Foundations should not be constructed atop topsoil, colluvial soils, existing fill or very loose residual soils. If encountered, these materials should be undercut to approved residuum.

We recommend that the minimum widths for individual column and continuous wall footings be 30 and 24 inches, respectively. The minimum widths are considered advisable to provide a margin of safety against a local or punching shear failure of the foundation soils. Footings should bear at least 30 inches into approved residuum to develop the recommended bearing pressures, provide frost protection, and provide protective embedment. We recommend that walls be provided with regular movement joints to accommodate some possible differential settlement.

Building footings constructed adjacent slopes (on the downhill side) require additional embedment. We recommend that building footings constructed adjacent sloped areas be embedded such that the horizontal distance between the bottom of the footing and the slope surface is a minimum of 8 feet. This could require foundation embedment depths of approximately 4 feet along the south garage footing depending on final site layout.

While not anticipated, if refusal materials and/or rock are encountered prior to meeting the aforementioned minimum foundation embedment depths, then pinning to underlying rock may be required. Foundations which are pinned (doweled) to rock should be designed by the structural or wall engineer to resist sliding. We recommend the use of epoxy-coated or stainless steel dowels grouted into place with a minimum embedment of 12 inches into rock. Longer dowel embedment lengths may be required if the rock is fractured or seamy. The dowels should be placed perpendicular to the face of the rock. Foundations bearing directly on uneven rock surfaces may be susceptible to radial cracking when bearing conditions differ across the footing. This type of cosmetic cracking should be expected. If encountered at the base of foundation excavations, refusal materials and/or rock should be observed by the geotechnical engineer to determine that they are competent for pinning, and geotechnical recommendations for construction atop refusal materials and/or rock should be developed at that time.

Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for long periods of time. Therefore, we recommend that once each footing excavation is extended to final grade, the footing be constructed as soon as possible in order to minimize the potential for damage to bearing soils. The foundation bearing area should be level or benched and free of loose soil, ponded water and debris. Foundation concrete should not be placed on soils that have been disturbed by seepage. If surface water intrusion or exposure softens the bearing soils, the softened soils must be removed from the foundation excavation bottom prior to placement of concrete. If the excavations must remain open for an extended period of time, or if rainfall becomes imminent while the bearing soils are exposed, we recommend that a 2-inch to 4-inch mudmat of lean (2,000 psi) concrete be placed on the bearing soils before the placement of reinforcing steel for protection.

In order to verify that the soils encountered in footing excavations are similar to the approved residuum encountered by the hand auger borings, we recommend that foundation excavations be examined and checked with a dynamic cone penetrometer by an engineering technician working under the direction of the geotechnical engineer.

Deep Foundations – Proposed Main House Expansion

As previously described, the proposed main house expansion will span over an existing stacked rock site retaining wall located to the north of the building. Due to the unknown conditions associated with design and construction of the existing stacked rock site retaining wall, construction of shallow foundations within this wall's retained soil zone could lead to excess lateral loading of the wall and subsequent distress and/or instability. Therefore, we recommend that the proposed main house expansion be supported by deep foundations. This recommendation is provided in order to transfer expansion foundation loading to a deeper bearing strata such that additional lateral loading from the expansion upon the existing stacked rock site retaining wall is eliminated.

The proposed main house expansion can be supported on pile caps and/or grade beams supported by helical piles. Helical piles consist of single flights of screw helix along a shaft installed with rotary installation equipment. They can be installed in relatively rapidly, and the installation produces minimal vibration. The shafts are designed to withstand the compressive and tensile foundation loads which are then transferred to suitable bearing materials (i.e., underlying very firm / dense residual soils, partially weathered rock and/or refusal materials). Should the soils be corrosive, special coatings are applied at the time of installation or cathodic protection can be used. Torque value should be monitored during installation to estimate soil consistency as the helix penetrates through the different subsurface strata.

Allowable capacities on the order of 15 to 20 kips per pile can be utilized in initial feasibility planning; however, the final design capacity should be determined by the pile design engineer. Helical piles should be designed to limit total and differential settlement of foundations to 1-inch and ½-inch, respectively. A minimum center-to-center spacing of 3 pile diameters is recommended. Battered piles may be required to take up lateral loads. Piles should be sufficiently stiff to develop the required lateral capacity, if applicable.

We recommend that a specialty contractor with experience in helical pile design and installation and working under a "design/build performance" specification be retained to install the foundation system. The helical pile design should be provided by a professional engineer licensed in the State of North Carolina. The pile spacing, sizing, proposed depths, and connections to proposed pile caps and/or grade beams should be determined/designed by the design engineer. The bidding foundation contractors should be provided a copy of this report. The helical pile installation QC program should be monitored full time by a Kessel Engineering Group representative within the scope of the project Statement of Special Inspections. The QC program would include conducting verification of placement, installation depths, and observed torque/pressure. These items should be documented for each helical pile element installed to provide a complete record of foundation quality. We recommend Kessel Engineering Group be consulted to review the design developed from the recommendations provided in our report. We would then suggest any modifications so that our recommendations are properly interpreted and implemented.

If partially weathered rock (PWR) or bedrock are encountered during helical pile installation, these materials may inhibit the ability of the helical pile contractor to successfully install the piles to the design torque and/or depths. If this condition is encountered, an alternative deep foundation system such as micropiles may be required. Alternatively, the use of special lead sections designed to penetrate rockier soils could be attempted at the specialty contractor's discretion and risk. Determining the depth to PWR and/or bedrock would require mobilizing a drill rig to the project site, which was beyond the scope of this exploration.

Preliminary Global Slope Stability Analyses

Preliminary global slope stability analyses were conducted by Spencer's limit equilibrium method using SLOPE/W software developed by Geo-Slope International. Analyzed slope geometries were estimated from the provided site grading plan. Slope stability analyses were used to estimate the factor of safety against global slope failure for two cross-sections of the proposed construction area shown on Figure 2 (CS-1 to CS-2). A traffic loading condition of 250 psf was utilized where applicable. It is our opinion that Wall 1B (retaining earthwork fills) will require geogrid reinforcement in order to satisfy global stability requirements. Required geogrid reinforcement lengths will likely be at least 1.5 times the wall heights at most locations.

The soil strength parameters used in the analyses were estimated based on our experience with similar soils. A summary of the effective stress shear strength parameters utilized in our analyses are provided below in the attachments to this report. We assumed the south portion of West Virginia Terrace was constructed primarily on fill soils. Based on our experience, the most likely type of slope failure for these conditions would be a circular failure arc. Generally, we recommend a factor of safety FS $\geq$ 1.5 for critical slopes retaining structures, and a FS $\geq$ 1.3 for slopes retaining roadways and for transient (i.e. traffic) loading conditions. A factor of safety FS $\leq$ 1.0 is indicative of failure.

The results of our slope stability analyses at each cross-section are presented in the attachments to this report. Based on available project information, data obtained from our field exploration, our experience with similar subsurface conditions, and our preliminary global slope stability analyses, it is our opinion that, if performed in accordance with the recommendations provided in this report, the proposed driveway and garage construction will have an adequate industry-standard factor of safety with respect to overall site global stability.

Retaining Walls

The design of foundation basement retaining walls and site retaining walls constructed on sloping sites is often governed by global stability. Sloping conditions should be considered during retaining wall design. Retaining wall design parameters including backfill requirements (such as select backfill) will likely be affected by the sloping conditions at the site. At a minimum, retaining wall foundations should adhere to the recommendations set forth in the *Shallow Foundations – Garage Building & Site Retaining Walls* section of this report. We note that detailed retaining wall stability analyses and designs are beyond our current scope of service. Site retaining walls should be designed by a professional engineer licensed in the State of North Carolina and should consider localized stability and global stability.

Site retaining walls must be capable of resisting the lateral earth pressures that will be imposed on them. Based on our experience with similar soils, the following shear strength effective stress parameters are recommended for use during preliminary site retaining wall design. For walls retaining undisturbed residuum similar to that encountered in the borings, we recommend an angle of internal friction value of 32 degrees, a cohesion value of 100 psf, and a soil unit weight of 115 pcf. For low plasticity (PI < 10), onsite or offsite silty sands similar to those encountered in the borings and used as engineered fill, we recommend an angle of internal friction value of 30 degrees, a cohesion value of 0 psf, and a soil unit weight of 125 pcf be utilized to calculate lateral earth pressure coefficients. Laboratory testing should be performed prior to construction to confirm the utilized design values are appropriate.

In lieu of using soil backfill, select backfill consisting of No. 57 stone may be used to reduce lateral earth pressures on the walls. No. 57 stone placed against retaining walls as select fill should extend from the base of the walls in a wedge with an angle of 45 degrees or shallower from horizontal in order that the following parameters may be used to reduce lateral earth pressures. For select backfill consisting of No. 57 stone, we recommend an angle of internal friction value of 38 degrees, a cohesion value of 0 psf, and a soil unit weight of 105 pcf be utilized to estimated lateral earth pressure coefficients. Passive earth pressures should not be developed with No. 57 stone. Non-woven, needle-punched geotextile filter fabric (such as Mirafi 140N or equivalent) should be used to separate No. 57 stone from adjacent soils and

prevent migration of fines into the stone. No. 57 stone must be placed such that it is permanently confined. No. 57 stone should be placed and compacted in maximum 12-inch lifts. This is recommended to help reduce the potential for settlement within deeper placements of No. 57 stone.

Frictional resistance along the base of wall foundations may be used to resist sliding. We recommend a coefficient of frictional resistance (f_s) value of 0.39 for retaining wall foundations bearing in undisturbed on-site residual soils.

Lateral pressure arising from sloping fill surfaces, surcharge loading, earthquake loading, and groundwater (not expected within wall construction depths) will dramatically influence the earth pressure coefficients and should be included in the calculation of the total lateral pressures that the walls must resist. In addition, transient loads imposed on the walls by construction equipment during grading should be taken into consideration during design and construction. Excessively heavy grading equipment should not be allowed within about 10 horizontal feet of the walls. The design of site retaining walls should take global stability into account, especially where walls are located on/adjacent to slopes or are retaining sloping backfills.

Provisions for the drainage of water which collects behind the retaining structures must be provided. The drainage system should have sufficient capacity to prevent the buildup of excess hydrostatic head behind the walls. The drainage system should incorporate appropriately graded sand or aggregate material and geotextile fabric to prevent the loss of fines which could be transported in the drainage system. Drain cleanouts should be provided.

The preceding values are based on our experience and testing of reasonably similar soils. Sloping backfill (or sloping soil surfaces in front of a footing when considering passive resistance) will dramatically influence lateral earth pressures. Kessel Engineering Group should be consulted concerning applicable earth pressure coefficients where sloping soil surfaces may be present.

Grade Slabs

Based on the hand auger boring data and our experience with similar soils, approved onsite residual soils (n-value of 7 or better) and newly placed engineered fill are suitable for support of grade slabs and pavements assuming that the site is prepared in accordance with the recommendations in this report. Topsoil, colluvium, and existing fill soils are not suitable for support of grade slabs and pavements and should be undercut to approved residuum and brought back to design grade with engineered fill. Areas to support grade slabs and pavements should be evaluated as directed by the geotechnical engineer prior to grade slab or pavement construction. The implementation of remedial measures, such as undercutting and replacing with new engineered fill, will be required if unsuitable soils are encountered.

We recommend that consideration be given to constructing the project driveway as a concrete reinforced grade slab in multiple sections in lieu of utilizing asphaltic pavements. It is our experience that significant difficulties may be experienced when attempting to place and properly compact asphaltic pavements on projects with relatively steep grades and tight curves such as the proposed project driveway. Poorly constructed asphaltic pavements may experience short- and/or long-term distress, especially where vehicular traffic is regularly braking and turning.

Building grade slabs should be jointed around columns and along footing supported walls so that the slab and foundations can settle differentially without damage. If slab thickness permits, joints containing dowels or keys may be used in the slab to permit movement between parts of the slab without cracking or sharp vertical displacements. Completed slabs should be protected from excessive surface moisture prior to and during periods of prolonged below-freezing temperatures to prevent subgrade freezing and resulting heave. For grade slabs bearing on a combination of engineered fill and refusal materials (if encountered), over-excavation of the refusal materials approximately 12-inches and replacement with compacted engineered fill to provide a cushion is recommended.

If the driveway or garage pad subgrades are to be exposed to construction traffic or inclement weather for an extended period of time, it may be advantageous to overbuild the pad during initial grading or to place a granular material (such as an aggregate base course material) across the subgrade to help minimize deterioration.

Floor slabs supported on grade which will be carpeted, tiled, painted, or receive some other covering or sealant should incorporate a vapor barrier. At a minimum, the vapor barrier should be installed in accordance with the guidelines outlined in Chapter 3 of ACI Publication 302.1 (*Guide for Concrete Floor and Slab Construction*).

Difficult Excavations

Refusal materials were encountered within the residual soil strata in hand auger borings HAB-2 and HAB-5 at depths of approximately 6.5 and 7.5 feet below the existing ground surface, respectively. Refusal materials encountered by hand auger boring equipment can sometimes be due to the physical limitations of hand auger equipment, and it is our experience that these materials are often able to be excavated with standard excavation equipment.

However, refusal materials can also signify transition into more resistant materials as noted in the *Subsurface Conditions* section of this report. Difficult excavations should be anticipated if more resistant refusal materials are encountered within proposed construction depths. Heavy excavation equipment and heavy excavation equipment with ripping tools will be able to remove some of these materials. Foundation excavations could require some pneumatic hammering to excavate seams of more resistant rock, if encountered. The ease of excavation of these materials cannot be specifically quantified and depends on the quality of grading equipment, skill of the equipment operators and geologic structure of the material itself, such as the direction of bedding, planes of weakness and spacing between discontinuities.

Groundwater and Surface Water

As previously described in the *Subsurface Conditions* section of this report, groundwater was not encountered within the proposed construction footprint during this exploration. If groundwater is encountered during site grading or construction, the geotechnical engineer and wall design engineer should be contacted immediately to develop recommendations for subsurface drainage control. The contractor should be prepared to promptly remove surface water from the construction area by means of gravity ditches and pumping from gravel-lined cased sumps.

Secondary Design Considerations

The following secondary design considerations are known to generally enhance performance of structural systems. Roof drainage should be collected by a system of gutters and downspouts and piped away from structures and slopes. Site grading and paving should result in positive drainage away from structures, site retaining walls, and slopes. Water should not be allowed to pond around structures or in such locations that would lead to saturation of their subgrade. A minimum slope of approximately ¼ to ½-inch per foot should provide adequate drainage. Backfill for utility lines should be placed in accordance with the requirements for engineered fill to minimize the potential for differential settlement.

SITE PREPARATION AND CONSTRUCTION RECOMMENDATIONS

Clearing and Grubbing

Existing topsoil, vegetation, disturbed soils, limbs, stumps, and surface soils containing organic matter or other deleterious materials should be removed from the area of the proposed construction. Topsoil and organic soils may be stockpiled for later use in areas to be landscaped. Stumps and other deleterious materials should be disposed of offsite or in areas of the site that will not be developed. Further construction of structures or pavement in areas containing limbs or stumps, organic soils, burn pit residue or other deleterious materials will first require that these materials be removed.

Proofrolling

If feasible, we recommend that areas to provide support for grade slabs, pavements, and earthwork fills be observed and proofrolled by an engineering technician working under the supervision of the geotechnical engineer. For mountainside residential sites, where heavy excavation equipment encounters difficult site access, the general method of proofrolling should consist of rolling the exposed subgrade using a loaded dump truck, if feasible. Areas which wave, rut, or deflect excessively and continue to do so after several passes of the proofroller, or are otherwise deemed unsuitable, should be excavated to firmer soils and backfilled with engineered fill placed and compacted as recommended in this report. Proofrolling should not be performed on wet, frozen, or saturated subgrade or immediately following periods of precipitation.

Engineered Fill

Fill used for site retaining wall backfill or raising site grades should be uniformly compacted in thin (6-inch to 12-inch) horizontal lifts to at least 95 percent of the standard Proctor maximum dry density (ASTM D-698) and within 3 percent of optimum moisture. The upper 18 inches below grade slabs and concrete pavements should be compacted to at least 98% of the same standard. Based on visual examination and our experience with similar soils, the on-site soils consisting of residuum and colluvium are generally suitable for re-use as engineered fill, provided they are free of organics and are moisture conditioned. Existing fill soils (such as that encountered at HAB-3) are marginal for reuse as existing fill due to moisture conditions and some organic content, and will likely need to be exported offsite. Soils with particle sizes larger than 6 inches should generally not be reused for engineered fill.

In general, soils having a Plasticity Index (PI) greater than 30 (less than 15 is preferable) should not be used for fill. Soils utilized as engineered fill should have a maximum dry density as determined in accordance with ASTM D698 (Standard Proctor test) of 90 pcf or higher (95 pcf or higher preferred). Before filling operations begin, representative samples of each proposed fill material should be collected and tested to determine the compaction and classification characteristics. Once compaction begins, a sufficient number of density tests should be performed by an engineering technician working under the direction of the geotechnical engineer to measure the degree of compaction being obtained.

Engineered fill should be placed in horizontal lifts. Prior to each lift of fill placement, the sloped area should be benched with a level pad into residuum. The level pad will allow for better compaction of the fill materials. The resulting series of level benches will also serve to break the potential slip plane between the temporary slope and backfill materials.

The surface of compacted subgrade soils can deteriorate and lose its support capabilities when exposed to environmental changes or construction activity. Deterioration can occur from, but is not limited to, the effects of freezing temperatures, the formation of erosion gullies, exposure to extreme wetting/drying conditions, long term exposure to natural elements, and rutting caused by construction traffic. We recommend that surfaces of the subgrade that have deteriorated or softened be recompacted immediately prior to construction of grade slabs or pavements. Additionally, excavations through the subgrade soils, such as utility trenches, should be properly backfilled with compacted lifts of engineered fill. Recompaction of subgrade surfaces and compaction of backfill should be checked with a sufficient number of density tests to determine if adequate compaction is being achieved.

Slopes and Excavations

Confined excavations such as for footing or utility installation should conform to OSHA regulations. For excavations that are not confined (i.e. cut slopes), our experience suggests that temporary excavation side slopes through undisturbed residuum should be laid back at a 0.75H:1V (horizontal:vertical) slope, or flatter, with maximum heights of 8 feet or less. Our experience suggests that permanent excavation side slopes through residuum at the site should be laid back at a 1.5H:1V, or flatter, with maximum heights of 8 feet or less. Permanent fill slopes are not anticipated at the project site. Cut and fill slope surfaces should be protected from erosion by grassing or by other means. Permanent slopes of 3H:1V or flatter may be desirable for mowing.

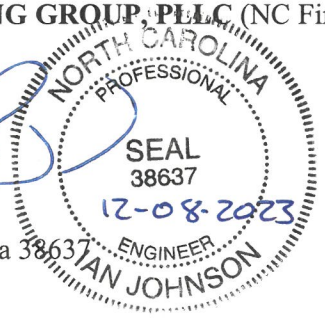
BASIS OF RECOMMENDATIONS

The recommendations presented in this report are based on our understanding of the project information, data obtained in our exploration, and our experience on similar projects. The general subsurface conditions utilized in our evaluation have been based on interpolation of the subsurface data between the widely spaced hand auger borings. Subsurface conditions between the hand auger boring locations may differ. If the project information is incorrect, please contact us so that our recommendations can be reviewed. Significantly different subsurface conditions may be present at portions of the site not explored during this hand auger boring exploration, and additional subsurface data should be gathered to develop revised recommendations if the location of the proposed construction footprint is significantly modified from that described herein.

The discovery of site or subsurface conditions during construction which deviate from the data obtained in this exploration should be reported to us for our evaluation. The assessment of site environmental conditions for the presence or absence of pollutants in the soil, rock, or groundwater of the sites is also beyond the scope of this exploration. The assessment of existing building and site retaining wall foundation bearing conditions, existing site retaining wall stability, and site slopes beyond the proposed driveway construction footprint at the site is beyond the scope of this exploration. Detailed site retaining wall design and finalized global stability analyses are beyond our current scope of service.

We appreciate the opportunity to offer our professional services on this project. If you have any questions concerning this report, please do not hesitate to contact us. We hope that you will give KEG consideration to providing construction materials testing services during the construction phase of this project.

Sincerely,
KESSEL ENGINEERING GROUP, PLLC (NC Firm License No. P-0420)



Ian Johnson, P.E.
Senior Engineer
Registered, North Carolina 38637

Caitlin Warner, P.E.
Senior Engineer
Registered, North Carolina 41503

Attachments: Figure 1 - Site Location Plan
Figure 2 - Field Exploration Plan
Hand Auger Borings Logs (HAB-1 to HAB-5)
Key to Soil Classifications and Consistency Descriptions
Slope Stability Analyses (cross sections CS-1 to CS-2)

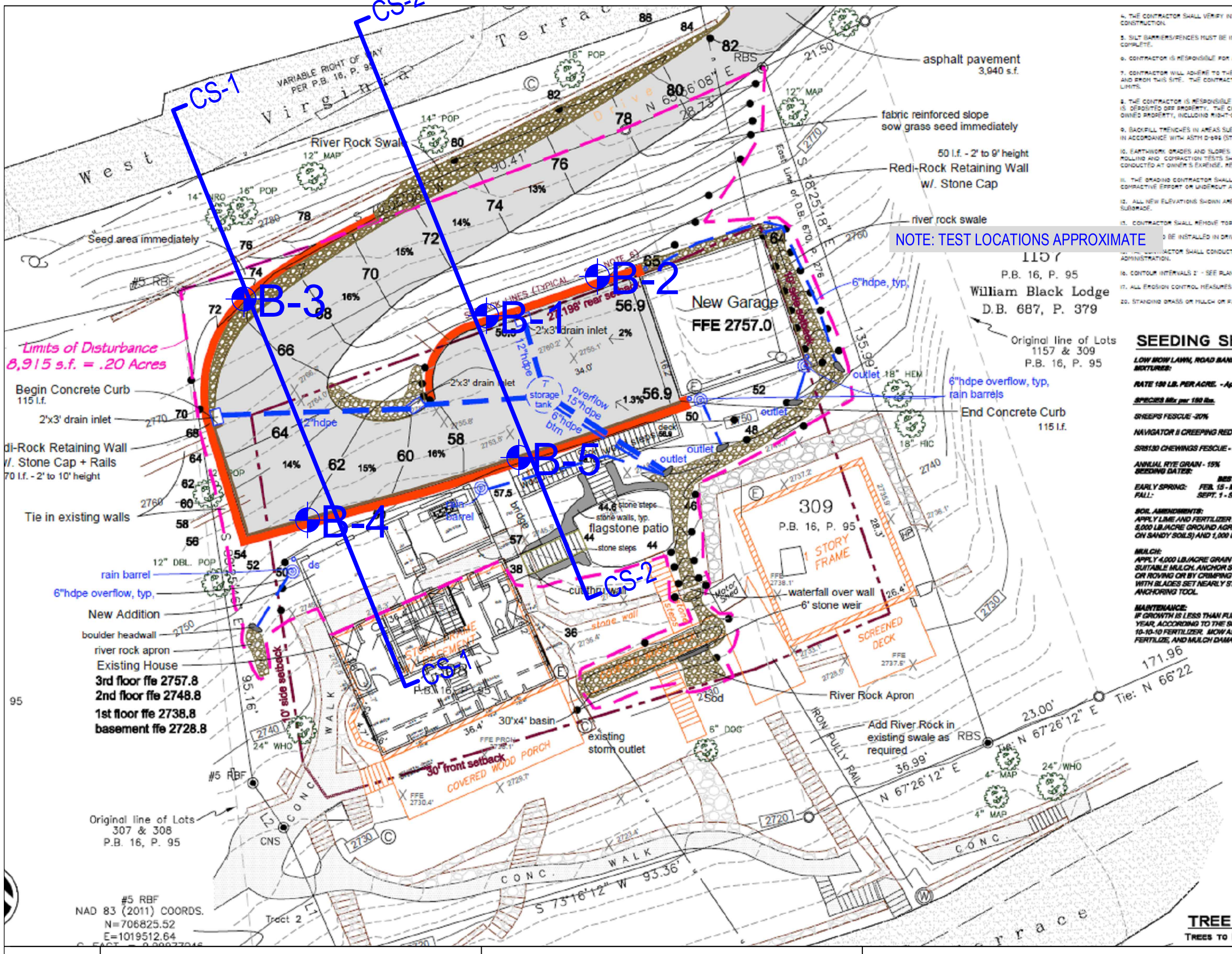
Distribution: Mr. Chris Brock, Brock Builders, Inc.; via email at chris@brockbuildersinc.com

SITE LOCATION PLAN
HENNIS RESIDENCE - 325 NORTH CAROLINA TERRACE
MONTREAT, NORTH CAROLINA

PROJECT NO. JA23-4732
DATE: 12/08/2023

FIGURE
1

KESSEL ENGINEERING GROUP
582 HENDERSONVILLE ROAD SUITE ONE | ASHEVILLE NC 28803 | P:[828] 277-6351 | F:[828] 277-6355
WWW.THEKESSELGROUP.COM



4. THE CONTRACTOR SHALL VERIFY INVERT ELEVATIONS FOR EXISTING/PROPOSED PIPES AND EXISTING ROADWAY ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

5. SILT BARRIERS/FENCES MUST BE IN PLACE PRIOR TO BEGINNING GRUBBING/CLEARING. NO GRADING MAY BEGIN UNTIL SILT BARRIER INSTALLATION IS COMPLETE.

6. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD LAYOUT OF PROPOSED IMPROVEMENTS.

7. CONTRACTOR WILL ADHERE TO THE WEIGHT LIMITS PRESCRIBED ON COUNTY AND STATE MAINTAINED ROADS FOR HAULING EQUIPMENT AND/OR MATERIALS TO AND FROM THIS SITE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO THE STREETS OR UTILITIES DUE TO NON-COMPLIANCE OF WEIGHT LIMITS.

8. THE CONTRACTOR IS RESPONSIBLE TO REMOVE OR CLEAN-OUT ANY SILT, DIRT, OR MUD, OR ANY OTHER TYPE OF DEBRIS THAT COMES OFF THIS SITE AND AS DEPOSITED OFF PROPERTY. THE CONTRACTOR IS RESPONSIBLE TO REMOVE ANY OF THE ITEMS MENTIONED THAT ARE DEPOSITED ONTO PRIVATE OR COUNTY OWNED PROPERTY, INCLUDING RIGHT-OF-WAY AREA AND ROADWAYS.

9. BACKFILL TRENCHES IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT +/-3% OF OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-698 (STD. PROCTOR).

10. EARTHWORK GRADES AND SLOPES AS SHOWN ARE APPROXIMATE. ADJUST DRIVEWAY LOCATION AND ELEVATIONS AS REQUIRED TO FIELD CONDITIONS. PROOF ROLLING AND COMPACTION TESTS SHALL BE ACCOMPLISHED IN THE FIELD TO TEST ALL AREAS AS REQUIRED BY OWNER. INITIAL COMPACTION TESTS WILL BE CONDUCTED AT OWNER'S EXPENSE. RETESTING REQUIRED DUE TO POOR COMPACTION SHALL BE CONDUCTED AT CONTRACTOR'S EXPENSE.

11. THE GRADING CONTRACTOR SHALL PROOF ROLL THE DRIVEWAY AREA WITH A SHEEPS FOOT ROLLER. ALL SOFT SPOTS SHALL BE STABILIZED BY FURTHER COMPACTIVE EFFORT OR UNDERCUT AND BACK FILLED WITH COMPACTED STRUCTURAL FILL MATERIAL.

12. ALL NEW ELEVATIONS SHOWN ARE APPROXIMATE FINISH ELEVATIONS. THE GRADING CONTRACTOR SHALL DEDUCT THE APPROPRIATE AMOUNT FOR THE SUBGRADE.

13. CONTRACTOR SHALL REMOVE TOPSOIL AS NECESSARY (MINIMUM OF 4") TO PROVIDE ADEQUATE SUBGRADE FOR ROADWAYS.

14. [illegible] BE INSTALLED IN DRIVEWAY AREA AS SOON AS POSSIBLE AND ADDED TO AS REQUIRED TO CONTROL MUD.

15. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

16. CONTOUR INTERVALS 2' - SEE PLANS

17. ALL EROSION CONTROL MEASURES SHOWN AND STATED ON THIS PLAN ARE TO BE IMPLEMENTED THROUGH COMPLETION.

20. STANDING GRASS OR MULCH OR FABRIC MUST BE PROVIDED FOR ALL DISTURBED AREAS BEFORE FINAL APPROVAL.

SEEDING SPECIFICATIONS

LOW MOW LAWN, ROAD BANKS, SHOULDERS, AND DITCHLINE SEEDING MIXTURES:

RATE 100 LB. PER ACRE. - Approximately .3 acres TOTAL for entire project

SPECIES Mix per 100 lbs.

SHEEPS FESCUE -20%

NAVIGATOR II CREEPING RED FESCUE - 50%

SR5130 CHEWINGS FESCUE - 15%

ANNUAL RYE GRAIN - 15%

SEEDING DATES:

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15 - MAR. 20	FEB. 15 - APR. 30
FALL:	SEPT. 1 - SEPT. 30	SEPT. 1 - OCT. 31

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 3,000 - 5,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO THE SOIL TESTS OR TOP DRESS WITH 500 LB./ACRE 10-10-10 FERTILIZER. MOW AS NEEDED TO A 6" MINIMUM HEIGHT. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

ADDITIONAL SEEDING NOTES:

1. GRADING CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL DISTURBED AREAS OF THE PROJECT.

2. LOOSEN COMPACTED SUBGRADE AND UNCHANGED SUBGRADE TO A MINIMUM DEPTH OF 4". REMOVE STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER AND LEGALLY BURN THEM. RAKE OR OTHERWISE LIGHTLY SCARIFY SOIL SURFACE TO ENSURE SEED-TO-SOIL CONTACT. AREAS TO BE SEEDED SHALL BE RIPPED AND SPREAD WITH AVAILABLE TOPSOIL 3" DEEP. TOTAL SEEDBED PREPARED DEPTH SHALL BE 4" TO 8" DEEP. SURFACE FOR FINAL SEEDBED PREPARATION, AT FINISH GRADES SHOWN, SHALL BE REASONABLY SMOOTH AND UNIFORM.

3. APPLY SEED BY HYDRO-SEEDING WERE POSSIBLE. ALLOW SEED APPLICATION TO DRY PRIOR TO MULCH APPLICATION TO PREVENT RUN-OFF.

4. SURFACE WATER CONTROL MEASURES TO BE INSTALLED ACCORDING TO PLAN. IF NO SOIL TEST IS TAKEN, FERTILIZE AND LIME ACCORDING TO SEEDING SCHEDULE. IF SOIL TEST IS TAKEN PROVIDE LIME AND FERTILIZER ACCORDING TO SOIL TEST REPORT. LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY AND MIXED WITH THE SOIL DURING SEEDBED PREPARATION.

5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH N.C. EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, USDA, & U.S. SCS.

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

STABILIZATION = pavement, buildings, mulch, or wheat straw and grass seeding, or fabric and rip rap to cover all dirt and disturbed areas

TREE PROTECTION NOTES

TREES TO REMAIN NOT IN LIMITS OF DISTURBANCE

Other Consul
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC
John Hennis

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

Sheet:
Grading Plan

Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1002 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9994

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HENNIS RESIDENCE - 325 NORTH CAROLINA TERRACE
MONTREAT, NORTH CAROLINA

KEG PROJECT NO. JA23-4732-01

FIELD EXPLORATION PLAN DATE: 12-08-2023

REFERENCE: Grading Plan: Dowd Montreat, LLC, Sheet L3, by Creative Development Solutions, dated September 7, 2023.

0' 10' 20' 40'

SCALE: 1" = 20'-0"

FIGURE
2

KESSEL ENGINEERING GROUP

HAND AUGER BORING NO. HAB-1

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 11-30-23 END: 11-30-23

LOCATION: See Figure 2 | ELEVATION: 2765 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
2764	Approximately 10-Inches TOPSOIL			
	Brown, Silty, Fine to Coarse SAND with Gravel (Colluvium)		25/1.5	n = 25/1.5
2	Loose, Reddish Brown, Silty, Fine to Medium SAND (Residuum)			
2762			7 8 7	n = 7
4	Firm to Very Firm, Brown, Silty, Fine to Medium SAND with Trace Mica			
2760			25/1.75	n = 25/1.75
6				
2758			25/1.5	n = 25/1.5
8				
2756	Hand auger boring terminated at 9.0 feet. No groundwater encountered at time of boring.		25/1.5	n = 25/1.5
10				
2754				
12				
2752				

2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5

3 offsets required due to shallow refusal.

HAND AUGER BORING NO. HAB-2

KESSEL ENGINEERING GROUP

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 11-30-23 END: 11-30-23

LOCATION: See Figure 2 | ELEVATION: 2765 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
2764 / 0	Approximately 12-Inches TOPSOIL			
	Firm, Reddish Brown, Sandy SILT (Residuum)		10 9 7	n = 8
2	Firm to Very Firm, Dark Brown to Dark Gray, Silty, Fine to Medium SAND			
2762			17 23 18	n = 20
4				
2760			25/1	n = 25/1
6				
	Hand auger refusal encountered at 6.5 feet. No groundwater encountered at time of boring.		25/1.25	n = 25/1.25
2758				
8				
2756				
10				
2754				
12				
2752				

2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5

2 offsets encountered refusal at similar or shallower depths.

KESSEL ENGINEERING GROUP

HAND AUGER BORING NO. HAB-3

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 11-30-23 END: 11-30-23

LOCATION: See Figure 2 | ELEVATION: 2774 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
				2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5
	Approximately 12-Inches GRAVEL and TOPSOIL			
	Very Loose and Loose, Brown, Slightly Moist, Silty, Fine to Medium SAND with Trace Organics (Fill)		11 9 11	n = 10
2772 — 2				
			3 3 3	n = 3
2770 — 4				
			7 7 6	n = 6
2768 — 6	Loose to Very Firm, Reddish Brown, Silty, Fine to Medium SAND with Trace Mica (Residuum)			
			15 18 11	n = 14
2766 — 8				
	Hand auger boring terminated at 9.0 feet. No groundwater encountered at time of boring.		25/1.25	n = 25/1.25
2764 — 10				
2762 — 12				

1 offset required due to shallow refusal.

HAND AUGER BORING NO. HAB-3
Sheet 1 of 1

HAND AUGER BORING 4732-01 HENNIS RESIDENCE - DRIVEWAY.GPJ KESSEL GROUP.GDT 12/6/23

KESSEL ENGINEERING GROUP

HAND AUGER BORING NO. HAB-4

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 12-1-23 END: 12-1-23

LOCATION: See Figure 2 | ELEVATION: 2753 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
2752 / 0	Approximately 12-Inches TOPSOIL			
	Loose, Brown, Silty, Fine to Medium SAND (Colluvium)		6 6 5	n = 5
2	Firm to Very Firm, Brown and Light Reddish Brown, Silty, Fine to Medium SAND with Trace Mica (Residuum)			
2750			25/1.75	n = 25/1.75
4				
2748			21 15 16	n = 15
6				
2746			25/1.75	n = 25/1.75
8				
2744	Hand auger boring terminated at 9.0 feet. No groundwater encountered at time of boring.		25/.75	n = 25/.75
10				
2742				
12				
2740				

DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches: 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5

HAND AUGER BORING NO. HAB-4
Sheet 1 of 1

HAND AUGER BORING 4732-01 HENNIS RESIDENCE - DRIVEWAY.GPJ KESSEL GROUP.GDT 12/6/23

HAND AUGER BORING NO. HAB-5

KESSEL ENGINEERING GROUP

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 12-1-23 END: 12-1-23

LOCATION: See Figure 2 | ELEVATION: 2752 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: ____ AFTER 24 HOURS: ____ CAVING> ____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
				2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5
	Approximately 8-Inches TOPSOIL			
	Firm, Reddish Brown, Sandy SILT (Residuum)		8 7 7	n = 7
2750 — 2	Loose, Reddish Brown, Silty, Fine SAND with Trace Mica		10 12 16	n = 14
2748 — 4			17 14 17	n = 15
2746 — 6	Very Firm, Brown, Slightly Micaceous, Silty, Fine to Medium SAND		25/1	n = 25/1
			25/.75	n = 25/.75
2744 — 8	Hand auger refusal encountered at 7.5 feet. No groundwater encountered at time of boring.			
2742 — 10				
2740 — 12				

HAND AUGER BORING 4732-01 HENNIS RESIDENCE - DRIVEWAY.GPJ KESSEL GROUP.GDT 12/6/23

KEY TO SOIL CLASSIFICATIONS AND CONSISTENCY DESCRIPTIONS

Cone Penetrometer Resistance Average blows over 3-1/2 in. increment SANDS	Relative Density
1 to 4	Very Loose
5 to 15	Loose
16 to 29	Firm
over 30	Very Firm

Particle Size Identification

Boulder: Greater than 300 mm
Cobble: 75 to 300 mm
Gravel:
Coarse - 19 to 75 mm
Fine - 4.75 to 19 mm
Sand:
Coarse - 2 to 75 mm
Medium - 0.425 to 2 mm
Fine - 0.075 to 0.425 mm
Silts & Clay: Less than 0.075 mm

Cone Penetrometer Resistance Average blows over 3-1/2 in. increment SILTS and CLAYS	Consistency
1 to 4	Soft
5 to 9	Firm
10 to 29	Stiff
over 30	Very Stiff

KEY TO DRILLING SYMBOLS

Grab Sample

Split Spoon Sample

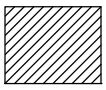
Undisturbed Sample

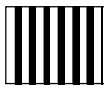
Groundwater Table at Time of Drilling

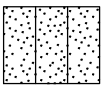
Groundwater Table 24 Hours after Completion of Drilling

KEY TO SOIL CLASSIFICATIONS

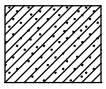

Well-graded Gravel
GW

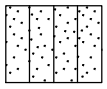

Low Plasticity Clay
CL

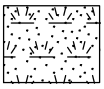

Clayey Silt
MH


Silty Sand
SM

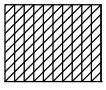

Poorly-graded Gravel
GP

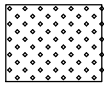

Sandy Clay
CLS

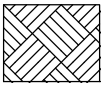

Sandy Silt
MLS

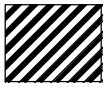

Topsoil
TOPSOIL

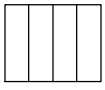

Partially Weathered Rock
BLDRCBBL

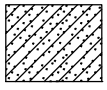

Silty Clay
CL-ML

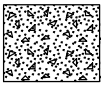

Sand
SW


Bedrock
BEDROCK


High Plasticity Clay
CH


Silt
ML


Clayey Sand
SC


Concrete
AS

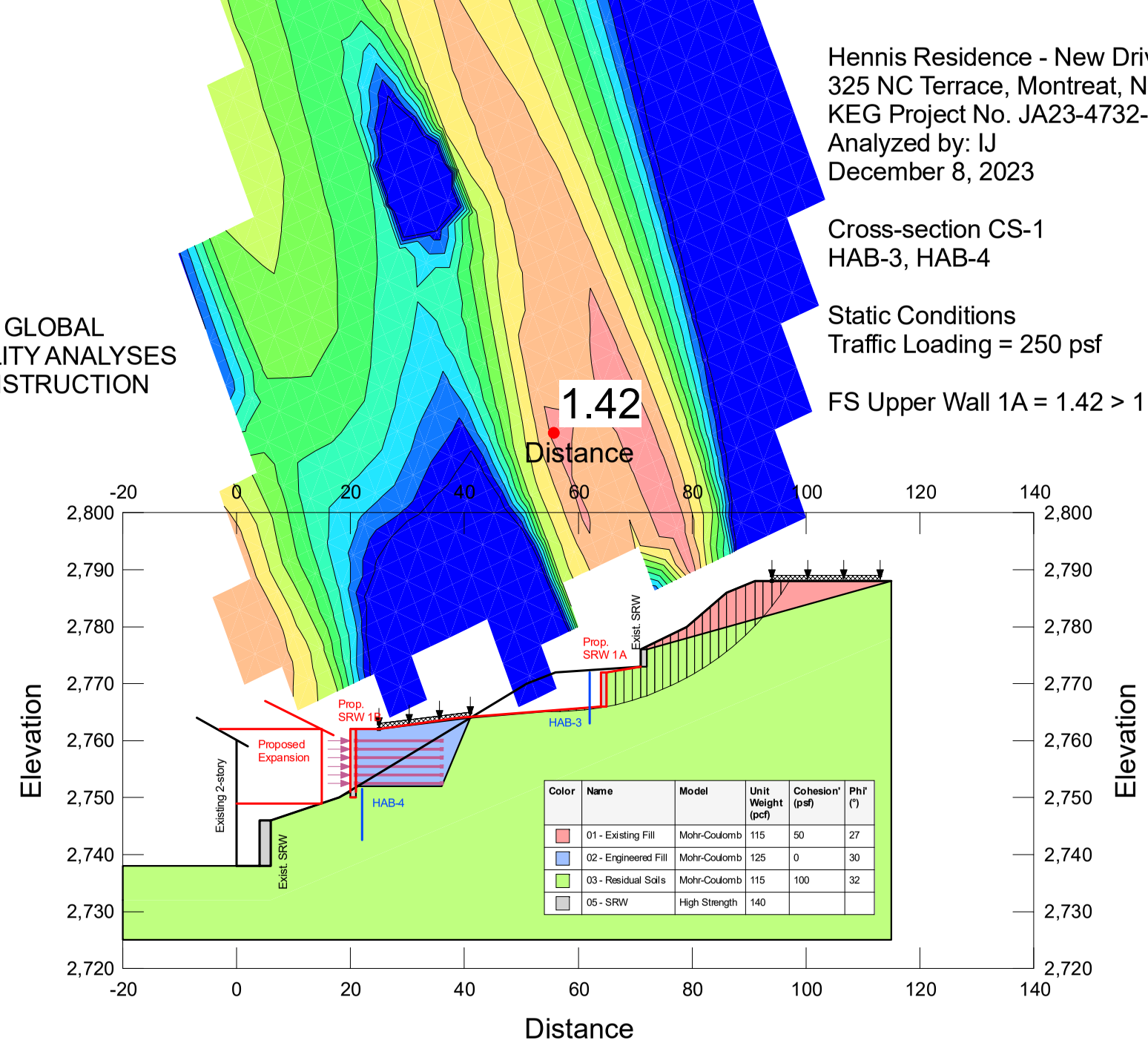
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ
December 8, 2023

Cross-section CS-1
HAB-3, HAB-4

Static Conditions
Traffic Loading = 250 psf

FS Upper Wall 1A = 1.42 > 1.3 req'd



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SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

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325 NC Terrace, Montreat, NC
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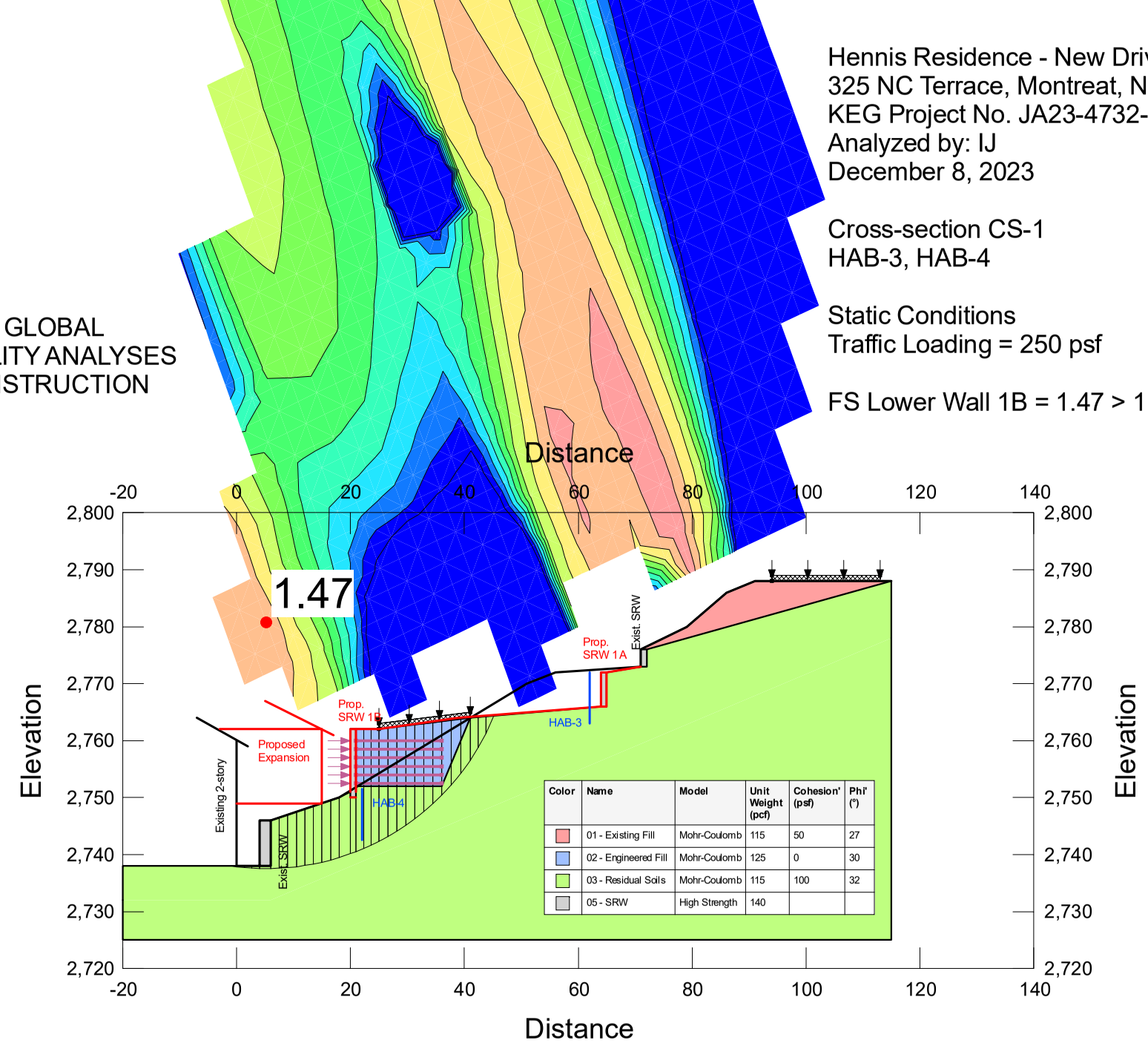
December 8, 2023

Cross-section CS-1
HAB-3, HAB-4

Static Conditions
Traffic Loading = 250 psf

FS Lower Wall 1B = 1.47 > 1.3 req'd



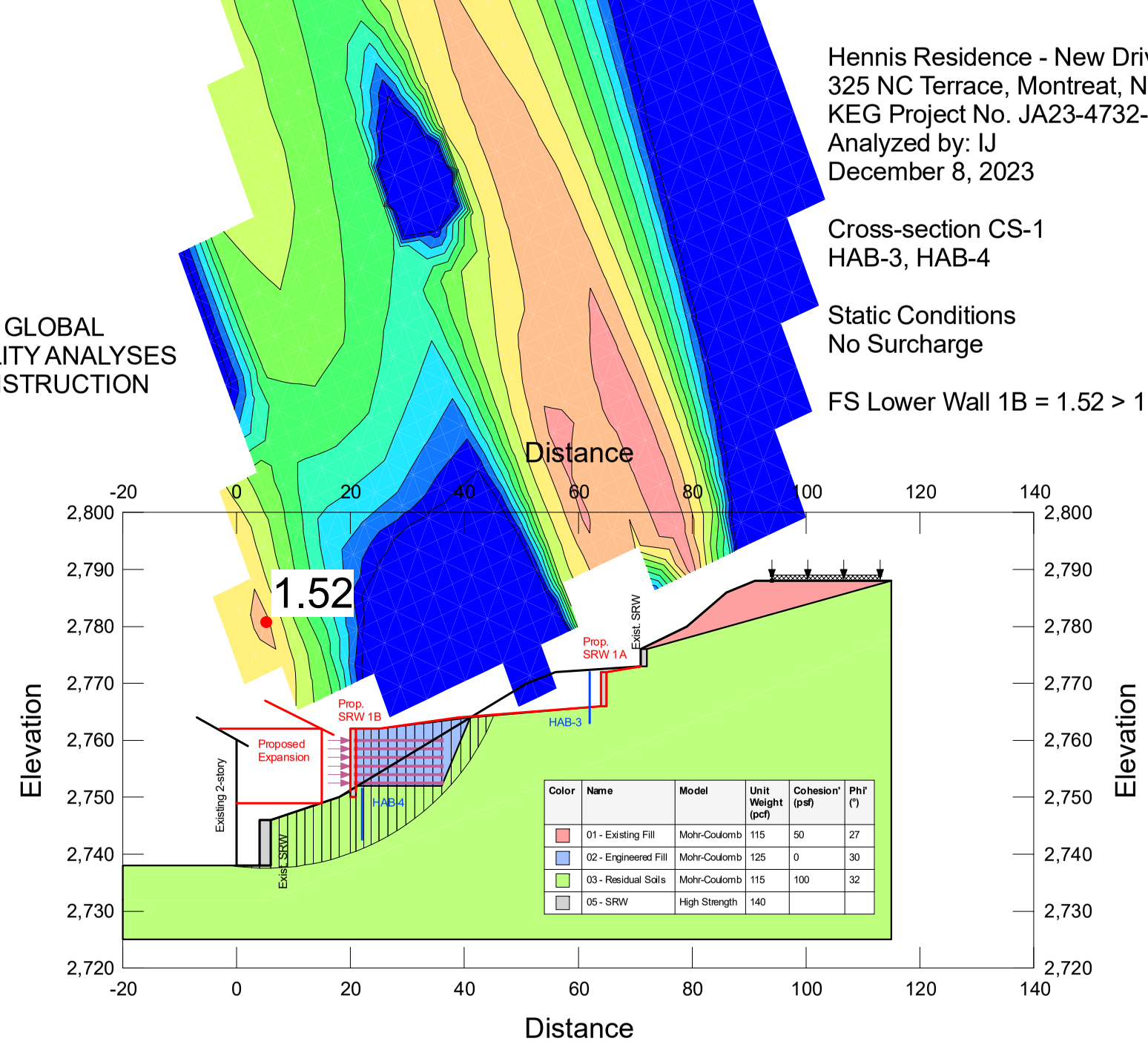
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ
December 8, 2023

Cross-section CS-1
HAB-3, HAB-4

Static Conditions
No Surcharge

FS Lower Wall 1B = 1.52 > 1.5 req'd



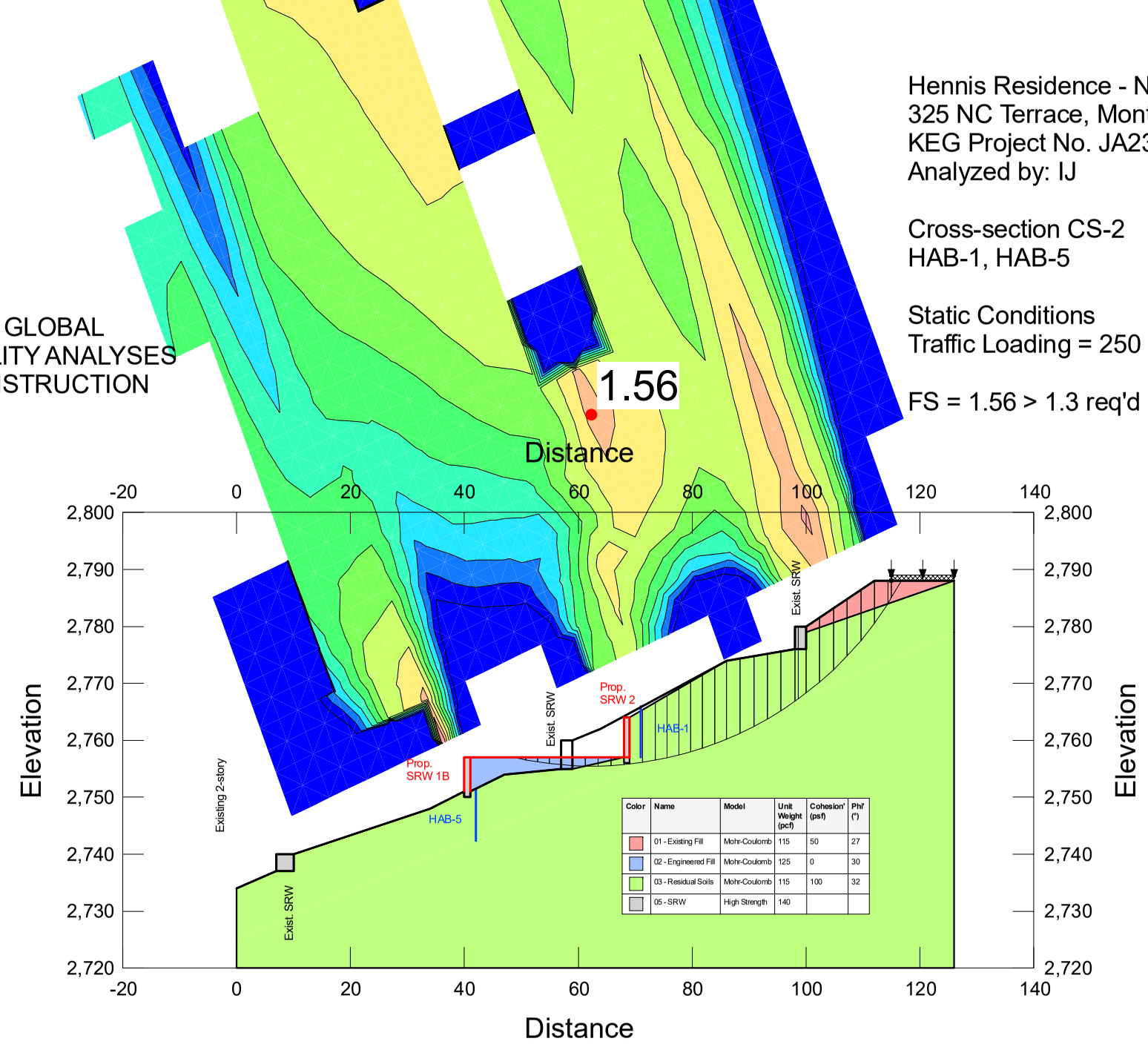
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

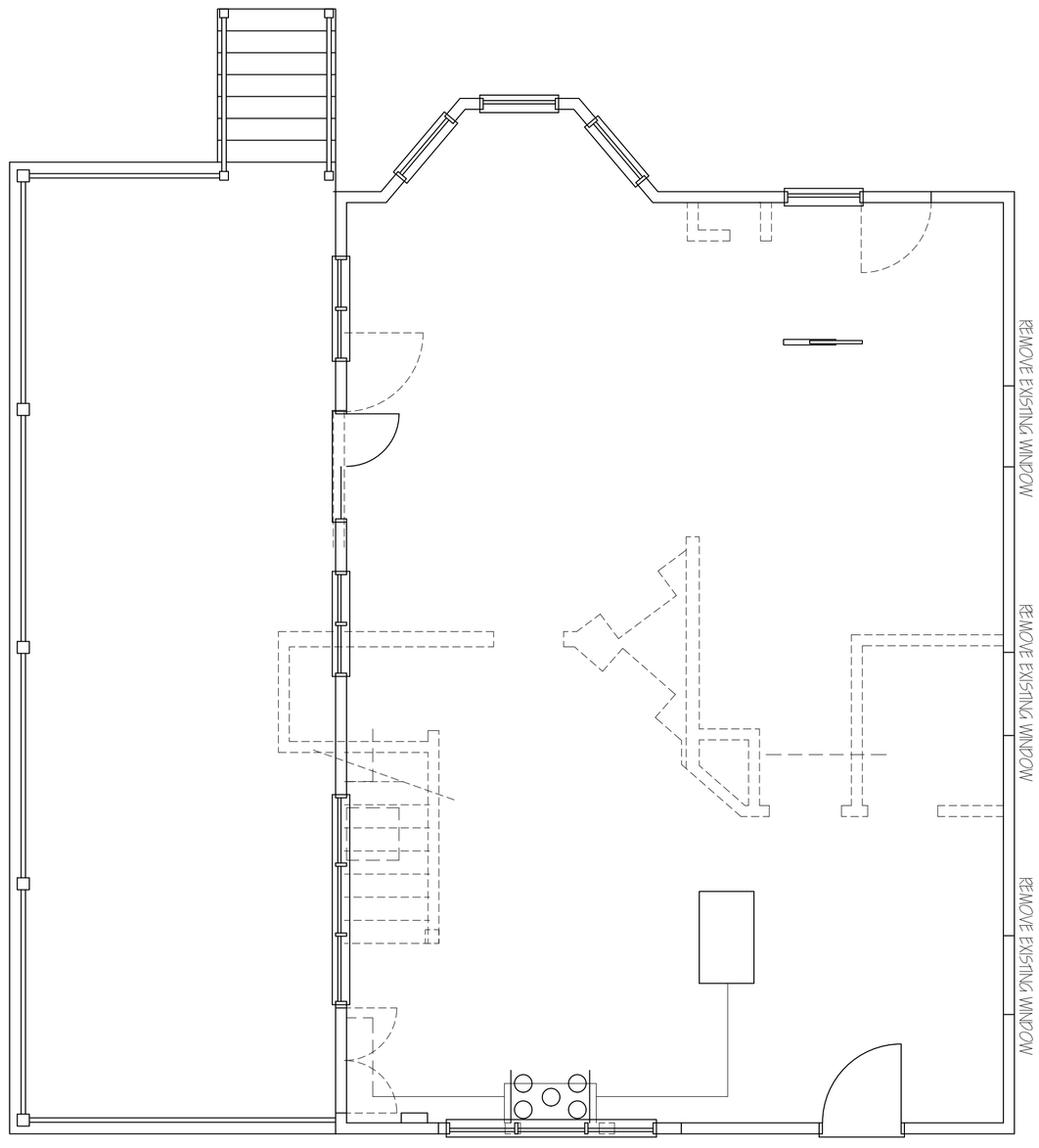
Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ

Cross-section CS-2
HAB-1, HAB-5

Static Conditions
Traffic Loading = 250 psf

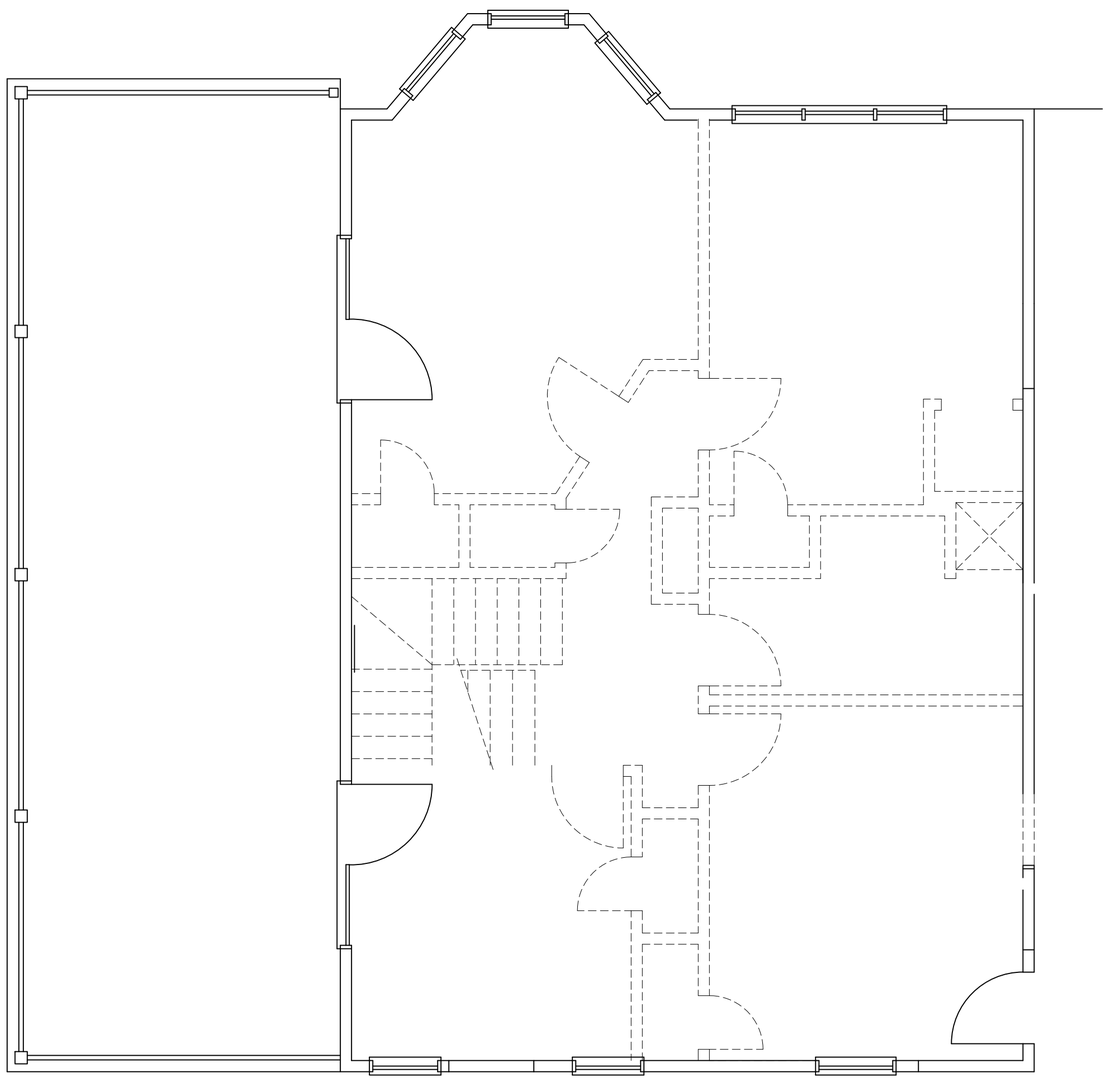
FS = 1.56 > 1.3 req'd





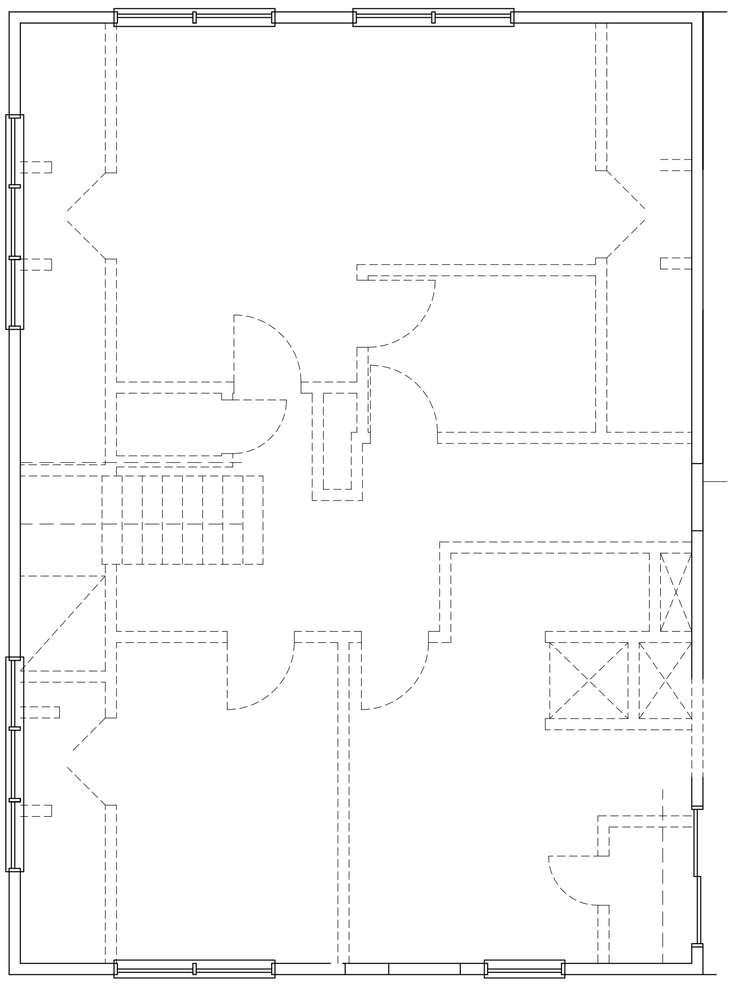
MAIN LEVEL DEMO PLAN

SCALE 1/4 = 1'-0"



2ND FLOOR DEMO PLAN

SCALE 1/4 = 1'-0"



3RD FLOOR DEMO PLAN

SCALE 1/4 = 1'-0"

SEPTEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

AIA – 521 WETMUR STREET – HENDERSONVILLE, NORTH CAROLINA 28739

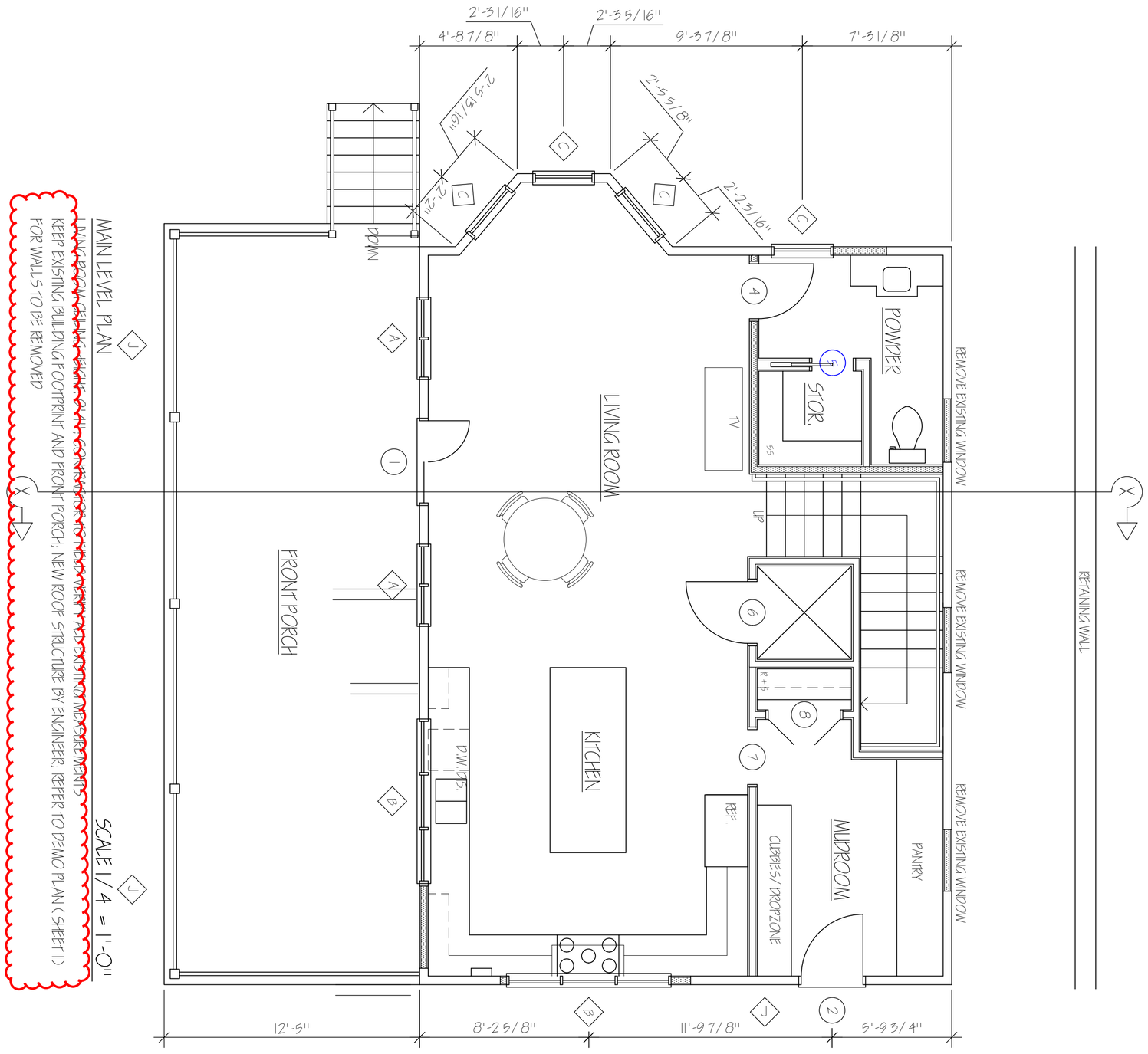
828.674.0273 – TIFFANY@PRUDHOMMEDESIGN.COM

TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 12981 NORTH CAROLINA HENDERSONVILLE, N.C.

MAIN LEVEL PLAN

KEEP EXISTING BUILDING FOOTPRINT AND FRONT PORCH; NEW ROOF STRUCTURE BY ENGINEER; REFER TO DEMO PLAN (SHEET 1)

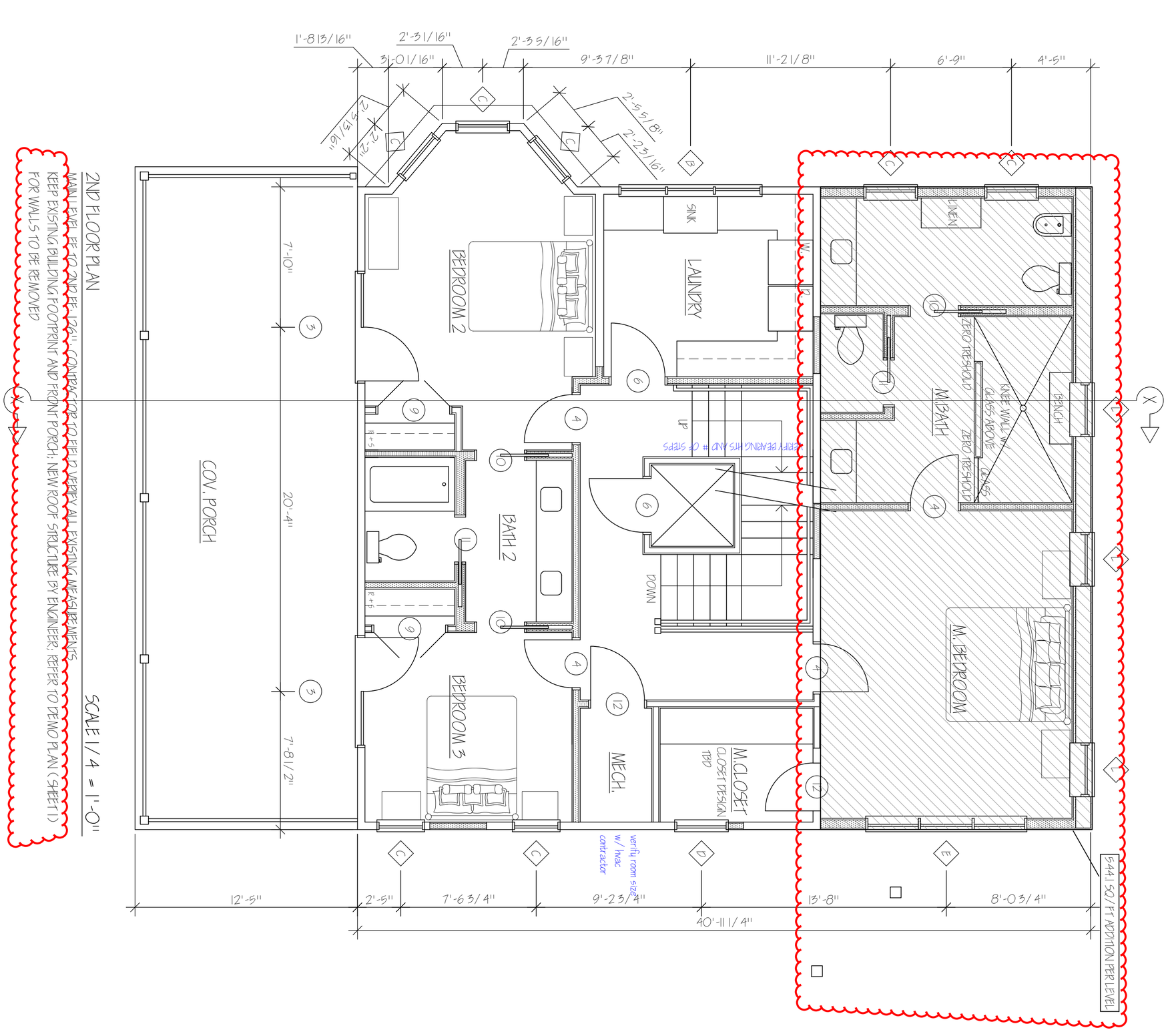
SCALE 1/4" = 1'-0"



2ND FLOOR PLAN

KEEP EXISTING BUILDING FOOTPRINT AND FRONT PORCH; NEW ROOF STRUCTURE BY ENGINEER; REFER TO DEMO PLAN (SHEET 1)

SCALE 1/4" = 1'-0"



2

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

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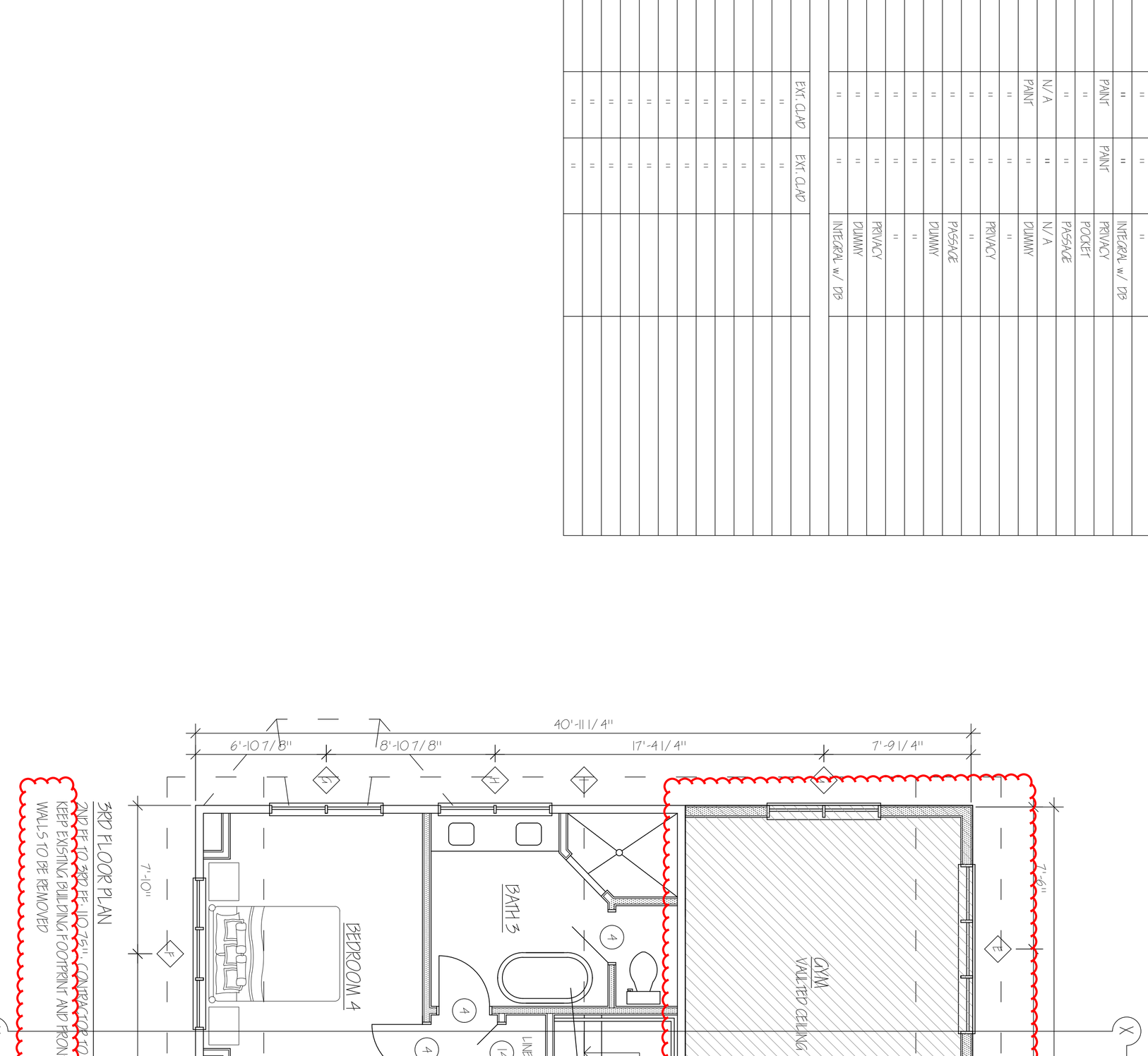
PRELIMINARY

TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 12881 NORTH CAROLINA HENDERSONVILLE, N.C.

DOORS AND WINDOWS

MK.	W	H	T	DESCRIPTION
1	4'-0"	7'-0"	1'-3 1/4"	3/4 GLASS w/ 8-LITE DIVISIONS
2	3'-0"	"	"	"
3	6'-0"	"	"	"
4	2'-8"	6'-8"	1'-3 1/8"	2 PANEL
5	2'-0"	"	"	2 PANEL POCKET
6	3'-0"	"	"	2 PANEL ELEVATOR
7	2'-8"	"	"	CASED OPENING
8	3'-6"	"	"	2 PANEL DOUBLE DOOR
9	4'-0"	"	"	"
10	2'-8"	"	"	2 PANEL POCKET
11	2'-6"	"	"	"
12	3'-0"	"	"	2 PANEL
13	4'-0"	"	"	2 PANEL DOUBLE
14	3'-0"	"	"	"
15	5'-0"	"	"	"
16	3'-0"	"	"	2 PANEL
17	4'-0"	"	"	2 PANEL DOUBLE
18	18'-0"	8'-0"	1'-1 /8"	GARAGE DOOR w/ 8-LITE TRANSOM

	W	H	DR	FIN	FR	FIN	HARDWARE	REMARKS
A	4'-0"	5'-6"		CASEMENT DOUBLE 6-LITE	EXT. CLAD	EXT. CLAD		
B	8'-0"	4'-0"	EXT. CLAD	"	"	"		
C	3'-0"	5'-0"	"	"	"	"		
D	3'-0"	3'-0"	"	CASEMENT SINGLE 6-LITE	"	"		
E	9'-0"	5'-0"	"	FIXED SINGLE 4-LITE	"	"		
F	8'-0"	4'-10"	"	CASEMENT TRIPLE 4-LITE	"	"		
G	6'-0"	5'-0"	"	CASEMENT TRIPLE 6-LITE	"	"		
H	6'-0"	1'-6"	"	CASEMENT DOUBLE 6-LITE	"	"		
I	2'-6"	3'-6"	"	CASEMENT DOUBLE 6-LITE	"	"		
J	3'-0"	3'-10"	"	FIXED SINGLE	"	"		
K	3'-0"		"	DOUBLE HUNG SINGLE 6-LITE	"	"		
L	3'-0"	1'-8"	"	FIXED TRANSOM	"	"		
M	3'-0"	3'-0"	"	FIXED	"	"		



3RD FLOOR PLAN

SCALE 1/4 = 1'-0"

2ND FF TO 3RD FF: 110.75'. CONTRACTOR TO FIELD VERIFY ALL EXISTING MEASUREMENTS. KEEP EXISTING BUILDING FOOTPRINT AND FRONT PORCH; NEW ROOF STRUCTURE BY ENGINEER; REFER TO DEMO PLAN (SHEET 1) FOR WALLS TO BE REMOVED

3

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

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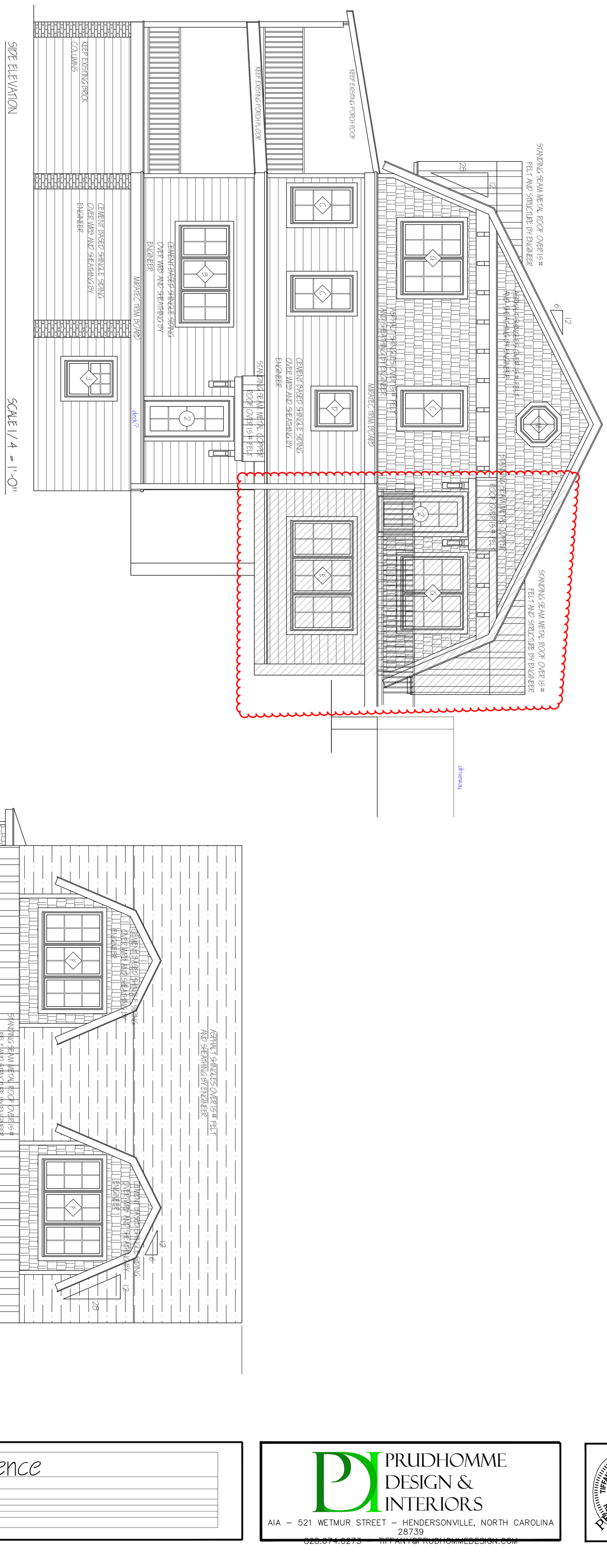
TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 12881 NORTH CAROLINA HENDERSONVILLE, N.C.

PRELIMINARY



4

15 DECEMBER 2025

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

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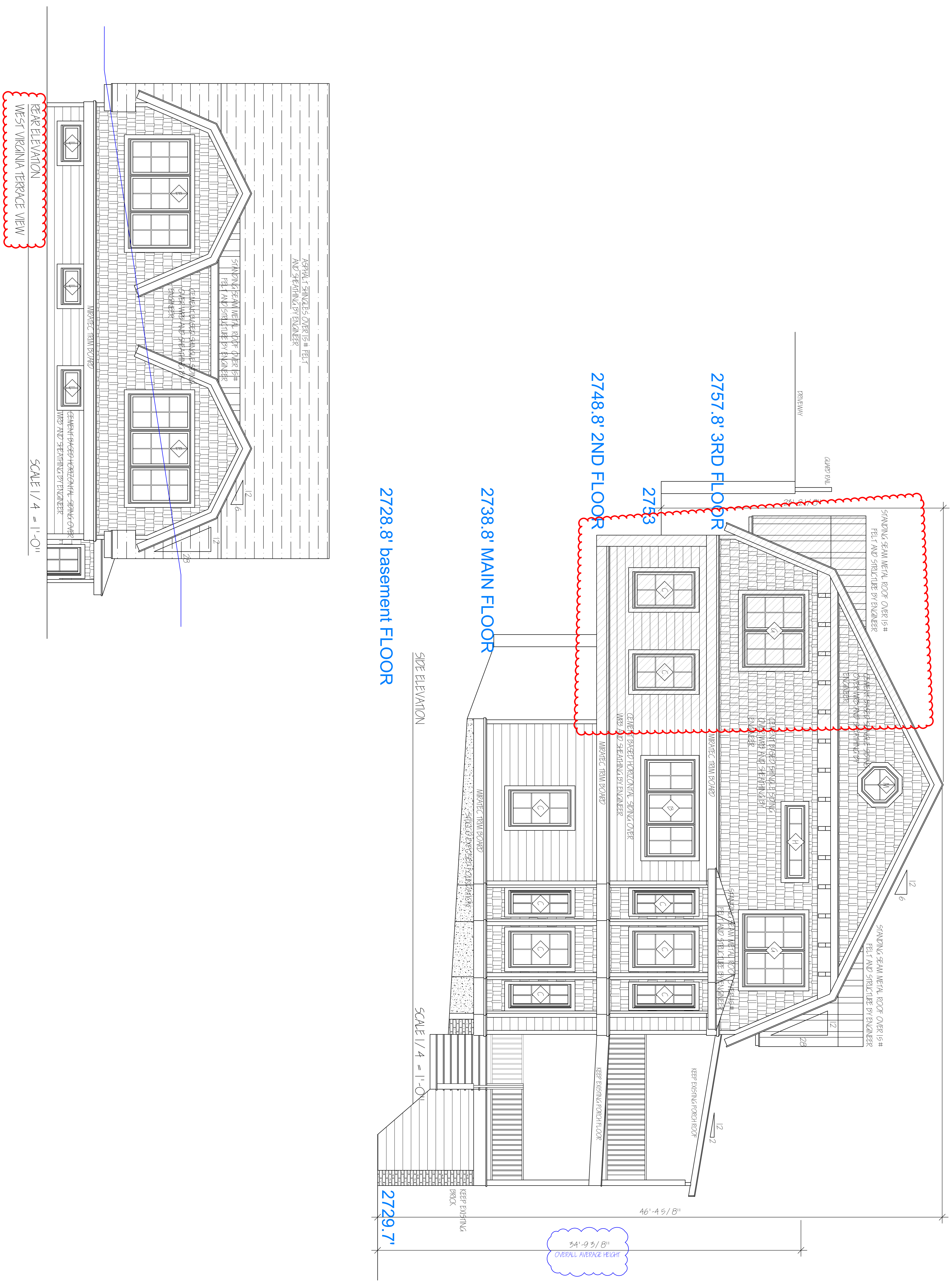
TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 13681 NORTH CAROLINA HENDERSONVILLE, N.C.



5

12 DECEMBER 2025

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

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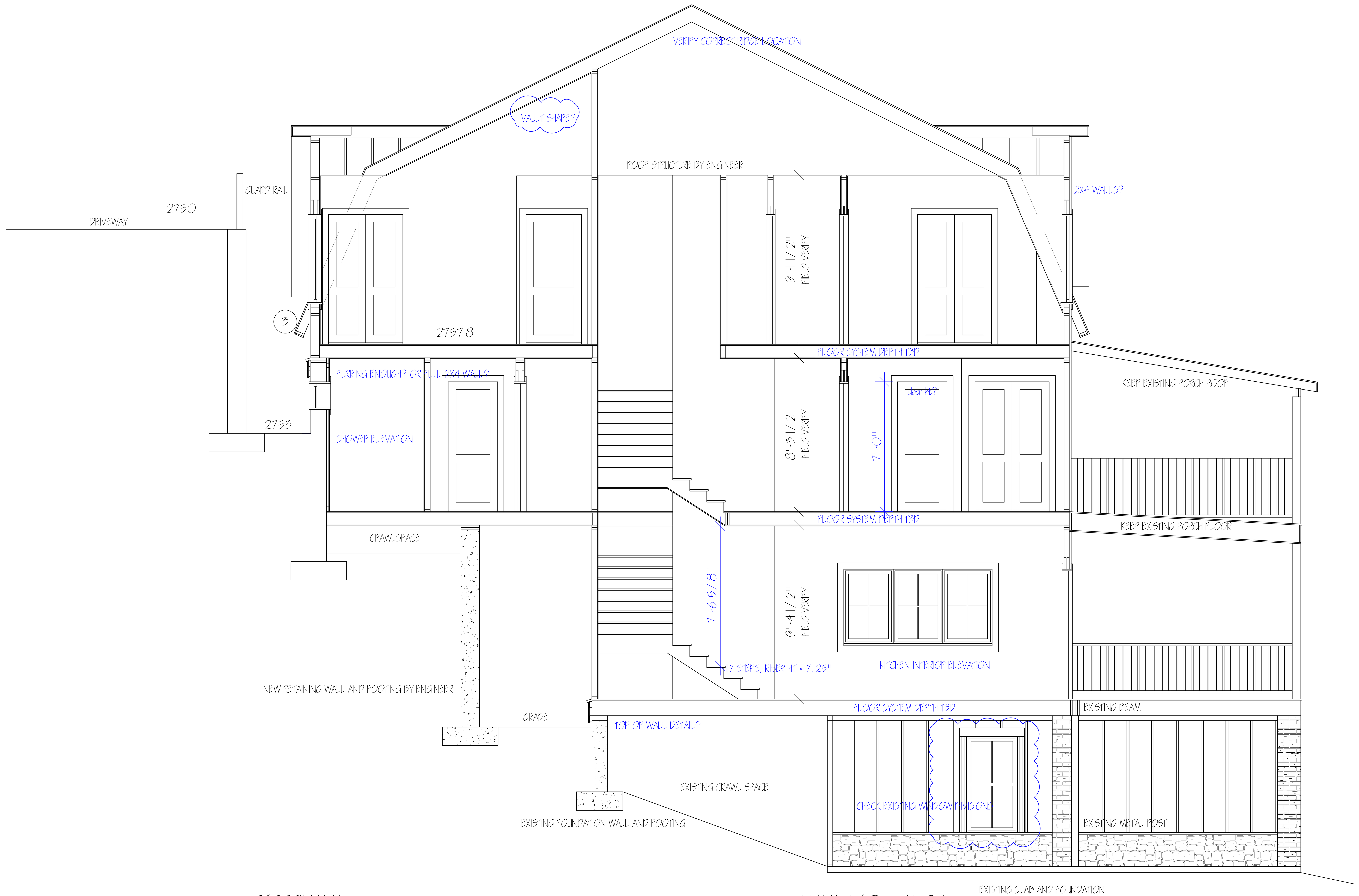
TIFFANY NICOLE PRUDHOMME
REGISTERED ARCHITECT
NORTH CAROLINA
HENDERSONVILLE, N.C.
PRELIMINARY



SECTION X-X

CONTRACTOR TO FIELD VERIFY ALL EXISTING MEASUREMENTS

SCALE 3/8 = 1'-0"

PRUDHOMME DESIGN & INTERIORS

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dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

13 DECEMBER 2023

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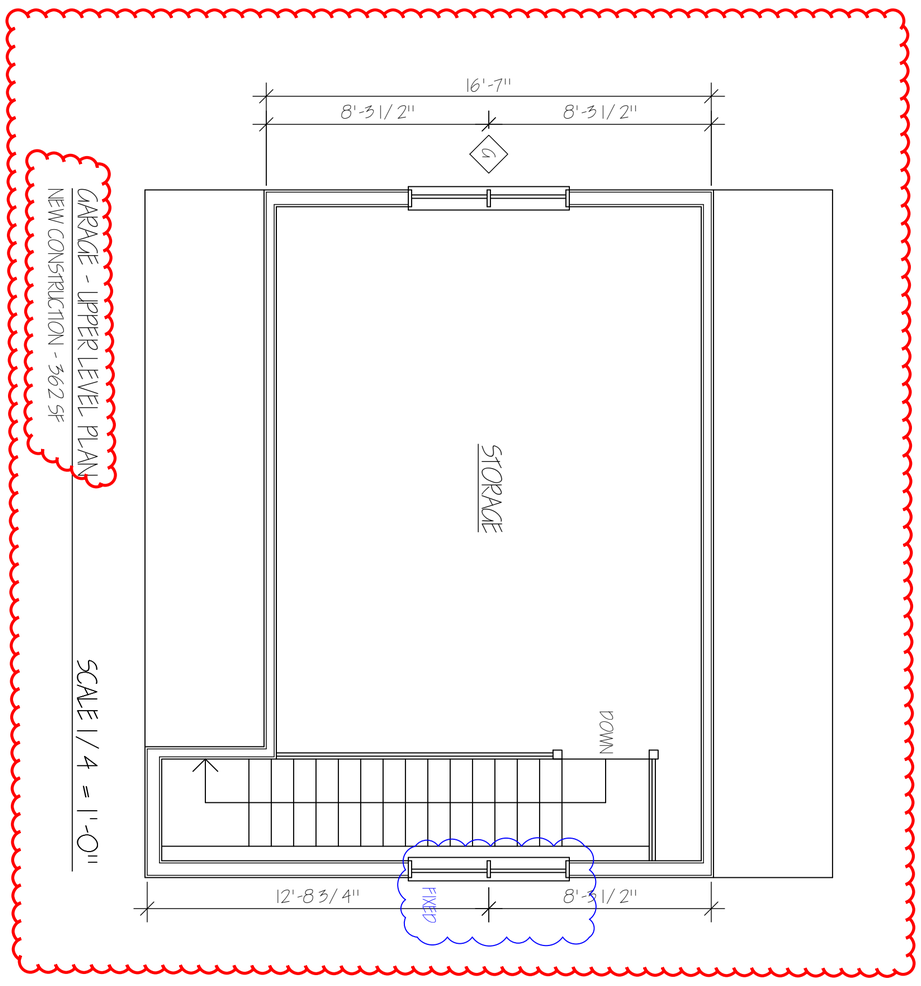
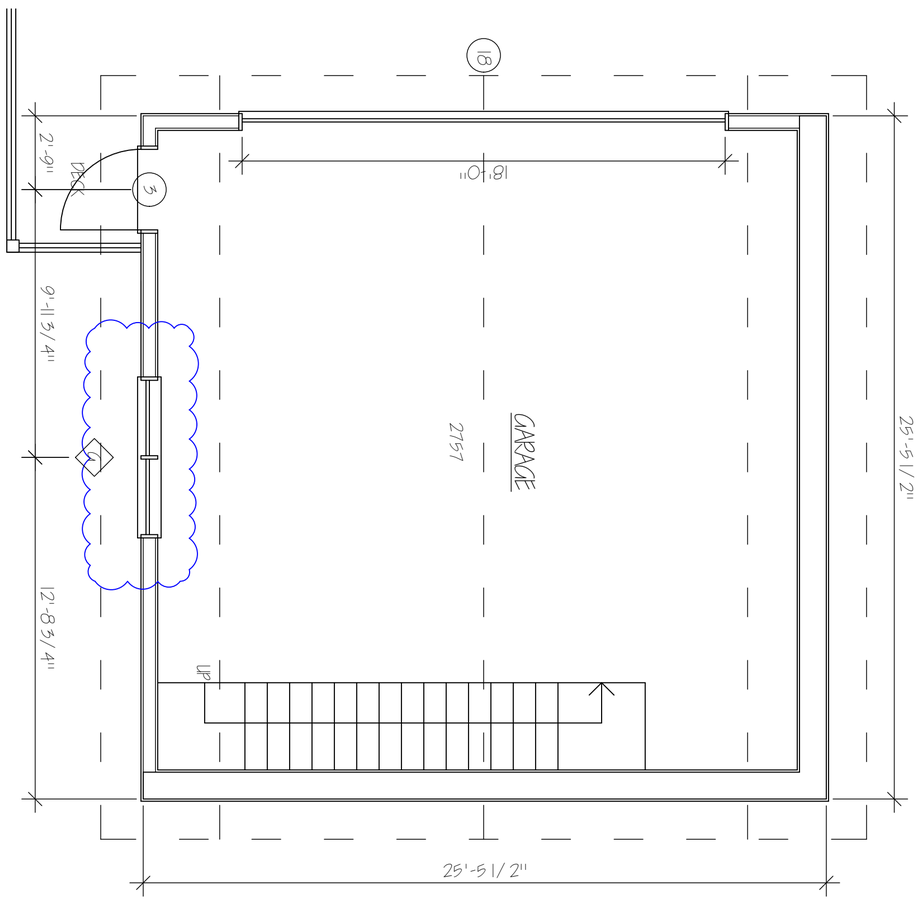


GARAGE - UPPER LEVEL PLAN
NEW CONSTRUCTION - 362 SF

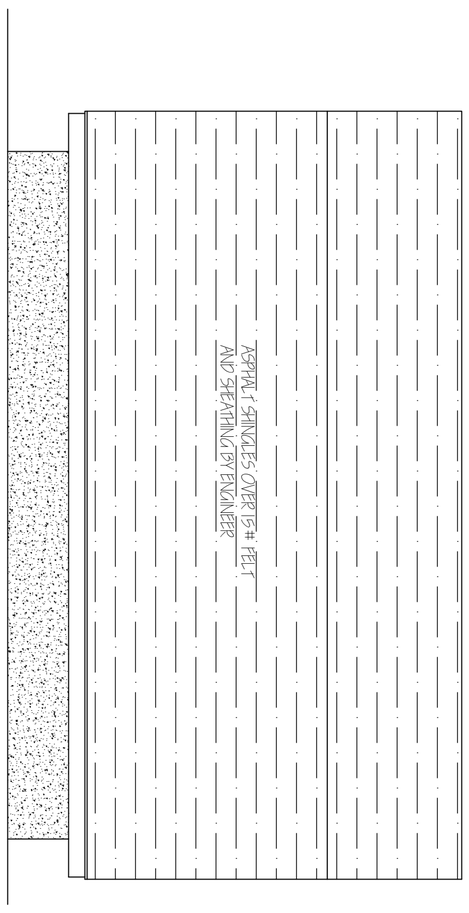
SCALE 1/4 = 1'-0"



GARAGE - MAIN LEVEL PLAN
NEW CONSTRUCTION - 648 SF

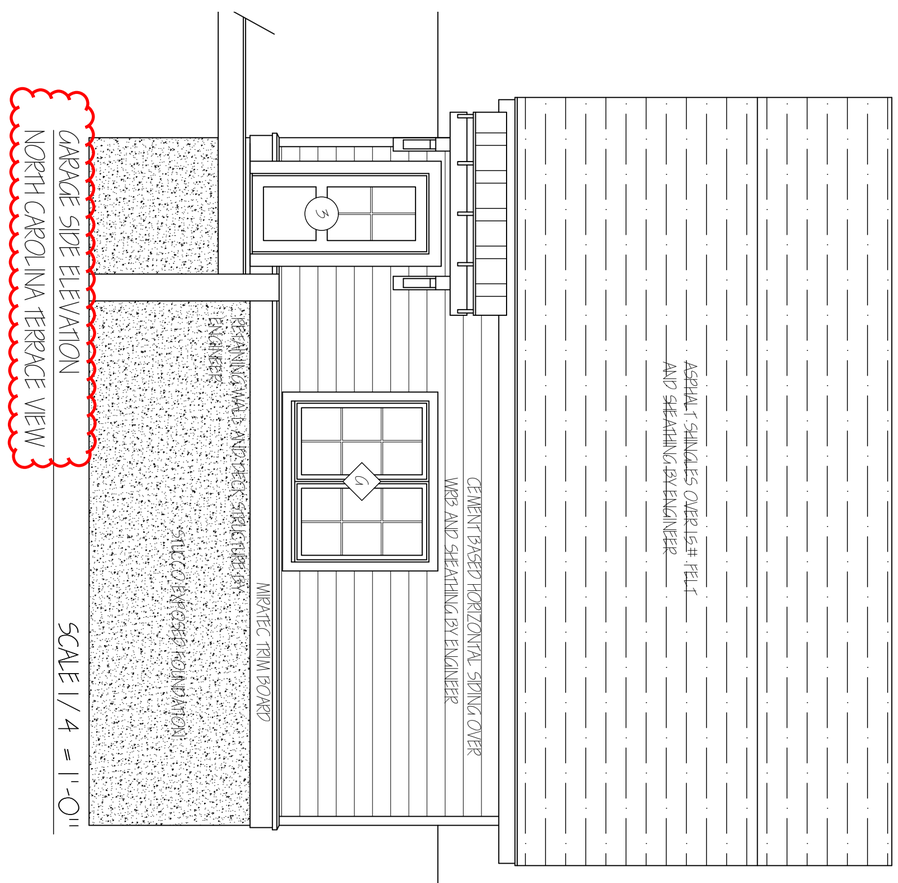
SCALE 1/4 = 1'-0"

GARAGE STREET SIDE ELEVATION
WEST VIRGINIA TERRACE VIEW

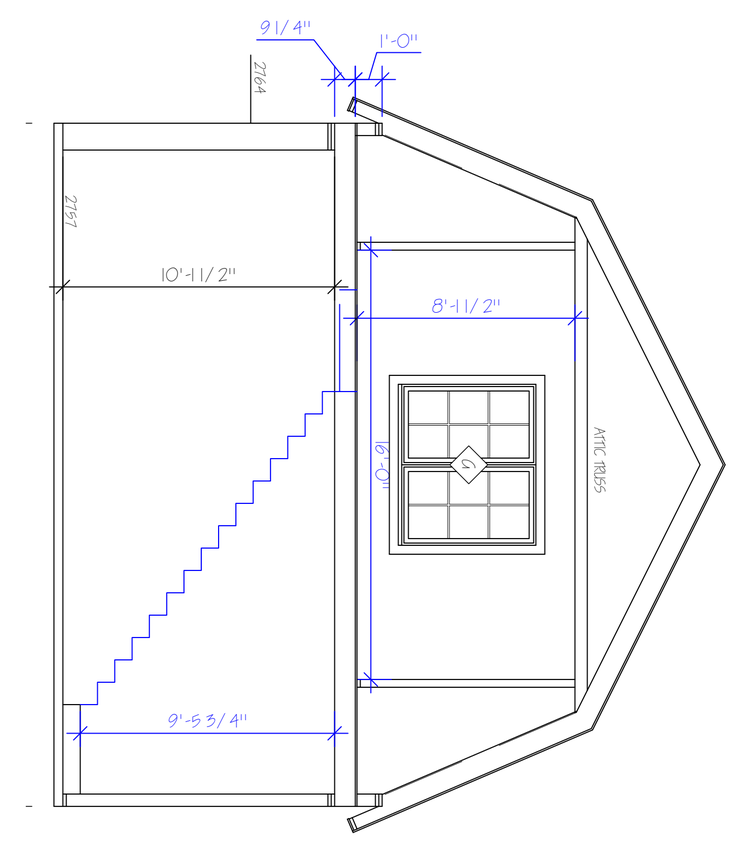


SCALE 1/4 = 1'-0"

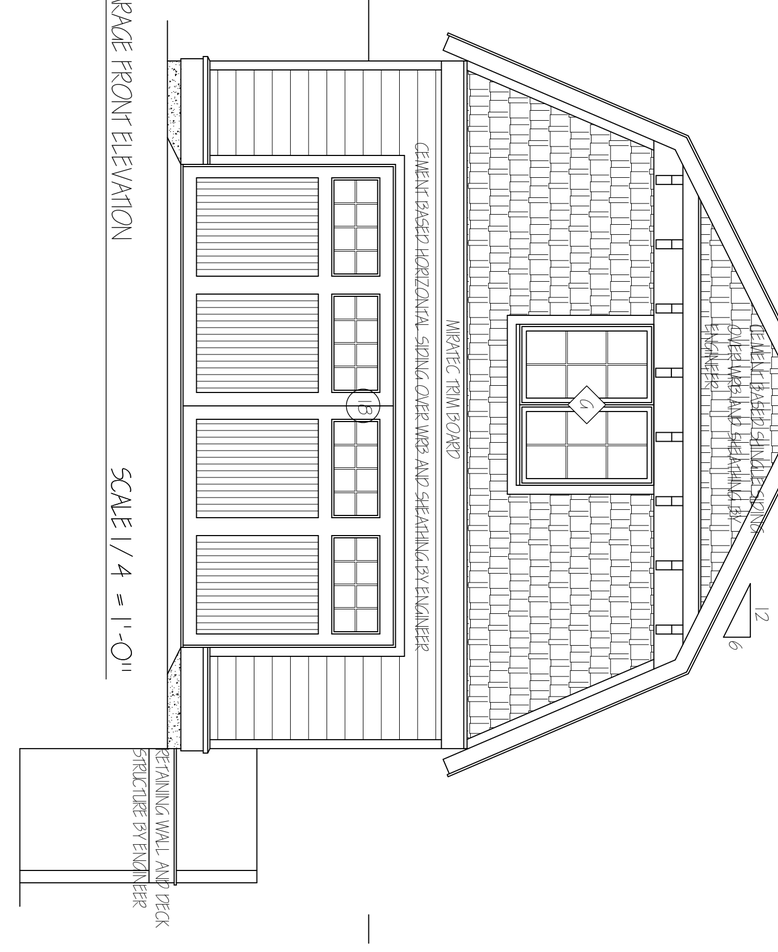
GARAGE SIDE ELEVATION
NORTH CAROLINA TERRACE VIEW



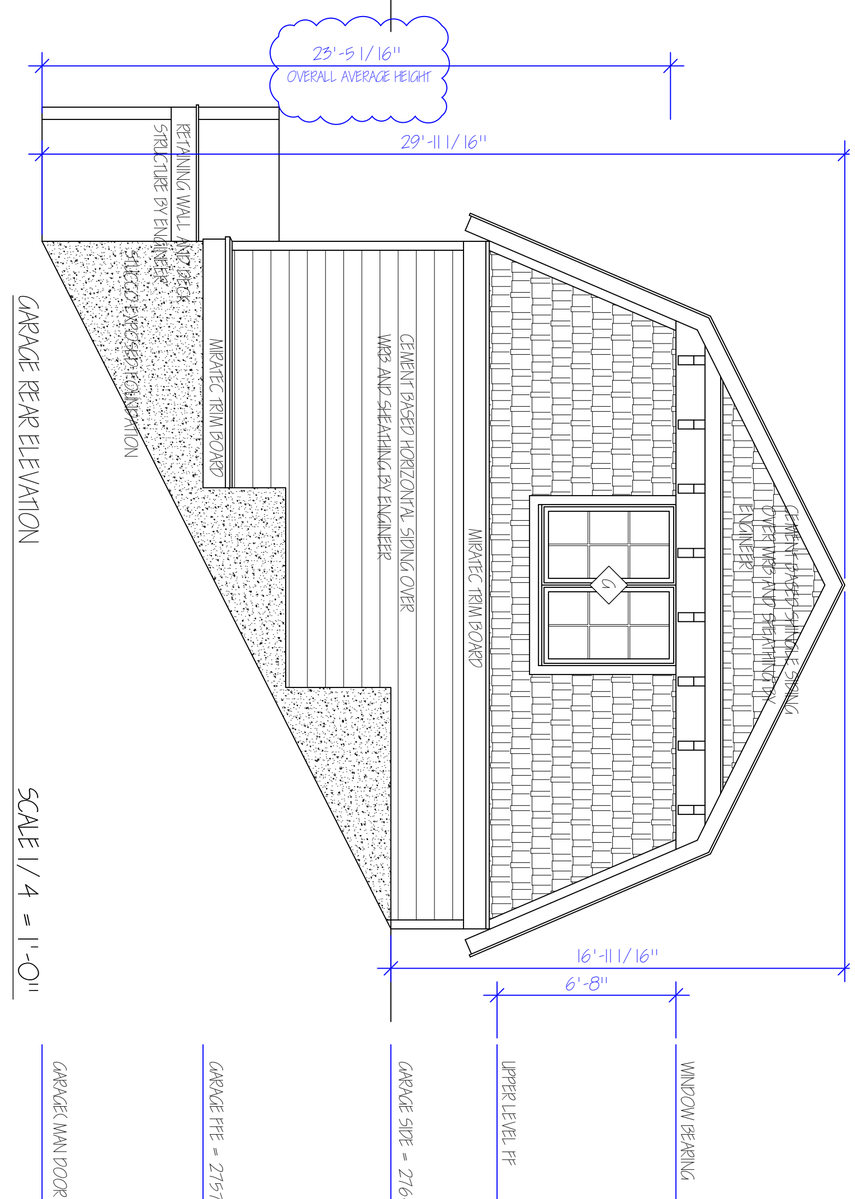
SCALE 1/4 = 1'-0"



GARAGE FRONT ELEVATION



SCALE 1/4 = 1'-0"



GARAGE REAR ELEVATION

SCALE 1/4 = 1'-0"

8

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS
325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS
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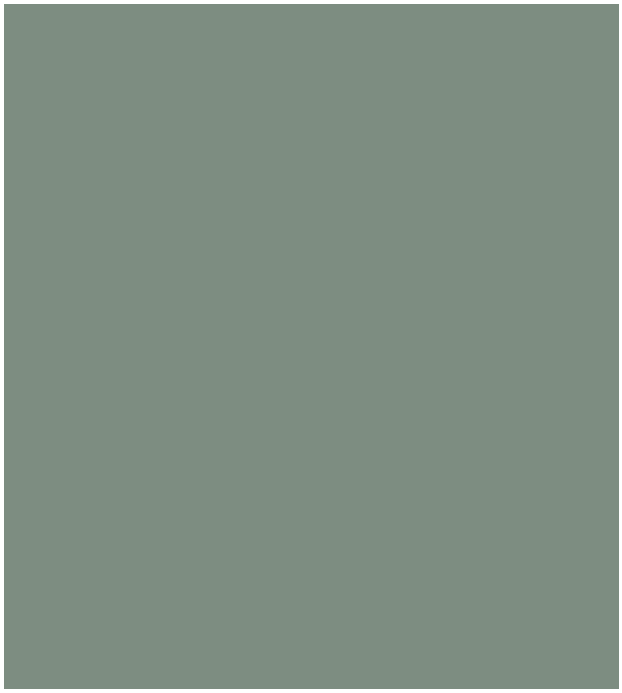
828.674.0273 – TIFFANY@PRUDHOMMEDESIGN.COM

TIFFANY NICOLE PRUDHOMME
REGISTERED ARCHITECT
12681
NORTH CAROLINA
HENDERSONVILLE, N.C.

Exterior Colors- 325 North Carolina Terrace

Sample elevation



Main House Color: Benjamin Moore-Garden Green 699. LRV 25

https://www.benjaminmoore.com/en-us/paint-colors/color/699/garden-oasis

Metal Roof Color (House trim to match): Appalachian Metal, Burnished Slate. LRV 10.57

https://kpa3c3.p3cdn1.secureserver.net/wp-content/uploads/2023/10/Appalachian-Metal-Sales-Color-Chart.pdf

Shingles: Nichiha, Sierra Premium Shake-Prefinished Maple

https://www.nichiha.com/products/premium-plank-siding?colors=Light-Brown

Exterior Window Finish: Andersen Windows, Terratone finish. LRV 14.93

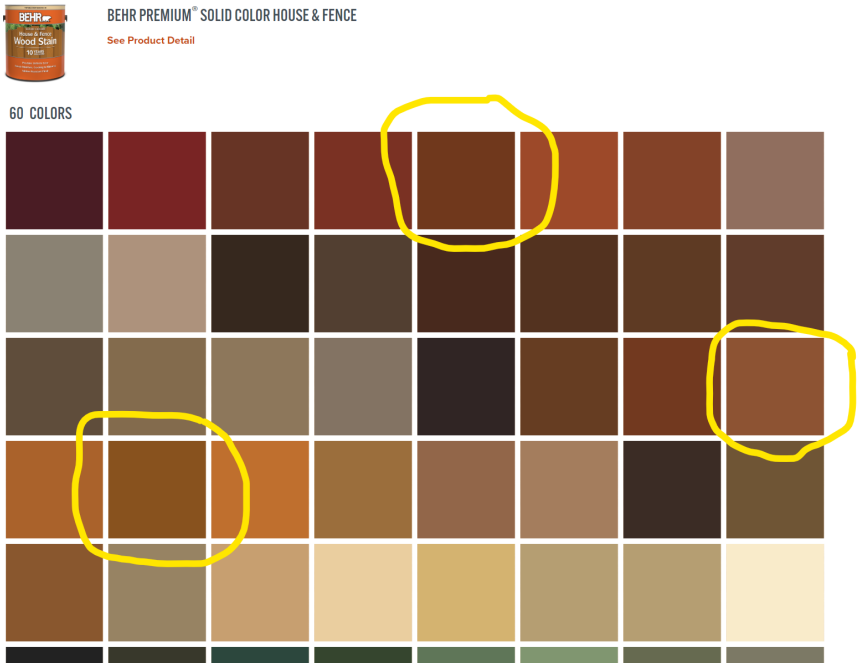
Alternate shingle stain colors below:

https://www.behr.com/consumer/colors/wood-stain/explore/solid-color

(Top) California Rustic SC -130 LRV 12.64

(Left) Curry SC-134 LRV 20.14

(Right)Redwood Naturaltone SC-122 LRV 15.74



TOWN OF MONTREAT
P. O. Box 423, Montreat, NC 28757
Tel: (828) 669-8002 | Fax: (828) 669-3810
www.townofmontreat.org

Staff Report
VA-2023-03

Variance Request (VA-2023-03) – A Variance request submitted by John Hennis (on behalf of the Property Owners, Dowd Montreat LLC) to Chapter K Section II(4)(a) of the Montreat General Ordinance to increase the Approved Graded Area from 40% to 89.3% and to Chapter K Section II(4)(j) of the Montreat General Ordinance to increase the approved development intensity ratio from 0.30 to 0.49 on property in the R-2 Zoning District located at 325 North Carolina Terrace approximately 960 feet east of the intersection of North Carolina Terrace and West Virginia Terrace and described as PIN# 071096598200000 within the Town of Montreat.

Created by:

Kayla DiCristina, AICP
Zoning Administrator
Town of Montreat

Created for:

Montreat Board of Adjustment
January 25, 2024

Table of Contents

Table of Figures

STAFF REPORT

See **STAFF FINDINGS** (i.e. Kayla DiCristina, AICP, Montreat Zoning Administrator) in addition to applicant-provided materials. **STAFF FINDINGS** contain references to the Montreat Zoning Ordinance (MZO) and Montreat General Ordinance (MGO) where noted. Only those findings relevant to the variance requested are included in this staff report.

Application Summary

The following report summarizes the Zoning Administrator's review of an application for a Variance submitted by John Hennis (on behalf of the Property Owners, Dowd Montreat LLC) to Chapter K Section II(4)(a) of the Montreat General Ordinance to increase the Approved Graded Area from 40% to 89.3% and to Chapter K Section II(4)(j) of the MGO to increase the approved development intensity ratio from 0.30 to 0.49 on property in the R-2 Zoning District located at 325 North Carolina Terrace approximately 960 feet east of the intersection of North Carolina Terrace and West Virginia Terrace and described as PIN# 071096598200000 within the Town of Montreat.

Property Summary

Parcel Identifier Number (PIN): 071096598200000

Address: 325 North Carolina Terrace, Montreat, NC 28757

Owner: Dowd Montreat LLC
1905 Fendall Ave, Charlottesville, VA, 22903

Applicant: John Hennis (on behalf of the Property Owners, Dowd Montreat LLC)

Zoning: R-2

Current Land Use: Single-family dwellings

Acres: 0.395 acres

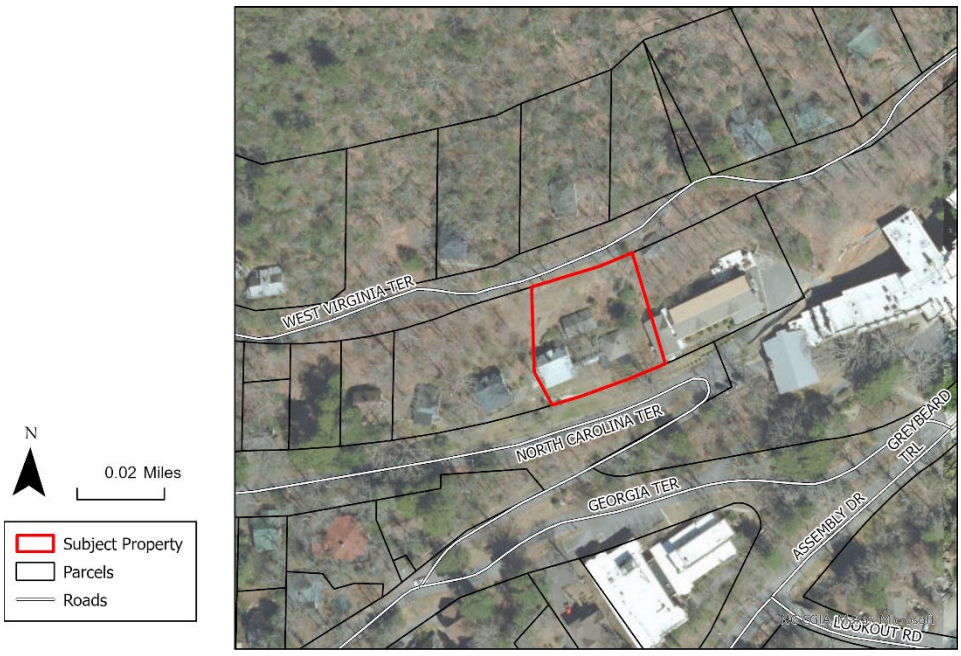


Figure 1: Subject Property Aerial

Public Notice

Staff mailed notice to properties within 250 feet of the Subject Property on **January 11, 2024** (see Variance Request). Staff posted the Subject Property on **January 11, 2024**. The BOA Hearing was scheduled for **January 25, 2024.**

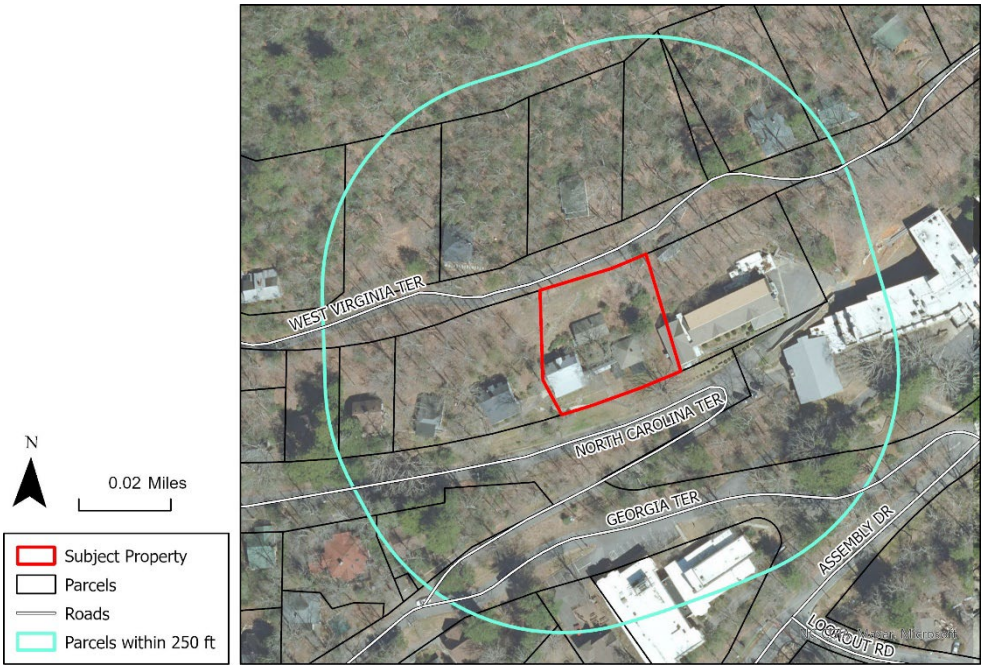


Figure 2: 250 feet Public Notice for Variance Request

Staff Findings

Subject Property Summary

- ❖ The Subject Property is 0.395 acres and is improved with three existing single-family dwelling units. The existing single-family dwelling units are considered non-conforming as their construction pre-dates the establishment of the MZO.
- ❖ The Subject Property abuts North Carolina Terrace, a public road maintained by the Town of Montreat to the south, and West Virginia Terrace, a public road maintained by the Town of Montreat, to the north.
- ❖ There are no streams or floodplain on the Subject Property. The Subject Property has a slope of 44.8% per the Buncombe County Steep Slope Calculator (Exhibit A).

Use & Zoning

The Subject Property is zoned R-2. It is currently improved with three single-family dwellings. Single-family dwellings are allowed by-right in R-2. The existing single-family dwelling units are considered non-conforming as their construction pre-dates the establishment of the MZO. One existing single-family dwelling is proposed to be demolished as part of this development. As part of the overall development plan for the Subject Property, the Applicant proposes to add an addition to one of the existing single-family dwellings and to construct a Detached Garage, the latter of which requires a Special Use Permit as it fronts on a public road (West Virginia Terrace). The Applicant submitted the Special Use Permit application for the Detached Garage concurrently with this Variance application.

The surrounding properties are zoned R-1 Residential Zoning (R-1), R-2, and Institutional (I).

- To the north is West Virginia Terrace, a public road maintained by the Town of Montreat, with properties zoned R-1 containing single-family dwellings.
- To the east is an existing lodging structure (the William Black Lodge) zoned I.
- To the south is North Carolina Terrace, a public road maintained by the Town of Montreat, with properties zoned R-2 containing single-family dwellings.
- To the west is an existing single-family dwelling zoned R-2.

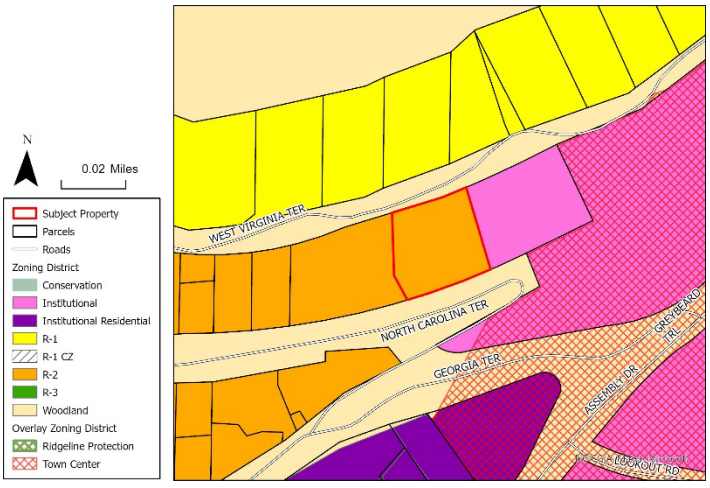


Figure 3: Subject Property and Surrounding Zoning

Setbacks and Lot Size

The Subject Property is an existing lot, and no subdivision activities are proposed with this application. Therefore, lot size requirements do not apply.

Per Section 606.14, Accessory Buildings must meet the minimum Setbacks required by the applicable Zoning District. The Subject Property is located in R-2 and is considered a double frontage lot. Double frontage lots are defined in the MZO as lots that have lot frontage on two separate streets. The Applicant's proposed addition to the existing single-family dwelling and Accessory Building are subject to the setback requirements of a double frontage lot in R-2. The Applicant's proposed addition and Accessory Building intend to meet the required setbacks of the Subject Property.

	Required R-2 Zoning District Setback	Proposed Accessory Building Setback	Proposed Addition Setbacks
Front (North Carolina Terrace)	30 feet	Approx. 81 feet	From existing house = 22 feet* From addition = 59 feet
Side (L/R)	10 feet/10 feet	Approx. 87 feet / 12 feet 3 inches	14 feet 5 inches / From existing house = 73 feet From addition = 78 feet
Front (West Virginia Terrace)	30 feet	30 feet 3 inches	53 feet 2 inches

* The existing single-family dwelling onto which the addition is proposed is considered a Non-Conforming Structure per Section 1000.2 of the MZO. Non-Conforming Structures may be expanded in accordance with all Setback and other requirements of the MZO (and other development ordinances). While the existing single-family dwelling does not meet the required front setback from West Virginia Terrace per the R-2 Zoning District, the addition does and is therefore permitted.

Post-Construction Stormwater Measures

As part of the Applicant's overall development plan, the Applicant will manage stormwater using a series of stormwater conveyance measures leading water to river rock lined swales, a seven-foot storage tank, and a 120 square foot detention basin with a six-foot stone weir. Rain barrels are proposed throughout the new construction areas where gutters and downspouts terminate. For purposes of this Variance application, the Applicant's proposed stormwater management system sufficiently detail how post-development stormwater run-off will be controlled and managed. Prior to permit issuance, the Applicant will be required to obtain a Stormwater Control Permit and comply with the Town of Montreat's General Ordinance (MGO) Chapter K Article III.

Hillside Development Ordinance

The Subject Property has a slope of 44.8% per the Buncombe County Steep Slope Calculator (Exhibit A). Therefore, it is subject to the MGO Chapter K Article IV. The Subject Property is considered a Non-Conforming Improved Lot. A Non-Conforming Improved Lot is defined as any improved lot in existence prior to adoption of the Hillside Development Ordinance (adopted 6/11/2009) that,

whether by aggregate graded area and/or existing impervious area, exceeds the permitted limits established in the Hillside Development Ordinance.

In general, the Subject Property slopes downward from north (West Virginia Terrace) to south (North Carolina Terrace) as indicated by the decreasing contour values as one travels southward away from the northern side of the Subject Property. Shaper decreases in slope, as indicated by contour lines that are closer together, occur along the eastern side of the Subject Property.

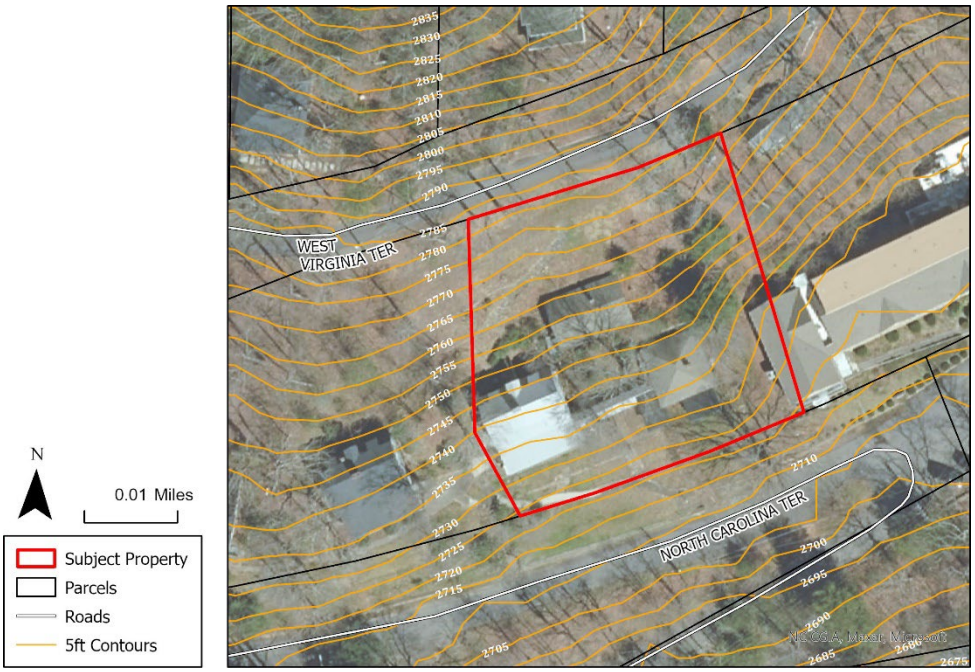


Figure 4: Subject Property Topography

Under the MGO Chapter K Article IV Section (II)(4)(a), grading on the Subject Property is limited to 40% of the total lot area, or 6,882 square feet. Currently, the Subject Property contains 10,750 square feet of graded area, or 62% of the total area. These graded areas are comprised of three single-family dwellings. The existing improvements on the Subject Property predate the enactment of the Hillside Development Ordinance and exceed the approved graded area per MGO Chapter K Article IV Section (II)(4)(a).

Under the MGO Chapter K Article IV Section (II)(4)(i), the Subject Property is only permitted to have 5,162 square feet of impervious surface and a development intensity ratio of 0.30. Currently, the Subject Property contains 7,829 square feet of impervious surface and has a development intensity ratio of 0.46. These improvements are comprised of three single-family dwellings. The existing improvements on the Subject Property predate the enactment of the Hillside Development Ordinance and exceed the permitted impervious surface area per MGO Chapter K Article IV Section (II)(4)(i).

The MGO Chapter K Article IV Section (II)(4)(h) states that Non-Conforming Improved Lots that exceed the limits for grading and/or impervious areas shall be combined with contiguous lots in the same ownership before further development is permitted. The Applicant does not own either of the

contiguous lots to the east or west of the Subject Property so there is no possibility of combining adjacent lots. The MGO Chapter K Article IV Section (II)(4)(h) goes on to state that when there is no possibility of combining adjacent lots, a Variance must be obtained from the Board of Adjustment before any additional improvements are permitted for grading or increasing the impervious area on the Non-Conforming Improved Lot.

As stated previously, the Subject Property contains 10,750 square feet of graded area, or 62% of the total area, and 7,829 square feet of impervious surface with a development intensity ratio of 0.46. The existing graded areas and impervious surfaces on the Subject Property are comprised of three single-family dwellings. As part of the overall development plan, the Applicant proposes to…

GRADED AREAS

- Retain 10,750 square feet of graded area, which includes the two single-family dwellings on the south side of the Subject Property. 2,800 square feet of this existing grading area is within the boundaries of the new construction.
- Add 4,624 square feet of graded area in the form of a driveway, addition, and Detached Garage on the north side of the Subject Property. This figure does not include the existing 2,800 square feet of existing grading area within the boundaries of the new construction.

IMPERVIOUS AREA

- Retain 5,199 square feet of the existing impervious surface, which includes the two single-family dwellings on the south side of the Subject Property.
- Remove 2,360 square feet of the existing impervious surface, which includes the single-family dwelling on the north side of the Subject Property.
- Add 3,243 square feet of new impervious surface in the form of a driveway, addition, and Detached Garage on the north side of the Subject Property.

The Applicant proposes a final graded area of 15,374 square feet or 89.3% of the total site area. 10,750 square feet of the final graded area is comprised of existing graded area. The Applicant also proposes a final impervious surface figure of 8,442 square feet and a development intensity ratio of 0.49 on the Subject Property. 5,199 square feet of the total impervious surface figure is comprised of existing impervious surfaces.

In sum, the Applicant is permitted to have a graded area of 40%, currently has a graded area of 62%, and requests a Variance to permit a graded area of 89.3% to construct the proposed driveway, addition, and Detached Garage. Additionally, the Applicant is permitted to have a development intensity ratio of 0.30, currently has a development intensity ratio of 0.46, and requests a Variance to permit a development intensity ratio of 0.49 to permit the proposed driveway, addition, and Detached Garage. At the time of permitting, the Applicant must demonstrate conformance to all applicable standards in the Hillside Development Ordinance.

Template Variance Decision Language

The Board is welcome to use the language below to issue a decision on the Variance Request. Prior to making the approval motion, the Board must state the specific findings that lead to the approval of each finding of fact as required by Section 310.42 of the MZO.

Findings of Fact:

1. The Board finds that unnecessary hardship would result from the strict application of the Ordinance because…
2. The Board finds that the hardship results from conditions that are peculiar to the property because…
3. The Board finds that hardship did not result from actions taken by the applicant or the property owner because…
4. The Board finds that the variance is consistent with the spirit, purpose, and intent of the ordinance …
5. The Board finds that the variance requested is the minimum variance that will make possible the requested use of the land because…
6. The Board finds that the variance is not a request to permit a use of land that is not permitted in the applicable Zoning District as the variance request is for…

Motion for Decision: "I move that the Board [*approve/approve with conditions/deny*] the Variance Request VA-2023-03 to Chapter K Section II(4)(a) of the Montreat General Ordinance to increase the Approved Graded Area from 40% to 89.3% and to Chapter K Section II(4)(j) of the Montreat General Ordinance to increase the approved development intensity ratio from 0.30 to 0.49 on property in the R-2 Zoning District located at 325 North Carolina Terrace approximately 960 feet east of the intersection of North Carolina Terrace and West Virginia Terrace and described as PIN# 071096598200000 within the Town of Montreat [*List any conditions of approval in the motion, if applicable*]

Exhibits

Exhibit A: Buncombe County Steep Slope Calculator Results

Find Slope for a Parcel

1. Use SimpliCity (http://simplicity.ashevillenc.gov) or mapAsheville (https://arcgis.ashevillenc.gov/mapAsheville/) to find the PIN of the parcel you are interested calculating slope for.

2. Enter the 10 or 15 digit PIN below and click Calculate.

To calculate the slope of multiple parcels enter a comma separated list PINs.

071096598200000 Calculate

Jurisdiction: TOWN OF MONTREAT

Acres: 0.46978

Maximum Elevation: 2780

Percent Slope: 44.82

TOWN OF MONTREAT
NORTH CAROLINA

VA-2023-03
Variance Request

PIN # 071096598200000
Montreat Board of Adjustment
January 25, 2024

Subject Property Overview

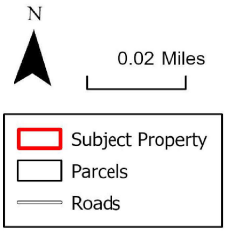
PIN: 071096598200000

Address: 325 North Carolina Terr
Montreat, NC 28757

Owner: Dowd Montreat LLC
1905 Fendall Ave,
Charlottesville, VA, 22903

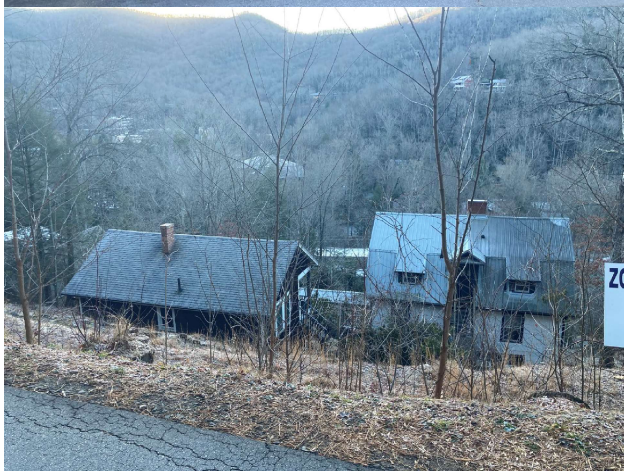
Size: 0.395 acres

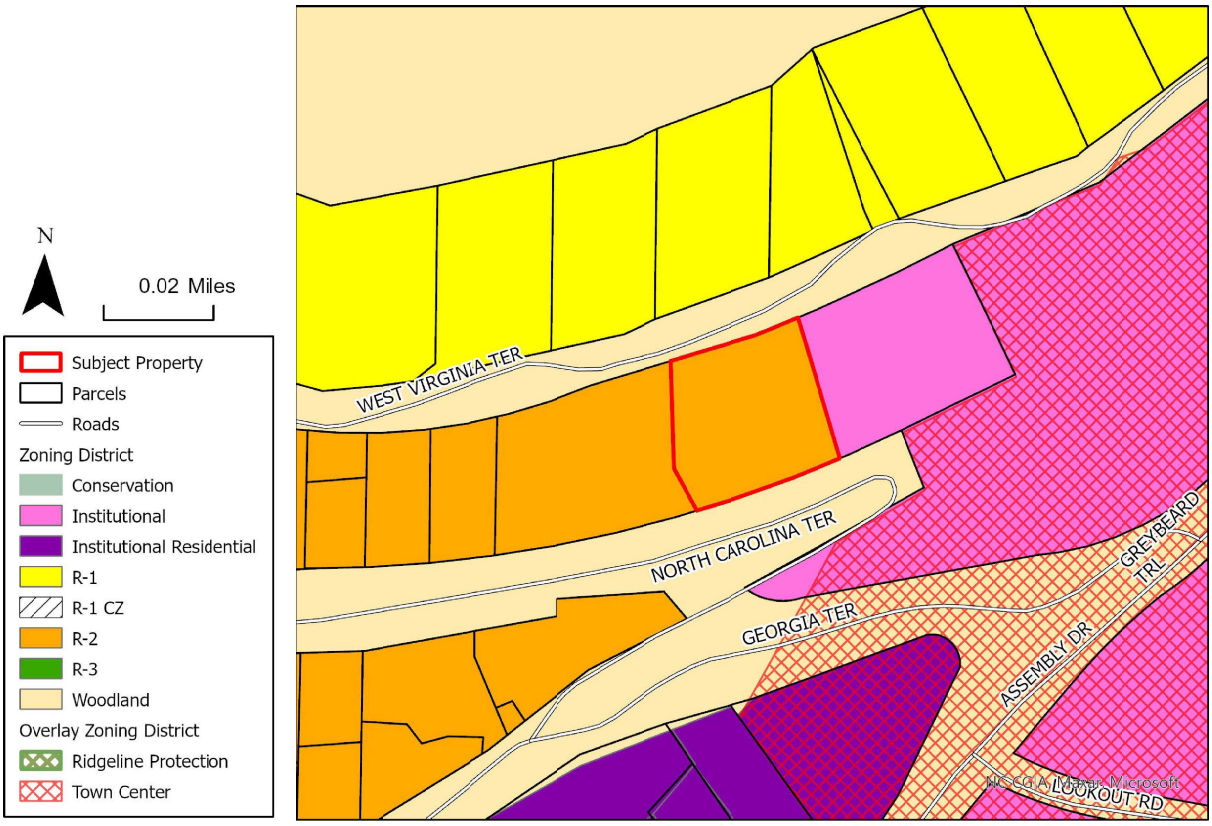
Current Zoning and Use:
R-2 Zoning District; three existing single-family dwellings



From North Carolina looking north

From West Virginia looking south





Zoning & Land Use

Application Overview

Applicant: John Hennis (on behalf of the Property Owners, Down Montreat, LLC)

Application Summary:

- The Subject Property must comply with the Hillside Development Ordinance and is considered a Non-Conforming Improved Lot. Grading on the subject property is limited to 40% of the total lot area or, 6,882 square feet. Impervious surface on the Subject Property is limited to 5,162 square feet (development intensity ratio of 0.30). The Applicant proposes a final graded area of 15,374 square feet or 89.3% of the total lot area and a final impervious surface amount of 8,442 square feet (development intensity ratio of 0.49).
- Variances are requested to Chapter K Section II(4)(a) and Chapter K Section II(4)(j) of the Montreat General Ordinance (MGO) to increase the permitted graded area from 40% to 89.3% and to increase the approved development intensity ratio from 0.30 to 0.49.

STAFF FINDINGS

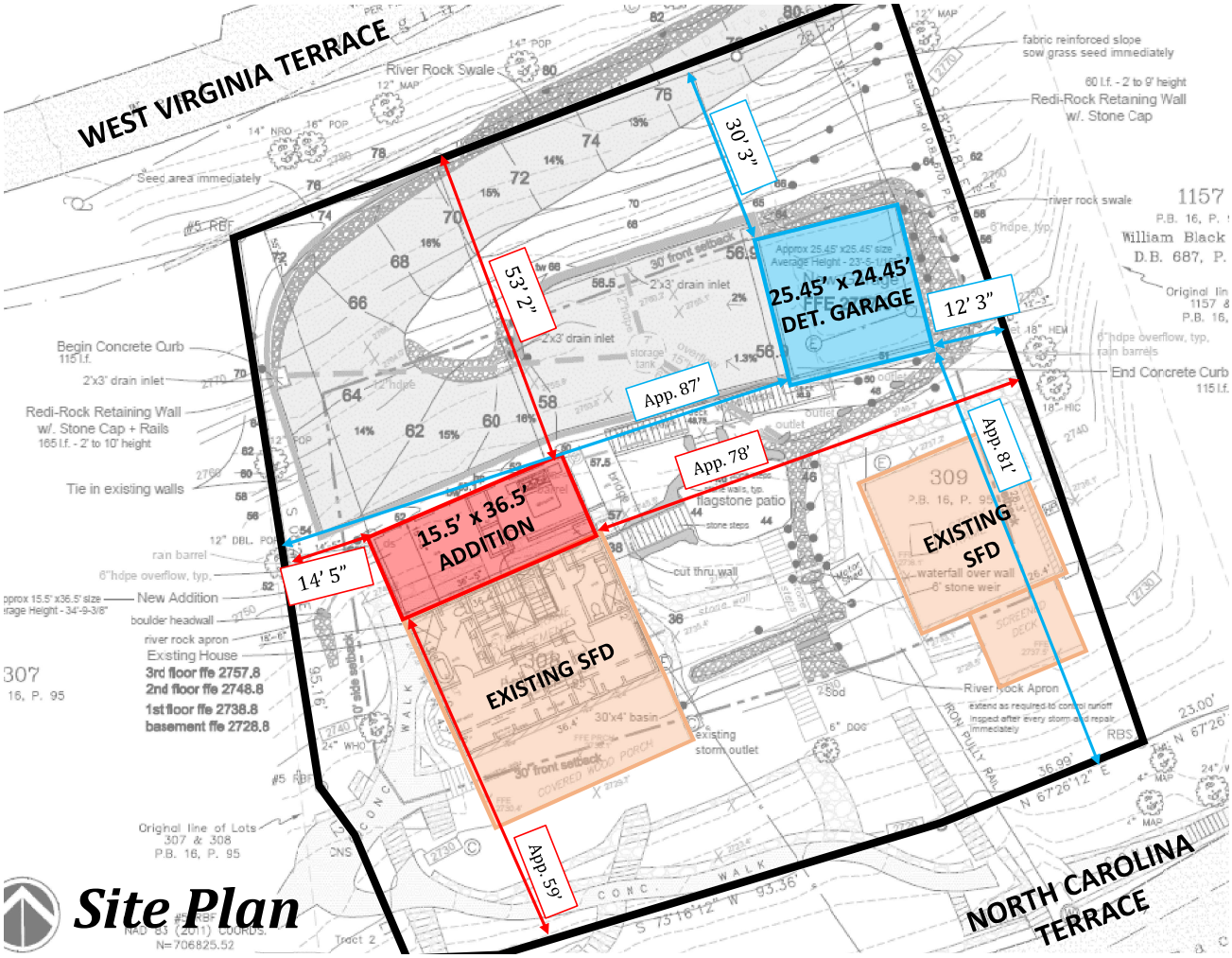
Use and Zoning

- The Subject Property is zoned R-2.
- It is currently improved with three single-family dwellings constructed prior to the enactment of the Montreat Zoning Ordinance.
- The Applicant proposes to construct an addition and a Detached Garage on the north side of the Subject Property and submitted a Special Use Permit application for the Detached Garage concurrently with this application as it fronts on a public road.

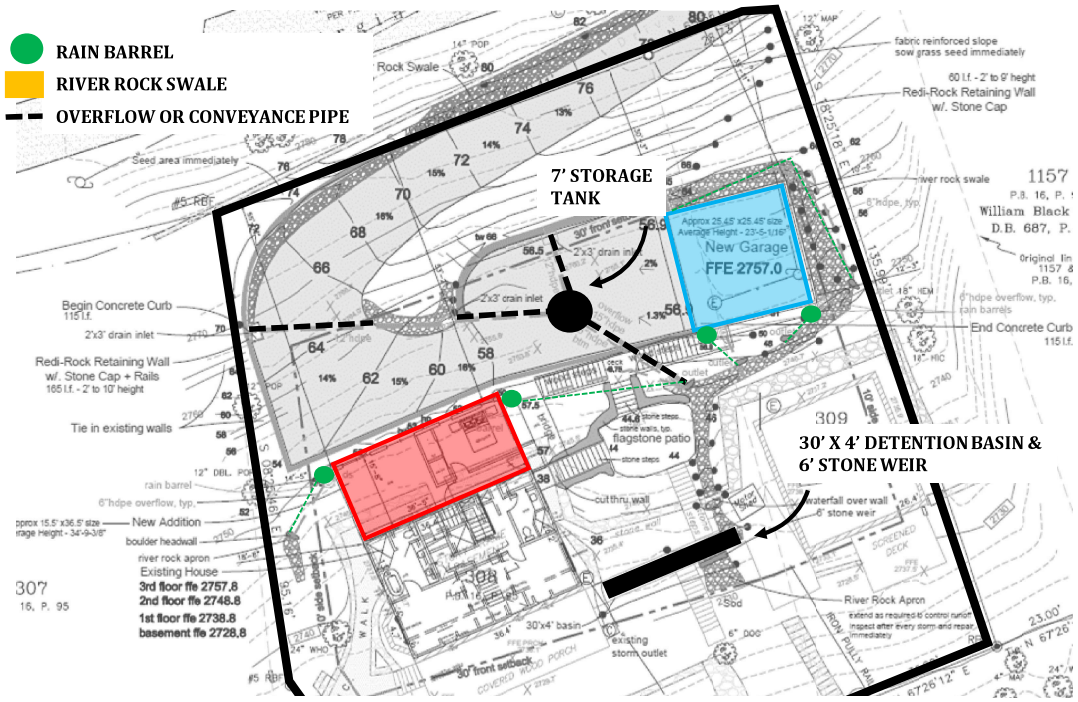
Setbacks and Lot Size

- The Subject Property is an existing lot, so lot size requirements do not apply.
- The Subject Property is considered a double frontage lot. The addition and Detached Garage must comply with the required setbacks in the R-2 Zoning District on a double frontage lot.
- The Applicant intends to meet all required setbacks.

	Required R-2 Zoning District Setback	Proposed Accessory Building Setback	Proposed Addition Setbacks
Front (North Carolina Terrace)	30 feet	Approx. 81 feet	From existing house = 22 feet* From addition = 59 feet
Side (L/R)	10 feet/10 feet	Approx. 87 feet / 12 feet 3 inches	14 feet 5 inches / From existing house = 73 feet From addition = 78 feet
Front (West Virginia Terrace)	30 feet	30 feet 3 inches	53 feet 2 inches



Staff Findings



POST-CONSTRUCTION STORMWATER MANAGEMENT

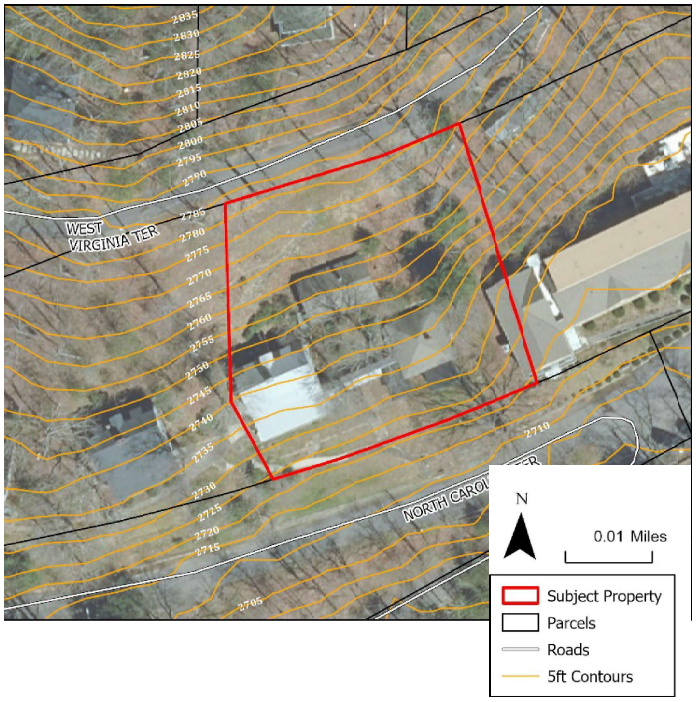
- A series of stormwater conveyance measures leading to small outfalls and rock-lined swales, a seven-foot storage tank, and a 120-square-foot detention basin with a six-foot stone weir.
- Rain barrels are proposed throughout the new construction where gutters and downspouts terminate.

Staff Findings

* Full conformance to standards will be determined by staff at the time of permitting.

HILLSIDE DEVELOPMENT ORDINANCE*

- The Subject Property has a slope of 44.8% and is subject to the Hillside Development Ordinance.
- In general, the Subject Property slopes downward from north (West Virginia Terrace) to south (North Carolina Terrace) and has sharper decreases in slope on the eastern side of the lot.
- The Subject Property is considered a Non-Conforming Improved lot. A Non-Conforming Improved lot is defined as any improved lot in existence prior to adoption of the Hillside Development Ordinance (6/11/2009) that, whether by aggregate graded area and/or existing impervious area, exceeds the permitted limits established in the Hillside Development Ordinance.



GRADED AREA

- Properties subjected to the Hillside Development Ordinance are limited in the amount of grading permitted on site by the Approved Graded Area. This is measured based on the total lot area.
- Per the MGO Chapter K Article IV Section (II)(4)(a), grading on the Subject Property is limited to 40% of the total lot area, or 6,882 square feet. Currently, the Subject Property contains 10,750 square feet of graded area or 62% of the total area. **The existing graded area exceeds the permitted graded area per the HDO.**
- To resolve this discrepancy, the MGO Chapter K Article IV Section (II)(4)(h) requires the Subject Property to be combined with adjacent properties in the same ownership. If this is not possible, a Variance must be requested from the Board of Adjustment.

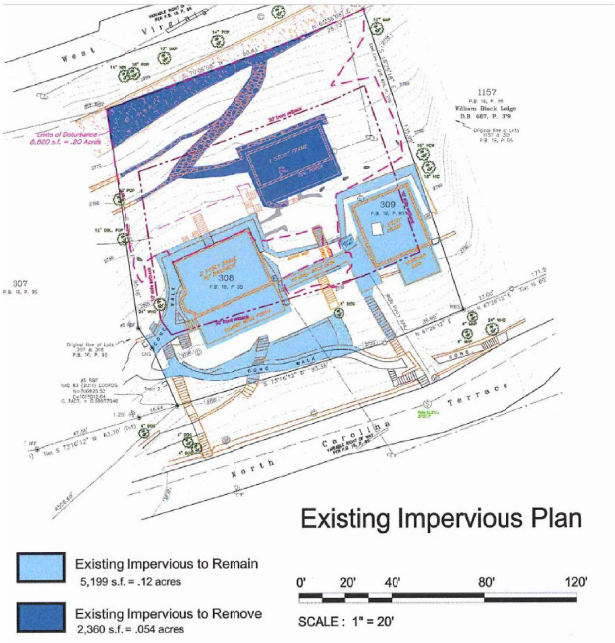
★ **Location**

IMPERVIOUS SURFACE

- Properties subjected to the Hillside Development Ordinance are limited in the amount of impervious surface permitted on site by the development intensity ratio. The development intensity ratio is the permitted ratio of unimproved areas to developed or improved areas.

- Per the MGO Chapter K Article IV Section (II)(4)(i), the Subject Property is only permitted to have 5,162 square feet of impervious surface and a development intensity ratio of 0.30. The Subject Property currently contains 7,829 square feet of impervious surface and has a development intensity ratio of 0.46. **The existing impervious surface exceeds the allowed impervious surface limit per the HDO.**

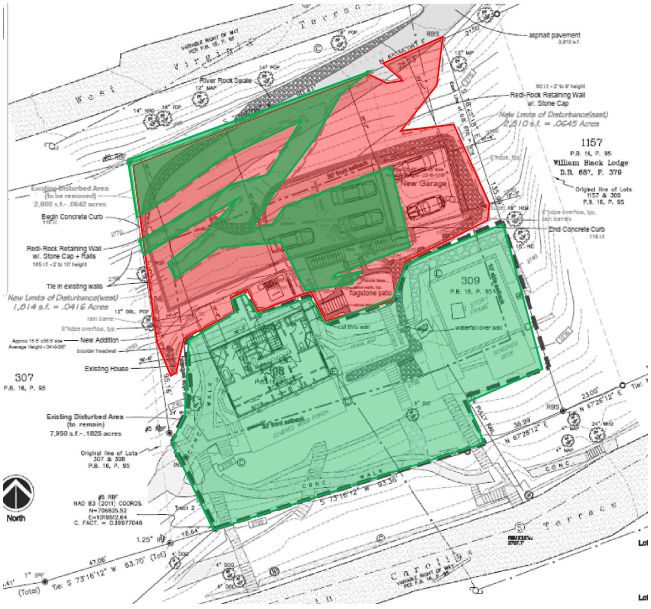
- To resolve this discrepancy, the MGO Chapter K Article IV Section (II)(4)(h) requires the Subject Property to be combined with adjacent properties in the same ownership. If this is not possible, a Variance must be requested from the Board of Adjustment.



RETAIN
ADD

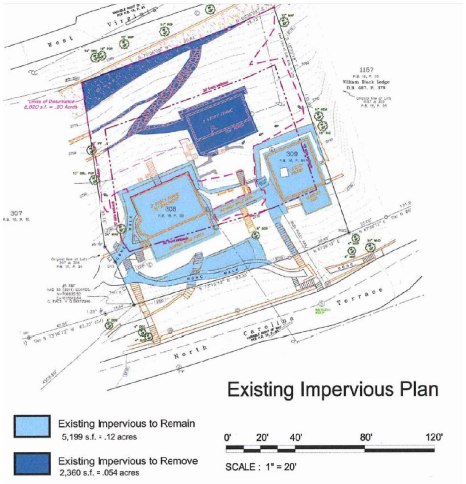
GRADED AREA

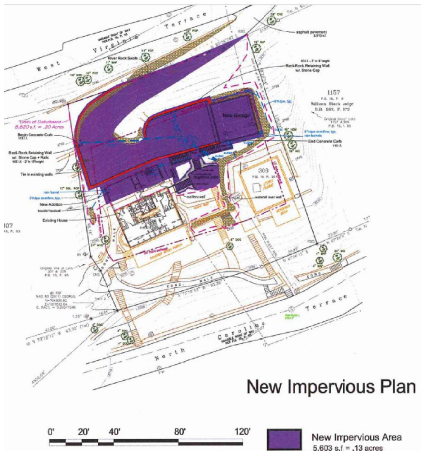
- The Applicant proposes to…
  - **Retain 10,750 square feet of graded area**, which includes the two single-family dwellings on the south side of the Subject Property.
  - **Add 4,624 square feet of graded area** in the form of a driveway, addition, and Detached Garage on the north side of the Subject Property.
- The **final graded area figure is 15,374 square feet or 89.3% of the total site area.** 10,750 square feet is existing graded area.
- In sum, the Applicant is permitted to have a graded area of 40%, currently has a graded area of 62%, and requests a Variance to permit a graded area of 89.3% to construct the proposed driveway, addition, and Detached Garage.



IMPERVIOUS SURFACE

- The Applicant proposes to…
  - **Retain 5,199 square feet** of the existing impervious surface, which includes the two single-family dwellings on the south side of the Subject Property.
  - **Remove 2,360 square feet** of the existing impervious surface, which includes the single-family dwelling on the north side of the Subject Property.
  - **Add 3,243 square feet** of new impervious surface in the form of a driveway and Detached Garage on the north side of the Subject Property.
- The **final impervious surface figure is 8,442 square feet and a development intensity ratio of 0.49**. 5,199 square feet is existing impervious surface.
- In sum, the Applicant is permitted to have a development intensity ratio of 0.30, currently has a development intensity ratio of 0.46, and requests a Variance to permit a development intensity ratio of 0.49 to permit the proposed addition, driveway, and Detached Garage





RETAIN
REMOVE
ADD

From North Carolina looking north

From West Virginia looking south

Board of Adjustment Decision

The Board shall grant a Variance upon showing of **all** of the following:

310.42(A) Unnecessary hardship would result from the strict application of the Ordinance. It shall not be necessary to demonstrate that, in the absence of the Variance, no reasonable use can be made of the property.

310.42(B) The hardship results from conditions that are peculiar to the property, such as location, size, or topography. Hardships resulting from personal circumstances, as well as hardships resulting from conditions that are common to the neighborhood or the general public, may not be the basis for granting a Variance

310.42(C) The hardship did not result from actions taken by the applicant or the property owner. The act of purchasing property with knowledge that circumstances exist that may justify the granting of a Variance shall not be regarded as a self-created hardship.

310.42(D) The Variance is consistent with the spirit, purpose and intent of the Ordinance such that public safety is secured and substantial justice is achieved.

310.42(E) The Variance requested is the minimum Variance that will make possible the requested Use of the land, Building or Structure.

310.42(F) The Variance is not a request to permit a Use of land, Building or Structure which is not permitted in the applicable Zoning District.

As a note… If a Variance is granted it shall be the least possible deviation from the requirements of this Ordinance. In granting any Variance, the Board of Adjustment may prescribe appropriate conditions and safeguards in conformity with this Ordinance. Setback Variances are granted for the development shown on the site plan included in the application.

TOWN OF MONTREAT
NORTH CAROLINA

VA-2023-03
Variance Request

PIN # 071096598200000

Montreat Board of Adjustment

January 25, 2024

TOWN OF MONTREAT
NORTH CAROLINA

SPECIAL USE PERMIT APPLICATION

Town of Montreat Planning and Zoning
1210 Montreat Road, Black Mountain, NC 28711 | (828) 669-8002
REQUIRED FEE: $300.00 (CASH OR CHECK)

APPLICANT INFORMATION

APPLICANT NAME: John B. Hennis TELEPHONE: 540-319-0500
MAILING ADDRESS: 1905 Fendall Ave CITY: Charlottesville STATE: VA ZIP: 22903
EMAIL: johnbhennis@gmail.com

PROPERTY INFORMATION

PLEASE NOTE: *A RECORDED SURVEY MAP, DEED, OR OFFER TO PURCHASE MAY BE REQUIRED AT THE ZONING ADMINISTRATOR'S DISCRETION.*

ADDRESS: 325 North Carolina Terrace CITY: Montreat STATE: NC ZIP: 28757
PIN# : 0710-96-5982 TOTAL ACREAGE: 0.395 FLOODPLAIN: ☐ YES ☑ NO
ZONING: R-2 OTHER: _____ OVERLAY ZONING: N/A
PROPERTY OWNER: Dowd Montreat LLC TELEPHONE: 540-319-0500
MAILING ADDRESS: 1905 Fendall Ave Charlottesville VA 22903

PROPOSED LAND USE

TYPE OF LAND USE: ☑ Residential ☐ Non-Residential ☐ Other
DESCRIPTION OF PROPOSED DEVELOPMENT: Request is for a Special Use Permit to allow a 1010 SF detached garage (Accessory Building) with a final height taller than ten feet to be placed in the front yard of a single-family dwelling unit.

FINDINGS OF FACT

THE TOWN OF MONTREAT'S BOARD OF ADJUSTMENT WILL RENDER A DECISION ON THIS APPLICATION AT A PUBLIC HEARING. IN APPROVING THE REQUEST, THE BOARD OF ADJUSTMENT WILL EXAMINE THE APPLICATION AND MUST FIND THAT THE FOLLOWING SIX ELEMENTS ARE SATISFIED IN THE PROPOSAL:

MZO 310.621 *The use will not be detrimental to or endanger the public health, safety or general welfare if located where proposed and developed according to the plan as submitted and approved.*

MZO 310.622 *The use meets or will meet all the required and applicable development standards and conditions of the Town of Montreat of the zoning district in which the subject property is located (including without limitation all development standards, conditions, and requirements related to utilities, parking, access, and stormwater drainage).*

MZO 310.623 *The use will not substantially diminish and impair the value of any property any portion of which is located within two hundred fifty feet (250') of the boundary of the subject property.*

MZO 310.624 *The location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will not be injurious to the use and enjoyment of other property, for the purposes already permitted, within the area in which it is located.*

MZO 310.625 *The location and character of the use, if developed according to the plan as submitted and approved, will be in general conformity with the adopted policies and plans, including the comprehensive plan of the Town of Montreat.*

MZO 310.626 *Adequate measures have been taken or will be taken to provide ingress and egress so designed as to minimize congestion in the public streets.*

ATTACHMENTS

THIS APPLICATION MUST BE ACCOMPANIED BY THE FOLLOWING ATTACHMENTS:

1. A response to the six findings listed above and found in the Montreat Zoning Ordinance Sections 310.621 through 310.626.
2. A to scale site plan showing the existing property conditions, the proposed locations, dimensions, and setbacks of any structure to be built or modified, existing and proposed impervious areas, proposed areas of disturbance, and parking areas.

SIGNATURES AND ACKNOWLEDGEMENT

I, John B. Hennis, hereby certify that all of the information set forth above is true and accurate to the best of my knowledge.

Signature of Applicant — *Date* 12/18/23

John B. Hennis (Owners Representative)

Printed Name of Applicant

OFFICE USE ONLY

☐ Complete ☐ Incomplete

Zoning Administrator Signature — *Date*

Printed Name of Zoning Administrator

Fee:_____ Paid: ☐ Yes ☐ No Payment Method:_____

Scheduled Board of Adjustment Meeting Date:_____

Town Of Montreat – Special Use Permit Application for 325 North Carolina Terrace:

December 13, 2023

Applicant: John B. Hennis, Owner's Representative for Dowd Montreat LLC

Findings of Fact:

310.621 The Use will not be detrimental to or endanger the public health, safety or general welfare if located where proposed and developed according to the plan as submitted and approved.

(A) This proposed project will not be detrimental to or endanger the public health, safety or general welfare when completed. As evident from the preliminary drawings submitted, the design team has developed a plan that includes utilizing the existing entrance off West Virginia Terrace. Additionally, we are maintaining a similar site footprint by replacing an existing structure with a garage, minimizing the impact on the surrounding area.

310.622 The Use meets or will meet all the required and applicable development standards and conditions of the Town of Montreat (including without limitation all development standards, conditions, and requirements related to utilities, parking, access, and stormwater drainage).

(B) The proposed project will meet all required and applicable development standards and conditions of the Town of Montreat. The proposed design for the project has addressed all requirements related to utilities, parking, access and stormwater retention. Provisions have been made to address parking requirements and a storm water management on the property. See addendum A for additional information.

310.623 The Use will not substantially diminish and impair the value of any property any portion of which is located within two hundred fifty feet (250') of the boundary of the subject property.

(C) This project will not substantially diminish or impair the value of any property any portion of which is located within 250'. The development of the hillside adjacent to West Virginia Terrace and construction of the garage with upgraded exterior façade features of the principal building including premium siding, trim and metal roof in low LRV finishes that will prevent the diminishment or impairment of value of surrounding properties.

310.624 The location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will not be injurious to the use and enjoyment of other property, for the purposes already permitted, within the area in which it is located.

(D) When completed this project will be in harmony with the area and will not be injurious to other property owners. By maintaining a similar site footprint by replacing an unused aging structure with a modern garage the design team has created a plan that echoes the surrounding area with minimal impact on adjacent property owners.

310.625 That the location and character of the Use, if developed according to the plan as submitted and approved, will be in general conformity with the adopted policies and plans, including the Comprehensive Plan of the Town of Montreat.

(E) As submitted, the project will be in general conformity with the adopted policies and plans, including the Comprehensive Plan of the Town of Montreat. The design of this project incorporated many characteristics including exterior finishes such as premium exterior siding, trim and metal roof that exist on adjoining properties and throughout the Town.

310.626 That adequate measures have been taken or will be taken to provide ingress and egress so designed as to minimize congestion in the public streets.

(F) The design of this project and specifically the new driveway have been designed to minimize any impact of traffic as it relates to West Virginia Terrace.

Addendum A:

Montreat Zoning Ordinance Section 606.2: Garages in Front Yard

606.21: The zoning Administrator finds this requirement to be met, as referenced in the staff report.

606.22: The garage will be constructed of materials that will meet or exceed the quality and appearance of the principal building. These materials include premium siding, trim and metal roof that will match the principal house.

606.23: The garage will be enclosed and be equipped with an operable garage door and will be maintained in good working order.

606.24: The garage doors will be kept closed when the house is unoccupied for more than one day.

606.25: The property owner will maintain the garage and its appearance in the condition it was when completed and approved by the Building Inspector.

LOCATION MAP

I, JOHN M. STOLLERY, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN D.B. 2218, P. 987 AND P.B. 16, P. 95,) THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AS BROKEN LINES AS DRAWN FROM INFORMATION FOUND IN OTHER REFERENCE SOURCES; THAT THE RATIO OF PRECISION IS 1:10,000; AND THAT THIS MAP MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600).THIS 17th DAY OF FEBRUARY, 2022.

I, JOHN M. STOLLERY, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GNSS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING WAS USED TO PERFORM THE SURVEY.

1. CLASS OF SURVEY: CLASS A (HORIZONTAL)
2. POSITIONAL ACCURACY: NOT TO EXCEED 0.10 FT H. & V.
3. TYPE OF FIELD PROCEDURE: RTK-VRS
4. DATES OF SURVEY: 01/05/2022
5. DATUM/EPOCH: H-NAD 83-2011 EPOCH 2010, V-NAVD 88
6. PUBLISHED/FIXED-CONTROL USED: NC VRS NETWORK
7. GEOID MODEL: GEOID 12B
8. COMBINED GRID FACTOR: 0.99977046
9. UNITS USED: US SURVEY FOOT

*RTK Observations were used only to tie property to NC Grid.

NORTH CAROLINA PROFESSIONAL SEAL L-2996 LAND SURVEYOR JOHN M. STOLLERY

DocuSigned by:
John M. Stollery
39A5B113EA644FF...

PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER L-2996

LEGEND

- △ . . NGS GEODETIC MONUMENT
- ⊡ CMF. . . CONCRETE MONUMENT FOUND
- ◉ CNS . . CONCRETE NAIL SET
- ◉ IPF . . IRON PIN FOUND-SIZE AS NOTED
- ◉ RBF . . REBAR FOUND-SIZE AS NOTED
- ◉ RBS . . #5 REBAR W/ ID CAP SET
- ○ . . . CALCULATED POINT-NOT SET
- . . . FIRE HYDRANT
- Ⓒ . . . SEWER CLEANOUT
- Ⓔ . . . ELECTRIC METER
- Ⓖ . . . GAS METER
- Ⓟ . . . PHONE PEDESTAL
- Ⓥ . . . WATER VALVE
- Ⓦ . . . WATER METER
- HP . . . HEAT PUMP
- . . . AREA LIGHT
- Ⓢ S . . . EXISTING MANHOLE & SEWERLINE
- OH U . . . UTILITY POLE & OVERHEAD LINES

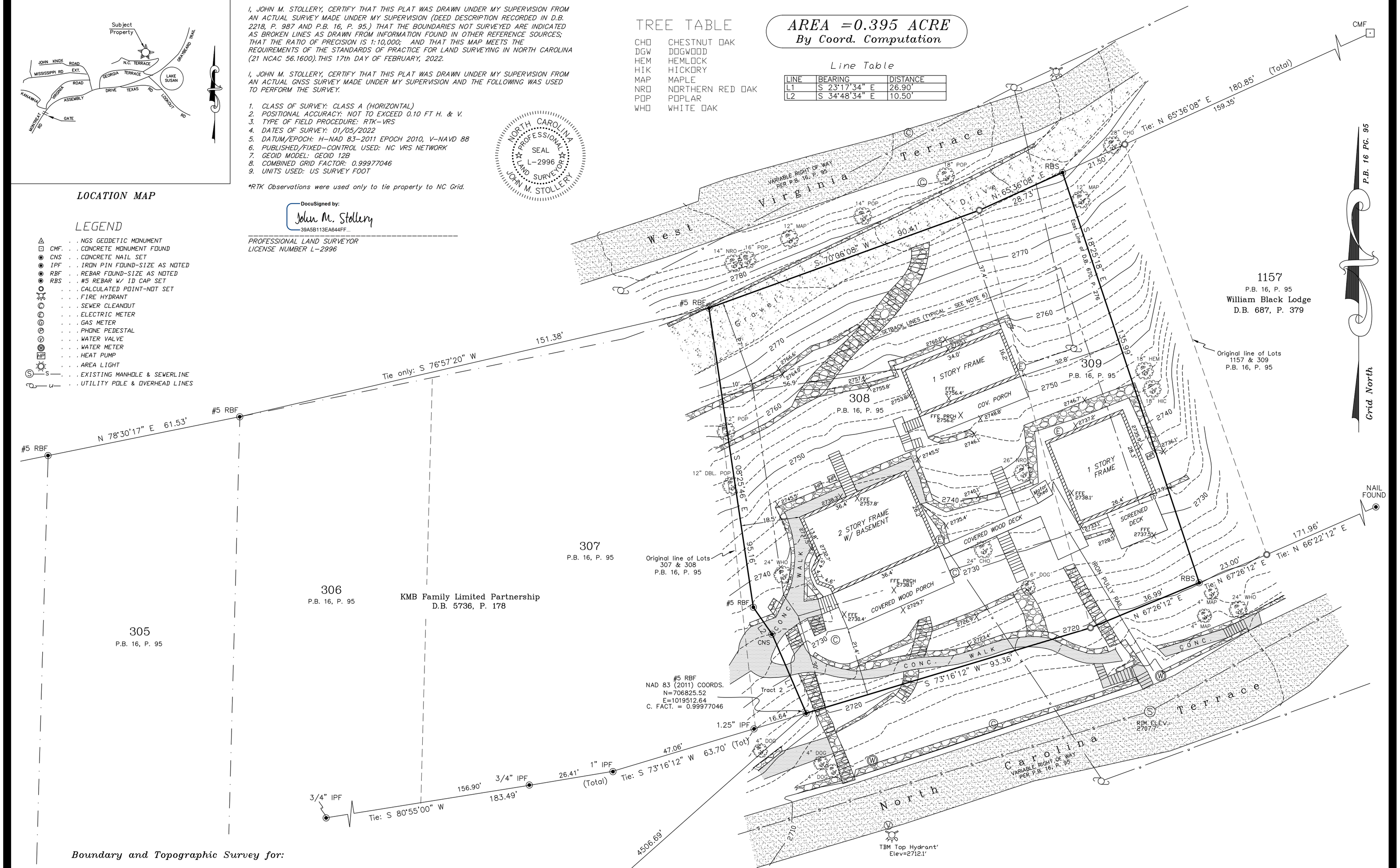
TREE TABLE

CHO	CHESTNUT OAK
DGW	DOGWOOD
HEM	HEMLOCK
HIK	HICKORY
MAP	MAPLE
NRO	NORTHERN RED OAK
POP	POPLAR
WHO	WHITE OAK

AREA =0.395 ACRE
By Coord. Computation

Line Table

LINE	BEARING	DISTANCE
L1	S 23°17'34" E	26.90'
L2	S 34°48'34" E	10.50'



Boundary and Topographic Survey for:

Dowd Montreat, LLC

P.I.N. 0710-96-5982

Town of Montreat, Buncombe County, NC

1 inch = 20' ft. February 17, 2022

20' 0 10' 20' 40' 60'

REFERENCES: DEED BOOK 2218, PAGE 897
DEED BOOK 213, PAGE 569
DEED BOOK 491, PAGE 230
PLAT BOOK 16, PAGE 95

HIGH COUNTRY SURVEYORS, INC.
403-B WEST STATE ST., BLACK MOUNTAIN, NC 28711 (828) 664-0091
HIGHCOUNTRYSURVEYORS.NET CORPORATE LICENSE NUMBER C-1854

NOTES

1. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE SEARCH, AND MAY NOT SHOW ALL EASEMENTS, RESTRICTIONS, RIGHTS OF WAY, ENCUMBRANCES, OR OTHER FACTS THAT MAY BE DISCLOSED BY A FULL TITLE EXAMINATION PERFORMED BY AN ATTORNEY AT LAW. THIS SURVEY SHALL NOT BE CONSIDERED A CERTIFICATION OF OWNERSHIP, ZONING, TITLE, OR GUARANTEE THAT THE PROPERTY IS FREE FROM ENCUMBRANCES.
2. THE DISTANCES AND ACREAGE SHOWN ON THIS PLAT ARE GRID MEASUREMENTS TO CONVERT TO GROUND DISTANCES AND ACREAGE, DIVIDE BY THE COMBINED FACTOR OF 0.99977046.
3. UNLESS STATED OTHERWISE HEREON, ONLY EVIDENCE OF EASEMENTS, BURIED UTILITIES, PIPELINES, OR STRUCTURES THERETO WHICH ARE READILY APPARENT FROM A CASUAL ABOVE GROUND VIEW OF PREMISES ARE SHOWN. INTERESTED PARTIES SHOULD INVESTIGATE THE EXISTENCE OF EASEMENTS, BURIED UTILITIES, OR PIPELINES,IF ANY, AND VERIFY. NO LIABILITY IS ASSUMED BY HIGH COUNTRY SURVEYORS, INC. FOR ANY LOSS THAT MAY BE ASSOCIATED WITH THE EXISTENCE OF ANY EASEMENT, BURIED UTILITY,OR PIPELINE ON THE PREMISES.
4. THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA AS DETERMINED BY FEMA. SEE FIRM 37100710000J DATED 01.06.2010.
5. UNDERGROUND SEWERLINE INFORMATION IS TAKEN FROM BUNCOMBE COUNTY MSD GIS INFORMATION, AND HAS NOT BEEN FIELD VERIFIED.
6. THIS PROPERTY IS ZONED R-2 BY THE TOWN OF MONTREAT.
SETBACKS: 30' FRONT, 10' SIDE, 20% MEAN LOT DEPTH (27') REAR.
SEE THE MONTREAT ZONING ORDINANCE FOR MORE INFORMATION.
INTERESTED PARTIES SHOULD INVESTIGATE ALL EXISTING RESTRICTIONS PRIOR TO DESIGN OR CONSTRUCTION. HIGH COUNTRY SURVEYORS, INC MAKES NO CLAIM TO THE EXISTANCE OF ANY RESTRICTIONS OR COVENANTS.
7. ANY STREAMS, CREEKS, PONDS, LAKES, WETLANDS, ETC. LOCATED ON THIS PROPERTY, SHOWN OR NOT SHOWN HEREON, MAY BE SUBJECT TO BUFFER AREAS. IT IS THE OWNER'S/DEVELOPER'S RESPONSIBILITY TO HAVE THE AREAS DESIGNATED BY THE PROPER AUTHORITIES TO MAKE THESE DETERMINATIONS.
8. THIS PLAT IS A REVISION TO CHANGE THE OWNER NAME, AND TO LABEL THE OLD PLAT LINES. ORIGINAL PLAT DATED 02-02-2022.

COORD. FILE 2015-192.crd *DRAWING NO. 2022-002*

BK 2218 PG 897

REGISTERED
2000 JAN -6 A 10:52
OTTO W. DEBRUHL
REGISTER OF DEEDS
BUNCOMBE COUNTY, N.C.

Excise Tax | Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., ...
by .....

Mail after recording to Perry, Patrick, Farmer & Michaux, P.A. (LLY)
227 West Trade Street, Suite 2200, Charlotte, NC 28202
This instrument was prepared by PPF&M (LLY)
Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of December, 1999, by and between

GRANTOR	GRANTEE
W. Frank Dowd, Jr. and wife, Anne Waters Dowd	Dowd Montreat, LLC P. O. Box 35430 Charlotte, NC 28235-5430

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Black Mountain ..... Township, Buncombe ..... County, North Carolina and more particularly described as follows:

See Exhibit A attached hereto.

000037

BK 2218 PG 898

The property hereinabove described was acquired by Grantor by instrument recorded in .....

.....

A map showing the above described property is recorded in Plat Book ..... page.....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated. Title to the property hereinabove described is subject to the following exceptions:

1999 ad valorem taxes
Easement, restrictions, covenants and conditions of record

Anne Waters Dowd joins in the execution of this deed for the sole purpose of releasing her marital rights to the property and does not join in the covenants and warranties contained herein.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

(Corporate Name)

By: .....

.....President

ATTEST:

.....

.....Secretary (Corporate Seal)

SEAL-STAMP

RUTH DROMGOOLE NOTARY PUBLIC MECKLENBURG COUNTY, N.C.

USE BLACK INK ONLY

W. Frank Dowd Jr. .....(SEAL)
W. FRANK DOWD, JR.

Anne Waters Dowd .....(SEAL)
ANNE WATERS DOWD

.....(SEAL)

.....(SEAL)

NORTH CAROLINA, Mecklenburg County.

I, a Notary Public of the County and State aforesaid, certify that W. Frank Dowd, Jr. and wife, Anne Waters Dowd Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of December, 1999

My commission expires: 11-16-04 Ruth Dromgoole Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, ...County.

I, a Notary Public of the County and State aforesaid, certify that .....,

personally came before me this day and acknowledged that ____ he is ..... Secretary of

..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this .....day of ....., ...

My commission expires: .... Notary Public

The foregoing Certificate(s) of ..... Ruth Dromgoole .....

.....

is/are certified to be correct. This instrument and this certificate are duly registered at the date and time and in the Book and Page shown on the first page hereof.

Otto W. DeBruhl .....REGISTER OF DEEDS FOR Buncombe .....COUNTY

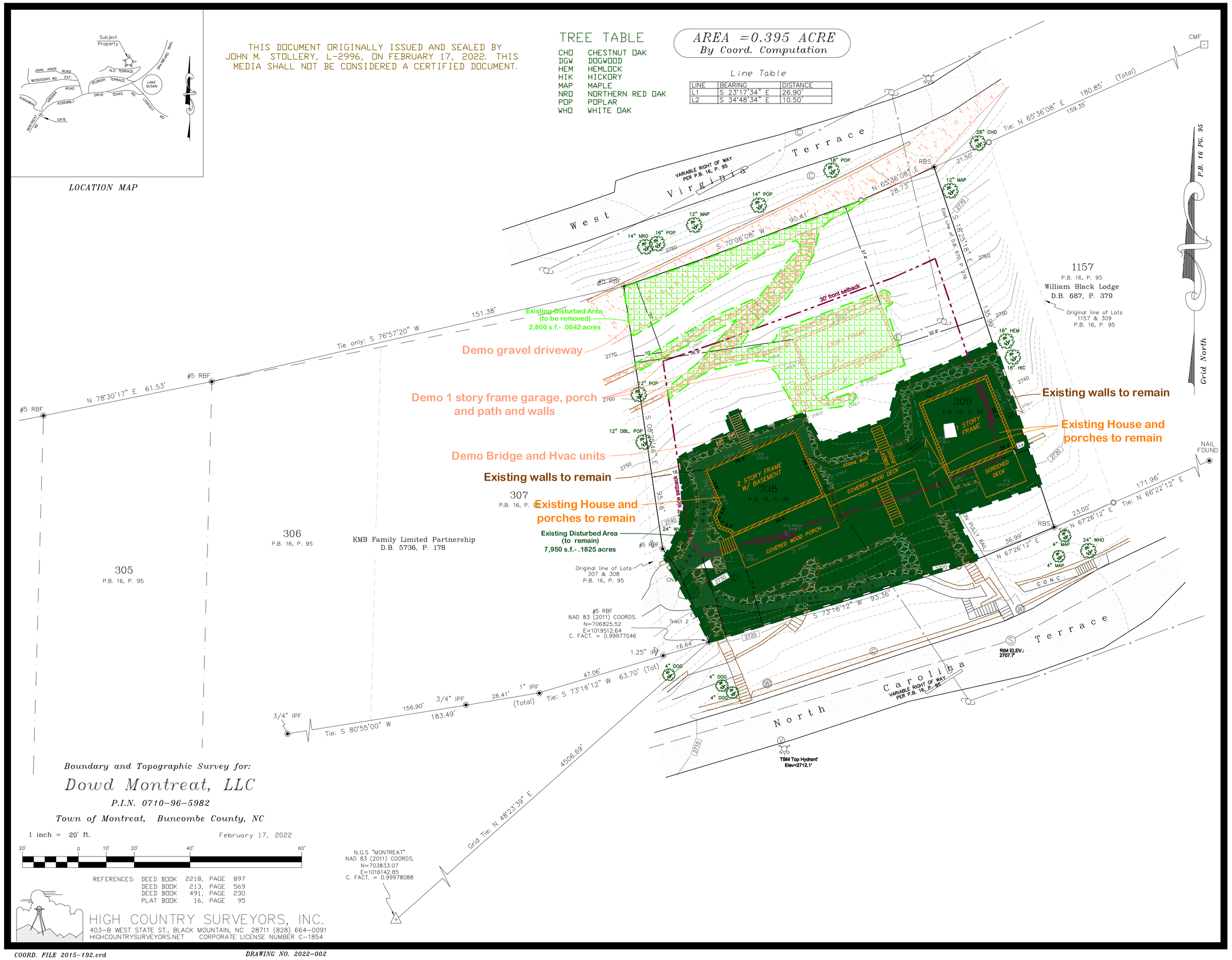
By Linda J Leach .....Deputy/Assistant - Register of Deeds

EXHIBIT A

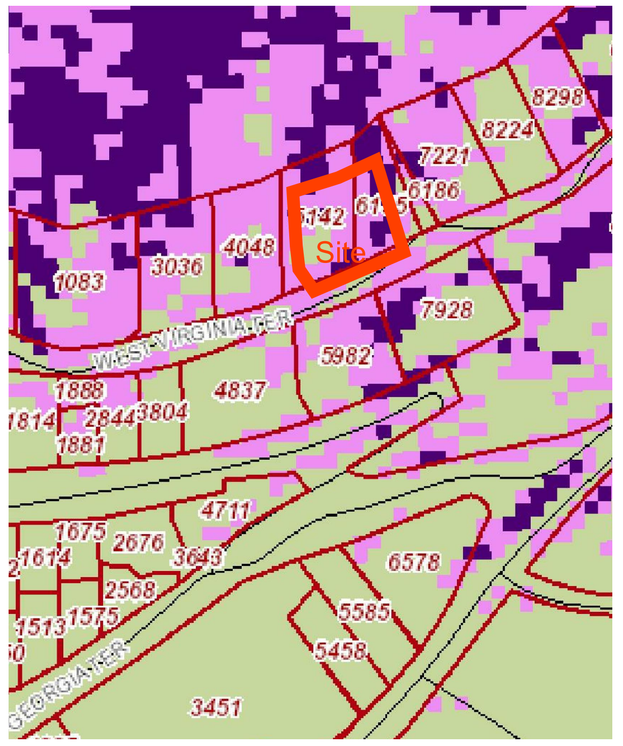
Being all of Lot 308 and part of Lot 309, as shown on a plat of Mountain Retreat Association, which plat is recorded in the Office of the Register of Deeds for Buncombe County in Plat Book 154 at page 1, and re-recorded in Plat Book 16 at page 95, and being more particularly described as follows:

BEGINNING at a stake in the northern margin of Carolina (North Carolina) Terrace, at the southeast corner of Lot 307 of said plat; and runs thence with the dividing line between said Lots 307 and 308, North 7-10 West 132.33 feet to a stake in the southern margin of West Virginia Terrace; and runs thence with said margin of said last mentioned Terrace, the following two courses and distances: North 68-49 East 90 feet and North 64-19 East 35.5 feet to a stake; thence South 17 West 138 feet to a stake in the northern margin of Carolina (North Carolina) Terrace, and runs thence with said margin of Carolina (North Carolina) Terrace, the following two courses and distances: South 66-22 West 37 feet and South 72-12 West 110.4 feet to the place of BEGINNING.

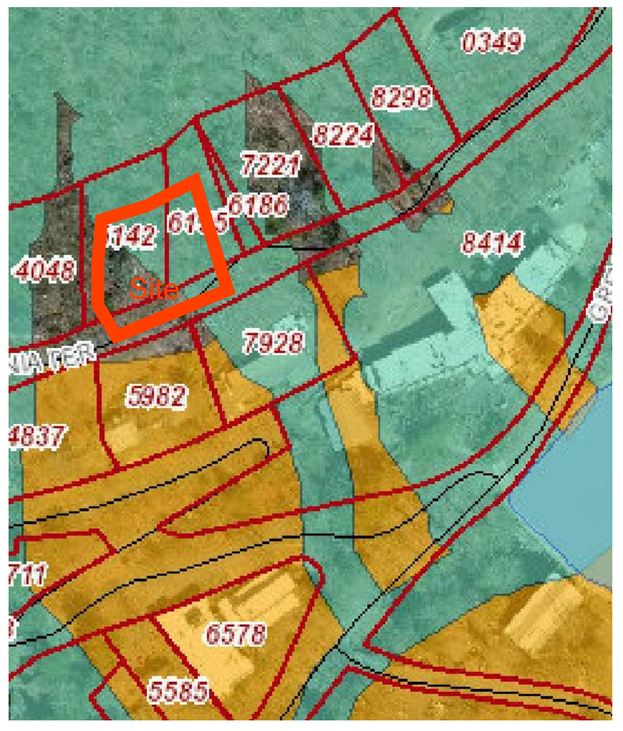
Being the same property that was conveyed to W. Frank Dowd, Jr. and wife, Sally Carson Dowd, by Deed dated December 9, 1980, and recorded in the Office of the Register of Deeds for Buncombe County, North Carolina.



Regional Map - Not to Scale



Stability Map - NTS



Debris Pathways Map - NTS

Aerial Map - NTS

Topo Map - NTS

North

Survey - by High Country Surveyors

0' 20' 40' 80' 120'

SCALE : 1" = 20'

Other Consultants:
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

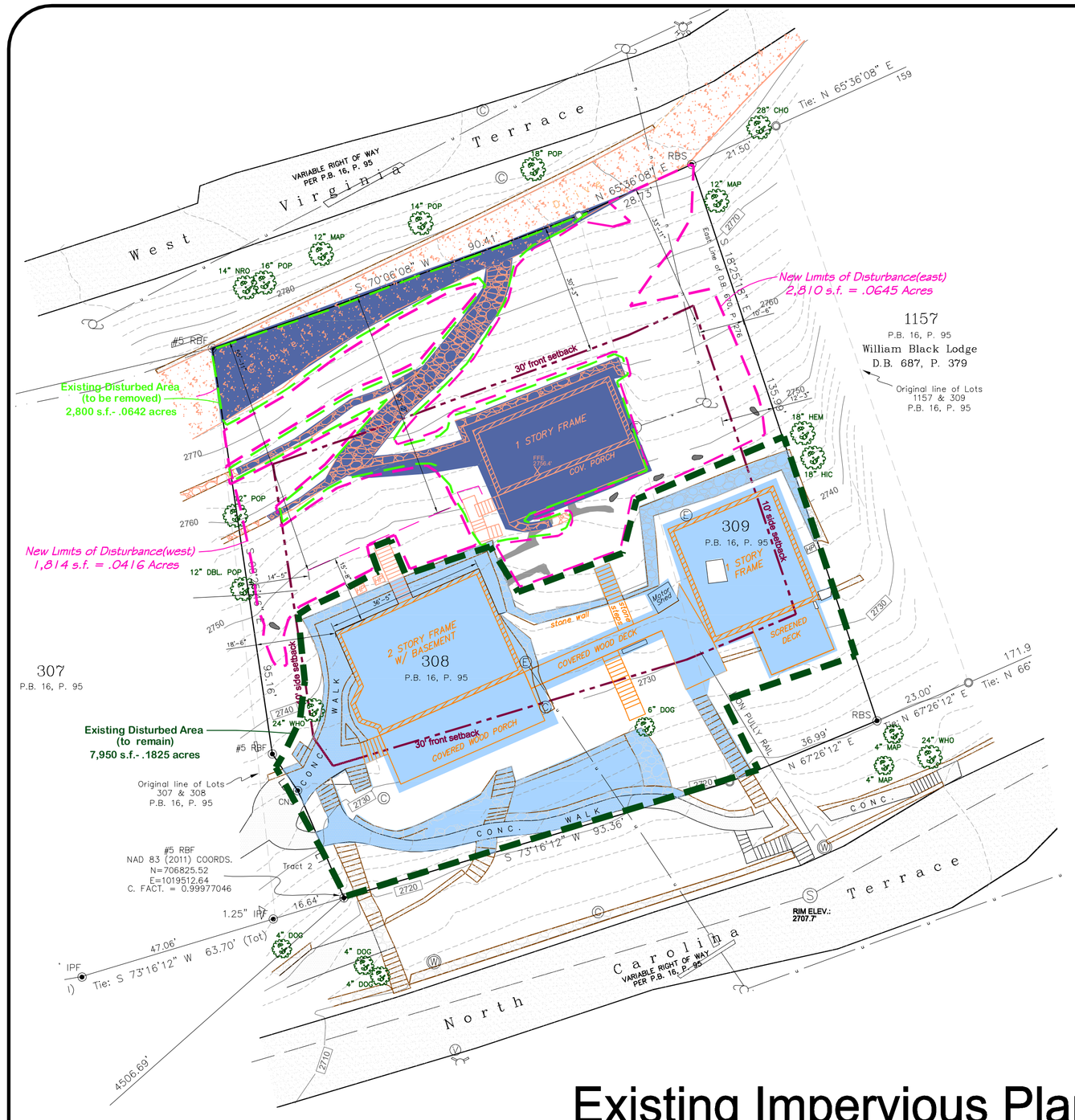
Sheet:
Survey and Base Maps

Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1003 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9954

ISSUE DATE : December 11, 2023
REVISIONS: December 14, 2023 - comments
DESIGNED BY: DB
DRAWN BY: SB
APPROVED BY: DSB

Project Number:

SHEET NUMBER :
L1



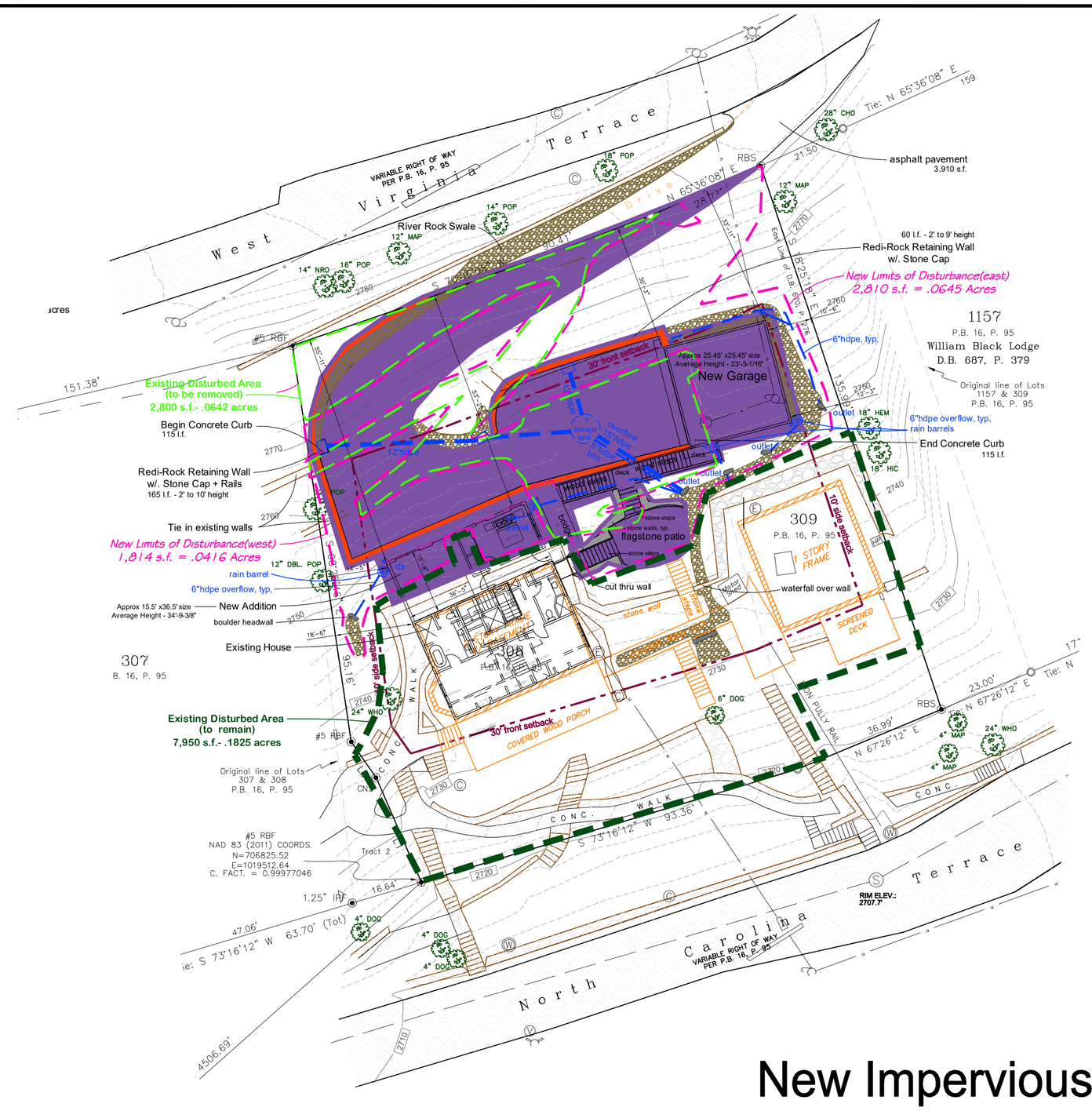
Existing Impervious Plan

Existing Impervious to Remain
5,199 s.f. = .12 acres

Existing Impervious to Remove
2,360 s.f. = .054 acres

0' 20' 40' 80' 120'

SCALE : 1" = 20'



New Impervious Plan

0' 20' 40' 80' 120'

SCALE : 1" = 20'

New Impervious Area
5,603 s.f. = .13 acres

Total New Impervious Area = New Impervious area - Existing Impervious to Remove
5,603 - 2,360 = 3,243 s.f. = .0744 acres

Total Project Impervious Area = Total New Impervious area + Existing Impervious to Remain
3,243 s.f. + 5,199 s.f = 8,442 s.f = .1938 acres

Other Consultants:

Architect - Prudhomme Design and Interiors

Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

Project:
Dowd Montreat, LLC

Town of Montreat, Buncombe County, NC

PIN: 0710-96-5982-00000

Sheet:
Detail Site Plan

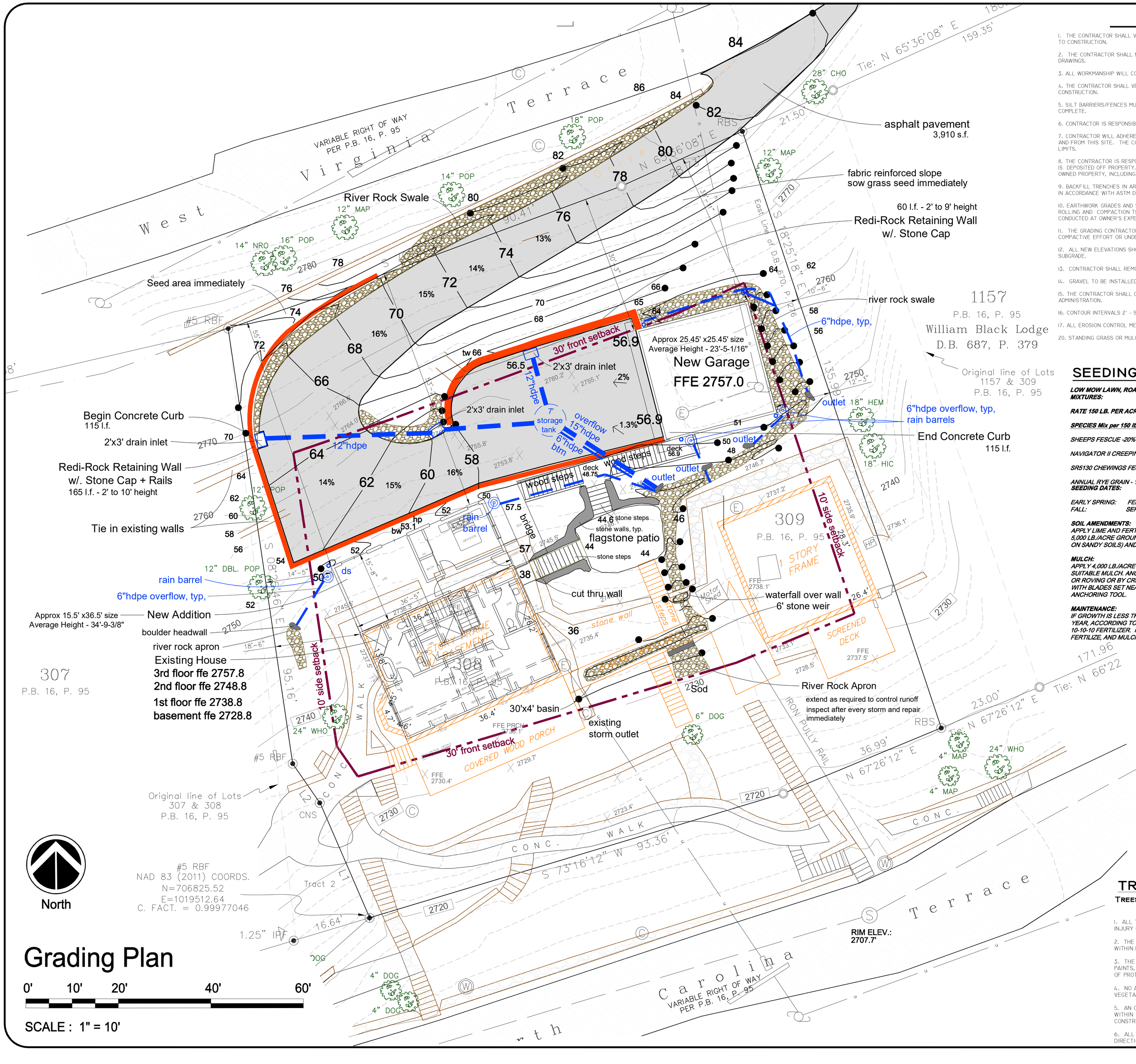
Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1003 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9994

ISSUE DATE : December 11, 2023
REVISIONS: December 14, 2023 - comments

DESIGNED BY: DB
DRAWN BY: SB
APPROVED BY: DSB

Project Number:

SHEET NUMBER :
L2.1



GENERAL PLAN NOTES

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BY CALLING NORTH CAROLINA 811 AT 1-800-632-4949 THREE (3) DAYS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT FOR A REVIEW SHOULD ANY DISCREPANCIES BE DISCOVERED AT THE SITE OR ON THE DRAWINGS.
3. ALL WORKMANSHIP WILL CONFORM TO ALL CODES AND STANDARDS.
4. THE CONTRACTOR SHALL VERIFY INVERT ELEVATIONS FOR EXISTING/PROPOSED PIPES AND EXISTING ROADWAY ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. SILT BARRIERS/FENCES MUST BE IN PLACE PRIOR TO BEGINNING GRUBBING/CLEARING. NO GRADING MAY BEGIN UNTIL SILT BARRIER INSTALLATION IS COMPLETE.
6. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD LAYOUT OF PROPOSED IMPROVEMENTS.
7. CONTRACTOR WILL ADHERE TO THE WEIGHT LIMITS PRESCRIBED ON COUNTY AND STATE MAINTAINED ROADS FOR HAULING EQUIPMENT AND/OR MATERIALS TO AND FROM THIS SITE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO THE STREETS OR UTILITIES DUE TO NON-COMPLIANCE OF WEIGHT LIMITS.
8. THE CONTRACTOR IS RESPONSIBLE TO REMOVE OR CLEAN-OUT ANY SILT, DIRT, OR MUD, OR ANY OTHER TYPE OF DEBRIS THAT COMES OFF THIS SITE AND AND IS DEPOSITED OFF PROPERTY. THE CONTRACTOR IS RESPONSIBLE TO REMOVE ANY OF THE ITEMS MENTIONED THAT ARE DEPOSITED ONTO PRIVATE OR COUNTY OWNED PROPERTY, INCLUDING RIGHT-OF-WAY AREA AND ROADWAYS.
9. BACKFILL TRENCHES IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT +/-3% OF OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-698 (STD. PROCTOR).
10. EARTHWORK GRADES AND SLOPES AS SHOWN ARE APPROXIMATE. ADJUST DRIVEWAY LOCATION AND ELEVATIONS AS REQUIRED TO FIELD CONDITIONS. PROOF ROLLING AND COMPACTION TESTS SHALL BE ACCOMPLISHED IN THE FIELD TO TEST ALL AREAS AS REQUIRED BY OWNER. INITIAL COMPACTION TESTS WILL BE CONDUCTED AT OWNER'S EXPENSE. RETESTING REQUIRED DUE TO POOR COMPACTION SHALL BE CONDUCTED AT CONTRACTOR'S EXPENSE.
11. THE GRADING CONTRACTOR SHALL PROOF ROLL THE DRIVEWAY AREA WITH A SHEEPS FOOT ROLLER. ALL SOFT SPOTS SHALL BE STABILIZED BY FURTHER COMPACTIVE EFFORT OR UNDERCUT AND BACK FILLED WITH COMPACTED STRUCTURAL FILL MATERIAL.
12. ALL NEW ELEVATIONS SHOWN ARE APPROXIMATE FINISH ELEVATIONS. THE GRADING CONTRACTOR SHALL DEDUCT THE APPROPRIATE AMOUNT FOR THE SUBGRADE.
13. CONTRACTOR SHALL REMOVE TOPSOIL AS NECESSARY (MINIMUM OF 4") TO PROVIDE ADEQUATE SUBGRADE FOR ROADWAYS.
14. GRAVEL TO BE INSTALLED IN DRIVEWAY AREA AS SOON AS POSSIBLE AND ADDED TO AS REQUIRED TO CONTROL MUD.
15. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
16. CONTOUR INTERVALS 2' - SEE PLANS
17. ALL EROSION CONTROL MEASURES SHOWN AND STATED ON THIS PLAN ARE TO BE IMPLEMENTED THROUGH COMPLETION.
20. STANDING GRASS OR MULCH OR FARBRIC MUST BE PROVIDED FOR ALL DISTURBED AREAS BEFORE FINAL APPROVAL.

SEEDING SPECIFICATIONS

LOW MOW LAWN, ROAD BANKS, SHOULDERS, AND DITCHLINE SEEDING MIXTURES:

RATE 150 LB. PER ACRE. - Approximately .3 acres TOTAL for entire project

SPECIES Mix per 150 lbs.

SHEEPS FESCUE -20%

NAVIGATOR II CREEPING RED FESCUE - 50%

SR5130 CHEWINGS FESCUE - 15%

ANNUAL RYE GRAIN - 15%

SEEDING DATES:

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15 - MAR. 20	FEB. 15 - APR. 30
FALL:	SEPT. 1 - SEPT. 30	SEPT. 1 - OCT. 31

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 3,000 - 5,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO THE SOIL TESTS OR TOP DRESS WITH 500 LB./ACRE 10-10-10 FERTILIZER. MOW AS NEEDED TO A 6" MINIMUM HEIGHT. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

ADDITIONAL SEEDING NOTES:

1. GRADING CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL DISTURBED AREAS OF THE PROJECT.

2. LOOSEN COMPACTED SUBGRADE AND UNCHANGED SUBGRADE TO A MINIMUM DEPTH OF 4". REMOVE STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER AND LEGALLYBURN THEM. RAKE OR OTHERWISE LIGHTLY SCARIFY SOIL SURFACE TO ENSURE SEED-TO-SOIL CONTACT. AREAS TO BE SEEDED SHALL BE RIPPED AND SPREAD WITH AVAILABLE TOPSOIL 3" DEEP. TOTAL SEEDBED PREPARED DEPTH SHALL BE 4" TO 6" DEEP. SURFACE FOR FINAL SEEDBED PREPARATION, AT FINISH GRADES SHOWN, SHALL BE REASONABLY SMOOTH AND UNIFORM.

3. APPLY SEED BY HYDRO-SEEDING WERE POSSIBLE. ALLOW SEED APPLICATION TO DRY PRIOR TO MULCH APPLICATION TO PREVENT RUN-OFF.

4. SURFACE WATER CONTROL MEASURES TO BE INSTALLED ACCORDING TO PLAN. IF NO SOIL TEST IS TAKEN, FERTILIZE AND LIME ACCORDING TO SEEDING SCHEDULE IF SOIL TEST IS TAKEN PROVIDE LIME AND FERTILIZER ACCORDING TO SOIL TEST REPORT. LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY AND MIXED WITH THE SOIL DURING SEEDBED PREPARATION.

5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH N.C. EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, USDA, & U.S. SCS.

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERMITERS AND HQW ZONES)

STABILIZATION = pavement, buildings, mulch, or wheat straw and grass seeding, or fabric and rip rap to cover all dirt and disturbed areas

TREE PROTECTION NOTES

Trees to Remain not in Limits of disturbance

1. ALL TREES, UNDERSTORY AND OTHER VEGETATION TO REMAIN SHALL BE FLAGGED BY THE OWNER/SURVEYOR AND PROTECTED FROM INJURY DURING ANY LAND CLEARING AND CONSTRUCTION PROCESS.
2. THE CONTRACTOR SHALL NOT PARK VEHICLES, STORE MATERIALS OR TRENCH WITHIN THE DRIPLINE OF TREES TO REMAIN, OR WITHIN BARRIERS PROTECTING ANY VEGETATION TO REMAIN.
3. THE CONTRACTOR SHALL NOT CAUSE OR ALLOW THE CLEANING OF EQUIPMENT, STORAGE OR DISPOSAL OF MATERIALS SUCH AS PAINTS, SOLVENTS, ASPHALT, CONCRETE, OR ANY MATERIAL THAT CAN DAMAGE THE HEALTH OF VEGETATION WITHIN THE DRIPLINE OF PROTECTED VEGETATION.
4. NO ATTACHMENT OF WIRES (EXCLUSIVE OF PROTECTIVE GUIDE WIRES) SIGNS, OR PERMITS SHALL BE FASTENED TO PROTECTED VEGETATION.
5. AN ORANGE HIGH VISIBILITY CONSTRUCTION FENCE OR TEMPORARY SILT BARRIER FENCE SHALL BE INSTALLED AROUND ALL TREES WITHIN 10' OF THE CONSTRUCTION OR AS DIRECTED BY THE OWNER. THE BARRIERS SHALL REMAIN THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.
6. ALL CLEARING AND GRUBBING WITHIN AREAS OF VEGETATION TO REMAIN SHALL BE DONE WITH HAND TOOLS ONLY AND UNDER THE DIRECTION OF THE OWNER.

Other Consultants:
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

Sheet:
Grading Plan

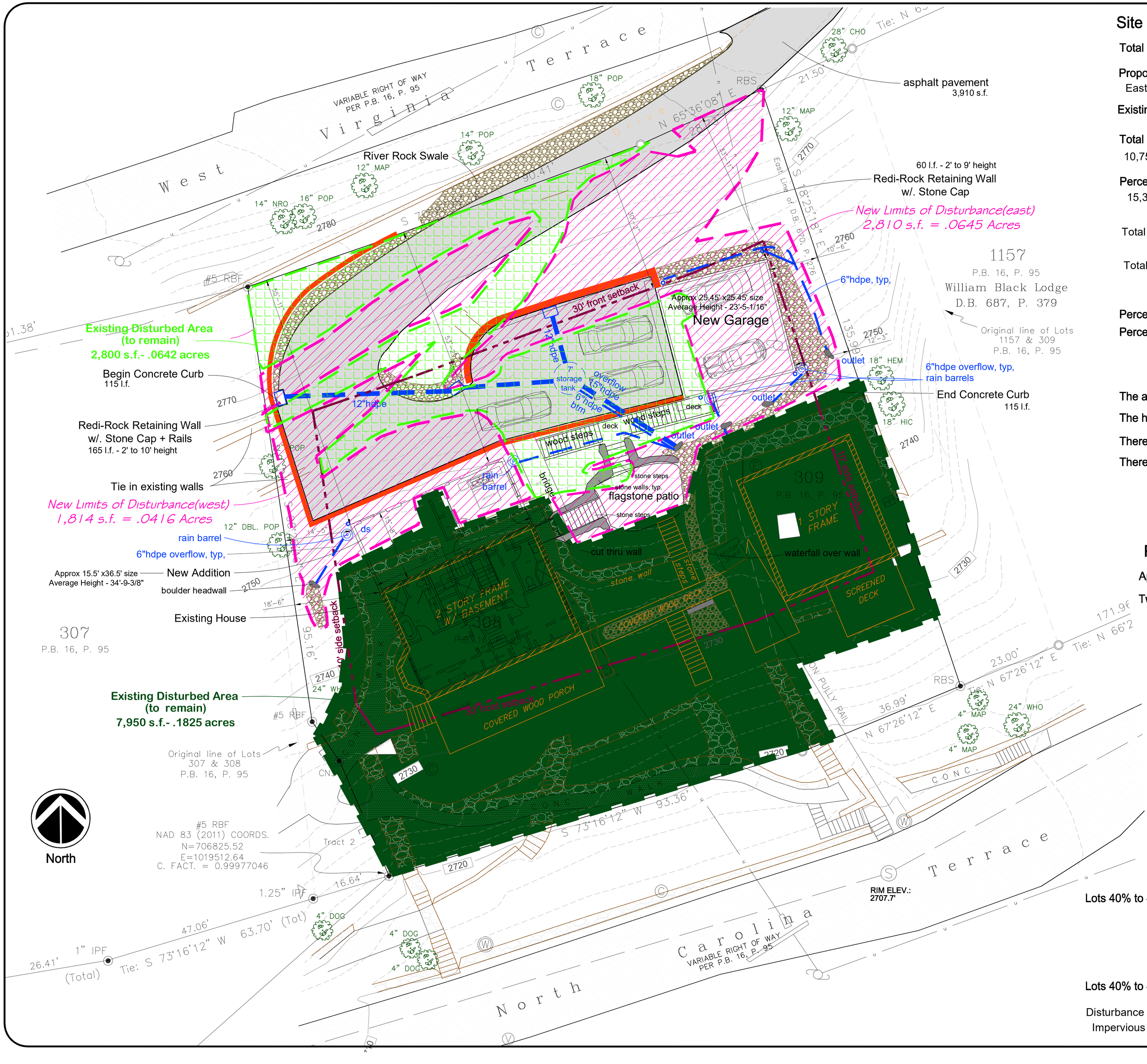
Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1003 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9954

ISSUE DATE : December 11, 2023
REVISIONS: December 14, 2023 - comments

DESIGNED BY:	DB
DRAWN BY:	SB
APPROVED BY:	DSB

Project Number:

SHEET NUMBER :
L3



Site Calculations

Total Property = 17,206 s.f. / .395 acres

Proposed New Disturbed Area = 4,624 s.f. / .1061 acres
East New (2,810 s.f.) + West New (1,814 s.f.) = 4,624 sf / .1061 acres

Existing Disturbed Area (to remain) = 10,750 s.f. / .247 acres

Total Proposed Disturbed Area = 15,374 sf. / .353 acres
10,750 (Existing) + 4,624 (new) = 15,374

Percentage of Lot Disturbed = 89.3%
15,374/17,206 = 89.3%

Total New Impervious Area = New Impervious area - Existing Impervious to Remove
5,603 - 2,360 = 3,243 s.f. = .0744 acres

Total Project Impervious Area = Total New Impervious area + Existing Impervious to Remain
3,243 s.f. + 5,199 s.f = 8,442 s.f = .1938 acres

Percentage of Lot New Impervious Area = 19%
Percentage of Lot Total all Impervious Area = 49%

The average slope of the entire property is 44.82%.

The highest elevation of the lot is 2,780'

There are no floodplains on or adjacent to this property

There are no streams on this property.

Parking Calculations

Approximately 1,200 s.f. of residentail use is added with this project

Two additional parking areas are required. Five total spaces provided.

Montreat Requirements

	Land Disturbance allowed	Impervious allowed
Lots 40% to 45% slope	= 6,882.48 s.f. / .158 acres max.	5,161.86 s.f max.

Residence Project Proposed

	Land Disturbance proposed	Impervious proposed
Lots 40% to 45% slope	15,374 s.f.	8,442 s.f.

Disturbance = Existing to remain (10,750 sf.) + New (4,624 sf.) = 15,374 s.f.
Impervious = Existing to remain (5,199 sf.) + New (3,243 sf.) = 8,442 s.f.

Other Consultants:
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

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APPROVED BY: DSB

Project Number:

SHEET NUMBER:
L2

December 8, 2023

Mr. Chris Brock
Brock Builders, Inc.
chris@brockbuildersinc.com

Report of Hand Auger Boring Exploration
Hennis Residence – 325 North Carolina Terrace – New Driveway/Garage
Montreat, North Carolina
KEG Project No. JA23-4732-01

Mr. Brock:

Kessel Engineering Group, PLLC (KEG) is pleased to submit this report of hand auger boring exploration for the proposed new driveway and garage construction at the existing Hennis residence located at 325 North Carolina Terrace in Montreat, North Carolina. The purpose of this exploration was to determine general subsurface conditions at the site and to provide preliminary global stability analyses and general geotechnical recommendations for the proposed driveway / site retaining wall design and site preparation. Our services were provided in general accordance with our Proposal No. PA23-4097-01, and receieved/authorized December 4, 2023.

PROJECT INFORMATION

Initial project information was provided by Mr. Chris Brock via email and telephone correspondences with our Mr. Ian Johnson, P.E. Additional information was gathered during multiple visits to the project site by Mr. Johnson. We have also been provided with the following digital documents:

- *Survey and Base Maps: Dowd Montreat, LLC*, Sheet L1, by Creative Development Solutions, dated September 7, 2023.
- *Site Plan and Detail Site Plan: Dowd Montreat, LLC*, Sheets L2 and L2.1, by Creative Development Solutions, dated September 7, 2023.
- *Grading Plan: Dowd Montreat, LLC*, Sheet L3, by Creative Development Solutions, dated September 7, 2023, and showing proposed driveway grading and associated site retaining walls, as well as existing topographic contours.

The project site is located at the existing residence at 325 North Carolina Terrace in Montreat, North Carolina (see Figure 1). Three separate residential buildings are located on the property. The area of proposed construction is on the north/uphill portion of the property adjacent to West Virginia Terrace and is generally sloping and grassed. A gravel driveway is present near the upper/north side, and a stone walkway/stair cuts through the center. Based on our review of the provided topographic information, the area of proposed construction generally slopes downhill to the south at overall inclinations on the order of 2H:1V (horizontal to vertical). Stacked stone site retaining walls are present along the north sides of each existing structure and presumably retain earthwork cuts. Maximum exposed heights of these existing site retaining walls are on the order of 5 to 10 feet. At this time, no documentation has been provided regarding design or construction of these existing stacked stone site retaining walls.

Project plans include demolition of the northernmost structure at the site and construction of a new garage building in the same general area. Also planned are construction of a driveway and two associated site retaining walls at the north half of the parcel accessed from West Virginia Terrace. Based on information provided on Sheet L2, the proposed site retaining walls will each have maximum heights on the order of 9

to 10 feet, and will retain earthwork cuts and/or fills. Redi-rock type wall systems are indicated on project plans.

For the purpose of this report, the new site retaining walls will be identified as Wall 1A/1B, and Wall 2. Wall 1A/1B is shown as an approximately 170 feet long site retaining wall which will be located within the north, west, and south portions of the proposed construction footprint, with Wall 1A comprising the northern portion (retaining earthwork cuts), and Wall 1B comprising the southern portion (retaining earthwork fills). Wall 2 is shown as an approximately 50 feet long site retaining wall retaining earthwork cuts adjacent the northwest corner of the proposed garage building.

Additional project plans include expansion of the existing 2-story structure (main house) located at the southwest corner of the property. This expansion will include foundation construction to the north of the existing structure and will span over the existing stacked stone site retaining wall in the area. We understand the expansion will be constructed over a crawl space, and that the existing stacked stone site retaining wall in this area is to remain in place.

SITE GEOLOGY

The project site is located in the Blue Ridge Physiographic Province. The bedrock in this region is a complex crystalline formation that has been faulted and contorted by past tectonic movements. The rock has weathered to residual soils which form the mantle for the hillsides and hilltops. The typical residual soil profile in areas not disturbed by erosion or grading consists of clayey soils near the surface where weathering is more advanced, underlain by sandy silts and silty sands.

The boundary between soil and rock is not sharply defined and there is often a transitional zone, termed "partially weathered rock" overlying the parent bedrock. Partially weathered rock (PWR) is defined, for engineering purposes, as residual material with a standard penetration resistance in excess of 100 blows per foot. Weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, the profile of the partially weathered rock is irregular even over short horizontal distances. Also, it is not unusual to find lenses and boulders of hard rock and/or zones of partially weathered rock within the soil mantle, well above the general bedrock level.

Soils from higher elevations slough and slide down the slopes through the action of gravity. Soils deposited in such a manner are referred to as colluvial soils. Accumulated colluvial soils, or colluvial deposits, may contain features such as perched ground water and planes of weakness on which sliding took place.

FIELD EXPLORATION

The site was explored by performing a series of five hand auger borings (HAB-1 to HAB-5) at the approximate locations shown on the attached Field Exploration Plan (see Figure 2). The hand auger boring locations were determined by our Mr. Johnson by referencing identifiable site features and scaling distances from the provided site plan. The soils encountered by the hand auger borings were identified in the field from cuttings brought to the surface by the auger equipment. Representative samples of the encountered materials were also collected and transported to the laboratory. In the laboratory, the samples were examined by a geotechnical engineer to verify the soil classifications made in the field. Hand auger borings were backfilled at the completion of the field work.

At regular intervals, the soil consistency of the encountered materials was measured by performing the Dynamic Cone Penetrometer test (DCP). The conical point was first seated to penetrate any loose cuttings and was then driven increments of 1¾ inches with blows from a 15-pound hammer dropped from a height of 20 inches. The number of blows required to achieve the penetration is recorded. The number of blows is then used as an index to the soil strength and foundation supporting capability. Soil descriptions and test data are tabulated on the attached hand auger boring logs.

SUBSURFACE CONDITIONS

Hand auger borings performed during this exploration typically encountered approximately 8 to 12 inches of surficial topsoil. Hand auger boring HAB-3 was performed in the old gravel driveway footprint and encountered approximately 12 inches of surficial gravel blended with topsoil. Surficial topsoil was underlain by colluvial soils at hand auger borings HAB-1 and HAB-4. The encountered colluvial soils extended to depths of approximately 1.5 to 2 feet below the existing ground surface and consisted of loose silty sands (SM). Colluvial soils at HAB-1 and HAB-4 were underlain by residual soils. Surficial gravel/topsoil encountered at HAB-3 was underlain by existing fill soils. Existing fill soils consisted of very loose to loose silty sands with trace organics and extended to a depth of approximate 6 feet, after which residual soils were encountered. Existing fill soils were noted to be slightly moist.

Residual soils were encountered directly below the topsoil layer at HAB-2 and HAB-5, below the colluvial layer at HAB-1 and HAB-4, and below the existing fill layer at HAB-3. The encountered residual soils generally consisted of loose to very firm silty sands (SM). Firm sandy silts (ML) were encountered at HAB-2 and HAB-5 to depths of approximately 2 feet. Trace mica content was encountered in some of the residual soils.

Multiple offsets were performed at hand auger borings HAB-1, HAB-2, and HAB-3 due to shallow refusal prior to encountering residuum. Hand auger borings HAB-1, HAB-3, and HAB-4 extended to their assigned termination depths of 9 feet. Hand auger borings HAB-2 and HAB-5 encountered auger refusal at depths of 6.5 and 7.5 feet below the existing ground surface.

Refusal materials encountered in hand auger borings during this exploration are those materials which are sufficiently hard to prevent the vertical advancement of the auger equipment. Refusal may result from very dense soils, partially weathered rock, boulders, lenses, ledges, or layers of relatively hard rock underlain by partially weathered rock or residual soil; refusal may also represent the surface of relatively continuous bedrock. Power drilling and core drilling procedures are required to penetrate refusal materials and to determine their character and continuity. Power drilling and core drilling were beyond the scope of this exploration.

Groundwater was not encountered in the hand auger borings performed during this exploration. Groundwater levels may fluctuate several feet with season and rainfall variations. Normally, the highest groundwater levels occur in late winter and spring and the lowest levels occur in late summer and fall.

The above descriptions and Table 1 below provide a general summary of the subsurface conditions encountered. The attached logs contain detailed information recorded at each hand auger boring location. These logs represent our interpretation of the field logs based on engineering examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries and the transition between strata may be gradual. Soil conditions may vary between the hand auger boring locations. Locations and elevations provided in this report should be considered approximate.

TABLE 1
SUMMARY OF SUBSURFACE CONDITIONS ENCOUNTERED BY HAND AUGER BORINGS
(MEASURED IN FEET BELOW THE EXISTING GROUND SURFACE)

Hand Auger Boring No.	Surficial Materials (feet)	Existing Fill (feet)	Colluvium (feet)	Residual Soil (feet)		Refusal / Termination Depth (feet)
				Loose Silty SANDS	Firm to V. Firm Silty SANDS or Sandy SILTS	
HAB-1	0 to 0.8	-	0.8 to 1.5	1.5 to 4	4 to 9	9 (t)
HAB-2	0 to 1	-	-	-	1 to 6.5	6.5 (r)
HAB-3	0 to 1	1 to 6	-	6 to 8	8 to 9	9 (t)
HAB-4	0 to 1	-	1 to 2	-	2 to 9	9 (t)
HAB-5	0 to 0.7	-	-	2 to 6	0.7 to 2, 6 to 7.5	7.5 (r)

- Material not encountered in hand auger boring.
* See Figure 2 for approximate locations. See logs for surficial materials.

ANALYSES AND PRELIMINARY DESIGN RECOMMENDATIONS

General Overview and Specifications Review

Careful coordination during design and construction will be required at the project site. In particular, new construction associated with driveway retaining Wall 1B and the main house addition will need to be carefully coordinated such that all structural elements are compatible and properly sequenced into the construction schedule. Furthermore, construction of these items should take place such that they do not negatively impact existing site retaining walls or foundations that are to be left in place. Demolition of the existing northernmost structure and performance of earthwork cuts at the site should be sequenced such that they do not destabilize the project site. We recommend that we be retained to make a review of the foundation and earthwork plans and specifications prepared from the recommendations presented in this report. We would then suggest any modifications so that our recommendations are properly interpreted and implemented. An additional fee would apply for review of plans and specifications.

Topsoil, Colluvium, and Existing Fill

Hand auger borings performed within the proposed construction footprint typically encountered surficial topsoil to depths of 1 foot or less. Surficial topsoil was underlain by existing fill at HAB-3, and colluvium at HAB-1 and HAB-4. Retaining walls, building foundations, driveway pavements, and earthwork fills should not bear on surficial topsoil, existing fill, or colluvium. These materials are susceptible to excessive settlement and instability. Removal of these materials will be required to accommodate the proposed construction. We anticipate a majority of these materials will be removed during proposed grading associated with driveway, site retaining wall, and garage construction.

Shallow Foundations – Garage Building & Site Retaining Walls

Based on the hand auger boring data and our experience with similar subsurface conditions, residuum encountered at the project site is suitable for shallow foundation support of the proposed site retaining wall and garage footing construction. Foundations bearing in residuum similar to that encountered in the hand auger borings with DCP n-values of 7 or better may be sized for an allowable bearing pressure of 2,500 psf. Satisfactory performance of the shallow foundations is subject to the design and site preparation recommendations contained in this report. Some isolated subgrade remediation may be required if pockets of looser/softer residual soils are encountered in foundation excavations. Remediation would likely include localized undercutting and replacement by overpouring with lean concrete. We do not recommend backfilling foundation undercutting on sloping lots with washed stone. Foundations should not be constructed atop topsoil, colluvial soils, existing fill or very loose residual soils. If encountered, these materials should be undercut to approved residuum.

We recommend that the minimum widths for individual column and continuous wall footings be 30 and 24 inches, respectively. The minimum widths are considered advisable to provide a margin of safety against a local or punching shear failure of the foundation soils. Footings should bear at least 30 inches into approved residuum to develop the recommended bearing pressures, provide frost protection, and provide protective embedment. We recommend that walls be provided with regular movement joints to accommodate some possible differential settlement.

Building footings constructed adjacent slopes (on the downhill side) require additional embedment. We recommend that building footings constructed adjacent sloped areas be embedded such that the horizontal distance between the bottom of the footing and the slope surface is a minimum of 8 feet. This could require foundation embedment depths of approximately 4 feet along the south garage footing depending on final site layout.

While not anticipated, if refusal materials and/or rock are encountered prior to meeting the aforementioned minimum foundation embedment depths, then pinning to underlying rock may be required. Foundations which are pinned (doweled) to rock should be designed by the structural or wall engineer to resist sliding. We recommend the use of epoxy-coated or stainless steel dowels grouted into place with a minimum embedment of 12 inches into rock. Longer dowel embedment lengths may be required if the rock is fractured or seamy. The dowels should be placed perpendicular to the face of the rock. Foundations bearing directly on uneven rock surfaces may be susceptible to radial cracking when bearing conditions differ across the footing. This type of cosmetic cracking should be expected. If encountered at the base of foundation excavations, refusal materials and/or rock should be observed by the geotechnical engineer to determine that they are competent for pinning, and geotechnical recommendations for construction atop refusal materials and/or rock should be developed at that time.

Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for long periods of time. Therefore, we recommend that once each footing excavation is extended to final grade, the footing be constructed as soon as possible in order to minimize the potential for damage to bearing soils. The foundation bearing area should be level or benched and free of loose soil, ponded water and debris. Foundation concrete should not be placed on soils that have been disturbed by seepage. If surface water intrusion or exposure softens the bearing soils, the softened soils must be removed from the foundation excavation bottom prior to placement of concrete. If the excavations must remain open for an extended period of time, or if rainfall becomes imminent while the bearing soils are exposed, we recommend that a 2-inch to 4-inch mudmat of lean (2,000 psi) concrete be placed on the bearing soils before the placement of reinforcing steel for protection.

In order to verify that the soils encountered in footing excavations are similar to the approved residuum encountered by the hand auger borings, we recommend that foundation excavations be examined and checked with a dynamic cone penetrometer by an engineering technician working under the direction of the geotechnical engineer.

Deep Foundations – Proposed Main House Expansion

As previously described, the proposed main house expansion will span over an existing stacked rock site retaining wall located to the north of the building. Due to the unknown conditions associated with design and construction of the existing stacked rock site retaining wall, construction of shallow foundations within this wall's retained soil zone could lead to excess lateral loading of the wall and subsequent distress and/or instability. Therefore, we recommend that the proposed main house expansion be supported by deep foundations. This recommendation is provided in order to transfer expansion foundation loading to a deeper bearing strata such that additional lateral loading from the expansion upon the existing stacked rock site retaining wall is eliminated.

The proposed main house expansion can be supported on pile caps and/or grade beams supported by helical piles. Helical piles consist of single flights of screw helix along a shaft installed with rotary installation equipment. They can be installed in relatively rapidly, and the installation produces minimal vibration. The shafts are designed to withstand the compressive and tensile foundation loads which are then transferred to suitable bearing materials (i.e., underlying very firm / dense residual soils, partially weathered rock and/or refusal materials). Should the soils be corrosive, special coatings are applied at the time of installation or cathodic protection can be used. Torque value should be monitored during installation to estimate soil consistency as the helix penetrates through the different subsurface strata.

Allowable capacities on the order of 15 to 20 kips per pile can be utilized in initial feasibility planning; however, the final design capacity should be determined by the pile design engineer. Helical piles should be designed to limit total and differential settlement of foundations to 1-inch and ½-inch, respectively. A minimum center-to-center spacing of 3 pile diameters is recommended. Battered piles may be required to take up lateral loads. Piles should be sufficiently stiff to develop the required lateral capacity, if applicable.

We recommend that a specialty contractor with experience in helical pile design and installation and working under a "design/build performance" specification be retained to install the foundation system. The helical pile design should be provided by a professional engineer licensed in the State of North Carolina. The pile spacing, sizing, proposed depths, and connections to proposed pile caps and/or grade beams should be determined/designed by the design engineer. The bidding foundation contractors should be provided a copy of this report. The helical pile installation QC program should be monitored full time by a Kessel Engineering Group representative within the scope of the project Statement of Special Inspections. The QC program would include conducting verification of placement, installation depths, and observed torque/pressure. These items should be documented for each helical pile element installed to provide a complete record of foundation quality. We recommend Kessel Engineering Group be consulted to review the design developed from the recommendations provided in our report. We would then suggest any modifications so that our recommendations are properly interpreted and implemented.

If partially weathered rock (PWR) or bedrock are encountered during helical pile installation, these materials may inhibit the ability of the helical pile contractor to successfully install the piles to the design torque and/or depths. If this condition is encountered, an alternative deep foundation system such as micropiles may be required. Alternatively, the use of special lead sections designed to penetrate rockier soils could be attempted at the specialty contractor's discretion and risk. Determining the depth to PWR and/or bedrock would require mobilizing a drill rig to the project site, which was beyond the scope of this exploration.

Preliminary Global Slope Stability Analyses

Preliminary global slope stability analyses were conducted by Spencer's limit equilibrium method using SLOPE/W software developed by Geo-Slope International. Analyzed slope geometries were estimated from the provided site grading plan. Slope stability analyses were used to estimate the factor of safety against global slope failure for two cross-sections of the proposed construction area shown on Figure 2 (CS-1 to CS-2). A traffic loading condition of 250 psf was utilized where applicable. It is our opinion that Wall 1B (retaining earthwork fills) will require geogrid reinforcement in order to satisfy global stability requirements. Required geogrid reinforcement lengths will likely be at least 1.5 times the wall heights at most locations.

The soil strength parameters used in the analyses were estimated based on our experience with similar soils. A summary of the effective stress shear strength parameters utilized in our analyses are provided below in the attachments to this report. We assumed the south portion of West Virginia Terrace was constructed primarily on fill soils. Based on our experience, the most likely type of slope failure for these conditions would be a circular failure arc. Generally, we recommend a factor of safety FS $\geq$ 1.5 for critical slopes retaining structures, and a FS $\geq$ 1.3 for slopes retaining roadways and for transient (i.e. traffic) loading conditions. A factor of safety FS $\leq$ 1.0 is indicative of failure.

The results of our slope stability analyses at each cross-section are presented in the attachments to this report. Based on available project information, data obtained from our field exploration, our experience with similar subsurface conditions, and our preliminary global slope stability analyses, it is our opinion that, if performed in accordance with the recommendations provided in this report, the proposed driveway and garage construction will have an adequate industry-standard factor of safety with respect to overall site global stability.

Retaining Walls

The design of foundation basement retaining walls and site retaining walls constructed on sloping sites is often governed by global stability. Sloping conditions should be considered during retaining wall design. Retaining wall design parameters including backfill requirements (such as select backfill) will likely be affected by the sloping conditions at the site. At a minimum, retaining wall foundations should adhere to the recommendations set forth in the *Shallow Foundations – Garage Building & Site Retaining Walls* section of this report. We note that detailed retaining wall stability analyses and designs are beyond our current scope of service. Site retaining walls should be designed by a professional engineer licensed in the State of North Carolina and should consider localized stability and global stability.

Site retaining walls must be capable of resisting the lateral earth pressures that will be imposed on them. Based on our experience with similar soils, the following shear strength effective stress parameters are recommended for use during preliminary site retaining wall design. For walls retaining undisturbed residuum similar to that encountered in the borings, we recommend an angle of internal friction value of 32 degrees, a cohesion value of 100 psf, and a soil unit weight of 115 pcf. For low plasticity (PI < 10), onsite or offsite silty sands similar to those encountered in the borings and used as engineered fill, we recommend an angle of internal friction value of 30 degrees, a cohesion value of 0 psf, and a soil unit weight of 125 pcf be utilized to calculate lateral earth pressure coefficients. Laboratory testing should be performed prior to construction to confirm the utilized design values are appropriate.

In lieu of using soil backfill, select backfill consisting of No. 57 stone may be used to reduce lateral earth pressures on the walls. No. 57 stone placed against retaining walls as select fill should extend from the base of the walls in a wedge with an angle of 45 degrees or shallower from horizontal in order that the following parameters may be used to reduce lateral earth pressures. For select backfill consisting of No. 57 stone, we recommend an angle of internal friction value of 38 degrees, a cohesion value of 0 psf, and a soil unit weight of 105 pcf be utilized to estimated lateral earth pressure coefficients. Passive earth pressures should not be developed with No. 57 stone. Non-woven, needle-punched geotextile filter fabric (such as Mirafi 140N or equivalent) should be used to separate No. 57 stone from adjacent soils and

prevent migration of fines into the stone. No. 57 stone must be placed such that it is permanently confined. No. 57 stone should be placed and compacted in maximum 12-inch lifts. This is recommended to help reduce the potential for settlement within deeper placements of No. 57 stone.

Frictional resistance along the base of wall foundations may be used to resist sliding. We recommend a coefficient of frictional resistance (f_s) value of 0.39 for retaining wall foundations bearing in undisturbed on-site residual soils.

Lateral pressure arising from sloping fill surfaces, surcharge loading, earthquake loading, and groundwater (not expected within wall construction depths) will dramatically influence the earth pressure coefficients and should be included in the calculation of the total lateral pressures that the walls must resist. In addition, transient loads imposed on the walls by construction equipment during grading should be taken into consideration during design and construction. Excessively heavy grading equipment should not be allowed within about 10 horizontal feet of the walls. The design of site retaining walls should take global stability into account, especially where walls are located on/adjacent to slopes or are retaining sloping backfills.

Provisions for the drainage of water which collects behind the retaining structures must be provided. The drainage system should have sufficient capacity to prevent the buildup of excess hydrostatic head behind the walls. The drainage system should incorporate appropriately graded sand or aggregate material and geotextile fabric to prevent the loss of fines which could be transported in the drainage system. Drain cleanouts should be provided.

The preceding values are based on our experience and testing of reasonably similar soils. Sloping backfill (or sloping soil surfaces in front of a footing when considering passive resistance) will dramatically influence lateral earth pressures. Kessel Engineering Group should be consulted concerning applicable earth pressure coefficients where sloping soil surfaces may be present.

Grade Slabs

Based on the hand auger boring data and our experience with similar soils, approved onsite residual soils (n-value of 7 or better) and newly placed engineered fill are suitable for support of grade slabs and pavements assuming that the site is prepared in accordance with the recommendations in this report. Topsoil, colluvium, and existing fill soils are not suitable for support of grade slabs and pavements and should be undercut to approved residuum and brought back to design grade with engineered fill. Areas to support grade slabs and pavements should be evaluated as directed by the geotechnical engineer prior to grade slab or pavement construction. The implementation of remedial measures, such as undercutting and replacing with new engineered fill, will be required if unsuitable soils are encountered.

We recommend that consideration be given to constructing the project driveway as a concrete reinforced grade slab in multiple sections in lieu of utilizing asphaltic pavements. It is our experience that significant difficulties may be experienced when attempting to place and properly compact asphaltic pavements on projects with relatively steep grades and tight curves such as the proposed project driveway. Poorly constructed asphaltic pavements may experience short- and/or long-term distress, especially where vehicular traffic is regularly braking and turning.

Building grade slabs should be jointed around columns and along footing supported walls so that the slab and foundations can settle differentially without damage. If slab thickness permits, joints containing dowels or keys may be used in the slab to permit movement between parts of the slab without cracking or sharp vertical displacements. Completed slabs should be protected from excessive surface moisture prior to and during periods of prolonged below-freezing temperatures to prevent subgrade freezing and resulting heave. For grade slabs bearing on a combination of engineered fill and refusal materials (if encountered), over-excavation of the refusal materials approximately 12-inches and replacement with compacted engineered fill to provide a cushion is recommended.

If the driveway or garage pad subgrades are to be exposed to construction traffic or inclement weather for an extended period of time, it may be advantageous to overbuild the pad during initial grading or to place a granular material (such as an aggregate base course material) across the subgrade to help minimize deterioration.

Floor slabs supported on grade which will be carpeted, tiled, painted, or receive some other covering or sealant should incorporate a vapor barrier. At a minimum, the vapor barrier should be installed in accordance with the guidelines outlined in Chapter 3 of ACI Publication 302.1 (*Guide for Concrete Floor and Slab Construction*).

Difficult Excavations

Refusal materials were encountered within the residual soil strata in hand auger borings HAB-2 and HAB-5 at depths of approximately 6.5 and 7.5 feet below the existing ground surface, respectively. Refusal materials encountered by hand auger boring equipment can sometimes be due to the physical limitations of hand auger equipment, and it is our experience that these materials are often able to be excavated with standard excavation equipment.

However, refusal materials can also signify transition into more resistant materials as noted in the *Subsurface Conditions* section of this report. Difficult excavations should be anticipated if more resistant refusal materials are encountered within proposed construction depths. Heavy excavation equipment and heavy excavation equipment with ripping tools will be able to remove some of these materials. Foundation excavations could require some pneumatic hammering to excavate seams of more resistant rock, if encountered. The ease of excavation of these materials cannot be specifically quantified and depends on the quality of grading equipment, skill of the equipment operators and geologic structure of the material itself, such as the direction of bedding, planes of weakness and spacing between discontinuities.

Groundwater and Surface Water

As previously described in the *Subsurface Conditions* section of this report, groundwater was not encountered within the proposed construction footprint during this exploration. If groundwater is encountered during site grading or construction, the geotechnical engineer and wall design engineer should be contacted immediately to develop recommendations for subsurface drainage control. The contractor should be prepared to promptly remove surface water from the construction area by means of gravity ditches and pumping from gravel-lined cased sumps.

Secondary Design Considerations

The following secondary design considerations are known to generally enhance performance of structural systems. Roof drainage should be collected by a system of gutters and downspouts and piped away from structures and slopes. Site grading and paving should result in positive drainage away from structures, site retaining walls, and slopes. Water should not be allowed to pond around structures or in such locations that would lead to saturation of their subgrade. A minimum slope of approximately ¼ to ½-inch per foot should provide adequate drainage. Backfill for utility lines should be placed in accordance with the requirements for engineered fill to minimize the potential for differential settlement.

SITE PREPARATION AND CONSTRUCTION RECOMMENDATIONS

Clearing and Grubbing

Existing topsoil, vegetation, disturbed soils, limbs, stumps, and surface soils containing organic matter or other deleterious materials should be removed from the area of the proposed construction. Topsoil and organic soils may be stockpiled for later use in areas to be landscaped. Stumps and other deleterious materials should be disposed of offsite or in areas of the site that will not be developed. Further construction of structures or pavement in areas containing limbs or stumps, organic soils, burn pit residue or other deleterious materials will first require that these materials be removed.

Proofrolling

If feasible, we recommend that areas to provide support for grade slabs, pavements, and earthwork fills be observed and proofrolled by an engineering technician working under the supervision of the geotechnical engineer. For mountainside residential sites, where heavy excavation equipment encounters difficult site access, the general method of proofrolling should consist of rolling the exposed subgrade using a loaded dump truck, if feasible. Areas which wave, rut, or deflect excessively and continue to do so after several passes of the proofroller, or are otherwise deemed unsuitable, should be excavated to firmer soils and backfilled with engineered fill placed and compacted as recommended in this report. Proofrolling should not be performed on wet, frozen, or saturated subgrade or immediately following periods of precipitation.

Engineered Fill

Fill used for site retaining wall backfill or raising site grades should be uniformly compacted in thin (6-inch to 12-inch) horizontal lifts to at least 95 percent of the standard Proctor maximum dry density (ASTM D-698) and within 3 percent of optimum moisture. The upper 18 inches below grade slabs and concrete pavements should be compacted to at least 98% of the same standard. Based on visual examination and our experience with similar soils, the on-site soils consisting of residuum and colluvium are generally suitable for re-use as engineered fill, provided they are free of organics and are moisture conditioned. Existing fill soils (such as that encountered at HAB-3) are marginal for reuse as existing fill due to moisture conditions and some organic content, and will likely need to be exported offsite. Soils with particle sizes larger than 6 inches should generally not be reused for engineered fill.

In general, soils having a Plasticity Index (PI) greater than 30 (less than 15 is preferable) should not be used for fill. Soils utilized as engineered fill should have a maximum dry density as determined in accordance with ASTM D698 (Standard Proctor test) of 90 pcf or higher (95 pcf or higher preferred). Before filling operations begin, representative samples of each proposed fill material should be collected and tested to determine the compaction and classification characteristics. Once compaction begins, a sufficient number of density tests should be performed by an engineering technician working under the direction of the geotechnical engineer to measure the degree of compaction being obtained.

Engineered fill should be placed in horizontal lifts. Prior to each lift of fill placement, the sloped area should be benched with a level pad into residuum. The level pad will allow for better compaction of the fill materials. The resulting series of level benches will also serve to break the potential slip plane between the temporary slope and backfill materials.

The surface of compacted subgrade soils can deteriorate and lose its support capabilities when exposed to environmental changes or construction activity. Deterioration can occur from, but is not limited to, the effects of freezing temperatures, the formation of erosion gullies, exposure to extreme wetting/drying conditions, long term exposure to natural elements, and rutting caused by construction traffic. We recommend that surfaces of the subgrade that have deteriorated or softened be recompacted immediately prior to construction of grade slabs or pavements. Additionally, excavations through the subgrade soils, such as utility trenches, should be properly backfilled with compacted lifts of engineered fill. Recompaction of subgrade surfaces and compaction of backfill should be checked with a sufficient number of density tests to determine if adequate compaction is being achieved.

Slopes and Excavations

Confined excavations such as for footing or utility installation should conform to OSHA regulations. For excavations that are not confined (i.e. cut slopes), our experience suggests that temporary excavation side slopes through undisturbed residuum should be laid back at a 0.75H:1V (horizontal:vertical) slope, or flatter, with maximum heights of 8 feet or less. Our experience suggests that permanent excavation side slopes through residuum at the site should be laid back at a 1.5H:1V, or flatter, with maximum heights of 8 feet or less. Permanent fill slopes are not anticipated at the project site. Cut and fill slope surfaces should be protected from erosion by grassing or by other means. Permanent slopes of 3H:1V or flatter may be desirable for mowing.

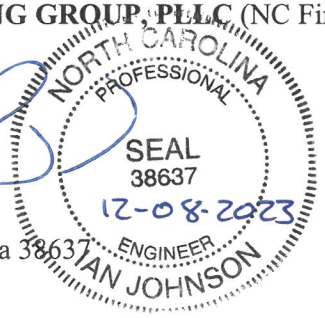
BASIS OF RECOMMENDATIONS

The recommendations presented in this report are based on our understanding of the project information, data obtained in our exploration, and our experience on similar projects. The general subsurface conditions utilized in our evaluation have been based on interpolation of the subsurface data between the widely spaced hand auger borings. Subsurface conditions between the hand auger boring locations may differ. If the project information is incorrect, please contact us so that our recommendations can be reviewed. Significantly different subsurface conditions may be present at portions of the site not explored during this hand auger boring exploration, and additional subsurface data should be gathered to develop revised recommendations if the location of the proposed construction footprint is significantly modified from that described herein.

The discovery of site or subsurface conditions during construction which deviate from the data obtained in this exploration should be reported to us for our evaluation. The assessment of site environmental conditions for the presence or absence of pollutants in the soil, rock, or groundwater of the sites is also beyond the scope of this exploration. The assessment of existing building and site retaining wall foundation bearing conditions, existing site retaining wall stability, and site slopes beyond the proposed driveway construction footprint at the site is beyond the scope of this exploration. Detailed site retaining wall design and finalized global stability analyses are beyond our current scope of service.

We appreciate the opportunity to offer our professional services on this project. If you have any questions concerning this report, please do not hesitate to contact us. We hope that you will give KEG consideration to providing construction materials testing services during the construction phase of this project.

Sincerely,
KESSEL ENGINEERING GROUP, PLLC (NC Firm License No. P-0420)



Ian Johnson, P.E.
Senior Engineer
Registered, North Carolina 38637

Caitlin Warner, P.E.
Senior Engineer
Registered, North Carolina 41503

Attachments: Figure 1 - Site Location Plan
Figure 2 - Field Exploration Plan
Hand Auger Borings Logs (HAB-1 to HAB-5)
Key to Soil Classifications and Consistency Descriptions
Slope Stability Analyses (cross sections CS-1 to CS-2)

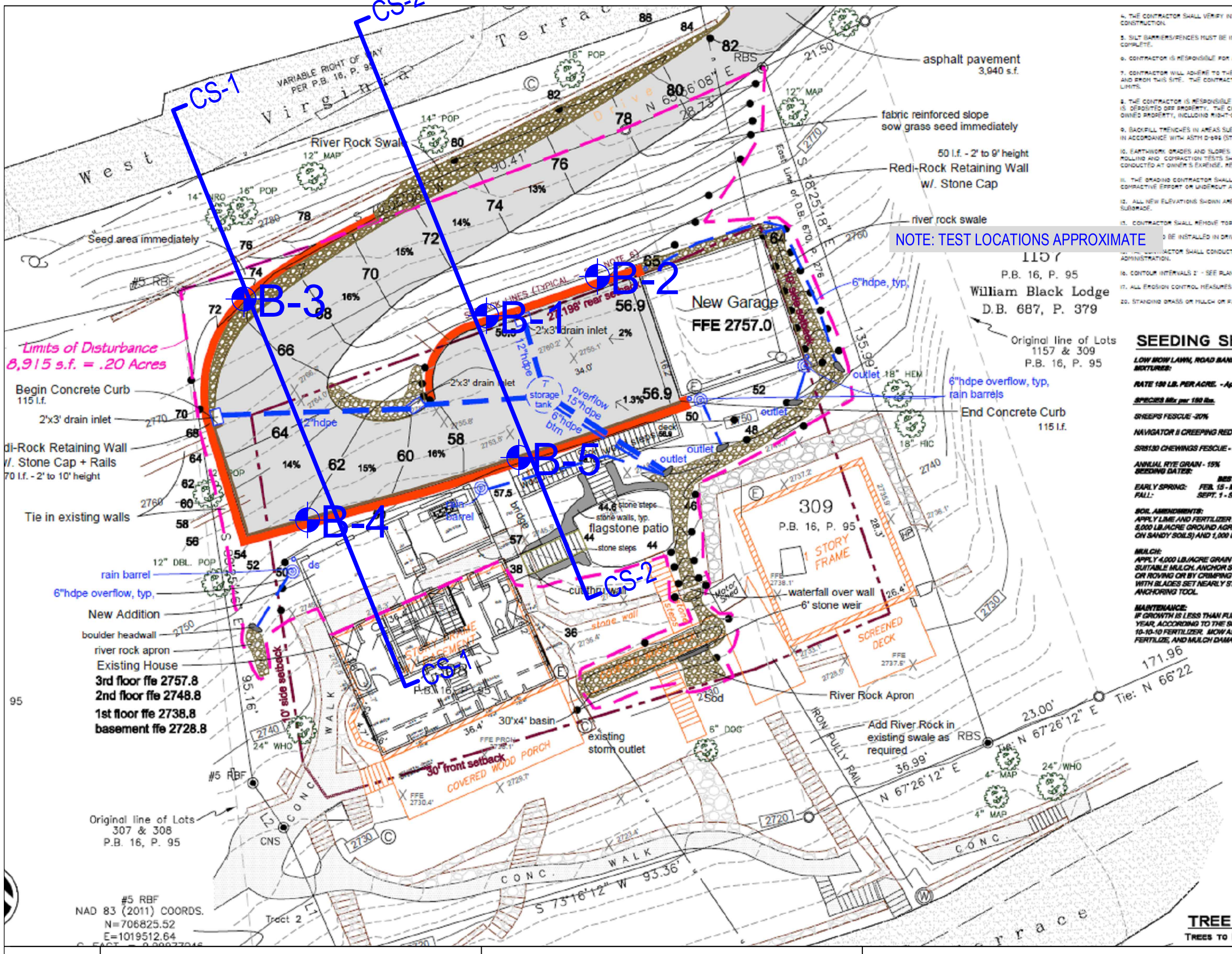
Distribution: Mr. Chris Brock, Brock Builders, Inc.; via email at chris@brockbuildersinc.com

SITE LOCATION PLAN
HENNIS RESIDENCE - 325 NORTH CAROLINA TERRACE
MONTREAT, NORTH CAROLINA

PROJECT NO. JA23-4732
DATE: 12/08/2023

FIGURE
1

KESSEL ENGINEERING GROUP
582 HENDERSONVILLE ROAD SUITE ONE | ASHEVILLE NC 28803 | P:[828] 277-6351 | F:[828] 277-6355
WWW.THEKESSELGROUP.COM



4. THE CONTRACTOR SHALL VERIFY INVERT ELEVATIONS FOR EXISTING/PROPOSED PIPES AND EXISTING ROADWAY ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

5. SILT BARRIERS/FENCES MUST BE IN PLACE PRIOR TO BEGINNING GRUBBING/CLEARING. NO GRADING MAY BEGIN UNTIL SILT BARRIER INSTALLATION IS COMPLETE.

6. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD LAYOUT OF PROPOSED IMPROVEMENTS.

7. CONTRACTOR WILL ADHERE TO THE WEIGHT LIMITS PRESCRIBED ON COUNTY AND STATE MAINTAINED ROADS FOR HAULING EQUIPMENT AND/OR MATERIALS TO AND FROM THIS SITE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO THE STREETS OR UTILITIES DUE TO NON-COMPLIANCE OF WEIGHT LIMITS.

8. THE CONTRACTOR IS RESPONSIBLE TO REMOVE OR CLEAN-OUT ANY SILT, DIRT, OR MUD, OR ANY OTHER TYPE OF DEBRIS THAT COMES OFF THIS SITE AND AS DEPOSITED OFF PROPERTY. THE CONTRACTOR IS RESPONSIBLE TO REMOVE ANY OF THE ITEMS MENTIONED THAT ARE DEPOSITED ONTO PRIVATE OR COUNTY OWNED PROPERTY, INCLUDING RIGHT-OF-WAY AREA AND ROADWAYS.

9. BACKFILL TRENCHES IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT +/-3% OF OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-698 (STD. PROCTOR).

10. EARTHWORK GRADES AND SLOPES AS SHOWN ARE APPROXIMATE. ADJUST DRIVEWAY LOCATION AND ELEVATIONS AS REQUIRED TO FIELD CONDITIONS. PROOF ROLLING AND COMPACTION TESTS SHALL BE ACCOMPLISHED IN THE FIELD TO TEST ALL AREAS AS REQUIRED BY OWNER. INITIAL COMPACTION TESTS WILL BE CONDUCTED AT OWNER'S EXPENSE. RETESTING REQUIRED DUE TO POOR COMPACTION SHALL BE CONDUCTED AT CONTRACTOR'S EXPENSE.

11. THE GRADING CONTRACTOR SHALL PROOF ROLL THE DRIVEWAY AREA WITH A SHEEPS FOOT ROLLER. ALL SOFT SPOTS SHALL BE STABILIZED BY FURTHER COMPACTIVE EFFORT OR UNDERCUT AND BACK FILLED WITH COMPACTED STRUCTURAL FILL MATERIAL.

12. ALL NEW ELEVATIONS SHOWN ARE APPROXIMATE FINISH ELEVATIONS. THE GRADING CONTRACTOR SHALL DEDUCT THE APPROPRIATE AMOUNT FOR THE SUBGRADE.

13. CONTRACTOR SHALL REMOVE TOPSOIL AS NECESSARY (MINIMUM OF 4") TO PROVIDE ADEQUATE SUBGRADE FOR ROADWAYS.

14. [illegible] BE INSTALLED IN DRIVEWAY AREA AS SOON AS POSSIBLE AND ADDED TO AS REQUIRED TO CONTROL MUD.

15. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

16. CONTOUR INTERVALS 2' - SEE PLANS

17. ALL EROSION CONTROL MEASURES SHOWN AND STATED ON THIS PLAN ARE TO BE IMPLEMENTED THROUGH COMPLETION.

20. STANDING GRASS OR MULCH OR FABRIC MUST BE PROVIDED FOR ALL DISTURBED AREAS BEFORE FINAL APPROVAL.

SEEDING SPECIFICATIONS

LOW MOW LAWN, ROAD BANKS, SHOULDERS, AND DITCHLINE SEEDING MIXTURES:

RATE 100 LB. PER ACRE. - Approximately .3 acres TOTAL for entire project

SPECIES Mix per 100 lbs.

SHEEPS FESCUE -20%

NAVIGATOR II CREEPING RED FESCUE - 50%

SR5130 CHEWINGS FESCUE - 15%

ANNUAL RYE GRAIN - 15%

SEEDING DATES:

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15 - MAR. 20	FEB. 15 - APR. 30
FALL:	SEPT. 1 - SEPT. 30	SEPT. 1 - OCT. 31

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 3,000 - 5,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO THE SOIL TESTS OR TOP DRESS WITH 500 LB./ACRE 10-10-10 FERTILIZER. MOW AS NEEDED TO A 6" MINIMUM HEIGHT. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

ADDITIONAL SEEDING NOTES:

1. GRADING CONTRACTOR IS RESPONSIBLE FOR SEEDING ALL DISTURBED AREAS OF THE PROJECT.

2. LOOSEN COMPACTED SUBGRADE AND UNCHANGED SUBGRADE TO A MINIMUM DEPTH OF 4". REMOVE STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER AND LEGALLY BURN THEM. RAKE OR OTHERWISE LIGHTLY SCARIFY SOIL SURFACE TO ENSURE SEED-TO-SOIL CONTACT. AREAS TO BE SEEDED SHALL BE RIPPED AND SPREAD WITH AVAILABLE TOPSOIL 3" DEEP. TOTAL SEEDBED PREPARED DEPTH SHALL BE 4" TO 8" DEEP. SURFACE FOR FINAL SEEDBED PREPARATION, AT FINISH GRADES SHOWN, SHALL BE REASONABLY SMOOTH AND UNIFORM.

3. APPLY SEED BY HYDRO-SEEDING WERE POSSIBLE. ALLOW SEED APPLICATION TO DRY PRIOR TO MULCH APPLICATION TO PREVENT RUN-OFF.

4. SURFACE WATER CONTROL MEASURES TO BE INSTALLED ACCORDING TO PLAN. IF NO SOIL TEST IS TAKEN, FERTILIZE AND LIME ACCORDING TO SEEDING SCHEDULE. IF SOIL TEST IS TAKEN PROVIDE LIME AND FERTILIZER ACCORDING TO SOIL TEST REPORT. LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY AND MIXED WITH THE SOIL DURING SEEDBED PREPARATION.

5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH N.C. EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, USDA, & U.S. SCS.

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

STABILIZATION = pavement, buildings, mulch, or wheat straw and grass seeding, or fabric and rip rap to cover all dirt and disturbed areas

TREE PROTECTION NOTES

TREES TO REMAIN NOT IN LIMITS OF DISTURBANCE

Other Consul
Architect - Prudhomme Design and Interiors
Surveyor - High Country Surveying

Owner
Dowd Montreat, LLC
John Hennis

PIN: 0710-96-5982-00000

Project:
Dowd Montreat, LLC
Town of Montreat, Buncombe County, NC

Sheet:
Grading Plan

Designed By:
cds | Creative Development Solutions
landscape architecture | land planning | community and resort design
1002 4th avenue west, hendersonville, north carolina 28739
p 828 696 9992 | f 828 696 9994

KESSEL ENGINEERING GROUP

HENNIS RESIDENCE - 325 NORTH CAROLINA TERRACE
MONTREAT, NORTH CAROLINA

KEG PROJECT NO. JA23-4732-01

FIELD EXPLORATION PLAN DATE: 12-08-2023

REFERENCE: Grading Plan: Dowd Montreat, LLC, Sheet L3, by Creative Development Solutions, dated September 7, 2023.

0' 10' 20' 40'

SCALE: 1" = 20'-0"

FIGURE
2

KESSEL ENGINEERING GROUP

HAND AUGER BORING NO. HAB-1

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 11-30-23 END: 11-30-23

LOCATION: See Figure 2 | ELEVATION: 2765 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
2764	Approximately 10-Inches TOPSOIL			
	Brown, Silty, Fine to Coarse SAND with Gravel (Colluvium)		25/1.5	n = 25/1.5
2	Loose, Reddish Brown, Silty, Fine to Medium SAND (Residuum)			
2762			7 8 7	n = 7
4	Firm to Very Firm, Brown, Silty, Fine to Medium SAND with Trace Mica			
2760			25/1.75	n = 25/1.75
6				
2758			25/1.5	n = 25/1.5
8				
2756	Hand auger boring terminated at 9.0 feet. No groundwater encountered at time of boring.		25/1.5	n = 25/1.5
10				
2754				
12				
2752				

2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5

3 offsets required due to shallow refusal.

HAND AUGER BORING NO. HAB-2

KESSEL ENGINEERING GROUP

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 11-30-23 END: 11-30-23

LOCATION: See Figure 2 | ELEVATION: 2765 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
2764 / 0	Approximately 12-Inches TOPSOIL			
	Firm, Reddish Brown, Sandy SILT (Residuum)		10 9 7	n = 8
2	Firm to Very Firm, Dark Brown to Dark Gray, Silty, Fine to Medium SAND			
2762			17 23 18	n = 20
4				
2760			25/1	n = 25/1
6				
	Hand auger refusal encountered at 6.5 feet. No groundwater encountered at time of boring.		25/1.25	n = 25/1.25
2758				
8				
2756				
10				
2754				
12				
2752				

2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5

2 offsets encountered refusal at similar or shallower depths.

KESSEL ENGINEERING GROUP

HAND AUGER BORING NO. HAB-4

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 12-1-23 END: 12-1-23

LOCATION: See Figure 2 | ELEVATION: 2753 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
2752 / 0	Approximately 12-Inches TOPSOIL			
	Loose, Brown, Silty, Fine to Medium SAND (Colluvium)		6 6 5	n = 5
2	Firm to Very Firm, Brown and Light Reddish Brown, Silty, Fine to Medium SAND with Trace Mica (Residuum)			
2750			25/1.75	n = 25/1.75
4				
2748			21 15 16	n = 15
6				
2746			25/1.75	n = 25/1.75
8				
2744	Hand auger boring terminated at 9.0 feet. No groundwater encountered at time of boring.		25/.75	n = 25/.75
10				
2742				
12				
2740				

DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches: 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5

HAND AUGER BORING NO. HAB-4
Sheet 1 of 1

HAND AUGER BORING 4732-01 HENNIS RESIDENCE - DRIVEWAY.GPJ KESSEL GROUP.GDT 12/6/23

HAND AUGER BORING NO. HAB-5

KESSEL ENGINEERING GROUP

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 12-1-23 END: 12-1-23

LOCATION: See Figure 2 | ELEVATION: 2752 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: ____ AFTER 24 HOURS: ____ CAVING> ____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
				2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5
	Approximately 8-Inches TOPSOIL			
	Firm, Reddish Brown, Sandy SILT (Residuum)		8 7 7	n = 7
2750 — 2	Loose, Reddish Brown, Silty, Fine SAND with Trace Mica		10 12 16	n = 14
2748 — 4			17 14 17	n = 15
2746 — 6	Very Firm, Brown, Slightly Micaceous, Silty, Fine to Medium SAND		25/1	n = 25/1
			25/.75	n = 25/.75
2744 — 8	Hand auger refusal encountered at 7.5 feet. No groundwater encountered at time of boring.			
2742 — 10				
2740 — 12				

HAND AUGER BORING 4732-01 HENNIS RESIDENCE - DRIVEWAY.GPJ KESSEL GROUP.GDT 12/6/23

KEY TO SOIL CLASSIFICATIONS AND CONSISTENCY DESCRIPTIONS

Cone Penetrometer Resistance Average blows over 3-1/2 in. increment SANDS	Relative Density
1 to 4	Very Loose
5 to 15	Loose
16 to 29	Firm
over 30	Very Firm

Particle Size Identification

Boulder: Greater than 300 mm
Cobble: 75 to 300 mm
Gravel:
Coarse - 19 to 75 mm
Fine - 4.75 to 19 mm
Sand:
Coarse - 2 to 75 mm
Medium - 0.425 to 2 mm
Fine - 0.075 to 0.425 mm
Silts & Clay: Less than 0.075 mm

Cone Penetrometer Resistance Average blows over 3-1/2 in. increment SILTS and CLAYS	Consistency
1 to 4	Soft
5 to 9	Firm
10 to 29	Stiff
over 30	Very Stiff

KEY TO DRILLING SYMBOLS

Grab Sample

Split Spoon Sample

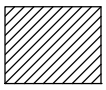
Undisturbed Sample

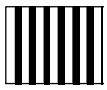
Groundwater Table at Time of Drilling

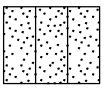
Groundwater Table 24 Hours after Completion of Drilling

KEY TO SOIL CLASSIFICATIONS

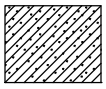

Well-graded Gravel
GW

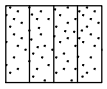

Low Plasticity Clay
CL

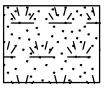

Clayey Silt
MH


Silty Sand
SM

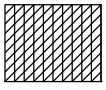

Poorly-graded Gravel
GP

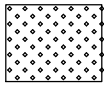

Sandy Clay
CLS

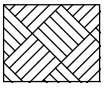

Sandy Silt
MLS

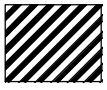

Topsoil
TOPSOIL

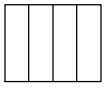

Partially Weathered Rock
BLDRCBBL

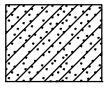

Silty Clay
CL-ML

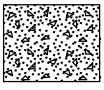

Sand
SW


Bedrock
BEDROCK


High Plasticity Clay
CH


Silt
ML


Clayey Sand
SC


Concrete
AS

KESSEL ENGINEERING GROUP

HAND AUGER BORING NO. HAB-3

PROJECT: Hennis Residence - Driveway | PROJECT NO.: JA23-4732-01

CLIENT: Brock Builders | DATE START: 11-30-23 END: 11-30-23

LOCATION: See Figure 2 | ELEVATION: 2774 (feet)

PERFORMED BY: KEG Representatives | LOGGED BY: I. Johnson

DRILLING EQUIPMENT: Hand Auger

DEPTH TO - WATER> INITIAL: _____ AFTER 24 HOURS: _____ CAVING> _____

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	DYNAMIC CONE PENETRATION RESULTS BLOWS/1-3/4 inches
				2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5
	Approximately 12-Inches GRAVEL and TOPSOIL			
	Very Loose and Loose, Brown, Slightly Moist, Silty, Fine to Medium SAND with Trace Organics (Fill)		11 9 11	n = 10
2772 — 2				
			3 3 3	n = 3
2770 — 4				
			7 7 6	n = 6
2768 — 6	Loose to Very Firm, Reddish Brown, Silty, Fine to Medium SAND with Trace Mica (Residuum)			
			15 18 11	n = 14
2766 — 8				
	Hand auger boring terminated at 9.0 feet. No groundwater encountered at time of boring.		25/1.25	n = 25/1.25
2764 — 10				
2762 — 12				

1 offset required due to shallow refusal.

HAND AUGER BORING NO. HAB-3
Sheet 1 of 1

HAND AUGER BORING 4732-01 HENNIS RESIDENCE - DRIVEWAY.GPJ KESSEL GROUP.GDT 12/6/23

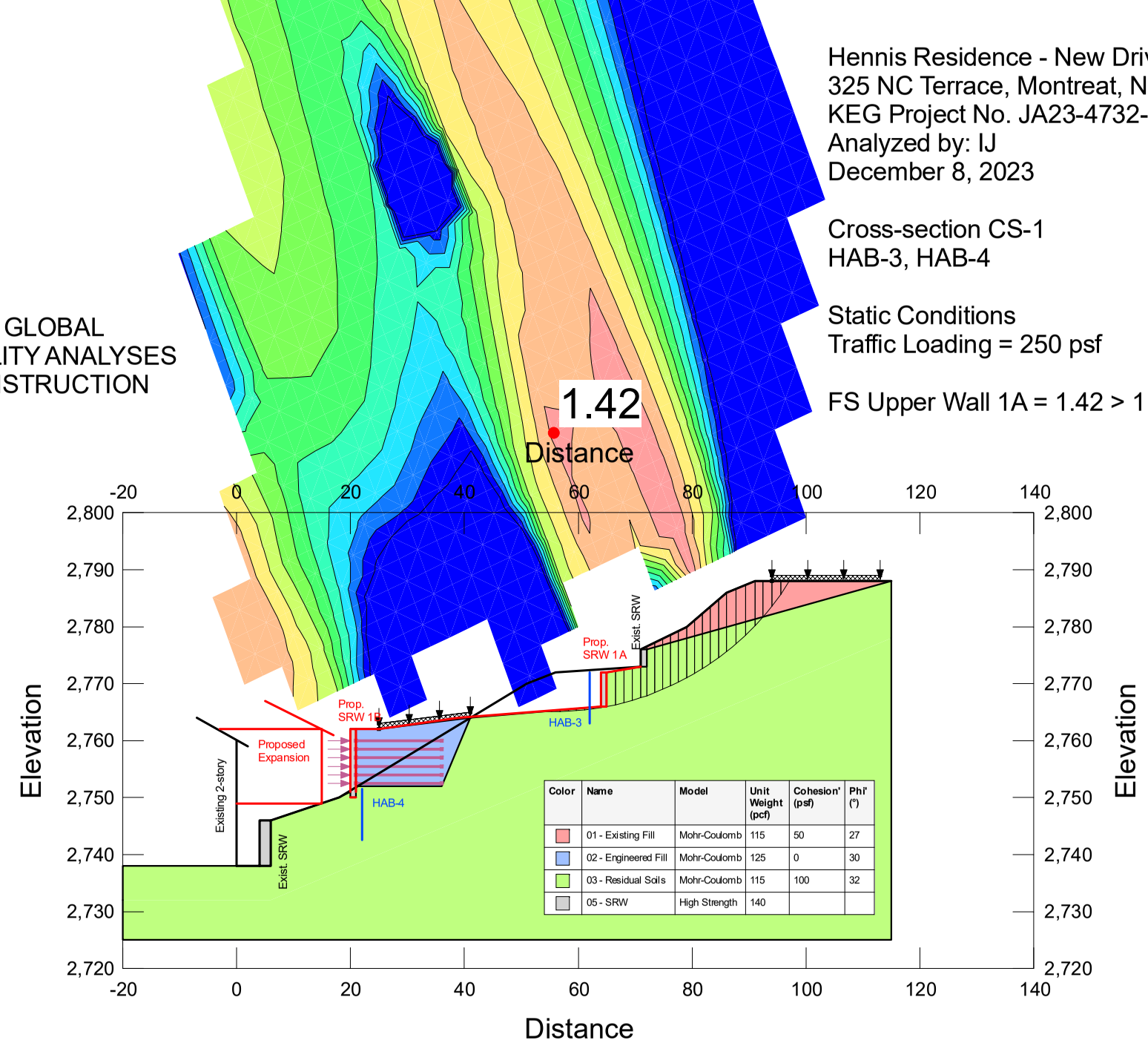
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ
December 8, 2023

Cross-section CS-1
HAB-3, HAB-4

Static Conditions
Traffic Loading = 250 psf

FS Upper Wall 1A = 1.42 > 1.3 req'd



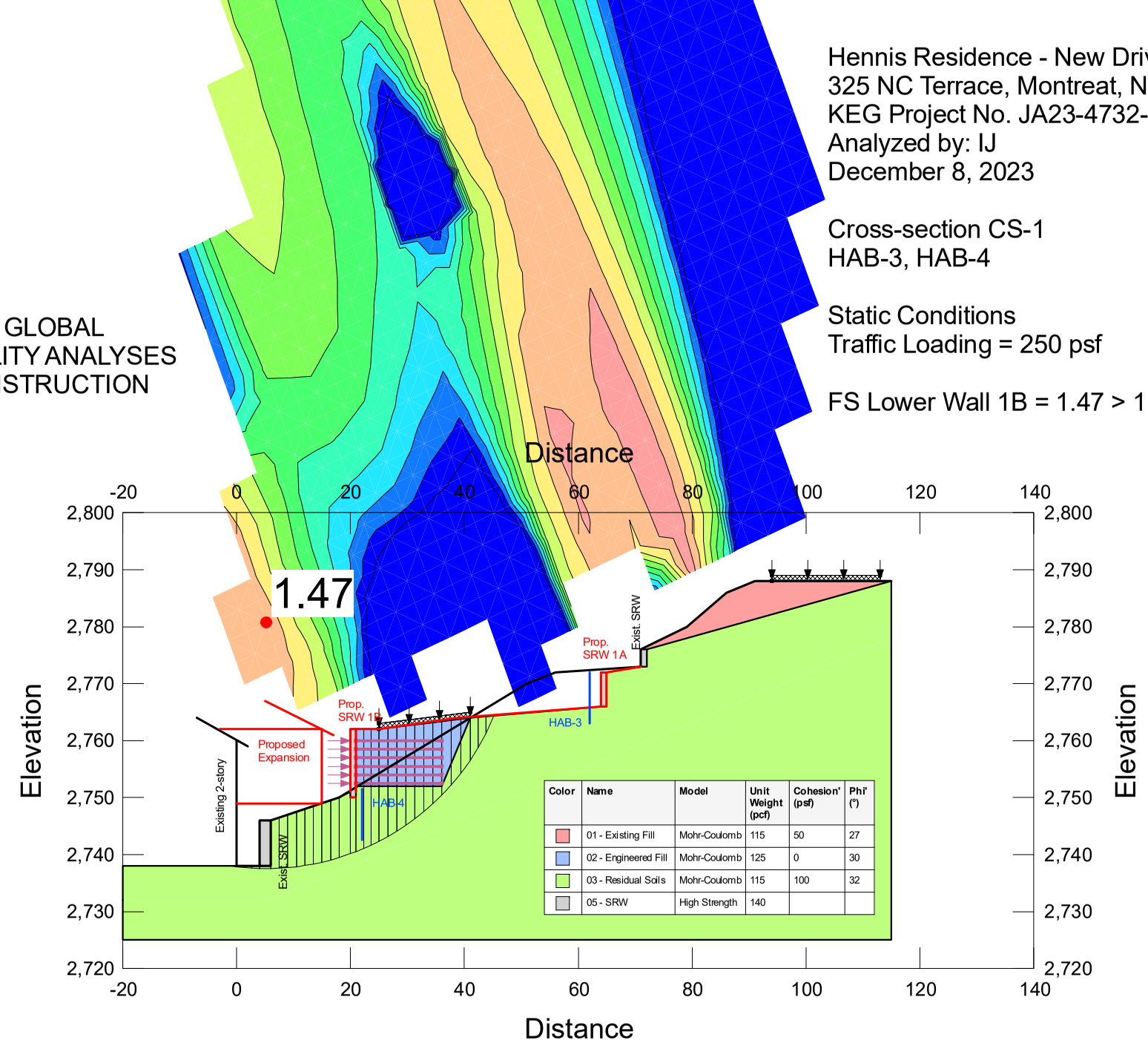
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ
December 8, 2023

Cross-section CS-1
HAB-3, HAB-4

Static Conditions
Traffic Loading = 250 psf

FS Lower Wall 1B = 1.47 > 1.3 req'd



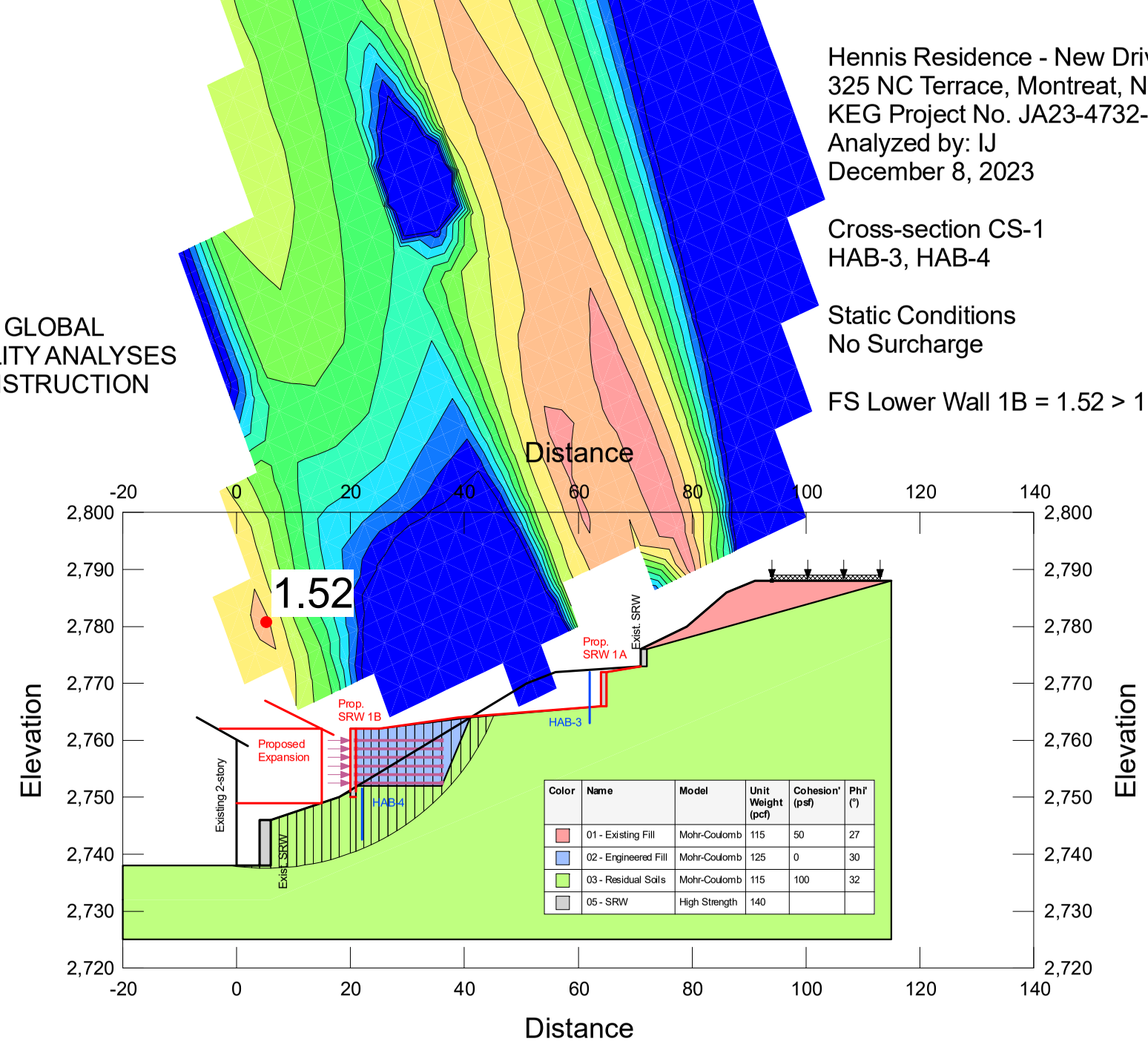
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ
December 8, 2023

Cross-section CS-1
HAB-3, HAB-4

Static Conditions
No Surcharge

FS Lower Wall 1B = 1.52 > 1.5 req'd



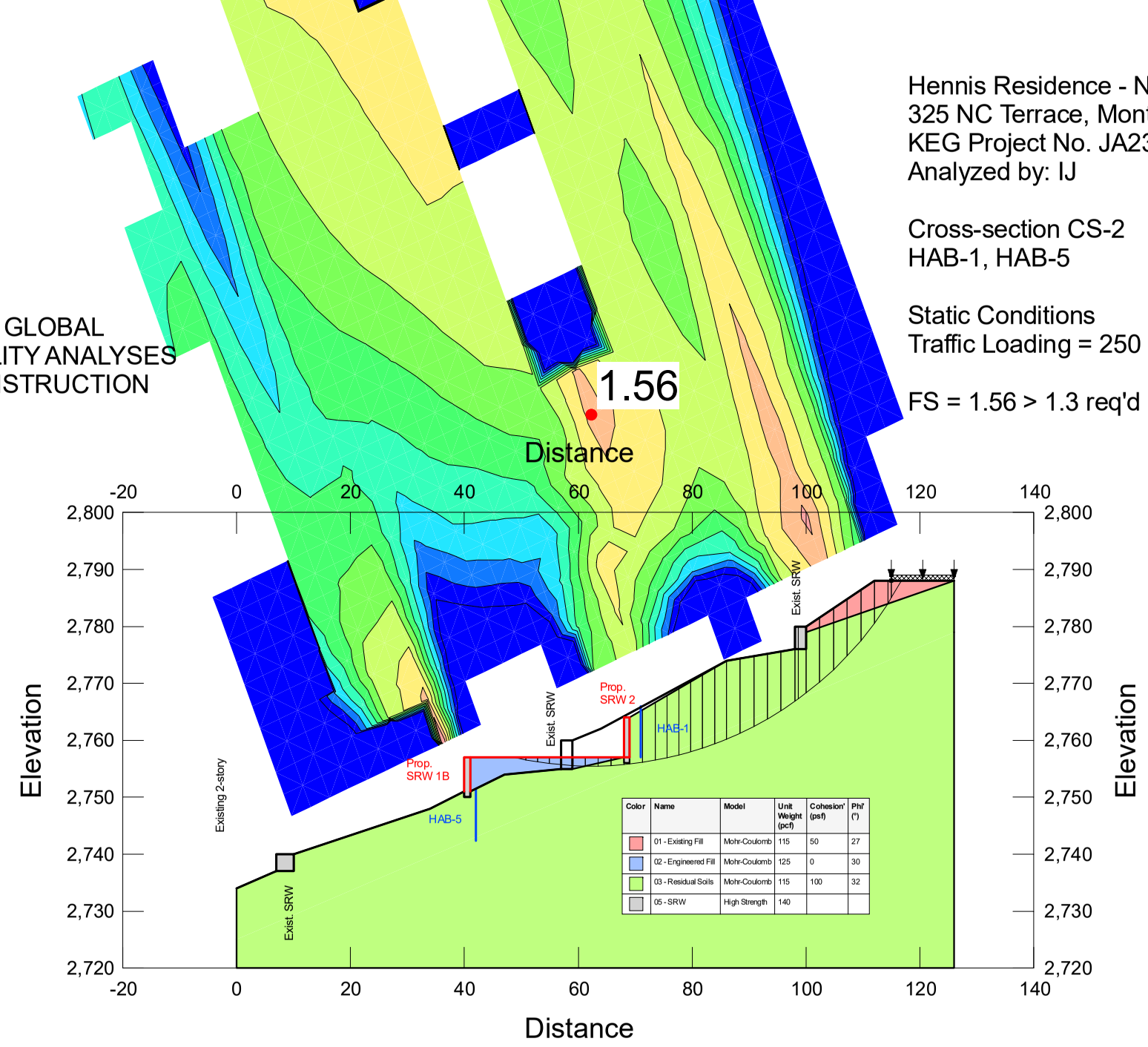
PRELIMINARY GLOBAL
SLOPE STABILITY ANALYSES
NOT FOR CONSTRUCTION

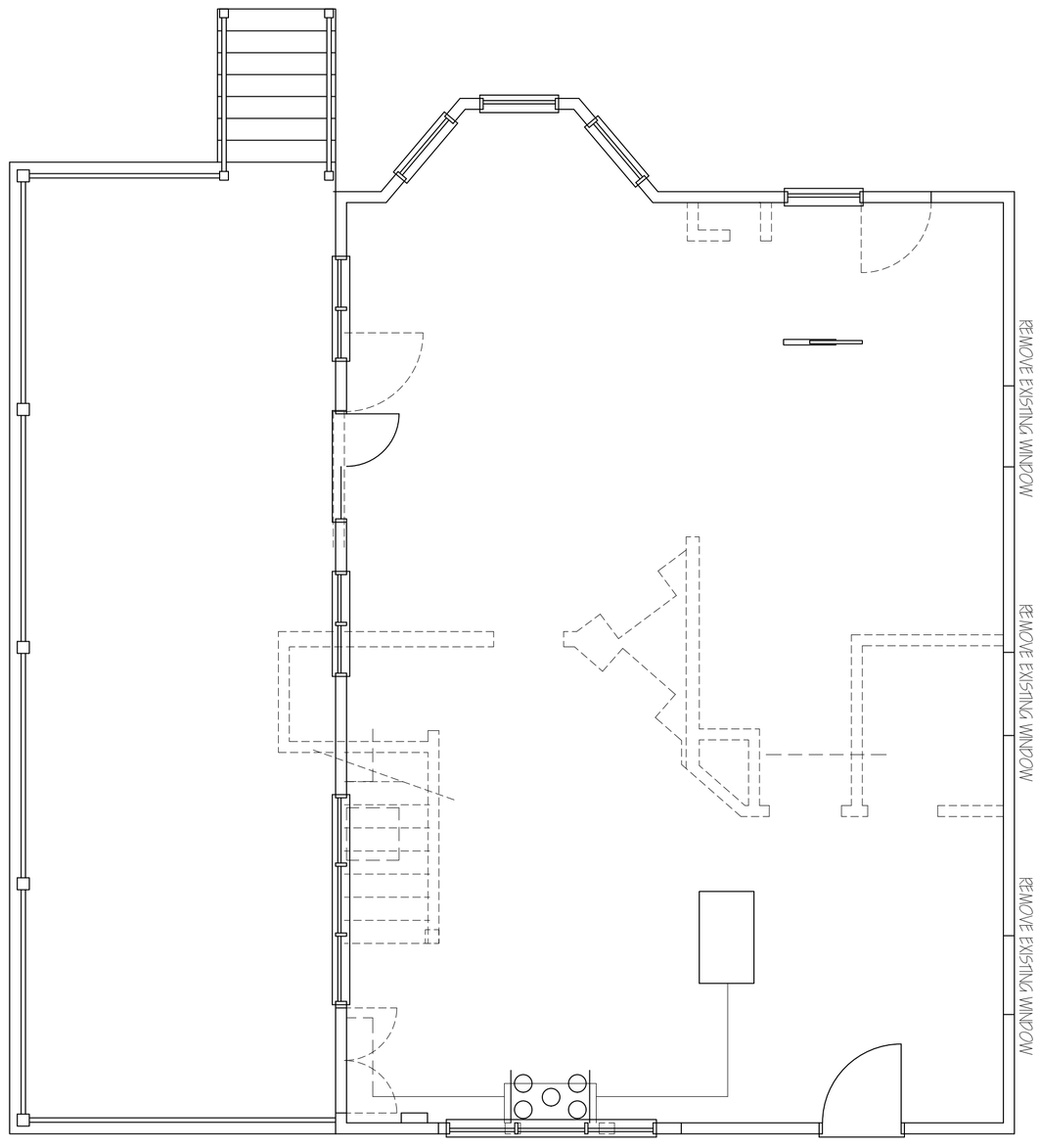
Hennis Residence - New Driveway
325 NC Terrace, Montreat, NC
KEG Project No. JA23-4732-01
Analyzed by: IJ

Cross-section CS-2
HAB-1, HAB-5

Static Conditions
Traffic Loading = 250 psf

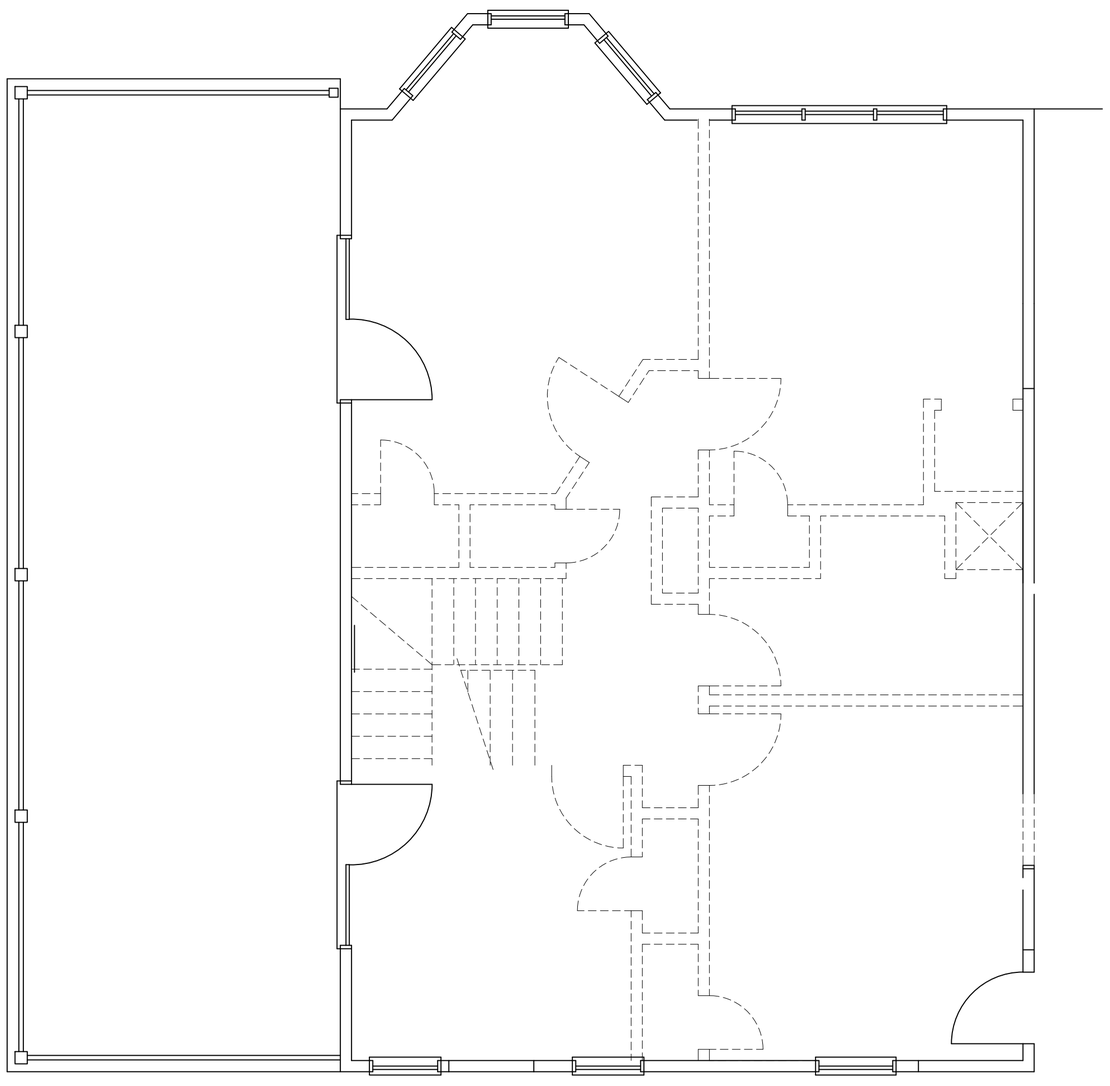
FS = 1.56 > 1.3 req'd





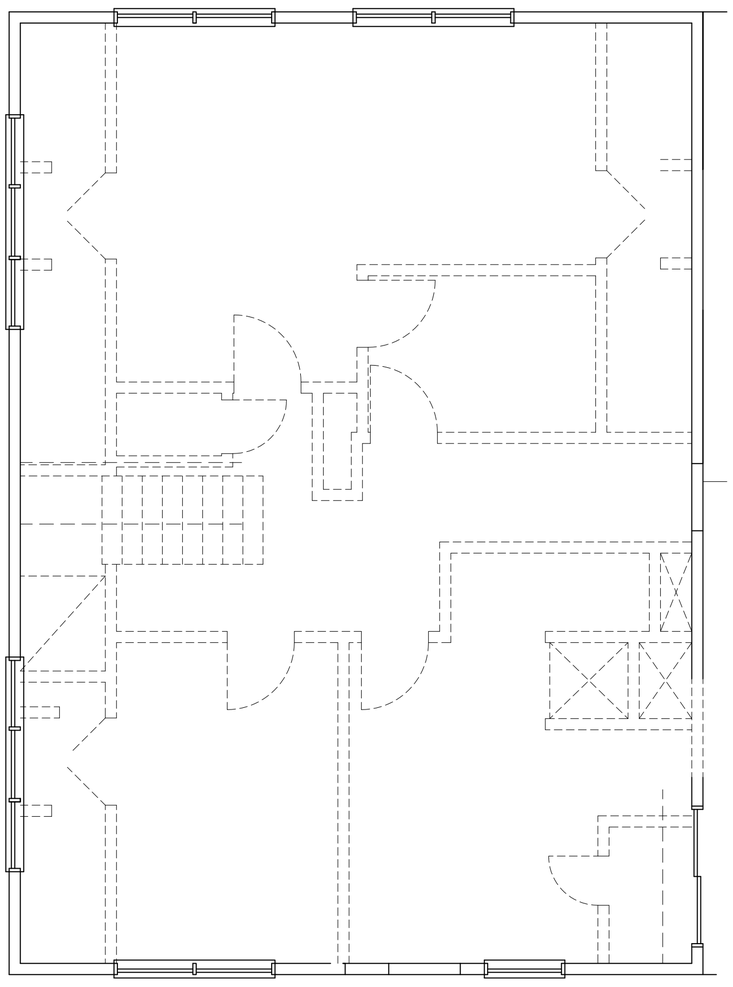
MAIN LEVEL DEMO PLAN

SCALE 1/4 = 1'-0"



2ND FLOOR DEMO PLAN

SCALE 1/4 = 1'-0"



3RD FLOOR DEMO PLAN

SCALE 1/4 = 1'-0"

SEPTEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

AIA – 521 WETMUR STREET – HENDERSONVILLE, NORTH CAROLINA 28739

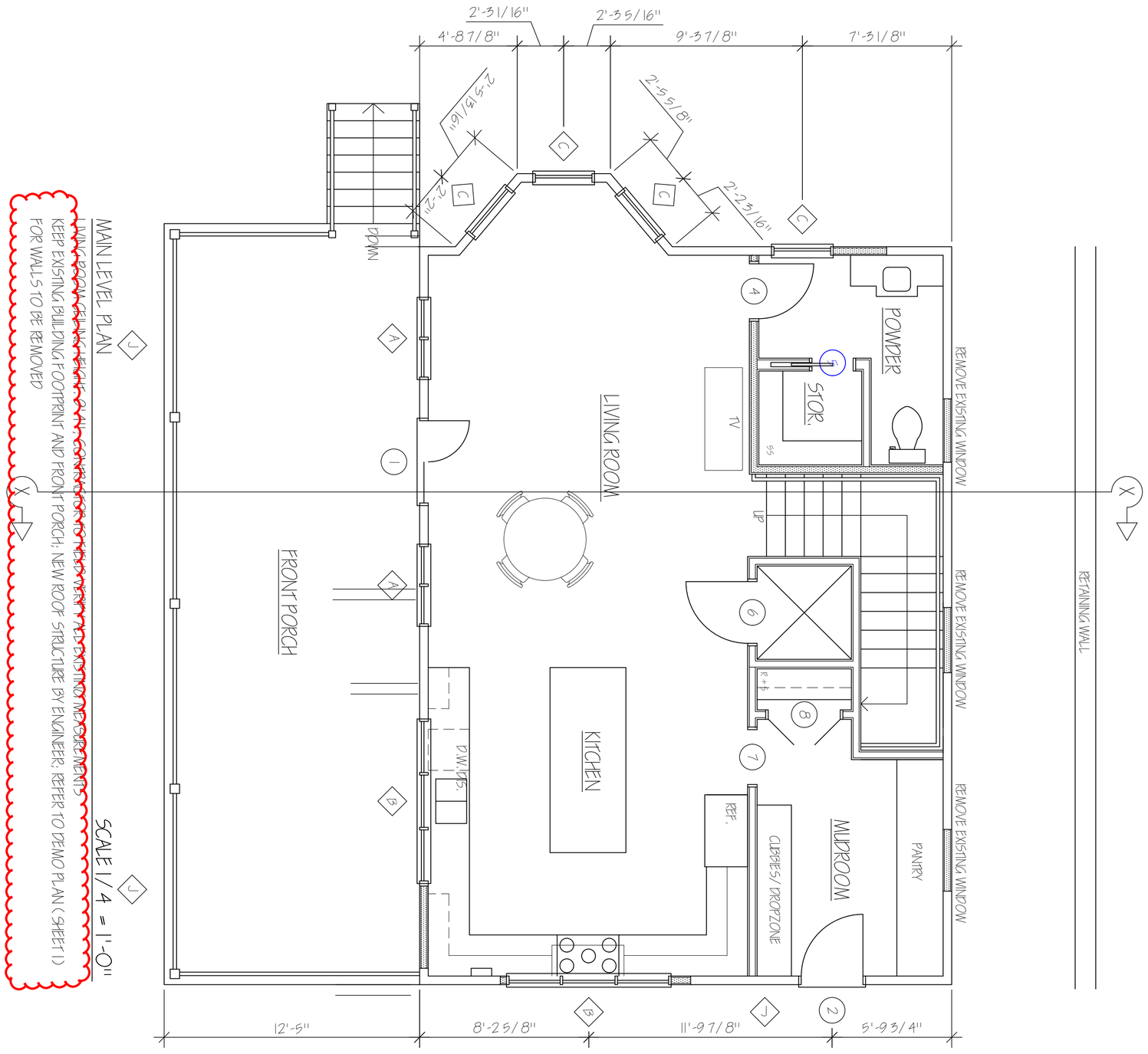
828.674.0273 – TIFFANY@PRUDHOMMEDESIGN.COM

TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 12981 NORTH CAROLINA HENDERSONVILLE, N.C.

MAIN LEVEL PLAN

KEEP EXISTING BUILDING FOOTPRINT AND FRONT PORCH; NEW ROOF STRUCTURE BY ENGINEER; REFER TO DEMO PLAN (SHEET 1)

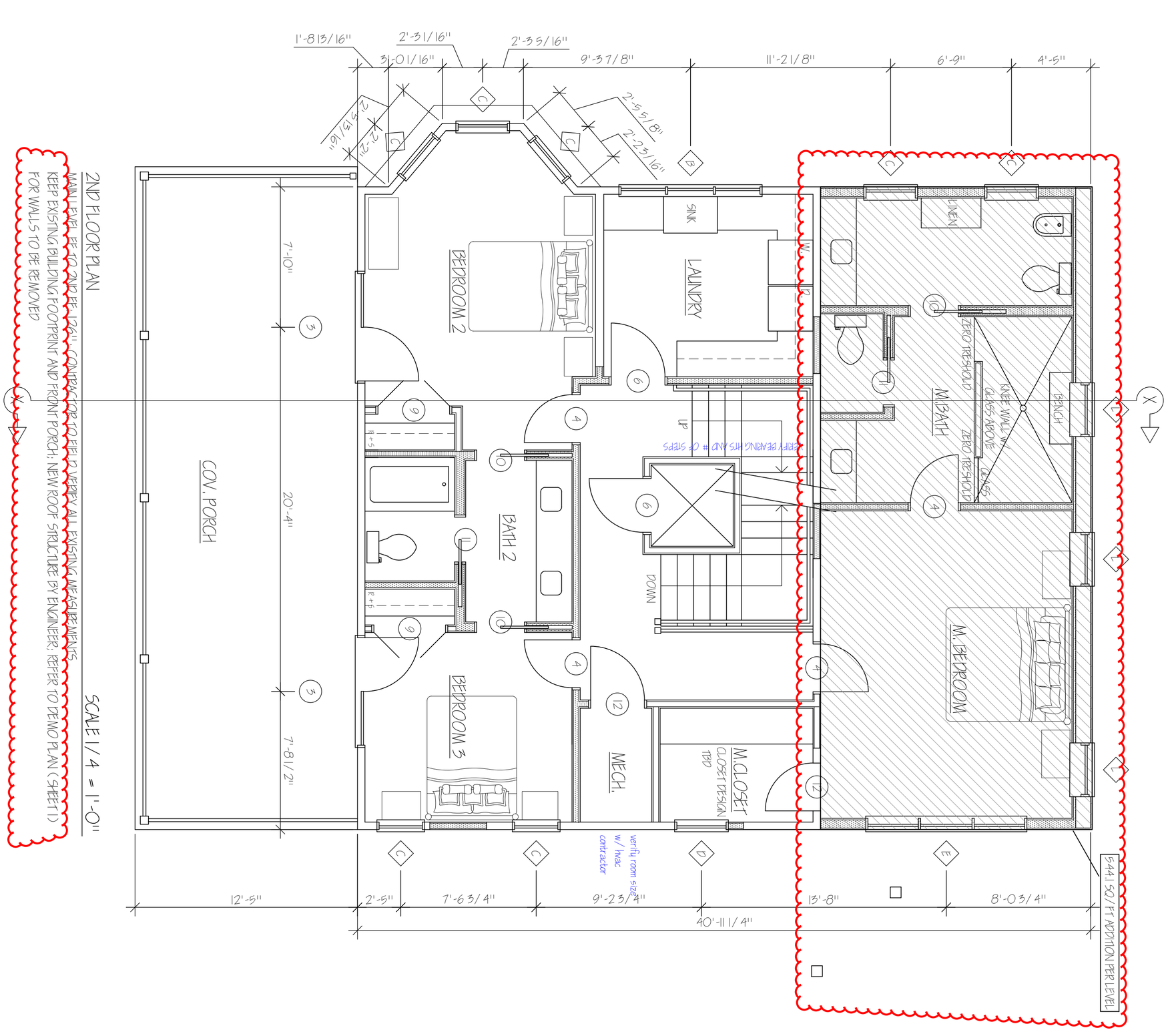
SCALE 1/4" = 1'-0"



2ND FLOOR PLAN

KEEP EXISTING BUILDING FOOTPRINT AND FRONT PORCH; NEW ROOF STRUCTURE BY ENGINEER; REFER TO DEMO PLAN (SHEET 1)

SCALE 1/4" = 1'-0"



2

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

AIA – 521 WETMUR STREET – HENDERSONVILLE, NORTH CAROLINA 28739

828.674.6273 – TIFFANY@PRUDHOMMEDESIGN.COM

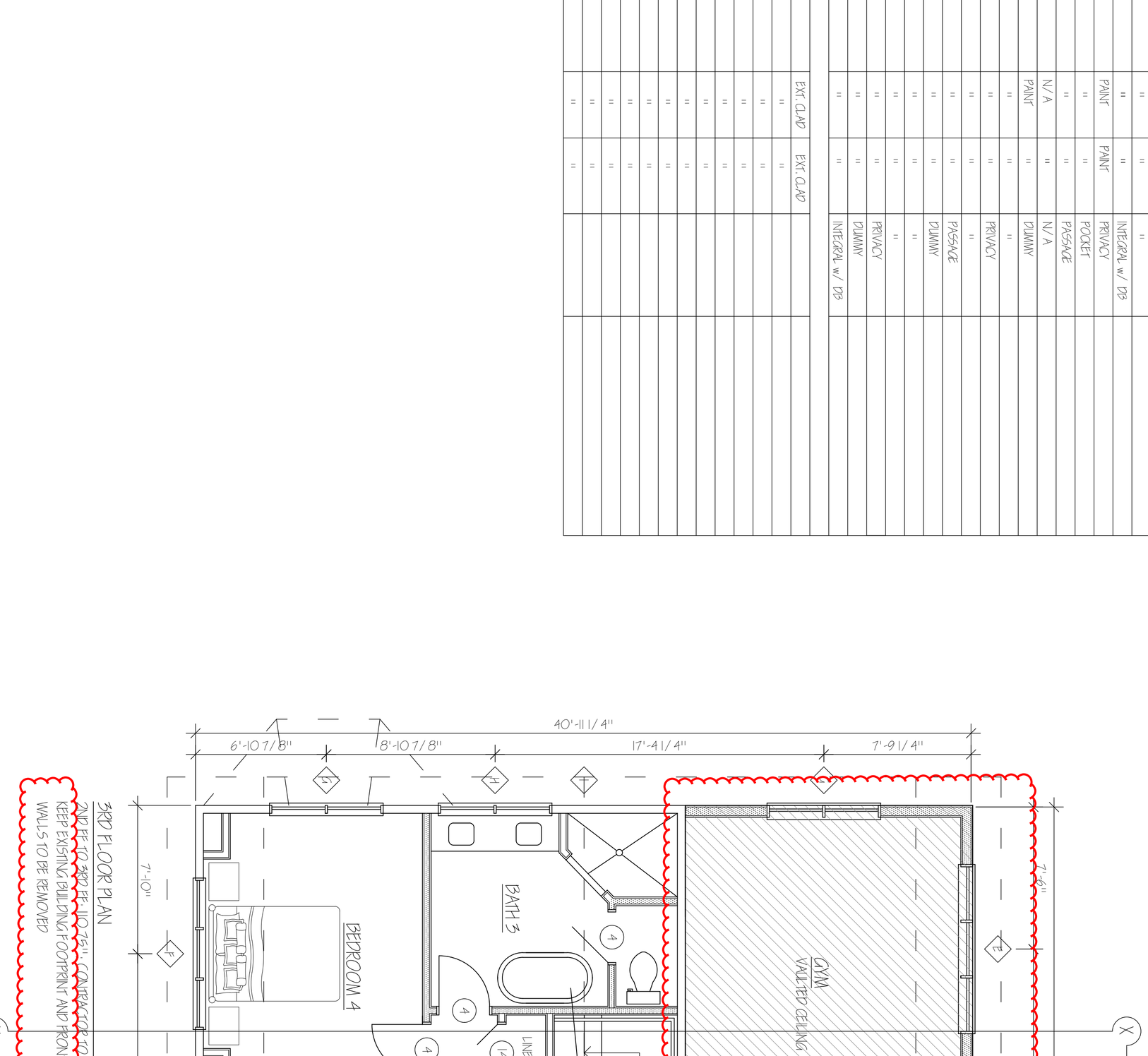
PRELIMINARY

TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 12881 NORTH CAROLINA HENDERSONVILLE, N.C.

DOORS AND WINDOWS

MK.	W	H	T	DESCRIPTION
1	4'-0"	7'-0"	1'-3 1/4"	3/4 GLASS w/ 8-LITE DIVISIONS
2	3'-0"	"	"	"
3	6'-0"	"	"	"
4	2'-8"	6'-8"	1'-3 1/8"	2 PANEL
5	2'-0"	"	"	2 PANEL POCKET
6	3'-0"	"	"	2 PANEL ELEVATOR
7	2'-8"	"	"	CASED OPENING
8	3'-6"	"	"	2 PANEL DOUBLE DOOR
9	4'-0"	"	"	"
10	2'-8"	"	"	2 PANEL POCKET
11	2'-6"	"	"	"
12	3'-0"	"	"	2 PANEL
13	4'-0"	"	"	2 PANEL DOUBLE
14	3'-0"	"	"	"
15	5'-0"	"	"	"
16	3'-0"	"	"	2 PANEL
17	4'-0"	"	"	2 PANEL DOUBLE
18	18'-0"	8'-0"	1'-1 /8"	GARAGE DOOR w/ 8-LITE TRANSOM

	W	H	DR	FIN	FR	FIN	HARDWARE	REMARKS
A	4'-0"	5'-6"		CASEMENT DOUBLE 6-LITE	EXT. CLAD	EXT. CLAD		
B	8'-0"	4'-0"	EXT. CLAD	"	"	"		
C	3'-0"	5'-0"	"	"	"	"		
D	3'-0"	3'-0"	"	CASEMENT SINGLE 6-LITE	"	"		
E	9'-0"	5'-0"	"	FIXED SINGLE 4-LITE	"	"		
F	8'-0"	4'-10"	"	CASEMENT TRIPLE 4-LITE	"	"		
G	6'-0"	5'-0"	"	CASEMENT TRIPLE 6-LITE	"	"		
H	6'-0"	1'-6"	"	CASEMENT DOUBLE 6-LITE	"	"		
I	2'-6"	3'-6"	"	CASEMENT DOUBLE 6-LITE	"	"		
J	3'-0"	3'-10"	"	FIXED SINGLE	"	"		
K	3'-0"		"	DOUBLE HUNG SINGLE 6-LITE	"	"		
L	3'-0"	1'-8"	"	FIXED TRANSOM	"	"		
M	3'-0"	3'-0"	"	FIXED	"	"		



3RD FLOOR PLAN

SCALE 1/4 = 1'-0"

2ND FF TO 3RD FF: 110.75'. CONTRACTOR TO FIELD VERIFY ALL EXISTING MEASUREMENTS. KEEP EXISTING BUILDING FOOTPRINT AND FRONT PORCH; NEW ROOF STRUCTURE BY ENGINEER; REFER TO DEMO PLAN (SHEET 1) FOR WALLS TO BE REMOVED

3

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

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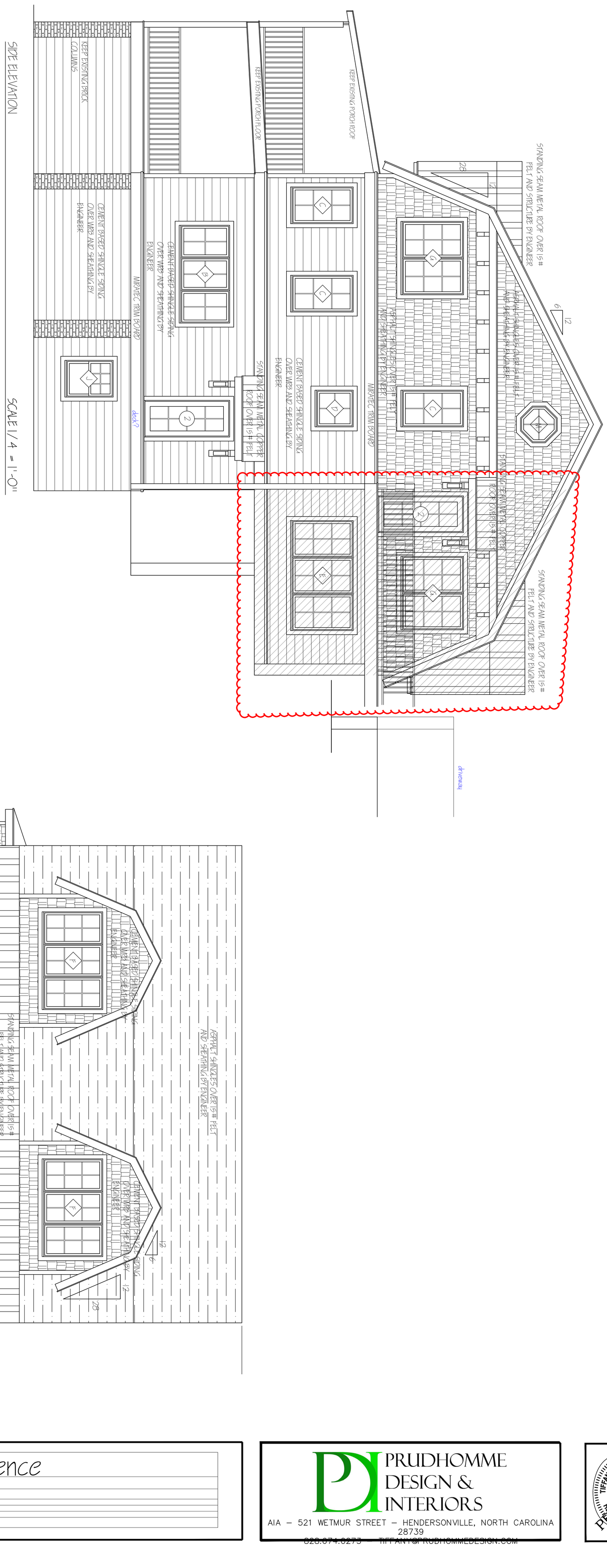
TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 12881 NORTH CAROLINA HENDERSONVILLE, N.C.

PRELIMINARY



4

15 DECEMBER 2025

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

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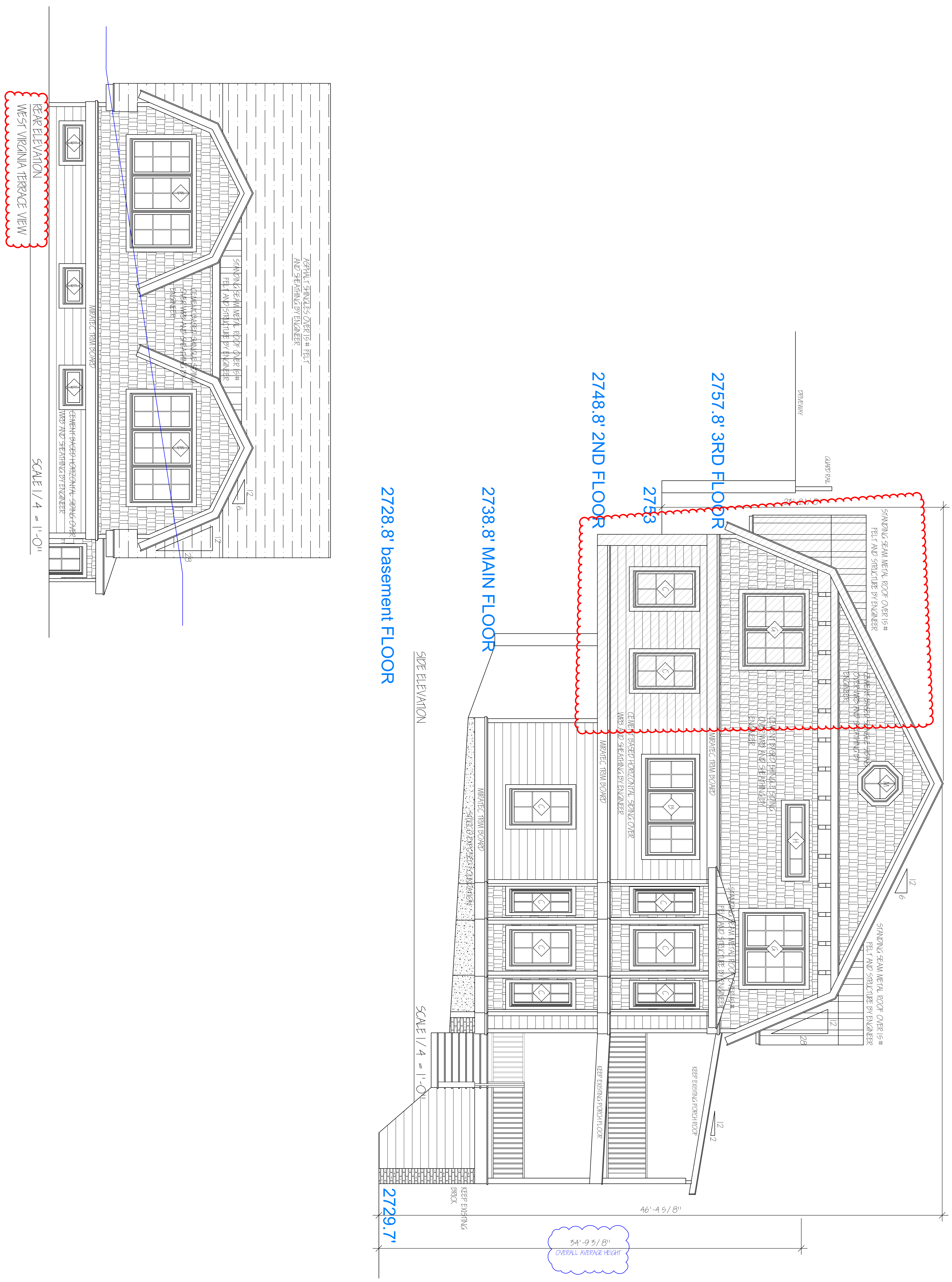
TIFFANY NICOLE PRUDHOMME REGISTERED ARCHITECT 13681 NORTH CAROLINA HENDERSONVILLE, N.C.



5

dowd montreat llc residence

ADDITION AND RENOVATIONS

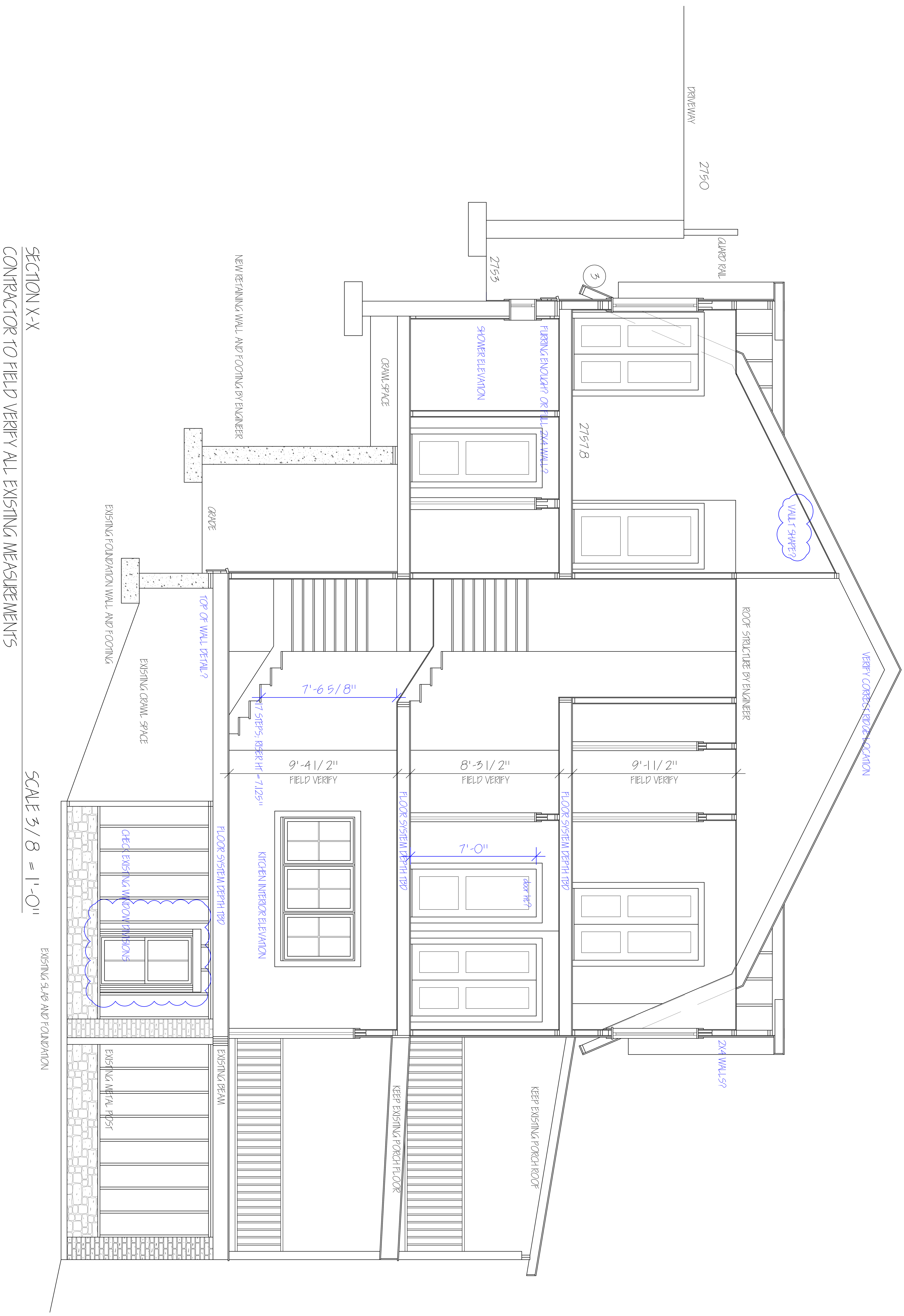
325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS

AIA – 521 WETMUR STREET – HENDERSONVILLE, NORTH CAROLINA 28739

828.674.0273 — TIFFANY@PRUDHOMMEDESIGN.COM

TIFFANY NICOLE PRUDHOMME — REGISTERED ARCHITECT — NORTH CAROLINA — HENDERSONVILLE, N.C. — PRELIMINARY



6

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS

325 north carolina terrace - montreat - north carolina

PRUDHOMME
DESIGN &
INTERIORS

AIA — 521 WETMUR STREET — HENDERSONVILLE, NORTH CAROLINA 28739

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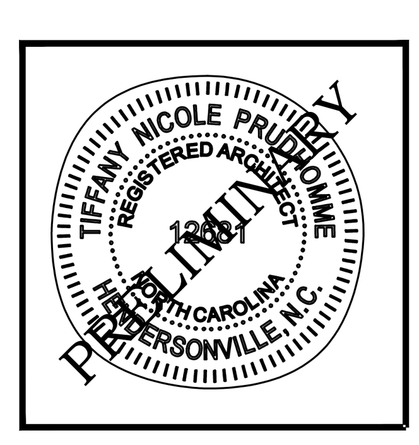
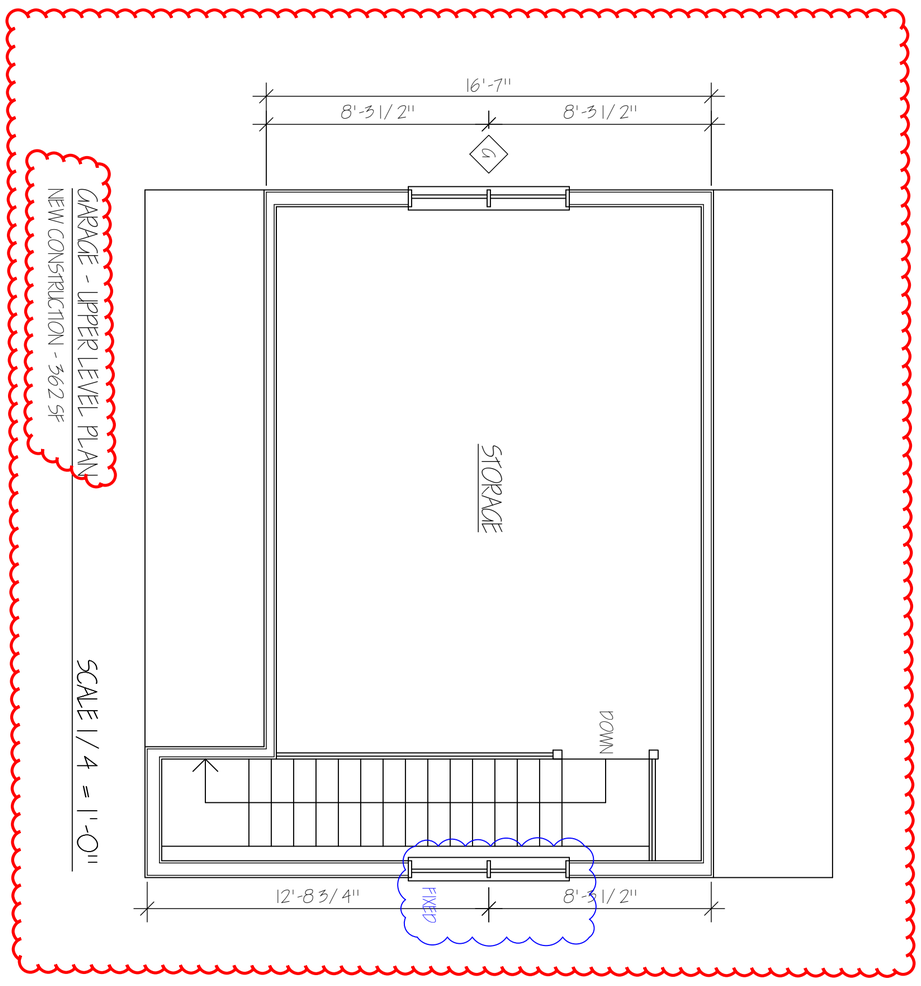
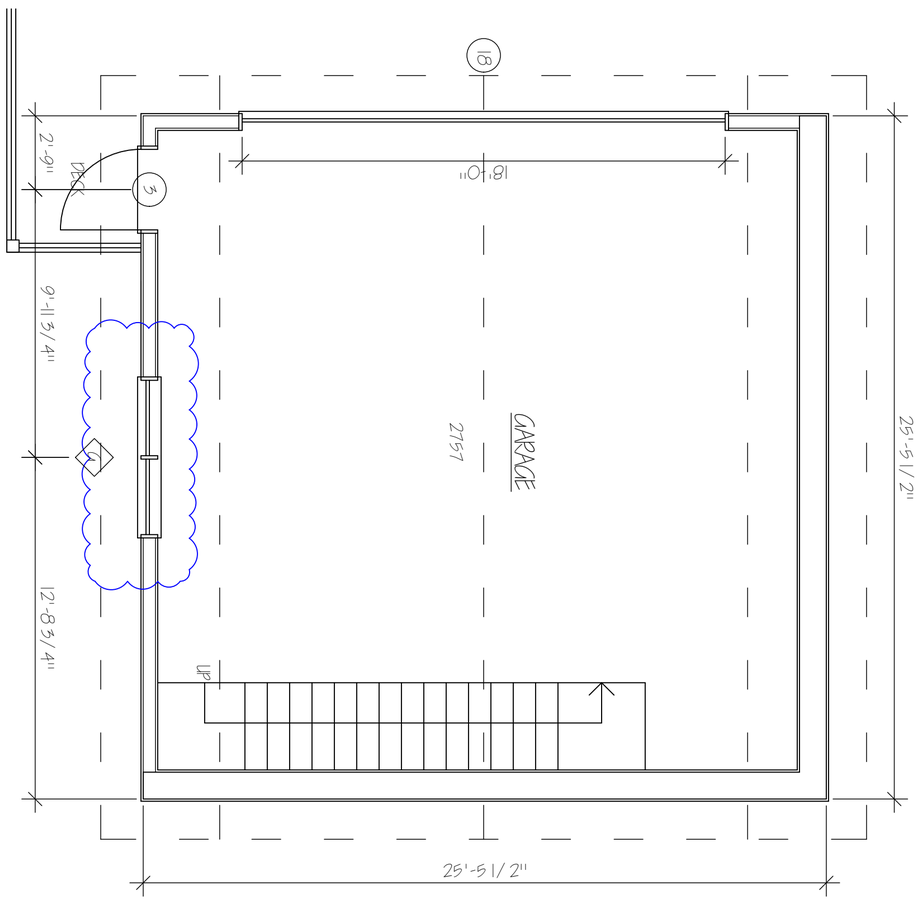




GARAGE - UPPER LEVEL PLAN
NEW CONSTRUCTION - 362 SF

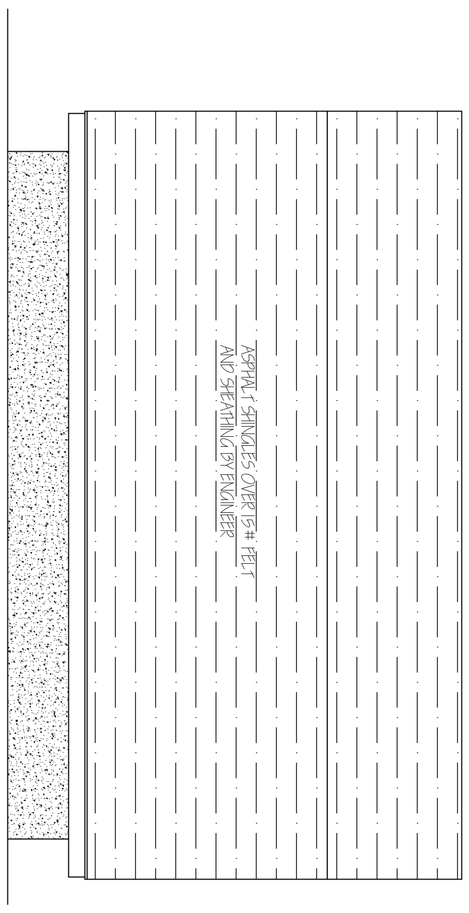
SCALE 1/4 = 1'-0"



GARAGE - MAIN LEVEL PLAN
NEW CONSTRUCTION - 648 SF

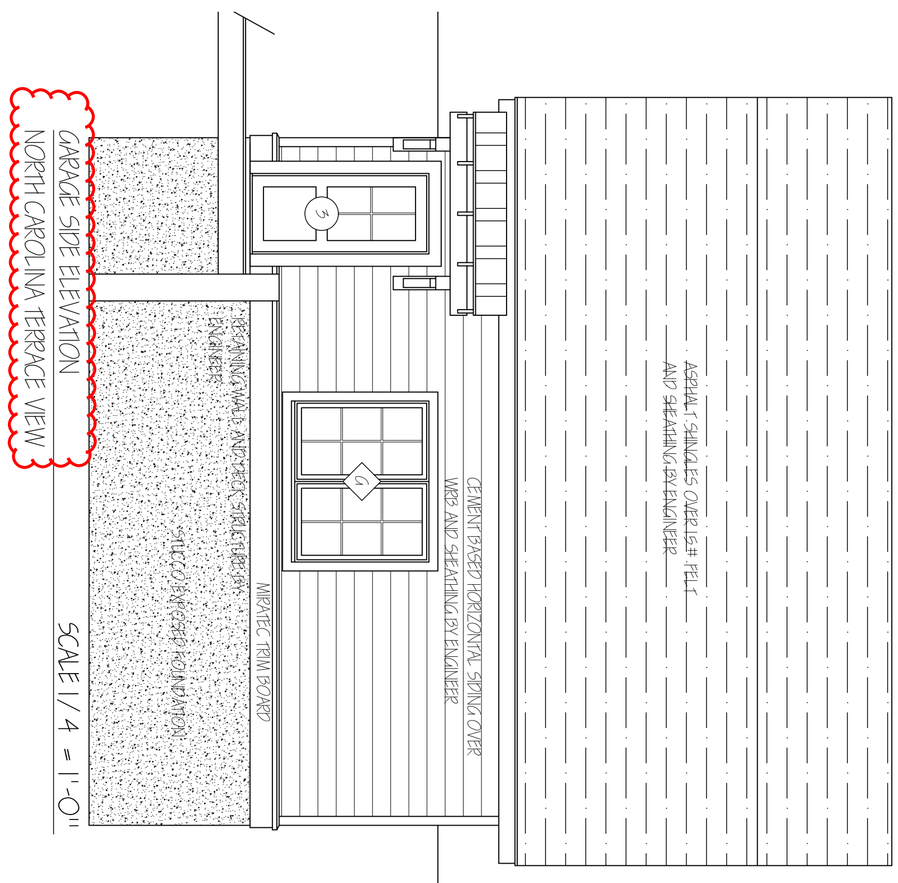
SCALE 1/4 = 1'-0"

GARAGE STREET SIDE ELEVATION
WEST VIRGINIA TERRACE VIEW

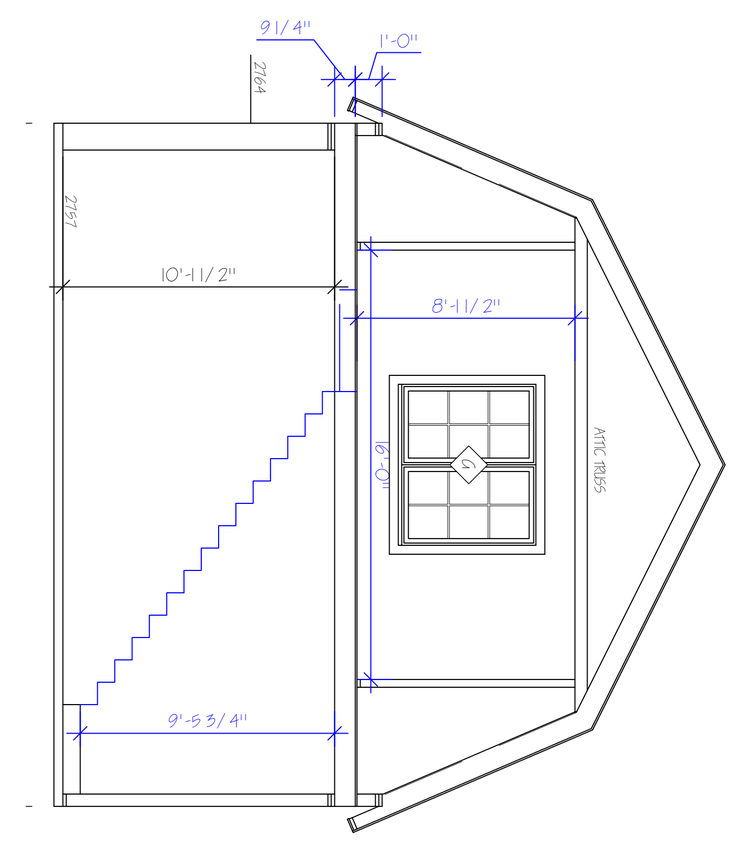


SCALE 1/4 = 1'-0"

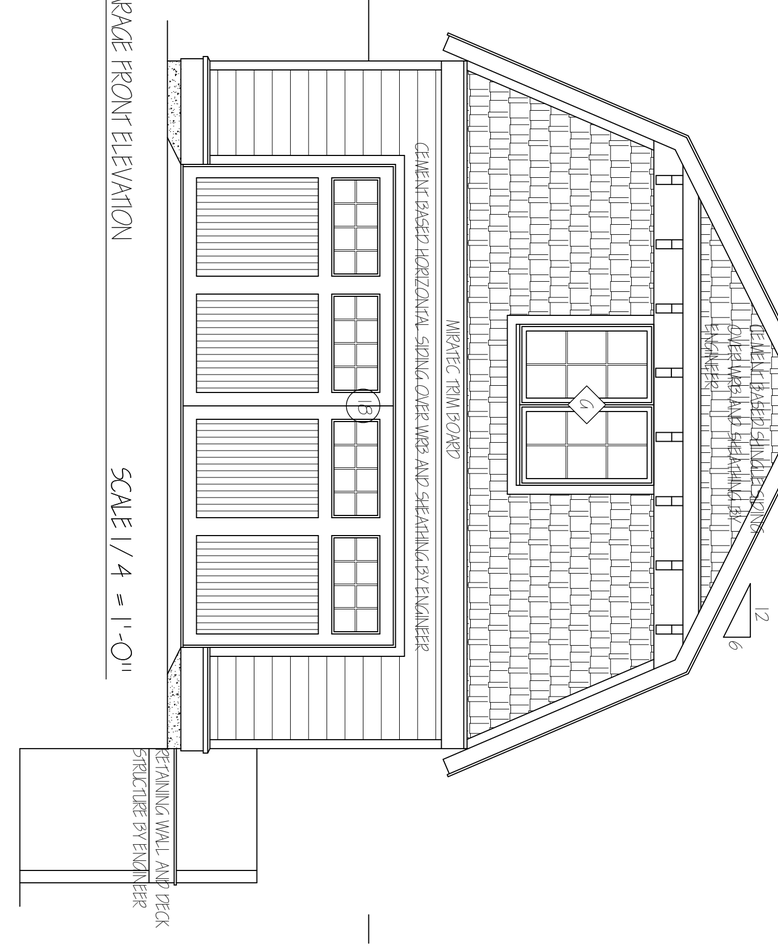
GARAGE SIDE ELEVATION
NORTH CAROLINA TERRACE VIEW



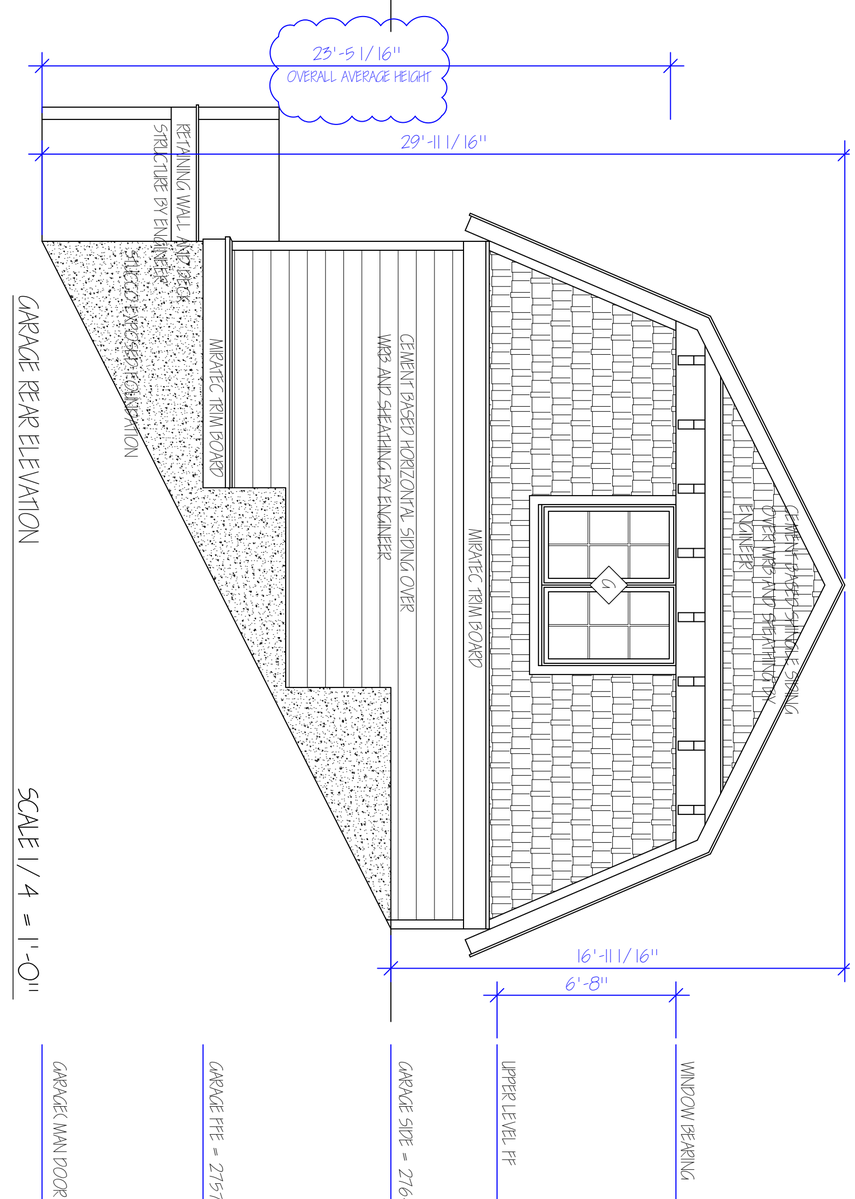
SCALE 1/4 = 1'-0"



GARAGE FRONT ELEVATION



SCALE 1/4 = 1'-0"



GARAGE REAR ELEVATION

SCALE 1/4 = 1'-0"

8

13 DECEMBER 2023

dowd montreat llc residence

ADDITION AND RENOVATIONS
325 north carolina terrace - montreat - north carolina

PRUDHOMME DESIGN & INTERIORS
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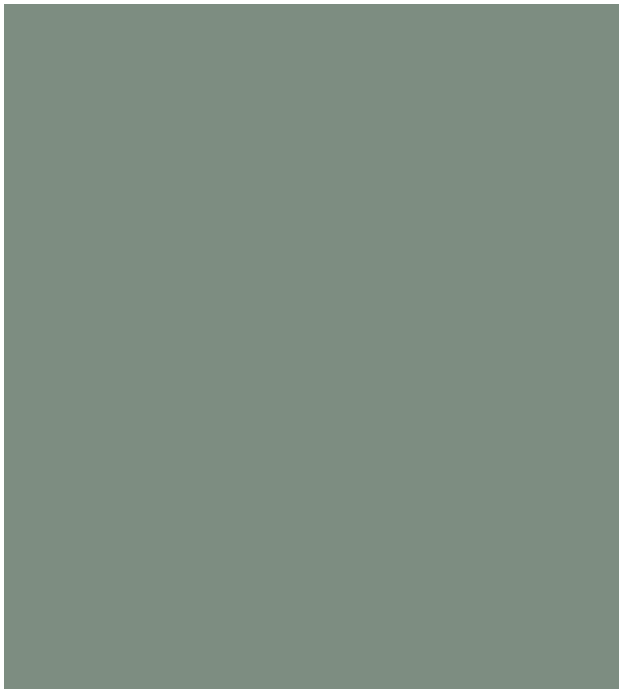
828.674.0273 – TIFFANY@PRUDHOMMEDESIGN.COM

TIFFANY NICOLE PRUDHOMME
REGISTERED ARCHITECT
12681
NORTH CAROLINA
HENDERSONVILLE, N.C.

Exterior Colors- 325 North Carolina Terrace

Sample elevation



Main House Color: Benjamin Moore-Garden Green 699. LRV 25

https://www.benjaminmoore.com/en-us/paint-colors/color/699/garden-oasis

Metal Roof Color (House trim to match): Appalachian Metal, Burnished Slate. LRV 10.57

https://kpa3c3.p3cdn1.secureserver.net/wp-content/uploads/2023/10/Appalachian-Metal-Sales-Color-Chart.pdf

Shingles: Nichiha, Sierra Premium Shake-Prefinished Maple

https://www.nichiha.com/products/premium-plank-siding?colors=Light-Brown

Exterior Window Finish: Andersen Windows, Terratone finish. LRV 14.93

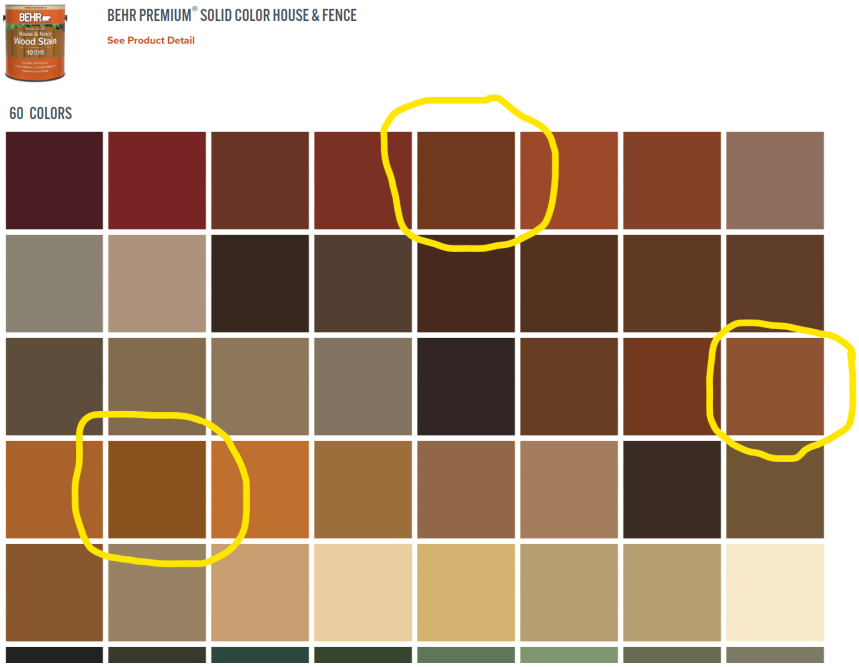
Alternate shingle stain colors below:

https://www.behr.com/consumer/colors/wood-stain/explore/solid-color

(Top) California Rustic SC -130 LRV 12.64

(Left) Curry SC-134 LRV 20.14

(Right)Redwood Naturaltone SC-122 LRV 15.74



TOWN OF MONTREAT
P. O. Box 423, Montreat, NC 28757
Tel: (828) 669-8002 | Fax: (828) 669-3810
www.townofmontreat.org

Staff Report
SUP-2023-02

Special Use Permit Request (SUP-2023-02) - A Special Use Permit to allow a 1,010 square-foot detached Garage (Accessory Building) with a final height taller than ten feet to be placed in the front yard of a single-family dwelling unit submitted by John Hennis (on behalf of the Property Owners, Dowd Montreat, LLC) on property in the R-2 Zoning District located at 325 North Carolina Terrace approximately 960 feet east of the intersection of North Carolina Terrace and West Virginia Terrace and described as PIN# 071096598200000 within the Town of Montreat.

Created by:

Kayla DiCristina, AICP
Zoning Administrator
Town of Montreat

Created for:

Montreat Board of Adjustment
January 25, 2024

a1

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STAFF REPORT

See **STAFF FINDINGS** made by Kayla DiCristina, AICP ("Zoning Administrator") in addition to Applicant-provided materials. **STAFF FINDINGS** contain references to the Montreat Zoning Ordinance ("MZO") where noted. Only those findings relevant to the Special Use Permit requested are included in this staff report.

Application Summary

The following report summarizes the Zoning Administrator's review of an application for a Special Use Permit submitted by John Hennis (on behalf of the Property Owners, Dowd Montreat, LLC) on property in the R-2 Zoning District located at 325 North Carolina Terrace approximately 960 feet east of the intersection of North Carolina Terrace and West Virginia Terrace and described as PIN# 071096598200000 within the Town of Montreat. The Applicant's request is to allow a 1,010 square-foot Garage (Accessory Building) with a final height taller than ten feet to be placed in the front yard of a single-family dwelling unit. The MZO requires a Special Use Permit in the R-2 Zoning District ("R-2") for Accessory Buildings constructed in the front yard of a lot's principal structure, for Accessory Buildings larger than 500-square-feet, and for Accessory Buildings taller than ten feet.

Subject Property Summary

Parcel Identifier Number (PIN): 071096598200000

Address: 325 North Carolina Terrace, Montreat, NC 28757

Owner: Dowd Montreat LLC
1905 Fendall Ave, Charlottesville, VA, 22903

Applicant: John Hennis (on behalf of the Property Owners, Dowd Montreat, LLC)

Zoning: R-2

Current Land Use: Single-family dwellings

Utilities: Town of Montreat water and Buncombe County MSD sewer approved on the Subject Property for the existing single-family dwellings.

Acres: 0.395 acres

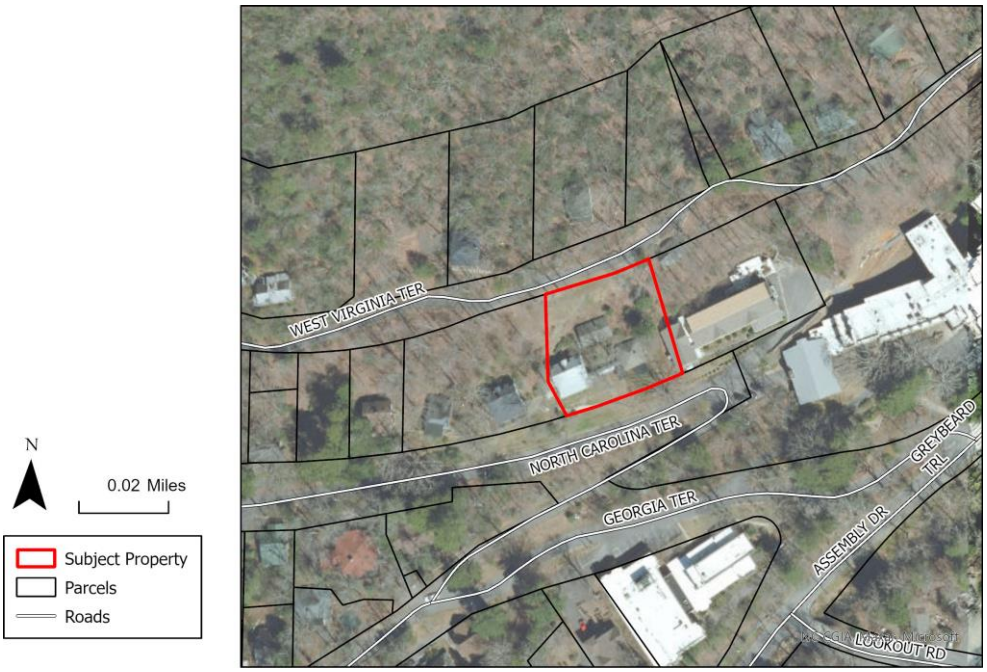


Figure 1: Subject Property Aerial

Public Notice

Staff mailed notice to properties within 250 feet of the Subject Property on **January 11, 2024** (see Request). Staff posted the Subject Property on **January 11, 2024**. The BOA Hearing was scheduled for **January 25, 2024.**

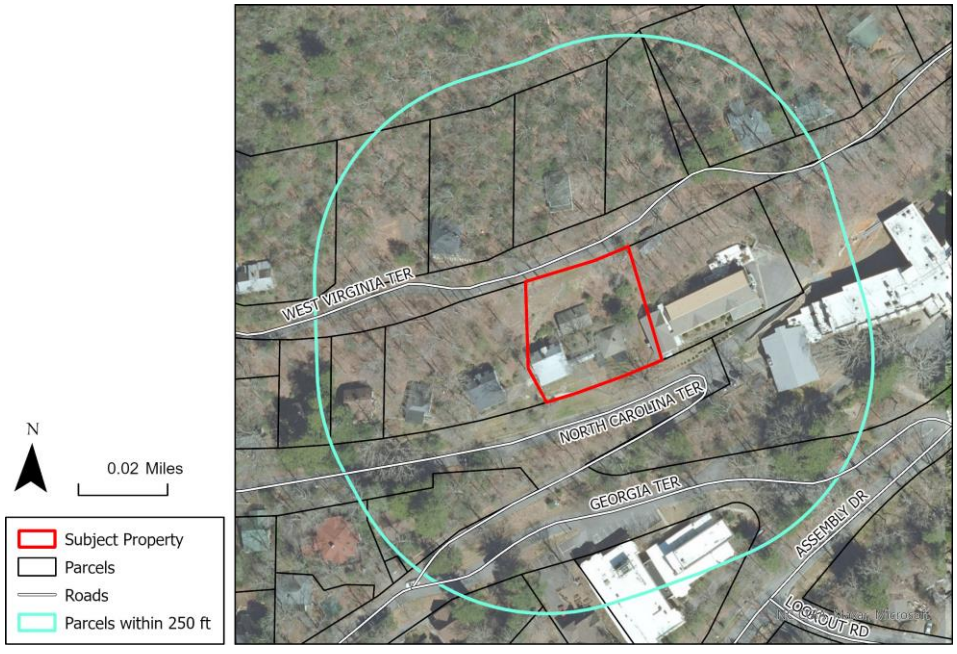


Figure 2: 250 feet Public Notice for Special Use Permit Request

Staff Findings

Subject Property Summary

- The Subject Property is 0.395 acres and is improved with three existing single-family dwelling units. The existing single-family dwelling units are considered non-conforming as their construction pre-dates the establishment of the MZO.
- The Subject Property abuts North Carolina Terrace, a public road maintained by the Town of Montreat to the south, and West Virginia Terrace, a public road maintained by the Town of Montreat, to the north.
- There are no streams or floodplain on the Subject Property. The Subject Property has a slope of 44.8% per the Buncombe County Steep Slope Calculator (Exhibit A).

Use

The Subject Property is zoned R-2. It is currently improved with three single-family dwellings. Single-family dwellings are allowed by-right in R-2. The existing single-family dwelling units are considered non-conforming as their construction pre-dates the establishment of the MZO. One existing single-family dwelling is proposed to be demolished as part of this development.

The surrounding properties are zoned R-1 Residential Zoning (R-1), R-2, and Institutional (I).

- To the north is West Virginia Terrace, a public road maintained by the Town of Montreat, with properties zoned R-1 containing single-family dwellings.
- To the east is an existing lodging structure (the William Black Lodge) zoned I.
- To the south is North Carolina Terrace, a public road maintained by the Town of Montreat, with properties zoned R-2 containing single-family dwellings.
- To the west is an existing single-family dwelling zoned R-2.

The Applicant is proposing to construct a Detached Garage on the north side of the Subject Property, adjacent to West Virginia Terrace. Per the MZO, a Detached Garage is considered an Accessory Building. Due to the proposed location of the detached Garage on the Subject Property and the Subject Property's residential zoning district, Section 606.2 of the MZO requires the Applicant to obtain a Special Use Permit. Garages in front yards are also required to get a Special Use Permit per the MZO Table of Permitted Uses in Article V. The Applicant's proposed structure must comply with the requirements of Section 606 and 606.2 of the MZO. As a note, the Applicant is also proposing a 1,088-square-foot addition as part of the overall development plan, but this addition is not the subject of this application.

The proposed Accessory Building is a two-story 1,010 square feet Structure containing two car parking spaces on the ground floor and a storage space above. The final height of the Structure will be approximately 24 feet.

If an Accessory Building includes complete kitchen facilities including a stove or cooktop and a full bath including a lavatory, water closet, and tub or shower (or combination) then the structure is considered an Accessory Dwelling Unit. The Applicant's architectural plans for the Accessory

Building do not show the aforementioned elements. Should the Board of Adjustment grant its approval of this application as currently proposed, the Applicant would be permitted to construct an Accessory Building, not an Accessory Dwelling Unit.

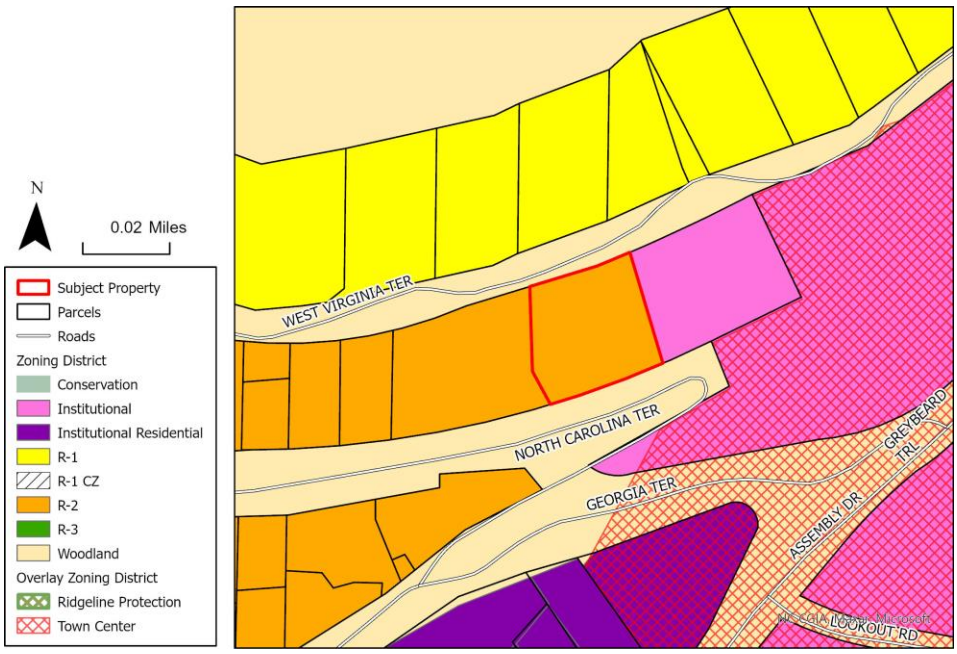


Figure 3: Subject Property Zoning

Setbacks and Lot Size

The Subject Property is an existing Lot and no subdivision activities are proposed with this application. Therefore, lot size requirements do not apply.

Per Section 606.14 of the MZO, Accessory Buildings must meet the minimum Setbacks required by the applicable Zoning District. Subject Property is located in R-2 and is considered a double frontage lot. Double frontage lots are defined in the MZO as lots that have lot frontage on two separate streets. The Applicant's proposed addition to the existing single-family dwelling and Accessory Building are subject to the setback requirements of a double frontage lot in R-2. The Applicant's proposed addition and Accessory Building intend to meet the required setbacks of the Subject Property.

	Required R-2 Zoning District Setback	Proposed Accessory Building Setback	Proposed Addition Setbacks
Front (North Carolina Terrace)	30 feet	Approx. 81 feet	From existing house = 22 feet* From addition = 59 feet
Side (L/R)	10 feet/10 feet	Approx. 87 feet / 12 feet 3 inches	14 feet 5 inches / From existing house = 73 feet From addition = 78 feet
Front	30 feet	30 feet 3 inches	53 feet 2 inches

(West Virginia Terrace)			

* The existing single-family dwelling onto which the addition is proposed is considered a Non-Conforming Structure per Section 1000.2 of the MZO. Non-Conforming Structures may be expanded in accordance with all Setback and other requirements of the MZO (and other development ordinances). While the existing single-family dwelling does not meet the required front setback from West Virginia Terrace per the R-2 Zoning District, the addition does and is therefore permitted.

Special Requirements

Section 606.2 of the MZO lists the following special requirements for Detached Garages in Front Yards in residential Zoning Districts:

1. The Zoning Administrator determines this will reduce damage to the natural topography, trees and natural green space, or where the topography will create a hardship that would result in significant damage to the topography, trees and plant life without such relief;

2. The Garage will be constructed of materials that meet or exceed the quality and appearance of the principal Building;

3. The Garage must be enclosed by an operable Garage door to be maintained in good working order, excluding carports;

4. The Garage doors shall be kept closed when the house is unoccupied for more than one day; and;

5. The property owner shall maintain the Garage and its appearance to reasonably remain in the condition it is in when completed and approved by the Building Inspector. The Zoning Administrator shall determine when this provision has been violated.

The Applicant's narrative addresses the above requirements. Regarding Section 606.21, the Zoning Administrator finds the location of the proposed Detached Garage to be preferable on the site as this location would reduce damage to the natural topography, trees and natural green space associated with this project. The area within which the new structure is proposed is currently occupied by one of the existing single-family dwellings and has been since the mid-1900s. This existing structure is proposed to be demolished as part of the construction. The land in this area has already been disturbed, vegetation already removed, and stabilization already constructed. Locating the Detached Garage in this area will be less damaging to the natural topography, trees and natural green space compared to other development scenarios that locate the new structure outside of the front yard setback, as this proposal swaps one structure for another. The new structure will meet today's MZO standards, which the existing structure did not have to comply with. Locating the Detached Garage in one of the side setbacks, negating the need for a Special Use Permit for the location, would require the disturbance of previously undisturbed land and likely extensive grading.

Parking

Per Section 700 of the MZO, parking requirements are only applied to structures constructed after November 14, 1985. As the construction of all three of the existing single-family dwellings predates this time period, only new construction on the site is subject to parking requirements. The Applicant is proposing to construct a 1,010 square footage Accessory Building, of which none is heated square footage. Therefore, with this construction, no additional parking spaces are required. However, the Applicant is proposing to provide five spaces, two in the Detached Garage and three in the new driveway. As a note, the Applicant's final development plan includes a 1,088-square-foot addition onto one of the existing single-family dwellings on the site. This addition is not the subject of this Special Use Permit application, but the Applicant is providing enough parking to satisfy this requirement for the addition.

Landscaping and Trees

Per Section 900.2 of the MZO, landscaping provisions are not applicable to the Subject Property as it is zoned R-2. As a note, no trees or vegetation or proposed to be removed from the Town of Montreat's right-of-way with the construction of the proposed Accessory Building.

Post-Construction Stormwater Measures

As part of the Applicant's overall development plan, the Applicant will manage stormwater using a series of stormwater conveyance measures leading water to river rock lined swales, a seven-foot storage tank, and a 120 square foot detention basin with a six-foot stone weir. Rain barrels are proposed throughout the new construction areas where gutters and downspouts terminate. For purposes of this Variance application, the Applicant's proposed stormwater management system sufficiently detail how post-development stormwater run-off will be controlled and managed. Prior to permit issuance, the Applicant will be required to obtain a Stormwater Control Permit and comply with the Town of Montreat's General Ordinance (MGO) Chapter K Article III.

Hillside Development Ordinance

The Subject Property has a slope of 44.8% per the Buncombe County Steep Slope Calculator (Exhibit A). Therefore, it is subject to the MGO Chapter K Article IV. At the time of permitting, the Applicant must demonstrate conformance to all applicable standards in the Hillside Development Ordinance. Conformance will be determined by staff. However, staff felt it important to outline several of the provisions in this ordinance in this staff report as they are relevant to the Applicant's requested Special Use Permit.

In general, the Subject Property slopes downward from north (West Virginia Terrace) to south (North Carolina Terrace) as indicated by the decreasing contour values as one travels southward away from the northern side of the Subject Property. Shaper decreases in slope, as indicated by contour lines that are closer together, occur along the eastern side of the Subject Property.

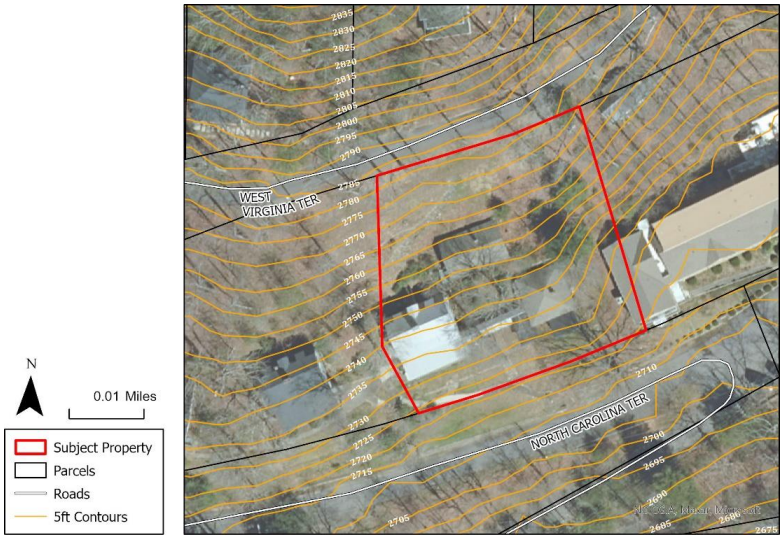


Figure 4: Subject Property Topography

MGO Chapter K Article IV Section(I)(1) states the purpose of the Hillside Development Ordinance as follows:

The hillside development regulations of this article shall establish guidelines for responsible land use addressing both aesthetics (the "viewscape") and slope stability, utilizing approved methods of erosion prevention and stormwater control. Montreat contains intensely varied topography within a relatively small area, involving significant regions that transition abruptly from gentle slope to steep gradient. These factors pose unique challenges for the location and installation of structures while preserving the natural aesthetic characteristic of the Town. It has been determined that measures must be taken to ensure the stability of our hillsides while permitting continued low-impact development.

The Subject Property is considered a Non-Conforming Improved Lot. The existing improvements on the Subject Property predate the enactment of the Hillside Development Ordinance and exceed the approved graded area per MGO Chapter K Article IV Section (II)(4)(a) and the permitted impervious surface area MGO Chapter K Article IV Section (II)(4)(i). Currently, the Subject Property contains 10,750 square feet of graded area, or 62% of the total area, but, under the MGO Chapter K Article IV Section (II)(4)(a), is only permitted to grade 40% of the total lot area, or 6,882 square feet. Additionally, the Subject Property contains 7,829 square feet of impervious surface, but is only permitted to have 5,162 square feet per the MGO Chapter K Article IV Section (II)(4)(i). The Applicant submitted a Variance application to MGO Chapter K Article IV Section (II)(4)(a) and (i) concurrently with this Special Use Permit application, per MGO Chapter K Article IV Section (II)(4)(h), to increase the approved graded area from 40% to 89.3% and to increase the approved development intensity ratio from 0.30 to 0.49.

Comprehensive Plan

The Town of Montreat's comprehensive plan, *Montreat Tomorrow,* does not contain a future land use map. The following vision in *Montreat Tomorrow* may be relevant to this application:

***Development**: Montreat will be a community that respects buildings with historic value, encourages new development to consider the surrounding architecture, and strives for resilience in the face of a changing climate.*

Template Special Use Permit Decision Language

The Board is welcome to use the language below to issue a decision on the Special Use Permit Request. Prior to making the approval motion, the Board must state the specific findings that lead to the approval of the four findings of fact as required by Section 310.62.

1. The Use will not be detrimental to or endanger the public health, safety or general welfare if located where proposed and developed according to the plan as submitted and approved because…

2. The Use meets or will meet all the required and applicable development standards and conditions of the Town of Montreat unless modified by this Board because…

3. The Use will not substantially diminish and impair the value of any property any portion of which is located within two hundred fifty feet of the boundary of the Subject Property…

4. The location and character of the Use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will not be injurious to the use and enjoyment of other property, for the purposes already permitted, within the area in which it is located because…

5. The location and character of the Use, if developed according to the plan as submitted and approved, will be in general conformity with the adopted policies and plans, including the Comprehensive Plan of the Town of Montreat because…

6. Adequate measures have been taken or will be taken to provide ingress and egress so designed as to minimize congestion in the public streets because…

Motion for Decision: "I move that the Board [*approve/approve with conditions/deny*] SUP-2023-02 to permit a 1,010 square foot Detached Garage (Accessory Building) with a final height taller than ten feet in the front yard of property in the R-2 Zoning District located at 325 North Carolina Terrace approximately 960 feet east of the intersection of North Carolina Terrace and West Virginia Terrace and described as PIN# 071096598200000. [*List any conditions of approval in the motion, if applicable*]

Exhibits

Exhibit A: Buncombe County Steep Slope Calculator Results

Find Slope for a Parcel

1. Use SimpliCity (http://simplicity.ashevillenc.gov) or mapAsheville (https://arcgis.ashevillenc.gov/mapAsheville/) to find the PIN of the parcel you are interested calculating slope for.

2. Enter the 10 or 15 digit PIN below and click Calculate.

To calculate the slope of multiple parcels enter a comma separated list PINs.

071096598200000 Calculate

Jurisdiction: TOWN OF MONTREAT

Acres: 0.46978

Maximum Elevation: 2780

Percent Slope: 44.82

TOWN OF MONTREAT
NORTH CAROLINA

SUP-2023-02
Special Use Permit Request

PIN # 071096598200000
Montreat Board of Adjustment
January 25, 2024

Subject Property Overview

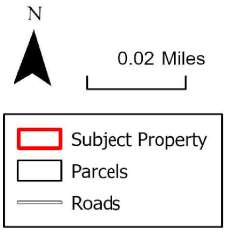
PIN: 071096598200000

Address: 325 North Carolina Terr
Montreat, NC 28757

Owner: Dowd Montreat LLC
1905 Fendall Ave,
Charlottesville, VA, 22903

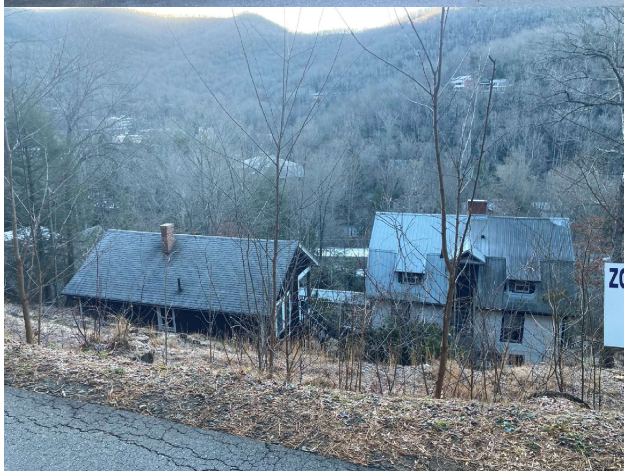
Size: 0.395 acres

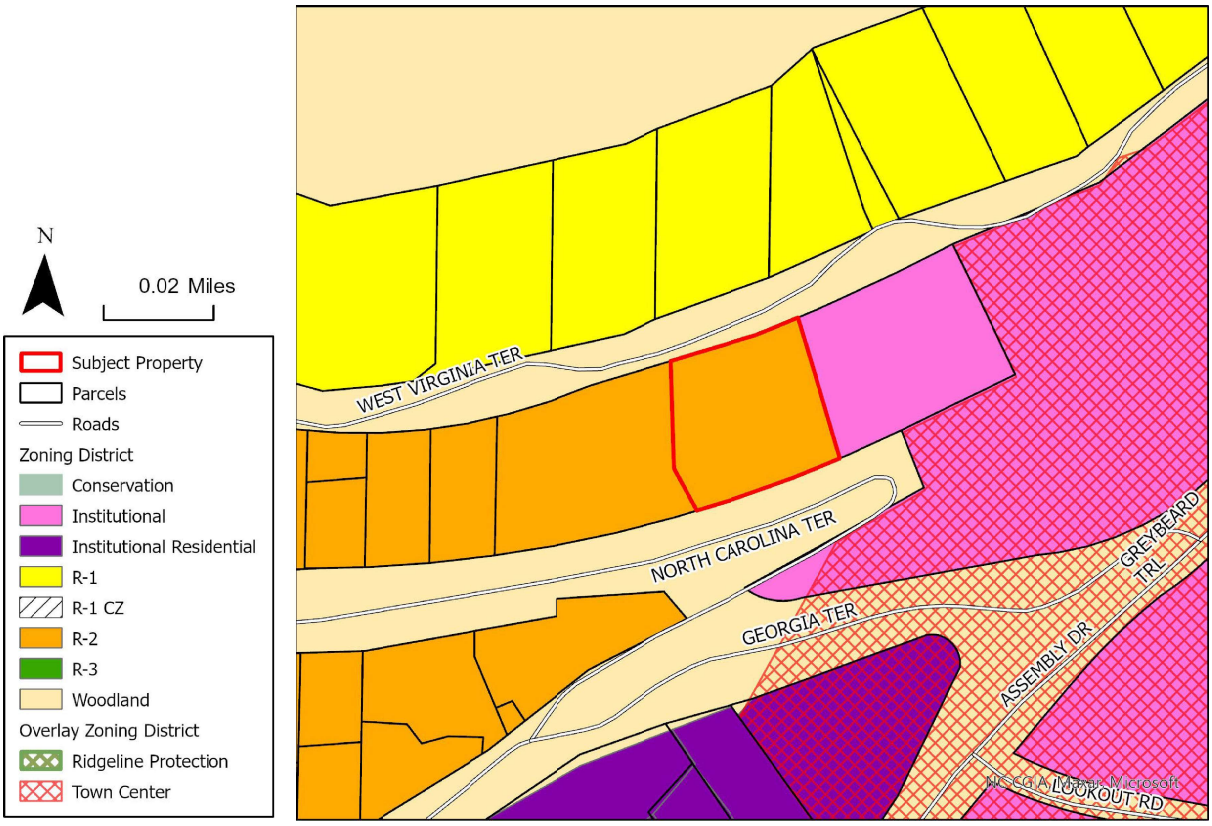
Current Zoning and Use:
R-2 Zoning District; three existing single-family dwellings



From North Carolina looking north

From West Virginia looking south





Zoning & Land Use

Application Overview

Applicant: John Hennis (on behalf of the Property Owners, Dowd Montreat, LLC)

Application Summary:

- Approval for a Special Use Permit to allow a 1,010 square-foot Detached Garage (Accessory Building) with a final height taller than ten feet to be placed in the front yard of a single-family dwelling unit
- Garages constructed in the front yards of residential Zoning Districts require a Special Use Permit (MZO Section 606.2 & Article V).
- Accessory Buildings larger than six hundred square feet or exceeding ten feet in height require a Special Use Permit (MZO Section 606.13).

Staff Findings

USE & ZONING

- The Subject Property is currently improved with three single-family dwellings constructed prior to the enactment of the Montreat Zoning Ordinance.
- Garages constructed in the front yards of residential Zoning Districts require a Special Use Permit (MZO Section 606.2 & Article V).
- Accessory Buildings larger than six hundred square feet or exceeding ten feet in height require a Special Use Permit (MZO Section 606.13).

SETBACKS & LOT SIZE

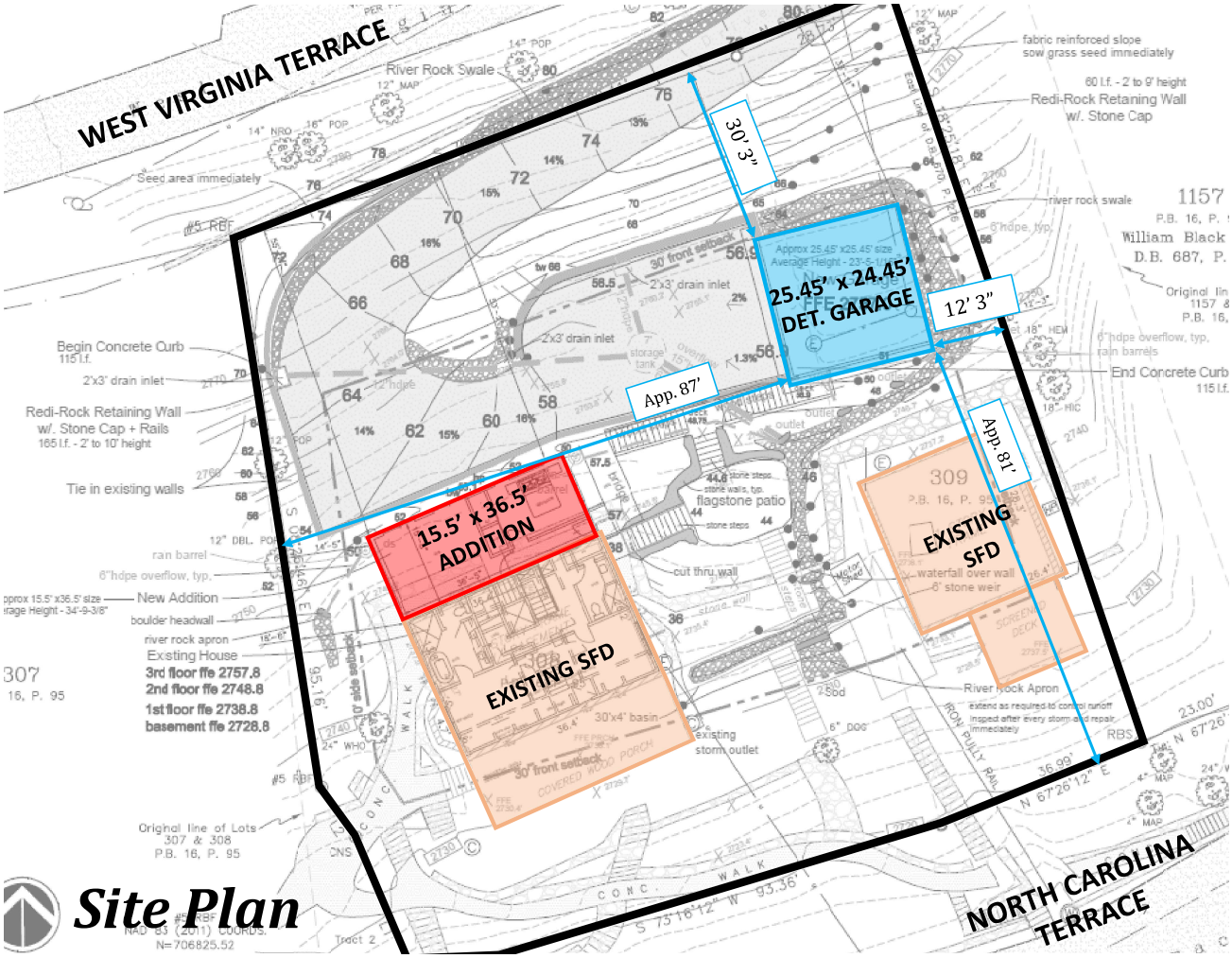
- The Subject Property is an existing lot, so lot size requirements do not apply.
- The Subject Property is considered a double frontage lot. The addition and Detached Garage must comply with the required setbacks in the R-2 Zoning District on a double frontage lot.
- The Applicant intends to meet all required setbacks.

	Required R-2 Zoning District Setback	Proposed Accessory Building Setback	Proposed Addition Setbacks
Front (North Carolina Terrace)	30 feet	Approx. 81 feet	From existing house = 22 feet From addition = 59 feet
Side (L/R)	10 feet/10 feet	Approx. 87 feet / 12 feet 3 inches	14 feet 5 inches / From existing house = 73 feet From addition = 78 feet
Front (West Virginia Terrace)	30 feet	30 feet 3 inches	53 feet 2 inches

COMPREHENSIVE PLAN

- The following vision in *Montreat Tomorrow* may be relevant to this application:

  ***Development**: Montreat will be a community that respects buildings with historic value, encourages new development to consider the surrounding architecture, and strives for resilience in the face of a changing climate.*



Staff Findings

SPECIAL REQUIREMENTS (MZO Section 606.2)

❖ Detached Garages in residential Zoning Districts must meet the following requirements.

1. The Zoning Administrator determines this will reduce damage to the natural topography, trees and natural green space, or where the topography will create a hardship that would result in significant damage to the topography, trees and plant life without such relief;

2. The Garage will be constructed of materials that meet or exceed the quality and appearance of the principal Building;

3. The Garage must be enclosed by an operable Garage door to be maintained in good working order, excluding carports;

4. The Garage doors shall be kept closed when the house is unoccupied for more than one day; and;

5. The property owner shall maintain the Garage and its appearance to reasonably remain in the condition it is in when completed and approved by the Building Inspector. The Zoning Administrator shall determine when this provision has been violated.

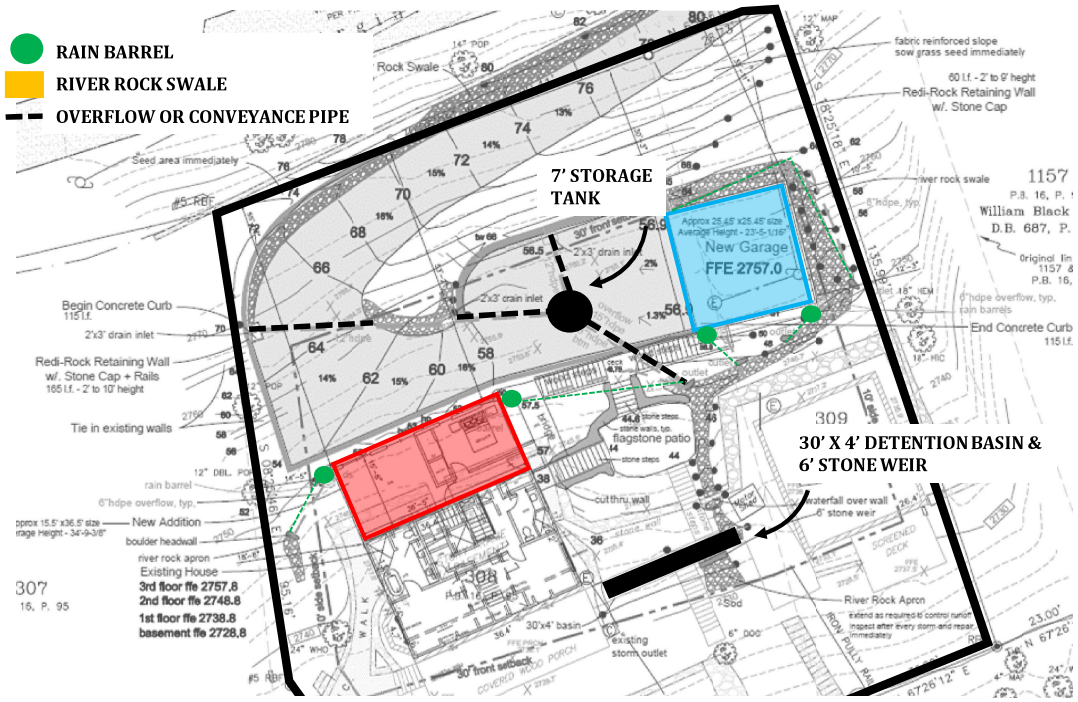
Staff Findings

PARKING

- The single-family dwellings predate the Montreat Zoning Ordinance. Per Section 700, only the heated square footage of new construction on the Subject Property is subject to parking requirements.
- The Applicant is proposing to add no heated square footage with the Detached Garage, so no additional parking spaces are required.
- However, the Applicant proposes to provide five parking spaces with two on the ground floor of the Detached Garage and three spaces in the new driveway to accommodate the new development.

LANDSCAPING AND TREES

- Landscaping requirements of Section 900.2 of the MZO do not apply.
- No trees or vegetation are proposed to be removed within the Town's right-of-way.



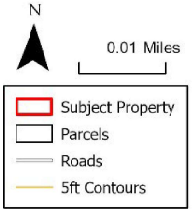
POST-CONSTRUCTION STORMWATER MANAGEMENT

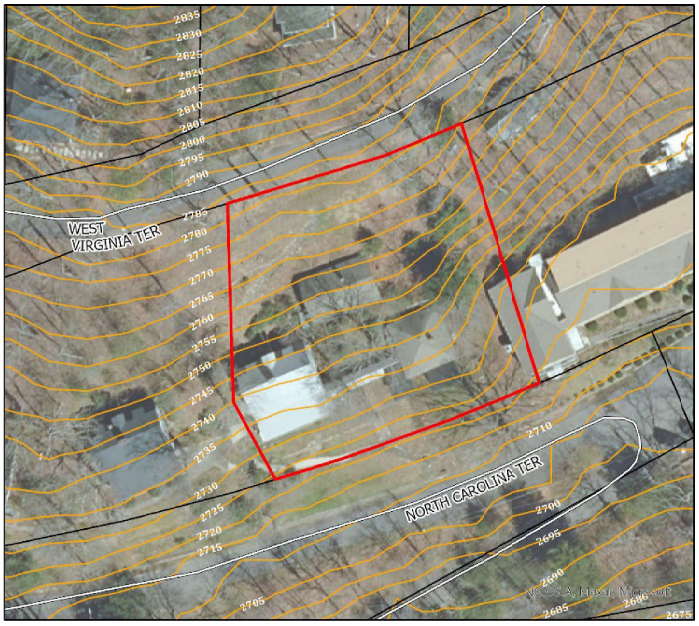
- A series of stormwater conveyance measures leading to small outfalls and rock-lined swales, a seven-foot storage tank, and a 120-square-foot detention basin with a six-foot stone weir.
- Rain barrels are proposed throughout the new construction where gutters and downspouts terminate.

Staff Findings

HILLSIDE DEVELOPMENT ORDINANCE

- The Subject Property has a slope of 44.8% and is subject to the Hillside Development Ordinance.
- Full conformance to standards will be determined by staff at the time of permitting.
- In general, the Subject Property slopes downward from north (West Virginia Terrace) to south (North Carolina Terrace) and has sharper decreases in slope on the eastern side of the lot.





GRADED AREA

- Properties subjected to the Hillside Development Ordinance are limited in the amount of grading permitted on site by the Approved Graded Area. This is measured based on the total lot area.
- Per the MGO Chapter K Article IV Section (II)(4)(a), grading on the Subject Property is limited to 40% of the total lot area, or 6,882 square feet. Currently, the Subject Property contains 10,750 square feet of graded area or 62% of the total area. **The existing graded area exceeds the permitted graded area per the HDO.**
- To resolve this discrepancy, the MGO Chapter K Article IV Section (II)(4)(h) requires the Subject Property to be combined with adjacent properties in the same ownership. If this is not possible, a Variance must be requested from the Board of Adjustment.

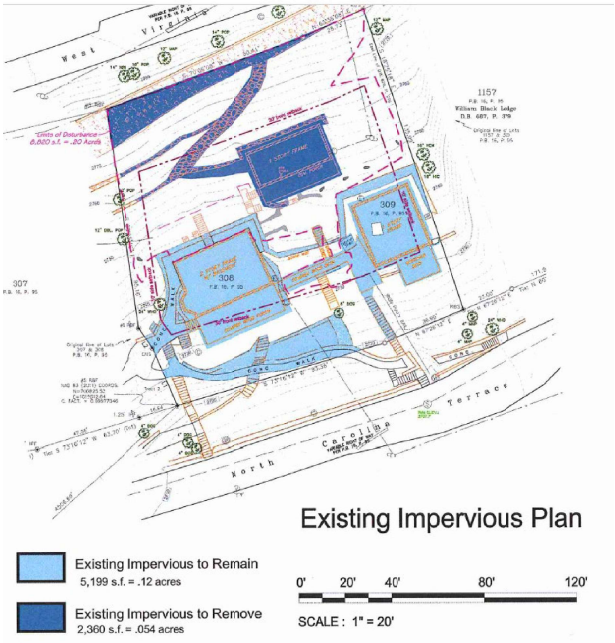
★ **Location**

IMPERVIOUS SURFACE

- Properties subjected to the Hillside Development Ordinance are limited in the amount of impervious surface permitted on site by the development intensity ratio. The development intensity ratio is the permitted ratio of unimproved areas to developed or improved areas.

- Per the MGO Chapter K Article IV Section (II)(4)(i), the Subject Property is only permitted to have 5,162 square feet of impervious surface and a development intensity ratio of 0.30. The Subject Property currently contains 7,829 square feet of impervious surface and has a development intensity ratio of 0.46. **The existing impervious surface exceeds the allowed impervious surface limit per the HDO.**

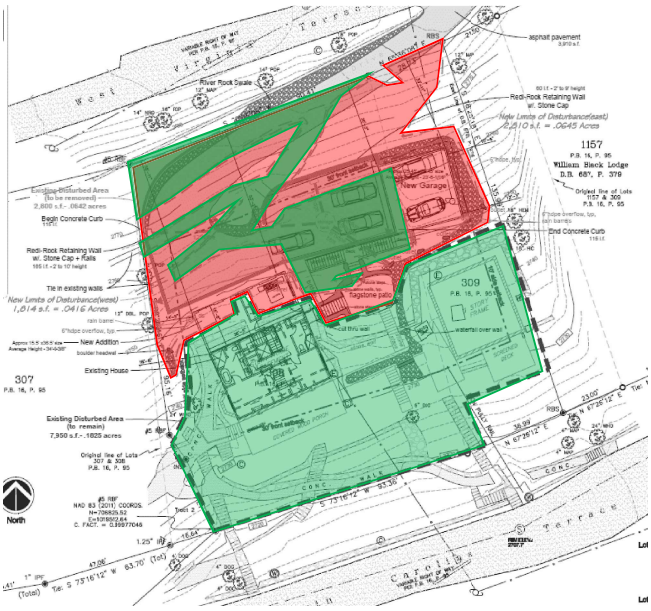
- To resolve this discrepancy, the MGO Chapter K Article IV Section (II)(4)(h) requires the Subject Property to be combined with adjacent properties in the same ownership. If this is not possible, a Variance must be requested from the Board of Adjustment. The Applicant submitted a Variance request for both grading and impervious surface limits concurrently with this application.



GRADED AREA

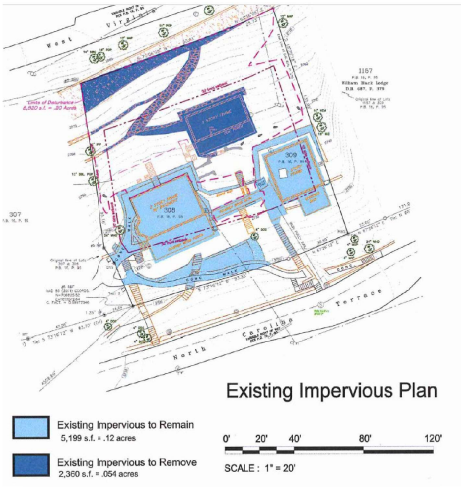
- The Applicant proposes to…
  - **Retain 10,750 square feet of graded area**, which includes the two single-family dwellings on the south side of the Subject Property.
  - **Add 4,624 square feet of graded area** in the form of a driveway, addition, and Detached Garage on the north side of the Subject Property.
- The **final graded area figure is 15,374 square feet or 89.3% of the total site area**. 10,750 square feet is existing graded area.
- In sum, the Applicant is permitted to have a graded area of 40% and currently has a graded area of 62%, and requests a Variance to permit a graded area of 89.3% to construct the proposed driveway, addition, and Detached Garage.

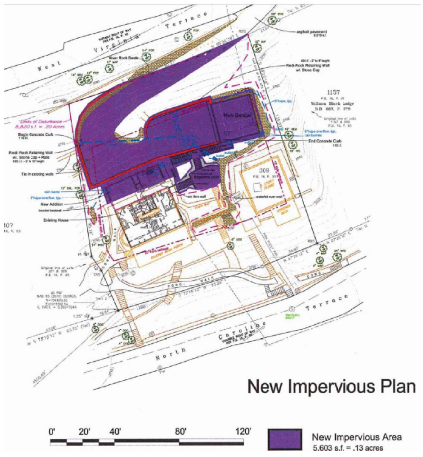
RETAIN
ADD



IMPERVIOUS SURFACE

- The Applicant proposes to…
  - **Retain 5,199 square feet** of the existing impervious surface, which includes the two single-family dwellings on the south side of the Subject Property.
  - **Remove 2,360 square feet** of the existing impervious surface, which includes the single-family dwelling on the north side of the Subject Property.
  - **Add 3,243 square feet** of new impervious surface in the form of a driveway and Detached Garage on the north side of the Subject Property.
- The **final impervious surface figure is 8,442 square feet and a development intensity ratio of 0.49**. 5,199 square feet is existing impervious surface.
- In sum, the Applicant is permitted to have a development intensity ratio of 0.30, currently has a development intensity ratio of 0.46, and requested a Variance to permit a development intensity ratio of 0.49 to permit the proposed addition, driveway, and Detached Garage





RETAIN
REMOVE
ADD

From North Carolina looking north

From West Virginia looking south

Board of Adjustment Decision

The Board shall grant a Special Use Permit upon showing of **all** of the following per Section 310.6 of the MZO:

1. The Use will not be detrimental to or endanger the public health, safety or general welfare if located where proposed and developed according to the plan as submitted and approved.
2. The Use meets or will meet all the required and applicable development standards and conditions of the Town of Montreat unless modified by this Board.
3. The Use will not substantially diminish and impair the value of any property any portion of which is located within two hundred fifty feet of the boundary of the Subject Property.
4. The location and character of the Use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will not be injurious to the use and enjoyment of other property, for the purposes already permitted, within the area in which it is located.
5. The location and character of the Use, if developed according to the plan as submitted and approved, will be in general conformity with the adopted policies and plans, including the Comprehensive Plan of the Town of Montreat.
6. Adequate measures have been taken or will be taken to provide ingress and egress so designed as to minimize congestion in the public street.

In granting any Special Use Permit, the Board of Adjustment may prescribe appropriate conditions and safeguards in conformity with any of the Town's land development Ordinances.

TOWN OF MONTREAT
NORTH CAROLINA

SUP-2023-02

Special Use Permit Request

PIN # 071096598200000

Montreat Board of Adjustment

January 25, 2024

TOWN OF MONTREAT BOARD OF ADJUSTMENT

2024 MEETING SCHEDULE

Meetings held the fourth Thursday of every month, unless stated below, starting at 5:00 pm in the Montreat Town Hall located at 1210 Montreat Road, Black Mountain, NC 27811.

1/25/24

2/22/24

3/28/24

4/25/24

5/23/24

6/27/24

7/25/24

8/22/24

9/26/24

10/24/24

11/28/24

12/26/24