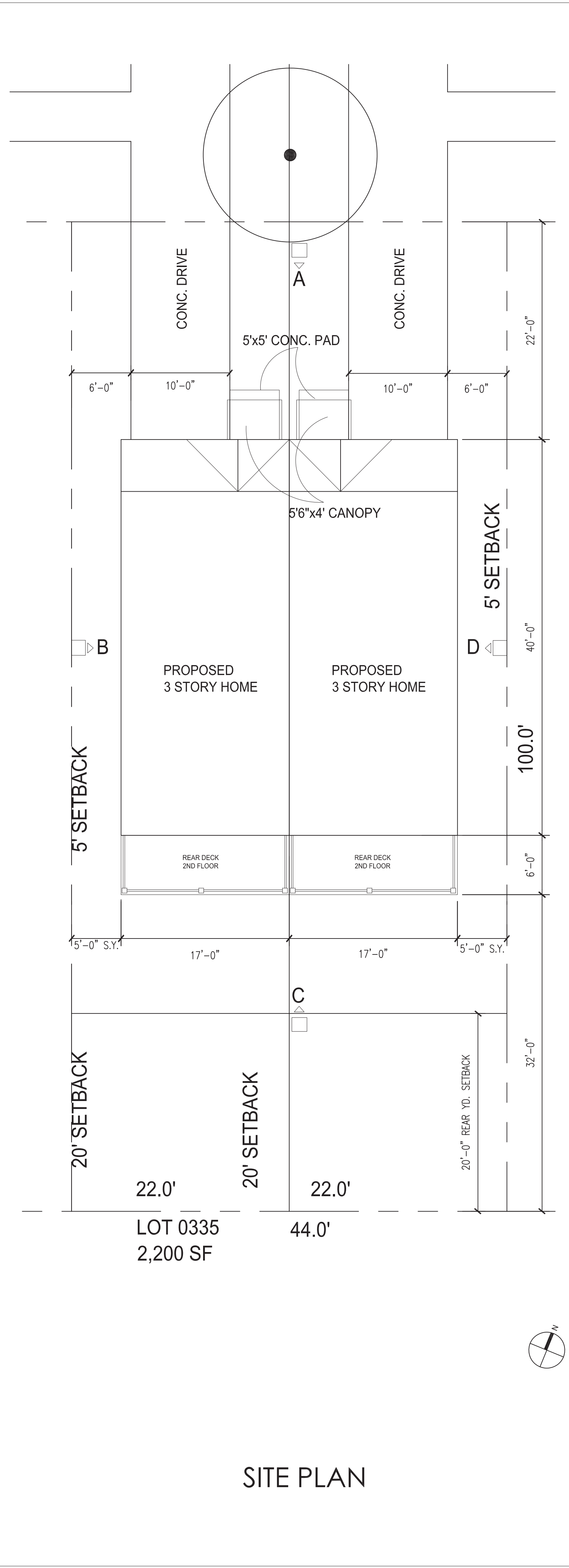
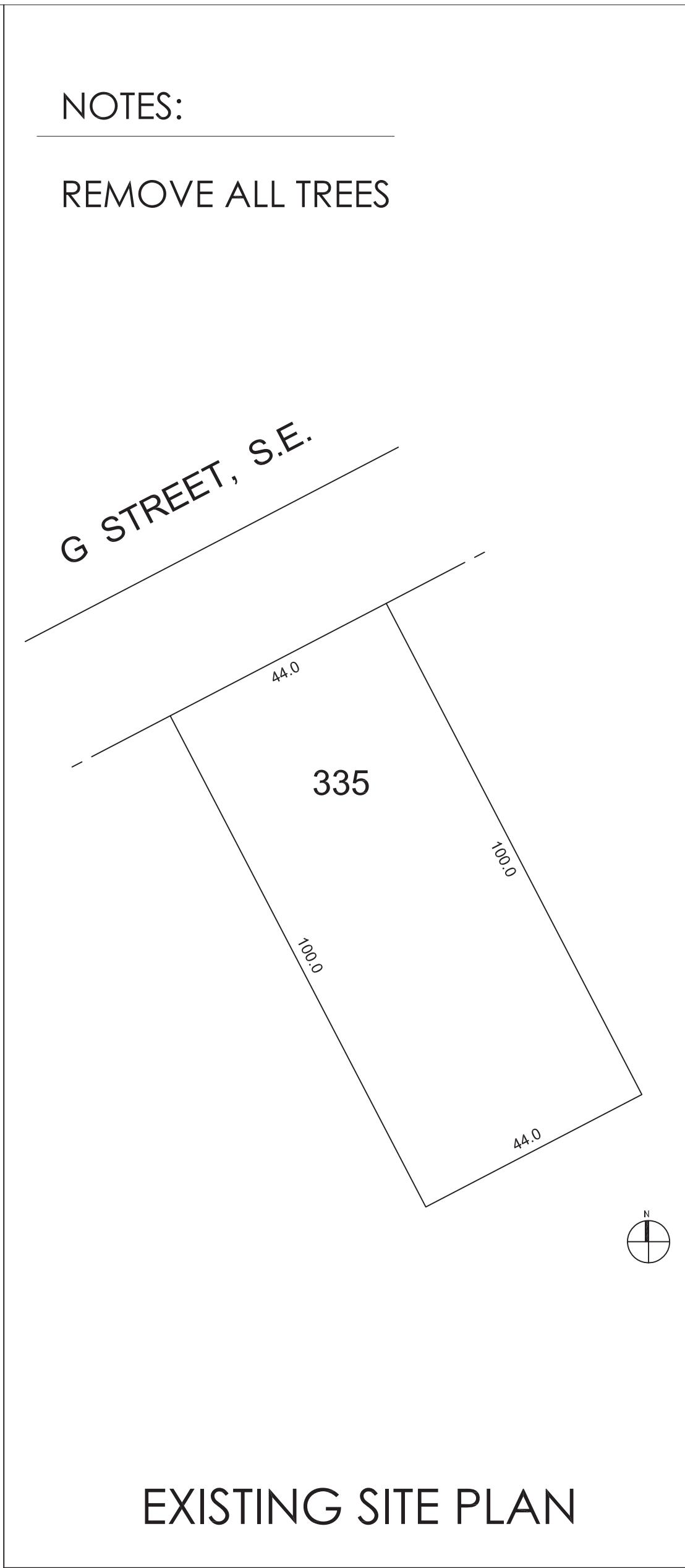


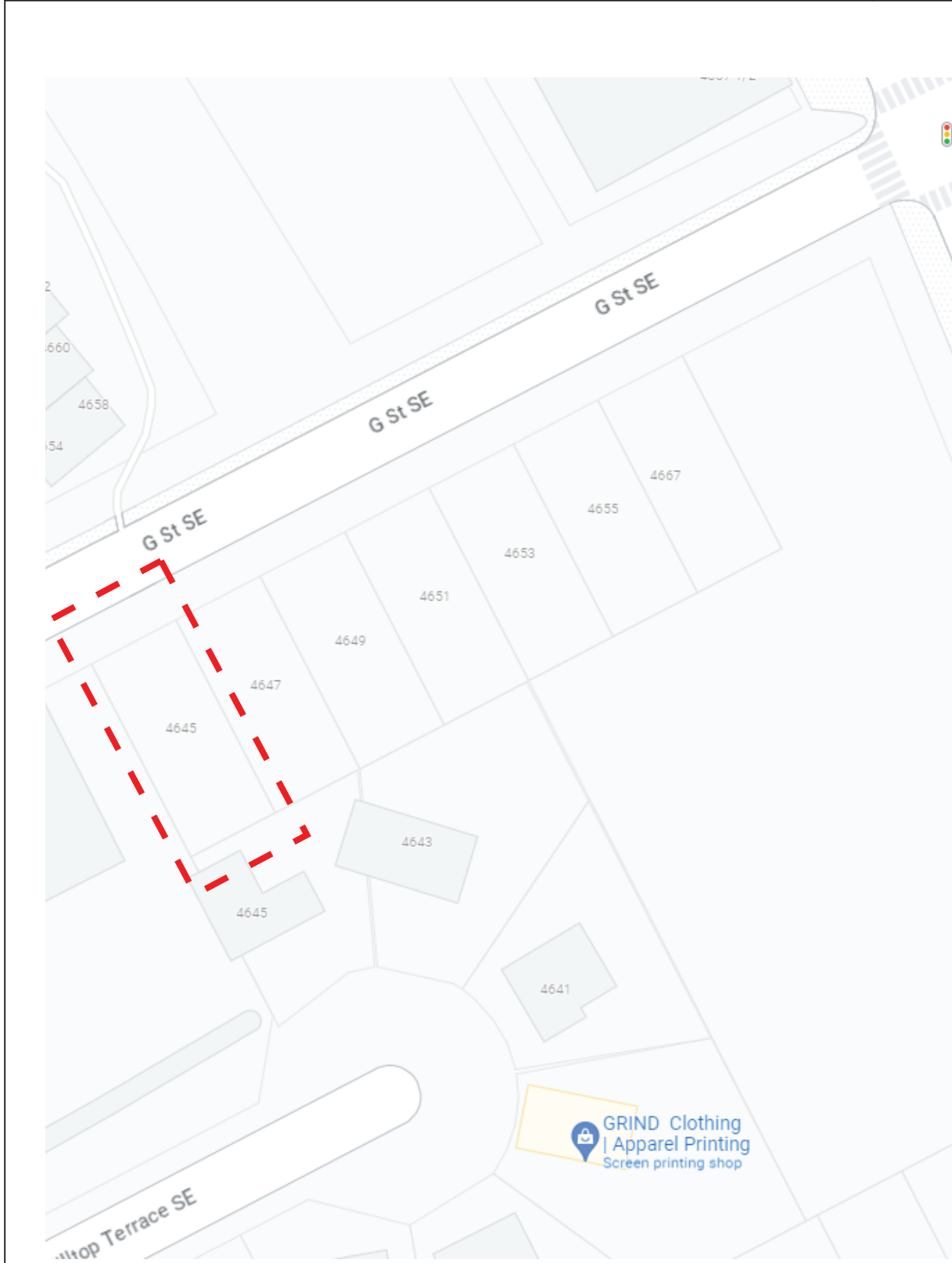
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SITE PLAN

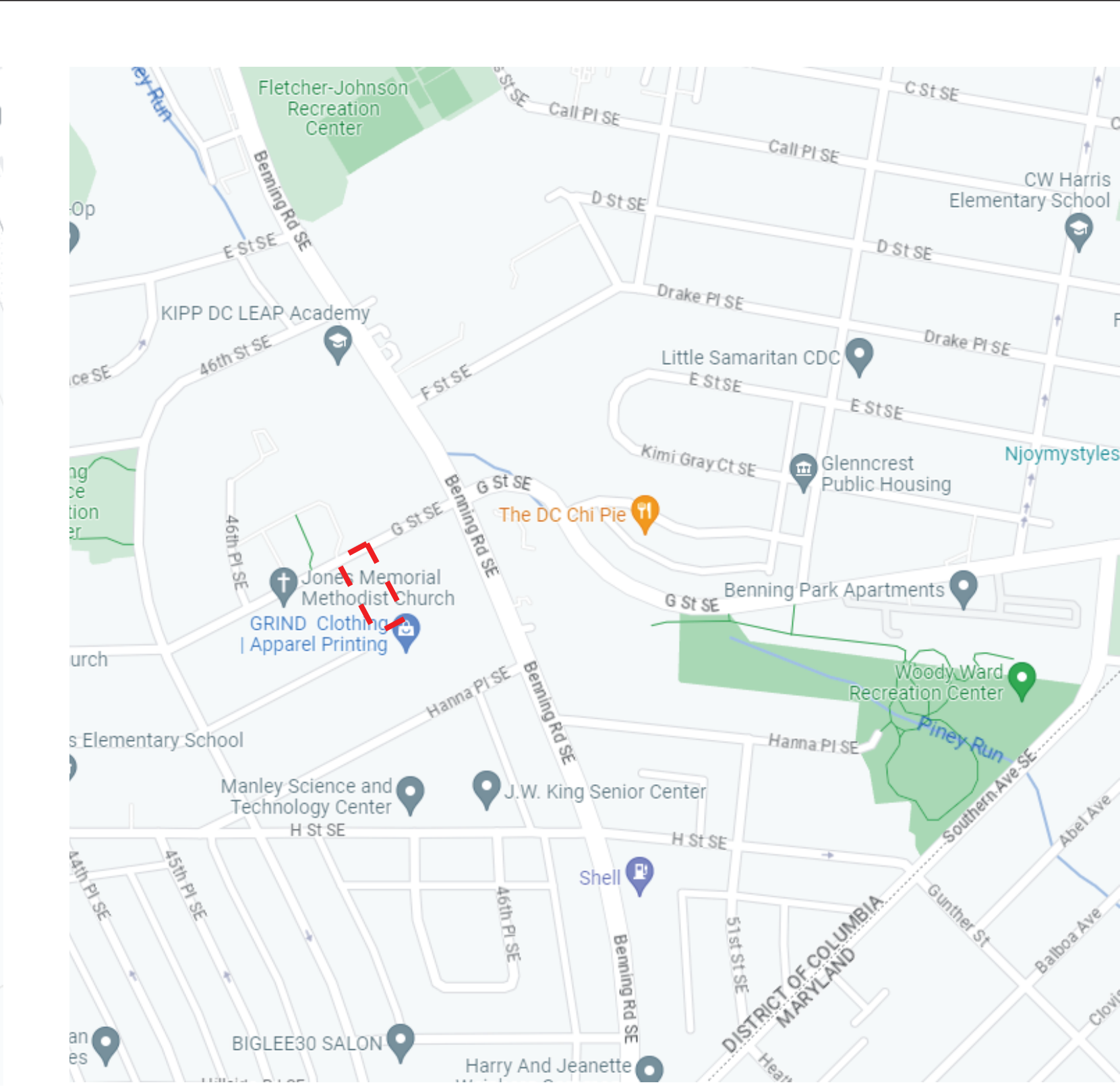


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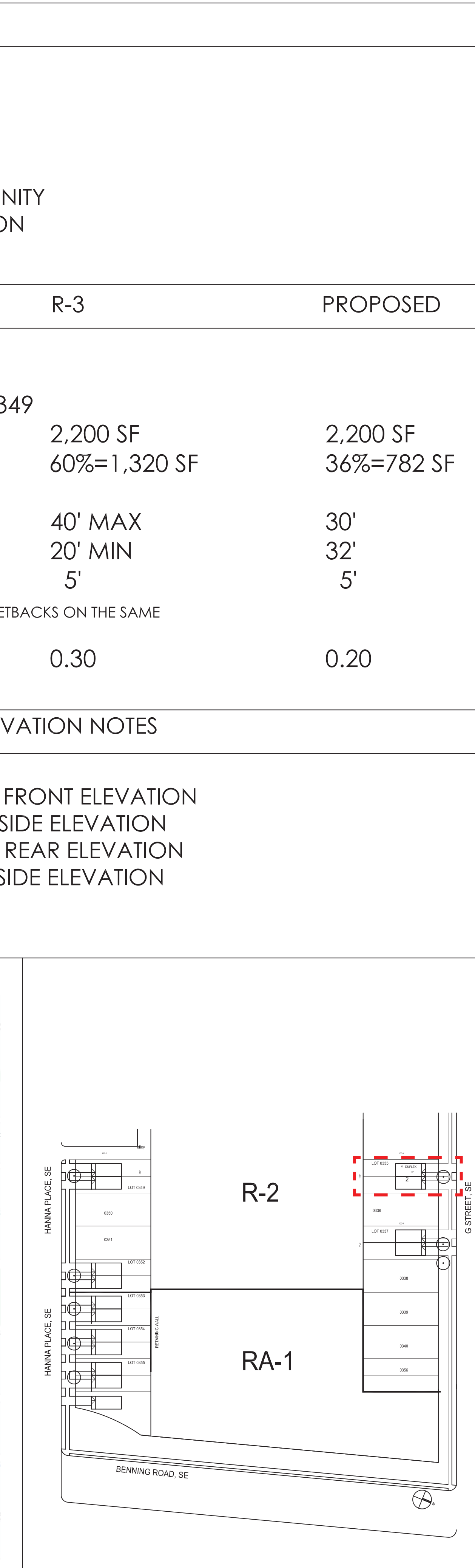


LOCATION MAP

PROJECT DATA			
NAME OF JURISDICTION:	WASHINGTON, DC		
PROJECT NAME:	HILLTOP TERRACE II		
PROPERTY ADDRESS:	4645 G STREET SOUTHEAST WASHINGTON, D.C. 20019		
PROPERTY OWNER:	MARSHALL HEIGHTS COMMUNITY DEVELOPMENT ORGANIZATION		
BUILDING DESCRIPTION:	RESIDENTIAL		
ZONING DATA	R-2	R-3	PROPOSED
SSL NO:	5359		
LOT NO:	0335	0349	
SITE AREA:	4,400 SF	2,200 SF	2,200 SF
LOT OCCUPANCY:	40% = 1,760 SF	60%=1,320 SF	36%=782 SF
MAXIMUM STORIES:	3		
BUILDING HEIGHT:	40' MAX	40' MAX	30'
REAR YARD:	20' MIN	20' MIN	32'
SIDE YARD:	8'	5'	5'
FRONT YARD:	NO LESSER OR GREATER THAN EXISTING SETBACKS ON THE SAME BLOCK		
GREEN AREA RATIO:	N/A	0.30	0.20
BUILDING INFORMATION		ELEVATION NOTES	
GROUND FLOOR:	680 SF	A - FRONT ELEVATION B - SIDE ELEVATION C - REAR ELEVATION D- SIDE ELEVATION	
SECOND FLOOR:	680 SF		
THIRD FLOOR:	680 SF		
TOTAL	2,040 SF		
DECK:	102 SF		



VICINITY MAP



KEY PLAN

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KK ENGINEERING
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COLUMBIA MD 21045
LANDSCAPE/GAR
PUSH STUDIOS.LLC.
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WASHINGTON DC 20011

CLIENT NAME
MARSHALL HEIGHTS COMMUNITY DEVELOPMENT ORGANIZATIONS

PROJECT ADDRESS
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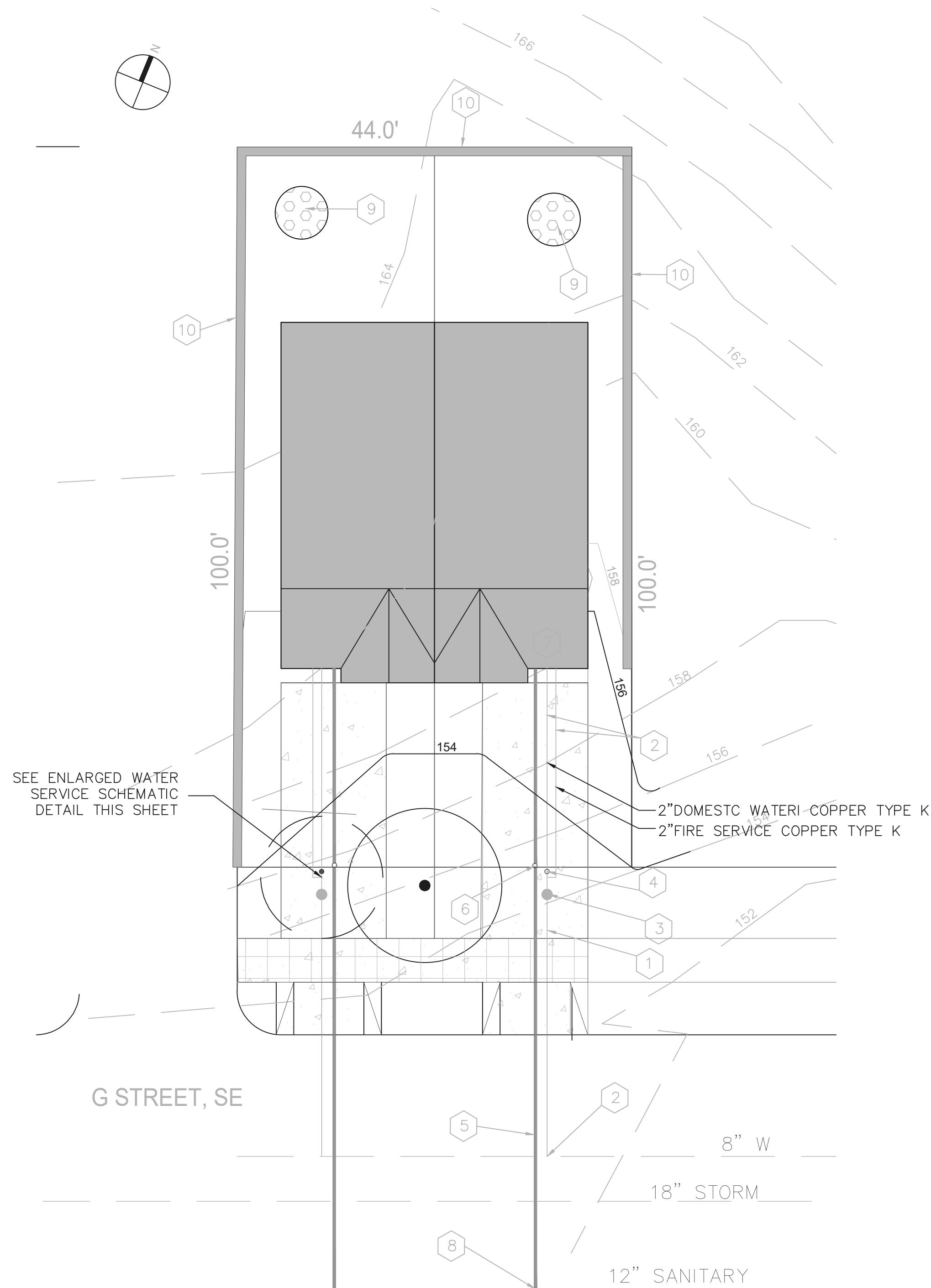
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DRAWING TITLE
PROJECT DATA

SHEET. NO.
G001



TYPICAL SITE UTILITY PLAN (LOT 335)
SCALE: 1"=10'

NARRATIVE

THIS SITE UTILITY PLAN IS FOR LOT 335 BLOCK 5359, AND A LOT AREA OF 4400. A DUPLEX SINGLE FAMILY RESIDENTIAL BUILDING IS PROPOSED. OF THE HILL TOP DEVELOPMENT IT INDICATES THE REQUIRED WET UTILITIES (SEWER AND WATER) POSSIBLE STORMWATER MANAGEMENT FACILITY (DRY WELL) AND SIDEWALKS AND DRIVEWAY APRONS. THE SITE HAS A HILLY TERRAIN AND THEREFORE IN ORDER TO PROVIDE ADEQUATE AREA FOR THE PROPOSED DUPLEX UNIT SIGNIFICANT RETAINING WALLS HAVE TO BE PROVIDED. THE HEIGHTS RANGE FROM 4 FEET TO FIFTEEN FEET AND POSSIBLY TALLER FOR OTHER SITES.

SITE UTILITY KEY NOTE

- 4

4

4

4

CONCRETE SIDEWALK
- 4

4

4

4

CONCRETE PAVEMENT
- 1

INSTALL NEW 2" TYPE K COPPER COMBINED WATER SERVICE
- 2

INSTALL NEW CORPORATION STOP.(SEE DC WATER STD W80.01)
- 3

INSTALL NEW 2"WATER METER(SEE DC WATER STD W80.01)
- 4

INSTALL NEW CURB STOP (SEE DC WATER STD W80.01)
- 5

INSTALL NEW 6" PVC SCHEDULE 40 SANITARY LINE
- 6

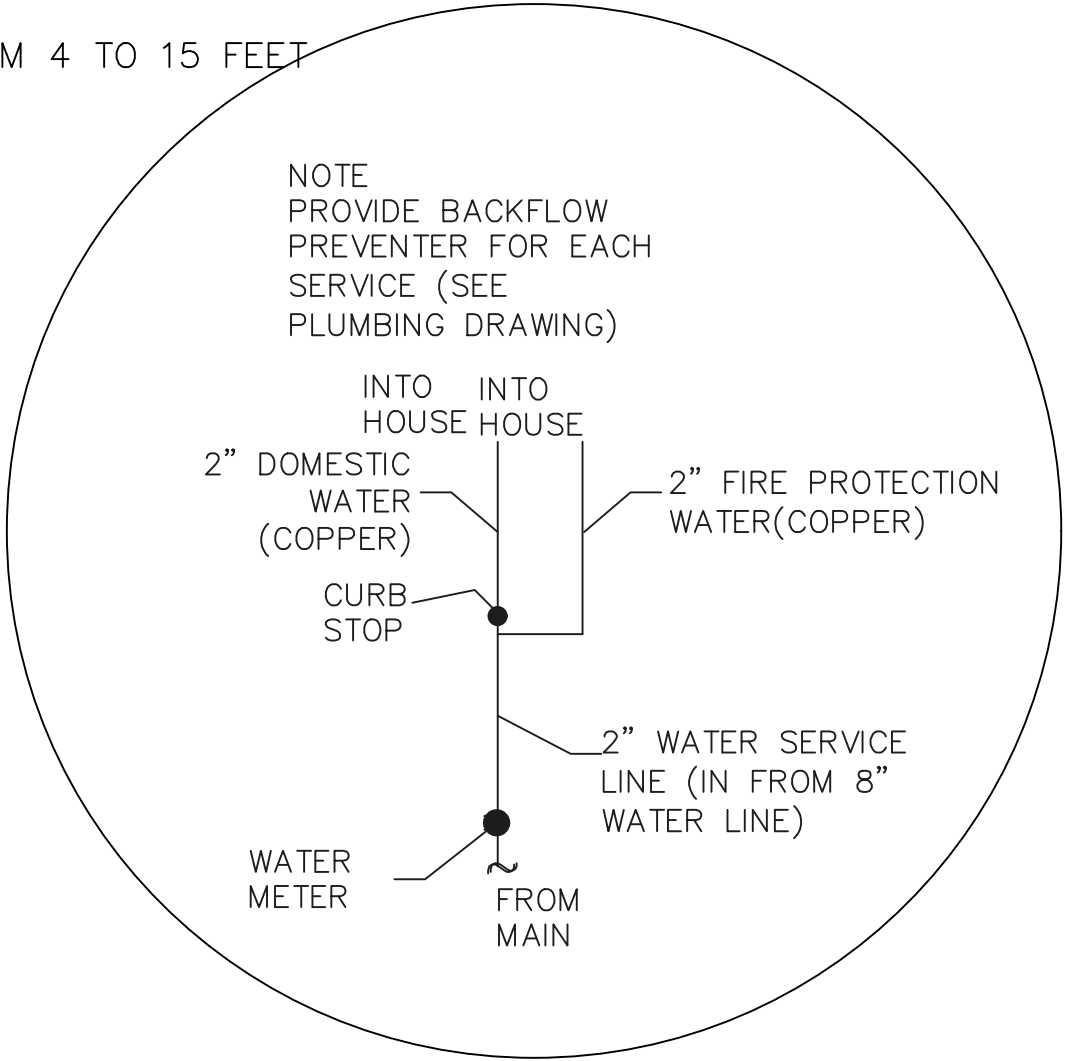
NEW 4" DIA. PVC CLEANOUT (DC WATER STANDARD S 80.2)
- 7

INSTALL ASSE 1015 AND ASSE 1013 BACKFLOW PREVENTER FOR FIRE AND DOMESTIC WATER RESPECTIVELY INSIDE BUILDING
- 8

CONNECT NEW 6" SANITARY TO EX 12" SEWER USING 6'X12" WYE BRANCH
- 9

LOCATION OF DRY-WELL SWM FACILITIESSETRAIN SEE DETAIL ON SHEET GAR-3
- 10

RETAINING WA WALL HEIGHT VARIES FROM 4 TO 15 FEET



NEW DOMESTIC AND FIRE
PROTECTION DETAIL

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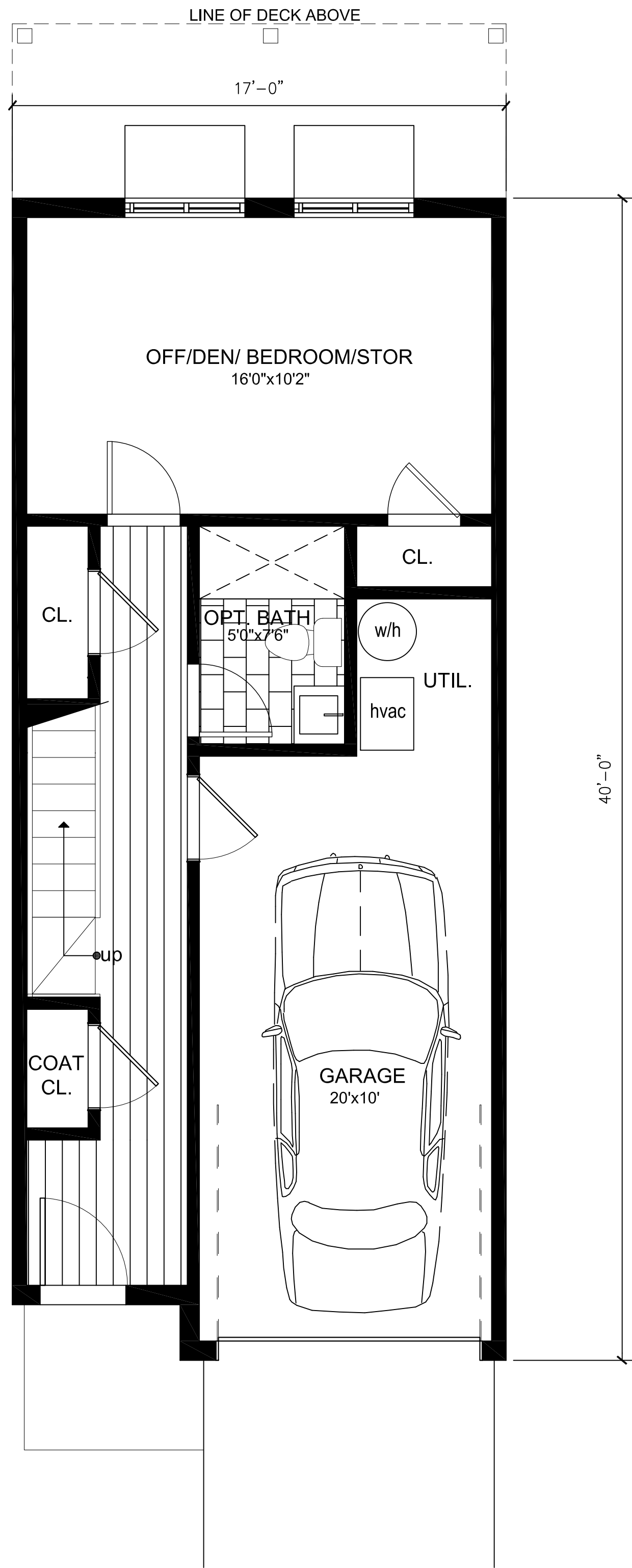
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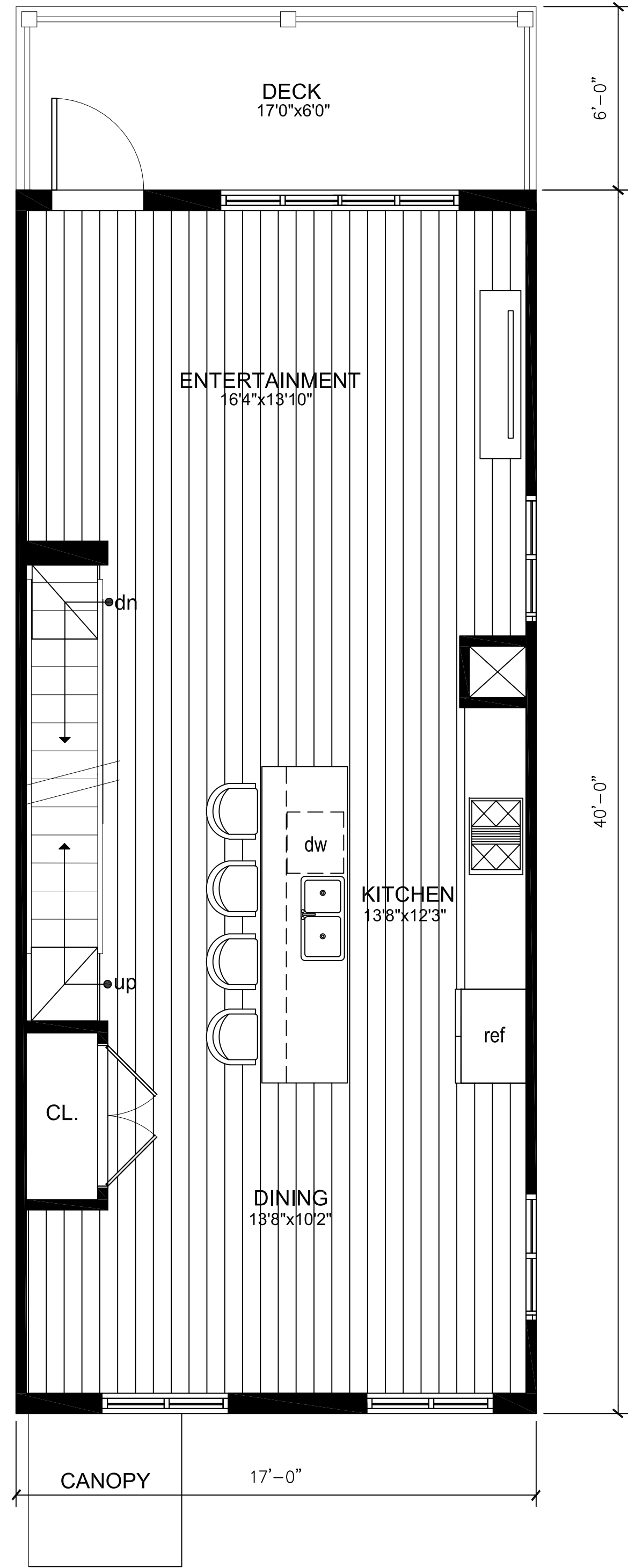
SITE PLAN

SHEET. NO.

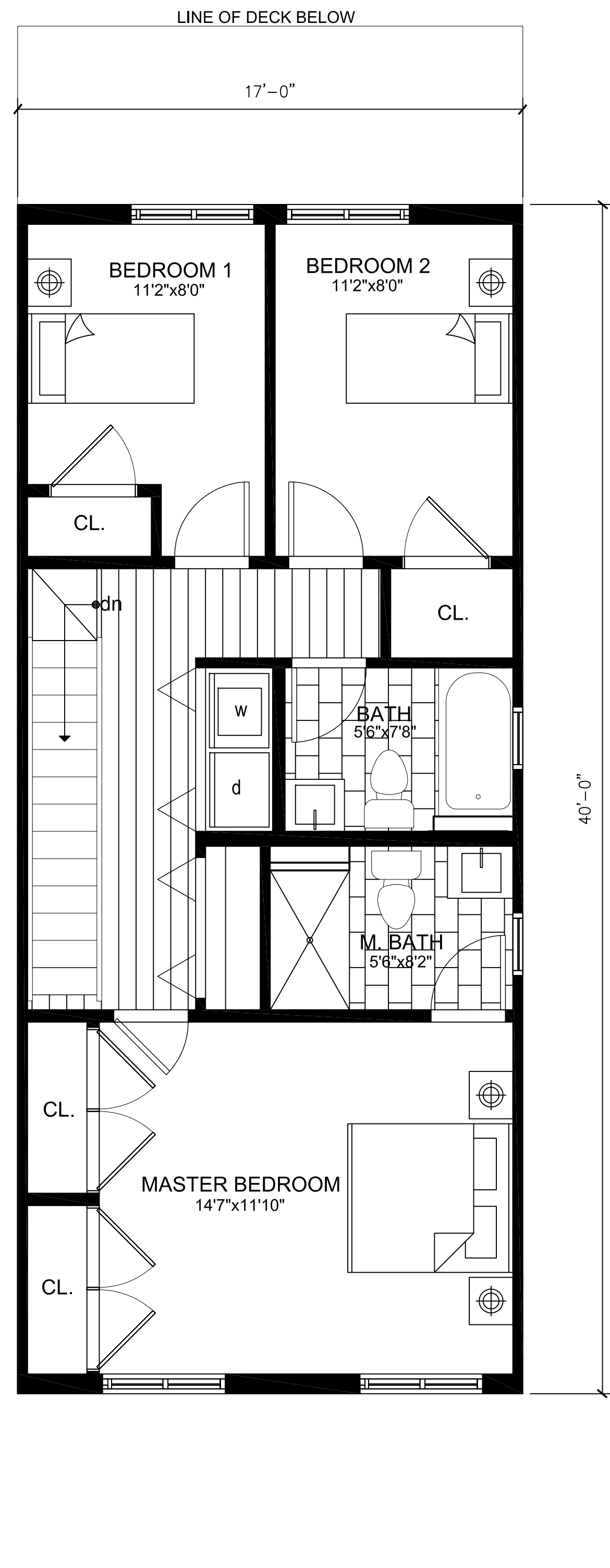
CIV-100



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

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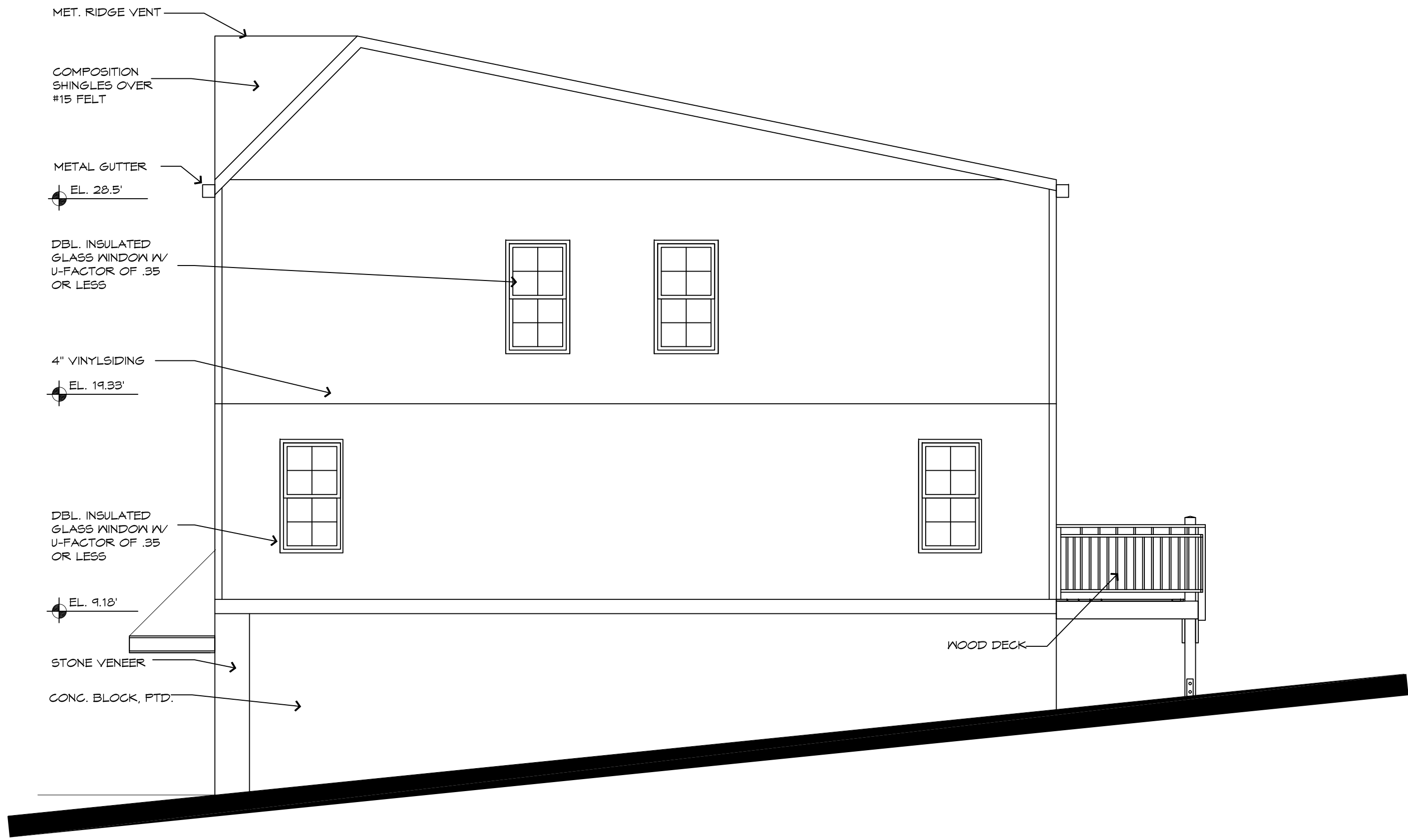
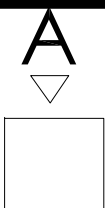
FLOOR PLAN

SHEET. NO.

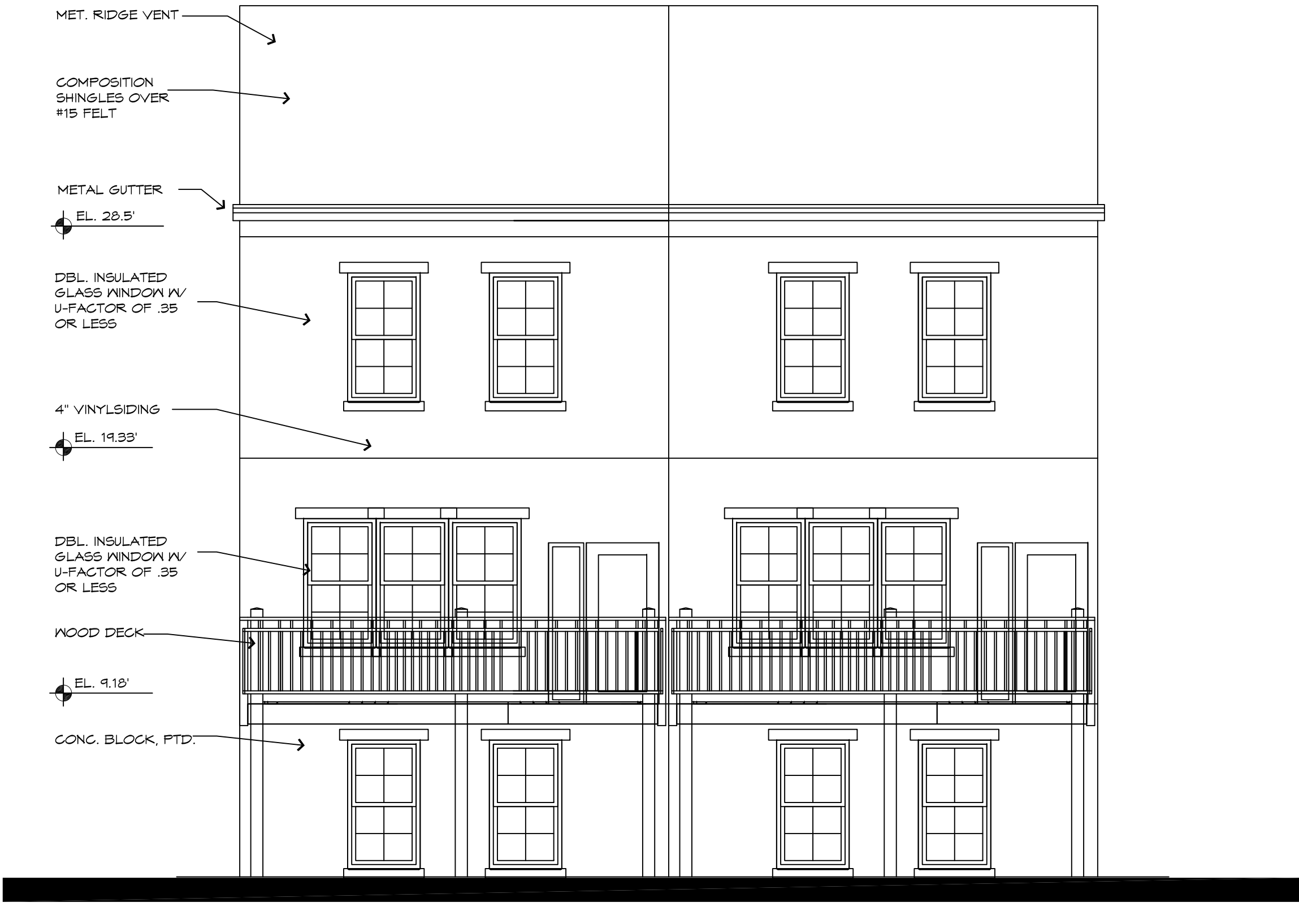
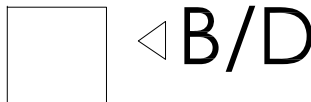
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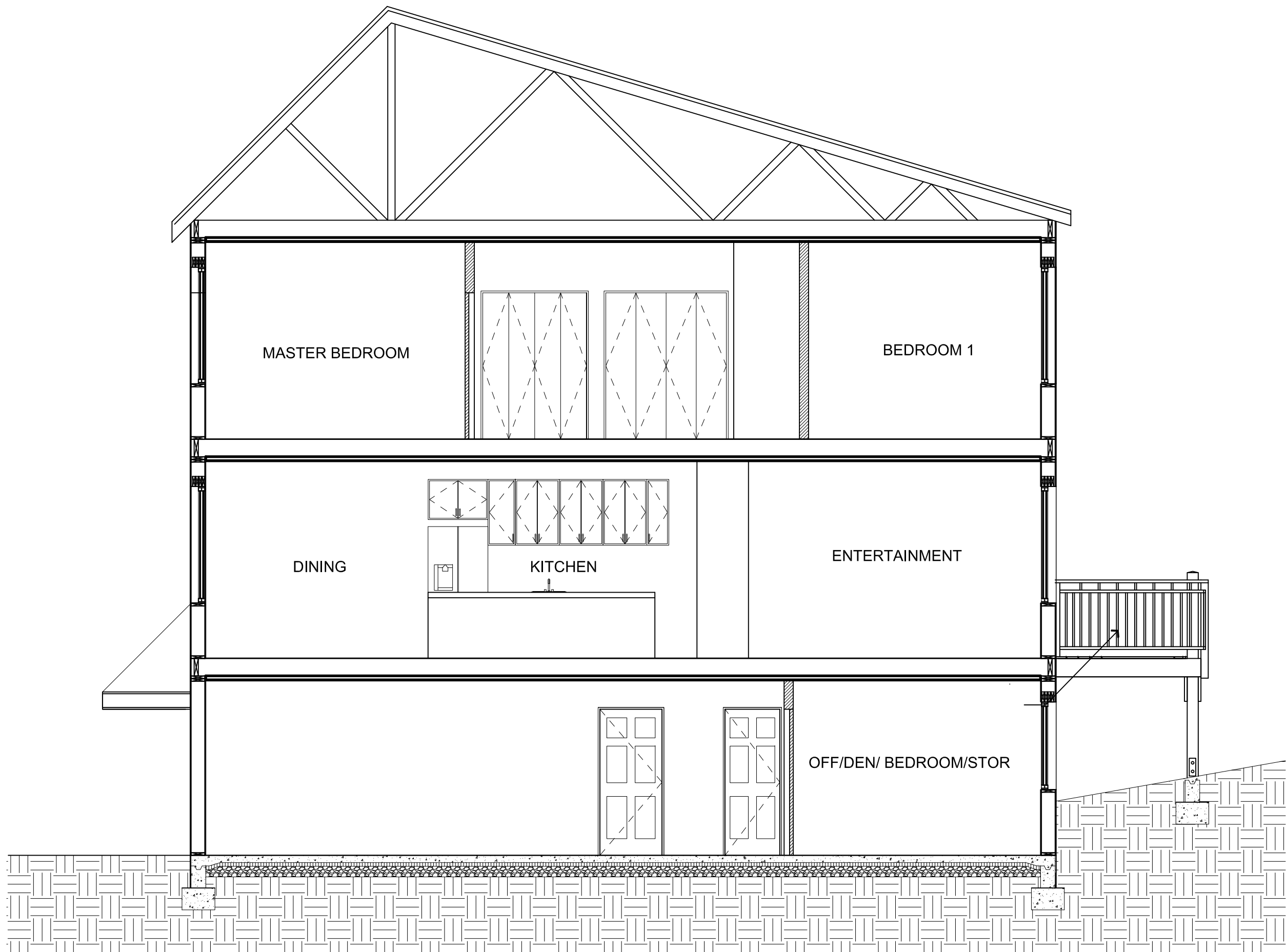
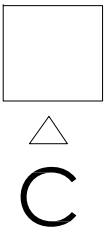
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



LONGITUDINAL SECTION

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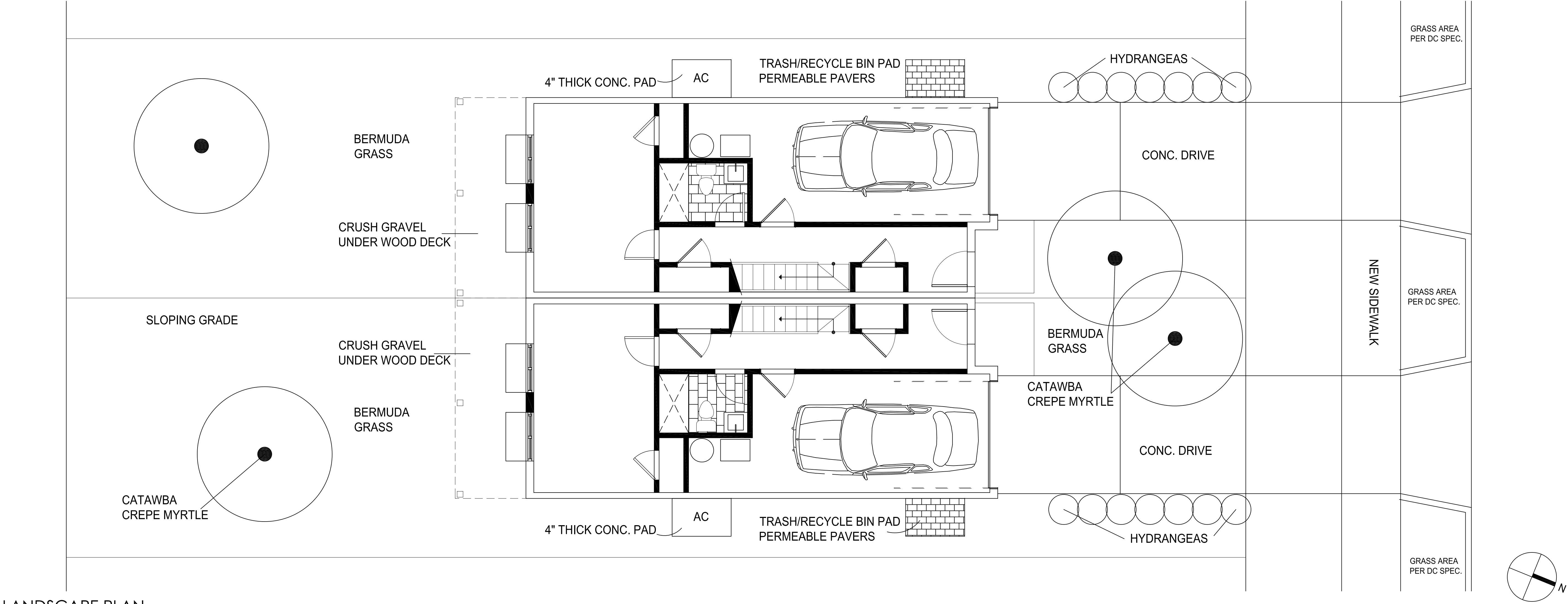
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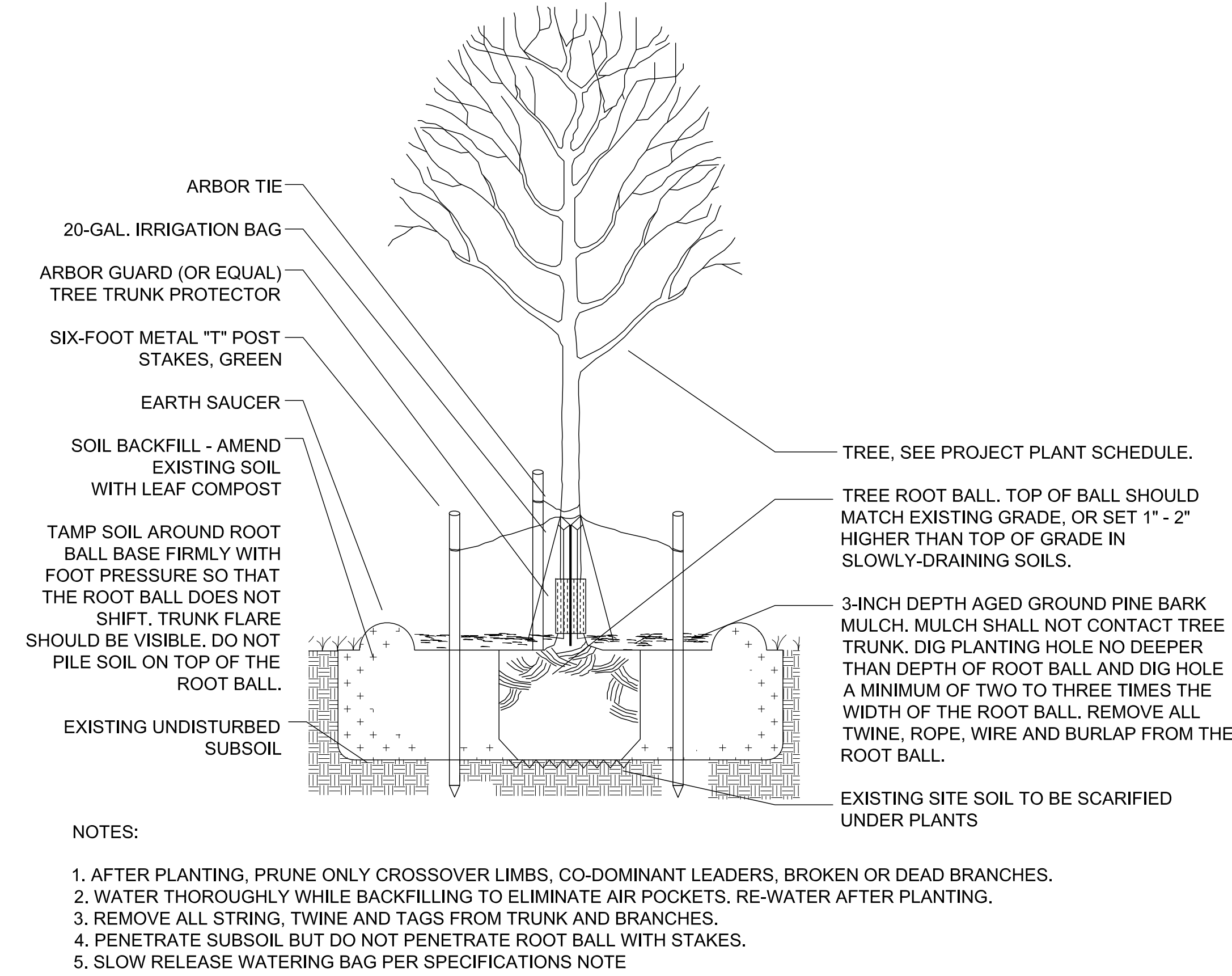
**ELEVATIONS
& SECTION**

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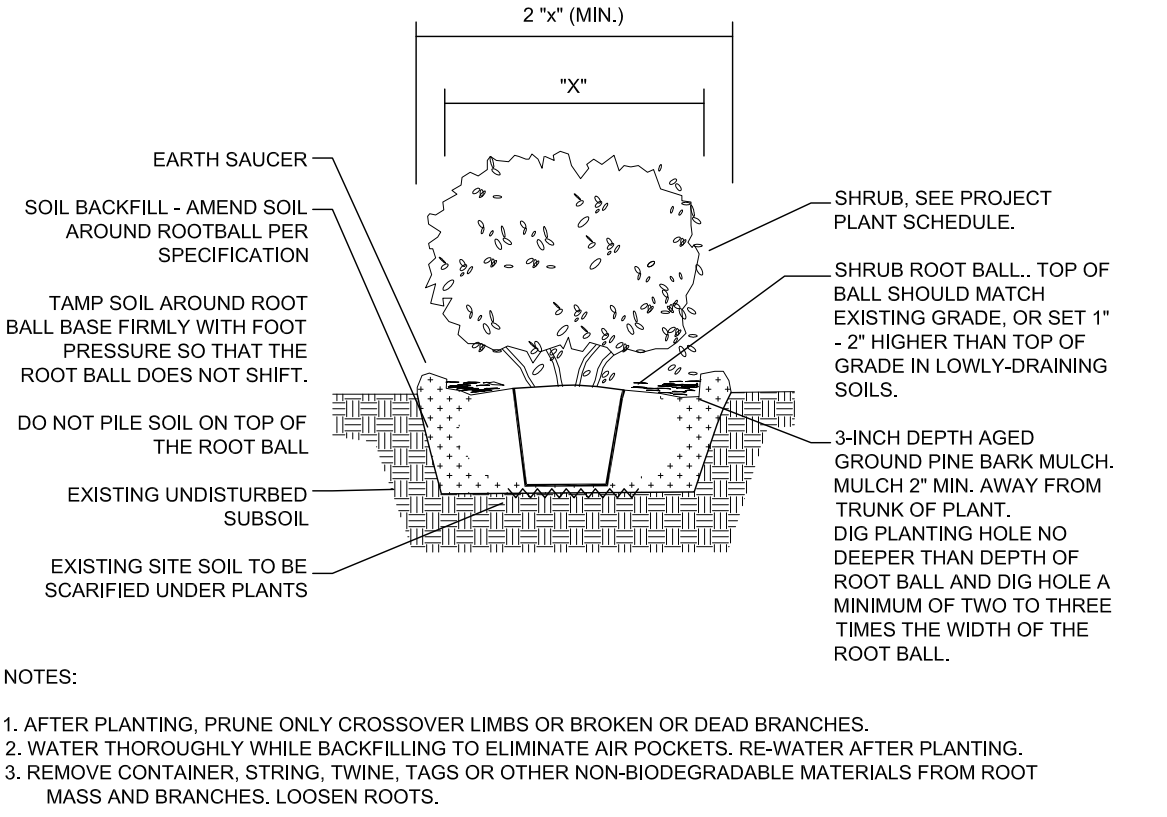
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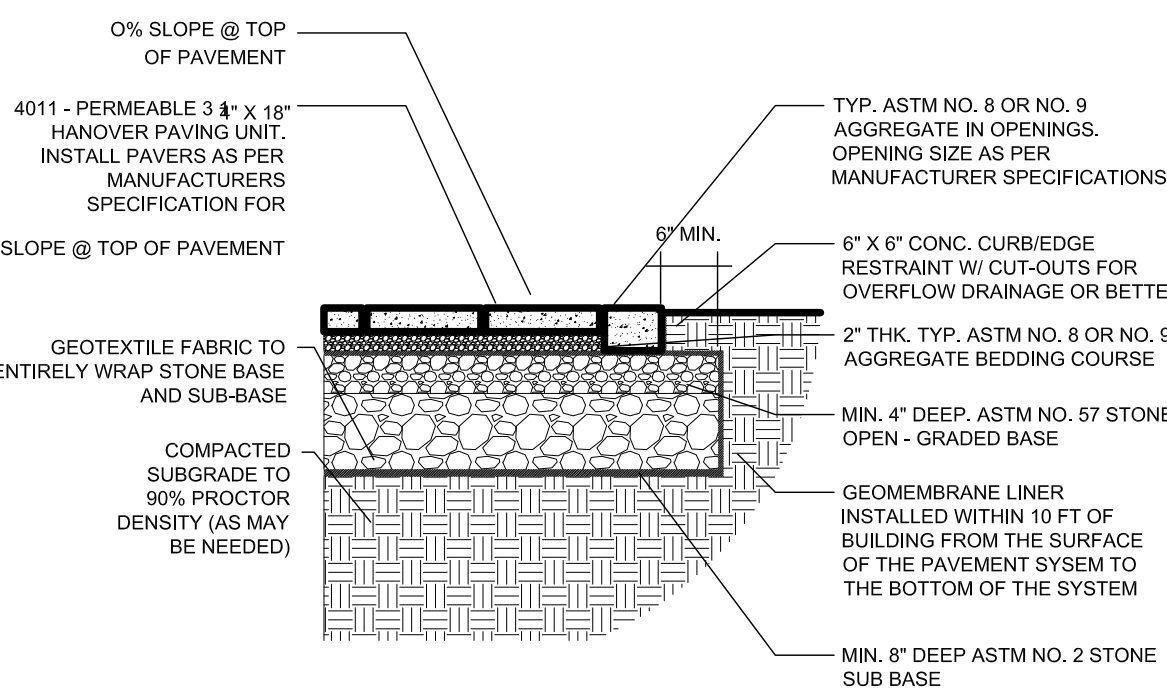
LANDSCAPE PLAN



TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

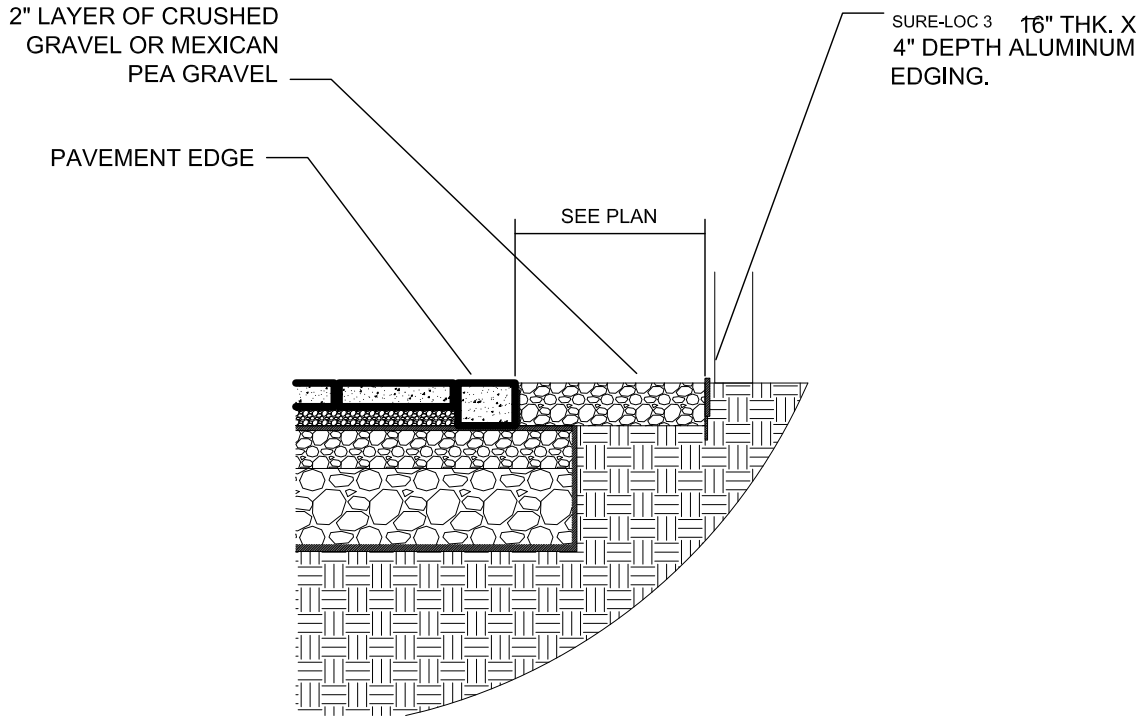


PERMEABLE PAVER DETAIL

PLANT NOTES:

Plants shall be true to species and variety specified and nursery-grown in accordance with good horticultural practices under climatic conditions similar to those in the locality of the project for at least two years. They shall be freshly dug. All plant names and descriptions shall be as defined in Hortus Third.

All locations for trees shall be flagged by the and approved by Owner's representative prior to excavation. The Contractor shall be responsible for contacting Miss Utility to verify the location of underground utilities prior to location flagging or excavation. As far as is practical, plant materials shall be planted on the day of delivery. In the event this is not possible, the Contractor shall protect that stock not planted from sun or drying winds and shall keep the plants well watered and stored in the shade. Plants shall not remain unplanted for longer than three days after delivery. Plants shall not be bound with wire or rope at any time so as to damage the bark or break branches. All plants shall be lifted and handled from the bottom of the ball only. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations.



GRAVEL EDGE DETAIL

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SCHEMATIC SUMMARY PLAN

SHEET. NO.

LOO1

MEP

Mechanical, Electrical, Plumbing and Fire Protection systems will be designed in accordance with the following building codes:

- 12 DCMR, DC Construction Codes Supplement (2013)
- 2017 District of Columbia Building Code
- 2013 District of Columbia Property Maintenance Code
- 2013 District of Columbia Green Construction Code
- 2017 District of Columbia Energy Conservation Code
- ASHRAE 90.1-2010 q 2013 District of Columbia Fire Code
- 2013 District of Columbia Mechanical Code
- 2013 District of Columbia Plumbing
- National Electrical Code (NEC) 2011 Edition w/ 2003 amendments.
- 2015 ICC Fuel Gas Code.
- National Fire Protection Association (NFPA).
- Enterprise Green Communities

Heating and air conditioning load computations will be in accordance with the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), Inc. Trace 700, Version 6.3.4 software program will be utilized.

Lighting design will in accordance with the Illuminating Engineering Society of North America (IESNA) Lighting Handbook - Tenth Edition

A major goal of the mechanical and electrical systems will be to minimize energy requirements while satisfying the design criteria. Equipment and controls will be selected to minimize energy demand charges and to comply with ANSI/ASHRAE Standard 90.1-2010. Control strategies will be used to de-energize systems and reduce ventilation during unoccupied hours; carbon dioxide sensors will reduce energy consumption during low occupancy periods; night setback and hot water temperature reset schedules will be utilized; all air handling systems will be designed for economizer operation; variable flow air and water systems will be utilized as herein described to align output and energy consumption with demand; high efficiency motors, variable frequency controllers (V FCs), energy efficient LED lighting fixtures and ballasts, and water saving plumbing fixtures will be utilized where appropriate

Mechanical and electrical systems will be designed in accordance with the following criteria:

Description Design Criteria			
Season	Cooling Season		Heating
Outdoor Design	94°FDB	/ 77°FWB	17°FDB
Indoor Design- General	75°FDB	/ 50%RH	70°FDB
+2°F			

Utilities
Domestic Water and Fire (from municipal service water main at approximately 58 psig static)
Natural Gas (from Washington Gas service): low pressure

Electric (from PEPCO service):
208Y/120V 3 phase, 4 wire

- Specific points on the new DOC system will include:
- Status and alarm of all HVAC systems and equipment
 - Start/stop of all HVAC systems and equipment
 - Temperature indication of all spaces
 - Air flow indication of all air systems and each space air terminal unit
-
- Temperature, pressure or RH measurement of all critical control points in HVAC systems
 - Set point adjustment of all control points
-
- Equipment lead-lag, system occupied-unoccupied, and damper/valve open-close selection

Testing, Adjusting, And Balancing

- All air and water systems shall be tested, adjusted and balanced in accordance with AABC or NEBB procedures.
- Pressurized duct leakage testing will also be required for all medium pressure duct systems, to be witnessed by the TAB Contractor.

Commissioning

- All heating, ventilating, and air conditioning (HVAC) systems will be commissioned.

Heating & Cooling System

- The Main HVAC System will be Variable Refrigerant Flow (VRF). The VRF system is a heat pump air-condition system configuration where there is one outdoor modular condensing unit and multiple indoor Air Handling units. The VRF system will have heat recovery system that simultaneously cools and heats different zones within a building
- The outdoor condensing units locations will be within a screened enclosure on the roof.
- Each residential unit will be equipped with a dedicated dx heating/cooling fan coil unit, located above the ceiling of the bathroom.
- Each common area & corridor will be cooled/ heated with a dedicated dx fan coil unit, located above the ceiling area.

Exhaust System

- Bathroom exhaust fans, dryers exhaust ducts, kitchen exhaust ducts will be provided & terminate through exterior walls.
- Central Bathroom, dryer & kitchen exhaust fans will be provided & be terminated at the roof.
- Garage exhaust fan will be provided & be terminated at the roof.

Electrical Distribution

- 208Y/120-volt, 3 phase electric service will be fed underground in conduit from the electric meter service to main PEPCO Transformer/Vault.
- A 208Y/120-Volt, 3ph, 4W, 1200-Ampere main Distribution switchboard will serve building large loads.
- A 208Y/120-Volt, 3ph, 4W 1600-Ampere main circuit breaker with 80-125A, 208Y/120Volt, 1ph, 3W meters will serve residential units loads.

Lighting

- New LED, stem suspended, surface, direct/indirect lighting fixtures will be provided in the interior spaces. Lighting will be dimmable.
- Lighting design and layouts will be in accordance with recommended practices in the Illumination Engineering Society of North America (IESNA) Lighting Handbook.
- Exterior lighting on residence will be provided.
- Exterior lighting will be controlled through photocell/ motion sensors & time clock.

Fire Alarm
Audiovisual and Telecommunications Infrastructure

- Two 4 conduits will be routed underground from the electrical to the Verizon & Comcast infrastructure.
- Telecommunications outlets will be provided to accommodate the architectural layout and as recommended by Banneker information technology staff.

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MEP

NARRATIVE

SHEET. NO.

NAR

1

MEP

Plumbing Fixtures

- New plumbing fixtures will be provided in the bathroom, kitchen room. Fixtures will include flush tank operated water closets & kitchen sinks. Fixtures will be water-conserving & water sense labeled.
- Floor drains will be provided with trap priming connections to prevent trap seal evaporation. Piping will be extended from an automatic trap-priming panel to the new traps.
- Hose bib with integral vacuum breaker, will be provided at front of building.

Domestic Water

- Domestic potable and fire protection water will be provided from main water service pipes.
- Gas fired water heaters will be provided to serve domestic hot water system. A thermostatic mixing valve will be provided to limit supply water temperature to 110°F as required by ASHRAE 90.1- 2010. expansion tanks will be provided at the water heaters to comply with the plumbing code.
- All domestic water piping will be hard tempered seamless copper water tube with lead-free solder joints or CPVC. All domestic water piping will be provided with pre-molded fiberglass type insulation.

Sanitary

- Sanitary waste from the home plumbing fixtures will be connected to the sanitary main. Sanitary vents connect to stacks or will be extended up through the home via vent stacks and piped through the roof.
- All sizes for above ground piping will be schedule 40 PVC while all sizes for underground piping will be Schedule 80 PVC service class pipe and fittings with gasketed joints.

Storm Water

- Roof storm water are piped outside the building, with rain leaders collected by bioretention. Refer to civil narrative

Fire Protection Systems

- All fire protection systems will be designed in accordance with NFPA 13.

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STRUCTURAL

GENERAL NOTES

I. DESIGN CRITERIA

- A. GENERAL BUILDING CODE
THE CONTRACT DOCUMENTS ARE BASED ON REQUIREMENTS OF IRC 2015 AND LOCAL CODE AMENDMENTS
- B. DEAD LOADS
1. ACTUAL WEIGHT OF PARTITIONS HAS BEEN APPLIED AS A UNIFORMLY-DISTRIBUTED DEAD LOAD
 2. AN ALLOWANCE OF 5 PSF HAS BEEN APPLIED AS A UNIFORMLY-DISTRIBUTED SUPERIMPOSED DEAD LOAD FOR HANGING CEILING AND MECHANICAL LOADS, SUCH AS DUCTWORK, SPRINKLER PIPES, AND MECHANICAL EQUIPMENT LOADS.
 3. AT SUPPORT FOR SPINKLER LINES, THE STRUCTURE HAS BEEN DESIGNED FOR A CONCENTRATED LOAD OF 150 POUNDS, IN ADDITION TO THE FULL WEIGHT OF SPRINKLER PIPING SCHEDULED BELOW:
- | NORMAL PIPE SIZE | WEIGHT |
|------------------|---------|
| 6 INCH | 33 PLF |
| 8 INCH | 50 PLF |
| 10 INCH | 75 PLF |
| 12 INCH | 99 PLF |
| 16 INCH | 160 PLF |

- C. LIVE LOADS
1. LIVE LOADS PRODUCED BY THE USE OR OCCUPANCY OF THE STRUCTURE HAVE BEEN INCLUDED IN THE DESIGN, BASED ON THE FOLLOWING OCCUPANCIES:

OCCUPANCY OR USE	UNIFORM LOAD (PSF)	CONCENTRATED LOAD (LB)
RESIDENTIAL (HOTELS AND MULTIFAMILY DWELLINGS)		
BASIC FLOOR AREA	40	~
CORRIDORS	100	~
EXTERIOR BALCONIES (<100 S.F.)	60	~
BALCONIES (>100 S.F.)	100	~
STORAGE		
LIGHT STORAGE	125	~
YARDS AND TERRACES (PEDESTRIAN TRAFFIC ONLY)	100	~
SIDEWALKS, VEHICULAR DRIVEWAYS AND YARDS, SUBJECT TO TRUCKING	250	8000
STAIRS AND EXITS		
TYPICAL	100	SEE BELOW

- THE STRUCTURAL DESIGN IS BASED ON THE GREATER OF THE EFFECTS OF THE UNIFORM LOADS NOTED ABOVE OR THE CONCENTRATED LOADS NOTED ABOVE (ASSUMED TO BE DISTRIBUTED OVER AN AREA 2.5 FEET SQUARE SPECIFICALLY NOTES BELOW).
2. THE MINIMUM CONCENTRATED LOAD ON STAIR TREADS SHALL BE 300 POUNDS ON AN AREA OF 4 SQUARE INCHES.
 3. BALCONY RAILINGS AND GUARDRAILS SHALL BE DESIGNED TO RESIST A LOAD OF 50 POUNDS PER LINEAL FOOT (PLF) APPLIED IN ANY DIRECTION AT THE TOP RAIL AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE STRUCTURE.
 4. BALCONY RAILINGS AND GUARDRAILS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT ANY POINT ON THE TOP RAIL, AND HAVE ATTACHMENT DEVICES AND SUPPORTING STRUCTURE TO TRANSFER THIS LOADING TO APPROPRIATE STRUCTURAL ELEMENTS OF THE BUILDING. THIS LOAD NEED NOT BE ASSUMED CONCURRENT WITH UNIFORM LOADS SPECIFIED ABOVE.
 5. INTERMEDIATE RAILS, PANEL FILLERS, AND THEIR CONNECTIONS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 POUNDS ON AN AREA NOT TO EXCEED A 1-FOOT-SQUARE AREA, INCLUDING OPENINGS AND SPACES BETWEEN RAILS. REACTIONS DUE TO THIS LOADING ARE NOT REQUIRED TO BE SUPERIMPOSED WITH THOSE FROM LOADS APPLIED TO THE TOP RAIL.
 6. VEHICLE BARRIERS SHALL BE DESIGNED TO WITHSTAND A HORIZONTAL FORCE OF 6000 POUNDS APPLIED HORIZONTALLY IN ANY DIRECTION TO THE BARRIER SYSTEM AT A HEIGHT OF 16 INCHES ABOVE THE PARKING SURFACE AND SHALL HAVE ANCHORAGE OR ATTACHMENT CAPABLE OF TRANSMITTING THIS LOAD TO THE STRUCTURE. THE FORCE MAY BE DISTRIBUTED OVER A 1-FOOT-SQUARE AREA.
 7. DESIGN LIVE LOADS HAVE BEEN REDUCED IN ACCORDANCE WITH THE GENERAL BUILDING CODE NOTED ABOVE.

- D. ROOF LOADS
1. A ROOF LOAD ALLOWANCE OF 30 PSF HAS BEEN APPLIED AS A UNIFORMLY-DISTRIBUTED LOAD ON FLAT ROOFS.
 2. FOR EXTENSIVE GREEN ROOF, 30 PSF DEAD LOAD IS USED
 3. ROOF LOADS HAVE NOT BEEN REDUCED.
- E. SNOW LOADS
- SNOW LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE GENERAL BUILDING CODE NOTE ABOVE, USING THE FOLLOWING PARAMETERS:
- | GROUND SNOW LOAD (PG) | 30 PSF |
|------------------------------------|----------|
| FLAT-ROOF SNOW LOAD (PF) | 21 PSF |
| SNOW EXPOSURE COEFFICIENT (CE) | 1.0 |
| IMPORTANCE FACTOR (I) | 1.0 |
| THERMAL FACTOR (CT) | 1.0 |
| MINIMUM SNOW LOAD FOR DESIGN | 30.0 PSF |
| SNOW DRIFT IS APPLICABLE AS NEEDED | |

- F. WIND LOADS
- WIND LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE GENERAL BUILDING CODE NOTED ABOVE, USING THE FOLLOWING PARAMETERS:
- | BASIC WIND SPEED (V) | 115 MPH |
|---------------------------------------------------------------|----------|
| EXPOSURE CATEGORY <td>B</td> | B |
| IMPORTANCE FACTOR (IW) <td>1.0</td> | 1.0 |
| BUILDING CATEGORY <td>ENCLOSED</td> | ENCLOSED |
| GUST RESPONSE FACTOR FOR FLEXIBLE BUILDINGS (G) <td>0.85</td> | 0.85 |
| EAST-WEST DIRECTION <td>0.85</td> | 0.85 |
| NORTH-SOUTH DIRECTION <td>0.85</td> | 0.85 |
| INTERNAL PRESSURE COEFFICIENT (GCPI) <td>+/- 0.18</td> | +/- 0.18 |

- G. SEISMIC LOADS
- SEISMIC LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE GENERAL BUILDING CODE NOTED ABOVE, USING THE FOLLOWING PARAMETERS:
- | ANALYSIS PROCEDURE | EQUIVALENT LATERAL FORCE METHOD (IE) | 1.0 |
|-----------------------------------------------|--------------------------------------|-------|
| IMPORTANCE FACTOR | | 1.0 |
| SEISMIC USE GROUP | | 1 |
| SPECTRAL RESPONSE ACCELERATION | (SS) (%) | 0.134 |
| SPECTRAL RESPONSE ACCELERATION | (SI) (%) | 0.043 |
| SITE CLASS | | D |
| SPECTRAL RESPONSE COEFFICIENT | (SDS) (%) | 0.143 |
| SPECTRAL RESPONSE COEFFICIENT | (SD1) (%) | 0.089 |
| SEISMIC DESIGN CATEGORY | | B |
| RESPONSE MODIFICATION FACTOR (R) | | 6.5 |
| - WOOD STRUCTURAL PANELS | | |
| DEFLECTION AMPLIFICATION FACTOR (Cd) | | 4.0 |
| - WOOD STRUCTURAL PANELS | | |
| BASIC STRUCTURAL AND SEISMIC RESISTING SYSTEM | | |
| 1. ANALYTICAL PROCEDURE: | EQUIVALENT LATERAL FORCE | |

- H. STRUCTURAL STABILITY OF BUILDING FRAME
- THE STABILITY OF THE STRUCTURAL FRAME IS DEPENDENT UPON THE FOLLOWING FRAMING COMPONENTS AND SYSTEMS.
1. MASONRY WALLS
 2. HORIZONTAL DIAPHRAGM
 3. LIGHT-FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR WOOD WALLS
- a. ROOF DECK AND SUBFLOORS ARE DESIGNED AS UNBLOCKED DIAPHRAGMS.
- i. ROOF SHEATHING SHALL BE 23/32" THICK T & G EXPOSURE 1 RATED O.S.B. WITH A 32/16 PANEL SPAN INDEX (U.S.) AND BEAR THE TRADEMARK STAMP OF THE AMERICAN PLYWOOD ASSOC. (APA) ALL PANELS SHALL BE NAILED WITH 8d NAILS @ 6" OC AT ALL PANEL EDGES AND 12" O.C. AT ALL INTERIOR SUPPORTS.
- ii. FLOOR SHEATHING SHALL BE 23/32" THICK T & G EXPOSURE 1 RATED O.S.B. WITH A 48/24 PANEL SPAN INDEX (U.S.) AND BEAR THE TRADEMARK STAMP OF THE AMERICAN PLYWOOD ASSOC. (APA). PANELS SHALL BE NAILED WITH 10d NAILS @ 6" OC AT ALL PANEL EDGES AND 12" OC AT ALL INTERIOR SUPPORTS.
- b. STRUCTURAL PANEL SHEAR WALLS SHALL BE 7/16" THICK EXPOSURE 1 RATED O.S.B. WALL PANEL SPAN INDEX (U.S.) AND WITH A 16" OC BEAR THE TRADEMARK STAMP OF

- THE AMERICAN PLYWOOD ASSOC. (APA). PANELS SHALL BE NAILED IN ACCORDANCE WITH SHEAR WALL SCHEDULE ON S8-01.
- c. REFER TO BRACING PLANS FOR TYPE AND LOCATION OF ALL SHEARWALLS AND HOLD DOWN OF ANCHORS.
- d. FRAMING DETAILS INCORPORATE MINIMUM REQUIREMENTS FOR LATERAL LOAD TRANSFER. ANY CHANGE, MODIFICATION OR SUBSTITUTE FOR MATERIALS (INCLUDING GRADE OR SPECIES) OR FASTENERS MUST BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
- e. ALL CONNECTOR TYPES REFER TO SIMPSON STRONG-TIE SPECIFICATIONS. ANY CHANGE, MODIFICATION OR SUBSTITUTION MUST BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
- I. CONSTRUCTION SEQUENCING
- THE CONTRACTOR SHALL COORDINATE THE SEQUENCE AND SCHEDULE OF CONSTRUCTION WITH THE ENGINEER.
- J. PROVISION FOR FUTURE EXPANSION
- NO PROVISIONS HAVE BEEN MADE IN THE STRUCTURAL DESIGN FOR FUTURE EXPANSION.

II. FOUNDATION

- A. ALLOWABLE SOIL BEARING IS ASSUMED TO BE MINIMUM OF 1500 PSF.
- B. THE PROPOSED WORK IS FRAMED SUCH THAT THE LOAD DISTRIBUTIONS TO THE EXISTING FOOTING IS NOT CHANGED SUBSTANTIALLY
- C. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FOOTING AND ALIGN THE PROPOSED LOAD BEARING WALLS ACCORDINGLY.

III. REINFORCED CONCRETE

- A. THE DESIGN OF ALL REINFORCED CONCRETE SHALL CONFORM TO ACI 318, IN ACCORDANCE WITH THE GENERAL BUILDING CODE NOTED ABOVE.
- B. CLASSES OF CONCRETE
- ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN THE TABLE BELOW UNLESS NOTED OTHERWISE ON THESE DRAWINGS
- | USAGE (PSI) | COMPRESSIVE STRENGTH | MAXIMUM AGGREGATE SIZE |
|-----------------|----------------------|------------------------|
| SPREAD FOOTINGS | 3500 | 1 INCH |
| WALL FOOTINGS | 3500 | 1 INCH |
| BASEMENT WALLS | 4000 | 1 INCH |
| RETAINING WALLS | 4000 | 1 INCH |
| SLAB-ON-GRADE | 3500 | 1 INCH |
1. COMPRESSIVE STRENGTH NOTED ABOVE SHALL BE THE 28-DAY COMPRESSIVE STRENGTH FOR ALL CONCRETE
2. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE UNLESS NOTED AS (LWT) ABOVE. LWT INDICATES LIGHT WEIGHT CONCRETE WEIGHING 115 PCF MAX.
3. IN ADDITION TO THE MINIMUM COMPRESSIVE STRENGTH REQUIREMENT, CONCRETE MIX DESIGNS FOR FLOORS, COLUMNS, AND WALLS SHALL BE PROPORTIONED FOR A MAXIMUM WATER-CEMENT RATIO OF 0.45.
- C. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN THE PLACEMENT OF CONCRETE UNLESS SHOWN ON THESE DRAWINGS. ANY DEVIATIONS SHALL BE SUBMITTED TO AND APPROVED BY THE ARCHITECT OR ENGINEER IN WRITING.
- D. REINFORCING STEEL
1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE ON THESE DRAWINGS OR IN THE NOTES BELOW.
2. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A706 FOR ALL REINFORCING STEEL REQUIRED TO BE WELDED AND WHERE NOTED ON THESE DRAWINGS
3. PROVIDE GALVANIZED REINFORCING STEEL IN ACCORDANCE WITH ASTM A767 CLASS II (2.0 OZ ZINC PER SQUARE FOOT), WHERE NOTED ON THESE DRAWINGS.
4. PROVIDE EPOXY-COATED REINFORCING STEEL CONFORMING TO ASTM A775 WHERE NOTED ON THESE DRAWINGS
5. PROVIDE DEFORMED BAR ANCHORS CONFORMING TO ASTM A496 (75,000 PSI YIELD STRENGTH) WHERE NOTED ON THESE DRAWINGS. REINFORCING BARS SHALL NOT BE SUBSTITUTED FOR DEFORMED BAR ANCHORS.
6. PROVIDE WELDED DEFORMED WIRE REINFORCEMENT CONFORMING TO ASTM A497 (70,000 PSI YIELD STRENGTH) WHERE NOTED ON THESE DRAWINGS.

- F. WHERE WELDED WIRE REINFORCEMENT IS SPECIFIED, IT SHALL BE CONTINUOUS ACROSS THE ENTIRE CONCRETE WITH SPLICES SHALL BE LAPPED ONE CROSS WIRE SPACING PLUS 2 INCHES.
- G. MINIMUM CONCRETE COVER TO REINFORCING SHALL BE IN ACCORDANCE WITH ACI 318, UNLESS NOTED OTHERWISE ON THESE DRAWINGS.

IV. SOLID SAWN & LAMINATED LUMBER

- A. ALL LUMBER SHALL BE VISUALLY GRADED, SOUTHERN PINE DIMENSION LUMBER, EASONED AND WITH 19% MAX. MOISTURE CONTENT, U.N.O., AND IN ACCORDANCE WITH THE FOLLOWING MINIMUM GRADE REQUIREMENTS.
- | STUD | STRUCT GRADE NO. 2 |
|-------------------|--------------------|
| JOIST | STRUCT GRADE NO. 2 |
| BEAMS (24" THICK) | STRUCT GRADE NO. 2 |
| POSTS | STRUCT GRADE NO. 2 |
| PLATE STOCK | STRUCT GRADE NO. 2 |
- B. GRADES SHALL BE DETERMINED IN ACCORDANCE WITH SPIB GRADING RULES AGENCY.
- C. BRACE STUD WALLS UNTIL ALL PLYWOOD DECKING, ROOF TRUSSES, AND SHEAR PANELS
- D. USE PRESSURE TREATED WOOD WITH ALKALINE COPPER QUAT (ACQ) OR COPPER AZOLE (CSA) FOR ALL EXPOSED LUMBER AND WITH ACQ, CSA OR SODIUM BORATES (SBX) FOR SILL PLATES IN CONTACT WITH CONCRETE. ALL FASTENERS IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE HOT-DIP GALVANIZED PER ASTM A153. ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE HOT-DIP GALVANIZED PER ASTM A653 AND MADE FROM CLASS G185 SHEET WITH 1.85 OUNCES MINIMUM OF ZINC COATING PER SQUARE FOOT.
- E. ALL SILL PLATES SHALL BE ANCHORED TO MASONRY OR CONCRETE WITH 1/2" ØA307 GRADE BOLTS @48" O.C. MAX. WITH 7" MIN. EMBEDDMENT (U.N.O.)
- F. HANDRAILS, GUARDRAILS AND STAIRWAYS INCLUDING ALL COMPONENTS AND THEIR CONNECTIONS SHALL BE DESIGNED BY THE SUPPLIER IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.
- G. INSTALL BEAMS WITH CROWN UP.
- H. ALL LVL MEMBERS SHALL BE (MIN.): Fb=2600 psi., Fv=285 psi. & E=1900000 psi.
- I. ALL LSL MEMBERS SHALL BE (MIN.): Fb=2900 psi., Fv=290 psi. & E=1800000 psi.
- J. THE NUMBER OF WALL STUDS AT BEARING POINTS OF 2X MEMBER BEAMS SHALL MATCH THE NUMBER OF MEMBERS IN THE BEAM (U.N.O.). ALL LVL AND LSL BEAMS SHALL HAVE A (3) STUD MIN. BEARING (U.N.O.). THE CENTERLINE OF THE BEAM SHALL BE THE CENTERLINE OF THE SUPPORTING WALL STUDS.

V. NAILING

FASTENING SCHEDULE		NUMBER OR SPACING
CONNECTION:	FASTENER	
BAND JOIST TO SILL OR TOP PLATE, TOE NAIL	8d COMMON	3
JOIST TO BAND JOIST, FACE NAIL	16d COMMON	3
JOIST TO SILL OR GIRDER, TOE NAIL	8d COMMON	3
BRIDGING TO JOIST, TOE NAIL EACH END	8d COMMON	2
LEDGER STRIP	16d COMMON	3 AT EACH JOIST
1X6 SUBFLOOR OR LESS TO EACH JOIST, FACE NAIL	8d COMMON	2
OVER 1X6 SUBFLOOR TO EACH JOIST, FACE NAIL	8d COMMON	3

- 2 INCH SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL
- SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL
- TOP OR SOLE PLATE TO STUD, END NAILED
- STUD TO SOLE PLATE, TOE NAIL
- DOUBLED STUDS, FACE NAIL
- DOUBLED TOP PLATES, FACE NAIL
- TOP PLATES, LAP AND INTERSECTIONS FACE NAIL
- CONTINUOUS HEADER, TWO PIECES
- CEILING JOISTS TO PLATE, TOE NAIL
- CONTINUOUS HEADER TO STUD, TOE NAIL
- CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL
- CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL
- RAFTER TO PLATE, TOE NAIL
- 1 INCH BRACE TO EACH STUD AND PLATE, FACE NAIL
- 1X8 SHEATHING OR LESS TO EACH BEARING, FACE NAIL
- OVER 1X8 SHEATHING TO EACH BEARING, FACE NAIL
- BUILT-UP CORNER STUDS
- BUILT-UP GIRDER AND BEAMS, OF THREE MEMBERS

- 2 INCH PLANKS
- STUDS TO SOLE PLATE, END NAIL
- WOOD STRUCTURAL PANEL SUBFLOORING
- 15/32", 1/2", 7/16"
- 19/32" - 3/4"
- 1", 1 1/8"
- 15/32", 1/2"
- 19/32", 5/8"
- WOOD STRUCTURAL PANEL ROOF
- AND WALL SHEATHING AND PARTICLEBOARD
- WALL SHEATHING

- 1/2" OR LESS
- 19/32" OR GREATER
- 5/16" - 1/2"
- 19/32" - 3/4"
- 6d COMMON
- 8d COMMON
- 16 GA GALVANIZED WIRE STAPLES, 3/8" MIN. CROWN. LENGTH OF 11" PLUS WOOD STRUCTURAL PANEL OR PARTICLEBOARD THICKNESS
- 2" O.C. EDGES AND 5" O.C. INTERMEDIATE

VI. WOOD JOISTS

- A. ALL JOIST CONNECTOR PLATES SHALL BE MANUFACTURED FROM ASTM A446-72 GRADE A GALVANIZED STEEL OF NO LESS THAN 20 GAGE THICKNESS WITH A MINIMUM YIELD OF 33,000 psi AND AN ULTIMATE TENSILE STRENGTH OF 45,000 psi. CONNECTOR PLATE GAUGES SHALL BE AS REQUIRED BY MANUFACTURERS DESIGN CALCULATIONS.
- B. FIELD REPAIR OF DAMAGED JOISTS MUST BE APPROVED IN WRITING BY THE SUPPLIER ENGINEER AND ENGINEER OF RECORD.
- C. ALL ROOF TRUSS BEARING WALLS SHALL HAVE METAL FASTENERS TO RESIST UPLIFT FORCES AS NOTED ON ROOF FRAMING PLANS.
- D. CONTRACTOR IS TO PROVIDE PLAN AND PROCEDURES FOR INSTALLING, SECURING AND BRACING OF ALL TRUSSES.
- E. CONTRACTOR SHALL PROVIDE JOIST BLOCKS CAPABLE OF TRANSFERRING LATERAL LOADS AS NOTED ON JOISTS AND/OR DETAILS.
- F. APPROVED JOIST PLANS SHALL BE AVAILABLE ON JOB SITE DURING TIMES OF INSPECTION.
- G. CONTRACTOR TO PROVIDE OR ALIGN JOIST ABOVE ALL SHEAR WALLS AS DETAILLED.
- H. CONTRACTOR TO COORDINATE WITH MECH. / PLUMBING DWGS. FOR ADDITIONAL CONCENTRATED LOADS DUE TO DOMESTIC WATER AND SPRINKLER PIPE SUPPORTS.
- I. CONTRACTOR SHALL COORDINATE TRUSS LAYOUT WITH MECH/PLUMBING DRAWINGS TO ALLOW ALL PIPES AND DUCTS ADEQUATE SPACE FOR PROPER INSTALLATION.

VII. MISCELLANEOUS

- A. CONTRACT DOCUMENTS IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, AND ERECTION IN THE FIELD.
- B. DRAWING CONFLICTS
- THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCY BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS
- C. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
1. SIZE & LOCATION OF ALL DOOR & WINDOW OPENINGS
 2. SIZE & LOCATION OF ALL ROOF OPENINGS.
 3. FLOOR AND ROOF FINISHES
 4. DETAILS OF VENEER ATTACHMENT.
 5. LOC'N & EXTENT OF INSULATION.
 6. ELEVATIONS AND DIMENSIONS
- D. SEE MECHANICAL, PLUMBING, ELECTRICAL AND CIVIL DRAWINGS FOR THE FOLLOWING INFORMATION:

- PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC. SIZE & LOCATION OF ALL ROOF OPENINGS.
- ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.
- CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES LOC'N & EXTENT OF INSULATION.
- UNDERGROUND CONCRETE DUCTS, TRENCHES, PITS OR MANHOLES.
- CONCRETE AND ASPHALT PAVEMENT
- EXISTING CONDITIONS
- THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS
- RESPONSIBILITY OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION ALL STRUCTURAL ELEMENTS OF THE PROJECT HAVE BEEN DESIGNED BY THE STRUCTURAL ENGINEER TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES THAT COULD OCCUR IN THE FINAL COMPLETED STRUCTURE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF ALL STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PROCESS UNTIL THE LATERAL-LOAD RESISTING OR STABILITY PROVIDING SYSTEM IS COMPLETELY INSTALLED AND THE STRUCTURE IS COMPLETELY TIED TOGETHER
- CONFLICTS IN STRUCTURAL REQUIREMENTS WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN.
- STABILITY AND BRACING OF MASONRY WALLS DURING CONSTRUCTION ALL MASONRY WALLS SHOWN ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS HAVE BEEN DESIGNED TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES APPLIED TO THEM IN THE FINAL CONSTRUCTED CONFIGURATION ONLY ASSUMING FULL BRACING TOP, BOTTOM, AND/OR SIDE OF WALL AS SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROPERLY AND ADEQUATELY BRACE ALL MASONRY WALLS AT ALL STAGES DURING CONSTRUCTION TO RESIST ERECTION LOADS AND LATERAL LOADS THAT COULD POSSIBLY BE APPLIED PRIOR TO COMPLETION OF CONSTRUCTION.
- CONTRACTOR SUBSTITUTIONS
- ANY MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL THAT ARE DIFFERENT FROM THE MATERIAL OR PRODUCTS SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS WILL BE APPROVED ONLY IF THE FOLLOWING CRITERIA ARE SATISFIED:
1. A COST SAVINGS TO THE OWNER IS DOCUMENTED AND SUBMITTED WITH THE REQUEST.
 2. THE MATERIAL OR PRODUCT HAS BEEN APPROVED BY THE INTERNATIONAL.
- SITE OBSERVATION BY THE STRUCTURAL ENGINEER
- THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES. FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF ECHOLON ENGINEERING L.L.C. IS SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.
- MAINTENANCE STATEMENT
- ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND TO INSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE SUCH ITEMS SUCH AS BUT NOT LIMITED TO PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.

VIII. STRUCTURAL ABBREVIATIONS

ADDL ADD	ADDITIONAL	LLV	LONG LEG VERTICAL
AB, ABOLT	ANCHOR BOLT	LOC'N	LOCATION
ARCH.	ARCHITECTURAL	M	MOMENT
@	AT	MFG, MFR	MANUFACTURER
BM	BEAM	MECH	MECHANICAL
BRG	BEARING	MPH	MILES PER HOUR
BLK	BLOCK	MATL	MATERIAL
BOT, B	BOTTOM, BOTTOM BAR	MAX	MAXIMUM
BLDG	BUILDING	MFR	MANUFACTURER
CL	CENTER LINE	MTL	METAL
CLR	CLEAR	MIN	MINIMUM
COL	COLUMN	MISC	MISCELLANEOUS
CONC	CONCRETE	NIC	NOT IN CONTRACT
CONN	CONNECTION	NO	NUMBER
CNU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
CONST	CONSTRUCTION	O.C.	ON CENTER
CONT	CONTINUOUS	OPNG	OPENING
CONTR	CONTRACTOR	O.H.	OPPOSITE HAND
D	DEEP	P	PAN
DESIGN	DESIGN	PAF	POWDER ACTUATED FASTENER
DTG	FOOTING	PIC	PRECAST
DET, DTL	DETAIL	PL	PLATE
DIA, Ø	DIAMETER	PT	POINT TENSIONED
DIAG	DIAGRAM	PTS	POINTS
DIM	DIMENSION	PHSE	PENTHOUSE
DWG	DRAWING	PSF	POUNDS PER SQ. FOOT
DWL	DOWEL	PSI	POUNDS PER SQ. INCH
EE	EACH END	REF	REFERENCE
EAF	EACH FACE	REV	REVISION
EW	EACH WAY	REIN	REINFORCING
ELEV, EL	ELEVATION	REQD	REQUIRED
ETF	ELEVATION TOP OF	REBAR	REINFORCING BAR
ETC	FOOTING ETCETERA	SCHD, SCHED	SCHEDULE
EQ	EQUAL	SECT	SECTION
EXIST, EXTG	EXISTING	SLH	SHORT LEG HORIZONTAL
EXP	EXPANSION	SLV	SHORT LEG VERTICAL
EXP JT, EJ	EXPANSION JOINT	SLO	SHORT LEG OUT
EXT	EXTERIOR	SIM	SIMILAR
F	FACE OF	SOG	SLAB ON GRADE
FIN FL, FFE	FINISHED FLOOR	SQ	SPECIFICATIONS
FFE	FINISHED FLOOR	STD	STANDARD
FTG	FOOTING	STIRR	STIRRUPS
FT	FEET, FOOT	STL, STL	STEEL
FLG	FLANGE	STRUCT	STRUCTURAL
GA, ga	GAUGE	T	TOP
GALV	GALVANIZED	THK	THICK
H	HEAD	THRD	THREADED
HD	HEADER	THRU	THROUGH
HK	HOOK	TIS, T/STL	TOP OF STEEL
HR	HOUR	T/B, T/BM	TOP OF BEAM
HORIZ	HORIZONTAL	T/CNCR	TOP OF CONCRETE
INFO	INFORMATION	T/SLAB	TOP OF SLAB
INT	INTERIOR	T/FTG	TOP OF FOOTING
JST	JOIST	TYP	TYPICAL
JT	JOINT	UNO	UNLESS NOTED OTHERWISE
K-FT	KIP-FOOT	VERT	VERTICAL
KFT	KIPS PER FOOT	W	WIDE
K	KIPS		

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PROJECT NAME

HILLTOP TERRACE II

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ISSUE DATE		
10. 01. 2023	-	SCHEMATIC SUBMISSION
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DATE	10. 01. 2023
SCALE	AS NOTED
DRAWN BY	
CHECKED BY	DW
JOB NO.	
SEAL	

DRAWING TITLE

STRUCTURAL
NARRATIVE

SHEET. NO.

NAR 3