

Technical Brief

1043 Highland Village Trail

Mableton, Georgia 30126

New Construction — Two-Story Single-Family Residence with Finished Basement

This Technical Brief documents the structural, civil, and systems engineering deployed at 1043 Highland Village Trail — a 7,395 SF ground-up new construction in Cobb County, Georgia. The residence encompasses 6,288 SF of heated living space across three levels: a 2,052 SF finished basement, a 2,304 SF main floor, and a 1,932 SF upper floor, plus an attached three-car garage.

Every structural element was executed under permit-approved drawings from a licensed architect (Key Designs, Douglasville, GA) and a registered civil engineer (JDM Consultants, LLC, GSWCC #77396). The project was permitted through Cobb County Community Development with a final approved civil set dated April 10, 2024. Retaining wall construction was designed under PE seal by Yong C. Shao, GA PE #26340.

This report covers site parameters and civil engineering, foundation and concrete systems, structural wood framing, exterior envelope and finish package, MEP and electrical systems, applicable codes, and the complete permit drawing index.

7,395 SF	6,288 SF	3 LEVELS	COBB COUNTY
Total Gross Area	Total Heated Space	Basement + Main + Upper	Permitted & Approved

GA LICENSE	GCCO006711	FL LICENSE	CBC1263793	NASCLA	404696491
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PROJECT IDENTIFICATION

ADDRESS	1043 Highland Village Trail, Mableton, GA 30126	JURISDICTION	Unincorporated Cobb County, Georgia
LAND LOT	Lot 19, Land Lot 67, District 18	ZONING	R-15 — Single Family Residential District
LOT SIZE	17,375 SF (0.399 Acres)	FEMA ZONE	Zone X — Not in Special Flood Hazard Area
PERMIT AUTHORITY	Cobb County Community Development	FINAL APPROVED SET	April 10, 2024
CIVIL ENGINEER	JDM Consultants, LLC (GSWCC #77396)	ARCHITECT	Key Designs / Shona Griffin, Douglasville, GA
STRUCTURAL PE (WALLS)	Yong C. Shao, PE — GA #26340, X&Y Engineering	SURVEYOR	Four Corners Surveying — Ronald T. Godwin, RLS #2696
OWNER / GC	Ducere Construction Services, Inc.	GC LICENSES	GA GCCO006711 · FL CBC1263793 · NASCLA 404696491

SQUARE FOOTAGE & PROGRAM

LEVEL	HEATED SF	DESCRIPTION
Basement	2,052 SF	10'-6" ceiling; 8" poured concrete walls w/ 4" furred interior; family room, theater, rec room, bedroom #6, kitchenette, utility room
First Floor	2,304 SF	10' ceiling; owner's suite, kitchen, dining, living, flex room, 3-car garage, covered deck, breezeway, mud room, pantry/prep room
Second Floor	1,932 SF	9' ceiling (18' vaulted loft); bedrooms #3-#5, bonus room, loft, J&J bath, mechanical room, laundry, linen room
TOTAL HEATED	6,288 SF	
Garage (Unheated)	682 SF	3-car attached — slab on grade; fire separation per IRC R302.6
Patio / Porch / Breezeway	425 SF	Rear covered porch 260 SF + front porch 90 SF + breezeway 75 SF
TOTAL GROSS AREA	7,395 SF	

APPLICABLE CODES & ORDINANCES

CODE	EDITION	AMENDMENTS
International Building Code (IBC)	2018	Georgia Amendments 2020
International Residential Code (IRC)	2018	Georgia Amendments 2020
International Fire Code (IFC)	2018	No Georgia Amendments
International Plumbing Code (IPC)	2018	Georgia Amendments 2020
International Mechanical Code (IMC)	2018	Georgia Amendments 2020
International Fuel Gas Code (IFGC)	2018	Georgia Amendments 2020
National Electrical Code (NEC)	2020	No Georgia Amendments
Int'l Energy Conservation Code (IECC)	2015	Georgia Supplements & Amendments 2020
Int'l Swimming Pool & Spa Code (ISPSC)	2018	Georgia Amendments 2020
Cobb County Construction Ordinances	Current	Unincorporated Cobb County

CIVIL ENGINEERING & SITE PARAMETERS

PARAMETER	VALUE / SPECIFICATION
Total Site / Lot Size	17,375 SF (0.399 acres) — Lot 19, Highland Village Sub, Plat Book 261, Page 69
Limits of Disturbance	10,459 SF (0.24 AC)
Proposed Impervious Area	4,767 SF (0.11 AC) — 27.4% lot coverage
Proposed Roof Area	2,884 SF

PARAMETER	VALUE / SPECIFICATION
Proposed Driveway / Walkway / Patio	1,581 SF
Proposed Pervious Pavers	380 SF — Cobb County Water System approved detail
Setbacks (R-15)	Front 25' · Side 10' · Rear 30' · Max lot coverage 35%
Stormwater Management	Type C Silt Fence per GSWCC standard; max slope 3:1 in 8" lifts; positive drainage away from building
Specimen Tree Recompense	1 × 31" specimen tree removed — \$3,410 recompense (\$220/2 inches per Cobb County ordinance)
Water / Sewer	Cobb County Water System — 3/4" & 1" meter per Detail 02713-14C; sewer stub-out per Detail 02722-2
Benchmark	Fire hydrant top between Lots 3 & 4, Elev. 873.64 (NAVD 88, NAD 83 — RTK-GPS via eGPS Solutions VRS)
GSWCC Certification	GSWCC #77396, Exp. 7/1/2025 — JDM Consultants, LLC
FEMA Determination	Property does not lie within a Special Flood Hazard Area — FEMA Map #13067C02171, dated October 5, 2018

DIVISION 3 — STRUCTURAL CONCRETE & FOUNDATION SYSTEM

COMPONENT	SPECIFICATION
Foundation System	Combination — 8" poured concrete walls (below grade) + CMU foundation wall (grade transition) + monolithic slab on grade
Perimeter Footings	24" wide × 20" deep concrete footings — all perimeter and load-bearing interior walls
CMU Foundation Wall	8" CMU w/ brick masonry veneer on 18" × 18" deep concrete footing
Basement Wall System	8" poured concrete wall w/ 4" furred interior; brick masonry veneer above grade on 24" × 20" footing
Slab Construction	4" concrete on 6-mil polyethylene vapor barrier on 95% compacted earth; 6×6-10/10 WWF over 4" gravel fill
Concrete Strength	3,000 PSI at 28 days (slab & footings) · 4,000 PSI at 28 days (retaining walls — per PE)
Curing Protocol	Wet-cured min. 4 days; curing agent (30% solids) applied after wet cure; sawcut twice to 1-1/4" depth within 12 hrs of pour
Soil Bearing Capacity	Min. 2,500 PSF — virgin material compacted to 95% Standard Proctor (ASTM D-698)
Thickened Slab Locations	All load-bearing interior walls, non-bearing walls, and walls bearing ceiling joists without attic or floor above
Garage Separation	Min. 1/2" gypsum board (garage-side walls & ceilings common to house); min. 5/8" Type X gypsum under habitable room

DIVISION 6 — STRUCTURAL WOOD FRAMING

LEVEL	WALL SYSTEM	CEILING HEIGHT
Basement	2×6 @ 16" O.C. (exterior & perimeter)	10'-6"
First Floor	2×4 @ 16" O.C. standard; 2×6 @ 16" O.C. exterior	10'-0"
Second Floor	2×4 @ 16" O.C.; 2×6 @ 16" O.C. exterior	9'-0" std · 18' vaulted loft · 9' vaulted bonus
Roof — Primary	Asphalt shingles over 12:12 gable	—
Roof — Secondary	Flat-pitched EPDM membrane — covered porch decks and garage wing	—
Roof Pitches	Primary 12:12; secondary 6:12 and 4:12; flat EPDM on covered porch and garage sections	
Overhang	12" typical eave overhang — all elevations	—
Stairs — Basement	18 stairs · 7-1/2" risers · 10" treads · (3) 2×12 stringers min. · 1/2" plywood risers glued & screwed	
Stairs — Main	17 stairs · 7-1/2" risers · 10" treads · open railing	—
Guardrail / Baluster	4" max. clear spacing (IRC R312.1.3); 36" ht. first floor; 42" ht. upper floors; 1" diameter balusters	

DIVISION 7 / 9 — EXTERIOR ENVELOPE & FINISH PACKAGE

ELEMENT	SPECIFICATION
Primary Cladding	Vertical board & batten siding — all four elevations

ELEMENT	SPECIFICATION
Secondary Cladding	Smooth & seamless HardiPanel board siding (fiber cement — James Hardie or approved equal)
Masonry Accent	Brick masonry veneer — base course, first floor banding, and garage wing
Stone Accent	Stone masonry veneer — upper gable peak, front elevation feature
Horizontal Band	12" architectural band at floor-to-floor transition — all elevations
Roof (Primary)	Asphalt shingles over 12:12 main gable
Roof (Secondary)	Flat-pitched EPDM membrane — covered porch decks and garage wing
Columns	6" PT wood columns (porch and covered deck)
Windows	Double-hung and fixed glass — 3060, 4070, 5070, 6070 series; egress per IRC R310 in all bedrooms
Garage Doors	Avante 3-panel 24" (16080 opening) · Avante 2-panel 24" (8080 opening)
Ext. Doors	Tempered glass panel — 3068, 4080, 6080 series; all exterior glazing tempered per IRC R308

DIVISION 15 / 16 — MEP & ELECTRICAL SYSTEMS

SYSTEM	SPECIFICATION
Water Service	Cobb County Water System — 3/4" & 1" meter; residential driveway per Detail 116R
Sanitary Sewer	Public sewer stub-out — Cobb County Water System Detail 02722-2; 4" SDR 35 PVC
Mechanical Code	IMC 2018 w/ Georgia Amendments 2020
Fuel Gas	IFGC 2018 w/ Georgia Amendments 2020; 48" gas range/hood (kitchen); ventless fireplace on non-combustible hearth
Electrical Code	NEC 2020 — no Georgia amendments
Smoke Detectors	Hardwired and interconnected — each sleeping room and outside each sleeping area on every story (IRC R314)
CO Detectors	Immediately outside each sleeping room — hardwired and interconnected (IRC R315)
GFCI Protection	All wet locations, garages, exterior, bathrooms, kitchen circuits per NEC 210.8
Special Systems	Audio/video control panel, CAT5/CAT5+TV jacks, intercom, thermostat, door chime — per Sheet A-7
Emergency Egress	All bedrooms — min. 5.7 SF net clear, 24" min. clear height, 20" min. clear width (IRC R310)
Attic / Crawl Access	Attic: min. 22"×30" (IRC R807); crawl space: min. 16" H × 24" W (IRC R408.4)

PERMIT DRAWING INDEX

SHEET	TITLE	DATE
C1	Civil Cover Sheet — Site plan, vicinity map, FEMA map, applicable codes	4/10/2024
C2	Site Plan — Lot coverage, setbacks, utility connections, specimen tree recompense	4/9/2024 rev.
C3	Grading Plan — Pervious paver detail, erosion/sedimentation controls, planting notes	4/9/2024 rev.
Survey	Boundary Survey — Four Corners Surveying, GA RLS #2696	2/8/2024
A-1	Architectural Cover Sheet — Scope, codes, square footage calculation, drawing index	7/15/2024
A-2	Front & Left Elevations (scale 1/4"=1')	7/15/2024
A-3	Right & Rear Elevations (scale 1/4"=1')	7/15/2024
A-4	Basement Floor Plan — 2,052 SF; door/window schedule	7/15/2024
A-5	First Floor Plan — 2,304 SF; door/window schedule; general notes	7/15/2024
A-6	Second Floor Plan — 1,932 SF; door/window schedule	7/15/2024
A-7	Electrical Plan — All three levels; electrical/data/audio legend	7/15/2024

SHEET	TITLE	DATE
A-8	Foundation Plan — Footing schedule, thickened slab locations	7/15/2024
A-9-A-12	Framing Plans (Floor, Ceiling, Roof) + Sections & Details	7/15/2024
SW-1.0-SW-4.0	Retaining Wall Construction Plans — PE-Sealed (see companion brief)	3/28/2024