

WELCOME TO 2415 MIDDLE



CURRENT PHOTO

**2415 Middle Street
Sullivan's Island, SC**



GENERAL SITE LOCATION

2415 Middle Street
Sullivan's Island, SC



GENERAL AERIAL VIEW

2415 Middle Street
Sullivan's Island, SC



SITE AERIAL VIEW

2415 Middle Street
Sullivan's Island, SC







CURRENT PHOTO

**2415 Middle Street
Sullivan's Island, SC**



Asbestos siding on church

Modern shed



Non-original PT lap siding

Non-original windows TYP throughout

Non-original trim



CURRENT MATERIALS

2415 Middle Street
Sullivan's Island, SC

Non-historic ceiling /
second floor system -
7'10" clg height



Non-original windows
TYP throughout

Gypsum wall board



CURRENT MATERIALS

2415 Middle Street
Sullivan's Island, SC



Neighborhood

2415 Middle Street
Sullivan's Island, SC



2320 Middle Street

**2415 Middle Street
Sullivan's Island, SC**



2402 Quarter Street

**2415 Middle Street
Sullivan's Island, SC**



2416 Middle Street

**2415 Middle Street
Sullivan's Island, SC**



2424 Middle Street

**2415 Middle Street
Sullivan's Island, SC**



2408 Ion Avenue

**2415 Middle Street
Sullivan's Island, SC**



2414 Ion Avenue

**2415 Middle Street
Sullivan's Island, SC**



2420 Ion Avenue

**2415 Middle Street
Sullivan's Island, SC**



2424 Ion Avenue

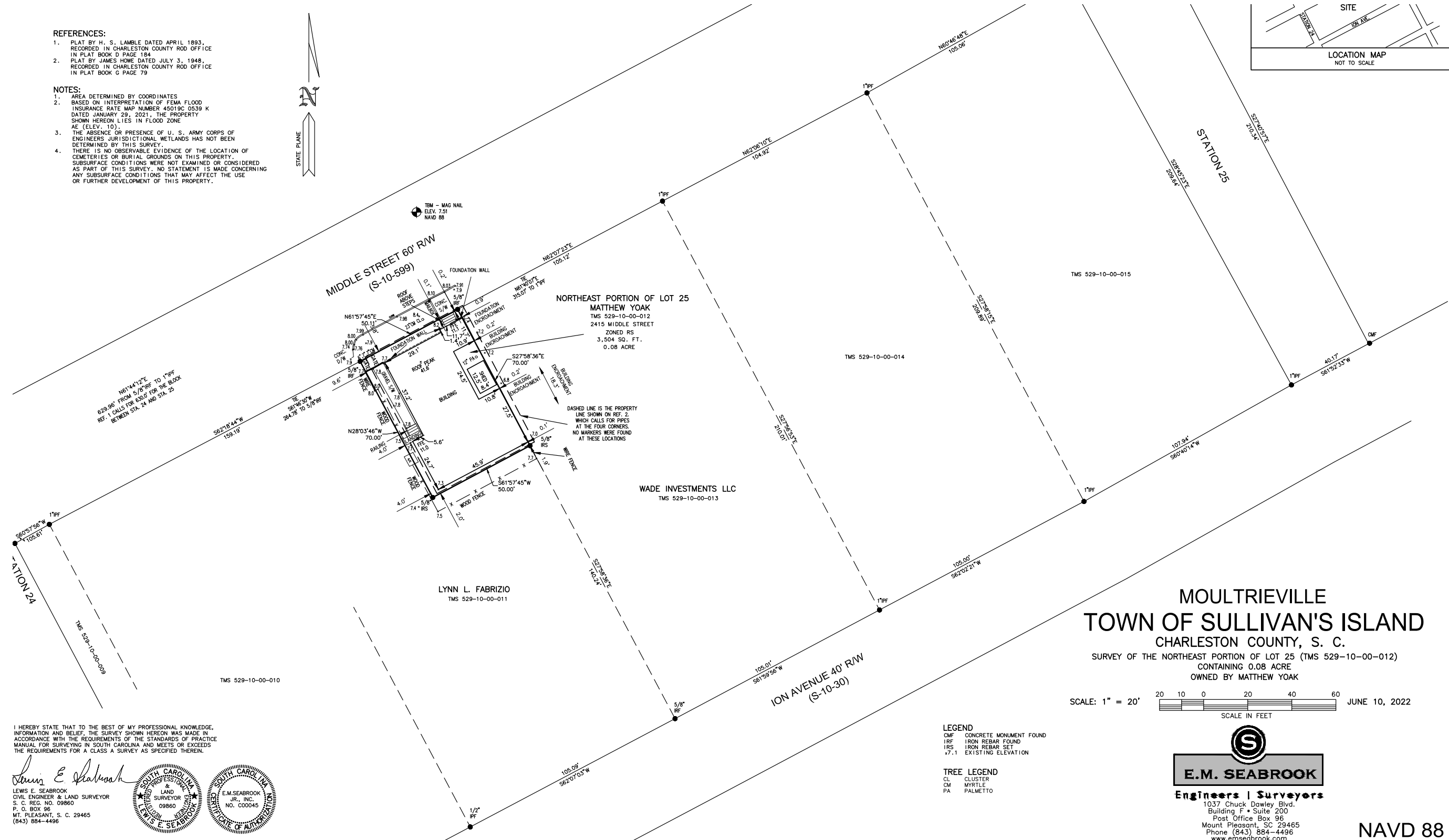
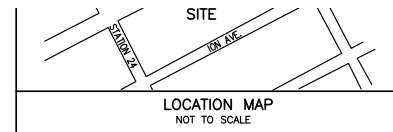
**2415 Middle Street
Sullivan's Island, SC**

REFERENCES:

1. PLAT BY H. S. LAMBLE DATED APRIL 1893, RECORDED IN CHARLESTON COUNTY ROD OFFICE IN PLAT BOOK D PAGE 184
2. PLAT BY JAMES HOWE DATED JULY 3, 1948, RECORDED IN CHARLESTON COUNTY ROD OFFICE IN PLAT BOOK G PAGE 79

NOTES:

1. AREA DETERMINED BY COORDINATES
2. BASED ON INTERPRETATION OF FEMA FLOOD INSURANCE RATE MAP NUMBER 45019C 0539 K DATED JANUARY 29, 2021, THE PROPERTY SHOWN HEREON LIES IN FLOOD ZONE AE (ELEV. 10).
3. THE ABSENCE OR PRESENCE OF U. S. ARMY CORPS OF ENGINEERS JURISDICTIONAL WETLANDS HAS NOT BEEN DETERMINED BY THIS SURVEY.
4. THERE IS NO OBSERVABLE EVIDENCE OF THE LOCATION OF CEMETERIES OR BURIAL GROUNDS ON THIS PROPERTY. SUBSURFACE CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING ANY SUBSURFACE CONDITIONS THAT MAY AFFECT THE USE OR FURTHER DEVELOPMENT OF THIS PROPERTY.



**MOULTRIEVILLE
TOWN OF SULLIVAN'S ISLAND
CHARLESTON COUNTY, S. C.**

SURVEY OF THE NORTHEAST PORTION OF LOT 25 (TMS 529-10-00-012)
CONTAINING 0.08 ACRE
OWNED BY MATTHEW YOAK

SCALE: 1" = 20' JUNE 10, 2022

- LEGEND**
- CMF CONCRETE MONUMENT FOUND
 - IRF IRON REBAR FOUND
 - IRS IRON REBAR SET
 - +7.1 EXISTING ELEVATION

- TREE LEGEND**
- CL CLUSTER
 - CM MYRTLE
 - PA PALMETTO



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Building F • Suite 200
Post Office Box 96
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www.emseabrook.com

NAVD 88

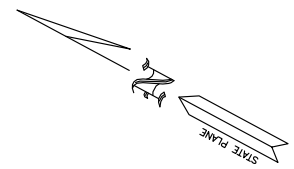
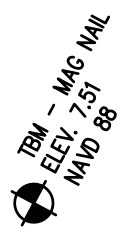
I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS A SURVEY AS SPECIFIED THEREIN.

Lewis E. Seabrook
LEWIS E. SEABROOK
CIVIL ENGINEER & LAND SURVEYOR
S. C. REG. NO. 09860
P. O. BOX 96
MT. PLEASANT, S. C. 29465
(843) 884-4496

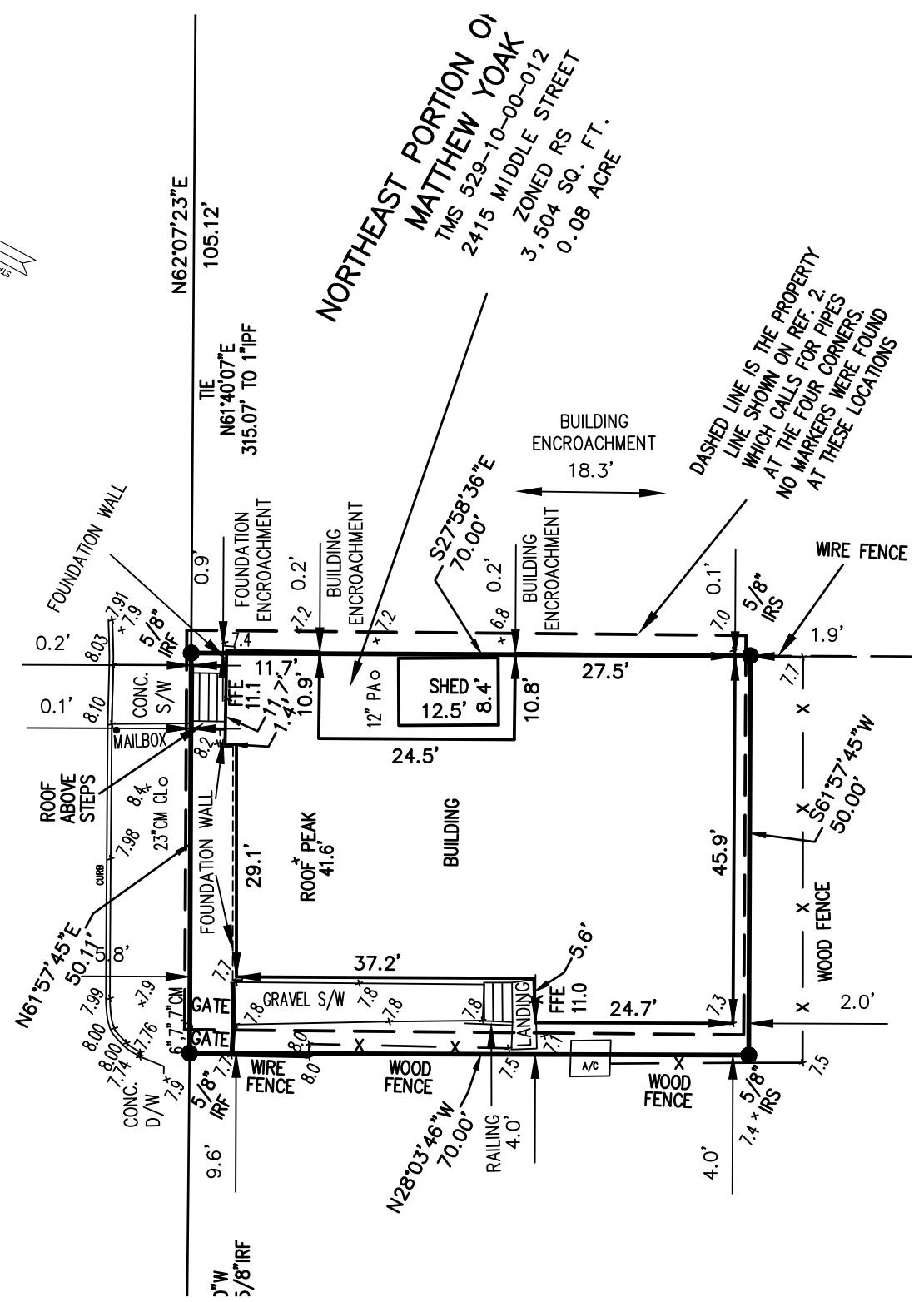


CURRENT SURVEY - BLOCK

2415 Middle Street
Sullivan's Island, SC



MIDDLE STREET 60' RW
(S-10-599)



NORTHEAST PORTION OF
MATTHEW YOAK
TMS 529-10-00-012
24.15 MIDDLE STREET
ZONED RS
3,504 SQ. FT.
0.08 ACRE

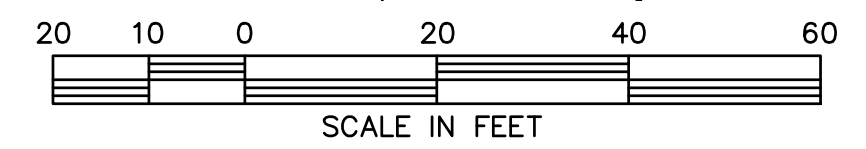
LYNN L. FABRIZIO
TMS 529-10-00-011

WADE INVESTMENTS LLC
TMS 529-10-00-013

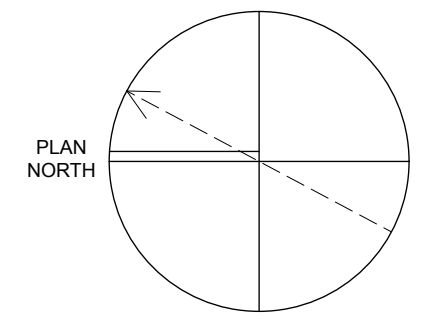
DASHED LINE IS THE PROPERTY
LINE SHOWN ON REF. 2
WHICH CALLS FOR PIPES
AT THE FOUR CORNERS.
NO MARKERS WERE FOUND
AT THESE LOCATIONS

Subject property is in an AE10 Flood Zone

SCALE: 1" = 20'

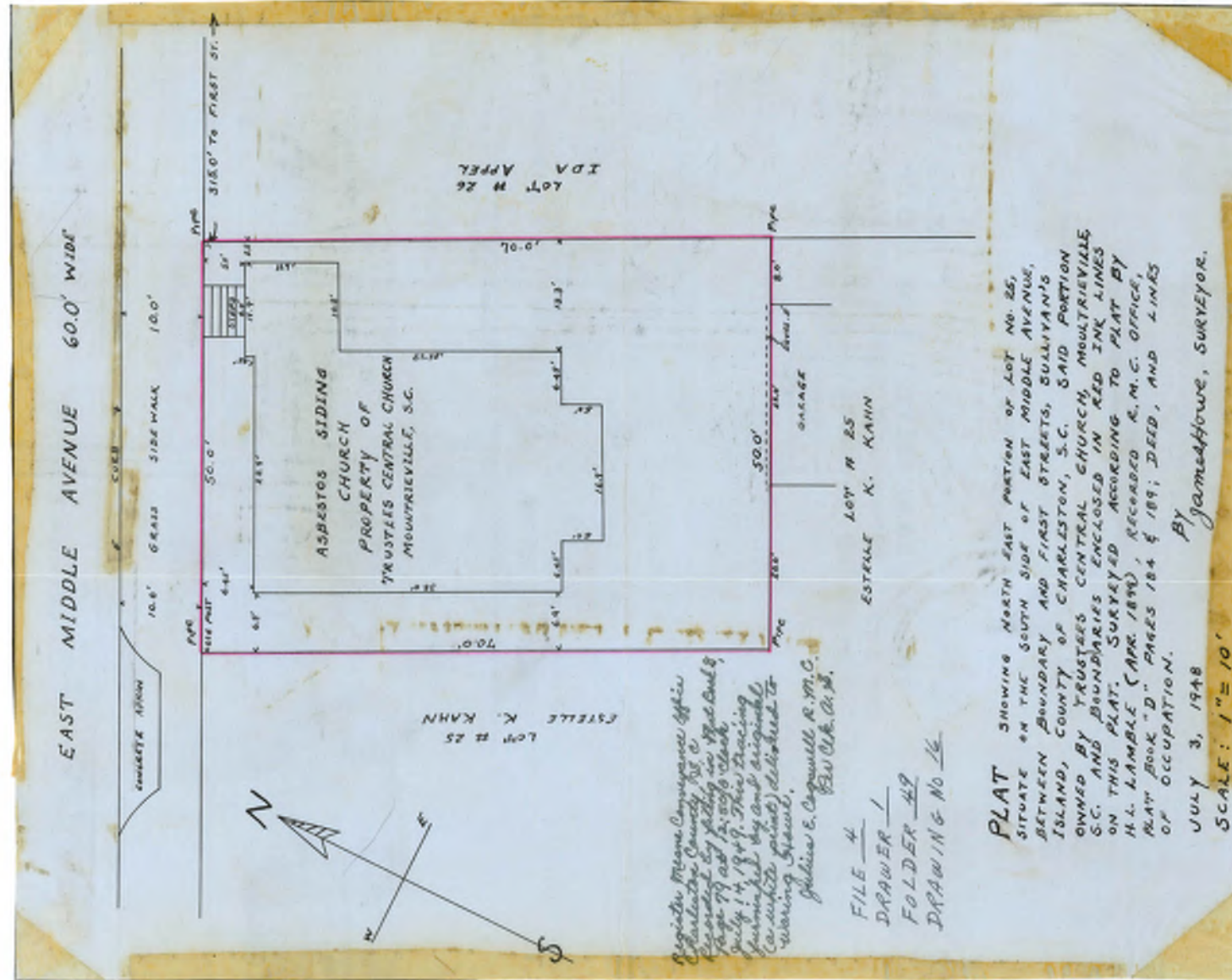
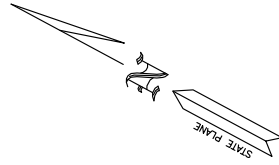


ION AVENUE 40' F
(S-10-30)

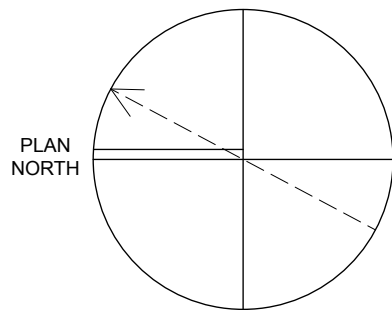
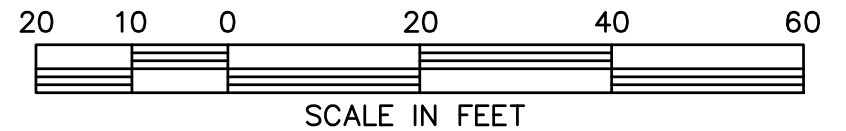


CURRENT SURVEY

2415 Middle Street Sullivan's Island, SC

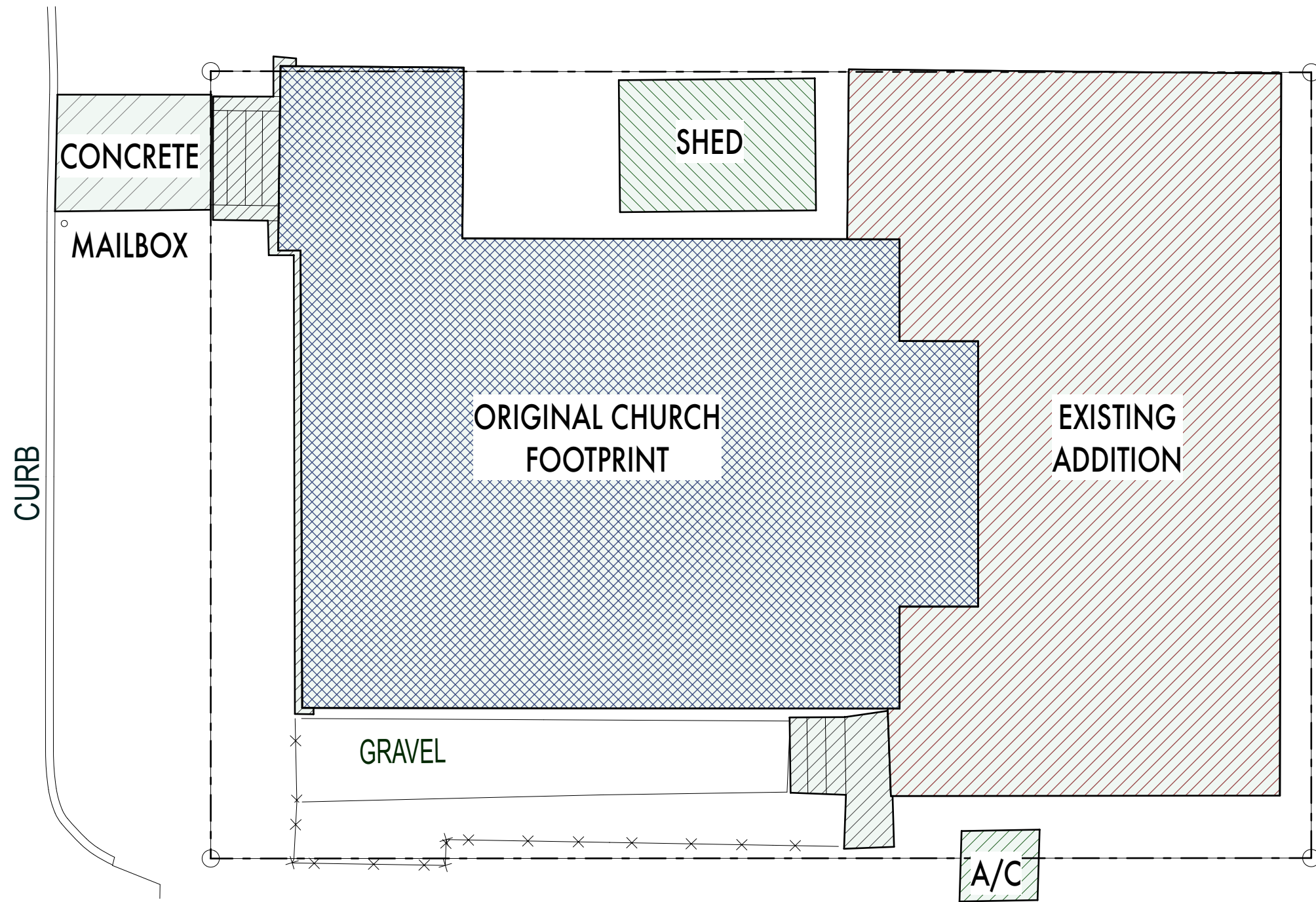


SCALE: 1" = 20'



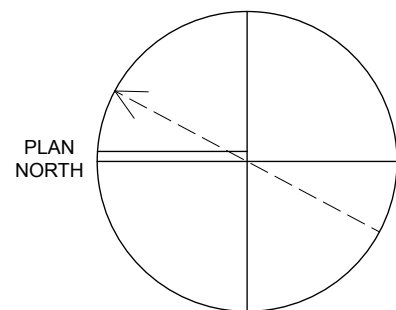
RECORDED PLAT 1948

2415 Middle Street Sullivan's Island, SC



EXISTING	
PRINCIPAL BUILDING COVERAGE	
ORIGINAL CHURCH	1350 sf
EXISTING ADDITION	1071 sf
SHED	105 sf
TOTAL:	2526 sf

SCALE: 1/8" = 1'-0"



EXISTING SITE PLAN

2415 Middle Street
Sullivan's Island, SC

CONSULTANTS

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2213 MIDDLE STREET, STE 100
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(843) 883-7430
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Yoak Residence

2415 Middle Street
Sullivan's Island, SC
29482

12/28/22	DRB

PROJECT: **2415 MIDDLE**
DATE: **12/22/22**
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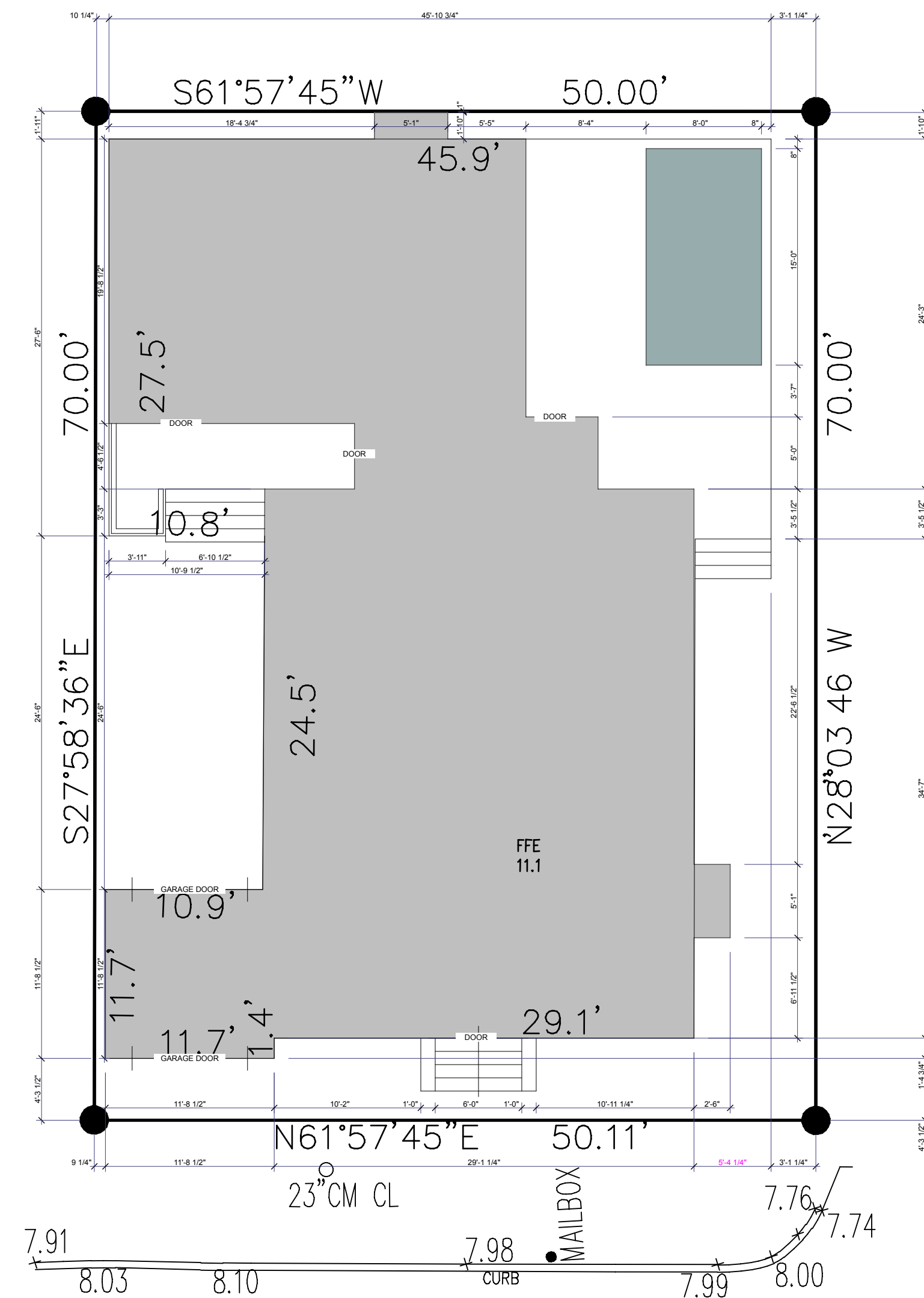
SHEET TITLE

Layout

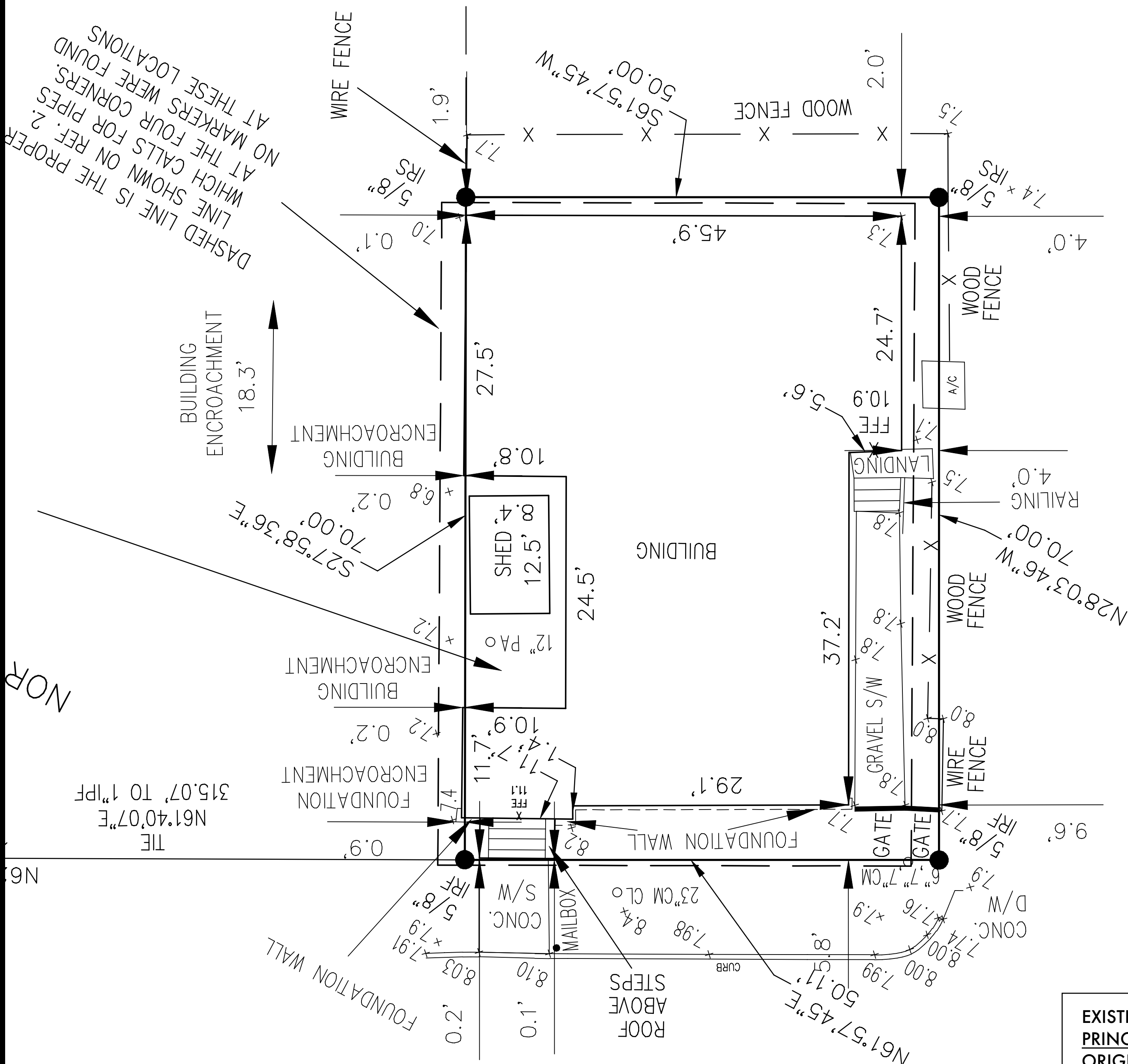
PRICING SET

C-001

SHEET 15 OF 47



2 NEW SITE PLAN
SCALE: 1/8" = 1'-0"



EXISTING	
PRINCIPAL SQUARE FOOTAGE	
ORIGINAL FIRST FLOOR	1350 sf
EXISTING ADDITION	1071 sf
SECOND FLOOR	1222 sf
TOTAL:	3643 sf
NEW	
PRINCIPAL SQUARE FOOTAGE	
FIRST FLOOR	1712 sf
SECOND FLOOR	1435 sf
TOTAL:	3147 sf

1 EXISTING SITE PLAN
SCALE: 1/8" = 1'-0"

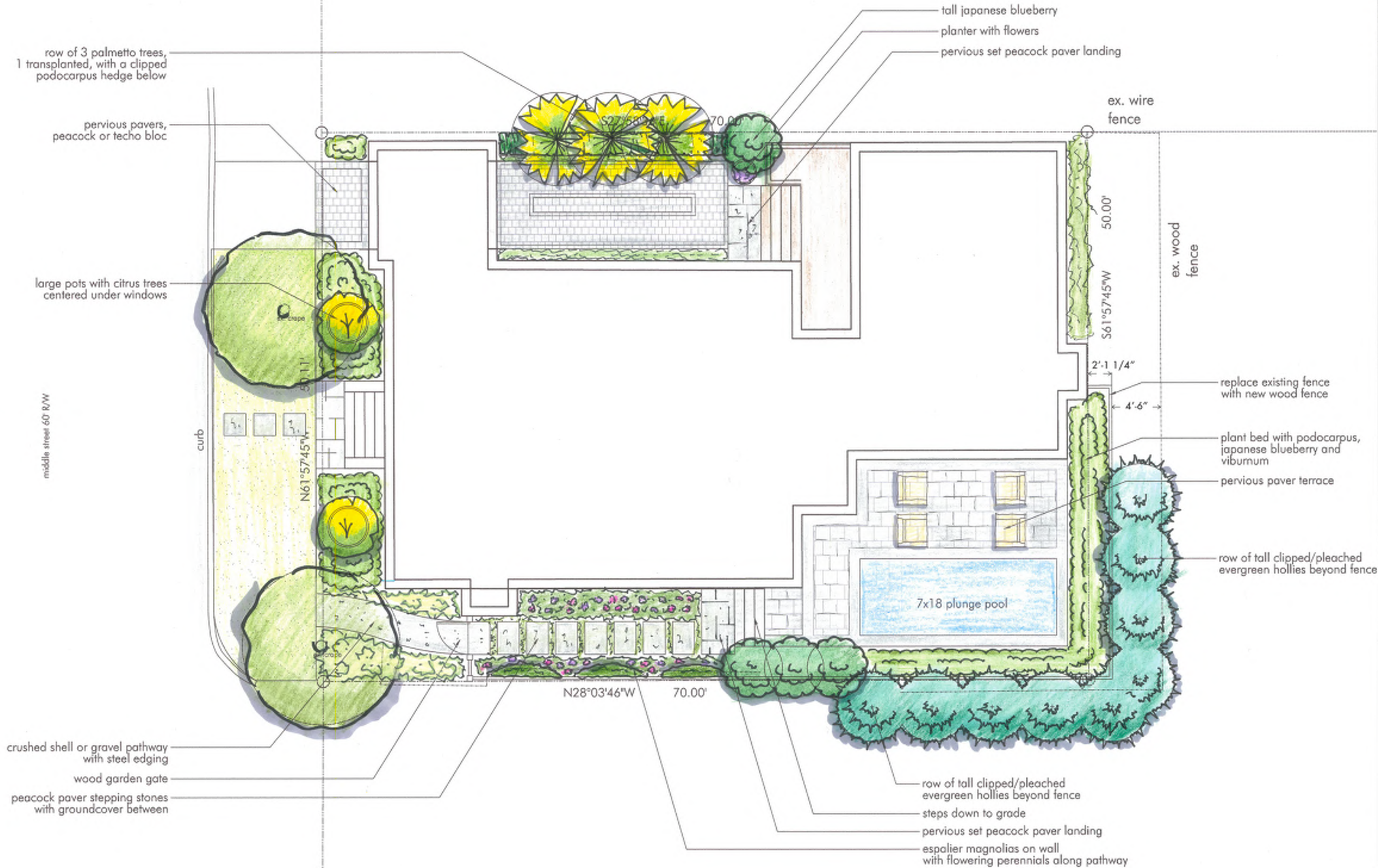
MIDDLE STREET 60' R/W
(S-10-599)

TBM - MAG NAIL
ELEV. 7.51
NAVD 88

DASHED LINE IS THE PROPER
LINE SHOWN ON REF. 2.
WHICH CALLS FOR PIPES
AT THE FOUR CORNERS.
NO MARKERS WERE FOUND
AT THESE LOCATIONS

NOR

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row of 3 palmetto trees,
1 transplanted, with a clipped
podocarpus hedge below

pervious pavers,
peacock or techo bloc

large pots with citrus trees
centered under windows

middle street 60' R/W

curb

N61°57'45"W

N28°03'46"W

70.00'

tall japanese blueberry
planter with flowers
pervious set peacock paver landing

ex. wire
fence

ex. wood
fence

S61°57'45"W
50.00'

replace existing fence
with new wood fence

plant bed with podocarpus,
japanese blueberry and
viburnum

pervious paver terrace

row of tall clipped/pleached
evergreen hollies beyond fence

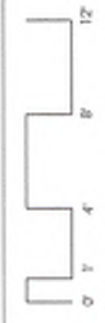
crushed shell or gravel pathway
with steel edging
wood garden gate
peacock paver stepping stones
with groundcover between

row of tall clipped/pleached
evergreen hollies beyond fence
steps down to grade
pervious set peacock paver landing
espalier magnolias on wall
with flowering perennials along pathway

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post office box 2795
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e glen@gardnerwebb.com



Date: 12.13.22 (p)
Rev:



2415 Middle Street
2415 Middle Street
Charleston, South Carolina 29402

Proposed
Plan
sheet 1

PROPOSED PLANT MATERIALS



Podocarpus Hedge



Japanese Blueberry



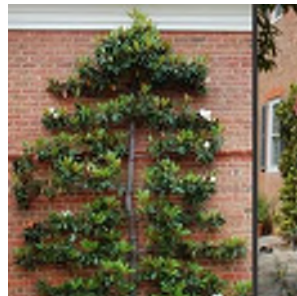
Viburnum suspensum



Palmetto tree



Holly row



Espalier magnolia



Perennial mix



Lemon tree



Crushed oyster shell



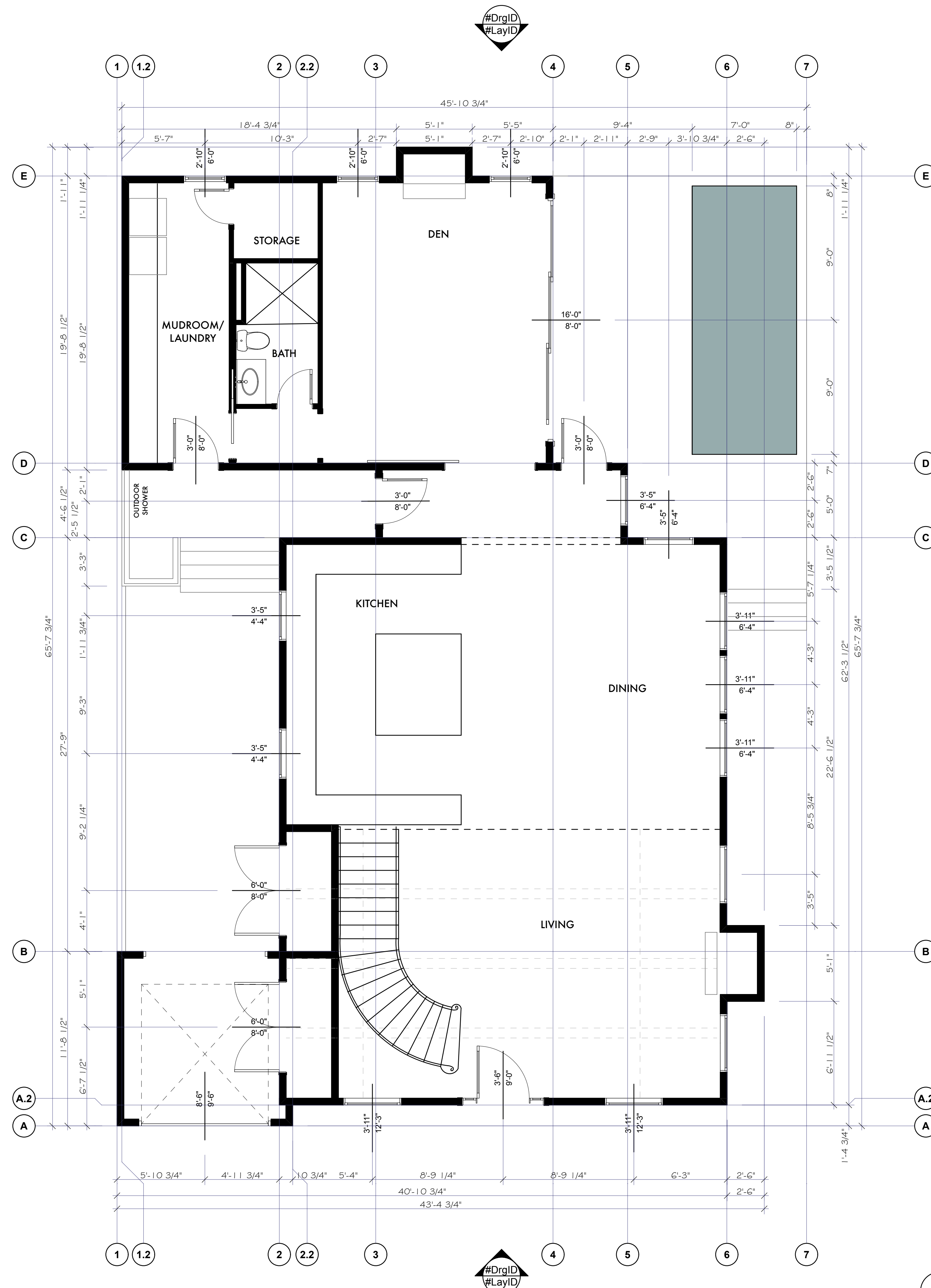
Pervious pavers



Wood fence



Wood gate



FLOOR PLAN NOTES

1. MAINTAIN AS MUCH OF ORIGINAL CHURCH STRUCTURE AS POSSIBLE, EXCEPT REAR ADDITION AND TOWER. SECURE FRAMING TO ALLOW FOR HOUSE TO BE LIFTED AND RELOCATED ON SITE.
2. ALL INTERIOR WALLS ARE TO BE FRAMED WITH 2X4 WOOD STUDS @ 16"o.c. UNLESS OTHERWISE NOTED. ALL WALLS OR SECTIONS OF WALLS CONTAINING POCKET DOORS OR PLUMBING FIXTURES TO BE FRAMED WITH 2X6 @ 16"o.c. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL FRAMING INFORMATION.
3. ALL DIMENSIONS ARE FROM FACE OF STUD, UNLESS OTHERWISE NOTED.
4. ALL CEILINGS ARE TO UNDERSIDE OF FRAMING, UNLESS NOTED OTHERWISE TO ACCOMMODATE MECHANICAL OR ARCHITECTURAL FEATURES. ALL CEILINGS NOTED AS LOWER THAN FRAMING TO BE FURRED TO HEIGHT NOTED.
5. FIELD VERIFY ALL DIMENSIONS FOR CABINETRY AND BUILT-IN DESIGNS.
6. PROVIDE STUD POCKET BETWEEN ALL WINDOWS ADJACENT TO OTHER WINDOWS OR DOORS, INCLUDING TRANSOMS. NO WINDOWS TO BE MULLED.

EXISTING
PRINCIPAL SQUARE FOOTAGE
 ORIGINAL FIRST FLOOR 1350 sf
 EXISTING ADDITION 1071 sf
 SECOND FLOOR 1222 sf
TOTAL: 3643 sf

NEW
PRINCIPAL SQUARE FOOTAGE
 FIRST FLOOR 1712 sf
 SECOND FLOOR 1435 sf
TOTAL: 3147 sf



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Yoak Residence

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 Sullivan's Island, SC
 29482

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SHEET TITLE

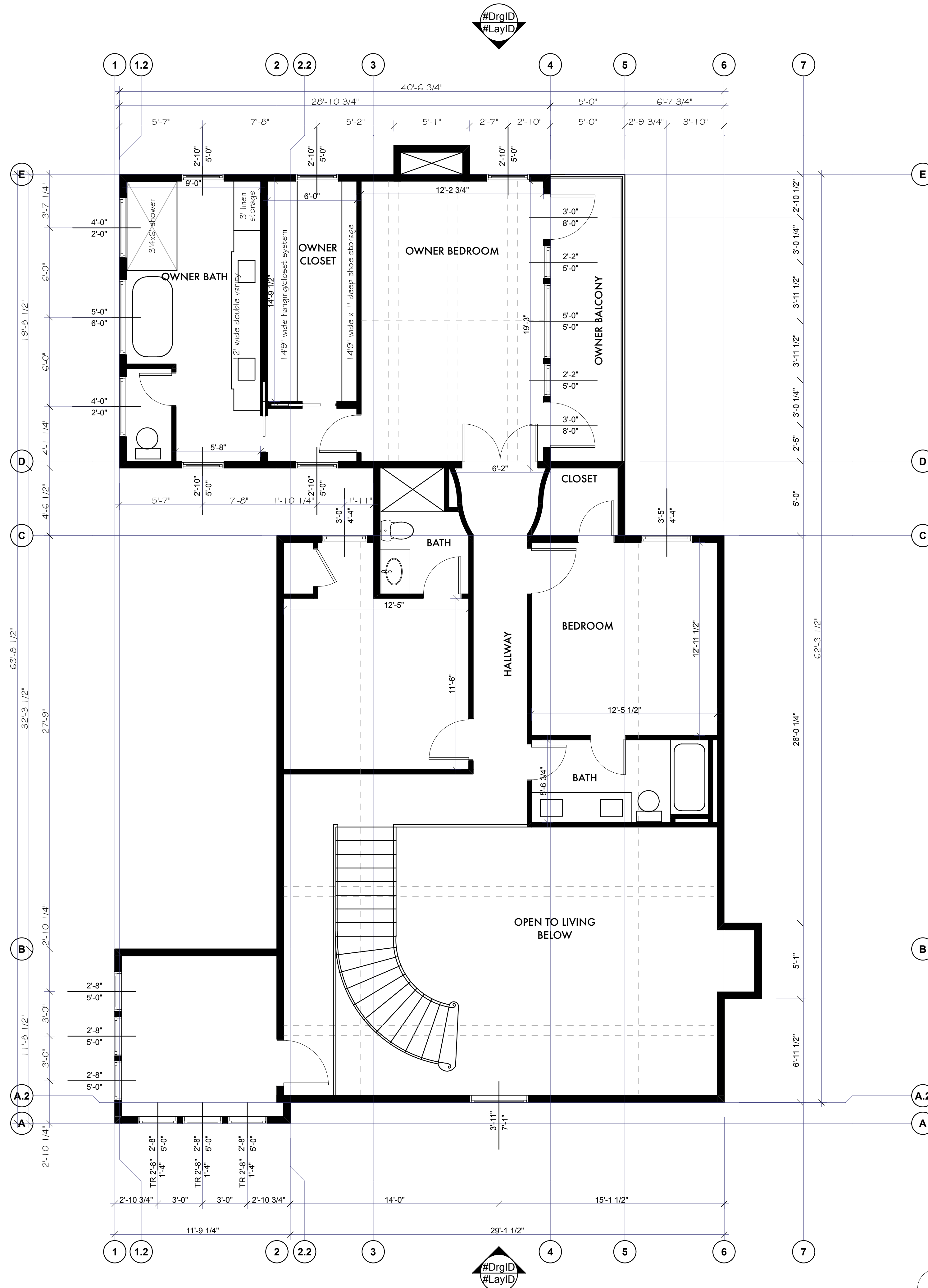
NEW FIRST FLOOR PLAN

PRICING SET

A-103

SHEET 23 OF 47

1 NEW FIRST FLOOR PLAN
 SCALE: 1/4" = 1'-0"



EXISTING
PRINCIPAL SQUARE FOOTAGE
 ORIGINAL FIRST FLOOR 1350 sf
 EXISTING ADDITION 1071 sf
 SECOND FLOOR 1222 sf
TOTAL: 3643 sf

NEW
PRINCIPAL SQUARE FOOTAGE
 FIRST FLOOR 1712 sf
 SECOND FLOOR 1435 sf
TOTAL: 3147 sf



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SHEET TITLE

NEW SECOND FLOOR PLAN

PRICING SET

A-106

SHEET 25 OF 47

1 NEW SECOND FLOOR PLAN
 SCALE: 1/4" = 1'-0"

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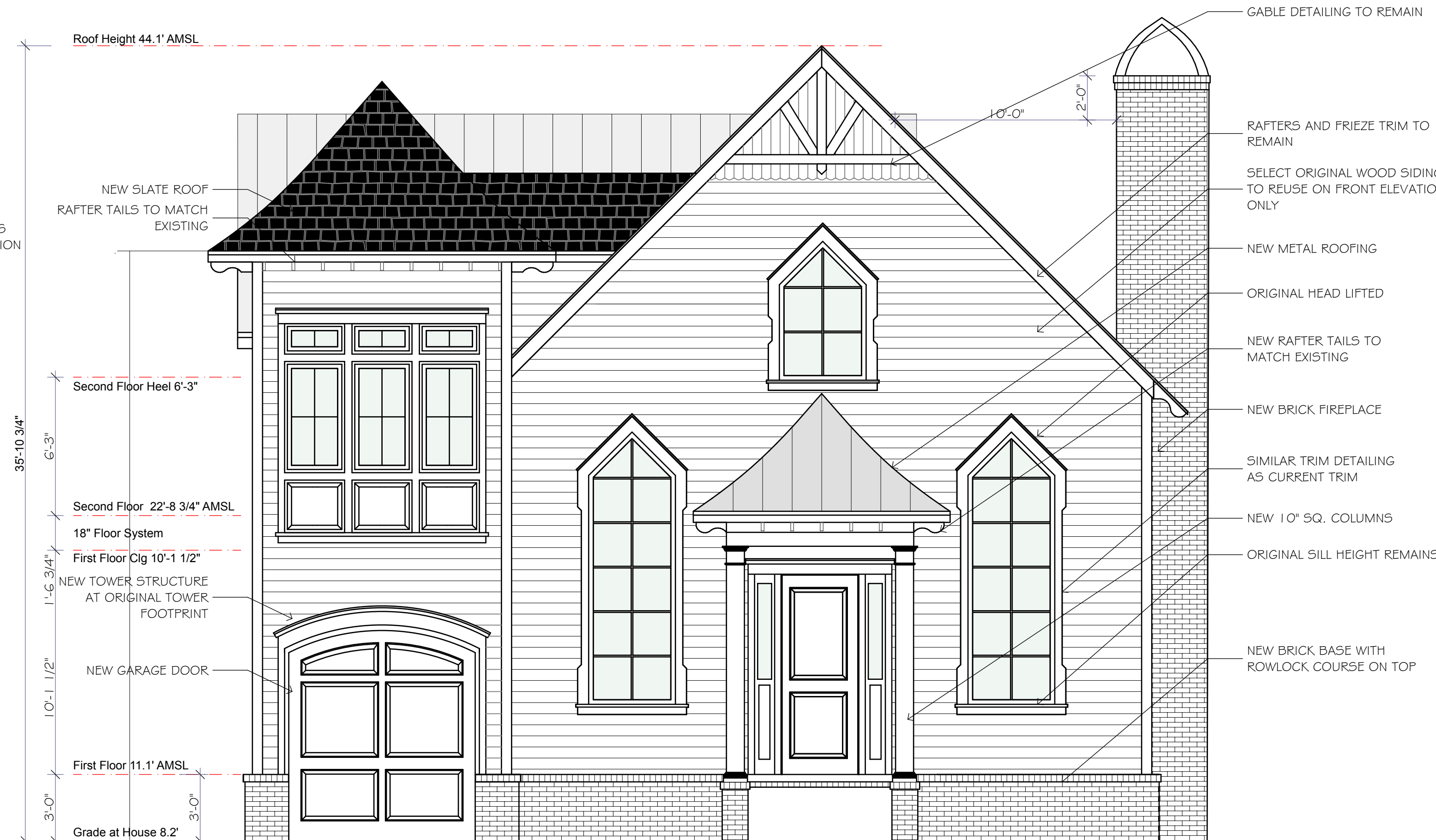
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3 PREVIOUS CONCEPTUAL DESIGN



1 EXISTING FRONT ELEVATION
SCALE: 1/4" = 1'-0"



2 NEW FRONT ELEVATION
SCALE: 1/4" = 1'-0"

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SHEET TITLE

FRONT ELEVATION

PRICING SET

A-201

SHEET 30 OF 47

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1 EXISTING RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



2 NEW RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



3 PREVIOUS CONCEPTUAL DESIGN

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29482

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SHEET TITLE

RIGHT ELEVATION

PRICING SET

A-202

SHEET 31 OF 47



EXISTING RIGHT (WEST) ELEVATION

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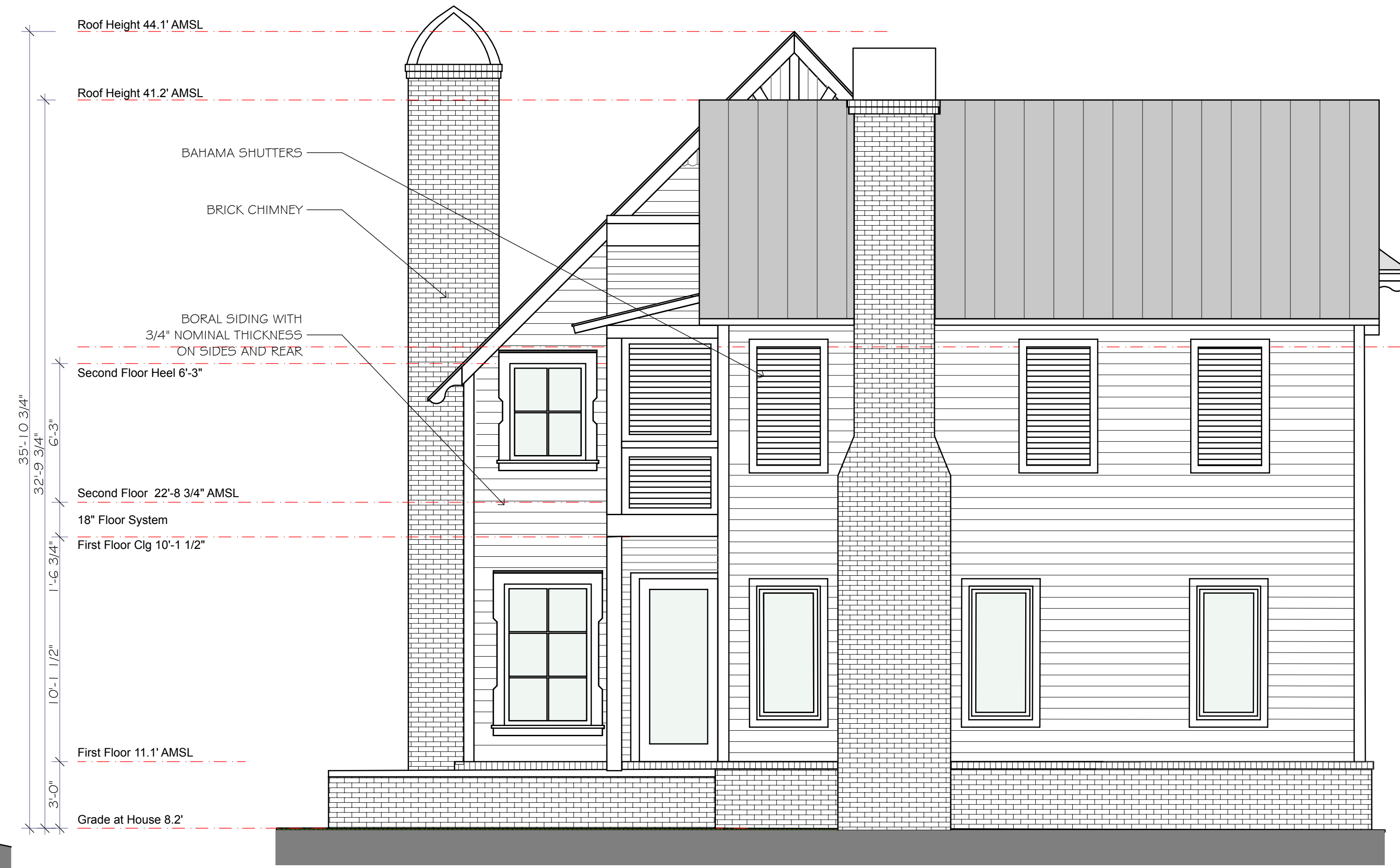


3 PREVIOUS CONCEPTUAL DESIGN



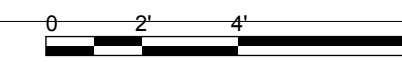
1 EXISTING REAR ELEVATION

SCALE: 1/4" = 1'-0"



2 NEW REAR ELEVATION

SCALE: 1/4" = 1'-0"



Yoak Residence

2415 Middle Street
Sullivan's Island, SC
29482

12/28/22	DRB

PROJECT: **2415 MIDDLE**
DATE: **1/3/23**
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SHEET TITLE
REAR ELEVATION

PRICING SET

A-203

SHEET 32 OF 47



EXISTING REAR (SOUTH) ELEVATION

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SULLIVAN'S ISLAND, SC 29482
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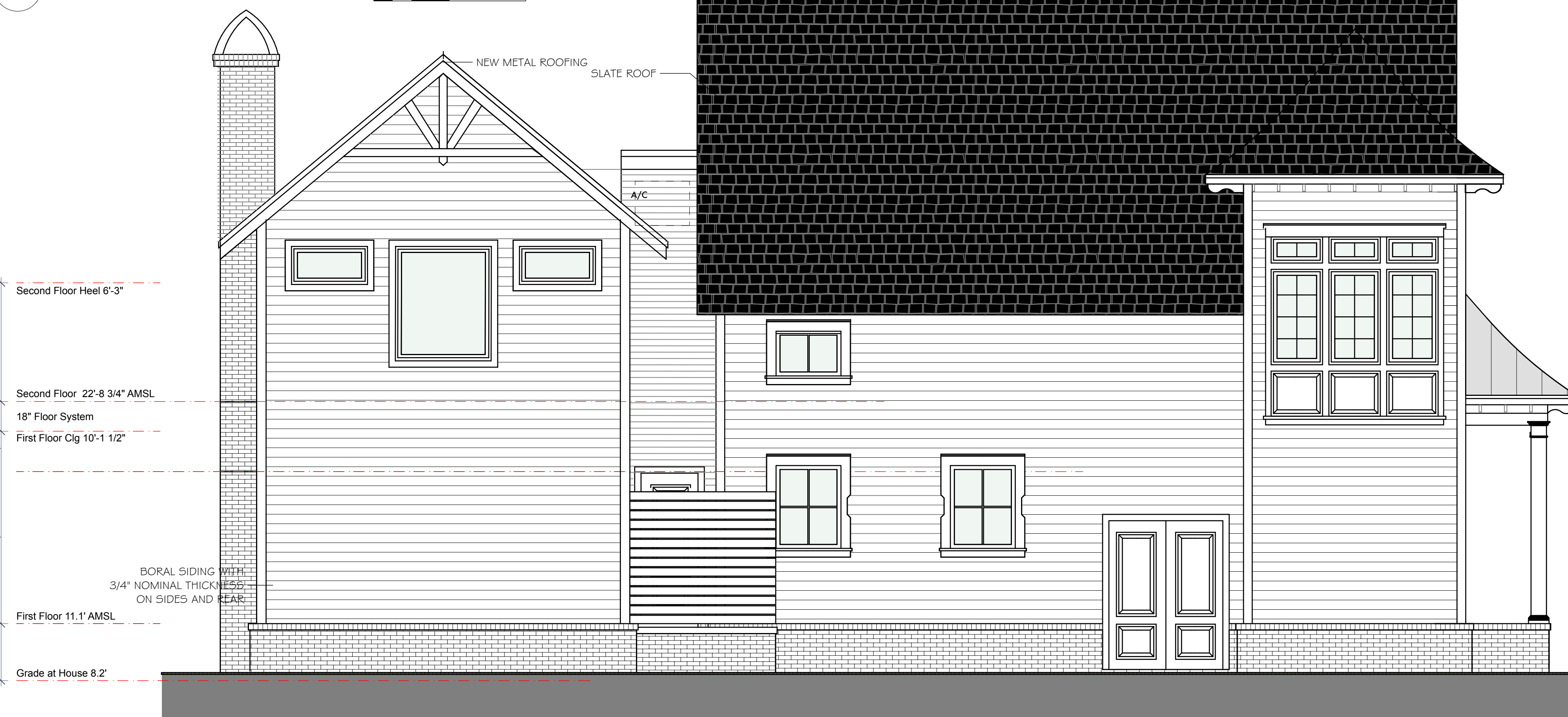
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1 EXISTING LEFT ELEVATION

SCALE: 1/4" = 1'-0"



2 NEW LEFT ELEVATION

SCALE: 1/4" = 1'-0"



3 PREVIOUS CONCEPTUAL DESIGN

Yoak Residence

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Sullivan's Island, SC
29482

12/28/22	DRB

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SEA ISLAND BUILDERS

SHEET TITLE

Interior Elevations

PRICING SET

A-204

SHEET 33 OF 47



EXISTING LEFT (EAST) ELEVATION

2415 Middle Street
Sullivan's Island, SC

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section E Page 9

name of multiple property listing: Historic Resources of Sullivan's Island
county and State Charleston County, SC

Stella Maris Roman Catholic Church has had an active year-round congregation since its founding and the building has been remodeled several times. The tower was added by 1882; damage from the 1886 earthquake and 1893 cyclone was repaired in 1894. Stained glass windows were installed in 1955. Only after the deactivation of Fort Moultrie in 1947 was the threat of glass breakage resulting from the firing of large Rodman guns at the fort removed. The church rectory is located at the corner of Osceola and Middle Streets.

The Sullivan's Island Presbyterian Church was formed in March 1946 and first met at the Faith Cottage Camp owned by Star Gospel Mission of Charleston. In 1948, with the support of the Second Presbyterian Church of Charleston, the congregation acquired the Trustees Central Chapel on Middle Street, and remained there until it acquired the Sullivan's Island Graded School building at 2302 Middle Street in 1956. Major repairs and changes were made to this building in 1965, including a new roof and the addition of a steeple. Continued growth of the congregation during the 1970's resulted in plans to build a new church building. In 1977, the renamed Sunrise Presbyterian Church sold the former school and moved to a new sanctuary built near Breach Inlet.

The Union Chapel or Union Church, a frame building located on Middle Street now used as a residence, was constructed in the late-19th century as a Joint Protestant church. Ministers of several denominations took it in turn to come over from Charleston to preach in the chapel every week. The Mt. Zion AME church is located next to the old island school on Central Avenue.

- (1) The original structure has significant inherent character, interest, or value as part of the development or heritage of the Town of Sullivan's Island - see the US Dept. of The Interior Register, which describes this as the Union Chapel, constructed in the late-19th century.
- (2) Is the site of an event significant in history;
- (3) Is associated with a person or persons who contributed significantly to the culture and development of the Town, state, or nation;
- (4) Exemplifies the cultural, political, economic, social, ethnic, or historic heritage of the Town, state, or nation;
- (5) Individually, or as a collection of resources, embodies distinguishing characteristics of a type, style, period, or specimen in architecture or engineering;
- (6) Contains local vernacular that is inherent to the period of time on Sullivan's Island in which it was constructed;
- (7) Represents an established and familiar visual feature of a neighborhood or the Town; or
- (8) Has yielded, or may be likely to yield, information important in pre-history or history.



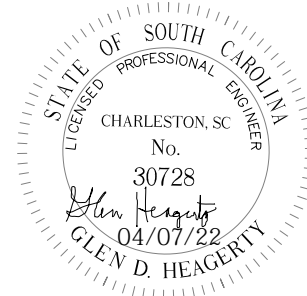
HISTORIC DESIGNATION CRITERIA

2415 Middle Street
Sullivan's Island, SC

Glen Heagerty, PE, LLC

Engineer – Consultant- Designer

REPORT TO: Hiatt Wolfe & Matt Yoak
2415 Middle St.
Sullivans Island, SC 29482



FROM: Glen Heagerty, P.E.

REFERENCE: Evaluate Structural Issues – 2415 Middle St.
Prospective Homebuyers: Hiatt Wolfe/Matt Yoak
Glen Heagerty PE LLC File Number: GH-528 -RIC-026

The following report concerns an investigation conducted by Glen Heagerty, PE, LLC regarding the structural condition of the above grade foundation elements, floor framing, wall framing, ceiling framing and roof framing for the residential structure @ 2415 Middle St.

The conclusions and opinions stated herein are based on information available to the investigation as of this writing. No destructive testing or removal of interior or exterior finishes was accomplished for this evaluation and all information was as provided by the owners and or obtained during the on-site inspection. It is conceivable that additional information may be forthcoming which bears on these conclusions and opinions. Therefore, the right is reserved to review and modify all conclusions and opinions at any future point in time should, in fact, additional information become available.

Evaluate Structural Issues – 2415 Middle St – Hiatt Wolfe/ Matt Yoak Glen Heagerty, PE, LLC File Number: GH-528-RIC-026

This report is divided into the sections as follows:

- A. Background Information
- B. Work of Investigation
- C. Observation
- D. Discussion
- E. Recommendations

A. BACKGROUND INFORMATION

The property located at 2415 Middle St . in Sullivans Island, South Carolina is shown in Charleston County records as having been built in 1920. The house is a (2) story, w/ wood siding & asphalt shingled roof, Fig. 1-1. This house sits on a CMU block wall & CMU piers foundation (approx. 30” inches above grade). The house sits between station 24 & 25 on Middle St. The prospective buyers have requested a structural condition assessment of the existing house.

B. WORK OF INVESTIGATION

Glen Heagerty, PE, LLC was contacted on March 28, 2021 by potential home buyers Hiatt Wolfe/ Matt Yoak to inquire about availability to do an structural inspection to include foundation, floor framing, walls, and roofing and overall structural condition of the house @ 2415 Middle St. An on-site inspection was conducted, by Glen Heagerty, PE, LLC, on 03/31/22 to assess the overall structural condition of the house.

The investigation included a non-destructive, visual inspection of the foundation (block walls & piers), floor system, walls, ceiling, and roof framing. The observations of these items were visible or partially visible with no additional portions of the residence finishes removed for this inspection. Also, no below grade elements were inspected (i.e. portions of pier below grade). Non-visible items (i.e. piers below grade, footings) were not part of the scope of this report. Photographs were taken of visible key conditions/problem areas of the different structural systems of the house (i.e. foundation, floors, walls, roof) and included in this report. Select photographs taken during the inspection are included as Figure 1- Figure 20 of this report.

C. OBSERVATIONS

All left side, right side, front and rear directions given in this report are based on facing the front of the residence from Middle St. As seen in Figures 1-1, the property is a (2) story, wood sided structure with asphalt singled roof. It is supported on 8" wide CMU foundation walls (perimeter of structure) and 8"x16" CMU piers (interior), which in turn supports the floor framing system. Glen Heagerty, PE, LLC started observations on the underside of the house, on the left hand side. The foundation is roughly 30" high as seen in Fig. 1-2. The CMU piers are 8"x16" as seen in Fig. 1-3. The CMU piers are unreinforced and sit on a thin rectangular footing as shown in Fig. 1-4. The pier in this picture, is near the front of the house. It is overturned and looks like it was not buried in the soil very deep. The CMU pier, near middle of the house, has an unattached timber wedged between the top of the pier and the bottom of the floor girder (Fig. 1-5). This occurs in a several areas of the foundation. The soil in crawlspace is not level, Fig. 1-6 is near the rear 1/3 of the house where the distance between the soil and the bottom of the floor joist narrows considerably (20" in depth or so). Fig. 1-7 shows a pier on the right hand side of the house leaning at 5 degrees or so, outwardly. Every CMU pier and CMU wall (under the exterior right hand wall) on the right hand side of the house in leaning at 5 degrees or so.

**Evaluate Structural Issues – 2415 Middle St – Hiatt Wolfe/ Matt Yoak
Glen Heagerty, PE, LLC File Number: GH-528-RIC-026**

Fig. 1-8 & Fig. 1-9 shows an image of a heavy timber floor girder in good condition. Floor joists are shown in Fig. 1-10, which appear to be in good condition. Moving on to the interior of the house, the first floor floors are sloping, as shown in Fig. 1-11. The slope is due to uneven pier heights and soil settlement. The walls on the right hand side of the kitchen are leaning outwardly as shown in Fig. 1-12. The right hand exterior wall of Fig. 1-13 shows a lean/ bowing outwardly of roughly 5 degrees. Fig. 1-14 shows the 1st floor ceiling sloping from left to right in the picture. The 2nd floor has sloping floors throughout, as shown in Fig. 1-15. The uneven foundation and the right hand wall bowing outwardly is causing the 2nd floor to slope.

Fig. 1-16 show the roof timber rafters in satisfactory shape. The ridge board (also in Fig. 1-16) is inadequate in size and is not continuous which is likely contributing to the outward lean of the right hand wall. Gutters are missing on the right hand and left hand side of the roof (Fig. 1-17). While not a structural item, the lack of gutters is allowing water into the crawlspace/foundation. Saturated soil w/ water will expand and move or push on the foundation elements, causing them to rotate and become displaced.

The pier supporting the steps at the apartment entrance (right rear of the house) is supported by an improperly built CMU pier (Fig. 1-18). The pier should be built in a manner that you don't see the cells (holes) in the blocks and the blocks should be joined w/ mortar. The apartment appears to be in decent condition. The floors bounce a little. The joist blocking is dislodged in several areas under the apartment (Fig. 1-19).

There is a commercial style roof on top of the rear apartment (Fig. 1-20). The roof is flat with some undulations / valleys to catch and dispose of water. The roof material is likely an EPDM (Ethylene Propylene Diene Terpolymer). A licensed roofing contractor would be the best person to verify material. The roof appears to be in satisfactory condition.

D. DISCUSSIONS

The residence at 2415 Middle St. is over 100 years old and it appears that it has had some modifications of the years. The issues with the foundation, floor framing, walls, ceiling joists, and roof system are numerous as stated in Section C of this report. The condition of the foundation elements (CMU piers and CMU block walls) lead Glen Heagerty, PE, LLC to believe there are major soil settlement issues associated with this property/house. In addition, there are no gutters on the roof contributing to water entering the crawlspace/ foundation, which is leading to displacement and rotation of the CMU piers and CMU block walls. The CMU pier towards the front of the house that is overturned also may provide a clue to how the rest of the CMU piers/ CMU walls were built. The pier has a 4" thick rectangular concrete footing attached to the bottom of the pier and it appears that the pier was not placed at an adequate depth (adequate would be at least 24" below grade). For a house this old, it is typical that a footing is in adequate in size and thickness or doesn't exist at all. Footings provide stability for piers/ CMU walls and help to distribute the loads to the soil.

The right hand wall is leaning outwardly due to the CMU piers and CMU wall leaning. The problem is progressive in that the exterior framed walls and foundation will continue to rotate and lean even more than it is right now. Steps should be taken to correct this situation. If nothing is done to correct the right hand walls (1st & 2nd floor walls) and foundation lean, on the right side of the house, it is conceivable that the 2nd floor, and right hand walls could collapse in the near future. (The 2nd floor is supported by the first floor wall). The other walls and 3 sides of the foundation (left, front and back) do have a slight lean but in Glen Heagerty, PE, LLC's opinion but are not in need of immediate repair right now but should be monitored and possibly repaired/straightened in the near future. The 1st floor floors are sloping some but they are not likely to collapse in the near future. Several interior CMU piers support only 1st floor joists and not load bearing walls, so the loads are not that heavy compared to CMU piers and CMU block walls that support exterior load bearing walls. The interior piers, for the most part have rotated slightly or not at all.

**Evaluate Structural Issues – 2415 Middle St – Hiatt Wolfe/ Matt Yoak
Glen Heagerty, PE, LLC File Number: GH-528-RIC-026**

The water intrusion is a great concern to the foundation. Taking measures to eliminate water in the crawlspace could help limit further unwanted movement of the CMU piers and CMU block walls, and thus the first floor floors. The 2nd floor floors also slope significantly and the reasons are related to movement/ rotation of the piers in the crawlspace and bowing/leaning of the exterior right hand walls.

The roof of the main house is in satisfactory shape. The timber rafters appear in good condition. However, the ridge board (peak of roof) is of inadequate size and discontinuous. A new ridge beam, such as a large LVL beam could be placed under the existing ridge board to prop up the existing roof so it doesn't sag. The existing roof sags some and as such is contributing to the outward bowing of the exterior right hand walls.

The apartment in the rear appears to be in satisfactory condition. The apartment is a one story addition, built some time after the original main house (church structure) was built. The roof also appears in satisfactory condition. The deck on top of the apartment is in satisfactory condition. It is worn from sun exposure and rain. The CMU blocks under the stairs leading to the front door of the apartment should be replaced w/ a CMU pier of conventional construction. Also, the deck on top of the apartment should have a new handrail/ guardrail put in.

E. RECOMMENDATIONS

The following repairs for the house at 2415 Middle St. , shall be broken down into immediate repairs vs. repairs that can be done later. Also, an estimate of cost – materials and labor shall is listed below:

Immediate repairs:

- Replace CMU pier near front of the house that has fallen over

- Pour new continuous footing and place CMU piers under the right hand wall of the main house. Also, add new helical piers, under footings – (5 or 6 helicals)

- Plumb existing right hand wood frame walls – main house -(1st & 2nd floor)

- Build (3) new wood framed trusses to support new ridge roof beam (LVL beam) -

- Put in new ridge beam (LVL beam), on underside of existing ridge board or remove existing ridge board and just put in new ridge beam

- Add Gutters to help get water away from foundation

- Add (2) retaining walls on both sides of property – perpendicular to Middle Street to divert neighbors rain water from entering property and crawlspace /foundation -

- Add 6 mil poly liner over soil in crawlspace to help reduce moisture

- Add new sump pump

**Evaluate Structural Issues – 2415 Middle St – Hiatt Wolfe/ Matt Yoak
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- Add dehumidifier
-

Other repairs

- Plumb remainder of existing wood frame walls of main house -
- Pour new continuous footings and place CMU piers under all exterior walls of the main house and under load bearing wall areas on interior of main house. Also, add approximately 20 helical piers to support new footings
- Replace all existing CMU piers that have timber wedges on top of piers w/ a new top course of CMU block
- Re-attach bridging/ blocking between joists, in floor system of rear apartment
- Reframe roof
- Add guardrail to existing deck over apartment

Miscellaneous :

- Raise/ lift house so Foundation contractor can build new footings, piers and helical anchors and put in place, unless Contractor can accomplish work w/o lifting house (consult w/ foundation contractor whether this is required)

**Evaluate Structural Issues – 2415 Middle St – Hiatt Wolfe/ Matt Yoak
Glen Heagerty, PE, LLC File Number: GH-528-RIC-026**

Should you have questions or concerns about this report, please contact Glen Heagerty, PE, LLC.

Sincerely,

Glen Heagerty, PE

Glen Heagerty, PE, LLC

FIGURES

FOR

GLEN HEAGERTY, PE, LLC INVESTIGATION REGARDING:

2415 MIDDLE ST.

SULLIVANS ISLAND, SOUTH CAROLINA

COMPILED FOR HIATT WOLFE/ MATT YOAK

APRIL 5, 2022

Fig. 1-1. Front view of the house.



Fig. 1-2. Piers are approximately 30" tall.



Fig. 1-3. Piers are constructed of 8"x16" CMU blocks.



Fig. 1-4. Overturned CMU pier, near front of house, with thin rectangular footing attached to pier.



Fig. 1-5. Unconnected timber wedge between the top of pier & bottom of floor girder.



Fig. 1-6. Soil is not level in the crawlspace. Also, there is no vapor barrier present.



Fig. 1-7. CMU pier is leaning 5 degrees or so (outwardly).



Fig. 1-8. Timber girder appears to be in good condition.



Fig. 1-9. Timber girder appears to be in good condition.



Fig. 1-10. Floor joists appear to be in good condition.



Fig. 1-11. 1st floor floors are sloping due to unevenness of CMU piers below.



Fig. 1-12. Wall in kitchen is leaning outwardly, due CMU piers rotation underneath in crawlspace.



Fig. 1-13. Exterior wall leaning outwardly approximately 5 degrees.



Fig. 1-14. 1st floor ceiling sloping from left to right in the picture below.



Fig. 1-15. 2nd floor sloping from bottom left (area w/ carpet) down towards the piano.



Fig. 1-16. Timber roof rafters and ridge board appear to be in satisfactory condition. However, ridge board is inadequate in size and not continuous.



Fig. 1-17. Gutters are missing on right hand and left hand, contributing to water getting into foundation/crawlspace.



Fig. 1-18. Pier is improperly built and should be replaced.



Fig. 1-19. The floor joists blocking are dislodged (under rear apartment).



Fig. 1-20. The rear apartment has a commercial style roof, likely a EPDM (Ethylene Propylene Diene Terpolymer) roof.





2415 Middle Street, Sullivans Island, SC 29482

11/7/2022

PALMETTO EXTERMINATORS, INC.

name
2415 Middle Street, Sullivans Island, SC 29482
 address

Joel Whitfield
 inspector name (print)

11/7/2022
 date

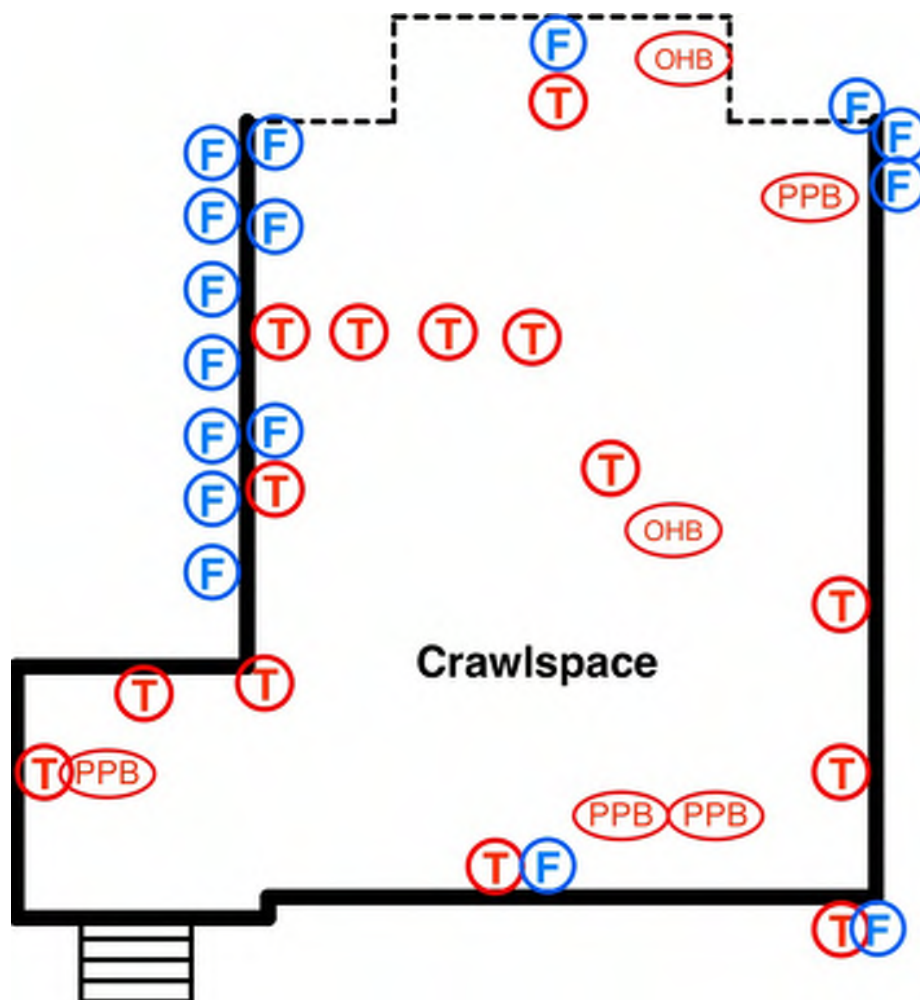
CONST. TYPE	FOUND. PIERS	FOUND./WALL	EXTERIOR
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<input type="checkbox"/> Basement	<input type="checkbox"/> H. Block Open	<input type="checkbox"/> H. Block Open	<input type="checkbox"/> Stone
<input type="checkbox"/> Slab & Crawls	<input checked="" type="checkbox"/> H. Block Cap.	<input checked="" type="checkbox"/> H. Block Cap.	<input type="checkbox"/> Stucco
<input type="checkbox"/> Slab (type)	<input type="checkbox"/> Brick	<input type="checkbox"/> Sgle Brick	<input type="checkbox"/> H. Board
<input type="checkbox"/> Floating	<input type="checkbox"/> Stone	<input type="checkbox"/> Dble Brick	<input checked="" type="checkbox"/> Wood
<input type="checkbox"/> Supported	<input checked="" type="checkbox"/> Wood	<input type="checkbox"/> Tple Brick	<input type="checkbox"/> Vinyl
<input type="checkbox"/> Monolithic	<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other
Wood/Ground Contact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Slab air duct <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Crawlspace Insulation <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Foam Insulation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Vapor Barrier <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Foam/Ground Contact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

- KEY**
- IA - inaccessible area.
 - PPB - powder post beetles.
 - DWT - drywood termites.
 - WG - wood ground contact.
 - * - plumbing leak
 - T - subterranean termites.
 - F - fungi/rot.
 - OHB - old house borers.
 - SW - standing water.
 - DF - Dirt filled
 - Circled letters indicate damage

This is a typical older structure of Sullivans Island. Due to the age of this structure it should be expected that there is evidence of and old damage from previous wood destroying organism activity.

There is evidence of previous subterranean termite activity and damage scattered throughout the crawlspace, in the interior studs, and exterior siding.

There is evidence of previous powder post and old house borer beetle activity and damage in the crawlspace.



*There is always the possibility of hidden wood destroying organism activity and or damage.
 *Only the most obvious areas are marked on the graph.



Exterior



Evidence of previous subterranean termite activity and damage.



Evidence of previous subterranean termite activity and damage.



Evidence of previous subterranean termite activity and damage.



Rot/moisture damage to window.



Rot/moisture damage to siding.



Rot/moisture damage to siding.



Rot/moisture damage.



Evidence of previous subterranean termite activity and damage.



Rot/moisture damage.



Evidence of previous subterranean termite activity and damage.



Interior



Rot/moisture damage to fascia.



Rot/moisture damage to fascia.



Rot/moisture damage to fascia.



Evidence of previous subterranean termite activity and damage.



Rot/moisture damage to siding.



Rot/moisture damage.



Moisture stains on ceiling



Rot/moisture damage and previous subterranean termite activity damage to siding.



Rot/moisture damage to window trim.



It appears to be rot/moisture damage



Rot/moisture damage to siding.



Rot/moisture damage to overhang.



Rot/moisture damage to trim.



Rot/moisture damage to siding.



Previous subterranean termite activity and damage in the crawlspace.



Previous powder post beetle activity and damage in the crawlspace.



Previous subterranean termite and powder post beetle activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous powder post beetle activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Crawlspace



Previous old house borer beetle activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



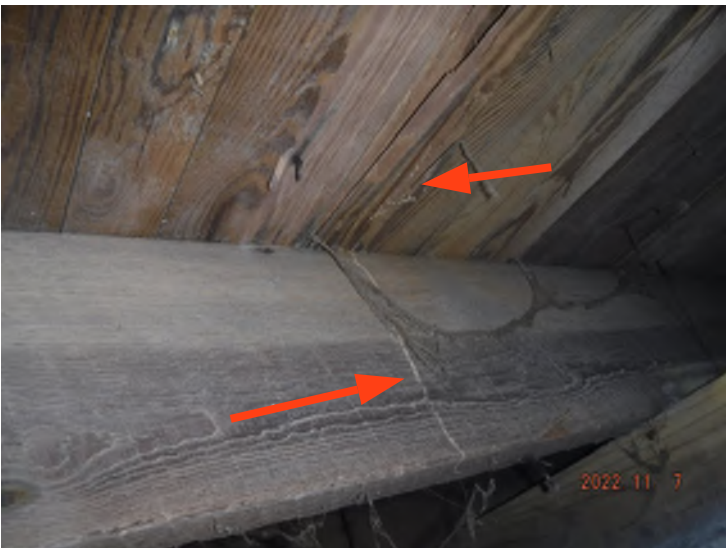
Previous powder post beetle activity and damage in the crawlspace.



Rot/moisture damage



Previous powder post beetle activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite and powder post beetle activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous powder post beetle activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.



Previous subterranean termite activity and damage in the crawlspace.

Recommended Protocols for Treating and Repairing Structures with Formosan Subterranean Termite infestations and Damage

Palmetto Exterminators, Inc. Updated 10/01/2020

Overview

The Formosan Subterranean Termite, *Coptotermes formosanus*, became established in the Charleston area in the mid 1950s. Over the last few decades it has become the dominant species of subterranean termite in the region. They are categorized as a subterranean termite because of their behavior and the fact that they use the soil as their primary source of moisture. Their colonies can become very large ranging from 5 to 7 million insects per colony with multiple colonies per acre. Each mature colony has the potential of producing 70,000 swarmers/alates each spring. These swarmers can fly onto structures and create aerial infestations with no ground contact if there is a sufficient above ground moisture source. Moisture sources can include but are not limited to condensation, leaks, leaf litter/debris on roofs, moisture intrusion, gutters, etc.... All Formosan ground based infestations will eventually create an above ground nest. All aerial infestations will eventually seek out contact with the ground over time.

Formosans are also considered an arboreal termite species meaning they will infest and build nests in live trees. These nests will also be built in structures. Formosan nests and tubing material are commonly referred to as carton. Carton material may consist of fecal matter, saliva, soil, wood or any building material they can manipulate. They are a very aggressive species and are very adept at finding above ground moisture sources. **Some research has shown that active wood destroying fungi in moist wood produces byproducts that are attractive to termites and may mimic the trailing pheromones of termites.**

When encountering above ground activity either prior to or during a repair, the challenge is in identifying all areas of possible activity/damage and determining the original source of the infestation. **A person cannot determine the source of an infestation by simply looking at the carton nest or tubing material. All carton nests and tubing have the same appearance regardless of the source being ground based or aerial.** Special attention should be given to following all visible evidence of activity until it ends. Eliminating or reducing all above ground moisture sources is also a critical component in controlling an existing infestation. Unfortunately, the Formosan is a very resilient species and hidden activity remaining above ground in a structure may continue to survive for a long period of time after a repair if left undisturbed. If enough are present, one of the termites may develop into an auxiliary/secondary reproductive (if not already present) and begin laying eggs, potentially creating a new colony. In some situations, it may not be possible to find all areas of hidden activity within a structure.

If repairs are being made more quickly, inspections/treatments must be made during the course of the repair. The inspections and treatments must be arranged between the contractor and an experienced termite control professional to ensure all areas have been inspected and treated properly through the repair process. **It must be understood that established above ground activity in a structure cannot be controlled with treatment alone. The repair, with exposing the areas of activity and the physical removal of carton nest/damaged wood and moisture control is a significant part of the control process.**

Recommended Protocols

Inspection Phase (Enhanced Formosan Termite Inspection)

The main purpose of an Enhanced Formosan Termite Inspection is to find Formosan termite activity and/or conditions conducive to infestations that would not be discovered with a traditional termite inspection or basic CL-100 inspection prior to the area being disturbed.

- 1) In addition to your home's Exterior, Crawlspace, Garage and Trees in your yard, these areas will need to be carefully and thoroughly examine:
 - All Attic spaces
 - The Entire Interior of Your Home – all floor levels
 - Every window, even opening and closing each
 - Every exterior door, even opening and closing each
 - All Interior Plumbing
 - All Crawlspace Plumbing, pulling back insulation
 - All HVAC Ductwork, pulling back insulation
 - All interior walls utilizing an Infrared Camera
 - All interior walls and windows utilizing a Termatrac Radar Scan if needed of suspected activity
- 2) Create an Inspection Report and Digital Diagram to provide more documentation and location details
- 3) Take digital color photographs with captions documenting inspection findings
- 4) If at all possible any areas of activity or nests should be treated with Termidor Dry (or other injectable systemic termiticide) and allowed to sit undisturbed for 4 to 8 weeks before repairs begin. This will give the termites time to distribute the Termidor throughout their colony with the potential of killing them out. The level of control will be determined during the course of the repair as the areas are exposed.
- 5) Follow-up inspections and injection treatments should be performed every two weeks until known locations of activity have died out.

Demolition Phase

- 1) Expose all framing in any areas with visible or suspected termite activity and/or damage.
- 2) Particular attention should be given to any framing where two or more boards are framed together (headers, sills, corners, etc...).
- 3) Once exposed, all damaged areas should be evaluated/inspected by a trained/experienced expert proficient in the identification of wood destroying organisms and their damage.
- 4) Document findings with photographs and structural diagrams for reference during future/annual inspections

- 5) Areas with visible evidence of termite activity must be exposed until the **trail of evidence of termite activity ends and a few feet past (2 to 4')**. **This includes the removal of insulation. Foam insulation that has been mined through by termites must be removed until the evidence of activity ends.**
- 6) All structurally compromised wood and carton nests must be removed.

Repair Phase.

- 1) It is highly recommended that all new framing be made with kiln dried pressure treated lumber and plywood where possible
- 2) Prior to insulation being installed all areas of previous termite activity should be coated twice (2) with Bora-Care at a one (1) to one (1) solution (See attached specification sheet).
- 3) Original untreated framing that is not replaced should be coated twice (2) with Bora-Care or other approved product and framing where two (2) or more boards are framed together should be evaluated for an Injecta treatment (See attached specification sheet).
- 4) Coat the backside of the sheet rock once (1) with Bora-Care or other approved product if possible.
- 5) Treat both sides of the plywood sheathing before installation if not pressure treated material.
- 6) Once the plywood sheathing is installed the exterior should be treated a minimum of two (2) feet up from the final grade and two (2) feet around the perimeter of all doors and windows.
- 7) All areas of the brick foundation should be drilled at no more than twelve (12) inch intervals and treated with Termidor HE (see attached brochure and label) at two (2) gallons per ten (10) lineal ft. Precautions should be made to ensure that treatment does not flow into the interior of the residence.
- 8) Bora-Care treatments should be made with a light tracking dye to ensure even coverage. Caution needs to be taken to not get dye on finished interior or exterior surfaces. Treatment can be performed without dye.

Post Repair Phase

- 1) Once the repairs have been completed and the final grade has been established a complete treatment of the soil should be performed with Termidor HE. (See attached Brochure and label).
- 2) Inspect all trees on the property in close proximity of the structure for evidence of Formosan termite activity. If there is suspected termite activity, treat the tree with Termidor using a foam machine (See attached tree article "Out on a Limb"). Or recommend an experienced Arborist to evaluate and treat the trees.
- 3) Optional: Install a monitoring/bait system around the structure and nearby trees (See attached brochure on Advance system).
- 4) Inspect the structure annually paying special attention to above ground moisture issues and areas of previous activity noted on the diagram generated during the Demolition Phase. Document the findings of the inspection with photographs and provide a copy of the report, diagram, and photographs to Property Owner annually. It is recommended that an Enhanced Formosan Termite Inspection be performed annually verse a traditional termite inspection of just the exterior and crawlspace.

It must be understood that Formosan termite control is a long-term process and not a single treatment event. **Special attention must be given to above ground moisture issues over time and routine maintenance addressing these issues in a timely manner is critical.** It is not “If” a Formosan termite infestation will occur but “When” in the future, even on structures that have been treated. Treatments and organic matter will break down over time creating bridges of untreated soil over the treatment zones; therefore, retreatments must be made to reestablish the chemical in the treatment zones.

With the Formosan Termite species infestations can occur even if treatments and inspections are performed perfectly. The goal should be to minimize the potential for damage to occur until the infestation is discovered with utilization of resistant materials/design, proper maintenance and moisture control. An inspection/treatment program that potentially reduces the overall termite population in the area may ultimately reduce the termite pressure around a structure(s) and the odds of a future infestations.

As stated previously, it must be understood that established above ground Formosan Termite activity in a structure cannot be controlled with treatment alone. The repair, with exposing the areas of activity and the physical removal of carton nest/damaged wood and moisture control, is a significant part of the control process.

Please understand these are recommendations and they can be modified to fit any situation with the proper collaboration between an experienced termite control professional and licensed contractor or structural expert.

Created by:
Bert Snyder
Graduate Entomologist, Clemson '90