



AGENDA

The Columbia Planning Commission Development Review Committee will meet on Tuesday, December 13, 2022 at 10:00 AM in Conference Room A, basement level, City Hall,, to consider the following:

I. Items For Review

1. 22-0291 Request from John Dewaal for a PUD Master Plan revision for Colter Place consisting of 144 lots off Baker Road at [Tax Map 75 Parcel 11.17](#).

Documents:

1. PUD Plan
 2. Architectural Renderings Typical Homes
 3. PUD Grading
 4. Boundary Description
 5. Boundary Survey
 6. Colter - Draft CCR
 7. Availability Letters-Water-Sewer-Power
 8. Tree Survey and Landscape Plan
 9. Aerial Photo 2022
 10. Submittal Letter
 11. Updated Checklist
 12. Application and Preliminary PUD Checklist
2. 22-0263 Request from Allison Baldwin to revise the Hospitality Lane CEG-PUD Master Plan to what is now known as Wynnsong Valley PUD located off [Hospitality Lane and Nashville Highway](#) at Tax Map 42 Parcels 13, 13.07, 13.08, and 13.09.

Documents:

1. Preliminary PUD Plan
 2. DRC v1
 3. Checklist
 4. Survey
 5. Lighting Plan
 6. Office Warehouse Elevations
 7. Self-Storage Elevation
 8. Permission 1 Owner Parcel 13.09
 9. Permission 2 - Proposed Owner
 10. Permission 3 Owner Parcel 13 and 13.07
 11. Traffic Impact Study
 12. Traffic Recommendations Letter
 13. Letter of Intent - Applicant
 14. Letter of Intent - Proposed Owner
 15. Wastewater Will Serve Letter
 16. Water Availability Letter
 17. Legal Parcel 13.07 .55ac
 18. Legal Parcel 13.07 0.93ac
 19. Application v2
 20. Application v1
 21. Plan v1
3. 22-0308 Request from Allison Baldwin for final plat approval with surety of Summit at Carter's Station Phase 1 consisting of 58 lots off [Freehand Lane](#).

Documents:

1. Final Plat
 2. Stormwater Maintenance Agreement and LTMP
 3. Hydrant Analysis
 4. Development Agreement
 5. Application
4. 22-0312 Request from Greg Gamble for Annexation with a Plan of Services and rezoning to CD-3 (Neighborhood Character District) for 366.41 acres at [400 and 420 Bear Creek Pike](#).

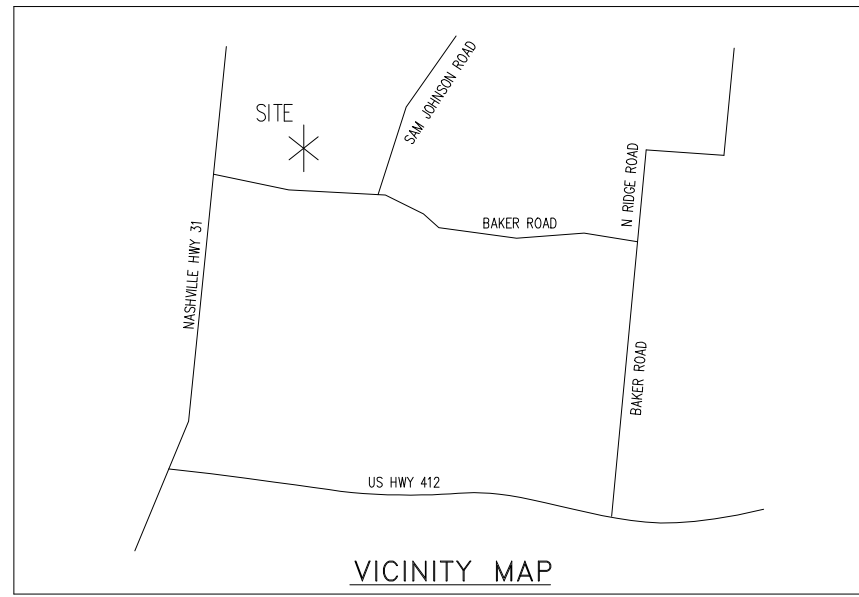
Documents:

1. Sketch Plan L1.0
2. Sketch Plan L1.1

3. Legal Description
 4. Water Availability Letter - Phase 2
 5. Cover Letter
 6. Application with Permission Form
5. 22-0313 Request from Adam Crunk for Final Master Plan approval of Honey Farm PUD for 3.05 acres off [Honey Farm Way and Nashville Highway](#).

Documents:

1. Site Plan
2. Survey
3. Sewer Capacity Letter
4. Water Availability Letter
5. Variance Request
6. Owners Statement
7. Application



Owner: Welling Corporation
Fred Steinhagen - President
1224 A Columbia Pike
Franklin, Tn. 37067
Engineer: Dewaal & Associates
John Dewaal
615-394-3347 jddewaal@bellsouth.net

100 50 0 100 200
Scale: 1" = 100'-0"

57.44 ACRES
143 LOTS
MAP 75, PARCEL 11.00

811
CALL BEFORE
YOU DIG

BASIC DATA

1. Property Presently Zoned RS-10
2. Proposed Zoning PUD-RES
3. Lots are not in a Flood Hazard Area per FEMA Panel #47119C0170E Effective Date April 16, 2007
4. Density: Proposed = 143 lots Density: 2.49 units per acre
5. Open Space shall be maintained by Homeowners Association. All amenities are private to be maintained by the HOA.
6. Sidewalks shall be provided on both sides of streets except where shown on plans in steep slope areas.
7. Storm drainage improvements under and along Baker Rd shall be done with Phase 1 construction.
8. Houses shall meet Building, Lot & Building Site Standards for PUD-R single family residential detached homes.
9. Project shall meet all landscaping requirements for PUD-R.

ENGINEERING UTILITIES

1. Water by Columbia Water System.
2. Easements: 5' utility easement all side lots, 10' easement all front and rear lines. Provide 20' total easement for all public drainage, water and sewer lines.
3. Fire Hydrants shall have minimum 1000 gpm @ 20 psi. Speed Limit - 20 mph Street Slopes shall not exceed 14%.
4. Critical lots - Noted on plan with X in a circle.
5. All streets proposed are minor-local streets to be owned-maintained by the City of Columbia.
6. Traffic improvements as recommended in TIS shall be provided by developer including westbound right-turn lane on Baker Rd at Nashville Hwy with 125 ft storage and a northbound right-turn lane on Nashville Hwy at Baker Rd with 75 ft storage.

VARIANCES REQUESTED

1. Cul-de-sac length for Langley where 6500 max length is exceeded by 1000 due to steep terrain and minimizing stream crossings as required by TDEC.
2. Road Section 1 Suburban Neighborhood Street in lieu of Urban Neighborhood Street.
3. Sidewalks only on one side of Langley, Seddy, and One Loves Way in steep areas. Walking trails have been provided to compensate in this area.

PHASING

- Phase 1 - 26 lots - 2023-2024
Phase 2 - 19 lots - 2023-2024
Phase 3 - 24 lots - 2023-2024
Phase 4 - 22 lots - 2024-2025
Phase 5 - 25 lots - 2024-2025
Phase 6 - 27 lots - 2024-2025

SUMMARY TABLE

PERVIOUS AREA: 49.29 ACRES+/-
IMPERVIOUS AREA: 8.15 ACRES+/-

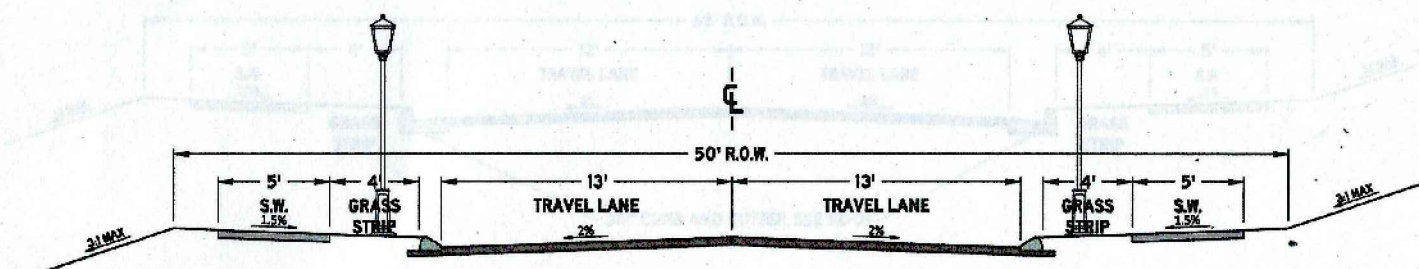
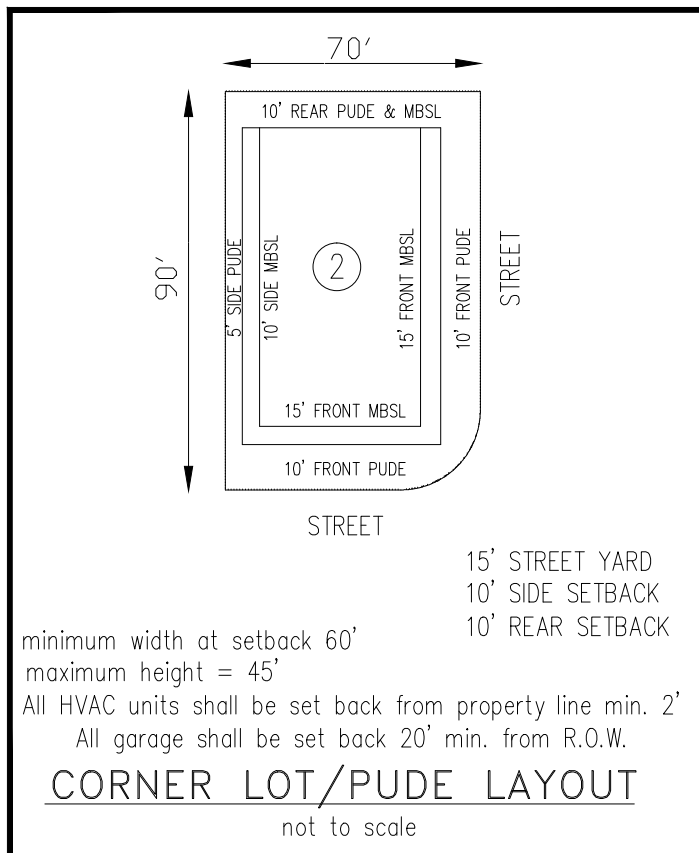
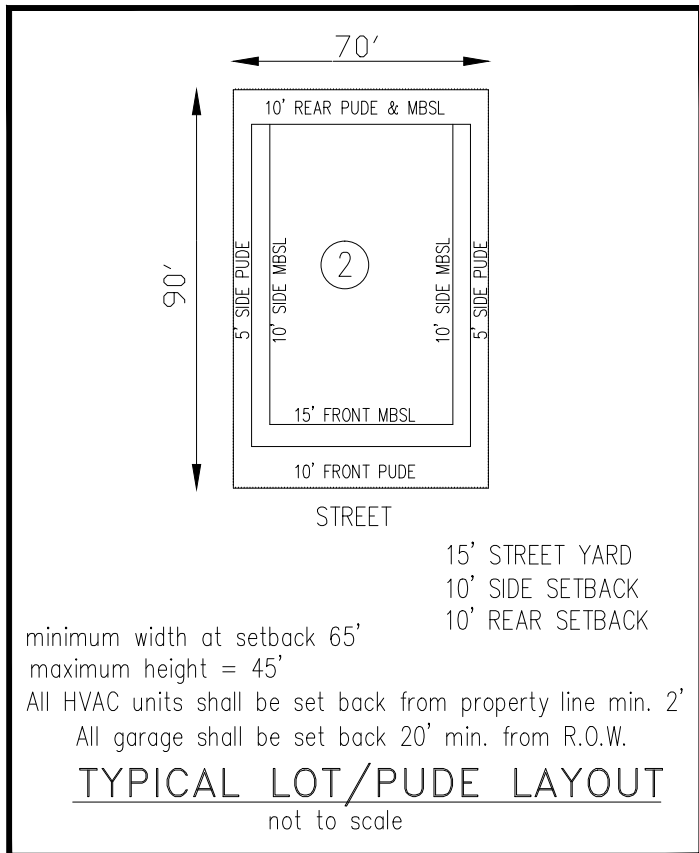
PLAY AREA: 1.50 ACRES+/-
PROJECT BUFFER: 4.00 ACRES+/-
BUFFER AREA: 4.25 ACRES+/-
DETENTION AREA: 1.25 ACRES+/-
OPEN SPACE AREA: 6.50 ACRES+/-
TOTAL: 17.50 ACRES+/-

FLOOD: SUBJECT PROPERTY IS NOT IN A DESIGNATED FLOOD HAZARD AREA PER FEMA FIRM PANEL #47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

NOTE: ALL STORM/SANITARY PIPE OUTSIDE RIGHT OF WAY SHALL HAVE A 20' TOTAL EASEMENT (10' EACH SIDE). OPEN SPACE NOTE: ALL OPEN SPACE AREA IS TO BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION, CREATED FOR THE PURPOSE OF MAINTAINING ALL COMMON OPEN SPACE INCLUDING THE DETENTION / SWM AREAS AS SHOWN ON THIS PLAT.

LOT AREA TABLE

LOT	Sq. Ft.	LOT	Sq. Ft.
1	12260	70	10500
2	10614	71	10500
3	10000	72	10150
4	8250	73	10500
5	9600	74	9000
6	9000	75	9150
7	10300	76	9150
8	6900	77	10050
9	9500	78	13500
10	11325	79	10750
11	10841	80	13650
12	10580	81	10175
13	7000	82	9250
14	5730	83	11025
15	5600	84	10950
16	5400	85	11000
17	5400	86	10500
18	6900	87	10100
19	8000	88	13650
20	8000	89	11250
21	6125	90	16300
22	6900	91	16200
23	8400	92	10050
24	5850	93	11000
25	5300	94	10300
26	8100	95	10300
27	6450	96	10300
28	5225	97	10100
29	5225	98	13500
30	6100	99	8000
31	8875	100	7575
32	9000	101	10175
33	6680	102	12000
34	6625	103	6625
35	7575	104	10175
36	7400	105	9350
37	9000	106	19000
38	5750	107	14450
39	8050	108	11050
40	7700	109	10050
41	9650	110	10275
42	6750	111	10700
43	5650	112	10500
44	7425	113	10175
45	7750	114	11525
46	7750	115	10300
47	5500	116	10000
48	5500	117	12300
49A	5500	118	11125
49B	5500	119	10450
49C	5500	120	11975
49D	5700	121	10900
49E	5800	122	10000
49F	5800	123	10550
49G	5500	124	10075
49H	9000	125	12425
50	7900	126	11500
51	9300	127	9425
52	6300	128	14000
53	7350	129	10400
54	9825	130	10725
55	10000	131	8500
56	8925	132	6000
57	13650	133	8500
58	15750	134	8500
59	9500	135	8500
60	9600	136	8500
61	10250		
62	9800		
63	9800		
64	9800		
65	9800		
66	9800		
67	11675		
68	10250		
69	10500		



MINOR LOCAL ROADWAY



DEWAAL & ASSOCIATES
CONSULTING ENGINEERS



10-14-22	11-21-22	09-18-17	1" = 100'	GRH	JCD
PUD REVISED	PUD REVISED				

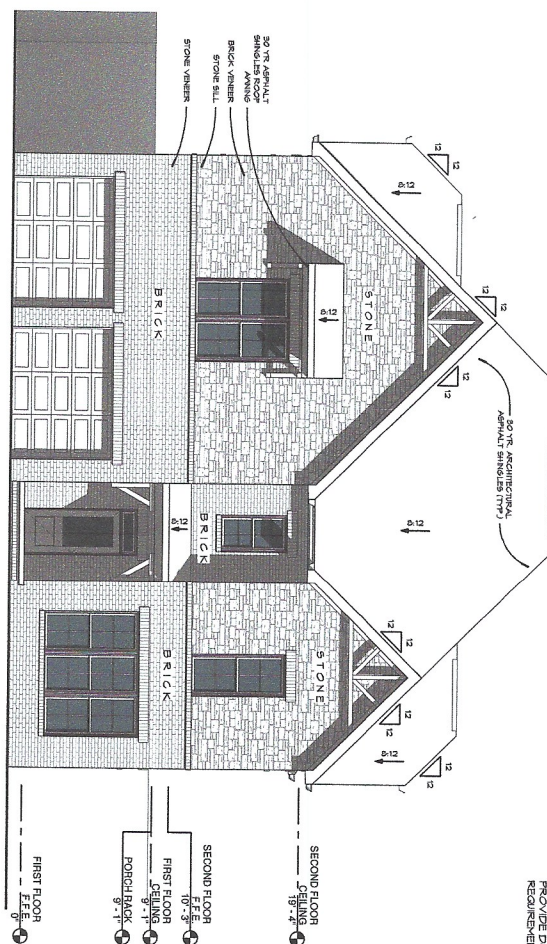
MASTER PLAN REVISION
COLTER PLACE PUD

CITY OF COLUMBIA
MURRAY COUNTY, TENNESSEE

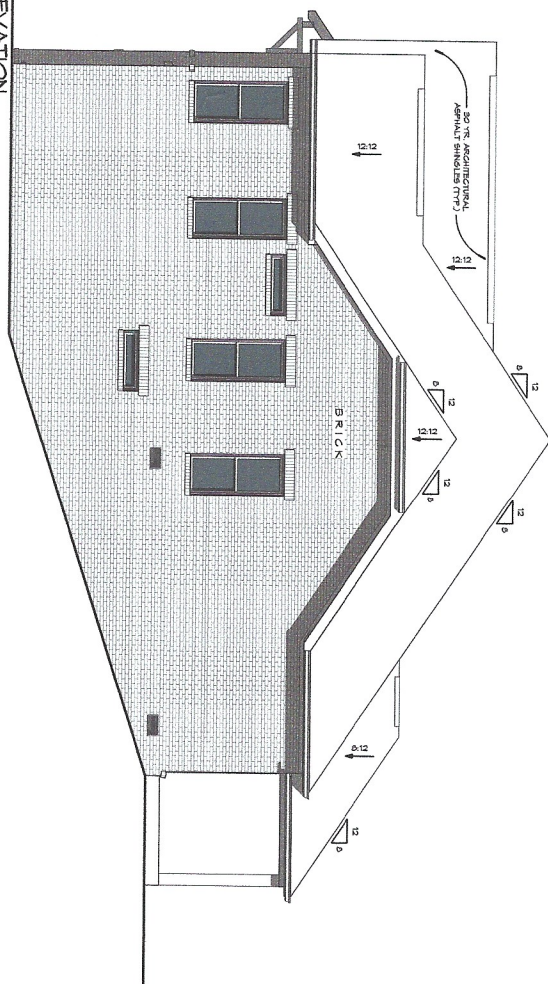
2810 Leeville Rd
Mt Juliet TN 37122
(615) 394-3347

DOWNSPOUT NOTE:
 DOWNSPOUTS NOT SHOWN FOR CLARITY. BUILDER TO
 PROVIDE DOWNSPOUTS IN COMPLIANCE W/ RC
 REQUIREMENTS.

BINKLEY DESIGNED
 1011 ALPACA DRIVE
 SPRING HILL, TN 37114
 PHONE: 615.626.9280
 TURNER@BINKLEYDESIGNED.COM



1 FRONT ELEVATION
 1/4" = 1'-0"



2 LEFT ELEVATION
 1/4" = 1'-0"

1136 STILL SPRINGS HOLLOW DR.
 BELLEVUE, TN 37221

Timosix

SHEET TITLE
 ELEVATIONS

SHEET NUMBER
 A3

BINKLEY DESIGNED
1011 ALPAGA DRIVE
SPRING HILL, TN 37174

PHONE: 615.626.9230
TURNER@BINKLEYDESIGN.COM

Architectural drawing of the second floor of a building. The drawing shows a gabled roof with a 12/12 pitch. A central chimney is located on the roof. The floor is labeled "SECOND FLOOR" and the ceiling is labeled "CEILING". A large window is shown on the right side of the floor. The drawing is oriented vertically on the page.

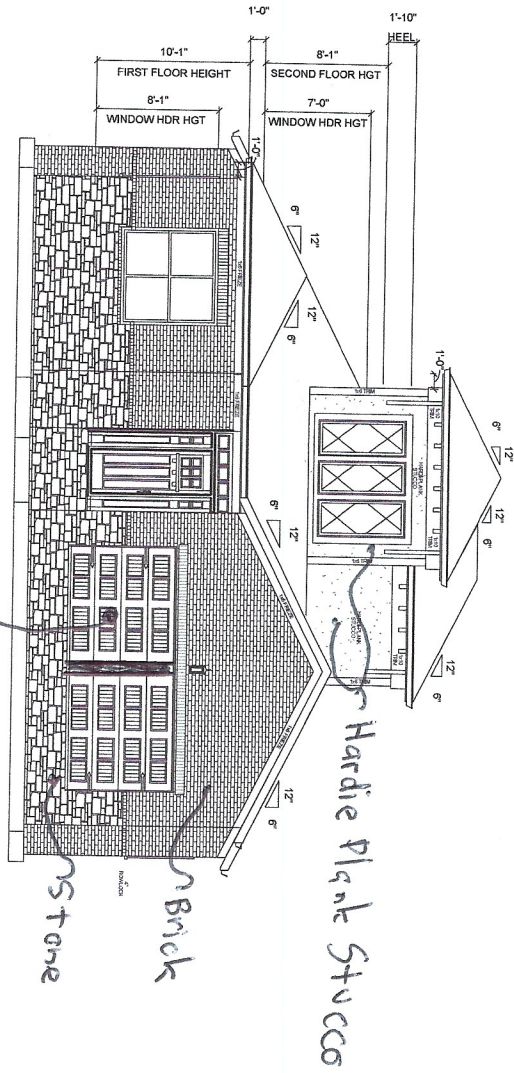
TímōSIX

REV.	DATE		
DATE			
08/11/2022			
PROJECT NUMBER			
DRAW BY			
CHECKED BY			
SEAL			
TITLE			
SHEET TITLE			
ELEVATIONS			

A4

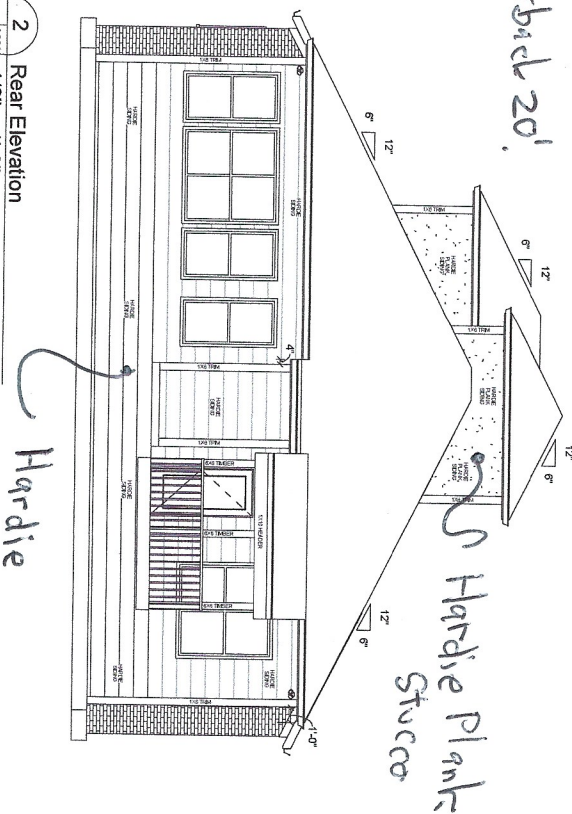
1
A201
1/8" = 1'-0"

Front Elevation



2
A201
1/8" = 1'-0"

Rear Elevation



A201

Elevations

1

Drawn By:

SV

11/15/2021

1/8" = 1'-0"

Plan Number:
X000

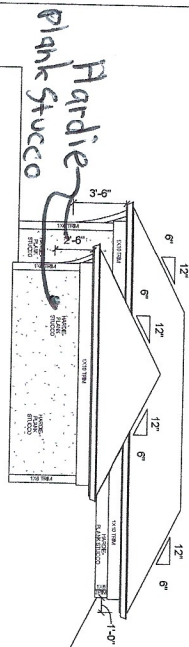
SSR 25

It is the intent of these documents to provide sufficient information to an experienced builder to complete the project shown. It is the responsibility of the builder to verify the accuracy and compliance with all regulatory agencies prior to construction. Agency requirements must take precedence over those shown herein. Discrepancies must be reported to a representative of Calstar Homes immediately.

Plan Name:

SEA SCAP C
STILL SPRINGS RIDGE RH CRAWL
2C

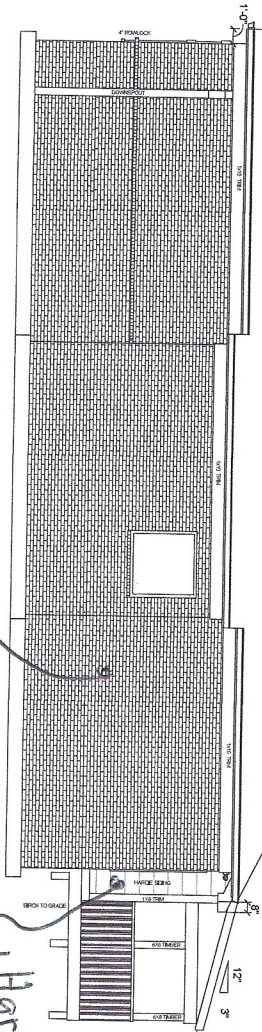




1 Right Elevation
 1/8" = 1'-0"

Brick

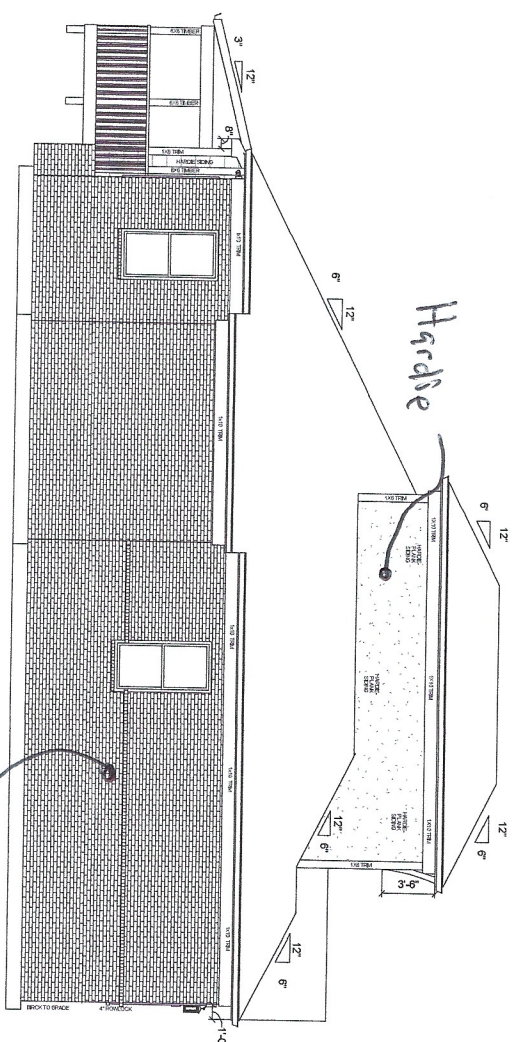
Hardie



2 Left Elevation
 1/8" = 1'-0"

Brick

Hardie



A202

Elevations

AS: 1

Drawn By: SV

11/15/2021

1/8" = 1'-0"

Plan Number: X000

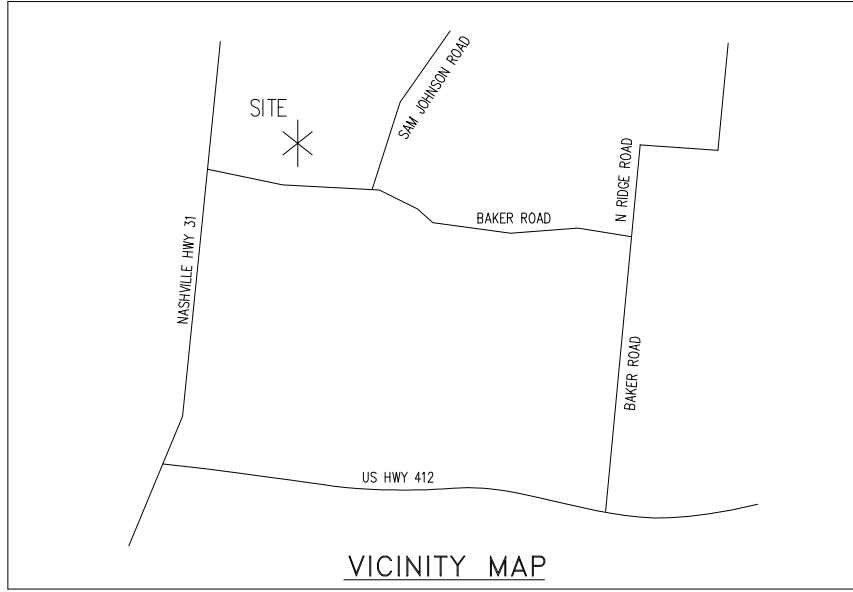
SSR 25

It is the intent of these documents to provide sufficient information to an experienced builder to complete the project shown. It is therefore the responsibility of the builder to verify the accuracy and compliance with all regulatory agencies prior to construction. Agency requirements must take precedence over those shown here-in. Discrepancies must be reported to a representative of Calstar Homes immediately.

Plan Name:

SEA SCAPE C
 STILL SPRINGS RIDGE RH CRAWL
 2C





Owner: Welling Corporation
Fred Stevenhagen – President
1224 A Columbia Pike
Franklin, Tn. 37067
Engineer: Dewaal & Associates
John Dewaal
615-394-3347 jddewaal@bellsouth.net



100 50 0 100 200
Scale: 1" = 100'-0"

57.44 ACRES
143 LOTS
MAP 75, PARCEL 11.00



MASTER PLAN REVISION – GRADING
COLTER PLACE PUD
CITY OF COLUMBIA
MURRAY COUNTY, TENNESSEE

10-14-22

11-21-22

09-18-17

PUD REVISED

PUD REVISED

1" = 100'

GRH

JGD

DEWAAL & ASSOCIATES
CONSULTING ENGINEERS

2810 Leeville Rd
Mt Juliet TN 37122
(615) 394-3347

STATE OF TENNESSEE
REGISTERED PROFESSIONAL ENGINEER
AGRICULTURE
COMMISSION
5856

Page 10 of 412

Surveyor's Description

Maury County

Property Map 75 | Parcel 11.17

Being a tract or parcel of land located in Columbia, Maury County, Tennessee, said tract being the property conveyed to Welling Corporation by deed as shown in Record Book 2442, Page 1419, R.O.M.C., and being more particularly described as follows;

Beginning at a point located in the westerly Right-of-Way line of Langley Lane, said point being the northeasterly corner of property conveyed to Nancy Williams by deed as shown in Record Book 2440, Page 1276, R.O.M.C., and being the Point of Beginning for the herein described tract,

Thence, with the northerly line of Nancy Williams (RB2440-1276) and the northerly line of Valerie Mitchell (R2767-1122) N 68deg 58min 42sec W, 192.98 feet to an existing pin,

Thence, continuing with the northerly line of Mitchell (RB2767-1122) N 68deg 58min 42sec W, 128.66 feet to an existing pin,

Thence, with the easterly line of Rogers Group property (RB2578-527) N 4deg 31min 45sec E, 108.18 feet to an existing pin,

Thence, continuing with the northerly line of Rogers Group (RB2578-527) N 86deg 35min 42sec W, 242.69 feet to an existing pin,

Thence, with the easterly line of Ann Conner (RB1699-187) N 32deg 04min 00sec E, 164.99 to an existing pin,

Thence, continuing with Conner (RB1699-187) N 64deg 48min 22sec E, 191.31 feet to an existing pin,

Thence, continuing with Conner (RB1699-187) N 6deg 03min 29sec E, 326.63 feet to an existing pin,

Thence, with the easterly line of John Miles (RB2660-1324) N 6deg 21min 09sec E, 774.60 feet to an existing pin,

Thence, continuing with Miles (RB2660-1324) N 6deg 08min 58sec E, 436.78 feet to an existing pin,

Thence, with the southerly line of Cindy Williams (RB1887-304) S 77deg 08min 34sec E, 846.13 feet to an existing pin,

Thence, continuing with Williams (RB1887-304) S 76deg 53min 33sec E, 567.82 feet to an existing pin,

Thence, with the westerly line of the Fritsch Family Trust (RB2285-769) S 8deg 06min 53sec W, 318.29 feet to an existing pin,

Thence, with the westerly line of the City of Columbia property (Deed Book 16 – Page 358) S 9deg 59min 35sec W, 238.15 feet to an existing pin,

Thence, continuing with the City of Columbia property (DB16 – PG358) S 6deg 46min 54sec W, 132.93 feet to an existing pin,

Thence continuing with the City of Columbia property (DB16 – PG358) S 6deg 54min 55sec W, 525.79 feet to an existing pin,

Thence, continuing with the City of Columbia property (DB16 – PG358) S 54deg 38min 46sec W, 478.78 feet to an existing pin,

Thence, continuing with the City of Columbia property (DB16 – PG358) S 25deg 00min 46sec W, 92.99 feet to an existing pin,

Thence, continuing with the City of Columbia property (DB16 – PG358) S 17deg 57min 23sec W, 328.54 feet to an existing pin,

Thence, with the northerly line of Corrine Ragsdale (RB2678-513) N 68deg 58min 42 sec W, 87.54 feet to an existing pin,

Thence, continuing with the northerly line of Ragsdale (RB2678-513) and with the northerly line of Randy Jones (RB 2423-861) N 68deg 58min 42sec W, 200.00 feet to an existing pin,

Thence, with the northerly Right-of-Way terminus of Blaise Lane N68deg 58min 52sec W, 50.25 feet to an existing pin,

Thence, continuing with the westerly Right-of-Way line of Blaise Lane S 21deg 01min 18sec W, 13.43 feet to an existing pin,

Thence, with the northerly line of Susan King (RB2380-94) and the northerly line of W.C. Matthews (RB2488-1443) N 68deg 58min 40 sec W, 233.37 feet to an existing pin,

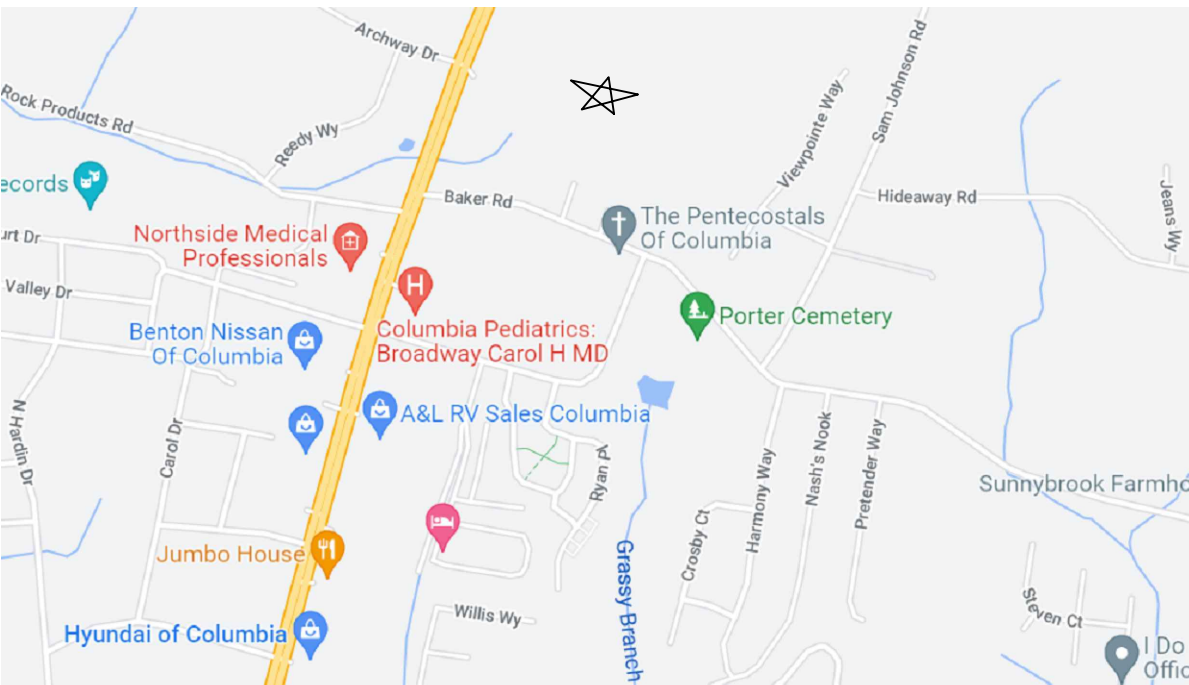
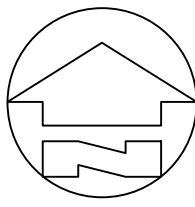
Thence, leaving said line with the northerly Right-of-Way terminus of the aforementioned Langley Lane N 68deg 58min 42sec W, 50.00 feet to an existing pin and the Point of Beginning.

Containing 2,501,918 square feet or 57.44 acres, being the same more or less.

Benny M. Cantrell
Tennessee RLS 1638
P.O. Box 293192
Nashville, Tn 37229

FILE NAME: C:\Users\masen\OneDrive\Desktop\1-Marty Cantrell, RLS\185-coller place\185-Survey at Colter Place.dwg

CINDY C. WILLIAMS
MAP 75. PARCEL 11.01
DEED_ R1887-304



VICINITY MAP
NOT TO SCALE

DAVID
BRYANT
MAP 75.
PARCEL
DEED_ 11.06
R2087-1450

FRITSCH
FAMILY
TRUST
MAP 75.
PARCEL
11.18
DEED_
R2285-769

CITY OF
COLUMBIA TN
MAP 75
PARCEL 11.03
DEED:
BOOK 16
PAGE 358

WELLING CORPORATION
MAP 75
PARCEL 11.17
DEED:
R 2442-1419

* SITE *
ADDRESS 0 BAKER ROAD

JOHN D.
MILES
MAP 75
PARCEL 12
DEED_
R2660-1324

ANN K.
CONNER
MAP 75
PARCEL 13
DEED_
R1699-187

ROGERS
GROUP
MAP 75
PARCEL 11.00
DEED_
R 2578-527

VALERIE
MITCHELL
MAP 75(A)
PARCEL 8
DEED
R 2767-1122

VALERIE
MITCHELL
MAP 75(A)
PARCEL 7
DEED
R2767-1122

NANCY
WILLIAMS
MAP 75(A)
PARCEL 6
DEED
R2440-1276

W.C.
MATTHEWS
MAP 75(A)
PARCEL 5
DEED
R2488-1443

SUSAN C.
KING
MAP 75(A)
PARCEL 4
DEED
R2380-94

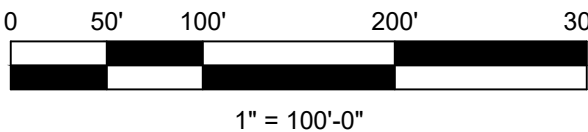
RANDY
JONES
MAP 75(A)
PARCEL 3
DEED
R2423-861

CORRINE RAGSDALE
MAP 75(A)
PARCEL 2
DEED
R2678-513

GENERAL NOTES

1. BEARING BASIS: GPS OBSERVATIONS / TDOT NETWORK / TN 4100 / NAD83.
2. MAP REFERENCE: MAURY CO. PROPERTY MAP 75, PARCEL 11.17, R.O.M.C.
3. PLAT REFERENCE: (SEE DEED OF RECORD).
4. DEED REFERENCE: RECORD BOOK R2442, PAGE 1419, R.O.M.C.
5. ADDRESS: 0 BAKER ROAD
COLUMBIA, TN 38401
6. AREA: PROPERTY CONTAINS 2,501,918 SQ. FEET OR +/- 57.44 ACRES.
7. NO TITLE REPORT WAS FURNISHED TO THIS SURVEYOR.
8. THE SURVEY AS SHOW IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
9. PROPERTY CORNERS EXIST (O) / SET (N) / CALCULATED (CALC) AS SHOWN HEREON.
10. FEMA: THE PROPERTY SHOWN HEREON IS NOT LOCATED IN AREAS DESIGNATED AS 100 YEAR FLOOD ZONE PER F.E.M.A. MAP #47119C0170E DATED 04/ 16/ 2017.

BOUNDARY SURVEY
COLTER PLACE PROPERTY
0 BAKER ROAD
COLUMBIA, MAURY COUNTY, TENNESSEE 38401



DATE: 10/15/2022

prepared by...

Marty Cantrell, RLS
P.O. Box 293192
Nashville, TN 37229
c 615.390.2729
marty.cantrell1964@gmail.com



file

This Instrument Prepared By:
 R. W. Hardison, Esq.,
 Hardison Law Office, PLLC
 3312 Kedron Road, Spring Hill, TN 37174

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR COLTER PLACE SUBDIVISION

This Declaration of Covenants, Conditions, and Restrictions (hereinafter referred to as "Declaration") is made this 1st day of October, 2015, by MAHON ROAD HOLDINGS, LLC, a Tennessee Limited Liability Company (hereinafter referred to as "Declarant").

Declarant is the owner of the real property described in Exhibit "A" attached hereto and incorporated herein by reference and is the developer of said real property. Declarant intends by this Declaration to impose upon the Properties (as defined herein) mutually beneficial restrictions under a general plan of improvement for the benefit of all owners of residential property within the Properties. Declarant desires to provide a flexible and reasonable procedure for the overall development of the Properties, and to establish a method for the administration, maintenance, preservation; use and enjoyment of such Properties as are now or hereafter subjected to this Declaration.

Declarant hereby declares that all the Properties described in Exhibit "B" and any additional property as is hereafter subjected to this Declaration by Supplemental Declaration (as defined herein) shall be held, sold, and conveyed subject to the following easements, restrictions, covenants, and conditions which are for the purpose of protecting the value and desirability of and which shall run with the real property subjected to this Declaration and which shall be binding on all parties having any right, title, or interest in the described Properties or any part thereof, their heirs successors, successors-in-title, and assigns, and shall inure to the benefit of each owner thereof. This Declaration does not and is not intended to create a condominium within the meaning of the Tennessee Horizontal Property Act, Tenn. Code Ann. §§ 66.27-101, et seq.

Declarant desires to complete the development of the COLTER PLACE Subdivision including the infrastructure thereof and the common amenities thereto.

Declarant has deemed desirable, for the efficient preservation of the values and amenities in said community, to create an agency to which should be delegated and assigned the powers of maintaining and administering the community properties and facilities and administering and enforcing the covenants and restrictions and collecting and disbursing the assessments and charges hereinafter created.

Declarant has caused or will cause to be incorporated under the laws of the laws of the state of Tennessee, as a non-profit corporation, the COLTER PLACE Homeowners Association, Inc. for the purpose of exercising the functions aforesaid.

Now, thereof, the Declarant hereby declares that the real property described in Exhibit "B" hereof is and shall be held transferred, sold, conveyed, and occupied subject to the covenants, conditions, restriction, easements, charges and liens (sometimes referred to herein as the "Covenants, Conditions, and Restrictions" or as the "Restrictions") hereinafter set forth which are for the purpose of protecting the value and desirability of and which shall run the real property and be binding upon all parties having any right, title, or interest in the describes properties or any part thereof, their heirs, successors or assigns and shall inure to the benefit of each owner thereof.

ARTICLE I **DEFINITIONS**

Section 1. Area of Common Responsibility shall mean and refer to the Area, together with those areas, if any, which by the terms of this Declaration or by contract become the responsibility of the Association. The office of any property manager employed by or contracting with the Association, if located on the Properties, or any public right-of-way within or adjacent to the Properties, may be part of the Area of Common Responsibility.

Section 2. Articles of Incorporation or Articles shall mean and refer to the Articles of Incorporation of COLTER PLACE Homeowners Association, Inc. as file with the Secretary of State of the State of Tennessee.

Section 3. Association shall mean and refer to COLTER PLACE Homeowners association Inc. a Tennessee nonprofit corporation its successors or assigns. The "Board of Directors" or "Board" shall be the elected body having its normal meaning under Tennessee corporate law.

Section 4. Base Assessment shall mean and refer to assessments levied against all Units in the Properties to fund Common Expenses.

Section 5. By Laws" shall mean and refer to COLTER PLACE Homeowners Association Inc. attached hereto as Exhibit "C" and incorporated herein by reference as they may be amended from time to time.

Section 6. Class "B" Control Period shall mean and refer to the period of time during which the Declarant, as the Class "B" Member is entitled to appoint at least a majority of the members of the Board of Directors as provided in Article III, Section 2(b) of the Declaration and Article III Section 2 of the By-Laws.

Section 7. Common Area shall mean all real and personal property, which the Association now or hereafter owns or otherwise holds for the common use and enjoyment of all owners. The initial Common Area shall be conveyed to the Association prior to the conveyance of any unit purchaser other than a builder or developer holding title for the purpose of development and resale.

Section 8. Common Expenses shall mean and include the actual estimated expenses incurred by the association for the general benefit of all unit Owners including any reasonable reserve all as many found to be necessary and appropriate by the Board pursuant to this Declaration, the By-Laws and the Articles of Incorporation of the Association.

Section 9. Community-Wide Standard shall mean the standard of conduct, maintenance, or other activity generally prevailing throughout the Properties. The Board of Directors and the Architectural Review Committee may more specifically determine such standard.

Section 10. Declarant shall mean and refer to MAHON ROAD HOLDINGS, LLC, a Tennessee Limited Liability Company, its successors and/or assigns.

Section 11. Member shall mean and refer to a Person entitled to membership in the Association, as provided herein.

Section 12. Mortgage shall mean and refer to a purchase money lien against the title to any Unit.

Section 13. Mortgagee shall mean and refer to a beneficiary or holder of a Mortgage.

Section 14. Mortgagor shall mean and refer to any person who gives a Mortgage.

Section 15. Owner shall mean and refer to one (1) or more persons who hold the record title to any unit, which is part of the Properties, but excluding in all cases any party holding an interest merely as security for the performance of an obligation. If a unit is sold under a recorded contract of sale, and the contract specifically so provides, then the purchaser (rather than the fee owner) will be considered the owner.

Section 16. Person means a natural person, a corporation, a partnership, a trust, or any other legal entity.

Section 17. Properties shall mean and refer to the real property described in Exhibit "B" attached hereto, together with such additional property as is hereafter subjected to this Declaration by Supplemental Declaration.

Section 18. Special Assessment shall mean and refer to assessments levied in accordance with Article X, Section 4 of this Declaration.

Section 19. Supplemental Declaration shall mean an amendment or supplement to this Declaration which subjects additional property to this Declaration or imposes, expressly or by reference, additional restrictions and obligations on the land described therein or both.

Section 20. Unit shall mean a portion of the Properties, whether developed or undeveloped, intended for occupancy as a detached residence for a single family. The term shall include all portions of the lot owned, including any structure thereon. In the case of a parcel of vacant land on which improvements are under construction, the parcel shall be deemed to contain the number of units planned for such parcel until such time as a certificate of occupancy is issued on all or a portion thereof by the local government entity having jurisdiction, after which the portion designated in the certificate of occupancy shall constitute a separate Unit or Units as determined above and the number of Units on the remaining land, if any, shall continue to be determined in accordance with this section.

ARTICLE II **PROPERTY RIGHTS**

Every Owner shall have a right and easement in and to the Common Area, subjected to this Declaration as it may be amended from time to time and to any restrictions or limitations contained in any deed conveying such property to the Association. Any Owner may delegate his or her right of enjoyment to the members of regulation by the board and in accordance with procedures it may adopt. An owner who leases his or her Unit shall be deemed to have delegated all such rights to the Unit's lessee.

Declarant reserves the right to amend this Declaration unilaterally at any time, without prior notice and without the consent of any person, for the purpose of removing certain portions of the Properties then owned by the Declarant or its affiliated or the Association from the provisions of this Declaration to the extent originally included in error or as a result of any changes whatsoever in the plans for COLTER PLACE desired to be effected by the declarant, provided such withdrawal is not unequivocally contrary to the overall, uniform scheme of development for COLTER PLACE.

ARTICLE III
MEMBERSHIP AND VOTING RIGHTS

Section 1. Membership. Every Owner, as defined in Article I, shall be deemed to have a membership in the Association. No owner whether one (1) or more persons, shall have more than one (1) membership per unit owned. The rights and privileges of membership may be exercised by a member or the member's spouse, subject to the provisions of this Declaration and the By-Laws. The membership rights of a Unit owned by a corporation or partnership shall be exercised by the individual designated by the Owner in writing to the secretary of the Association subject to the provisions of this Declaration and the By-Laws.

Section 2. Voting. The Association shall have two (2) classes of membership, Class "A" and Class "B", which are defined as follows.

(a) Class "A" Members shall be all Owners with the exception of the Class B member, if any. Class "A" Members shall be entitled to one (1) equal vote for each unit in which they hold the interest required for membership under Section 1 hereof.

(b) Class "B" Member shall be the declarant. The rights of the Class "B" member, including the right to approve actions taken under this Declaration and the By-Laws, are specified elsewhere in the Declaration and the By-Laws. The Class "B" member shall be entitled to in its sole discretion, appoint the members of the board of directors during the Class "B" Control period subject only to Article III, Section 6 and any Committee as provided in Article III Section 3 of the By-Laws. The Class "B" Controls Period shall terminate, and the class "B" membership shall terminate and become converted to Class "A" membership upon the earlier of:

(i) When seventy-five percent (75%) of the units planned for the Properties have certificates of occupancy issued thereon and have been conveyed to persons other than the declarant or builders holding title solely for the purpose of re-sale;

(ii) January 1, 2025; or

(iii) When in its discretion, the class "B" Member so determines.

ARTICLE IV MAINTENANCE

Section 1. Association's Responsibility. The association shall maintain and keep in good repair the Common Area, such maintenance to be funded as hereinafter provided. This maintenance shall include, but need not be limited to, maintenance, repair, and replacement of all landscaping and other flora, structures, and improvements situated upon the Common Areas. Maintenance may also include such portions of any additional property included within the Common Area as many are dictated by this Declaration, or by a contract or agreement for maintenance thereof by the Association.

Except as otherwise specifically provided herein, all costs associated with the maintenance, repair and replacement of Common Areas shall be a Common Expense to be allocated among all units as part of this Declaration.

The Association may maintain property, which it does not own, including, without limitation, property dedicated to the public, if the Board of Directors determines that such maintenance is necessary or desirable to maintain the Community-Wide Standard.

Section 2. Owner's Responsibility. Each owner shall maintain his or her unit and all structures, exterior surfaces of the unit, parking areas, fences, and other improvements comprising the unit in a manner consistent with the Community-Wide Standard, unless such maintenance responsibility is otherwise assumed by or assigned to the Association. If any owner fails properly to perform his or her maintenance responsibility, the Association may perform it and assess all costs incurred by the association against the unit and the owner thereof in accordance with Article X Section 4 of this Declaration provided that the Association shall afford the owner reasonable notice and an opportunity to cure the problem prior to entry except when entry is required due to an emergency situation,

ARTICLE V INSURANCE AND CASUALTY LOSSES

Section 1. Insurance. The Association's Board of Directors, or its duly authorized agent, shall have the authority to and shall obtain blanket all-risk insurance, if reasonably available, for all insurable improvements on the Common Area. If blanket all-risk coverage is not reasonably available, then at a minimum an insurance policy providing fire and extended coverage shall be obtained. This insurance shall be in an amount sufficient to cover one hundred percent (100%) of the replacement cost of all structures located on units.

The Board shall also obtain a public liability policy covering the Common Area, the Association and its members for all damage or injury caused by the negligence of the Association or any of its members or agents. The publicly liability policy shall have at least a One million and 00/100 Dollar (\$1,000,000,000) single person limit as respects bodily injury and property damage and a Two million and 00/100 Dollar (\$2,000,000,000) limit on aggregate property damage.

Premiums for all insurance policies shall be included in the Base Assessment as defined in Article X Section 1. The policy may contain a reasonable deductible, and in the case of casualty insurance, the amount thereof shall be added to the amount of the policy in determining whether the insurance at least equals the full replacement cost. The deductible shall be paid by the party who would be liable for the loss of repair in the absence of insurance and in the event of multiple parties shall be allocated in relation to the amount each party's loss bears to the total.

All insurance coverage obtained by the Board of Directors shall be written in the name of the Association as trustee for the members as benefited parties, as further identified in subsection (b) below. Such insurance shall be further governed by the provisions hereinafter set forth

(a) All policies shall be written with a company licensed to do business in Tennessee which holds a Best's rating of A or better and its assigned a financial size category of XI or larger as established by A.M. Best Company, Inc. if reasonably available, or if not available, the most nearly equivalent rating.

(b) All policies shall be for the benefit of the Association and its members and their mortgages, as their interests may appear.

(c) Exclusive authority to adjust losses under policies obtained by the Association on the Properties shall be vested in the Association's Board of Directors provided, however, no Mortgagee having an interest in such losses may be prohibited from participating in the settlement negotiations, if any, related thereto.

(d) In no event shall the insurance coverage obtained and maintained by the Association's Board of Directors hereunder be bought into contribution with insurance purchased by individual Owners, occupants, or their Mortgagees.

(e) All casualty insurance policies shall have an inflation guard endorsement, if reasonably available, and an agreed amount endorsement with an annual review by one or more qualified persons, at least one of whom must be in the real estate industry and familiar with construction in the Middle Tennessee area.

(f) The Association's Board of Directors shall be required to make every reasonable effort to secure insurance policies that will provide for the following:

(i) A waiver of subrogation by the insurer as to any claims against the Association's Board of Directors, its manager, the Owners, and their respective tenants, servants, agents, and guests;

(ii) A waiver by the insurer of its rights to repair and reconstruct, instead of paying cash;

(iii) A statement that no policy may be cancelled, invalidated, suspended, or subject to nonrenewal on account of the actions of any one or more individual owners;

(iv) A statement that a policy may be cancelled, invalidated, suspended, or subject to nonrenewal on account of the conduct of any director, officer, or employee of the Association or its duly authorized manager without prior demand in writing delivered to the Association to cure the defect and the allowance of a reasonable time thereafter whereby the defect may be cured by the Association, its manager, any Owner or Mortgagee;

(v) That any "other insurance" clause in any policy excludes individual Owner's policies from consideration; and

(vi) That the Association will be given at least thirty (30) days' prior written notice of any cancellation, substantial modification, or non-renewal.

In addition to the other insurance required by this Section, the Board shall obtain as a common expense, workers compensation insurance, if and to the extent required by law, and a fidelity bond on directors, officers, employees and other persons handling or responsible for the Association's funds, if reasonably available as well as flood insurance, if required. The amount of fidelity coverage shall be determined in the directors' best business judgment but, if reasonably available, may not be less than three (3) months' assessments on all Units, plus reserves on hand. Bonds shall contain a waiver of all defenses based on all the exclusion of person serving without compensation and shall require at least thirty (30) days' prior written notice to the Association of any cancellation, substantial modification, or non-renewal.

Section 2. Individual Insurance. By virtue of taking title to a Unit subject to the terms of this Declaration, each owner covenants and agrees with all other owners and with the Association that each owner shall carry blanket all-risk casualty insurance on the units and structures constructed thereon meeting the same requirements as set forth in Section 1 of this Article V for insurance on the Common Area, unless the Association carries such insurance (which they are not obligated to do hereunder).

Each Owner further covenants and agrees that in the event of a partial loss or damage and destruction resulting in less than total destruction of structures comprising an individual unit the owner shall proceed promptly to repair or to reconstruct the damage and the destruction of structure comprising said unit and the owner shall proceed promptly to repair or to reconstruct the damaged structure in a manner consistent with the original construction or such other plans and specifications as are approved in accordance with Article XI of this Declaration. The owner shall pay any costs of repair or reconstruction which is not covered by insurance proceeds. In the event that the structure is totally destroyed, the owner may decide not to rebuild or reconstruct in which case the owner shall clear the unit of all debris and return it to substantially the natural state in which it existed prior to the beginning of construction and thereafter the owner shall continue to maintain the unit in a neat and attractive condition consistent with the Community-Wide Standard.

Section 3. Damage and Destruction.

(a) Immediately after damage or destruction by fire or casualty to all or any part of the Properties covered by insurance written in the name of the association, the Board of Directors or its duly authorized agent shall proceed with filing and adjusting all claims arising under such insurance and obtain reliable and detailed estimates of the cost of repair or reconstruction of the damage or destroyed Properties. Repair or reconstruction, as used in this sub-section, means repairing or restoring the Properties to substantially the same condition in which they existed prior to the fire or other casualty, allowing for any changes or improvements necessitated by changes in applicable building codes.

(b) Any damage or destruction to the Common Area shall be repaired or reconstructed unless the members representing at least seventy-five percent (75%) of the total vote of the Association, shall decide within sixty (60) days after the casualty not to repair or reconstruct. If for any reason either the amount of the insurance proceeds to be paid as a result of reconstruction, or both, are not made available to the Association within said period, then the period shall be extended until that information can be made available; provided however such extension shall not exceed sixty (60) days. No Mortgagee shall have the right to participate in the determination of whether the damage or destruction to Common Area shall be repaired or reconstructed.

(c) In the event that it should be determined in the manner described above that the damage or destruction to the Common Area shall not be repaired or reconstructed and no alternative improvements are authorized, then and in that event the affected portion of the Properties shall be restored to their natural state and maintained by the Association in the neat and attractive condition consistent with the Community-Wide Standard.

Section 4. Disbursement of Proceeds. If the damage or destruction for which the proceeds of insurance policies are paid is to be repaired or reconstructed, the proceeds, or such portion thereof as may be required for such purpose, shall be disbursed in payment of such repairs or reconstruction to the Common Area. Any proceeds remaining after defraying such costs of repair or reconstruction to the Common Area shall be retained by and for the benefit of the Association and placed in a capital improvements account. In the event no repair or reconstruction is made, any proceeds remaining after making such settlement as is necessary and appropriate with the affected Owner or Owners and their Mortgagee(s) as their interests may appear, shall be retained by and for the benefit of the Association and placed in a capital improvements account. This is a covenant for the benefit of any Mortgagee of a Unit and may be enforced by such Mortgagee.

Section 5. Repair and Reconstruction. If the damage or destruction to the Common Area is to be repaired or reconstructed, and such proceeds are not sufficient to defray the cost thereof, the Board of Directors shall, without the necessity of a vote of the members, levy a special assessment against all owners on the same basis as provided for Base Assessments. Additional assessments may be made in like manner at any time during or following the completion of any repair or reconstruction.

ARTICLE VI **NO PARTITION**

Except as is permitted in this Declaration or amendments thereto, there shall be no physical partition of the Common Area nor may any party seek any judicial partition unless the Properties have been removed from the provisions of this Declaration. This Article shall not be construed to prohibit the Board of Directors from acquiring and disposing of tangible personal property nor from acquiring title to real property, which may or may not be subject to this Declaration.

ARTICLE VII **CONDEMNATION**

Whenever all or any part of the Common Area shall be taken (or conveyed in lieu of and under threat of condemnation by the Board acting on the written direction of Declarant, as long as the Declarant owns any property described on Exhibit "A" or domain, each owner shall be entitled to notice thereof. The award made for such taking shall be payable to the Association as trustee for all owners to be disbursed as follows:

If the taking involves a portion of the Common Area on which improvements have been constructed, then, unless within sixty (60) days after such taking the Declarant, so long as the Declarant owns any property described on Exhibit "A" or approved preliminary plat of one hundred (100%) percent of the total vote of the Association shall restore and replace such improvements so taken on the remaining land included in the Common Area to the extent lands are available thereof, in accordance with plans

approved by the Board of Directors of the Association. If such improvements are to be repaired or restored, the above provisions in Article V hereof regarding the disbursement of funds in respect to casualty damage or destruction which is to be repaired shall apply. If the taking does not involve any improvements on the Common Area, or if there is a decision made not to repair or restore, or if there are net funds remaining after such restoration or replacement is completed, then such award or net funds remaining shall be disbursed to the Association and used for such purposes as the Board of Directors of the Association shall determine.

ARTICLE VIII

ANNEXATION OF ADDITIONAL PROPERTY

Section 1. Annexation Without Approval Of Class "A" Membership. Declarant shall have the unilateral right, privilege, and option, from time to time as a Class "B" member to annex additional real property and subject it to the provisions of this Declaration and the jurisdiction of the Association. Such annexation shall be accomplished by filing in the public records of Maury County, Tennessee, an amendment to this Declaration annexing such property. Such Supplemental Declaration shall not require the consent of Class "A" members.

Section 2. Annexation With Approval of Class "A" Membership. The Association may annex additional real property and subject it to the provisions of this Declaration and the jurisdiction of the Association. Such annexation shall require the affirmative vote of members representing a majority of the class "A" votes of the Association (other than those held by declarant) present at a meeting duly called for such purpose and of the Declarant, so long as Declarant owns property subject to this Declaration or which may become subject hereto in accordance with Section 1 of this Article. Annexation shall be accomplished by filling of record in the public records of Maury County, Tennessee a Supplemental Declaration describing the property being annexed. Any such Supplemental Declaration signed by the President and the Secretary of the Association, and by the owner of the property being annexed, and any such annexation shall be effective upon filing unless otherwise provided therein.

Section 3. Acquisition of Additional Common Area. Declarant may convey to the Association additional real estate, improved or unimproved, located within the properties described in Exhibit "A" or upon Annexed Property which upon conveyance or dedication to the Association at its expense for the benefit of all its members.

Section 4. Amendment. This Article shall not be amended without prior written consent of Declarant, so long as the Declarant owns any property described in Exhibit "A" hereof.

ARTICLE IX
RIGHTS AND OBLIGATIONS OF THE ASSOCIATION

Section 1. Common Area. The Association, subject to the rights of the owners set forth in this Declaration, shall be responsible for the exclusive management and control of the common area and all improvements thereon (including, without limitation, furnishing and equipment related thereto and common landscaped areas) and shall keep it in good, clean, attractive, and sanitary condition, order, and repair, pursuant to the terms and conditions hereof and consistent with the Community-Wide Standard.

Section 2. Personal Property and Real Property for Common Use. The Association through action of its Board of Directors may acquire hold, and dispose of tangible and intangible personal property and real property. The board acting on behalf of the Association shall accept any real property or personal property, leasehold, or other property interests within the properties conveyed to it by the Declarant.

Section 3. Community Standards. The Association through its Board of Directors may make and enforce reasonable community standards governing the use of the Properties, which community standards shall be consistent with the rights and duties set forth herein. The Board shall, in addition, have the power to seek relief in any court for violations or to abate nuisances. Imposition of sanctions shall be as provided by the By-Laws of the Association. The Association, acting through the Board by contract or other agreement, shall have the right to seek enforcement of applicable ordinances for the benefit of the Association and its Members.

Section 4. Implied Rights. The Association may exercise any other right or privilege given to it expressly by this Declaration or the By-Laws, and every other right or privilege reasonably to be implied from the existence of any right or privilege given to it herein or reasonably necessary to effectuate any such right or privilege.

ARTICLE X
ASSESSMENTS

Section 1. Creation of Assessments. There are hereby created assessments for Association expenses as may from time to time specifically be authorized by the Board of Directors to be commenced at the time and in the manner set forth in Section 7 of this Article. There shall be two (2) types of assessments: (a) Base Assessments to fund Common Expenses for the benefit of all Members of the Association; and (b) Special Assessments as described in Section 4 below. Base Assessments shall be levied equally on all Units. Special Assessments shall be levied as provided in Section 3 below. Each Owner, by acceptance of his or her deed or recorded contract of sale, is deemed to covenant and agree to pay these assessments.

Base Assessments, together with interest at a rate not to exceed ten (10%) percent or the highest rate allowed by Tennessee law as computed from the date the delinquency first occurs costs, and reasonable attorney's fees shall be a charged on the Unit and shall be a continuing lien upon the Unit against which each assessment is made. Each such assessment, together with interest, costs, and reasonable attorney fees, shall also be the personal obligation of the person who was the Owner of such Unit at the time the assessment arose, but his or her grantee shall not be jointly and severally liable for such portion thereof as may be due and payable at the time of conveyance unless the obligation is expressly assumed by them. No Mortgagee who obtains title to a Unit pursuant to the remedies provided in the Mortgage shall be liable for such portion thereof as may be due and payable at the time of conveyance unless they expressly assume the obligation. No Mortgagee who obtains title to a Unit pursuant to the remedies provided in the Mortgage shall be liable for unpaid assessments, which accrued prior to acquisition of title.

The Association shall, upon demand at any time, furnish to any Owner liable for any type of assessment a certificate in writing signed by an officer of the Association setting forth whether such assessment has been paid as to any particular Unit. Such certificate shall be conclusive evidence of payment to the Association of such assessments therein stated to have been paid. The Association may require the advance payment of a processing fee not to exceed Fifty and 00/100 Dollars (\$50.00) for the issuance of such certificate.

Assessments shall be paid in such manner and on such dates as may be fixed by the Board of Directors which may include, without limitation, acceleration of the annual Base Assessment for delinquents, including Owners' delinquent in the payment of fines imposed in accordance with Article III, Section 22, of the By-Laws. Unless the Board otherwise provides, the Base Assessment shall be paid in monthly installments.

No Owner may waive or otherwise exempt himself from liability for the assessments provided for herein, including, by way of illustration and not limitation, by non-use of Common Areas or abandonment of the Unit. The obligation to pay assessments is a separate and independent covenant on the part of each owner. No diminution or abatement of assessment or set-off shall be claimed or allowed by reason of any alleged failure of the Association or Board to take some action or perform some function required to be taken or preformed by the Association or Board under this Declaration or the By-Laws, or for inconvenience or discomfort arising from the making of repairs or improvements which are the responsibility of the Association, or from any action taken to comply with any law, ordinance, or with any other or directive of any municipal or other governmental authority.

So long as the Declarant has an option unilaterally to subject additional property to this declaration, the following shall apply: unless assessments have commenced, pursuant to Section 7 below, on all Units subject to this Declaration as of the first day of any fiscal year, the declarant shall be obligated for the difference between the amount of actual expenditures required to operate the Association during the fiscal year. The

obligation may be satisfied in the form of a cash subsidy or by "in kind" contributions of services or materials, or a combination of these.

The Association is specifically authorized to enter into subsidy contracts or contracts for "in kind" contribution of services or materials or a combination of services and materials with Declarant or other entries for the payment of some portion of the Common Expenses.

Section 2. Computation of Base Assessment. It shall be the duty of the Board, at least sixty (60) days before the beginning of each fiscal year, to prepare a budget covering the estimated Common Expenses of the Association during the coming year. The budget may include a capital contribution establishing a reserve fund in accordance with a capital budget separately prepared. The Base Assessment to be levied for the coming year against each unit subject to assessment under Section 7 below shall be computed by dividing the budgeted Common Expenses by the total number of Units subject to Assessments as of sixty (60) days before the end of the current fiscal year. The Board shall cause a copy of the Common Expenses budget and notice of the amount of Base Assessment to be levied against each Unit for the following year to be delivered to each owner at least thirty (30) days prior to the beginning of the fiscal year. There shall be no obligation to call a meeting for the purpose of considering the budget except on petition of the Members as provided for special meetings in Article II, Section 4, of the By-Laws.

Notwithstanding the foregoing, however, in the event the proposed budget is disapproved or the Board fails for any reason so to determine the budget for any year, then and until such time as a budget shall have been determined as provided herein, the budget in effect for the immediately preceding year shall continue for the current year.

Section 3. Special Assessments. In addition to the assessments authorized in Section 1 of this Article, the Association may levy a Special Assessment not to exceed fifteen (15%) percent of the budget. Special Assessments shall be payable in installments extending beyond the fiscal year in which the Special Assessment is approved, if the Board so determines.

The board may also levy a Special Assessment against any Member, without the necessity of a vote of the Members, to reimburse the Association for costs incurred in bringing a Member and his Unit into compliance with the provisions of the Declaration, any amendments thereto, the Articles, the By-Laws, and the Association rules, which Special Assessments may be levied upon the vote of the Board after notice to the Member and an opportunity for a hearing.

Section 4. Lien for Assessments. Upon recording of a notice of lien on any Unit, there shall exist a perfected lien for unpaid assessments prior and superior to all other liens except (1) all governmental taxes and assessments and other levies which by law would be superior thereto, and (2) the lien or charge of any first Mortgage of record (meaning any recorded Mortgage with first priority over other Mortgages) made in good faith and for value. Such lien, when delinquent, may be enforced by suit, judgment, and foreclosure. The sale or transfer of any Unit shall not affect the lien of assessments.

The Association, acting on behalf of the Owners, shall have the power to bid for the Unit at foreclosure sale and to acquire and hold, lease, mortgage, and convey the same. During the period in which a Unit is owned by the Association following foreclosure: (a) no right to vote shall be exercised on its behalf; (b) No assessment shall be assessed or levied on it; and (c) each other Unit shall be charged, in addition to its usual assessment, its equal pro rata share of the assessments that would have been charged such Unit had it not been acquired by the Association as a result of foreclosure. Suit to recover a money judgment for unpaid common expenses and attorney's fees shall be maintainable without foreclosing or waiving the lien securing the same.

Section 5. Capital Budget and Contribution. The Board of Directors may annually prepare a capital budget to take into account the number and nature of replacement cost. The Board may set the required capital contribution, if any in an amount sufficient to permit meeting the projected capital needs of the Association, as shown on the capital budget, with respect both to amount and timing by annual assessments over the period of the budget. The capital contribution required, if any, shall be fixed by the Board of Directors and included within and distributed with the budget and assessment, as provided in Section 2 of this Article.

Section 6. Date of Commencement of Annual Assessments. The assessments provided for herein shall commence as to all Units upon conveyance of the first Unit to a person other than a builder or developer holding title solely for purposes of development and/or resale. Assessments shall be due and payable in a manner and on a schedule as the Board of Directors may provide. The first annual assessments shall be adjusted according to the number of days remaining in the fiscal year at the time assessments commence on the Unit.

Section 7. Subordination of the Lien to First Mortgages. The lien of assessments including interest, late charges (subject to the limitations of Tennessee law) provided for herein, shall be subordinate to the lien of any first Mortgage (meaning any recorded Mortgage with first priority over other Mortgages) upon any Unit. A foreclosure sale or transfer in lieu of a first mortgage shall extinguish the lien of such assessments as to payments which became due prior to such sale or transfer. No foreclosure sale or transfer in lieu of a mortgage, first or otherwise, shall relieve such Unit from lien rights for any assessments thereafter becoming due. Where the Mortgagee holding a first Mortgage of record or other purchaser of a Unit obtains title pursuant to remedies under the Mortgagee holding a first Mortgage of record or other purchaser of a Unit obtains pursuant to remedies under the Mortgage, its successors and assigns shall not be liable for

the share of the common expenses or assessments by the Association chargeable to such Unit which became due prior to the acquisition of title to such Unit by such acquirer but shall be liable otherwise. Such unpaid share of Common Expenses shall be collected from Owners of all Units, including such acquirer, its successors and assigns.

Section 8. Capitalization of Association. Upon acquisition title to a Unit by the first purchaser thereof other than the Declarant or an owner who purchases solely for the purposes of constructing a dwelling thereon for resale, a contribution shall be made by or on behalf of the purchaser to the working capital of the Association in the amount of Two hundred and 00/100 Dollars (\$200.00) per unit for that year as determined by the Board. This amount shall be deposited into the purchase and sales escrow and disbursed to the Association to cover operating expenses and other expenses incurred by the association pursuant to the terms of this Declaration and the By-Laws.

Section 9. Exempt Property. Notwithstanding anything to the contrary herein, all Common Area shall be exempt from payment of Base Assessments and Special Assessments.

ARTICLE XI

ARCHITECTURAL STANDARDS

The Board of Directors shall have the authority and standing, on behalf of the Association, to enforce in courts of competent jurisdiction decisions of the committees established in Section 1 and 2 of this Article XI. This Article may not be amended without the Declarant's written consent so long as the Declarant owns any land subject to this Declaration or subject to annexation to this Declaration.

No construction, which term shall include within its definition staking, clearing, excavation, grading, and other site work, and no plantings or removal of plants, trees, or shrubs shall take place except in strict compliance with this Article, until the approval of the appropriate committee has been obtained. The following minimum design standards shall apply:

The Declarant at the time of sale and/or the plat is recorded for each phase/section of COLTER PLACE has the right to establish additional design standards to be used on homes in that particular phase/section of COLTER PLACE.

Section 1. Residences. The size of the residence including minimal living area shall be described in the design standard promulgated by Developer for each section of the COLTER PLACE development. The minimum total floor area of a residential structure shall be at least (i) 1,600 square feet (one story homes); and (ii) 2,000 square feet total (two story homes). All residences shall have –

- (a) Roofs. Roof materials are fungal and algae resistant asphalt shingles or their equivalent; Roof must be appropriate to the house's style of architecture with a pitch of not less 3:12; no flat roofs are permitted; roof skylights are permitted if they are flat and not visible from the street or from the side street of a corner lot.
- (b) Gutters. Gutters and downspouts may be copper, galvanized metal or aluminum. Aluminum and galvanized metal gutters must be painted to match the eaves. Downspouts are to be located at house corners the least visible from the street or incorporated into the façade design.
- (c) Eaves. The overhang depth and eave profile design must be appropriate to the house's style of architecture. The eave return profile or profile at the base of a gable pediment should match the rake profile except for additional molding at the top of the rake.
- (d) Windows. Windows must be PVC-clad or its equivalent – vinyl windows are permitted. Windows, including grid configuration must be appropriate to the house's style of architecture. Windows must have the same grid pattern for entire house.
- (e) Shutters. Shutters must be appropriate to the house's style of architecture and sized for the accompanying window.
- (f) Columns. Columns may be brick, stone, permacast, cedar, PVC or equivalent material. Columns must be appropriate to the house's style of architecture. The neck of any column should align with the porch rack above. The width of any column should be no less than 1/10th the height of the column. All masonry columns should be no less than 16 inches square.
- (g) Chimneys. Chimneys must be masonry, brick, stone, a fiber cement product of equivalent material. No chimney boxes are permitted. If any house has a fireplace, then the house must either have a chimney or no exterior protrusion at the site of the fireplace.
- (h) Balconies. Balconies that extend more than 12 inches from the face of a house must have brackets below. Balconies must be appropriate to the house's style of architecture and must have an open railing constructed of wood, vinyl, iron or equivalent material.
- (i) Bay Windows. All bay windows that extend more than 12 inches from the face of the house must have brackets below or must have a foundation. Bay windows must be appropriate to the house's style of architecture.

- (j) Exterior Façade Designs. Wall surface materials may be brick, stone, stucco, fiber cement siding, fiber cement shingle or equivalent material. Fiber cement stucco board may be used as a substitute for stucco in areas less than the 4 x 8 limits of stucco boards. Details, materials and colors of wall surface materials must be appropriate to the house's style of architecture. No more than 3 wall materials are permitted above the water table. All houses must have a visible water table. No horizontal width of brick, stone, stucco, wood siding or shingle should be less than 2 feet (columns and piers excluded). Any flashing that is visible from a street must be copper, galvanized metal or equivalent material. Utility connections and vents should not be visible from any street.
- (k) Porches and Entrances. All porches must be at least 6 feet deep and must be appropriate to the house's style of architecture. All steps to porches and entrances must be brick, stone, stamped concrete, concrete with brick or stone edging or equivalent material. Porch railings may be constructed of wood, decorative iron, precast concrete, stone balusters, vinyl or equivalent material. Low walls should be a minimum of 8 inches high and must have a masonry cap. Front porches may not be screened or enclosed.

Section 2. New Construction Committee. The New Construction Committee ("NCC") shall have exclusive jurisdiction over all original construction on any portion of the Properties. The NCC shall prepare and, on behalf of the board of directors, shall promulgate design and development guidelines and application and review procedures. Copies shall be available from the New Construction Committee for review. The guidelines and procedures shall be those of the Association, and the NCC shall have sole and full authority to prepare and to amend the guidelines and procedures. All Owners, builders and developers shall conduct their operations strictly in accordance with the guidelines and procedures of the NCC until one hundred percent (100%) of the properties have been developed and conveyed to purchasers.

In the normal course of development and sale, the Declarant retains the right to appoint all members of the NCC, which shall consist of at least one (1), but no more than five (5) persons. Declarant may surrender and at that time the Board of Directors shall appoint the members of the NCC in the same manner as provided in Section 2 of this Article for the Architectural Review or Modifications Committee ("ARC/MC").

The guidelines of the NCC shall follow the following standards: (i) thirty percent (30%) of the homes in the development shall have a full brick or stone foundation with "Hardie Plank" or equivalent siding and a front porch; (ii) forty percent (40%) of the homes in the development shall have exteriors with seventy percent (70%) brick or stone; and (iii) thirty percent of the homes in the development shall have exteriors with one hundred percent (100%) brick or stone.

Section 3. Architectural Review Or Modifications Committee. The Board of Directors may appoint an Architectural Review or Modifications Committee ("ARC/MC") to consist of at least three (3) and no more than five (5) persons, all of whom shall be appointed by the Board of Directors. The ARC/MC, if established, shall have exclusive jurisdiction over modification, additions, or alterations made on or to existing Units or structures containing Units and the open space, if any, appurtenant thereto. Members of the Board of Directors may be members of the ARC/MC.

The ARC/MC shall promulgate detailed standards and procedures governing its areas of responsibility and practice, consistent with the guidelines and procedures of the NCC. In addition thereto, the following shall apply: plans and specifications showing the nature, kind, shape, color, size, materials, and location of such modifications, additions, or alterations, shall be submitted to the ARC/MC for approval as to quality of workmanship and design and as to harmony of external design with existing structures, location in relation to surrounding structures, topography, and finish grade elevation. No permission or approval shall be required to repaint in accordance with an originally approved color scheme, or to rebuild in accordance with originally approved plans and specifications. Nothing contained herein shall be construed to limit the right of an Owner to remodel the interior of a unit, or to paint the interior of a Unit.

Section 4. No Waiver of Future Approvals. The approval of either the NCC or ARC/MC of any proposals or plans and specifications, or drawings will not preclude its right to withhold approval or consent as to any similar proposals, plans and specifications, or drawings subsequently or additionally submitted for approval or consent.

Section 5. Variance. The NCC may authorize variances from compliance with any of the provisions of its guidelines and procedures when circumstances such as topography, natural obstructions, hardship, aesthetic, or environmental considerations require, but only in accordance with duly adopted community standards. Such variances may only be granted, however, when unique circumstances dictate and no variance shall (a) be effective unless in writing, (b) be contrary to the restrictions set forth in the body of this Declaration, or (c) stop the committee from denying a variance in other circumstances. For purposes of this Section, the ability to obtain approval of any governmental agency, the issuance of any permit, or the terms of any financing shall not be considered a hardship warranting a variance.

Section 6. Enforcement In General

(a) Enforcement of the design standards may be by proceedings at law or in equity against any person or persons violating or attempting or threatening to violate a covenant or restriction, either to restrain a violation or to recover damages. Failure by the Declarant, community association or owner to enforce any restriction herein contained shall in no event be deemed a waiver of the rights to do so thereafter nor constitute an acquiescence in or an estoppel to any, actual or future, breaches or violations of these covenants and restrictions.

(b) In the event any cost or expenses including attorneys fees, are incurred by the Declarant, community association or any lot owner or occupant of a lot in connection with their action to correct or abate any violation or breach of the provisions hereof, provided reasonable notice to the owner or owners of the subject lot or lots to abate said violation or breach has been given, such cost and expenses shall be a lien against the owner or owners of the lot or lots committing such a breach of violation and such charges shall be subject to the provisions for lien when the nonexistence of a violation of breach hereof has been established by a court of competent jurisdiction. The court shall determine the method of handling a violation.

Section 7. Covenant and Creation of the Lien of Personal Obligation for Court Ordered Violation in Section 6

The Developer for each lot owned by him within the subdivision covenants agrees, and each owner of any lot by acceptance of a deed thereof whether or not it shall be so expressed in such deed as the conveyance shall be deemed to covenant and agree, to pay any court ordered violation cost and other costs or expenses incurred in Section 6, together with such intent thereon and cost of collection thereof, including attorneys fees, as provided herein, and shall be a lien on the property and shall be a continuing lien upon the property against which each such obligation is made. It shall also be the personal obligation of each person who was an owner of such property at the time of the violation

Section 8. Assignment. The rights and powers retained by the Declarant shall be freely assignable and shall insure to the benefit of its successors and assigns.

ARTICLE XII
USE RESTRICTIONS

The properties shall be used only for residential, recreational, and related purposes which may include, without limitation, offices for any property manager retained by the Association or business offices for the Declarant or the Association as may more particularly be set forth in this Declaration or amendments hereto.

The Association, acting through its Board of Directors, shall have authority to make and to enforce standards and restrictions governing the use of the properties, in addition to those contained herein, and to impose reasonable user fees for use of Common Area facilities. Such regulations and use restrictions shall be binding upon all Owners and occupants until and unless overruled, cancelled or modified in a regular or special meeting of the Association by the vote of Members representing a Majority of the total Class "A" votes in the association and with the consent of the Class "B" member, so long as such membership shall exist.

Section 1. Signs. No sign of any kind shall be erected within the properties without the written consent of the Board of Directors. The Board of Directors shall have the right to erect signs, as it, in its discretion, deems appropriate. Temporary signs, not exceeding a maximum face area of 36" by 24", such as "For Sale" signs, shall be permitted so long as (i) there shall be no more than one (1) sign per unit, and (ii) no such sign shall be placed outside the unit within street right-of-ways, common areas of units owned by others. Developer reserves the right to erect and maintain signs for its use and the use of other parties involved in the construction of improvements within the development and/or the sale of lots within the development.

Section 2. Parking and Garages. Each residence must have at least a two-car garage, attached to the residence, or provisions for a least a two-car garage in the basement and the entrance may be to the side or rear of the resistance. Due to the topography and/or size of some lots, front entrance garages will be allowed. Vehicles shall be parked only in the garages or in the driveways, serving the Units or in appropriate spaces or designated areas in which parking may or may not be assigned. No more than three (3) vehicles may be parked in any driveway. No parking shall be permitted on any street, except temporarily for social gatherings. Commercial vehicles, tractors, mobile homes, recreational vehicles, trailers (either with or without wheels), campers, camper trailers, boats, and other watercraft, and boat trailers may be parked for a period of up to 48 hours with approval of the Board of Directors to accommodate or allow owners time to find storage or parking space other than the COLTER PLACE community. Boats and other watercraft may be stored or parked in garage or basement if entry door can be closed.

Section 3. Occupants Bound. All provisions of the Declaration, By-Laws and of any community standards or use restrictions promulgated pursuant thereto which govern the conduct of Owners and which provide for sanctions against Owners shall also apply to all occupants, guests and invitees of any Unit.

Section 4. Animals and Pets. No animals, reptiles, livestock, birds, or poultry of any kind shall be raised, bred, or kept on any portion of the properties, except that dogs, cats, or other usual and common household pets not to exceed a total of three (3) may be permitted in a Unit. However, those pets which are permitted to roam free, or in the sole discretion of the Association, which endanger the health, make objectionable noise, or constitute a nuisance or inconvenience to the Owners of other Units or the owner of any portion of the Properties shall be removed upon request of the Board; if the owner fails to honor such request, the pet may be removed by the Board and turned over to the appropriate agency for keeping or disposal. No pets shall be kept, bred, or maintained for any commercial purpose. Dogs which are household pets shall at all times whenever they are outside a unit be confined on a leash held by or under the physical control of a responsible person or contained by a fence. No dog runs are allowed.

Section 5. Nuisance. No portion of the Properties shall be used, in whole or in part, for the storage of any property or thing that will cause it to appear to be in an unclean or untidy condition or that will be obnoxious to the eye; nor shall any substance,

thing, or materials be kept upon any portion of the Properties that will emit foul or obnoxious odors or that will cause any noise or other condition that will or might disturb the peace, quiet, safety, comfort, or serenity of the occupants of surrounding property. No noxious or offensive activity shall be carried on upon any portion of the properties. There shall not be maintained any plants or animals or device or thing of any sort whose activities or diminish or destroy the environment of the Properties.

Section 6. Unsightly or Unkempt Conditions. It shall be the responsibility of each Owner to prevent the development of any unclean, unhealthy, unsightly, or unkempt condition on his or her unit. The pursuit of hobbies or other actives, including specifically, without limiting the generality of the foregoing, the assembly of motor vehicles and other mechanical devices which might tend to cause disorderly, unsightly, or unkempt conditions, shall not be pursued or undertaken on any part of the Properties (except in the confines of the residence).

Section 7(a). Antennas. No exterior antennas, aerials, satellite dishes (except as set forth in Section 7(b)), or other apparatus for the transmission of television, radio, or other signals of any kind shall be placed, allowed, or maintained upon any portion of the Properties, including any Unit, without the prior written consent of the Board or its designee. The satellite dish, or other apparatus for a master antenna or cable system for the benefit of all or portion of the Properties, should any such master system or systems be utilized by the Association is hereby excepted from the provisions of this Section.

Section 7(b). Satellite Antenna Systems. Direct, digital satellite dishes will be allowed under the following conditions:

(a) Satellite Dishes cannot exceed one (1) meter in diameter and must be mounted in such a manner as not to be visible from the street.

(b) Before installation of the satellite dish, the homeowner must submit a written request to the Declarant or its assigns or the NCC or ACC/MC for written approval. The request must contain the size of dish, plot plan of lot with location of satellite dish and proposed screening. Approval will be determined on each individual request basis and will be at the sole discretion of the Declarant and its assigns or the NCC or the ACC/MC.

Section 8. Basketball Equipment, Clotheslines, Garbage Cans, Tanks, Etc.

(a) No clothes lines, above-ground tanks or pools, and other similar items shall be placed, allowed or maintained upon any portion of the Properties, including any neighboring units, streets, and property located adjacent to the Unit, except that garbage cans may be placed to curbside on days designated for trash pick up for that particular Unit. All rubbish, trash, and garbage shall be regularly removed from properties and shall not be allowed to accumulate thereon. Trash cans to be kept inside o screened from view at all other times.

(b) Permanent basketball hoops, backboards, and poles will be allowed under the following conditions: (1) the basketball hoops and/or backboards cannot be attached the residence and must be placed at the end of driveways and turnaround areas or rear yard as far away as feasibly possible from the adjacent home/unit; and (2) the above-mentioned basketball equipment can only be used between the hours of 8:00 a.m. and 10:00 p.m.

Section 9. Subdivision of Unit. No unit shall be subdivided or its boundary lines changed except with the prior written approval of the Board of Directors of the Association. Declarant, however, hereby expressly reserves the right to replat any unit or Units owned by Declarant.

Section 10. Guns. The discharge of firearms within the Properties is prohibited. The term "firearms" shall include "B-B" guns and other firearms of all types.

Section 11. Swimming Pools. Swimming pools below ground level for the use of residence occupants and their guests only may be constructed on lots provided that: (1) the location, plans and specifications thereof are approved by the Declarant and its assigns or the NCC or the ACC/MC; (2) all applicable laws, ordinances, community standards of governmental agencies are complied with, and all necessary governmental permits are obtained; and (3) such construction is not commenced until after construction of the residence has begun. Should a residence become vacant, that is, not occupied for residential purposes for more than thirty (30) days, the owner shall see that the pool prevents health and safety hazards. Aboveground pools are prohibited on the Properties. All units with underground pools shall be fenced in accordance with the provisions hereof.

Section 12. Tents, Trailers, Temporary Structures and Rear Lot Storage Buildings. Except as may be permitted by the NCC during initial construction within the Properties, no tent, utility, shed, shack, trailer, or other structure of a temporary nature shall be placed upon a Unit or any part of the properties. Rear lot storage buildings will not be allowed.

Section 13. Drainage and Septic Systems. Catch basins and drainage areas are for the purpose of natural flow of water only. No obstructions or debris shall be placed in these areas. No person other than Declarant may obstruct or re-channel the drainage flows after location and installation of drainage swales, storm sewers, or storm drains. The Developer on behalf of the Association hereby reserves a perpetual easement across the Properties for the purpose of altering drainage and water flow. Septic systems are prohibited on the Properties.

Section 14. Tree Removal. Except as may be permitted by the NCC During initial construction within the Properties, no trees shall be removed, except for diseased or dead trees and trees needing to be removed to promote the growth of other trees or for safety reasons, and no trees may be added, unless approved in accordance with Article XI of this Declaration.

Section 15. Sight Distance at Intersections. All properties located at street intersections shall be landscaped so as to permit safe sight across the street corners. No fence, wall, hedge, or shrub planting shall be placed or permitted to remain where it would create a traffic or sight problem.

Section 16. Utility Lines. No overhead utility lines, including lines for cable television, shall be permitted within the properties, except for temporary lines as required during construction and high voltage lines if required by law or for safety purposes.

Section 17. Air Conditioning Units. Except as may be permitted by the board or its designee, no window air conditioning units may be installed in any Unit.

Section 18. Lighting. Except for seasonal decorative lights which may be installed and/or displayed only between November 28 and January 10, all exterior lights must be approved in accordance with Article XI of this Declaration.

Section 19. Artificial Vegetation, Exterior Sculpture, and Similar Items. No artificial vegetation shall be permitted on the exterior of any portion of the properties. Exterior sculpture, fountains, flagpoles, flags, and similar items must be approved in accordance with Article XI of this Declaration and shall be in compliance with the community standards.

Section 20. Mailboxes All mailboxes shall satisfy applicable postal regulations and shall conform to specifications established by the Declarant or the Architectural Review Committee.

Section 21. Energy Conservation Equipment No solar energy collector panels or attendant hardware or other energy conservation equipment shall be constructed or installed unless it is an integral and harmonious part of the architectural design of a structure, as determined in the sole discretion of the appropriate committee pursuant to Article XI hereof.

Section 22. Leasing Units

(a) Definition. "Leasing" for purposes of this Declaration, is defined as regular, exclusive occupancy of a Unit by any person or persons other than the Owner for which the owner receives any consideration or benefit, including, but not limited to a fee, service, gratuity, or emolument.

(b) General. Units may be rented only in their entirety; no fraction or portion may be rented. There shall be no subleasing of Units and assignments of leases unless prior written approval is obtained from the Board of Directors. No transient tenants may be accommodated in a unit. All leases shall be in writing and shall be for an initial term of no less than six (6) months, except with the prior written consent of the Board of Directors. Notice of any lease, together with such additional information

as may be required by the Board, shall be given to the Board by the Unit Owner within ten (10) days of execution of the lease. The owner must make available to the lessee copies of the Declaration, by-Laws, and the community standards.

(c) Compliance with Declaration, By-Laws and Community standards. Every owner shall cause all occupants of his or her unit to comply with the Declaration, By-Laws, and the community standards adopted pursuant thereto, and shall be responsible for all for all violations and losses to the Common Areas caused by such occupants, notwithstanding the fact that such occupants of a Unit are fully liable and may be sanctioned for any violation of the Declaration, By-Laws, and community standards adopted pursuant thereto.

Section 23. Parks. Any park or other areas or equipment furnished by the Association or erected within the Properties, if any, shall be used at the risk of the user, and the Association shall not be held liable to any person for any claim, damage, or injury occurring thereon or related to use thereof.

Section 24. Decks. Decks may be constructed of cedar, pressure treated wood or engineered products.

Section 25. Fences. Fences may be permitted as part of any pre-designed construction plan for Units and thereafter, as may be permitted by the ARC or "Developer" or their assigns in accordance with Article XI of the Declaration. No dog runs, animal pens shall be permitted. All fences shall be constructed of stone, brick, wrought iron, stucco, cedar or pressure treated wood or similar material in a style in conformity with the Community Standards. No chain link or similar type of fencing will be allowed. No fence shall be erected on any lot or building site closer to the street the side and rear yard setback requirements and no fence shall be erected in the front yard. No fence will be permitted that is over or under six (6) feet in height. Fences will be allowed to property line on models only. All fence specifications and location must be submitted to "Developer" or their assigns for written approval or disapproval. Developer's sole and absolute discretion shall govern.

Section 26. Business Use. No trade or business may be conducted in or from any Unit, except that an Owner or occupant residing in a Unit may conduct business activities within the Unit so long as: (a) the existence or operation of the business activity is not apparent or detectable by sight, sound or smell from outside the Unit; (b) the business activity conforms to all zoning requirements for the Properties; (c) the business activity does not involve persons coming onto the Properties who do not reside in the Properties or door-to-door solicitation of residents of the Properties; and (d) the business activity is consistent with the residential character of the Properties and does not constitute a nuisance, or a hazardous or offensive use, or threaten the security or safety of other residents of the Properties, as may be determined in the sole discretion of the Board.

The terms "business" and "trade", as used in this provision, shall be construed to have their ordinary, generally accepted meaning, and shall include, without limitation, any occupation, work or activity undertaken on an ongoing basis which involves the provision of goods or services to persons other than the provider's family and for which the provider receives a fee, compensation, or other form of consideration, regardless of whether: (i) such activity is engaged in full or part-time; (ii) such activity is intended to or does generate a profit; or (iii) a license is required therefore. Notwithstanding the above, the leasing of a unit in accordance with Section 23 of this Article shall not be considered a trade or business within the meaning of this section.

Section 27. Playground Equipment. All playground equipment, including but not limited to, swing sets, slides, seesaws, playhouses, and/or climbing apparatuses, shall be maintained in good condition, constructed of natural wood, and finished with a natural wood exterior surface. No painted wood finish, predominately plastic or metal structures shall be allowed. Any allowable playground equipment must be hidden as much as possible from the street view and from the view of adjoining lot owners.

ARTICLE XIII **GENERAL PROVISIONS**

Section 1. Term. The covenants and restrictions of this Declaration shall run with and bind the Properties, and shall inure to the benefit of and shall be enforceable by the Association or the Owner of any Properties subject to this declaration, their respective legal representatives, heirs, successors, and assigns, for a term of thirty (30) years from the date this Declaration is recorded, after which time they shall be automatically extended for successive periods of ten (10) years, unless an instrument in writing, signed by a majority of the then Owners, has been recorded within the year preceding the beginning of each successive period of ten (10) years, agreeing to change said covenants and restrictions, in whole or in part, or to terminate the same, in which case this Declaration shall be modified or terminated as specified therein.

Section 2. Amendment. Prior to the conveyance of the first Unit, Declarant may unilaterally amend this Declaration. After such conveyance, the Declarant may amend this Declaration so long as it has the unilateral right to annex owns property described in Exhibits "A" to this Declaration for development as part of the Properties and so long as the amendment has no material adverse effect upon any right of any Owner; thereafter and otherwise, this Declaration may be amended only by the affirmative vote (in person or by alternate) or written consent, or any combination thereof, of Members representing one hundred (100%) percent of the total votes of the Association, and the written approval of the Class "B" Member so long as the Class "B" membership exists. So long as the Class "B" membership exists, any amendment to this Declaration shall also require the written consent of the U. S. Veterans Administration ("VA") if the VA has guaranteed the Mortgage on any Unit. However, the percentage of votes necessary to amend a specific clause shall not be less than the prescribed percentage of affirmative votes required for action to be taken under that clause. Any amendment to be effective must be recorded in the public records of Davidson County, Tennessee.

If an owner consents to any amendment to this Declaration or By-Laws, it will be conclusively presumed that such Owner has the authority so to consent and no contrary provision in any Mortgage or contract between the Owner and a third party will affect the validity of such amendment.

No amendment may remove, revoke, or modify any right or privilege of Declarant without the written consent of Declarant or the assignee of such right or privilege.

Section 3. Indemnification. The Association shall indemnify every officer, director, and committee member against any and all expenses, including counsel fees, reasonable incurred by or imposed upon such officer, director, or committee member in connection with any action, suit, or proceeding (including settlement of any suit or proceeding, if approved by the then Board of Directors) to which he or she may be a party by reason of being or having been an officer, director, or committee member. The officers, directors, and committee members shall not be liable for any mistake of judgment, negligent or otherwise, except for their own individual willful misfeasance, malfeasance, misconduct, or bad faith. The officers and directors shall have no personal liability with respect to any contract or other commitment made by them, in good faith, on behalf of the Association (except to the extent that such officers or directors may also be Members of the Association), and the Association shall indemnify and forever hold each such officer and director free and harmless against any and all liability to others on account of any such contract or commitment. Any right to indemnification provided for herein shall not be exclusive of any other rights to which any officer, director, or committee member, or former officer, director, or committee member may be entitled. The Association shall, as a common expense, maintain adequate general liability and officers' and directors' liability insurance to fund this obligation, if such insurance is reasonably available.

Section 4. Easements of Encroachment. There shall be reciprocal appurtenant easements of encroachment as between each Unit and such portion or portions of the Common Area adjacent thereto or as between adjacent Units due to the unintentional placement or settling or shifting of the improvements constructed, reconstructed, or altered thereon (in accordance with the terms of these restrictions) to a distance of not more than three (3) feet, as measured from any point on the common boundary between each Unit and the adjacent portion of the Common Area or as between said adjacent Units, as the case may be, along a line perpendicular to such boundary at such point; provided, however, in no event shall an easement for encroachment exist if such encroachment occurred due to willful and knowing conduct on the part of an Owner, tenant, or the Association.

Section 5. Easement for Utilities, Etc. There is hereby reserved unto Declarant, so long as the Declarant owns any property described on Exhibit "A", the Association and the designees of each (which may include, without limitation, Davidson County, Tennessee, and any utility), blanket easements upon, across, over, and under all of the Common Area and, to the extent shown on any plat, over the Units for ingress,

egress, installation, replacing, repairing, and maintaining cable television systems, master television antenna systems, security, and similar systems, roads, walkways, bicycle pathways, drainage systems, street lights, signage, and all utilities, including, but not limited to, water, sewers, meter boxes, telephones, gas, and electricity.

Without limiting the generality of the foregoing, there are hereby reserved for the local water supplier easements across all Units on the Properties for ingress, egress, installation, reading, replacing, repairing, and maintaining water meter boxes.

Notwithstanding anything to the contrary contained in this Section, no sewers, electrical lines, water lines, or other utilities may be installed or relocated on the Properties, except as may be approved by the Association's Board of Directors or as provided by Declarant. Should any entity furnishing a service covered by the general easement herein provided request a specific easement by separate recordable document, the Board of Directors shall have the right to grant such easement on said Properties without conflicting with the terms hereof. The easements provided for in this Article shall in no way adversely affect any other recorded easement on the Properties.

The Board shall have, by a two-thirds (2/3) vote, the power to dedicate portions of the Common Area to Maury County, Tennessee, or any other local, state, or federal government entity, subject to such approval requirements as may be contained in Article XIV, Section 2 of this Declaration.

Section 6. Severability. Invalidation of any one of these covenants or restrictions by judgment or court order shall in no way affect any other provisions, which shall remain in full force and effect.

Section 7. Right on Entry. The Association shall not have the right to enter into any Unit for emergency, security, and safety, unless a legal document is obtained from the appropriate governmental agency or courts, which right may be exercised by all policemen, firemen, ambulance personnel, and similar emergency personnel in the performance of their respective duties. Except in any emergency situation, entry shall only be during reasonable hours and after notice to the Owner. This right of entry shall include the right of the Association to enter a Unit to cure any condition which may increase the possibility of a fire or other hazard in the event an Owner fails or refuses to cure the condition upon request by the Board.

Section 8. Perpetuities. If any of the covenants, conditions, restrictions, or other provisions of this Declaration shall be unlawful, void, or avoidable for violation of the rule against perpetuities, then such provisions shall continue only until twenty-one (21) years after death of the last survivor of the now living decedents of Elizabeth II, Queen of England.

Section 9. Litigation. No judicial or administrative proceeding shall be commenced or prosecuted by the Association unless approved by a vote of one hundred (100%) percent of the Members. This Section shall not apply, however, to 9a) actions

brought by the Association to enforce the provisions of this Declaration (including, without limitation, the foreclosure of liens), (b) the imposition and collection of assessments as provided in Article X hereof, (c) proceedings involving challenges to *ad valorem* taxation, or (d) counterclaims brought by the Association in proceedings institute against it. This Section shall not be amended unless such amendment is made by the Declarant or is approved by the percentage votes, and pursuant to the same procedures, necessary to institute proceedings as provided above.

Section 10. Use of the words "COLTER PLACE". No person shall use the words "COLTER PLACE" or any derivative hereof in any printed or promotional material without the prior written consent of the Declarant. However, Owners may use the term, "COLTER PLACE" in printed or promotional matter where such term is used solely to specify that particular property is located within the COLTER PLACE community.

ARTICLE XIV **MORTGAGEE PROVISIONS**

The following provisions are for the benefit of holders of first Mortgages on Units in the Properties. The provisions of this Article apply to both this Declaration and to the By-Laws, notwithstanding any other provisions contained therein.

Section 1. Notices of Action. An institutional holder, insurer, or guarantor of a first Mortgage who provides written request to the Association (such request to state the name and address of such holder, insurer, or guarantor and the Unit number, therefore becoming an "eligible holder"), will be entitled to a timely written notice of:

(a) Any condemnation loss or any casualty loss which affects a material portion of the Properties or which affects any Unit on which there is a first Mortgage hold, insured, or guaranteed by such eligible holder;

(b) Any delinquency in the payment of assessments or charges owed by an Owner of a Unit subject to the Mortgage of such eligible holder, where such delinquency has continued for a period of sixty (60) days; provided however, notwithstanding this provision, any holder of a first Mortgage, upon request, is entitled to written notice from the Association of any default in the performance by an Owner of a Unit of any obligation under the Declaration or By-Laws of the Association which is not cured within sixty (60) days;

(c) Any lapse, cancellation, or material modification of any insurance policy maintained by the Association; or

(d) Any proposed action, which would require the consent of a specified percentage of eligible holders.

Section 2. Special FHLMC Provision. So long as required by the Federal Home Loan Mortgage Corporation, the following provisions apply in addition to and not in lieu of the foregoing. Unless at least two-thirds (2/3) of the first Mortgagees or Members representing at least two-thirds (2/3) of the total Association vote entitled to be cast thereon consent, the Association shall not:

(a) By act or omission seek to abandon, partition, subdivide, encumber, sell, or transfer all or any portion of the real property comprising the Common Area which the Association owns, directly or indirectly (the granting of easements for public utilities or other similar purposes consistent with the intended use of the Common Area shall not be deemed a transfer within the meaning of this subsection);

(b) Change the method of determining the obligations, assessments, dues, or other charges which may be levied against an Owner of a Unit (A decision, including contracts, by the Board of provisions of any declaration subsequently recorded on any portion of the Properties shall not be subject to this provisions where such decision or subsequent declaration is otherwise authorized by this Declaration.);

(c) By act or omission change, waive, or abandon any scheme of regulations or enforcement thereof pertaining to the architectural designs or the exterior appearance and maintenance of Units and of the Common Area (The issuance and amendment of architectural standards, procedures, community standards, or use restrictions shall not constitute a change, waiver, or abandonment within the meaning of this provision.);

(d) Fail to maintain insurance, as required by this Declaration; or

(e) Use hazard insurance proceeds for any Common Area losses for other than the repair, replacement, or reconstruction of such property.

First Mortgagees may, jointly or singly, pay taxes or other charges which are in default and which may or have become a charge against the Common Area and may pay overdue premiums on casualty insurance policies or secure new casualty insurance coverage upon the lapse of an Association policy, and first Mortgagees making such payments shall be entitled to immediate reimbursement from the Association.

Section 3. No Priority. No provision of this Declaration or the By-Laws gives or shall be construed as giving any Owner or other party priority over any rights of the first Mortgagee of any unit in the case of distribution to such Owner of insurance proceeds or condemnation awards for losses to or a taking of the Common Area.

Section 4. Notice to Association. Upon request, each Owner shall be obligated to furnish to the Association the name and address of the holder of any Mortgage encumbering such Owner's Unit.

Section 5. Amendment by Board. Should the Federal National Mortgage Association or the Federal Home Loan Mortgage Corporation subsequently delete any of their respective requirements, which necessitate the provisions of this Article or make any such requirements less stringent, the Board, without approval of the Owners, may cause an amendment to this Article to be recorded to reflect such changes.

Section 6. Applicability of Article XIV. Nothing contained in this Article shall be construed to reduce the percentage vote that must otherwise be obtained under the Declaration, By-Laws, or Tennessee law for any of the acts set out in this Article.

Section 7. Failure of Mortgage to Respond. Any Mortgage who receives a written request from the Board to respond to or consent to any action shall be deemed to have approved such action if the Association does not receive a written response from the Mortgage within thirty (30) days of the date of the Association's request.

ARTICLE XV DECLARANT'S RIGHTS

Section 1. Transfers. Any or all of the special rights and obligations of the Declarant may be transferred to other Persons, provided that the transfer shall not reduce an obligation nor enlarge a right beyond that contained herein, and provided further, no such transfer shall be effective unless it is in a written instrument signed by the Declarant and duly recorded in the public records of Maury County, Tennessee. Notwithstanding any provisions contained in the Declaration to the contrary, so long as construction and initial sale of Units shall continue, it shall be expressly permissible for Declarant to maintain and carry on upon portions of the Common Area such facilities and activities as, in the sole opinion of Declarant, may be reasonably required, convenient, or incidental to the construction or sale of such Units, including, but not limited to, business offices, signs, model units, and sales offices, and the Declarant shall have an easement for access to such facilities. The right to maintain and carry on such facilities and activities shall include specifically the right to use Units owned by the Declarant and any clubhouse or community center, which may be owned by the Association, as models and sales offices, respectively.

So long as Declarant continues to have rights under this paragraph, no Person shall record any declaration of covenants, conditions and restrictions, or declaration of condominium or similar instrument affecting any portion of the Properties without Declarants review and written consent thereto, any attempted recordation without compliance herewith shall result in such declaration of covenants, conditions and restrictions, or declaration of condominium or similar instrument being void and of no force and effect unless subsequently approved by recorded consent signed by the Declarant.

Section 2. Landscaping Buffers. Within the areas designated on the Preliminary Plan as the exterior boundary Landscape Buffers (if any), healthy trees larger than eight (8) inches in diameter at a distance of five (5) feet above the ground level shall

no be cut or removed without the prior written consent of the Board of Directors of the Homeowners Association, except to the extent (a) install or maintain utilities; (b) ensure adequate drainage; or (c) allow construction of improvements within approved building sites adjacent to the Landscape Buffer. If trees are removed for any of the above three reasons, then, if feasible and desirable in the sole discretion of the Board of Directors, the tree buffer will be replaced within one hundred and eighty (180) days by the Homeowners Association and the expense thereof shall be a common expense of the Association.

In the event an eight-inch tree or larger is removed without the prior written consent of the Board of Directors, and for reasons other than items (a) through (c) above, then eight two-inch or large trees or four three-inch or larger trees, measured five feet above ground level, will be put back in the place of the tree removed within ninety days. Such replacement shall be the responsibility and cost of the owner of the Residential Unit on which that portion of the Landscape Buffer is situated or to which it is adjacent.

Trees under eight inches in diameter which are removed shall be replaced within ninety days by the owner of the Residential Unit on which the Landscape Buffer is situated.

The Board of Directors may determine, in its sole discretion, under what conditions and requirements trees may be removed and replaced, any may impose additional reasonable restrictions and requirements as it deems appropriate, in its sole discretion, in connection with the maintenance and preservation of the Landscape Buffers. In the event the owner of a Residential Unit is required, and fails, to replace trees or other vegetation, the Homeowner Association may do so, in which event it shall charge the amounts reasonable expended in this regard to said homeowner, which amount shall be paid as a part of the next monthly assessment, or may be spread over several months in the discretion of the Board of Directors, and, if not timely paid, shall become a lien against said Residential Unit and collected in the same fashion as delinquent assessments. The Homeowners Association, its Board of Directors, and their designees and agents, are hereby granted the right of access across Residential Units and Landscape Buffers to the extent necessary to comply with and enforce the provisions of this section.

Section 3. The provisions regarding square footage of residences set forth in the Design Standards shall not be amended.

Section 4. These Restrictions shall apply to that property described in Exhibit A, Attached hereto and incorporated herein by reference.

Section 5. Declarant shall choose the specific housing product to be constructed within the development.

This article may not be amended without express written consent of the Declarant. The rights contained in this article shall terminate only upon the recording by Declarant

of a written statement that all sales activity has ceased and that Declarant releases such rights by express reference thereto.

ARTICLE XVI
COMMON OPEN SPACE – ZONING ORDINANCE SECTION

Any common open space (if any) established by an adopted final master development plan for planned unit development shall be subject to the following:

(a) The City of Columbia Planning Commission may require that the landowner provide for and establish and organization for the ownership and maintenance of any common open space, and such organization shall not be dissolved nor shall it dispose of any common open space, by sale or otherwise (except to an organization conceived and established to own and maintain the common open space), without first offering to dedicate the same to the City of Columbia and the said dedication be approved by the The City of Columbia Planning Commission. However, the conditions of any transfer shall conform to the adopted final master development plan.

(b) In the event that the organization established to own and maintain common open space, or any successor organization, shall at any time after the establishment of the planned unit development fail to maintain the common open space in reasonable order and condition in accordance with the adopted master development plan, the zoning administrator may serve written notice upon such organization and/or the owners or residents of the planned unit development and hold a public hearing. After thirty (30) days when deficiencies of maintenance are not corrected, the zoning administrator shall call upon any public or private agency to maintain the common open space for a period of one year. When the zoning administrator determines that the organization is not prepared for the maintenance for the common open space, such agency shall continue maintenance for yearly periods.

(c) The cost of such maintenance by such agency shall be assessed proportionally, against the properties within the planned unit development that have a right of enjoyment of the common open space, and shall become a lien on said properties.

IN WITNESS WHEREOF, the undersigned Declarant has executed this Declaration this 1st day of October, 2015.

DECLARANT:
MAHON ROAD HOLDINGS, LLC

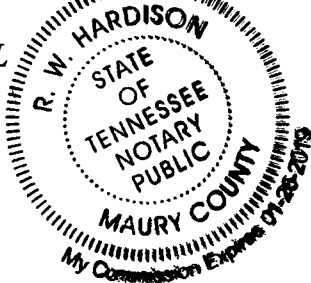
BY: Sterling Marlin
STERLING MARLIN, MANAGING MEMBER

STATE OF TENNESSEE

COUNTY OF MAURY

Before me, the undersigned, a Notary Public of the State and County aforesaid, personally appeared STERLING MARLIN with whom I am personally acquainted, and who, upon oath, acknowledged himself to be MANAGING MEMBER of MAHON ROAD HOLDINGS, LLC, and as such person being so authorized to do, executed the foregoing instrument for the purpose herein contained, by signing the name of the limited liability company by himself as the authorized agent. WITNESS my hand and seal, at office in the aforesaid state and county this _____ day of October, 2015.

SEAL



NOTARY PUBLIC

My Commission Expires: _____

EXHIBIT "A"

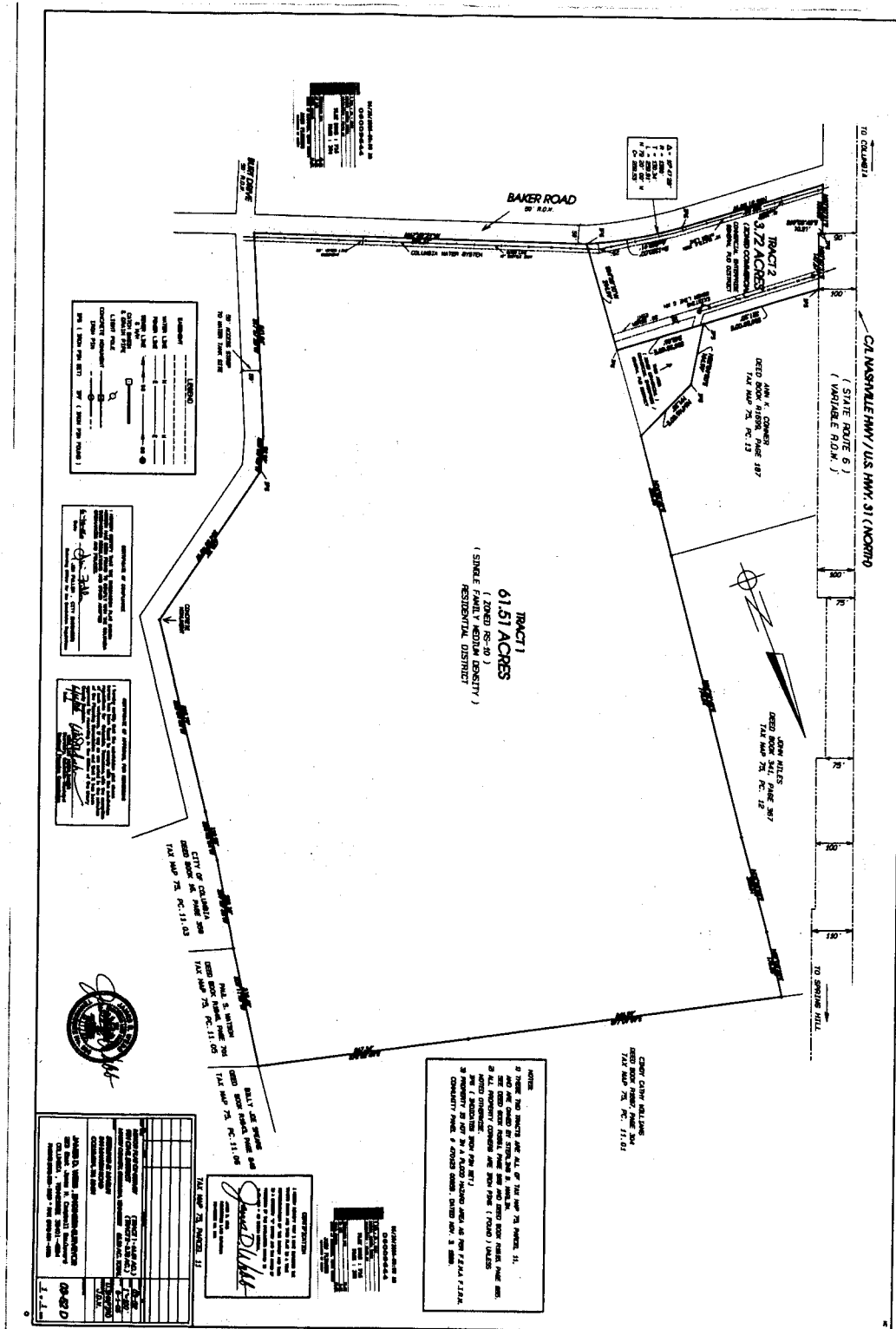


EXHIBIT "B"

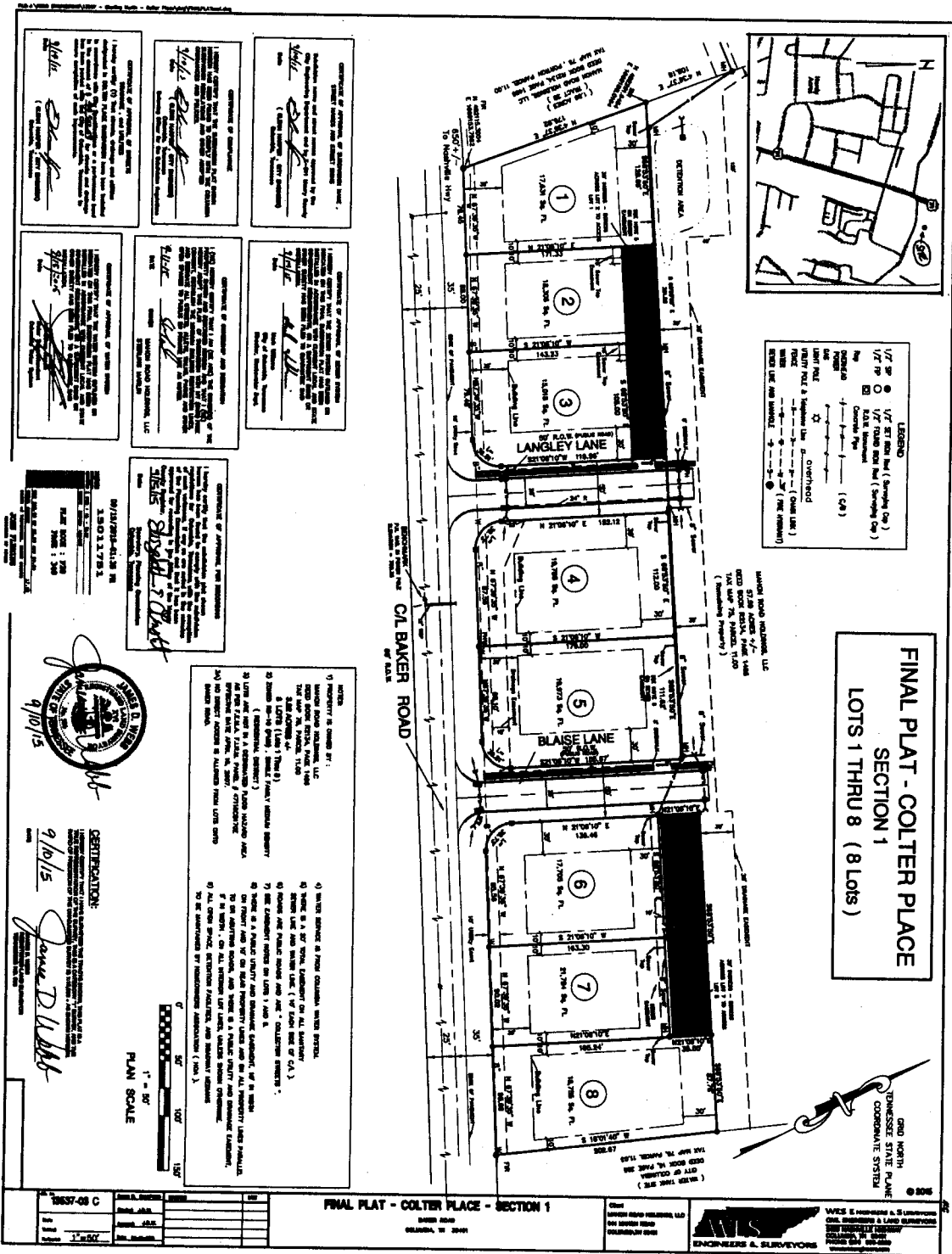


EXHIBIT "C"

BYLAWS OF COLTER PLACE HOMEOWNERS ASSOCIATION, INC.

These Bylaws shall regulate the affairs of the Corporation, subject to the provisions of the Corporation's Charter and any applicable provisions of the Tennessee Nonprofit Corporation Act, T.C.A. § 48-51-101, et seq. (the "Act").

SECTION 1 OFFICES AND REGISTERED AGENT

Section 1.01. Registered Office. The Corporation shall designate and continuously maintain a registered office in the State of Tennessee.

Section 1.02. Principal Office. The principal office of the Corporation shall be that which is designated as such in its Charter.

Section 1.03. Other Offices. The Corporation may also have other offices within and without the State of Tennessee at such places as the Board of Directors may from time to time determine.

Section 1.04. Registered Agent. The Corporation shall designate and continuously maintain a registered agent in the State of Tennessee at its registered office.

SECTION 2 MEMBERS

Section 2.01. Admission of Members. Any person may be admitted as a member of the Corporation by the Board of Directors, provided such person pays the membership fees established by the Board of Directors, is interested in the furtherance of the purposes of the Corporation, and meets the following qualifications: a homeowner in COLTER PLACE Subdivision in Spring Hill, Maury County, Tennessee.

Section 2.02. Rights and Obligations. Each member shall have, and be entitled to, one (1) vote and shall have the same rights and obligations with respect to voting, dissolution, redemption, transfer and all other matters as all other members.

Section 2.03. Fees, Dues and Assessments. The Board of Directors may establish assessments and other fees to be paid by the members periodically.

Section 2.04. Place. All meetings of the members of the Corporation shall be held at the principal office of the Corporation, or at such other place as may be fixed by resolution of the Board of Directors.

Section 2.05. Annual Meeting. The annual meeting of the members of the Corporation shall be held at 10:00 a.m. on the first (1st) Saturday in March of each and every year. The Board of Directors may, however, by resolution, fix the date of the annual meeting on any day within the period of sixty (60) days next succeeding the foregoing date. At the annual meeting, the members shall elect Directors, receive reports on the activities and financial condition of the Corporation, and transact such other business as may properly come before the meeting.

Section 2.06. Special Meetings. The Corporation shall hold a special meeting of its members upon the call of the Board of Directors or the President, or upon the written demand(s) to the Secretary by members holding at least ten (10%) percent of all votes entitled to be cast on any issue to be considered at the proposed special meeting. Any call or demand for a special meeting shall describe the purpose(s) for which the special meeting is to be held. Only business within the purpose(s) described in the meeting notice for the special meeting may be conducted at such meeting.

Section 2.07. Notice of Meetings. The Corporation shall notify its members of the date, time and place of each annual and special meeting of members no fewer than ten (10), nor more than forty-five (45), days before the meeting date. The notice of a meeting shall also contain such other information which may be required by these Bylaws.

Section 2.08. Waiver of Notice. A member's attendance at a meeting:

(a) Waives objection to lack of notice or defective notice of the meeting unless the member at the beginning of the meeting (or promptly upon arrival) objects to holding the meeting or transacting business at the meeting; and

(b) Waives objection to consideration of a particular matter at the meeting that is not within the purpose(s) described in the meeting notice, unless the member objects to considering the matter when it is presented.

Section 2.09. Quorum. Unless otherwise required by law, ten percent (10%) of the votes entitled to be cast on a matter must be represented at any meeting of the members to constitute a quorum on that matter. If, however, such quorum is not represented at any such meeting, the members present at the meeting in person or represented by proxy shall have the power to adjourn from time to time without notice other than announcement at the meeting, until the requisite quorum is present or represented, when any business may be transacted that might have been transacted at the meeting as provided in the original notice.

Section 2.10. Voting Requirements. Except as otherwise provided in these Bylaws, the Charter or the Act, action on any matter voted upon at a meeting of the members is approved if a quorum exists and if the votes cast in favor of the action exceed the votes cast against the action. However, Directors shall be elected by a plurality of the votes cast by the members entitled to vote in the election at a meeting of the members at which a quorum is present. However, all members are entitled to cumulate their votes for

Directors, and Directors shall be elected by cumulative voting at a meeting of the members at which a quorum is present. In voting for Directors, members are entitled to multiply the number of votes they are entitled to cast by the number of Directors for whom they are entitled to vote and cast the product for a single candidate or distribute the product among two (2) or more candidates.

Section 2.11. Action by Written Consent. Action that is required or permitted to be taken at a meeting of the members may be taken without such a meeting if all members entitled to vote on the action consent to taking such action without a meeting. If all of such members so consent, the affirmative vote of the number of votes that would be necessary to authorize or take such action at a meeting shall be the act of the members, except as otherwise provided in these Bylaws. Such consent (or counterpart(s) thereof) shall describe the action taken, be in writing, be signed by each member entitled to vote on the action, indicate each signing member's vote or abstention on the action, and be delivered to the Secretary of the Corporation and included in the minutes or corporate records.

Section 2.12. Action by Written Ballot. Any action that may be taken at any annual or special meeting of members may be taken without a meeting if the Corporation delivers a written ballot to every member entitled to vote on the matter. The written ballot shall set forth each proposed action and shall provide an opportunity to vote for or against each proposed action. Approval by written ballot shall be valid only when the number of votes cast by ballot equals or exceeds the quorum required to be present at a meeting authorizing the action, and the number of approvals equals or exceeds the number of votes that would be required to approve the matter at a meeting at which the total number of votes cast was the same as the number of votes cast by ballot. All solicitations for votes by written ballot shall:

- (a) Indicate the number of responses needed to meet the quorum requirements;
- (b) State the percentage of approvals necessary to approve each matter other than election of Directors; and
- (c) Specify the time by which the ballot must be received by the Corporation in order to be counted.

SECTION 3 BOARD OF DIRECTORS

Section 3.01. General Powers and Qualifications. All corporate powers of the Corporation shall be exercised by and under the authority of, and the affairs of the Corporation shall be managed under the direction of, the Board of Directors. All Directors must be natural persons and shall be at least eighteen (18) years of age.

Section 3.02. Number of Directors. The Board of Directors shall be comprised of three (3) Director(s), but these Bylaws may be amended from time to time by the members or by the Board of Directors to increase or decrease the number of Directors within the limits provided by law, although at no time shall there be fewer than three (3) Directors.

Section 3.03. Election and Tenure. Notwithstanding anything contained herein to the contrary, Directors will be appointed by Declarant during the time period set forth in Article III, Sec. 2 (b) of the Declaration hereinabove. Thereafter, Directors shall be elected by the members at each annual meeting of the members, and each Director shall be elected to serve for a term of one (1) year, or until his or her successor is elected and qualifies; subject, however, to the removal of any Director by the members as provided in these Bylaws.

Section 3.04. Regular Meetings. Except as otherwise provided herein, regular meetings of the Board of Directors may be held without notice at such time and place as the Board of Directors shall determine from time to time, but no less frequently than once a year.

Section 3.05. Special Meetings. Special meetings of the Board of Directors may be called by the President or by any two (2) Directors.

Section 3.06. Notice of Meetings. Except as otherwise provided herein, regular meetings of the Board of Directors may be held without notice of the date, time, place, or purpose of the meeting. Except as otherwise provided herein, special meetings of the Board of Directors must be preceded by at least two (2) days' notice to each Director of the date, time and place, but not the purpose, of such special meeting. Notice of any adjourned meeting need not be given if the time and place to which the meeting is adjourned are fixed at the meeting at which the adjournment is taken, and if the period of adjournment does not exceed one (1) month in any one (1) adjournment.

Section 3.07. Waiver of Notice. If a Director attends or participates in a meeting, he or she waives any required notice to him or her of the meeting unless the Director at the beginning of the meeting (or promptly upon arrival) objects to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting.

Section 3.08. Quorum. A quorum of the Board of Directors consists of a majority (but no fewer than two (2) of the Directors then in office before a meeting begins. If a quorum is present when a vote is taken, the affirmative vote of a majority of the Directors present is the act of the Board of Directors, unless these Bylaws, the Charter of the Act require the vote of a greater number of Directors.

Section 3.09. Vacancy. If a vacancy occurs on the Board of Directors, including a vacancy resulting from an increase in the number of Directors or a vacancy resulting from a removal of a Director with or without cause:

- (a) The members may fill the vacancy;
- (b) The Board of Directors may fill the vacancy; or
- (c) If the Directors remaining in office constitute fewer than a quorum of the Board, they may fill the vacancy by the affirmative vote of a majority of all Directors remaining in office.

Section 3.10. Removal of Directors. The members may remove any one (1) or more Directors, with or without cause, at any special meeting that is specifically called for that purpose.

Section 3.11. Action Without Meeting. Action that is required or permitted to be taken at a meeting of the Board of Directors may be taken without such a meeting if all Directors consent to taking such action without a meeting. If all Directors so consent, the affirmative vote of the number of Directors that would be necessary to authorize or take such action at a meeting shall be the act of the Board, except as otherwise provided in these Bylaws. Such consent(s) shall describe the action taken, be in writing, be signed by each Director entitled to vote, indicate each signing Director's vote or abstention on the action, and be delivered to the Secretary of the Corporation and included in the minutes filed with the corporate records.

Section 3.12. Indemnification. With respect to claims or liabilities arising out of service as a Director of the Corporation, the Corporation shall indemnify and advance expenses to each present and future Director (and his or her estate, heirs, and personal representatives) to the fullest extent allowed by the laws of the State of Tennessee, both as now in effect and as hereafter adopted or amended.

Section 3.13. Immunity. To the fullest extent allowed by the laws of the State of Tennessee, both as now in effect and as hereafter adopted or amended, each present and future Director (and his or her estate, heirs, and personal representatives) shall be immune from suit arising from the conduct of the affairs of the Corporation.

SECTION 4 OFFICERS

Section 4.01. Required Officers. The officers of the Corporation shall be a President, a Secretary/Treasurer and such other officers as may from time to time be elected or appointed by the Board of Directors. Except for the offices of President and Secretary/Treasurer, the same individual may simultaneously hold more than one (1) office in the Corporation. All officers must be natural persons and shall be at least eighteen (18) years of age. Members of the Board of Directors may also be officers of the corporation.

Section 4.02. Election. At the first meeting of the Board of Directors after each annual meeting of the members, the Board shall elect the officers of the Corporation by a majority vote of those Directors present, provided a quorum exists.

Section 4.03. Term of Office. The officers of the Corporation shall hold office for one (1) year or until their successors are chosen and qualify in their stead, subject, however, to the right and authority of the Board of Directors to remove any officer at any time with or without cause.

Section 4.04. Powers and Duties of Officers. The powers and duties of the officers of the Corporation shall be as follows:

(a) President. The President shall be the Chief Executive Officer of the Corporation, shall have general and active management of the Corporation, and shall see that all orders and resolutions of the Board of Directors are carried into effect, subject, however, to the right of the Board of Directors to delegate any specific powers, unless exclusively conferred upon the President by law, to any other officer(s) of the Corporation. The President shall also report on the activities and financial condition of the Corporation at all annual meetings of the members.

(b) Secretary. The Secretary shall attend all meetings of the Board of Directors and of the members of the Corporation and shall be responsible for preparing the minutes of such meetings. The Secretary shall be responsible for the care and custody of the minute book of the Corporation and for authenticating records of the Corporation. It shall be his or her duty to give or cause to be given notice of all meetings of the members and of the Board of Directors. The Secretary shall also perform such other duties as may be assigned to him or her by the Board of Directors or by the President, under whose supervision he or she shall act. In the event the Secretary is absent for some reason from any meeting where minutes are to be prepared or is otherwise unable to take such minutes, the presiding officer of such meeting shall appoint another person, subject to the approval of those present and entitled to vote at such meeting, to take the minutes thereof.

(c) Treasurer. The Treasurer shall have custody of the Corporation funds and securities, shall keep full and accurate account of receipts and disbursements in the appropriate Corporation books, and shall require the deposit of all monies and other valuable assets in the name of and to the credit of the Corporation in such financial institutions as may be designated by the Board of Directors. The Treasurer shall require disbursement of the funds of the Corporation as may be ordered by the Board of Directors, and shall render to the President and the Board of Directors, at any time they may require, an account of his or her transactions as Treasurer and of the financial condition of the Corporation. The Treasurer shall also report on the activities and financial condition of the Corporation at all annual meetings of the members.

Section 4.05. Removal. The Board of Directors may remove any officer at any time with or without cause.

Section 4.06. Vacancies. Any vacancies occurring in the offices of the President, Secretary/Treasurer shall be filled by the Board of Directors as soon as practicable. Vacancies in other offices may be filled at the discretion of the Board of Directors.

Section 4.07. Delegation of Powers and Duties. In case of the absence of any officer of the Corporation, or for any reason that the Board of Directors may deem sufficient, the Board of Directors may delegate the powers of such officer to any other officer or to any Director for the time being.

Section 4.08. Indemnification. With respect to claims or liabilities arising out of service as an officer of the Corporation, the Corporation shall indemnify and advance expenses to each present and future officer (and his or her estate, heirs and personal representatives) to the fullest extent allowed by the laws of the State of Tennessee, both as now in effect and as hereafter adopted or amended.

SECTION 5 RECORDS AND REPORTS

Section 5.01. Corporate Records. The Corporation shall keep as permanent records minutes of all meetings of its members and Board of Directors, a record of all actions taken by the members or Board of Directors without a meeting, appropriate accounting records, and a list of its members in alphabetical order by class showing their respective addresses and the number of votes each member is entitled to vote.

Section 5.02. Records at Principal Office. The Corporation shall keep at all times a copy of the following records at its principal office:

- (a) Its Charter or Restated Charter and all amendments thereto;
- (b) These Bylaws and all amendments thereto;
- (c) Resolutions adopted by the Board of Directors relating to the characteristics, qualifications, rights, limitations and obligations of members or any class or category of members;
- (d) The minutes of all meetings of members and the records of all actions taken by members without a meeting for the past three (3) years;
- (e) All written communications to members generally within the past three (3) years, including the past three (3) years' annual financial statements;
- (f) A list of the names and business or home addresses of its current Directors and officers; and

(g) The most recent annual report delivered to the Tennessee Secretary of State.

Section 5.03. Annual Financial Statements. The Corporation shall prepare annual financial statements that include a balance sheet as of the end of the fiscal year, an income statement for that year, and such other information necessary to comply with the requirements of the applicable provisions of the Act.

SECTION 6 MISCELLANEOUS PROVISIONS

Section 6.01. Fiscal Year. The fiscal year of the Corporation shall be fixed by resolution of the Board of Directors.

Section 6.02. No Seal. The Corporation shall have no seal.

Section 6.03. Notices. Whenever notice is required to be given to members, Directors or officers, unless otherwise provided by law, the Charter or these Bylaws, such notice may be given in person, teletype or other form of wire or wireless communication, or by telephone, telegraph, mail or private carrier. If such notice is given by mail, it shall be sent postage prepaid by first class United States mail or by registered or certified United States mail, return receipt requested, and addressed to the respective address that appears for each such person on the books of the Corporation. Written notice sent by mail to members shall be deemed to have been given when it is mailed. Any other written notice shall be deemed to have been given at the earliest of the following:

- (a) When received;
- (b) Five (5) days after its deposit in the United States mail if sent first class, postage prepaid; or
- (c) On the date on the return receipt, if sent by registered or certified United States mail, return receipt requested, postage prepaid, and the receipt is signed by or on behalf of the addressee.

Section 6.04. Waiver of Notice. Whenever any notice is required to be given under the provisions of any statute, or of the Charter or these Bylaws, a waiver thereof in writing signed by the person entitled to such notice, whether before or after the date stated thereon, and delivered to the Secretary of the Corporation and included in the minutes or corporate records, shall be deemed equivalent thereto.

Section 6.05. Negotiable Instruments. All checks, drafts, notes or other obligations of the Corporation shall be signed by such of the officers of the Corporation, or by such other person(s), as may be authorized by the Board of Directors.

Section 6.06. Deposits. The monies of the Corporation may be deposited in the name of the Corporation in such bank(s) or financial institution(s) as the Board of Directors shall designate from time to time and shall be drawn out by check signed by the officer(s) or person(s) designated by resolution adopted by the Board of Directors.

SECTION 7
AMENDMENT OF BYLAWS

Section 7.01. By Members. The Members may amend or repeal these Bylaws at any annual or special meeting of the members where a quorum is present, provided that the notice of such meeting shall state that the purpose, or one (1) of the purposes, of the meeting is to amend the Bylaws and shall also contain a description of the amendment to be considered. An amendment to these Bylaws must be approved by the members by the lesser of: (a) two-thirds (2/3) of the votes cast, or (b) a majority of the total number of votes entitled to be cast. These Bylaws may also be amended by the members without a meeting in the same manner as provided therefore herein, except that such action to amend must be by: (a) two-thirds (2/3) of the votes cast, or (b) a majority of the total number of votes entitled to be cast, whichever is less.

Section 7.02. By Board of Directors. By a majority vote of the Directors then in office, the Board of Directors may amend these Bylaws, including bylaws adopted by the members, at any regular or special meeting of the Board of Directors where a quorum is present, provided that such meeting is preceded by at least two (2) days' notice to each Director of the date, time and place of the meeting. Such notice shall also state that the purpose, or one of the purposes, of the meeting is to consider a proposed amendment to the Bylaws, and shall contain or be accompanied by a copy or summary of the proposed amendment or state the general nature thereof. These Bylaws may also be amended by the Directors without a meeting in the same manner as provided therefore herein, except that such action to amend must be by a majority vote of the Directors then in office.

BK/PG:R2341/76-120

15012630

45 PGS : AL - RESTRICTIONS	
JAME BATCH: 165106	
10/02/2015 - 09:40 AM	
VALUE	0.00
MORTGAGE TAX	0.00
TRANSFER TAX	0.00
RECORDING FEE	225.00
DP FEE	2.00
REGISTER'S FEE	0.00
TOTAL AMOUNT	227.00
STATE of TENNESSEE, MAURY COUNTY	
JOHN FLEMING	
REGISTER OF DEEDS	



November 18, 2022

Mr. John Dewaal PE
Dewaal and Associates
2810 Leeville Rd.
Mt. Juliet, TN 37122

Sent via email: jddewaal@bellsouth.net

RE: **Water Availability Letter**
 Colter Place – 144 Lots
 Baker Road
 Tax Map 75, Parcel 11
 Columbia, Maury County, TN

Dear Mr. Dewaal:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 144 single-family lots. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,000 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connections will be made to the existing 8-inch water main stubs off of Baker Road, and to the existing 30-inch water main located on the water tank access road East of the property.



- Minimum size 8-inch water mains will be required throughout the development.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.

- Remit to CPWS new water service fees:

New Water Service Fee: \$1500 + \$370 per SFU (144 SFUs)	\$54,780.00
--	-------------

- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and capacity fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid:

Meter Fee: \$540 per ¾" meter (144 meters)	\$77,760.00
Capacity Fee: \$875 per ¾" meter (144 meters)	\$126,000.00
Total Meter and Capacity Fees Due =	\$203,760.00

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.



If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

A handwritten signature in blue ink that reads "Eric King". The signature is fluid and cursive, with the first name "Eric" and last name "King" clearly distinguishable.

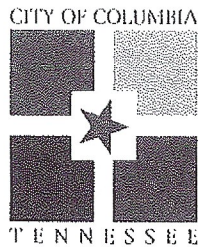
Eric King, P.E.

Inflo Design Group, LLC

on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS

File 22-091



WASTEWATER DEPARTMENT

17 October 2022

John Dewaal

RE: Colter Place Preliminary PUD 144 Lots

John,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. Major or minor improvements to existing infrastructure may or may not be necessary to satisfactorily convey the additional sanitary sewer flow from the above-referenced proposed development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. Plans have not been resubmitted after the first set of sanitary sewer comments made on the 23rd of September.

A handwritten signature in black ink, appearing to read "Donnie Boshers".

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

September 22, 2017

Dewall & Associates
Consulting Engineers
P.O. Box 2818
Lebanon, TN 37078

Re: Colter Place (Formerly Colter Place)

Dear Sir:

Columbia Power System has existing power facilities near your proposed development within our service territory.

We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.

Yours truly,

COLUMBIA POWER & WATER SYSTEMS



Doug Burgess, P. E.
Director of Power Operations

kw

TREE KEY

- | | | | | | |
|-----|----|-----------|------|----|-----------|
| 1. | 10 | HACKBERRY | 81. | 30 | oak |
| 2. | 24 | HACKBERRY | 82. | 29 | ELM |
| 3. | 16 | HACKBERRY | 83. | 24 | oak |
| 4. | 18 | VALNUT | 84. | 24 | oak |
| 5. | 12 | HACKBERRY | 85. | 34 | HICKORY |
| 6. | 18 | BOXELDER | 86. | 22 | oak |
| 7. | 14 | HACKBERRY | 87. | 20 | oak |
| 8. | 12 | HACKBERRY | 88. | 29 | oak |
| 9. | 12 | HACKBERRY | 89. | 32 | oak |
| 10. | 16 | HACKBERRY | 90. | 18 | oak |
| 11. | 18 | ASH | | | oak |
| 12. | 20 | ASH | 91. | 22 | oak |
| 13. | 24 | ASH | 92. | 22 | oak |
| 14. | 16 | ELM | 93. | | oak |
| 15. | 2 | ELM | 94. | | oak |
| 16. | 12 | ELM | 95. | 23 | oak |
| 17. | 22 | oak | 96. | 30 | oak |
| 18. | 20 | oak | 97. | 34 | oak |
| 19. | 18 | oak | 98. | 34 | oak |
| 20. | 48 | oak | 99. | 28 | oak |
| 21. | 14 | HACKBERRY | 100. | 22 | oak |
| 22. | 16 | HACKBERRY | 101. | 20 | oak |
| 23. | 22 | oak | 102. | 24 | HICKORY |
| 24. | 20 | oak | 103. | 22 | oak |
| 25. | 20 | oak | 104. | 24 | oak |
| 26. | 20 | ELM | 105. | 22 | oak |
| 27. | 20 | ELM | 106. | 24 | oak |
| 28. | 18 | HACKBERRY | 107. | 22 | oak |
| 29. | 18 | HACKBERRY | 108. | 28 | oak |
| 30. | 14 | HACKBERRY | 109. | 26 | oak |
| 31. | 20 | oak | 110. | 20 | oak |
| 32. | 18 | HACKBERRY | 111. | 24 | oak |
| 33. | 24 | oak | 112. | 24 | oak |
| 34. | 22 | oak | 113. | 18 | ELM |
| 35. | 18 | oak | 114. | 22 | MAPLE |
| 36. | 28 | oak | 115. | 25 | oak |
| 37. | 20 | oak | 116. | 22 | oak |
| 38. | 18 | HACKBERRY | 117. | 23 | MAPLE |
| 39. | 22 | HACKBERRY | 118. | 26 | MAPLE |
| 40. | 24 | ELM | 119. | 25 | oak |
| 41. | 20 | ELM | | | oak |
| 42. | 24 | oak | 120. | 22 | MAPLE |
| 43. | 20 | ELM | 121. | 32 | oak |
| 44. | 22 | MAPLE | | | oak |
| 45. | 18 | MAPLE | 122. | 18 | MAPLE |
| 46. | 18 | MAPLE | 123. | 32 | oak |
| 47. | 20 | ELM | | | oak |
| 48. | 28 | oak | 124. | 18 | HACKBERRY |
| 49. | 15 | PERSIMMON | 125. | 12 | MAPLE |
| 50. | 38 | SYCAMORE | 126. | 12 | ELM |
| 51. | 20 | SYCAMORE | 128. | 22 | MAPLE |
| 52. | 32 | SYCAMORE | 129. | 28 | oak |
| 53. | 26 | POPLAR | 130. | 24 | MAPLE |
| 54. | 28 | oak | 131. | 30 | oak |
| 55. | 22 | oak | 132. | 22 | oak |
| 56. | 0 | POPLAR | 133. | 12 | oak |
| 57. | 36 | oak | 134. | 21 | HICKORY |
| 58. | 12 | PERSIMMON | 135. | 24 | oak |
| 59. | 12 | HACKBERRY | 136. | 26 | oak |
| 60. | 12 | LOCUST | 137. | 29 | oak |
| 61. | 12 | LOCUST | 138. | 18 | MAPLE |
| 62. | 12 | LOCUST | 139. | 18 | ELM |
| 63. | 12 | HACKBERRY | 140. | 28 | oak |
| 64. | 12 | SHAGBARK | 141. | 26 | oak |
| | | HICKORY | 142. | 34 | oak |
| 65. | 16 | HICKORY | 143. | 32 | oak |
| 66. | 16 | HICKORY | 144. | 26 | oak |
| 67. | 20 | HICKORY | 145. | 32 | oak |
| 68. | 42 | oak | 146. | 22 | oak |
| 69. | 22 | HACKBERRY | 147. | 24 | oak |
| 70. | 24 | POPLAR | 148. | 32 | HICKORY |
| 71. | 26 | HACKBERRY | | | |
| 72. | 28 | oak | | | |
| 73. | 28 | oak | | | |
| 74. | 16 | oak | | | |
| 75. | 18 | oak | | | |
| 76. | 18 | oak | | | |
| 77. | 25 | oak | | | |
| 78. | 30 | oak | | | |
| 79. | 30 | oak | | | |
| 80. | 22 | oak | | | |

NOTES

Project shall meet all landscaping requirements for PUD-R

A ten (10) ft natural vegetation easement shall be provided around entire perimeter of project outside the 74' Project Buffer.. No trees or vegetation shall be removed within the easement

Existing tree canopy cover: 33%

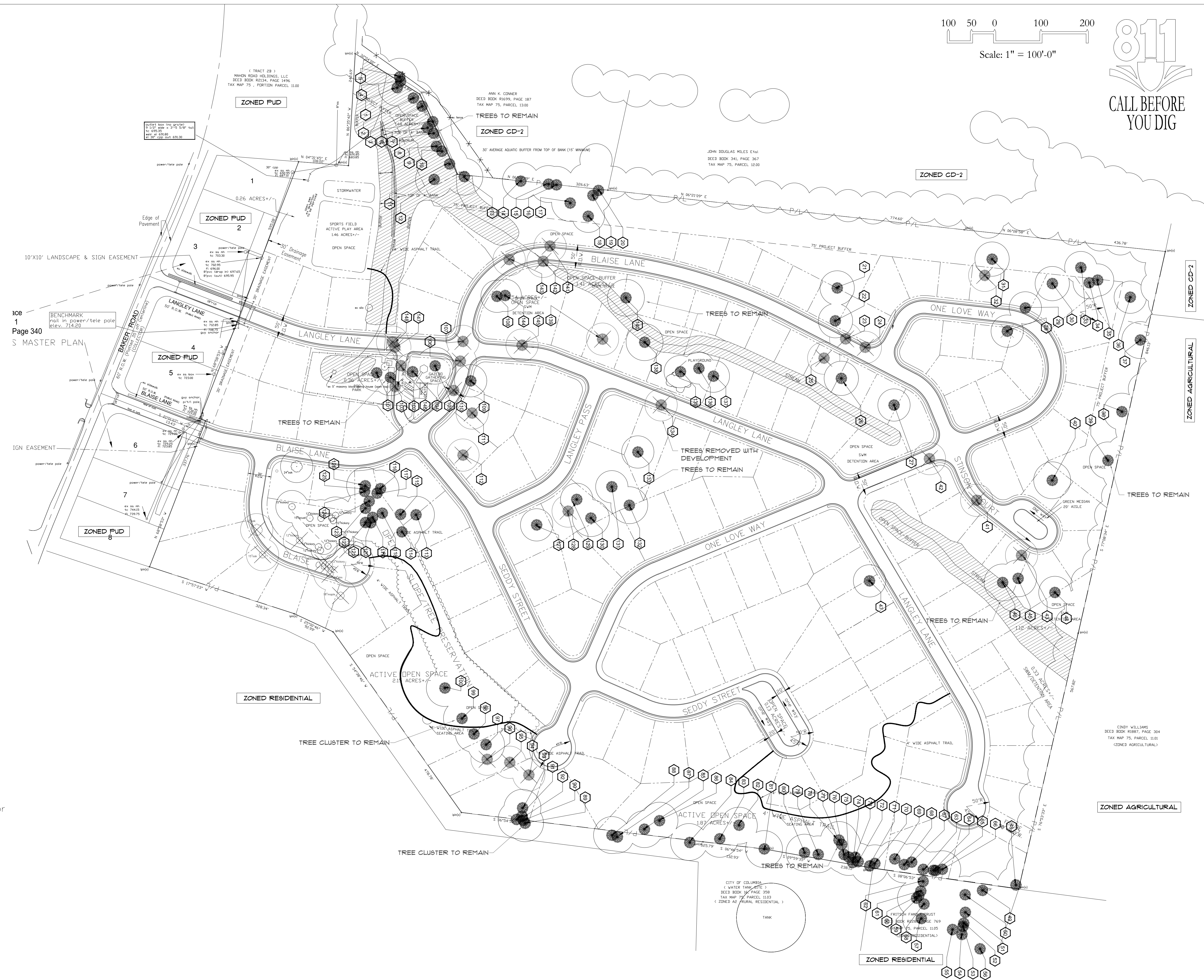
Required existing tree cover: 48%

Minimum tree cover retention: 16%

Proposed tree cover retention: 22%

Trees with an (X) to be removed.

Trees to remain shall receive tree protection fencing to limits of dripline.



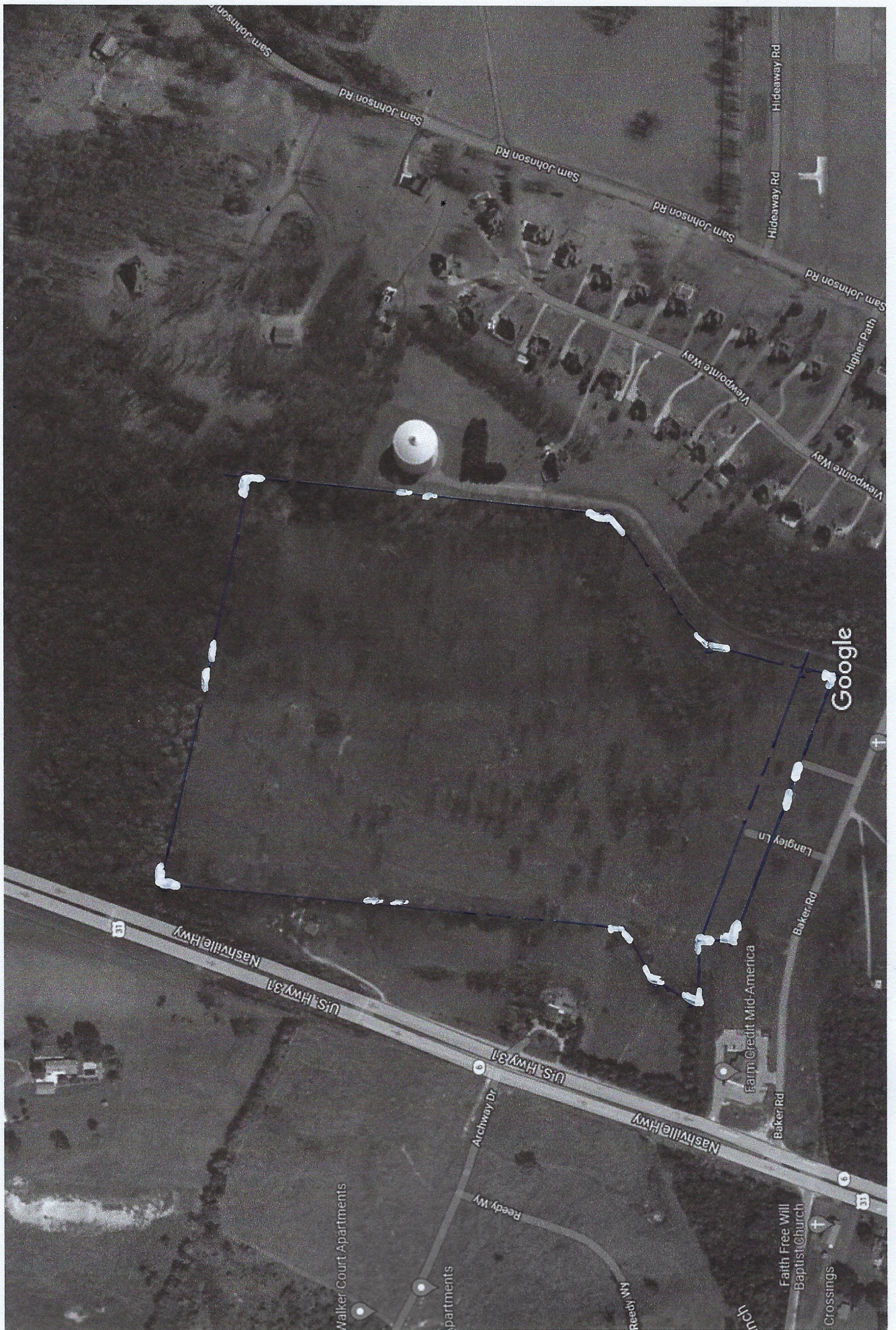
TREES SURVEY / LANDSCAPE INTENT PLAN
COLTER PLACE PUD

CITY OF COLUMBIA
MURRAY COUNTY, TENNESSEE



EWAAL & ASSOCIATES
CONSULTING ENGINEERS

09-18-17	10-14-22	PUD REVISED
	11-21-22	PUD REVISED
1" = 100'		
GRH		
JGD		





JOHN G. DEWAAL, P.E.

City of Columbia
Development Service
Mr. Paul Keltner - Director

November 21, 2022

RE: Revision Colter Place PUD

Dear Paul:

We have attached our revised submittal package for the above project. Our updated TIS has been submitted by our consultant, KCI Technologies Inc, to your city engineer and your third party traffic consultant.

Our project is unique in that it had prior approval as a PUD. Our plan respects the natural features; slopes, streams and tree masses of the property; promotes quality and environmental sensitive planning and fits into the terrain. It provides the best use of this site with the goal of protecting and enhancing the environment.

We believe the site is defined in your new standards 3.7.1 Base Districts as a PUD-RES (Residential) (Applicable and available only to PUDs Established Prior to Effective Date), and as such should be considered for flexibility in meeting the new PUD-R standards. It is a unique Base District for which no specific standards are spelled out in the new ordinance.

A Suburban Neighborhood area within your Comprehensive Plan, we believe a Suburban Neighborhood Street is the most logical road section to apply to our project. If we apply the Urban Neighborhood Street Standard, the normal PUD-R standard, to our site with a 70 ft ROW and on-street parking it does not make planning sense as it would in a more urban setting on flatter land with alleys.. Our curving roadways, in order to be sensitive to the streams and slopes, drove us to use front loaded driveways. On-street parking does not fit with double front driveways and there is no need for a 70 ft ROW where on-street parking is not present. We will provide double garages and double driveways with two parking spaces on every lot. With your approval we will provide additional off street diagonal parking in the three open space islands and other logically locations adjacent to our open space.

We would also request flexibility in allowing the development to use Section 4.3.16L.5.c to replace specimen trees located within our previously designed roadway grading areas.

In an effort to fairly compensate for this flexibility we have provided the following provisions that exceed the new regulations.

1. Our homes will provide primary building materials on all sides of the home, rather than the front and part of the side.
2. Where a perimeter landscape buffer is not required, due to county or PUD zoning, we will provide a 10 ft natural vegetation easement to protect trees and vegetation on the project perimeter.
3. Our open space sports field, Dog Park, gazebo-gathering space, playground, and trails (with scenic view seating). meets Civic Standards for Pedestrian Sheds with all lots within a five (5) minute walk to the playground and will be designed to serve a diversity of age groups and fitness levels.

Your consideration of this flexibility is greatly appreciated.

Sincerely,

A handwritten signature in blue ink that reads 'John Dewaal'. The signature is fluid and cursive, with a large loop at the end.

John Dewaal P.E., EPSC II



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: Colter Place PUD Revision - Master Plan

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ☒ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☒ Plan sealed by a Design Professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. = 100 ft.
- ☒ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☒ All property boundaries, existing easements, and encumbrances
- ☒ Parcel identification, owner, and deed and plat references of adjoining properties (On Survey)
- ☒ Proposed phasing and timetable for all phases of development
- ☒ Traffic Impact Study, as required. Submitted to City Eng & 3rd Party Consultant
- ☒ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

- ☒ The size of total property to be developed in square feet and acres
- ☒ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ☒ A tabulation of the land area to be devoted to various uses and activities and overall densities.
- ☒ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ☒ Location and approximate dimensions of all existing and proposed structures.
- ☒ Location of all earth retaining structures, with approximate top and bottom of wall elevations. NA
- ☒ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable. All residential style Family detached units.
- ☒ Location, type, and size of proposed signs. NA
- ☒ Approximate height, bulk, and the utilization of structures including activities and the number of living units. See typ. renderings for residential homes.



Grading, Drainage, and Storm

- ☒ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ☐ General proposed contours at vertical intervals of not more than two (2) feet
- ☒ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- ☒ Location and dimension of aquatic buffer zones
- ☒ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- ☒ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- ☒ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☒ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☒ Proposed improvements as identified in the Traffic Impact Study, as required
- ☒ Existing and proposed sidewalks, trails, and other pedestrian elements
- ☒ Existing and proposed on-street and off-street parking and loading areas
- ☒ Summary of all provided and required parking

Required 2 per unit.

Provided 4 per unit - 2 in garage 2 driveway

Landscaping, Open Space, and Amenities

- ☒ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas
- ☒ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ☒ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ☒ Any amenity features and structures for private or public benefit.
- ☒ Location, dimension, and materials of fences and walls
- ☒ Tree Canopy retention

Utilities

- ☒ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ☒ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.



PUD Specific Items

- ☒ Legal Description of Property
 - ☐ Owner's Affidavit
 - ☒ List of all variances requested
 - ☒ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
 - ☒ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
 - ☒ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
- N/A ☐ Exterior lighting

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

John G. Dewgal
Print Name

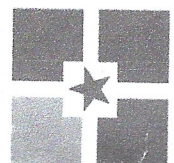
[Signature]
Signature

11-21-22
Date

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

TENNESSEE

CITY OF
COLUMBIA



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS
* I hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)
Fold hard copy submittals larger than 8 1/2" x 11"

ADDRESS/LOCATION		SUMMARY OF NATURE OF REQUEST AND WORK	
1001 Langley Lane		Revised PUD Master Plan -	
TAX MAP: 75	GROUP:	PARCEL: 11.00	

DATE OF PRE-APPLICATION CONFERENCE	9-21-22	Pre-application meetings are scheduled for Wednesdays.
------------------------------------	---------	--

SELECT REQUEST		SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:	
☐ Annexation	☐ Rezoning	☒ Written Legal Description copy	
☐ Preliminary Plat	☐ Preliminary Plat	☐ Requested Zone Listed	
☐ Final Plat	☒ PUD Preliminary Master Plan	☐ Compliance with Comprehensive Plan	
☐ PUD Final Site Plan	☐ Multi-Family Site Plan	☒ Annexation Permission Form	
☐ Other:		☒ Plans and/or Plats conforming to City standards with check list completed	
		☒ Columbia Water System Availability Letter	
*File naming nomenclature examples:		Plats/PUDs:	
Freedom Point Site Plan		Project Name (include Sections & Phases)	
Freedom Point Master Plan		Columbia Water System 2 Phases 1-6	
Freedom Point Final Plat		Total Number of Lots	
		143	
		Total acreage	
		57.44	

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

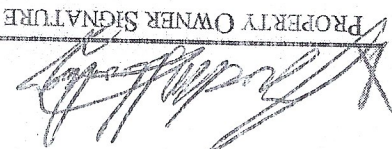
APPLICANT

All communications go to the Applicant's email that is provided.

NAME	John G. Dewar, Jr.	PHONE	615-394-3347
ADDRESS	2810 Levee Rd Mt Juliet, TN 37122	EMAIL	jddewar@bellsouth.net

PROPERTY OWNER NAME	Welling Corporation Fred Steinhagen - President	PHONE	615-582-1499
ADDRESS	1324 A Columbia Pike Franklin, TN 37064	EMAIL	

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

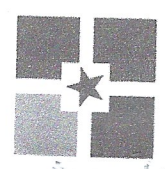
APPLICANT NAME	John G. Dewar, Jr.	APPLICANT SIGNATURE	
PROPERTY OWNER NAME	Welling Corporation Fred Steinhagen - President	PROPERTY OWNER SIGNATURE	

DATE
10-14-22

DATE
Rev 11/21/22

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS		DATE OF PUBLIC NOTICES IN DAILY HERALD	
BOARD ACTION			



CITY OF
COLUMBIA

TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

Preliminary PUD Checklist

- ☒ General
 - ☒ Name of development
 - ☒ Contact info for the owner and professional(s) preparing plan: name, address, email, phone
 - ☒ North Arrow, legend, and site vicinity map
 - ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. = 100 ft.
 - ☒ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth.
 - ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
 - ☒ All property boundaries, existing easements, and encumbrances
 - ☒ Parcel identification, owner, and deed and plat references of adjoining properties
 - ☒ Proposed phasing and timetable for all phases of development
 - ☒ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements *N/A*
 - ☒ List of all variances requested
 - ☒ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property. *N/A*
- ☒ Lots and Land-Use
 - ☒ The size of total property to be developed in square feet and acres
 - ☒ Lot numbers of all proposed lots, with dimensions, locations, and square footage
 - ☒ A tabulation of the land area to be devoted to various uses and activities and overall densities.
 - ☒ Typical lot layout depicting proposed setbacks and easements, where applicable
- ☒ Structures
 - ☒ Location and approximate dimensions of all existing and proposed structures including living units. Include architectural renderings of all proposed structures with materials listed.
 - ☒ Approximate height, bulk, and the utilization of structures including activities and the number of
 - ☒ All residential single family detached. Typ renderings shown
- ☒ Grading, Drainage, and Storm
 - ☒ Existing conditions and contours at vertical intervals of not more than two (2) feet
 - ☒ Proposed contours at vertical intervals of not more than two (2) feet, upon request.
 - ☒ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones *N/A - See note*
 - ☒ Location and dimension of aquatic buffer zones
 - ☒ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.

Print Name John Dewar - Eng

Signature John Dewar

Date 11-21-22 Revised

Checklist Completed By:

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete and ready for review.

~~adequately serve the development, a general statement of the improvements.~~

may be adequately served with existing infrastructure, or if improvements are required to Acknowledgement from water, sewer, and power utility providers that the proposed development communication facilities.

General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and

Utilities

Any amenity features and structures for private or public benefit.

reservations of land for public uses.

The location and size of all common open space, parkland dedications, and dedications and

features. Tree Protection Plan

Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other wells, rock outcroppings, excessive slopes, and forested areas

Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes,

Landscaping, Open Space, and Amenities

Specifications

All dimensions required to evaluate compliance with the City's Engineering Standards and

Existing and proposed on-street and off-street parking and loading areas, including

Existing and proposed sidewalks, trails, and other pedestrian elements

Proposed improvements as identified in the Traffic Impact Study, as required

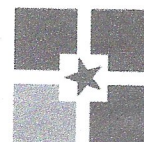
the development

Proposed connections to existing and proposed streets (including classification) located outside

Proposed ownership and maintenance responsibility.

Proposed street and alley rights-of-way, typical sections, widths, classification, names, and

Streets, Parking, and Pedestrian Elements



WYNNSONG VALLEY

PRELIMINARY PUD MASTER DEVELOPMENT PLAN

CITY OF COLUMBIA, MAURY COUNTY, TENNESSEE
TAX MAP 42, PARCELS 13.00, P/O 13.07, 13.08, AND 13.09
ZONED: PUD

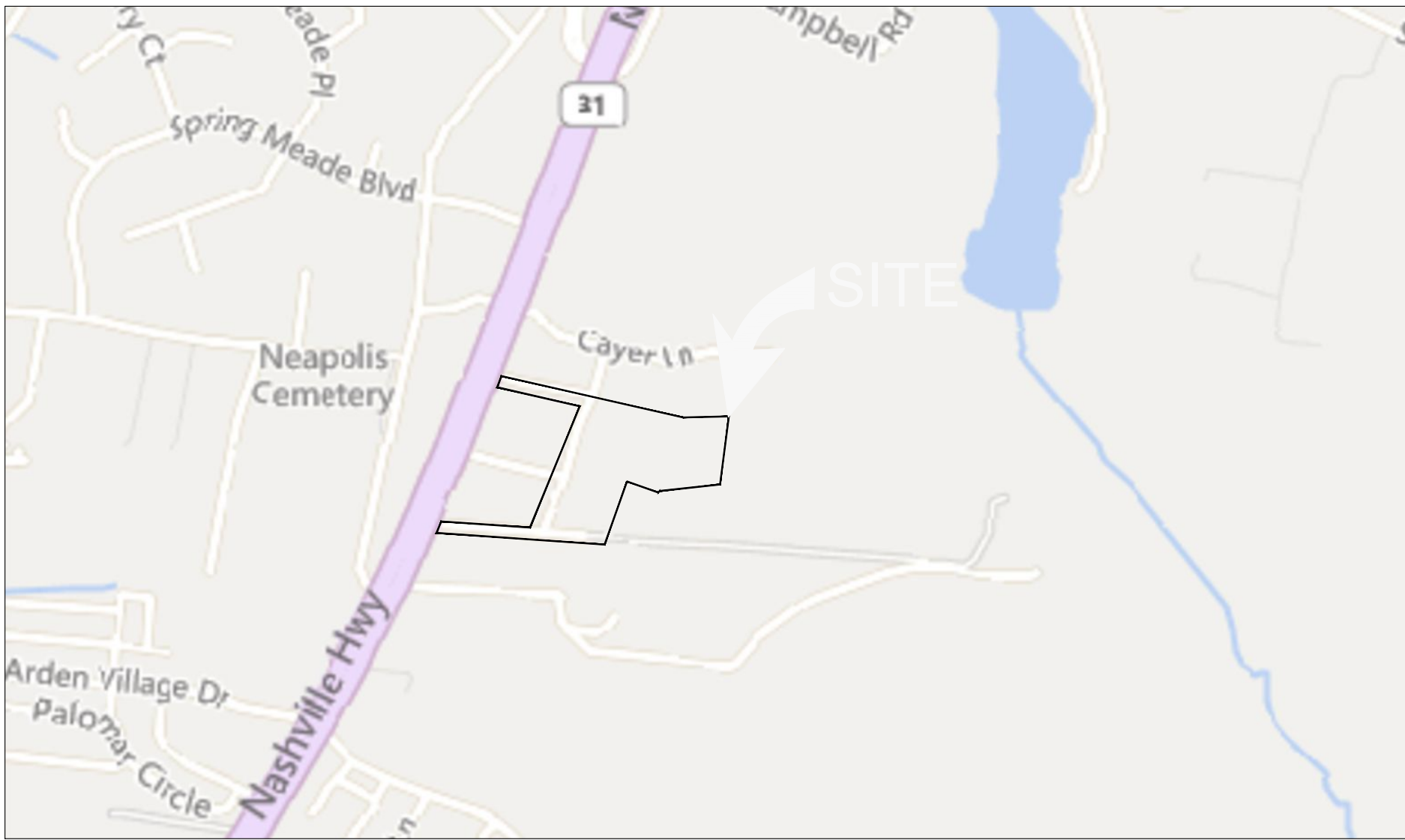
ENGINEER: T-SQUARE ENGINEERING
Consulting Civil Engineering
1329 West Main St., Franklin, TN, 37064
(615)370-1443 * Email: tim@t2-eng.com

DEVELOPER: BROOKSTONE GROUP, LLC
GREG SMITH
P.O. BOX 1301
FRANKLIN, TN 37065

SURVEYOR: T-SQUARE ENGINEERING
1329 WEST MAIN STREET
FRANKLIN, TN 37064
(615)678-8212

WATER: COLUMBIA POWER AND WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931)388-4833

SEWER: CITY OF COLUMBIA WASTEWATER
1244 TREATMENT PLANT ROAD
COLUMBIA, TN 38401
(931)560-1001

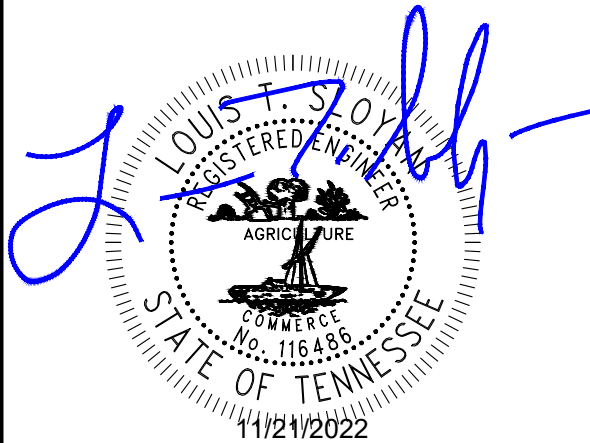


VICINITY MAP
N.T.S.

Sheet Schedule

- C-0.0 COVER SHEET
- C-2.0 PRELIMINARY PUD MASTER DEVELOPMENT PLAN
- C-5.0 GRADING PLAN
- C-6.0 UTILITY PLAN
- L-1.0 LANDSCAPE PLAN-TREES
- L-2.0 LANDSCAPE PLAN-SHRUBS
- L-3.0 LANDSCAPE PLAN-DETAILS

FLOOD NOTE	
NO PORTION OF THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS A 100 YEAR FLOOD ZONE AS EVIDENCED ON FEMA PANEL #47119C0180E OF MAURY COUNTY, TN. DATED 04/16/2007.	
OWNER OF RECORD	
PARCEL 13.00: JOHN GREENWELL TRUST PARCEL 13.02: DEAN AND JULIE NORTON PARCEL 13.07: JOHN GREENWELL TRUST AND JAN WINGFIELD PARCEL 13.08: ROBIN MCFARLANE PARCEL 13.09: JOHN AND TAMI GREENWELL	
APPLICANT	
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212	



PROJECT
22-0335

SHEET
C-0.0



COVER SHEET

MAP 42, PARCELS 13.00, 13.02,
13.07, 13.08, 13.09
COLUMBIA, TENNESSEE

WYNNSONG VALLEY

REVISIONS

DATE

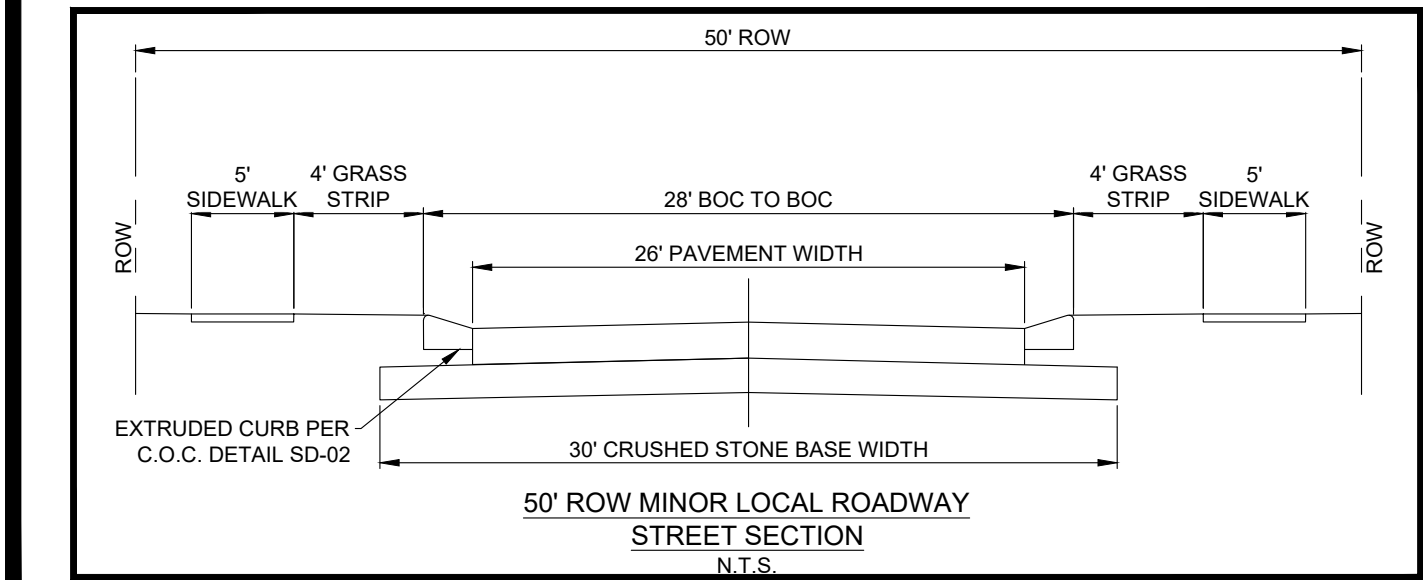
NO.

DATE: 11/21/22

SCALE: AS SHOWN

DRAWN BY: T-SQUARE

REVIEWER: LTS



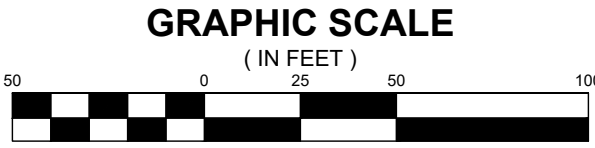
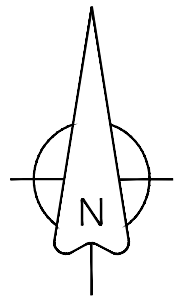
PRELIMINARY MASTER PUD DEVELOPMENT PLAN

MAP 42, PARCELS 13.00, 13.02,
13.07, 13.08, 13.09

COLUMBIA, TENNESSEE

PROJECT
22-0335

 **T-SQUARE ENGINEERING**



- LEGEND
- 500 ——— EXISTING MAJOR CONTOURS
 - 498 ——— EXISTING MINOR CONTOURS
 - 500 ——— PROPOSED MAJOR CONTOURS
 - 498 ——— PROPOSED MINOR CONTOURS
 - ⊕ 688.30 PROPOSED SPOT ELEVATION
 - 1.0% ——— PROPOSED SLOPE GRADE

GRADING PLAN

MAP 42, PARCELS 13.00, 13.02,
13.07, 13.08, 13.09
COLUMBIA, TENNESSEE

WYNSONG VALLEY

REVISIONS

DATE

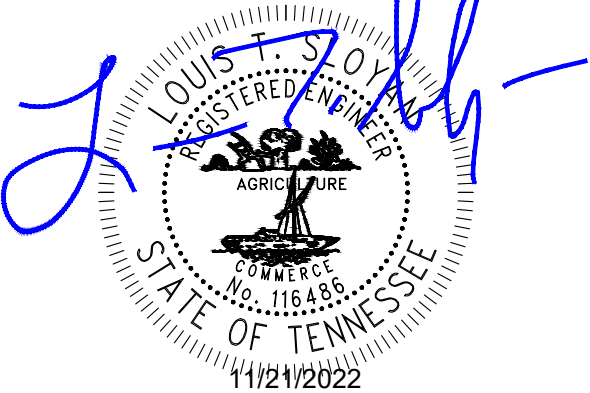
NO.

DATE:
11/21/22

SCALE:
AS SHOWN

DRAWN BY:
T-SQUARE

REVIEWER:
LTS



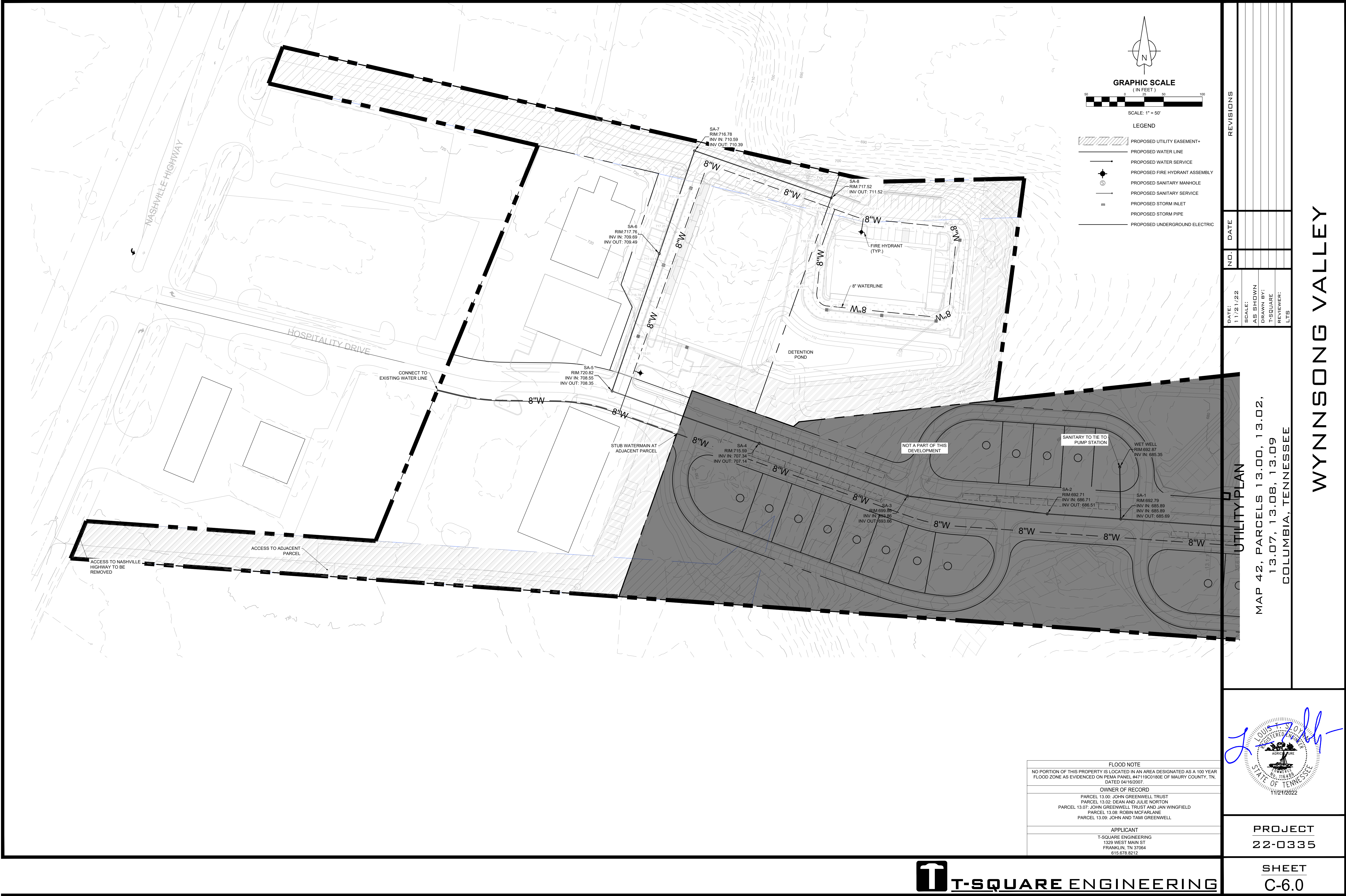
FLOOD NOTE NO PORTION OF THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS A 100 YEAR FLOOD ZONE AS EVIDENCED ON FEMA PANEL #47119C0180E OF MAURY COUNTY, TN, DATED 04/16/2007.	
OWNER OF RECORD PARCEL 13.00: JOHN GREENWELL TRUST PARCEL 13.02: DEAN AND JULIE NORTON PARCEL 13.07: JOHN GREENWELL TRUST AND JAN WINGFIELD PARCEL 13.08: ROBIN MCFARLANE PARCEL 13.09: JOHN AND TAMI GREENWELL	
APPLICANT T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212	

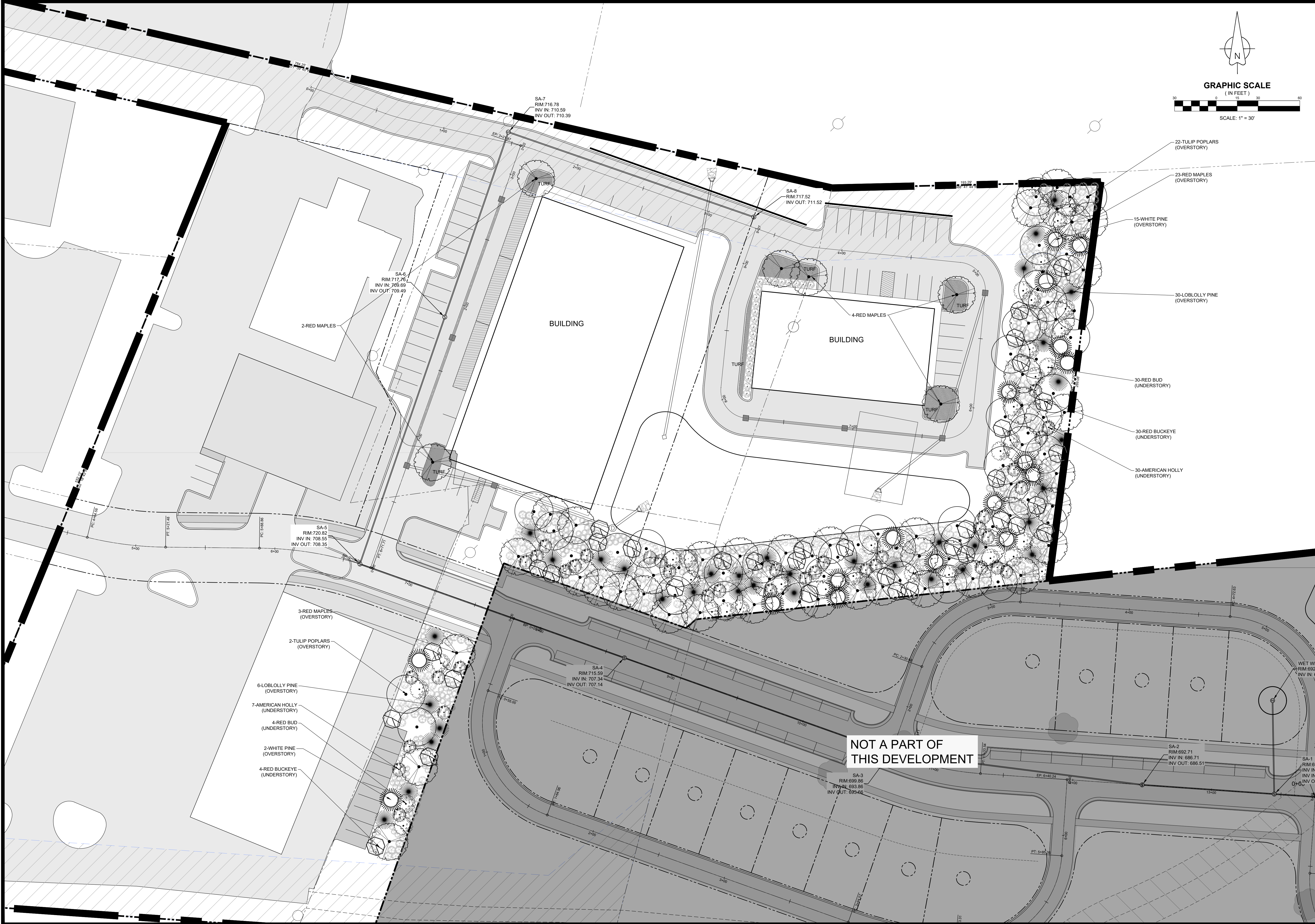
PROJECT
22-0335

SHEET
C-5.0

 T-SQUARE ENGINEERING

P:\Projects\2022\22-0335 Nashville Hwy - Greg Smith\Production\22-0335 PLD & Utility Plan.dwg, 11/16/2022 2:06:31 AM





REVISIONS		DATE		NO.	

DATE:	SCALE:	DRAWN BY:	REVIEWER:
11/21/2022	1"=30'	T-SQUARE	CES

LANDSCAPE PLAN-TREES
MAP 42, PARCELS 13.00, 13.02,
13.07, 13.08, 13.09
COLUMBIA, TENNESSEE

WYNNSONG VALLEY

PROJECT
22-0335

SHEET
L-1.0

T-SQUARE ENGINEERING

NOT A PART OF THIS DEVELOPMENT

11/21/2022

LANDSCAPE ARCHITECT

CELESTINE E. STEWART

REGISTERED

LANDSCAPE ARCHITECT

STATE OF TENNESSEE

11/21/2022

PLANTS

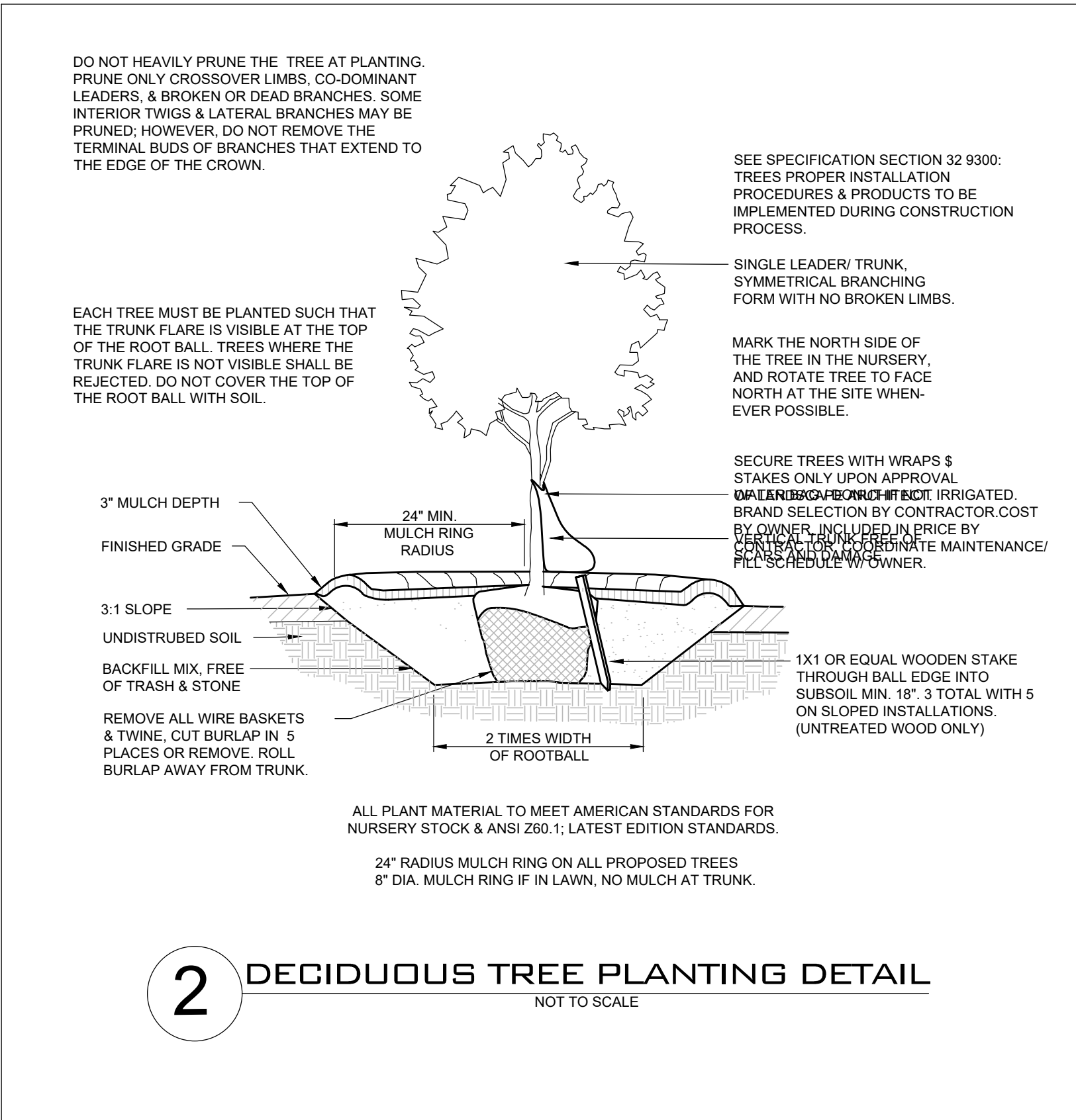
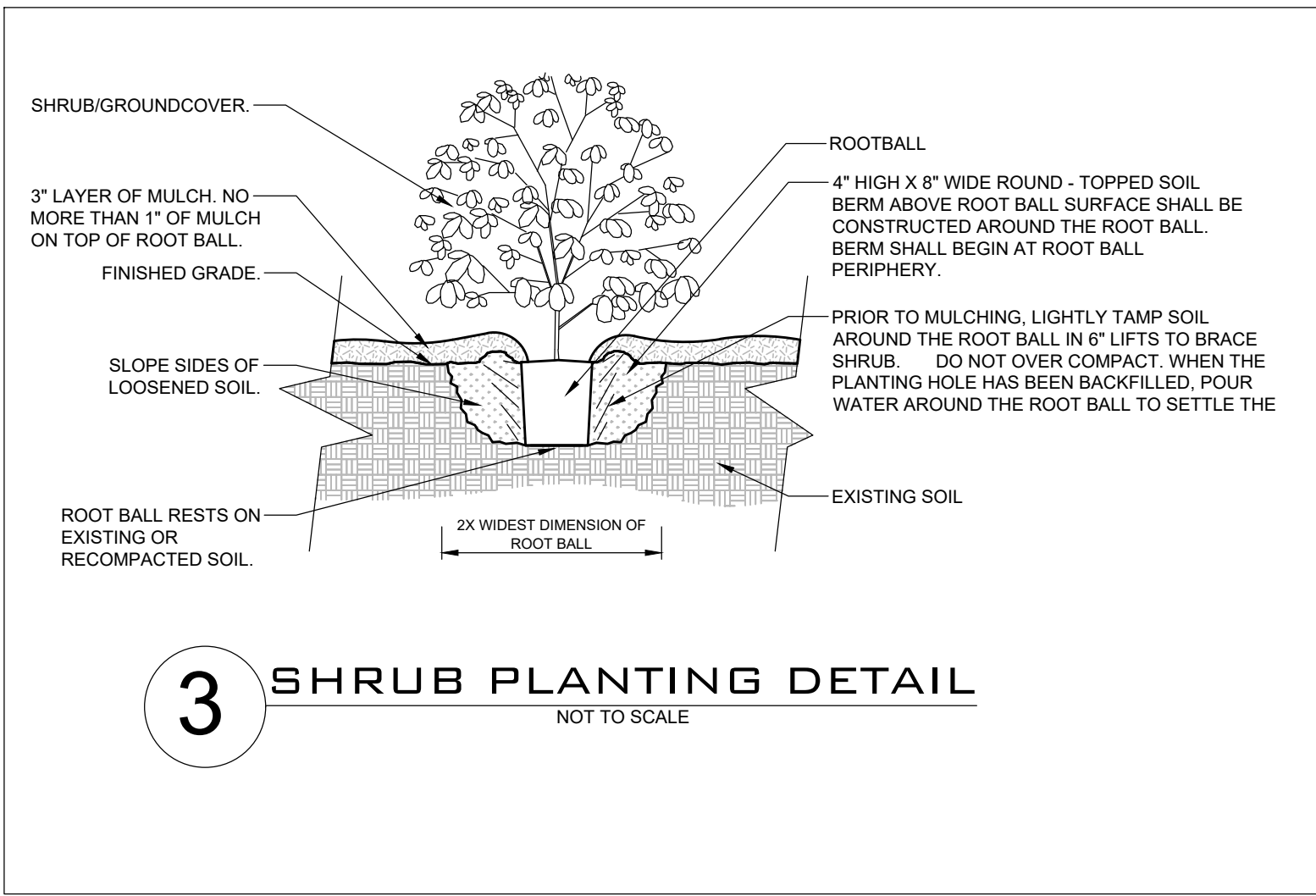
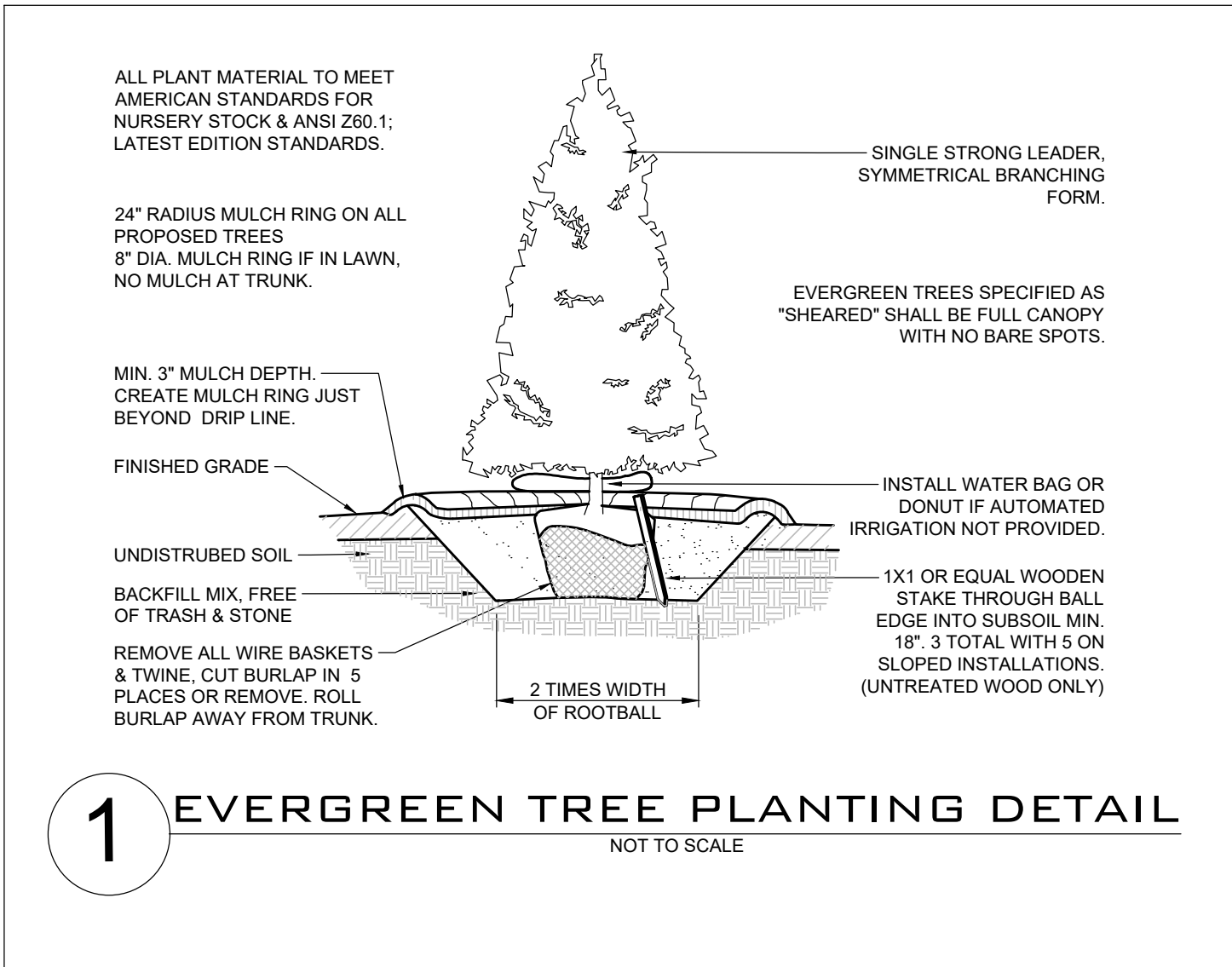
MATERIALS SCHEDULE

QTY	SCIENTIFIC NAME/ COMMON NAME	ROOT	SIZE	MATURE HEIGHT	NOTES
OVERSTORY TREES					
30	Acer rubrum 'Franksred'/ RED MAPLE	B&B	3" CAL	50'-70'	Large canopy tree
24	Liriodendron tulipifera/ TULIP POPLAR	B&B	2.5" CAL	50'-60'	Large canopy tree
36	Pinus taeda/ LOBLOLLY PINE	B&B	12"-14"	60'-90'	Large canopy tree EVERGREEN
17	Pinus strobus/ WHITE PINE	B&B	12"-14"	50'-80'	Large canopy tree EVERGREEN
UNDERSTORY TREES					
34	Aesculus pavia/ RED BUKEYE	B&B	2" CAL	15'-20'	Small ornamental tree
34	Cercis canadensis/ REDBUD	B&B	2" CAL	20'-30'	Small tree
37	Ilex opaca/ AMERICAN HOLLY	B&B	6'-8"	15'-30'	Small tree
SHRUBS					
118	Ilex glabra/ INKBERRY	CONT.	3 GAL	5'-8"	Shrub
254	Viburnum acerifolium/ MAPLE VIBURNUM	CONT.	3 GAL	4'-6"	low, dense shrub
85	Lindera benzoin/ SPICEBUSH	CONT.	3 GAL	6'-10"	Large shrub
244	Ilex vomitoria/ YAUPOH HOLLY	CONT.	3 GAL	12'-15'	Tall shrub
23	Prunus laurocerasus/ CHERRY LAUREL	CONT.	3 GAL	3'-4'	Shrub

THE LANDSCAPE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS

GENERAL NOTES:

- UTILITY SERVICES EXIST ON SITE. THE LOCATION OF ALL SURFACE AND UNDERGROUND UTILITIES, RIGHT-OF-WAYS, EASEMENTS, ETC., SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION AND TO REPAIR ANY DAMAGE WHICH SHOULD OCCUR TO THE SATISFACTION OF THE OWNER AND UTILITY COMPANIES. COMMENCEMENT OF PROJECT INSTALLATION INDICATES ACKNOWLEDGMENT OF AND ACCEPTANCE BY THE CONTRACTOR OF EXISTING CONDITIONS.
- ACTUAL AS-BUILT AND/OR EXISTING SITE CONDITIONS MAY VARY AS SHOWN ON THIS PLAN.
- DAMAGE BY CONTRACTOR TO UNDISTURBED AREAS OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR IS RESPONSIBLE FOR CONDUCTING SITE INSPECTION PRIOR TO BIDDING WORK, TO DETERMINE SITE CONDITIONS AND AREAS TO BE IMPROVED. SUBMISSION OF BID INDICATES CONTRACTOR HAS VERIFIED SITE CONDITIONS AND PLANT MATERIAL QUANTITIES.
- FINAL ACCEPTANCE: THE LANDSCAPE ARCHITECT OR THE OWNER'S REPRESENTATIVE WILL PROVIDE THE FINAL INSPECTION. SHOULD THE INSPECTION FIND WORK INCOMPLETE, THE CONTRACTOR SHALL REMEDY THE DEFICIENCIES.
- DURING LANDSCAPE INSTALLATION KEEP PAVEMENTS CLEAN AND WORK AREA IN ORDERLY CONDITION. THE PROJECT SITE SHALL BE LEFT IN A CLEAN CONDITION AT THE END OF EVERY WORK DAY.
- CONTRACTOR TO REPAIR ANY PAVEMENTS, CURBS, AND OTHER IMPROVEMENTS DAMAGED AS A RESULT OF LANDSCAPE INSTALLATION ACTIVITY.
- THE LOCATION OF ALL PLANT MATERIALS SHOWN ON THE PLAN SHALL BE FIELD LOCATED AND STAKED/FLAGGED BY THE CONTRACTOR.
- DO NOT MAKE SUBSTITUTIONS REGARDING PLANT SIZES OR SPECIES WITHOUT WRITTEN PERMISSION FROM THE OWNER OR LANDSCAPE ARCHITECT.
- REMOVE ALL METAL BASKETS, STRINGS AND OTHER TIES FROM TREES.
- FERTILIZE ALL PLANTS WITH 16-16-16 SLOW RELEASE FERTILIZER AT THE RATE OF: 3 POUNDS PER CUBIC YARD OF SOIL MIX. 3 POUNDS PER 100 SF OF BED FOR SHRUBS AND GROUND COVER.
- ONLY "HEMP" BURLAP AND TWINE SHALL BE USED. NO TREATED OR PRESERVED BURLAP OR TWINE IS ALLOWED. ALL HEMP TWINE ATTACHED TO THE TREE TRUNK IS TO BE REMOVED AFTER PLANTING. AT A MINIMUM THE TOP ONE-THIRD OF THE ROOT BALL IS TO HAVE ALL BURLAP AND TWINE REMOVED. IF ROOTS ARE GIRDLING OR CIRCLING THEY MUST BE LOOSENEED OR CUT.
- THE BALLS OF "B&B" PLANTS WHICH CANNOT BE PLANTED IMMEDIATELY ON DELIVERY SHALL BE COVERED WITH MOIST SOIL OR MULCH, OR OTHER PROTECTION FROM DRYING WINDS AND SUN. ALL PLANTS INSTALLED OR STORED SHALL BE WATERED BY CONTRACTOR AS NECESSARY UNTIL FINAL ACCEPTANCE.
- FOLD DOWN OR CUT THE BURLAP FROM THE TOP 1/3 OF THE BALL OR TO THE WIDEST TOP EDGE OF THE BALL IN ORDER TO EXPOSE THE TOP PLANE OF THE BALL. REMOVE ALL NAILS, STAPLES, ETC USED TO HOLD THE BALL TOGETHER.
- TREE BALLS SHALL HAVE A MINIMUM DIAMETER IN FEET EQUAL TO 10" FOR EACH CALIPER INCH OF THE TREE.
- ALL PLANTS SHALL BE HANDLED SO THAT ROOTS ARE ADEQUATELY PROTECTED AT ALL TIMES. DURING SHIPMENT, THE ENTIRE PLANT SHALL BE PROTECTED BY TARPULINS OR OTHER SUITABLE COVERING. PLANT MATERIAL SUFFERING FROM WIND BURN OR OTHER WIND DAMAGE IS NOT ACCEPTABLE.
- NO PLANT SHALL BE BOUND WITH ROPE OR WIRE IN A MANNER THAT DAMAGES THE BARK, BREAKS BRANCHES, OR DESTROYS ITS NATURAL SHAPE. NO PLANT MATERIAL REQUIRED TO BE BALLED AND BURLAPPED SHALL BE ACCEPTED IF THE BALL IS CRACKED OR BROKEN EITHER BEFORE OR DURING THE PROCESS OF PLANTING, OR WHEN REQUIRED BURLAP, STAVES, ROPES OR PLATFORM HAVE BEEN REMOVED.
- PRE-EMERGENT HERBICIDE (TRIFLUR OR EQUIVALENT) SHALL BE APPLIED (ACCORDING TO MANUFACTURER'S INSTRUCTIONS) TO ALL PLANT BEDS, PRIOR TO PLANTING, FOR NOXIOUS WEED CONTROL.
- ALL PLANTING BEDS AND TREE AND SHRUB PLANTINGS SHALL RECEIVE A MINIMUM 3" DEEP SHREDDED HARDWOOD MULCH LAYER. CONTRACTOR IS RESPONSIBLE FOR THE WATERING AND MAINTENANCE OF ALL INSTALLED PLANT MATERIAL, INCLUDING GRASS AREAS, UNTIL FINAL ACCEPTANCE BY OWNER.
- WATER ALL PLANT MATERIAL AT TIME OF PLANTING. ALL PLANT MATERIAL IS TO BE GUARANTEED FOR ONE (1) YEAR. GUARANTEE PERIOD STARTS FROM DATE OF FINAL ACCEPTANCE.
- OWNER RETAINS THE RIGHT TO INSPECT TREES AND SHRUBS FOR SIZE AND CONDITION OF ROOT BALL, INSECTS, INJURIES, AND LATENT DEFECTS AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. REMOVE REJECTED MATERIAL IMMEDIATELY FROM THE PROJECT SITE.
- REPLACEMENTS SHALL CLOSELY MATCH ADJACENT SPECIMENS OF THE SAME SPECIES AND SHALL CONFORM TO THE STANDARDS FOR PLANT MATERIALS SPECIFIED. ALL REPLACED MATERIAL SHALL IMMEDIATELY BE REMOVED FROM THE SITE AND ALL NECESSARY REPAIRS TO PLANTS, GRADES, LAWN AREAS, PAVING, AND OTHER AREAS DAMAGED DURING REPLACEMENT SHALL BE MADE AT NO COST TO THE OWNER.
- ONLY ONE REPLACEMENT PER TREE, SHRUB, OR PLANT WILL BE REQUIRED AT THE END OF THE WARRANTY PERIOD, EXCEPT FOR LOSSES OR REPLACEMENTS DUE TO FAILURE TO COMPLY WITH THE SPECIFIED REQUIREMENTS.



REVISIONS

DATE

NO.

DATE: 11/21/2022

SCALE: NTS

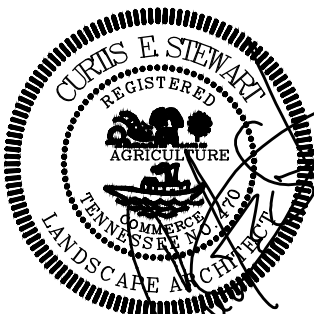
DRAWN BY: T-SQUARE

REVIEWER: CES

LANDSCAPE PLAN-DETAILS

MAP 42, PARCELS 13.00, 13.02,

13.07, 13.08, 13.09
COLUMBIA, TENNESSEE



PROJECT
22-0335

SHEET
L-3.0



T-SQUARE ENGINEERING



TECHNICAL MEETING

Tuesday, September 13, 2022

ITEM NO.

22-0263

DESCRIPTION: Request from Allison Baldwin to revise the Hospitality Lane CEG-PUD Master plan to what is now known as Wynnsong Valley PUD located off Hospitality Lane and Nashville Highway.

RECOMMENDATION: For final recommendation please see staff report.

TECHNICAL AND DIVISION COMMENTS:

Building

1. No comments.

Police

2. No comments provided.

Columbia Power

3. Columbia Power System has an existing power line near your proposed development. After annexation, we are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.

Fire

4. No comment

Engineering

5. Subject to construction plans and TIS
6. Show connection to McClure Farms
7. Geotechnical assessment of depressed area required prior to construction plans approval. No structures or right of way shall be within a sinkhole.
8. Hospitality Drive road name shall continue until intersection with another street.
9. ROW should not encroach on existing structures
10. Show all proposed infrastructure, including TIS improvements with commitment letter

TECHNICAL
22-0263
Page 1 of 3

Public Works

11. No comments.

Maury County E911

12. Contact Maury County 911 to request any new street names for review and/or reserve.

Planning

13. Please show 75' buffer between PUD and proposed CD-3 subdivision.
14. Please provide Site Development Plan/PUD checklist and all applicable items on the checklist (revised checklist is forthcoming and will be provided with summary of technical comments).
15. The PUD revision as submitted does not reflect the PUD-MU standards in Ordinance 4400. Substantial revisions are required. Planning staff recommends that the resubmittal go through a second review by the Development Review Committee (fka Technical Committee) before proceeding to Planning Commission. This will likely put the application on track for the December Planning Commission agenda.

Wastewater

16. Freehand Ln flow study ongoing. Columbia believes this property should either run to the Beechcroft Pump Station to the north or should flow to the south to the undeveloped property and through Grove Park. Freehand Ln/Spring Meade gravity sewer is nearly at capacity. There is also a pump station very likely to be constructed in the future downstream from Spring Meade, so limiting flow here would allow a smaller, cheaper pump station.

Columbia Water

17. "The project is within Columbia Power and Water's service area. The availability of capacity to serve will be based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. CPWS will study the existing infrastructure and determine its ability to serve the proposed development. Should adequate facilities not currently exist the study will determine any required off-site improvements necessary to serve your development. Off-site improvements needed to serve a development are the responsibility of the developer/owner. All water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."

TECHNICAL
22-0263
Page 2 of 3

Atmos Energy

18. No comments.

Maury County Schools

19. No comments provided.

Duck River Electric Membership Corp

20. No comments.

ATT

21. ATT plans to serve.

Maury County Highway

22. No comments.

ATTACHMENTS: Planned Unit Development



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: Wynnsong Valley PUD Revision

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ☒ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☒ Plan sealed by a Design Professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. = 100 ft.
- ☒ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☒ All property boundaries, existing easements, and encumbrances
- ☒ Parcel identification, owner, and deed and plat references of adjoining properties
- ☒ Proposed phasing and timetable for all phases of development *Both new buildings will be constructed in the same phase*
- ☒ Traffic Impact Study, as required.
- ☒ The substance of all existing and proposed covenants, easements, or other restrictions. *Not applicable*

Lots and Land-Use

- ☒ The size of total property to be developed in square feet and acres
- ☒ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ☒ A tabulation of the land area to be devoted to various uses and activities and overall densities. *Commercial PUD... density not regulated*
- ☒ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ☒ Location and approximate dimensions of all existing and proposed structures.
- ☒ Location of all earth retaining structures, with approximate top and bottom of wall elevations.
- ☒ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ☒ Location, type, and size of proposed signs *Not applicable*
- ☒ Approximate height, bulk, and the utilization of structures including activities and the number of living units. *Architectural elevations included*



Grading, Drainage, and Storm

- ☒ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ☒ General proposed contours at vertical intervals of not more than two (2) feet
- ☒ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- ☐ Location and dimension of aquatic buffer zones **None identified**
- ☒ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- ☐ Identification of all critical lots **None identified**

Streets, Parking, and Pedestrian Elements

- ☒ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☒ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☒ Proposed improvements as identified in the Traffic Impact Study, as required
- ☒ Existing and proposed sidewalks, trails, and other pedestrian elements
- ☒ Existing and proposed on-street and off-street parking and loading areas
- ☒ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

- ☐ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas **None identified**
- ☒ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ☒ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ☐ Any amenity features and structures for private or public benefit. **Not applicable**
- ☒ Location, dimension, and materials of fences and walls **We are requesting a variance from the requirements of E.6.ag.1. The nature of this building does not provide any exterior storage access, and building will be secured through entrance doors.**
- ☐ Tree Canopy retention **Not applicable**

Utilities

- ☒ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ☒ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.



PUD Specific Items

- ☒ Legal Description of Property
- ☒ Owner's Affidavit
- ☒ List of all variances requested
- ☒ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
- ☒ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
- ☒ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
- ☒ Exterior lighting

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

Allison Baldwin

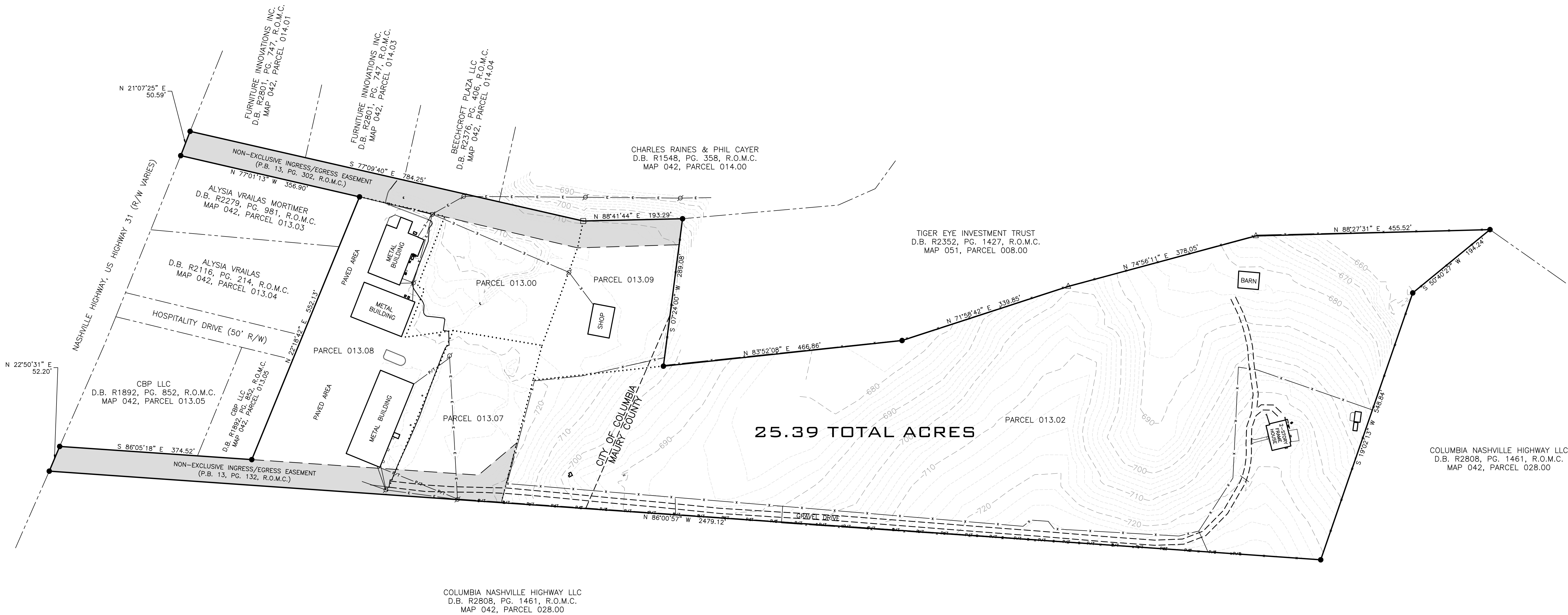
Print Name

Allison Baldwin

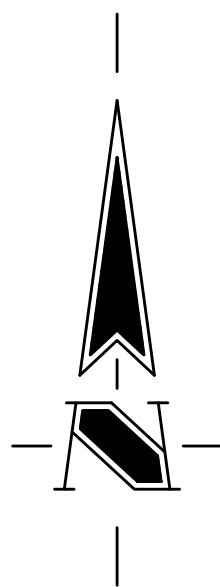
Signature

11/21/22

Date



IF YOU DIG TENNESSEE...
CALL US FIRST!
1-800-351-1111
TENNESSEE ONE CALL
IT'S THE LAW



TN SPCS NAD 83
SCALE 1" = 100'



SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THIS IS A CATEGORY 1
SURVEY, THAT THE RATIO OF PRECISION OF THE
UNADJUSTED SURVEY IS BETTER THAN 1:15,000, AND
IS IN COMPLIANCE WITH THE CURRENT TENNESSEE
STANDARDS OF PRACTICE FOR LAND SURVEYING.

J. Mark Cantrell
J. MARK CANTRELL, TN PLSF 1859

- No portion of the described tract lies within Floodway, and is shown in the area Zone X as said tract shows on FEMA FIRM Map Number 47119C0180E on the Flood Insurance Rate Maps for City of Columbia and Maury County, Tennessee (effective date April 16, 2007).
- This survey was prepared from current deeds of record without benefit of facts and does not represent a title search or a guarantee of title, and is subject to any state of facts a current, full, or accurate search may reveal. No investigation of independent search for easements, encumbrances, restrictive covenants, or ownership title evidence has occurred. The surveyor reserves the right to revise any easement(s) not provided for or known of per the date of this survey.
- The utility information shown hereon was taken from actual field evidence, utility agency records, or any other available evidence. Other utilities may exist and may not be shown, or may vary from where shown. No guarantee is expressed or implied in regard to the utility location shown hereon. The Owner(s) and Contractor(s) should assume responsibility to verify utility existence, size, location, depth and availability of service, and be solely responsible for contacting the utility location service prior to commencing construction.
- Basis of bearings is based on the Tennessee State Plane Coordinate System 4100 Zone on the 1983 North American Datum (NAD83).
- In Tennessee it is a requirement of the "Underground Utility Damage Prevent Act" that anyone who engages in excavation must notify all known underground utility owner(s) no less than three nor more than ten working days prior to the date of their intent to excavate and also to avoid any hazard or conflict. The Tennessee One Call telephone number is 1-800-351-1111. No utilities were called, nor marked for this project.

- IRON PIN FOUND
- △ COMPUTED POINT
- FENCE POST
- ⋈ UTILITY POLE
- O/H POWER LINE
- P/T — P/T — O/H TEL/COM LINE
- PARCEL LINE +/-
- x — FENCE LINE

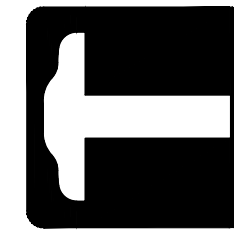
OWNERSHIP INFORMATION

MAP 042, PARCEL 013.08
2500-2554 HOSPITALITY DRIVE
ROBIN MCFARLANE, OWNER
D.B. R2179, PG. 1170, R.O.M.C.

MAP 042, PARCELS 013.00 & 013.07
2558 NASHVILLE HIGHWAY, O HOSPITALITY DRIVE
JOHN R GREENWELL C TRUST, OWNER
D.B. R2434, PG. 916, R.O.M.C. (PARCEL 013.07)
D.B. R2437, PG. 632, R.O.M.C. (PARCEL 013.00)

MAP 042, PARCEL 013.02
2532 NASHVILLE HIGHWAY
DEAN & JULIE NORTON, OWNERS
D.B. 1154, PG. 520, R.O.M.C.

MAP 042, PARCEL 013.09
2555 HOSPITALITY DRIVE
JOHN G & TAMI GREENWELL, OWNERS
D.B. R1991, PG. 500, R.O.M.C.



T-SQUARE ENGINEERING
SURVEY DIVISION
1329 WEST MAIN STREET, FRANKLIN, TN. 37064



BOUNDARY SURVEY
NASHVILLE HIGHWAY (US HIGHWAY 31)
HOSPITALITY DRIVE
MAP 042, PARCELS 013.00, 013.02,
013.07, 013.08, 013.09

PROJECT:

22-0335

REVISIONS

NO.	DATE

DATE:
25 MAR 2022

SCALE:

1" = 100'

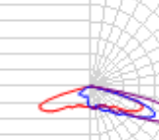
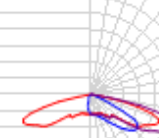
DRAWN BY:

DSW

REVIEWER:

SHEET:

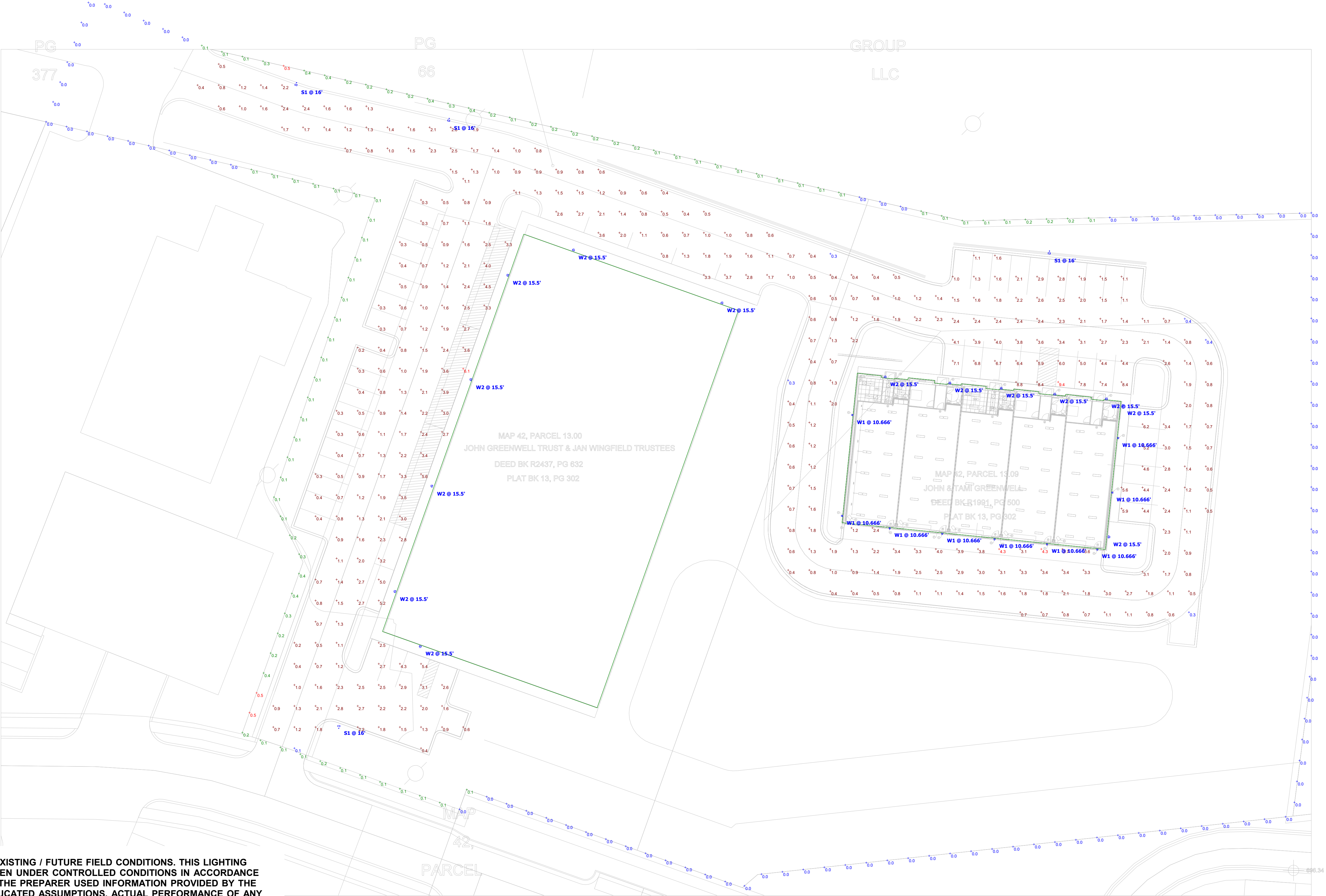
1 OF 1

Schedule														
Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Filename	Number Lamps	Lumens Per Lamp	Lumen Multiplier	Light Loss Factor	Total Lamp Lumens	Wattage	Plot
	W1		9	Lithonia Lighting	WDGE2 LED P3 30K 80CRI T4M MVOLT AWS XX	WDGE2 LED WITH P3 - PERFORMANCE PACKAGE, 3000K, 70CRI, TYPE 4 MEDIUM OPTIC	WDGE2_LED_P3_30K_70CRI_T4 M.ies	1	3297	1	0.9	3297	32.1375	
														Max: 2014cd
	W2		14	Lithonia Lighting	WDGE3 LED P2 30K 80CRI RFT MVOLT AWS XX	WDGE3 LED WITH P2 - PERFORMANCE PACKAGE, 3000K, 70CRI, FORWARD THROW OPTIC	WDGE3_LED_P2_30K_70CRI_RFT_30 K.ies	1	7922	1	0.9	7922	59.2761	
														Max: 3819cd
	S1		4	Lithonia Lighting	DSX0 LED P2 30K T2M MVOLT HS	DSX0 LED P2 30K T2M MVOLT with houseside shield	DSX0_LED_P2_30K_T2M_MVOLT_HS.ies	1	4559	1	0.9	4559	49	
														Max: 3555cd

Note
- Calculation zones @ grade with a 10' x 10' spacing.

Statistics

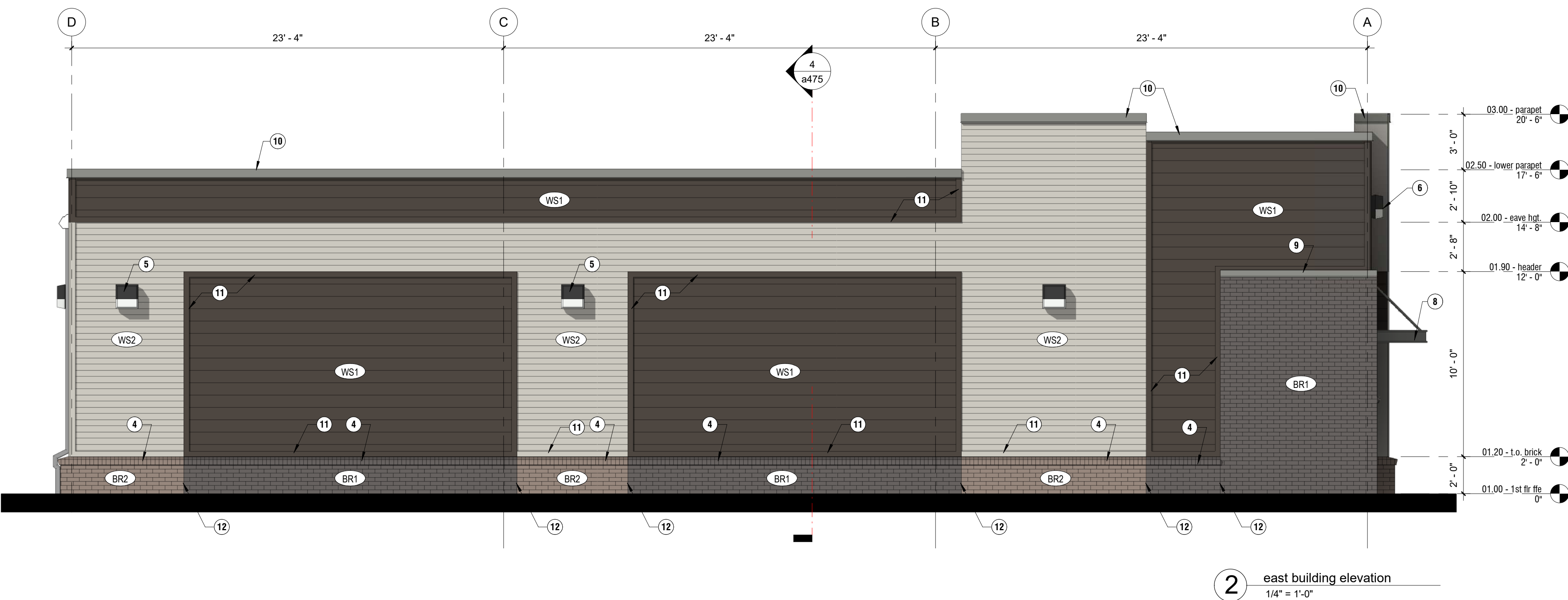
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
GROUP OFFICE WAREHOUSE PARKING	+	2.9 fc	9.4 fc	0.4 fc	23.5:1	7.3:1
GROUP SELF STORAGE PARKING	+	1.7 fc	6.1 fc	0.1 fc	61.0:1	17.0:1
ROADWAY NORTH	+	1.5 fc	4.3 fc	0.3 fc	14.3:1	5.0:1
PROPERTY LINE	+	0.1 fc	0.5 fc	0.0 fc	N/A	N/A



DESIGNER'S NOTE:
THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY (IESNA) APPROVED METHODS. ADDITIONALLY, THE PREPARER USED INFORMATION PROVIDED BY THE CUSTOMER. IF/WHEN SUFFICIENT INFORMATION WAS NOT PROVIDED, PREPARER USED EDUCATED ASSUMPTIONS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE(S) MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER FIELD CONDITIONS NOT ACCOUNTED FOR IN THIS PHOTOMETRIC ANALYSIS.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR ENERGY CODE AND RELEVANT LIGHTING QUALITY COMPLIANCE.

Plan View
Scale - 1" = 25ft



material legend

BR1	GLEN-GERY || MODULAR BRICK COLOR: CARBON BLACK VELOUR
BR2	GLEN-GERY || MODULAR BRICK COLOR: CHARCOAL GRAY VELOUR
WS1	HARDIE PLANK LAP SIDING - 8" EXPOSURE JAMES HARDIE COLOR: SW7020 BLACK FOX
WS2	HARDIE PLANK LAP SIDING - 4" EXPOSURE JAMES HARDIE COLOR: SW7015 REPOSE GRAY
SS1	STANDING SEAM METAL ROOF || BIGBEE STEEL BUILDINGS COLOR: GALVALUME
PT1	METAL TRIM SMOOTH || BIGBEE STEEL BUILDINGS COLOR: OLD TOWN GRAY

elevation keynotes

- STANDING SEAM GABLE TRIM - REFER TO BIGBEE STEEL BUILDING DRAWINGS.
- PREFINISHED ALUMINUM DOWNSPOUTS | COLOR TO MATCH: PAC-CLAD BURNISHED SLATE.
- PREFINISHED EAVE TRIM WITH STEEL GUTTER | CITY SEAMLESS RAIN GUTTER K-STYLE | COLOR TO MATCH: PAC-CLAD BURNISHED SLATE - REFER TO BIGBEE STEEL BUILDING DRAWINGS.
- BRICK ROWLOCK @ TRANSITION & WINDOW SILLS.
- EXTERIOR LIGHTING (LED WALL PACK) @ 10'-8" AFF - REFER TO ELECTRICAL.
- EXTERIOR LIGHTING (LED WALL PACK) @ 15'-6" AFF - REFER TO ELECTRICAL.
- HOSE BIBB - REFER TO PLUMBING.
- PREMANUFACTURED ALUMINUM CANOPY - REFER TO DETAIL X/XXX.
- PREFINISHED ALUMINUM FLASHING/COPING AT TRANSITION FROM BRICK TO HARDIE PLANK LAP SIDING.
- PAC-CLAD PAC-TITE COPING: TAPERED | COLOR: PAC-CLAD BURNISHED SLATE.
- HARDIE TRIM BOARDS - 4/4 SMOOTH - PAINT TO MATCH ADJACENT FINISH.
- MASONRY CONTROL JOINT

zone 4 - building envelope requirements fenestration

METAL FRAMING STOREFRONT U-FACTOR ENTRANCE DOOR U-FACTOR	0.50 0.85
SHGC - ALL FRAME TYPES SHGC: PF < 0.25 SHGC: 0.25 < PF < 0.5 SHGC: PF > 0.5	0.40 NR (NO REQUIREMENT) NR

zone 4 - building envelope requirements

ROOFS METAL BUILDING ROOF	U-0.052 REQUIRED - PER TABLE 402.1.2 PROLINER BANDED LINER SYSTEM R-30 U-0.049 PROVIDED
WALLS ABOVE GRADE METAL BUILDING WALLS	U-0.052 REQUIRED - PER TABLE 402.1.2 PROLINER BANDED LINER SYSTEM R-30 U-0.049 PROVIDED
SLAB-ON-GRADE FLOORS UNHEATED SLABS	R-10 FOR 24HR. BELOW
OPAQUE DOORS NON-SWINGING (GARAGE DOORS)	R-4.75

general elevation notes

- DOOR AND WINDOW FRAMES TO BE KAWNEER ALUMINUM FINISH NO. 14 - (CLEAR ANODIZED ALUMINUM)
- GLAZING TO BE 1" INSULATED PPG SOLAR CLEAR AND SOLARBAN 60 (3) CLEAR

planning commission note

THESE ELEVATIONS HAVE BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF LEBANON ARCHITECTURAL DESIGN STANDARDS AND THE APPROVAL OF THE PLANNING COMMISSION/CITY OF COLUMBIA, TN. CHANGES SHALL NOT BE MADE TO THE APPROVED ELEVATIONS UNLESS APPROVED BY THE CODES DIRECTOR OR THE PLANNING COMMISSION.

hvac screening

ALL HVAC EQUIPMENT WILL BE PLACED AT GRADE AND ADEQUATELY SCREENED BY LANDSCAPING ELEMENTS.

percentage of exterior materials

north elevation	south elevation
brick || 485.79 sf (20.05%) a) carbon black velour || 368.35 sf (15.20%) b) charcoal gray velour || 117.44 sf (4.85%) hardie || 1,558.31 sf (64.72%) a) black fox || 721.03 sf (29.76%) b) repose gray || 847.28 sf (34.97%) (door/window openings) || 369.07 sf (15.23%) total facade || 2,423.17 sf	brick || 99.21 sf (5.50%) a) carbon black velour || 61.11 sf (3.39%) b) charcoal gray velour || 38.10 sf (2.11%) hardie || 863.53 sf (47.91%) a) black fox || 307.70 sf (17.07%) b) repose gray || 555.83 sf (30.84%) (door/window openings) || 539.00 sf (46.56%) total facade || 1,892.34 sf
west elevation	east elevation
brick || 144.38 sf (11.44%) a) carbon black velour || 80.23 sf (6.36%) b) charcoal gray velour || 64.15 sf (5.08%) hardie || 1,117.18 sf (88.56%) a) black fox || 551.57 sf (43.72%) b) repose gray || 565.61 sf (44.83%) (door/window openings) || 0 sf (0%) total facade || 1,291.86 sf	brick || 226.83 sf (17.86%) a) carbon black velour || 179.21 sf (14.20%) b) charcoal gray velour || 47.62 sf (3.77%) hardie || 1,035.05 sf (82.02%) a) black fox || 602.82 sf (47.77%) b) repose gray || 432.23 sf (34.25%) (door/window openings) || 0 sf (0%) total facade || 1,291.86 sf
total brick building || 896.21 sf (14.17%) total hardie building || 4,594 sf (67.92%) total facade building || 6,748.95 sf	

project:

brookstone group office | warehouse
8,750 sf office | warehouse flex space
300x hospitality drive || columbia, tennessee 38401

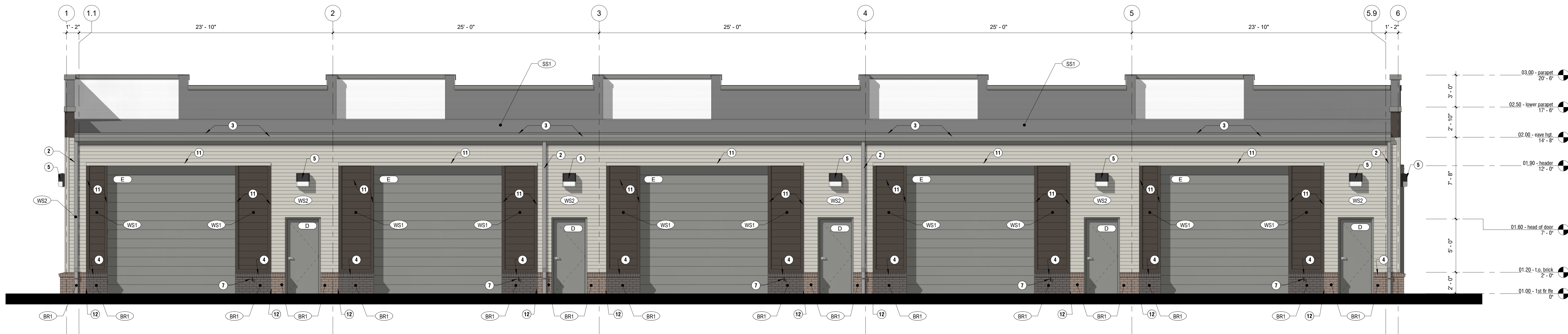
revisions



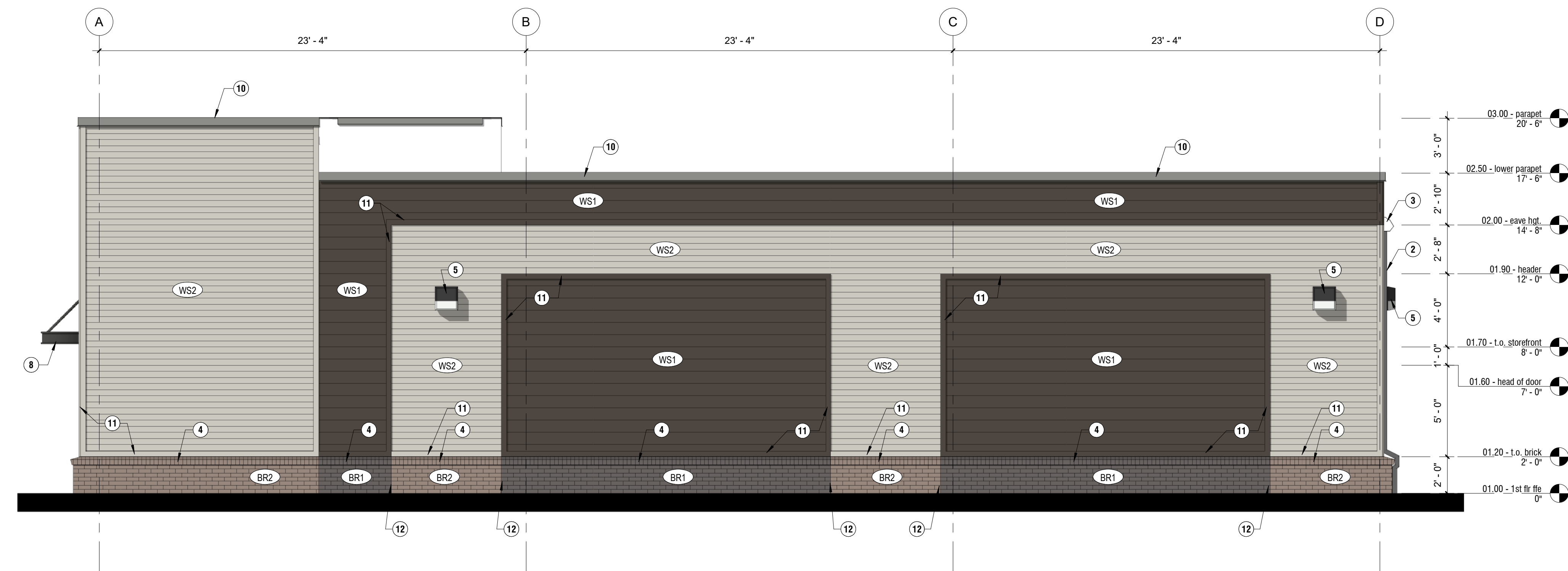
date: 11.11.2022
project no.: c20063.00

building
elevations

a400



1 south building elevation
1/4" = 1'-0"



2 west building elevation
1/4" = 1'-0"



3 southwest building perspective

material legend

BR1	GLEN-GERY || MODULAR BRICK COLOR: CARBON BLACK VELOUR
BR2	GLEN-GERY || MODULAR BRICK COLOR: CHARCOAL GRAY VELOUR
WS1	HARDIE PLANK LAP SIDING - 8" EXPOSURE JAMES HARDIE COLOR: SW7020 BLACK FOX
WS2	HARDIE PLANK LAP SIDING - 4" EXPOSURE JAMES HARDIE COLOR: SW7015 REPOSE GRAY
SS1	STANDING SEAM METAL ROOF || BIGBEE STEEL BUILDINGS COLOR: GALVALUME
PT1	METAL TRIM SMOOTH || BIGBEE STEEL BUILDINGS COLOR: OLD TOWN GRAY

elevation keynotes

- STANDING SEAM GABLE TRIM - REFER TO BIGBEE STEEL BUILDING DRAWINGS.
- PREFINISHED ALUMINUM DOWNSPOUTS || COLOR TO MATCH: PAC-CLAD BURNISHED SLATE.
- PREFINISHED EAVE TRIM WITH STEEL GUTTER | CITY SEAMLESS RAIN GUTTER K-STYLE | COLOR TO MATCH: PAC-CLAD BURNISHED SLATE - REFER TO BIGBEE STEEL BUILDING DRAWINGS.
- BRICK ROWLOCK @ TRANSITION & WINDOW SILLS.
- EXTERIOR LIGHTING (LED WALL PACK) @ 10'-8" AFF - REFER TO ELECTRICAL.
- EXTERIOR LIGHTING (LED WALL PACK) @ 15'-6" AFF - REFER TO ELECTRICAL.
- HOSE BIBB - REFER TO PLUMBING.
- PREMANUFACTURED ALUMINUM CANOPY - REFER TO DETAIL X/XXXX.
- PREFINISHED ALUMINUM FLASHING/COPING AT TRANSITION FROM BRICK TO HARDIE PLANK LAP SIDING.
- PAC-CLAD PAC-TITE COPING; TAPERED || COLOR: PAC-CLAD BURNISHED SLATE.
- HARDIE TRIM BOARDS - 4/4 SMOOTH - PAINT TO MATCH ADJACENT FINISH.
- MASONRY CONTROL JOINT

zone 4 - building envelope requirements fenestration

METAL FRAMING STOREFRONT U-FACTOR ENTRANCE DOOR U-FACTOR	0.50 0.85
SHGC - ALL FRAME TYPES SHGC: PF < 0.25 SHGC: 0.25 < PF < 0.5 SHGC: PF > 0.5	0.40 NR (NO REQUIREMENT) NR

zone 4 - building envelope requirements

ROOFS METAL BUILDING ROOF	U-0.052 REQUIRED - PER TABLE 402.1.2 PROLINER BANDED LINER SYSTEM R-30 U-0.049 PROVIDED
WALLS ABOVE GRADE METAL BUILDING WALLS	U-0.052 REQUIRED - PER TABLE 402.1.2 PROLINER BANDED LINER SYSTEM R-30 U-0.049 PROVIDED
SLAB-ON-GRADE FLOORS UNHEATED SLABS	R-10 FOR 24IN. BELOW
OPAQUE DOORS NON-SWINGING (GARAGE DOORS)	R-4.75

general elevation notes

- DOOR AND WINDOW FRAMES TO BE KAWNEER ALUMINUM FINISH NO. 14 - (CLEAR ANODIZED ALUMINUM)
- GLAZING TO BE 1" INSULATED PPG SOLAR CLEAR AND SOLARBAN 60 (5) CLEAR

planning commission note

THESE ELEVATIONS HAVE BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF LEBANON ARCHITECTURAL DESIGN STANDARDS AND THE APPROVAL OF THE PLANNING COMMISSION. CITY OF COLUMBIA, TN, CHANGES SHALL NOT BE MADE TO THE APPROVED ELEVATIONS UNLESS APPROVED BY THE CODES DIRECTOR OR THE PLANNING COMMISSION.

hvac screening

ALL HVAC EQUIPMENT WILL BE PLACED AT GRADE AND ADEQUATELY SCREENED BY LANDSCAPING ELEMENTS.

percentage of exterior materials

north elevation	east elevation
brick || 485.79 sf (20.05%) a) carbon black velour || 368.35 sf (15.20%) b) charcoal gray velour || 117.44 sf (4.85%) hardie || 863.53 sf (47.91%) a) black fox || 721.03 sf (29.76%) b) repose gray || 847.28 sf (34.97%) (door/window openings || 369.07 sf (15.23%) total facade || 2,423.17 sf	brick || 226.83 sf (17.98%) a) carbon black velour || 179.21 sf (14.20%) b) charcoal gray velour || 47.62 sf (3.77%) hardie || 1,035.05 sf (82.02%) a) black fox || 951.57 sf (43.72%) b) repose gray || 565.61 sf (44.83%) (door/window openings || 0 sf (0%) total facade || 1,291.98 sf
west elevation	
brick || 144.38 sf (11.44%) a) carbon black velour || 80.23 sf (6.36%) b) charcoal gray velour || 64.15 sf (5.08%) hardie || 1,117.19 sf (88.56%) a) black fox || 951.57 sf (43.72%) b) repose gray || 565.61 sf (44.83%) (door/window openings || 0 sf (0%) total facade || 1,291.98 sf	

project:

brookstone group office | warehouse
8,750 sf office | warehouse flex space
300x hospitality drive || columbia, tennessee 38401

revisions



date: 11.11.2022
project no.: c20063.00

building
elevations

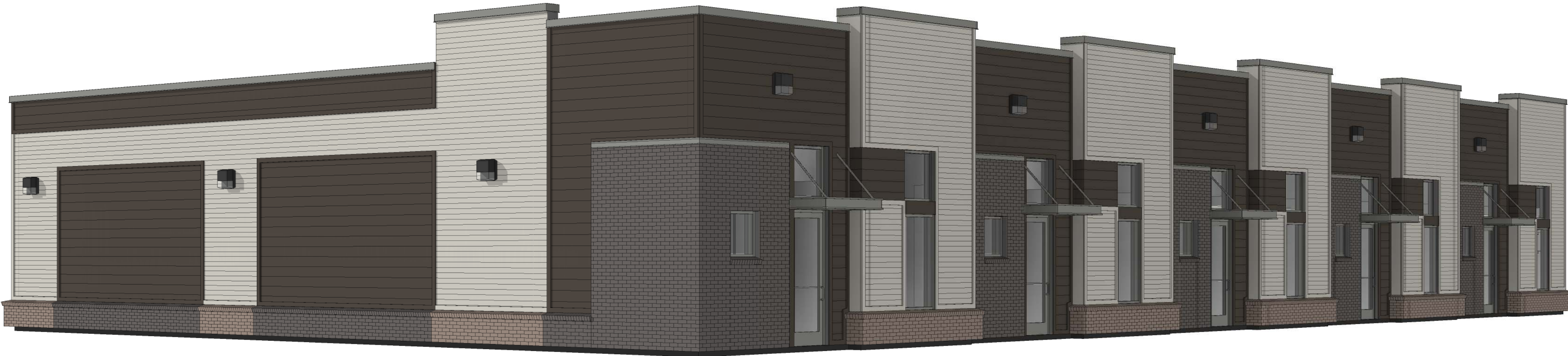
a401



1 northeast perspective



2 southeast perspective



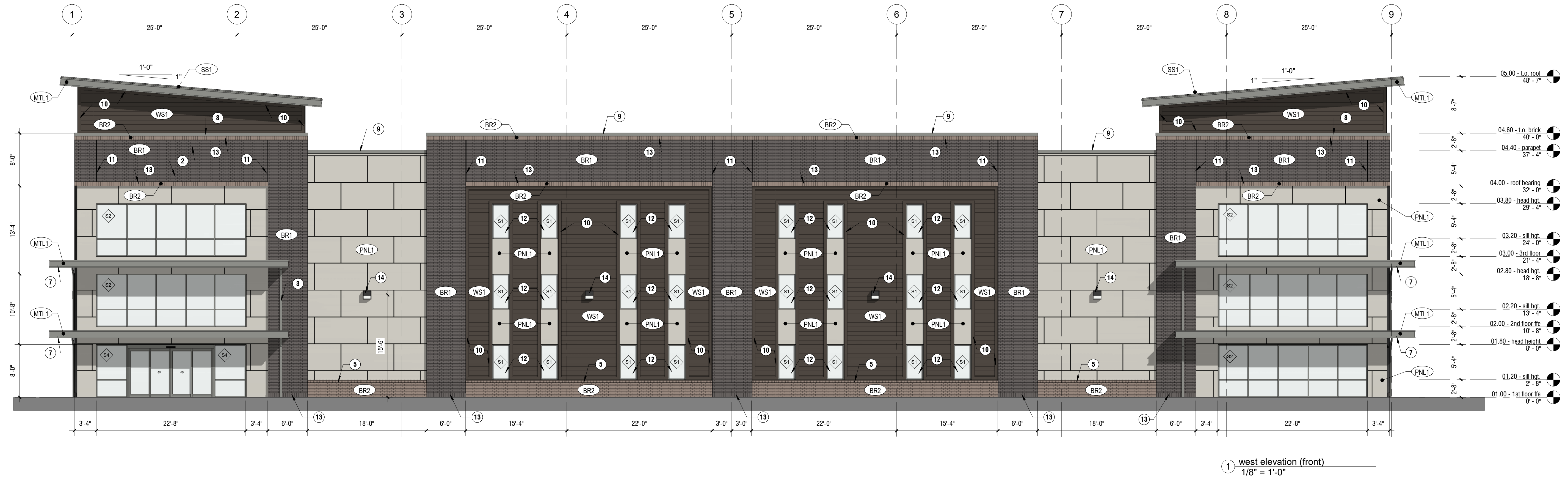
3 northwest perspective



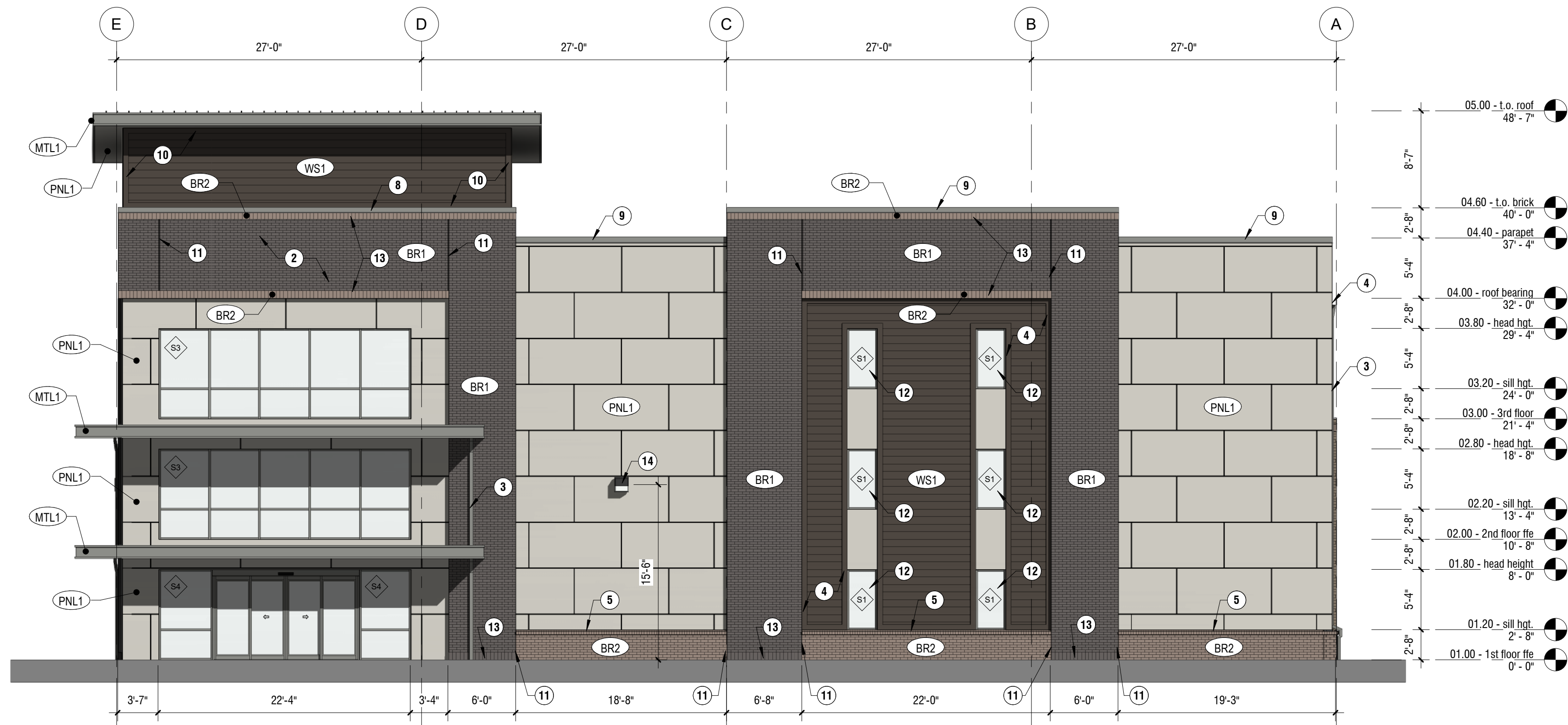
4 southwest perspective



2 perspective view of front elevations



1 west elevation (front)
1/8" = 1'-0"



3 south elevation (right)
1/8" = 1'-0"

material legend

BR1	GLEN-GERY || MODULAR BRICK COLOR: CARBON BLACK VELOUR
BR2	GLEN-GERY || MODULAR BRICK COLOR: CHARCOAL GRAY VELOUR
WS1	SIDING - 8" REVEAL || HARDIE COLOR: SW7020 BLACK FOX
PNL1	REVEAL PANEL SYSTEM || HARDIE COLOR: SW7015 REPOSE GRAY
SS1	STANDING SEAM METAL ROOF || BIGBEE STEEL BUILDINGS COLOR: GALVALUME
MTL1	METAL TRIM SMOOTH || BIGBEE STEEL BUILDINGS COLOR: OLD TOWN GRAY

elevation keynotes

- EXTERIOR LIGHTING - REFER TO ELECTRICAL.
- PROPOSED LOCATION FOR EXTERIOR SIGNAGE - A SEPARATE SIGNAGE PERMIT APPLICATION WILL BE INITIATED FOR REQUIRED SIGNAGE APPROVALS.
- PREFINISHED ALUMINUM DOWNSPOUTS || COLOR TO MATCH: PAC-CLAD BURNISHED SLATE.
- PREFINISHED EAVE TRIM WITH STEEL GUTTER || CITY SEAMLESS RAIN GUTTER K-STYLE || COLOR TO MATCH: PAC-CLAD BURNISHED SLATE.
- BRICK ROWLOCK @ TRANSITION & WINDOW SILLS.
- HOSE BIBB - REFER TO PLUMBING.
- PREMANUFACTURED ALUMINUM CANOPY - REFER TO DETAIL XXXXX.
- PREFINISHED ALUMINUM FLASHING/COPING AT TRANSITION FROM BRICK TO HARDIE PLANK LAP SIDING.
- PAC-CLAD PAC-TITE COPING: TAPERED || COLOR: PAC-CLAD BURNISHED SLATE.
- HARDIE TRIM BOARDS - 4/4 SMOOTH - PAINT TO MATCH ADJACENT FINISH.
- MASONRY CONTROL JOINT.
- SPANDREL GLAZING - REFER TO THE STOREFRONT SCHEDULE.
- BRICK SOLDIER COURSE - MODULAR BRICK SIZE - REFER TO MATERIAL LEGEND FOR COLOR.
- WALL PACK AT 15'-6" AFF - REFER TO ELECTRICAL.

zone 4 - building envelope requirements fenestration

METAL FRAMING	
FIXED FENESTRATION	0.38
OPERABLE FENESTRATION	0.45
ENTRANCE DOORS	0.77
SHGC - ALL FRAME TYPES	SEW
SHGC: PF < 0.20	0.38
SHGC: 0.20 < PF < 0.50	0.43
SHGC: PF > 0.50	0.58

zone 4 - building envelope requirements

ROOFS	
INSULATION ENTIRELY ABOVE DECK	R-25 CONTINUOUS
ATTIC AND OTHER	R-38
WALLS ABOVE GRADE	
METAL FRAMED	R-13 + R-7.5 CONTINUOUS
METAL BUILDINGS	R-19 + R-11.4 CONTINUOUS
SLAB-ON-GRADE FLOORS	
UNHEATED SLABS	R-10 FOR 24IN. BELOW
OPAQUE DOORS	
NON-SWINGING	R-4.75

general elevation notes

- DOOR AND WINDOW FRAMES TO BE KAWNEER ALUMINUM FINISH NO. 29 - (BLACK ALUMINUM - AA-M10C21A44)
- GLAZING TO BE 1" INSULATED PPG SOLAR CLEAR AND SOLARBAN 60 (3) CLEAR

planning commission note

THESE ELEVATIONS HAVE BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN'S ARCHITECTURAL DESIGN STANDARDS AND THE APPROVAL OF THE PLANNING COMMISSION/CITY OF COLUMBIA, TN. CHANGES SHALL NOT BE MADE TO THE APPROVED ELEVATIONS UNLESS APPROVED BY EITHER THE BNS DIRECTOR OR THE PLANNING COMMISSION.

hvac screening

ALL HVAC EQUIPMENT WILL BE PLACED ON THE ROOF AND ADEQUATELY SCREENED BY THE CONTINUOUS PARAPET.

percentage of exterior materials

north elevation	south elevation
brick || 1,288.85 sf (29.98%) a) carbon black velour || 1,052.79 sf (24.47%) b) charcoal gray velour || 236.06 sf (5.49%) hardie || 2,391.75 sf (55.60%) a) black fox || 751.15 sf (17.46%) b) repose gray || 1,640.60 sf (38.14%) (door/window openings || 621.33 sf (14.44%) total facade || 4,301.50 sf	brick || 1,206.97 sf (29.92%) a) carbon black velour || 1,062.93 sf (25.52%) b) charcoal gray velour || 234.04 sf (5.40%) hardie || 2,416.88 sf (55.75%) a) black fox || 751.38 sf (17.33%) b) repose gray || 1,665.52 sf (38.43%) (door/window openings || 621.33 sf (14.33%) total facade || 4,335.18 sf
west elevation	east elevation
brick || 1,580.21 sf (31.13%) a) carbon black velour || 2,018.10 sf (25.13%) b) charcoal gray velour || 462.11 sf (6.00%) hardie || 4,101.41 sf (51.07%) a) black fox || 2,009.28 sf (25.02%) b) repose gray || 2,092.73 sf (26.85%) (door/window openings || 1,428.94 sf (17.79%) total facade || 8,030.56 sf	brick || 1,985.14 sf (28.28%) a) carbon black velour || 1,421.72 sf (20.25%) b) charcoal gray velour || 563.42 sf (8.03%) hardie || 5,035.53 sf (71.72%) a) black fox || 3,547.80 sf (50.53%) b) repose gray || 1,487.73 sf (21.18%) (door/window openings || 0 sf (0%) total facade || 7,020.67 sf
total brick building || 7,071.17 sf (28.85%) total hardie building || 13,945.57 sf (56.87%) total facade building || 23,898.24 sf	



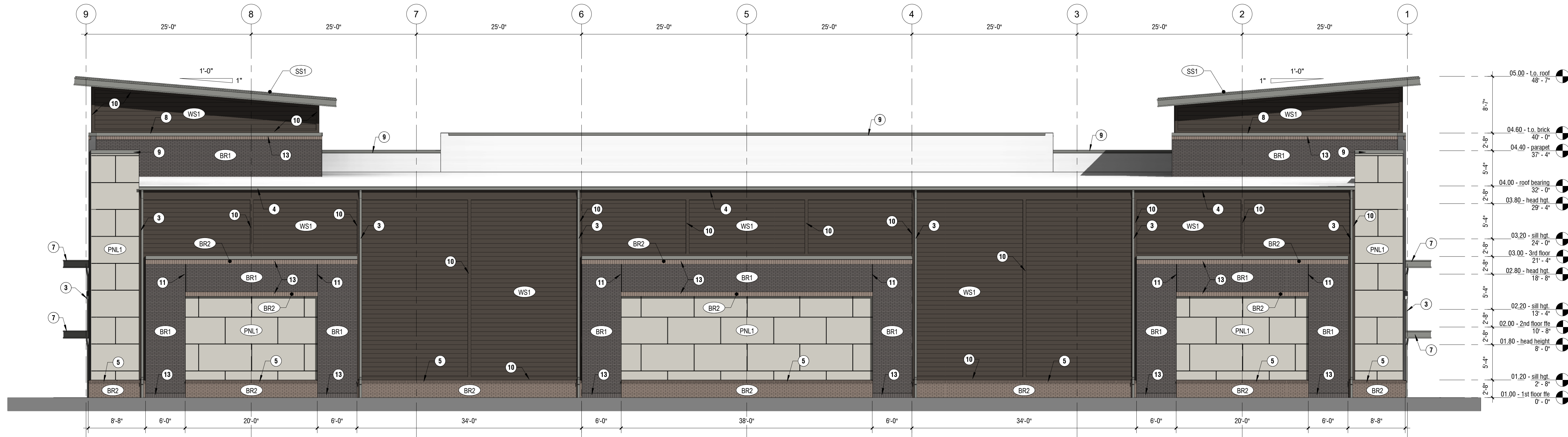
date: 11.11.2022
project no.: c22056.00

building elevations

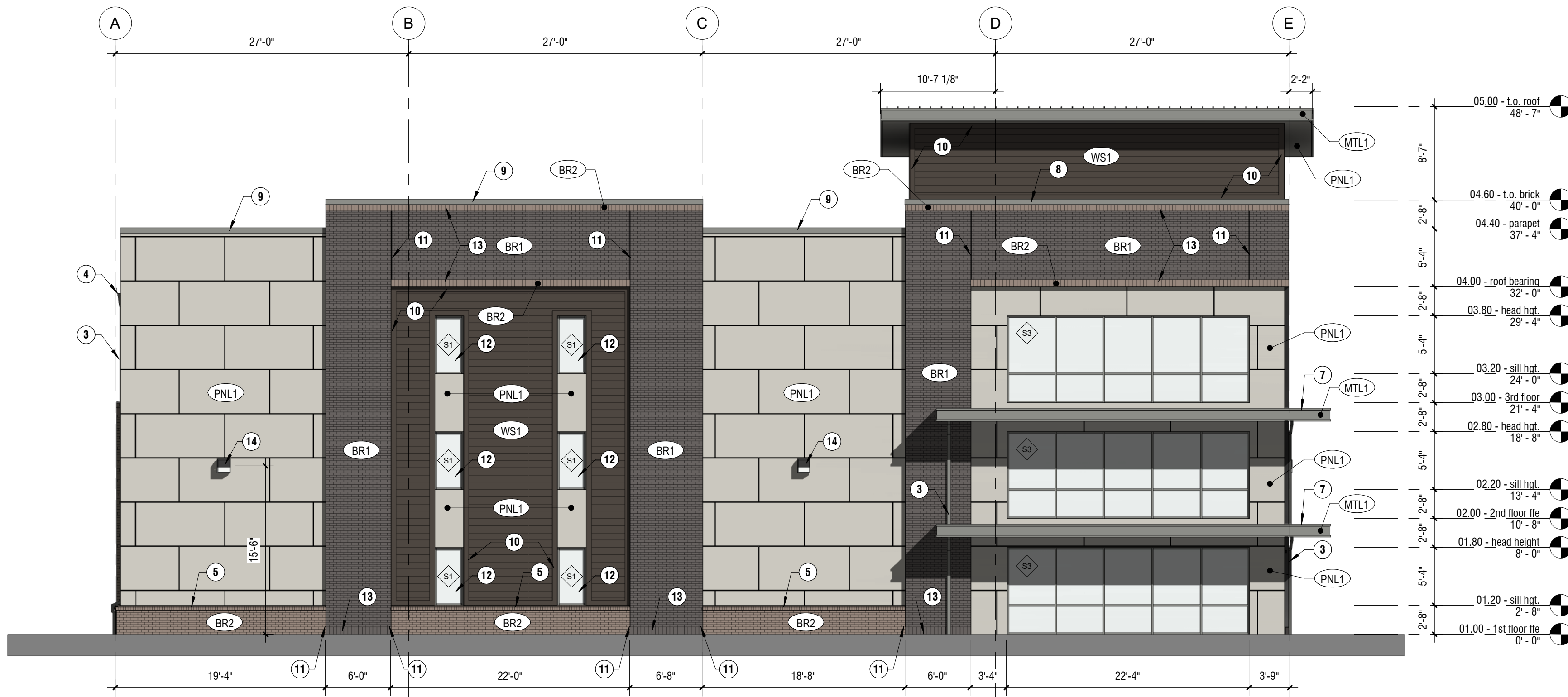
a400



2 perspective view rear facade



1 east elevation (rear)
1/8" = 1'-0"



3 north elevation (left)
1/8" = 1'-0"

material legend



GLEN-GERY || MODULAR BRICK
COLOR: CARBON BLACK VELOUR



GLEN-GERY || MODULAR BRICK
COLOR: CHARCOAL GRAY VELOUR



SIDING - 8" REVEAL || HARDIE
COLOR: SW7020 BLACK FOX



REVEAL PANEL SYSTEM || HARDIE
COLOR: SW7015 REPOSE GRAY



STANDING SEAM METAL ROOF ||
BIGBEE STEEL BUILDINGS
COLOR: GALVALUME



METAL TRIM SMOOTH ||
BIGBEE STEEL BUILDINGS
COLOR: OLD TOWN GRAY

elevation keynotes

- EXTERIOR LIGHTING - REFER TO ELECTRICAL.
- PROPOSED LOCATION FOR EXTERIOR SIGNAGE - A SEPARATE SIGNAGE PERMIT APPLICATION WILL BE INITIATED FOR REQUIRED SIGNAGE APPROVALS.
- PREFINISHED ALUMINUM DOWNSPOUTS | COLOR TO MATCH: PAC-CLAD BURNISHED SLATE.
- PREFINISHED EAVE TRIM WITH STEEL GUTTER | CITY SEAMLESS RAIN GUTTER K-STYLE | COLOR TO MATCH: PAC-CLAD BURNISHED SLATE.
- BRICK ROWLOCK @ TRANSITION & WINDOW SILLS.
- HOSE BIBB - REFER TO PLUMBING.
- PREMANUFACTURED ALUMINUM CANOPY - REFER TO DETAIL X/XXX.
- PREFINISHED ALUMINUM FLASHING/CORING AT TRANSITION FROM BRICK TO HARDIE PLANK LAP SIDING.
- PAC-CLAD PAC-TITE CORING: TAPERED | COLOR: PAC-CLAD BURNISHED SLATE.
- HARDIE TRIM BOARDS - 4/4 SMOOTH - PAINT TO MATCH ADJACENT FINISH.
- MASONRY CONTROL JOINT.
- SPANDRAL GLAZING - REFER TO THE STOREFRONT SCHEDULE.
- BRICK SOLDIER COURSE - MODULAR BRICK SIZE - REFER TO MATERIAL LEGEND FOR COLOR.
- WALL PACK AT 19'-6" AFF - REFER TO ELECTRICAL.

zone 4 - building envelope requirements fenestration

METAL FRAMING	
FIXED FENESTRATION	0.38
OPERABLE FENESTRATION	0.45
ENTRANCE DOORS	0.77
SHGC - ALL FRAME TYPES	
SHGC: PF < 0.20	0.46
SHGC: 0.20 < PF < 0.50	0.43
SHGC: PF > 0.50	0.58

zone 4 - building envelope requirements

ROOFS	
INSULATION ENTIRELY ABOVE DECK	R-25 CONTINUOUS
ATTIC AND OTHER	R-38
WALLS ABOVE GRADE	
METAL FRAMED	R-13 + R-7.5 CONTINUOUS
METAL BUILDINGS	R-19 + R-11.4 CONTINUOUS
SLAB-ON-GRADE FLOORS	
UNHEATED SLABS	R-10 FOR 24IN. BELOW
OPAQUE DOORS	
NON-SWINGING	R-4.75

general elevation notes

- DOOR AND WINDOW FRAMES TO BE KAWNEER ALUMINUM FINISH NO. 29 - (BLACK ALUMINUM - AA-M10C21A44)
- GLAZING TO BE 1" INSULATED PPG SOLAR CLEAR AND SOLARBAN 60 (3) CLEAR

planning commission note

THESE ELEVATIONS HAVE BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN'S ARCHITECTURAL DESIGN STANDARDS AND THE APPROVAL OF THE PLANNING COMMISSION/CITY OF COLUMBIA, TN. CHANGES SHALL NOT BE MADE TO THE APPROVED ELEVATIONS UNLESS APPROVED BY EITHER THE SDC DIRECTOR OR THE PLANNING COMMISSION.

hvac screening

ALL HVAC EQUIPMENT WILL BE PLACED ON THE ROOF AND ADEQUATELY SCREENED BY THE CONTINUOUS PARAPET.

percentage of exterior materials

north elevation	south elevation
brick || 1,288.85 sf (29.96%) a) carbon black velour || 1,062.79 sf (24.47%) b) charcoal gray velour || 226.06 sf (5.49%) hardie || 2,416.88 sf (55.60%) a) black fox || 751.15 sf (17.46%) b) repose gray || 1,665.52 sf (38.14%) (door/window openings || 621.33 sf (14.44%) total facade || 4,301.93 sf	brick || 1,296.97 sf (29.92%) a) carbon black velour || 1,062.93 sf (25.52%) b) charcoal gray velour || 234.04 sf (5.40%) hardie || 2,416.88 sf (55.75%) a) black fox || 751.36 sf (17.33%) b) repose gray || 1,665.52 sf (38.42%) (door/window openings || 621.33 sf (14.33%) total facade || 4,335.18 sf
west elevation	east elevation
brick || 1,280.21 sf (31.13%) a) carbon black velour || 2,018.10 sf (25.13%) b) charcoal gray velour || 452.11 sf (6.00%) hardie || 4,101.41 sf (71.72%) a) black fox || 2,009.28 sf (25.02%) b) repose gray || 2,002.13 sf (26.86%) (door/window openings || 1,428.94 sf (17.79%) total facade || 8,030.56 sf	brick || 1,985.14 sf (28.28%) a) carbon black velour || 2,018.10 sf (29.25%) b) charcoal gray velour || 553.42 sf (8.03%) hardie || 5,035.53 sf (71.72%) a) black fox || 3,547.89 sf (50.53%) b) repose gray || 1,407.73 sf (21.15%) (door/window openings || 0 sf (0%) total facade || 7,020.67 sf
total brick building || 7,071.17 sf (29.85%)	total brick building || 7,071.17 sf (29.85%)
total hardie building || 13,945.57 sf (58.87%)	total hardie building || 13,945.57 sf (58.87%)
total facade building || 23,688.24 sf	total facade building || 23,688.24 sf

revisions



date: 11.11.2022
project no.: c22056.00

building elevations

a401



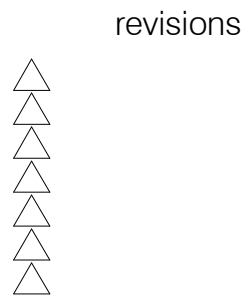
1 a420 corner perspective



2 plan southwest perspective



3 plan northeast building perspective



date: 11.11.2022
project no.: c22056.00

building
perspectives

a420

6/18/22

John G. Greenwell and Tami M. Greenwell
105 Carr Drive
Spring Hill, TN 37174

Allison Baldwin
T-Square Engineering
1329 W Main Street
Franklin, TN 37064

Attention: Allison Baldwin

You have my permission to sign my name allowing for T-Square Engineering (representing buyer Gregory T. Smith) to submit PUD Master Development Plan of 25.38+/- acre land tract which includes Map 042 and Parcels 013.00, 013.02, 013.07, 013.08, and 013.09.

Regards,

<i>Tami Greenwell</i>	dotloop verified 06/20/22 4:41 PM CDT BHNS-8MB9-3UYS-DBQ9
-----------------------	---

<i>John Greenwell</i>	dotloop verified 06/20/22 4:19 PM CDT ZEZC-ERJI-995D-LP4X
-----------------------	---

John G. Greenwell and Tami M. Greenwell
Owners of 2555 Hospitality Drive, Columbia TN
Map 043 Parcel 013.09

11/7/2022

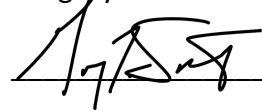
Gregory and Stephanie Smith dba 2500HD, LLC
PO Box 1301
Franklin, Tn. 37065
615-970-1483

Allison Baldwin
T-Square Engineering
Franklin, Tn.

Attn: Allison Baldwin

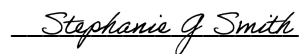
You have our permission to sign our names allowing for T-Square Engineering (representing owners Greg and Stephanie Smith) to submit PUD Master Development plan consisting of a 3 +/- acre land tract which includes our property located at 2500 Hospitality Drive (Parcel # 042013.0800) in Columbia, TN fronting U.S Hwy. 31 (Nashville Hwy).

Gregory Smith



Date: 11-7-22

Stephanie Smith



Date: 11-7-22

6/18/22

John R. Greenwell Trust
Co Trustees Steven R. Greenwell, John G. Greenwell and Jan Wingfield
105 Carr Drive
Spring Hill, TN 37174

Allison Baldwin
T-Square Engineering
1329 W Main Street
Franklin, TN 37064

Attention: Allison Baldwin

You have my permission to sign my name allowing for T-Square Engineering (representing buyer Gregory T. Smith) to submit PUD Master Development Plan of 25.38+/- acre land tract which includes Map 042 and Parcels 013.00, 013.02, 013.07, 013.08, and 013.09.

Regards,

<i>Steve Greenwell</i>	dotloop verified 06/20/22 5:07 PM EDT 5DQD-TYZ1-RCXJ-WOIU
------------------------	---

<i>Jan Wingfield</i>	dotloop verified 06/18/22 9:00 PM CDT 2LGD-2XUJ-PS4-A46D
----------------------	--

<i>John Greenwell</i>	dotloop verified 06/20/22 6:44 PM CDT 5MRP-SSWX-Y3LH-1VQG
-----------------------	---

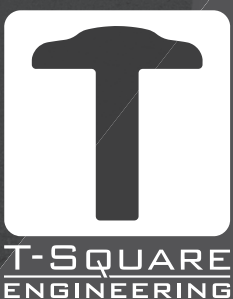
John R. Greenwell Trust
Owners of 2558 Hospitality Drive and 0 Hospitality Drive, Columbia TN
Map 043 Parcel 013.00 and 013.07

TRAFFIC IMPACT STUDY

2558 Nashville
Highway Development

Map 42 Parcels 13.00, 13.02,
13.06, 13.07, & 13.09
Columbia, TN

T2-Eng.com



TRAFFIC IMPACT STUDY

2558 Nashville Highway Mixed-Use Development
Map 42 Parcels 13.00, 13.02, 13.06, 13.07, & 13.09
Columbia, TN

Prepared for:

Greg Smith
PO Box 1301
Franklin, TN

Prepared by:



T-SQUARE ENGINEERING

1329 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com



T-SQUARE

CIVIL-SITE | TRAFFIC | WASTEWATER | SURVEYING | LAND PLANNING

1329 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

www.T2-Eng.com

Certification

I certify that this Traffic Impact Study has been prepared by me and under my immediate supervision and that I have the experience and training in the field of traffic and transportation engineering.



8/15/22

James O. Ensley, III, P.E.
T-Square Engineering, Inc.
Project Manager – Traffic Division

TABLE OF CONTENTS

Introduction	1
Existing Study Area	4
Existing Roadway Network	4
Existing Intersections	7
Existing Traffic Volumes.....	11
Crash Analysis	16
Existing Capacity Analysis	19
Intersection Assessments (Existing Conditions)	23
Background Traffic Volumes	25
Background Capacity Analyses	28
Impacts.....	35
Projected Traffic Distribution and Assignments	35
Projected Capacity Analysis	40
Traffic Signal Warrants (Projected Conditions)	45
Volumes Warrants	45
Conclusions	46
Recommendations	54
Improvement Recommendations for the 2558 Nashville Highway Mixed-Use Development	54
Projected Capacity Analysis with Improvements	57

List of Tables

Table 1. Turning Movement Counts, Nashville Highway (US-31) and Spring Meade Boulevard .	11
Table 2. Turning Movement Counts, Nashville Highway (US-31) and Hospitality Drive	12
Table 3. Turning Movement Counts, Nashville Highway (US-31) and Old Highway 31N.....	12
Table 4. Turning Movement Counts, Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	13
Table 5. Turning Movement Counts, Nashville Highway (US-31) and Greens Mill Road	13
Table 6. Turning Movement Counts, Nashville Highway (US-31) and Hidden Creek Way.....	14
Table 7. Intersection Crash Summary – Nashville Highway (US-31) and Hospitality Drive.....	17
Table 8. Level of Service (LOS) Details	19
Table 9. Existing Capacity Analyses.....	20
Table 10. Major-Road Approach Geometry, NBR Nashville Highway (US-31) at Hospitality Drive	23
Table 11. Minor-Road Approach Geometry, WBR Hospitality Drive at Nashville Highway (US-31)	24
Table 12. Background Capacity Analyses.....	31
Table 13. 2558 Nashville Highway Mixed-Use Development Trip Generation	35
Table 14. Projected Capacity Analyses	41
Table 15. Signal Warrant Analysis, Nashville Highway (US-31) and Hospitality Drive	45
Table 16. Projected Capacity Analyses with Improvements	58

List of Figures

Figure 1. Location Map	2
Figure 2. Preliminary Site Plan	3
Figure 3. Existing Lane Geometry	10
Figure 4. Existing Traffic Volumes (2022)	15
Figure 5. Intersection Crash Diagram (Nashville Highway & Hospitality Drive)	18
Figure 6. TDOT Count Locations & Background Traffic Growth Trends	26
Figure 7. Combined Background Traffic Volumes (2027)	27
Figure 8. Off-Site Improvements from Background Developments	30
Figure 9. Distribution of Generated Peak Hour Traffic Volumes	36
Figure 10. Assignment of Generated Peak Hour Traffic Volumes)	37
Figure 11. Total Projected Traffic Volumes (2027)	38
Figure 12. Traffic Flow Diagram	39
Figure 13 – Recommended Improvements for the 2558 Nashville Highway Development	56

Introduction

The purpose of this study is to analyze the traffic impacts on the surrounding roadway network associated with the proposed 2558 Nashville Highway Mixed-Use Development along Nashville Highway in Columbia, TN. The proposed mixed-use development will consist of approximately 143 multi-family (low-rise) housing units and a self-storage facility of approximately 61,000 SF.

As shown on the Location Map and Preliminary Site Plan on Figures 1 and 2, respectively, the proposed development is located along the east side of Nashville Highway in Columbia, TN. The development is proposing to utilize the intersection of Hospitality Drive and Nashville Highway. The surrounding area is predominantly residential and commercial.

This study analyzes the existing and projected traffic operations of the roadway networks and intersections surrounding the proposed development. To evaluate the projected traffic operations, existing traffic volumes were grown (background traffic volumes) to a 2027 design year based on average traffic growth rates and combined with the generated traffic volumes from nearby background developments and estimated trips generated from the proposed development. Lastly, improvement recommendations were presented to alleviate the anticipated traffic volumes' effect on the existing roadway network near the site.



LEGEND

● Existing Study Intersection



Figure 1
Location Map

LAND USES

Multi-Family Townhomes - 143 Dwelling Units
Self-Storage Facility - 61,000 SF

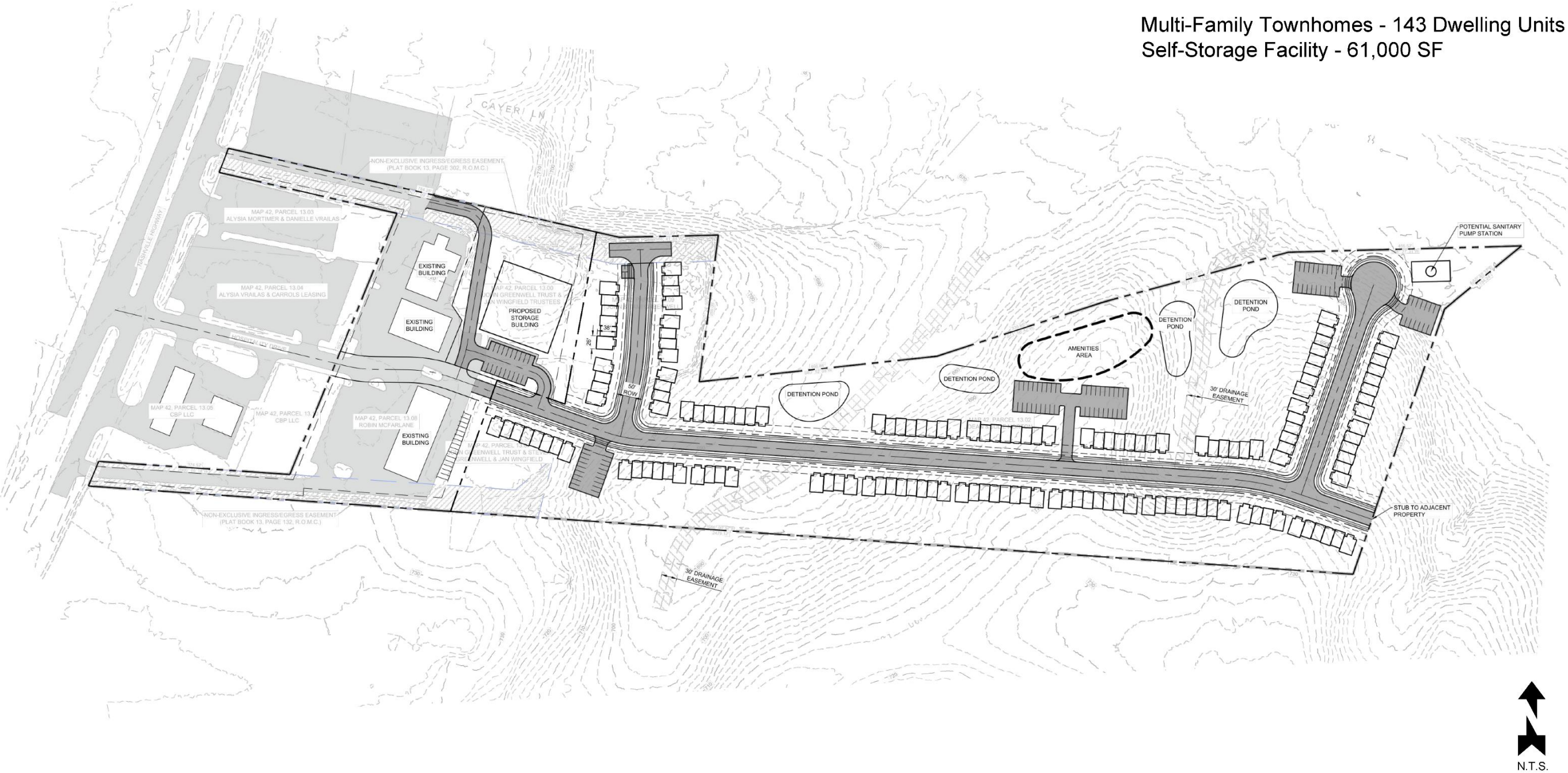


Figure 2
Preliminary Site Plan

Existing Study Area

Existing Roadway Network

The existing roadway network surrounding the proposed 2558 Nashville Highway Mixed-Use Development includes Nashville Highway (US-31), Spring Meade Boulevard, Hospitality Drive, Old Highway 31N, Arden Village Drive, Grove Park Way, Greens Mill Road, and Hidden Creek Way. Below is a description of each roadway serving the proposed development:

Nashville Highway (US-31)

Nashville Highway (US-31) is functionally classified by the City of Columbia as a principal arterial roadway. Nashville Highway (US-31) is oriented in a north-south direction and provides a connection from the City of Columbia to the south and the City of Spring Hill to the north. Near the project site, Nashville Highway (US-31) is a four (4) lane divided roadway with two (2) twelve (12) foot travel lanes in each direction (northbound and southbound) and eight (8) foot shoulders. The posted speed limit along Nashville Highway (US-31) is 55 MPH.



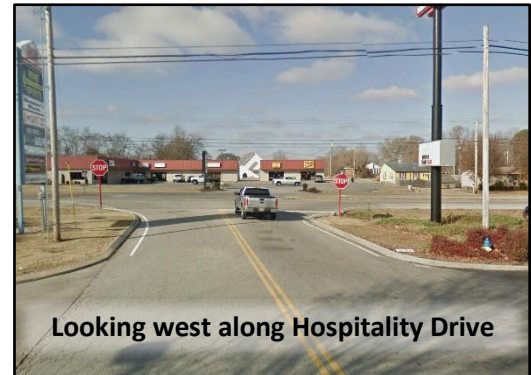
Spring Meade Boulevard

Spring Meade Boulevard is functionally classified by the City of Columbia as a collector roadway. Near the project site, Spring Meade Boulevard is oriented in an east-west direction and provides a connection between Carters Creek Station Road to the west and Nashville Highway (US-31) to the east. Near the project site, Spring Meade Boulevard is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Spring Meade Boulevard. There is no posted speed limit along Spring Meade Boulevard; the assumed speed limit is 25 MPH.



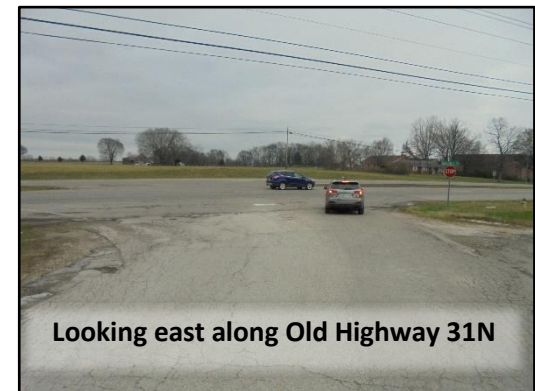
Hospitality Drive

Hospitality Drive is functionally classified by the City of Columbia as a minor local roadway. Near the project site, Hospitality Drive is oriented in an east-west direction and provides a connection to Nashville Highway (US-31) to the west and terminates to the east. Near the project site, Hospitality Drive is a two (2) lane roadway with one (1) thirteen (13) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Hospitality Drive. There is no posted speed limit along Hospitality Drive; the assumed speed limit for this study is 25 MPH.



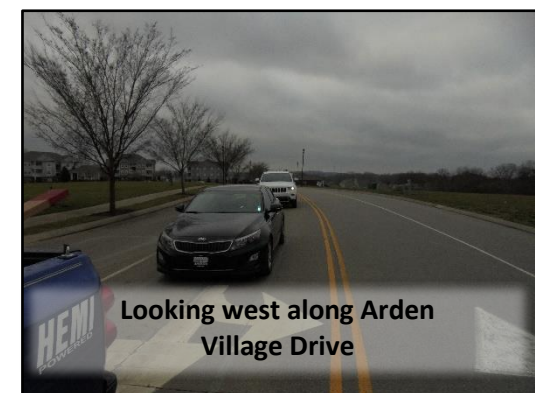
Old Highway 31N

Old Highway 31N is functionally classified by the City of Columbia as a collector roadway. Near the project site, Old Highway 31N is oriented in a north-south direction and provides a connection to Spring Hill High School to the north and Nashville Highway (US-31) to the south. Near the project site, Old Highway 31N is a two (2) lane roadway with one (1) ten (10) foot travel lane in each direction (northbound and southbound) and two (2) foot shoulders. The posted speed limit along Old Highway 31 ranges from 25 to 35 MPH.



Arden Village Drive

Arden Village Drive is functionally classified by the City of Columbia as a major local roadway. Near the project site, Arden Village Drive is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the east and the proposed site to the west. Near the project site, Arden Village Drive is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Arden Village Drive. There is no posted speed limit along Arden Village Drive; the assumed speed limit is 25 MPH.



Grove Park Way

Grove Park Way is functionally classified by the City of Columbia as a major local roadway. Near the project site, Grove Park Way is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the west and terminates to the east. Near the project site, Grove Park Way is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Grove Park Way. There is no posted speed limit along Grove Park Way; the assumed speed limit is 25 MPH.



Looking east along Grove Park Way

Greens Mill Road

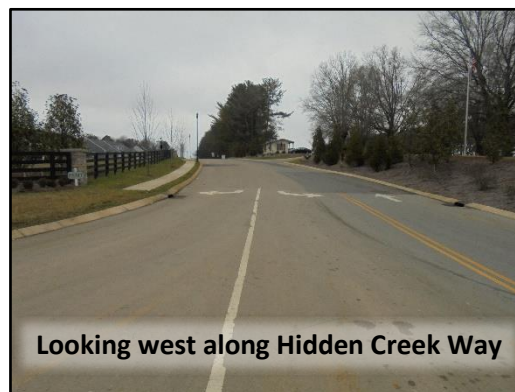
Greens Mill Road is functionally classified by the City of Columbia as a collector roadway. Near the project site, Greens Mill Road is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the west and Kedron Road to the east. Near the project site, Greens Mill Road is a two (2) lane roadway with one (1) ten (10) foot travel lane in each direction (eastbound and westbound) and two (2) foot shoulders. The posted speed limit along Greens Mill Road is 45 MPH.



Looking east along Greens Mill Road

Hidden Creek Way

Hidden Creek Way is functionally classified by the City of Columbia as a major local roadway. Near the project site, Hidden Creek Way is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the east and the proposed site to the west. Near the project site, Hidden Creek Way is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Hidden Creek Way. There is no posted speed limit along Hidden Creek Way; the assumed speed limit is 25 MPH.



Looking west along Hidden Creek Way

Existing Intersections

This study analyzed six (6) existing intersections within the vicinity of the project site. The intersections analyzed are listed below with a brief description of each, and Figure 3 shows the existing lane geometry at the intersections.

Nashville Highway (US-31) and Spring Meade Boulevard

The existing intersection of Nashville Highway (US-31) and Spring Meade Boulevard is a signalized intersection with four (4) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 250 feet of storage, one (1) exclusive lane for through movements, and one (1) shared lane for through and right-turn movements. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 220 feet of storage, one (1) exclusive lane for through movements, and one (1) shared lane for through and right-turn movements. The eastbound approach of Spring Meade Boulevard has one (1) exclusive lane for left-turn movements with approximately 400 feet of storage and one (1) shared lane for through and right-turn movements. The westbound approach Driveway has one (1) shared lane for left-turn, through, and right-turn movements.



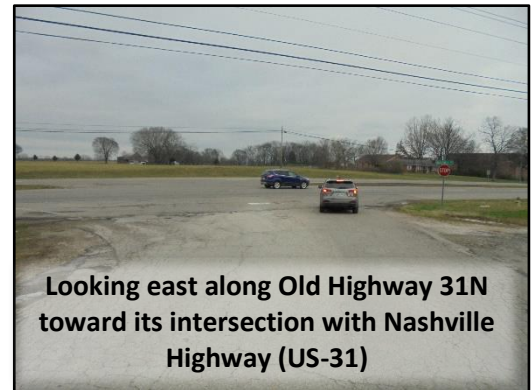
Nashville Highway (US-31) and Hospitality Drive

The existing intersection of Nashville Highway (US-31) and Hospitality Drive is an unsignalized intersection with four (4) approaches. The northbound approach of Nashville Highway (US-31) has one (1) shared lane for left-turn and through movements and one (1) shared lane for through and right-turn movements operating under a free flow condition. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately sixty (60) feet of storage, one (1) exclusive lane for through movements, and one (1) shared lane for through and right-turn movements operating under a free flow condition. The eastbound approach Driveway has one (1) shared lane for left-turn, through, and right-turn movements operating under a stop condition. The westbound approach of Hospitality Drive has one (1) shared lane for left-turn, through, and right-turn movements operating under a stop condition.



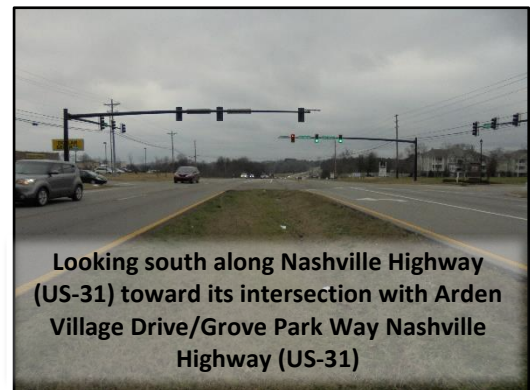
Nashville Highway (US-31) and Old Highway 31N

The existing intersection of Nashville Highway (US-31) and Old Highway 31N is an unsignalized intersection with three (3) approaches. The northbound approach of Nashville Highway (US-31) has one (1) shared lane for left-turn and through movements and one (1) exclusive lane for through movements operating under a free flow condition. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for through movements and one (1) shared lane for through and right-turn movements operating under a free flow condition. The eastbound approach of Old Highway 31N has one (1) shared lane for left-turn and right-turn movements operating under a stop condition.



Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

The existing intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way is a signalized intersection with four (4) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 330 feet of storage, two (2) exclusive lanes for through movements, and one (1) exclusive lane for right-turn movements with approximately 125 feet of storage. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 130 feet of storage, two (2) exclusive lanes for through movements, and one (1) exclusive lane for right-turn movements with approximately 175 feet of storage. The eastbound approach of Arden Village Drive has one (1) shared lane for left-turn and through movements and one (1) exclusive lane for right-turn movements with approximately 150 feet of storage. The westbound approach of Grove Park Way has one (1) shared lane for left-turn and through movements and one (1) exclusive lane for right-turn movements with approximately 100 feet of storage.



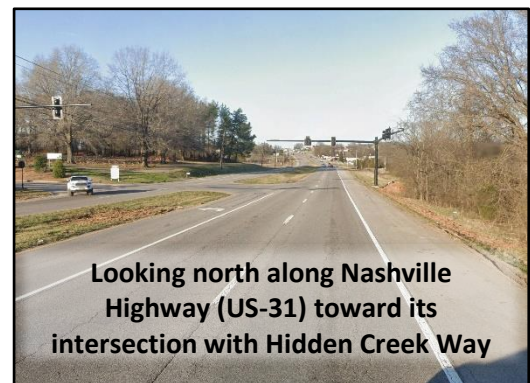
Nashville Highway (US-31) and Greens Mill Road

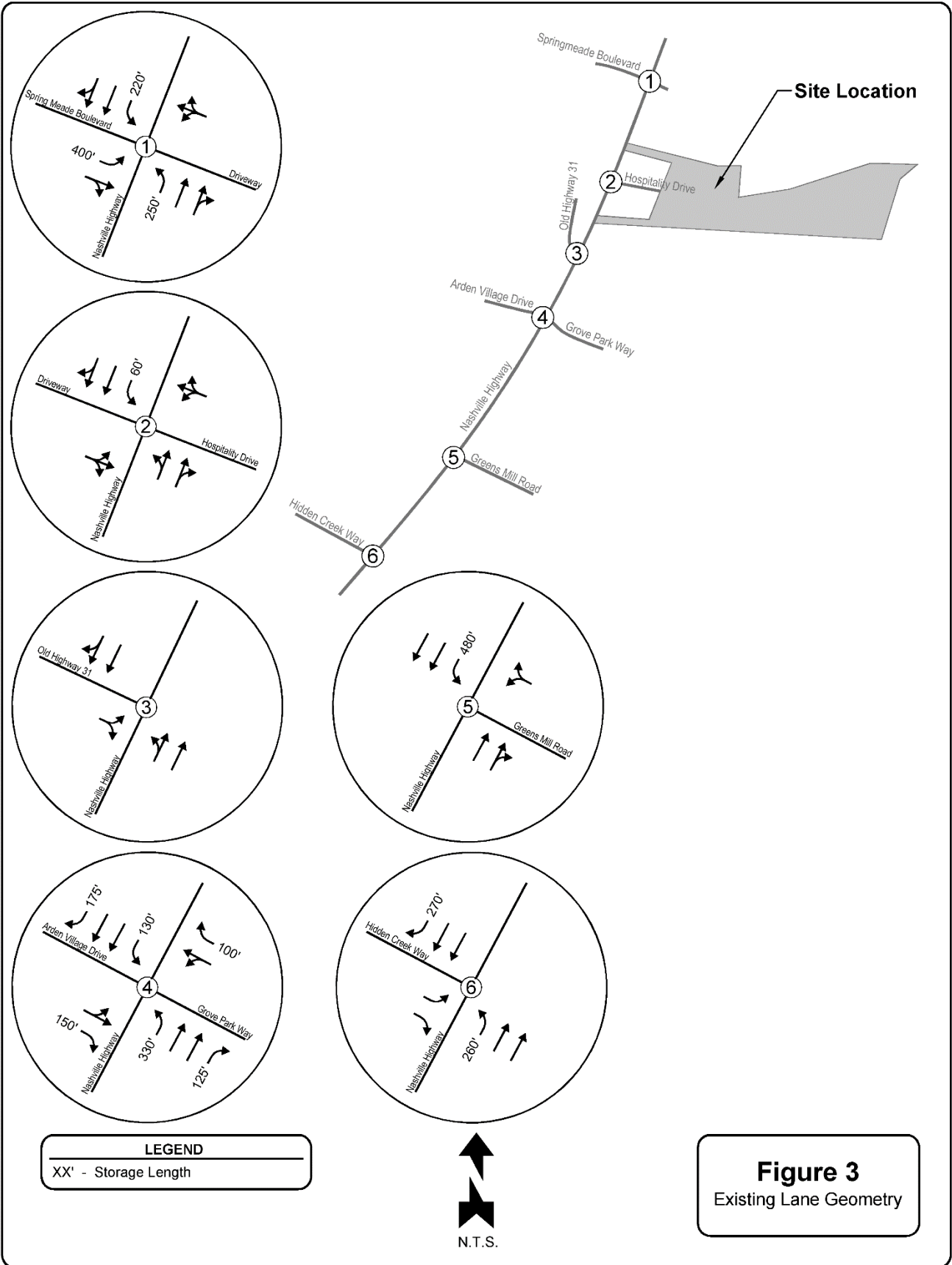
The existing intersection of Greens Mill Road and Nashville Highway (US-31) is an unsignalized intersection with three (3) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for through movements and one (1) shared lane for through and right-turn movements operating under a free flow condition. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 480 feet of storage and two (2) exclusive lanes for through movements operating under a free flow condition. The westbound approach of Greens Mill Road has one (1) shared lane for left-turn and right-turn movements operating under a stop condition.



Nashville Highway (US-31) and Hidden Creek Way

The existing intersection of Hidden Creek Way and Nashville Highway (US-31) is a signalized intersection with three (3) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 260 feet of storage and two (2) exclusive lanes for through movements. The southbound approach of Nashville Highway (US-31) has two (2) exclusive lanes for through movements and one (1) exclusive lane for right-turn movements with approximately 270 feet of storage. The eastbound approach of Hidden Creek Way has one (1) exclusive lane for left-turn movements and one (1) exclusive lane for right-turn movements.





Existing Traffic Volumes

To establish existing traffic volumes within the study area, T-Square Engineering conducted turning movement counts at the study intersections on a typical weekday in April 2022 while Maury County Schools were in session. The turning movement counts were conducted over a total of twelve (12) hours from 6:00 AM – 6:00 PM. From the turning movement counts, the AM and PM peak hour traffic volumes for all intersections were established and determined to occur between 7:15 AM – 8:15 AM and 3:15 PM – 4:15 PM, respectively. Existing hourly turning movement counts are shown in the tables below. Figure 4 shows the existing peak hour totals at the study intersections for the AM and PM peak hour periods. Appendix A contains the detailed turning movement counts at each intersection.

Table 1. Turning Movement Counts, Nashville Highway (US-31) and Spring Meade Boulevard

Time	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	Nashville Highway (US-31)			Nashville Highway (US-31)			Driveway			Spring Meade Boulevard		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 – 7:00 AM	28	1736	0	0	744	34	0	0	0	116	0	21
7:00 – 8:00 AM	138	1568	1	0	1199	64	0	1	2	212	0	59
8:00 – 9:00 AM	40	1529	1	5	1183	36	1	1	2	118	0	33
9:00 – 10:00 AM	27	1345	4	1	979	40	3	0	5	99	0	35
10:00 – 11:00 AM	23	1285	5	0	905	37	4	1	3	62	1	19
11:00 AM – 12:00 PM	34	1150	5	2	1150	43	5	0	3	117	0	55
12:00 – 1:00 PM	22	1300	9	2	1177	57	15	0	3	115	1	33
1:00 – 2:00 PM	36	1248	4	0	1189	89	3	3	3	81	1	36
2:00 – 3:00 PM	50	1355	3	4	1584	61	4	2	5	127	1	65
3:00 – 4:00 PM	77	1712	3	4	1787	59	3	1	5	173	0	70
4:00 – 5:00 PM	60	1471	4	2	1374	55	3	3	5	125	0	76
5:00 – 6:00 PM	79	1379	1	0	1837	66	2	0	0	128	0	73
TOTAL	614	17,078	40	20	15,108	641	43	12	36	1,473	4	575

Table 2. Turning Movement Counts, Nashville Highway (US-31) and Hospitality Drive

Time	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	Nashville Highway (US-31)			Nashville Highway (US-31)			Hospitality Drive			Driveway		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 – 7:00 AM	12	1696	8	6	740	6	5	3	103	2	1	1
7:00 – 8:00 AM	15	1684	32	26	1292	9	21	3	75	1	1	9
8:00 – 9:00 AM	11	1425	22	35	1191	19	10	0	90	6	0	2
9:00 – 10:00 AM	4	1319	29	23	1009	12	12	0	60	4	0	6
10:00 – 11:00 AM	6	1348	26	15	905	11	10	1	49	2	1	3
11:00 AM – 12:00 PM	4	1128	36	55	1172	6	22	1	40	3	0	4
12:00 – 1:00 PM	4	1230	64	67	1200	10	30	1	78	2	0	6
1:00 – 2:00 PM	2	1236	38	36	1245	4	33	1	60	3	0	4
2:00 – 3:00 PM	6	1377	38	25	1649	13	19	0	42	1	0	2
3:00 – 4:00 PM	11	1726	43	30	1877	13	25	0	65	0	0	6
4:00 – 5:00 PM	10	1457	30	14	1438	1	25	2	49	0	1	4
5:00 – 6:00 PM	6	1435	40	32	1913	3	22	2	43	0	0	4
TOTAL	91	17,061	406	364	15,631	107	234	14	754	24	4	51

Table 3. Turning Movement Counts, Nashville Highway (US-31) and Old Highway 31N

Time	NORTHBOUND			SOUTHBOUND			EASTBOUND		
	Nashville Highway (US-31)			Nashville Highway (US-31)			Old Highway 31N		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 – 7:00 AM	77	1828	0	0	746	3	1	0	19
7:00 – 8:00	132	1775	0	0	1297	5	0	0	88
8:00 – 9:00	36	1591	0	0	1192	7	3	0	50
9:00 – 10:00	27	1367	0	0	1023	5	2	0	47
10:00 – 11:00	26	1319	0	0	907	1	4	0	43
11:00 – 12:00 PM	38	1197	0	0	1182	3	4	0	63
12:00 – 1:00	18	1314	0	0	1223	6	4	0	42
1:00 – 2:00	28	1294	0	0	1264	5	1	0	39
2:00 – 3:00	33	1445	0	0	1669	4	4	0	81
3:00 – 4:00	46	1840	0	0	1845	3	3	0	107
4:00 – 5:00	54	1528	0	0	1472	3	3	0	149
5:00 – 6:00	24	1497	0	0	1942	2	1	0	116
TOTAL	539	17,995	0	0	15,762	47	30	0	844

Table 4. Turning Movement Counts, Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

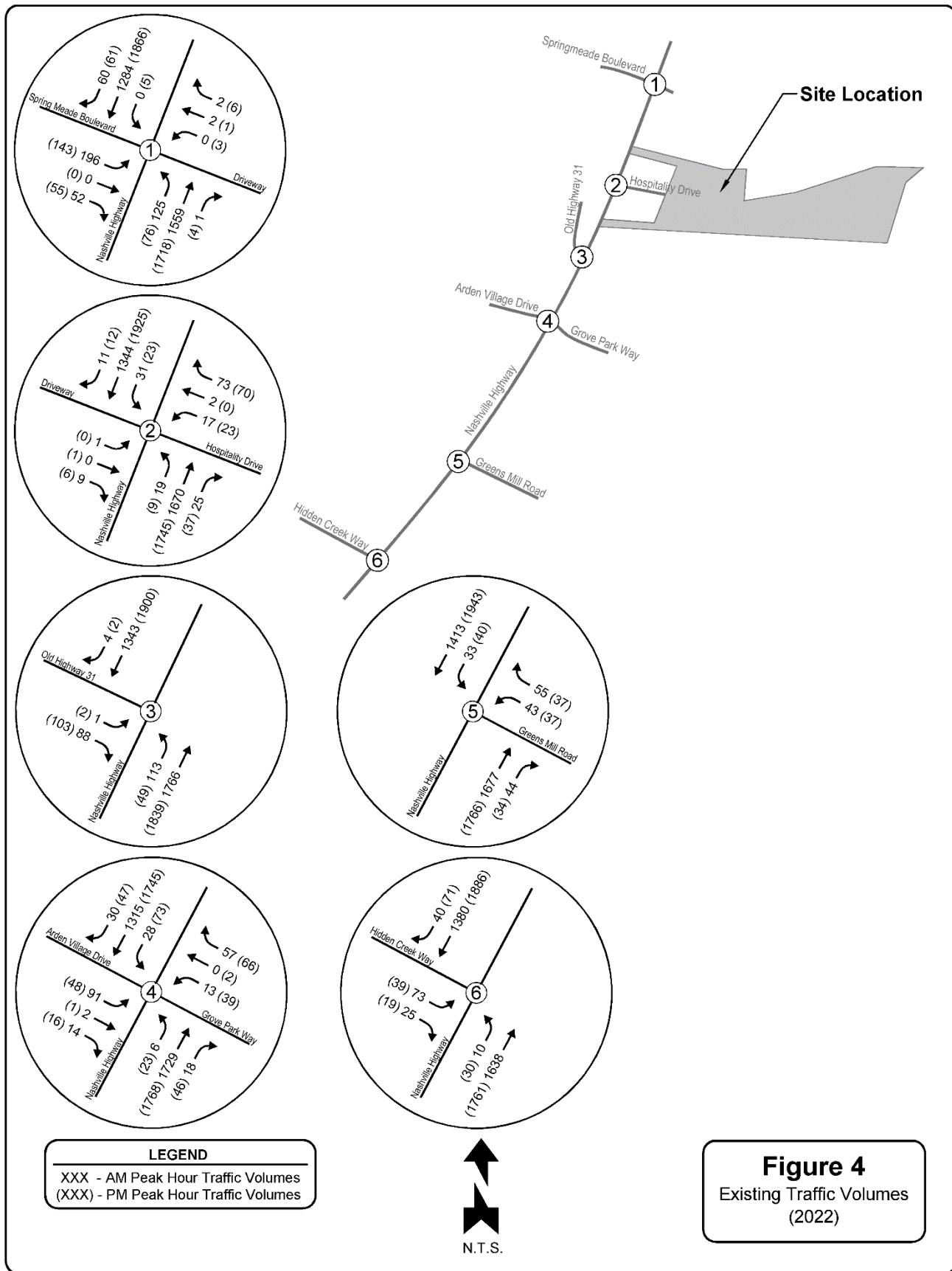
Time	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	Nashville Highway (US-31)			Nashville Highway (US-31)			Grove Park Way			Arden Village Drive		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 – 7:00 AM	2	1799	7	7	742	11	10	0	31	65	0	9
7:00 – 8:00 AM	10	1746	17	20	1277	27	11	0	70	103	1	21
8:00 – 9:00 AM	3	1520	14	35	1168	30	20	1	41	71	2	11
9:00 – 10:00 AM	0	1329	21	22	1019	30	13	2	32	38	1	12
10:00 – 11:00 AM	6	1242	30	23	900	17	12	2	43	47	2	11
11:00 AM – 12:00 PM	7	1137	24	35	1160	47	14	1	46	55	1	4
12:00 – 1:00 PM	6	1241	25	40	1134	49	28	1	44	47	1	9
1:00 – 2:00 PM	10	1215	38	39	1112	35	27	4	50	40	1	3
2:00 – 3:00 PM	23	1382	29	42	1516	44	21	3	43	51	2	7
3:00 – 4:00 PM	24	1789	45	63	1710	55	41	1	59	48	0	16
4:00 – 5:00 PM	18	1491	34	69	1403	46	38	4	53	39	3	21
5:00 – 6:00 PM	28	1400	39	70	1779	109	30	1	72	51	3	13
TOTAL	137	17,291	323	465	14,920	500	265	20	584	655	17	137

Table 5. Turning Movement Counts, Nashville Highway (US-31) and Greens Mill Road

Time	NORTHBOUND			SOUTHBOUND			WESTBOUND		
	Nashville Highway (US-31)			Nashville Highway (US-31)			Greens Mill Road		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 – 7:00 AM	0	1782	21	7	830	0	17	0	21
7:00 – 8:00	0	1725	54	33	1356	0	42	0	69
8:00 – 9:00	0	1498	18	17	1237	0	28	0	36
9:00 – 10:00	0	1332	24	18	1045	0	18	0	19
10:00 – 11:00	0	1254	21	16	918	0	29	0	11
11:00 – 12:00 PM	0	1141	23	20	1177	0	23	0	25
12:00 – 1:00	0	1260	22	18	1203	0	18	0	26
1:00 – 2:00	0	1248	34	25	1237	0	16	0	17
2:00 – 3:00	0	1424	38	47	1658	0	24	0	31
3:00 – 4:00	0	1816	39	56	1886	0	40	0	33
4:00 – 5:00	0	1498	39	32	1539	0	44	0	31
5:00 – 6:00	0	1414	38	25	1907	0	51	0	42
TOTAL	0	17,392	371	314	15,993	0	350	0	361

Table 6. Turning Movement Counts, Nashville Highway (US-31) and Hidden Creek Way

Time	NORTHBOUND			SOUTHBOUND			EASTBOUND		
	Nashville Highway (US-31)			Nashville Highway (US-31)			Hidden Creek Way		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 – 7:00 AM	7	1735	0	0	777	10	52	0	19
7:00 – 8:00	8	1687	0	0	1356	35	79	0	33
8:00 – 9:00	13	1458	0	0	1200	51	50	0	26
9:00 – 10:00	11	1295	0	0	1024	27	56	0	16
10:00 – 11:00	17	1231	0	0	904	35	39	0	26
11:00 – 12:00 PM	12	1141	0	0	1161	28	24	0	21
12:00 – 1:00	15	1246	0	0	1170	47	54	0	14
1:00 – 2:00	18	1243	0	0	1202	51	40	0	25
2:00 – 3:00	15	1457	0	0	1624	50	44	0	21
3:00 – 4:00	21	1805	0	0	1820	72	32	0	19
4:00 – 5:00	22	1502	0	0	1543	52	48	0	25
5:00 – 6:00	24	1389	0	0	1802	103	62	0	11
TOTAL	183	17189	0	0	15583	561	580	0	256



Crash Analysis

Crash data over a five (5) year period (2017-2021) was obtained from TDOT and analyzed to determine the types, frequency, and rate of crashes at each of the study intersections and along the roadway segments near the project site. The most recent TDOT Statewide Average Crash Rates for intersections and segments from 2019-2021 were used for this analysis. The crash rate calculations were determined based on the *FHWA Road Safety Information Analysis: A Manual for Local Rural Road Owners* (2010). The crash rate calculation for intersections is as follows:

$$R = \frac{1,000,000 \times C}{365 \times N \times V}$$

Where:

R = Intersection Crash Rate (crashes/million entering vehicles (MEV))

C = Total intersection crashes

N = Number of Years

V = Daily Intersection Traffic Volumes

Nashville Highway (US-31) and Hospitality Drive

A total of thirty-two (32) crashes occurred at the intersection of Nashville Highway (US-31) and Hospitality Drive from 2017-2021 resulting in a crash frequency of 6.40 crashes/year. These crashes included one (1) suspected serious injury crash, five (5) suspected minor injury crashes and twenty-six (26) property damage crashes. Approximately forty-seven percent (47%) of the crashes were rear-end crashes. A breakdown of the crashes at the study intersection are shown in the table below. The total entering volumes for the intersection is approximately 3,851 vehicles/hour based on the PM peak hour existing traffic volumes. For this study, the highest peak hour entering intersection volumes are assumed to be approximately ten-percent (10%) of the daily intersection traffic volumes. The crash rate was determined to be 0.759 crashes/MEV which is greater than the statewide average rate of 0.109 crashes/MEV for urban unsignalized multi-lane divided intersections. The crash rate calculation is shown as follows:

$$R = \frac{1,000,000 \times 32}{365 \times 3 \times 38,510} = 0.759 \text{ crashes/MEV}$$

Based on the types of crashes that occurred at this intersection, approximately fifty-six percent (56%) of the crashes can be corrected with the installation of a traffic signal. The majority of the remaining crashes, which are rear-end related crashes, occurred during peak periods of queueing and delay along Nashville Highway. Although, the installation of a traffic signal will not reduce the frequency of rear-end crashes at the intersection, all other crash frequencies should be reduced at this intersection.

Table 7. Intersection Crash Summary – Nashville Highway (US-31) and Hospitality Drive

DATE AND TIME		TYPE OF CRASH	CRASH DESCRIPTION	WEATHER AND SURFACE CONDITIONS	
1/6/21	5:12 P	Prop Damage (over)	SB; 5 VEH.; REAR-END; DARK-LIGHTED;	CLEAR	DRY
1/12/18	5:31 A	Prop Damage (under)	WB; 2 VEH.; REAR-END; UNKNOWN;	UNKNOWN	UNKNOWN
2/28/20	5:54 A	Prop Damage (under)	WB; 2 VEH.; REAR-END; DARK-LIGHTED;	SNOW	WET
6/23/18	1:14 A	Prop Damage (over)	SB; 2 VEH.; REAR-END; DARK-LIGHTED;	CLEAR	DRY
4/20/17	3:55 P	Prop Damage (over)	EB; 2 VEH.; ANGLE; DAYLIGHT;	CLOUDY	DRY
4/12/18	12:00 P	Prop Damage (over)	NB; 2 VEH.; ANGLE; DAYLIGHT;	CLEAR	DRY
7/17/19	4:35 P	Prop Damage (over)	SB; 3 VEH.; REAR-END; DAYLIGHT;	CLEAR	DRY
8/15/17	4:39 P	Prop Damage (over)	WB; 2 VEH.; OTHER; DAYLIGHT;	CLOUDY	DRY
7/25/17	4:16 P	Suspected Minor Injury	EB; 2 VEH.; REAR-END; DAYLIGHT; 1 SUS. MINOR INJ.;	CLOUDY	DRY
10/20/17	8:03 A	Prop Damage (over)	WB; 2 VEH.; REAR-END; DAYLIGHT;	CLEAR	DRY
11/6/18	2:25 A	Prop Damage (over)	NB; 2 VEH.; OTHER; DARK-LIGHTED;	RAIN	WET
12/19/19	9:33 A	Prop Damage (over)	EB; 2 VEH.; ANGLE; DAYLIGHT;	CLOUDY	DRY
5/4/20	9:18 P	Suspected Serious Injury	NB; 2 VEH.; OTHER; DARK-LIGHTED; 1 SUS. SERIOUS INJ.;	RAIN	WET
2/13/21	5:03 P	Prop Damage (over)	NB; 2 VEH.; ANGLE; DARK-LIGHTED;	CLEAR	DRY
7/25/17	5:28 P	Prop Damage (over)	WB; 2 VEH.; REAR-END; DAYLIGHT;	CLOUDY	DRY
8/10/17	6:19 P	Prop Damage (over)	EB; 2 VEH.; REAR-END; DAYLIGHT;	CLEAR	DRY
12/5/17	3:08 P	Prop Damage (over)	EB; 2 VEH.; HEAD-ON; DAYLIGHT;	CLOUDY	DRY
11/21/19	3:26 P	Prop Damage (over)	WB; 2 VEH.; ANGLE; DAYLIGHT;	CLOUDY	DRY
3/13/21	9:17 A	Prop Damage (over)	SB; 2 VEH.; REAR-END; DAYLIGHT;	CLOUDY	DRY
5/18/17	6:05 P	Prop Damage (over)	NB; 2 VEH.; ANGLE; DAYLIGHT;	CLOUDY	DRY
5/22/17	8:36 P	Prop Damage (over)	WB; 2 VEH.; ANGLE; DARK-NOT LIGHTED;	CLOUDY	DRY
12/28/18	4:00 P	Prop Damage (under)	SB; 2 VEH.; REAR-END; DAYLIGHT;	CLOUDY	DRY
8/15/20	8:41 P	Suspected Minor Injury	SB; 1 VEH.; LANE DEPARTURE; OTHER NON-COLLISION; DARK-LIGHTED; 1 SUS. MINOR INJ.;	CLEAR	DRY
10/18/21	5:02 P	Prop Damage (over)	SB; 2 VEH.; REAR-END; DAYLIGHT;	CLEAR	DRY
1/9/17	11:17 A	Prop Damage (over)	WB; 2 VEH.; ANGLE; DAYLIGHT;	CLEAR	DRY
12/20/21	8:16 P	Prop Damage (over)	NB; 2 VEH.; REAR-END; DARK-NOT LIGHTED;	CLEAR	DRY
3/31/17	1:02 P	Suspected Minor Injury	SB; 2 VEH.; ANGLE; DAYLIGHT; 3 SUS. MINOR INJ.;	CLEAR	DRY
12/16/21	2:14 P	Prop Damage (under)	EB; 2 VEH.; SIDESWIPE, OPP DIR; UNKNOWN;	UNKNOWN	UNKNOWN
10/13/17	7:48 A	Prop Damage (over)	NB; 2 VEH.; ANGLE; DAYLIGHT;	FOG	DRY
3/23/18	5:50 A	Prop Damage (over)	NB; 2 VEH.; REAR-END; DARK-NOT LIGHTED;	CLEAR	DRY
9/9/19	9:40 P	Suspected Minor Injury	NB; 1 VEH.; LANE DEPARTURE; DITCH; DARK-LIGHTED; 1 SUS. MINOR INJ.;	CLEAR	DRY
3/12/19	1:40 P	Suspected Minor Injury	NB; 2 VEH.; REAR-END; DAYLIGHT; 1 SUS. MINOR INJ.;	CLEAR	DRY

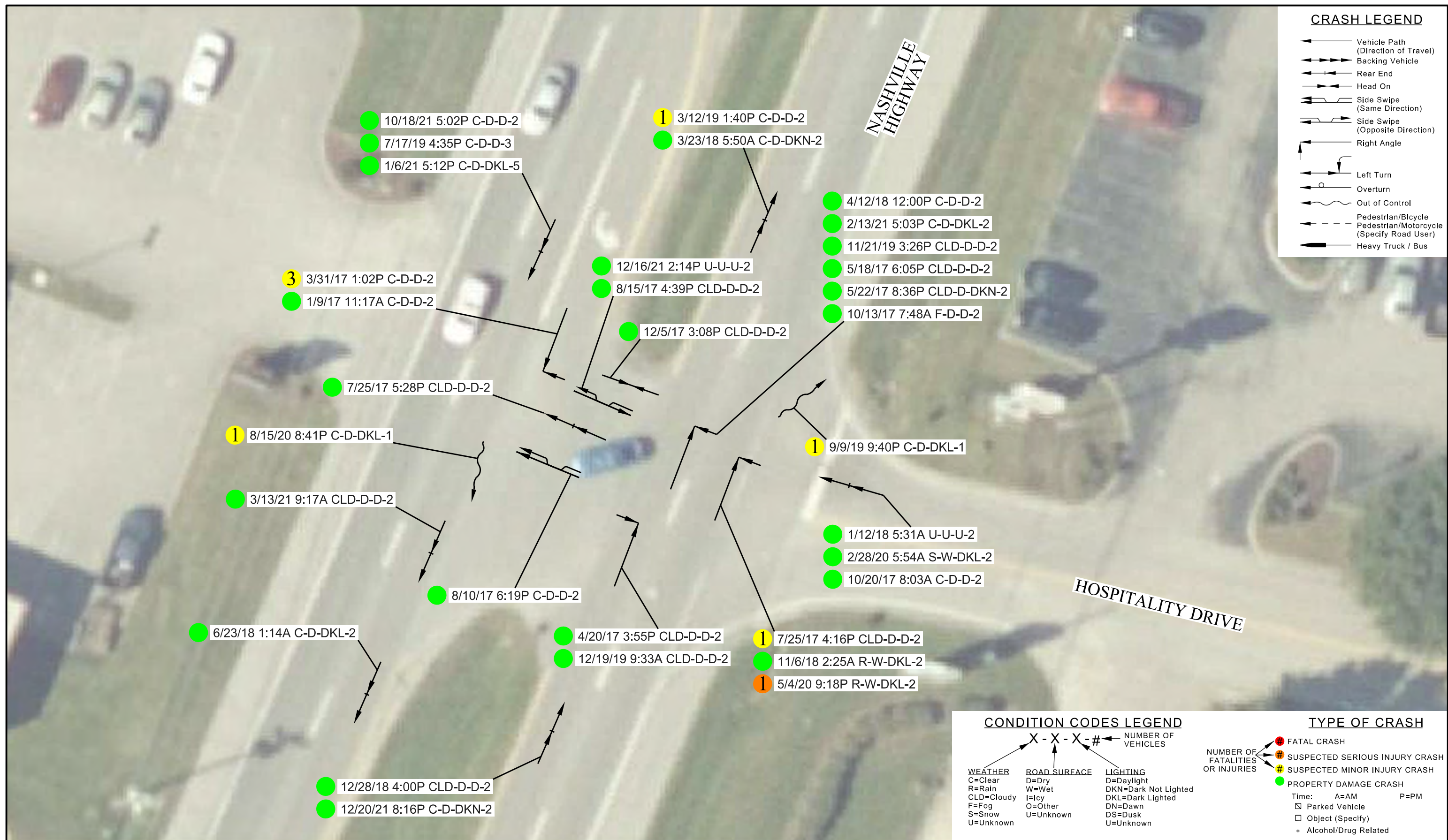


Figure 5 - Intersection Crash Diagram (Nashville Highway & Hospitality Drive)

2558 Nashville Highway Development • Columbia, TN • Approximate Scale: 1" = 20'

Prepared by T-Square Engineering, Inc.

1329 West Main Street • Franklin, TN 37064 • www.T2-Eng.com

Existing Capacity Analysis

To evaluate the existing traffic operations at the study intersections within the vicinity of the project site, AM and PM peak hour capacity analyses were performed per the calculations outlined in the *Highway Capacity Manual*¹(HCM). Levels of service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement. An LOS is a qualitative measure or grade used to distinguish how traffic is serviced at an intersection or along a roadway. The range of LOS is A to F, with A being the highest and F the lowest. The 95th percentile queue is the queue length (in vehicles) that has only a five (5) percent probability of being exceeded during the analysis period. The 95th percentile queue is not typical of what an average driver would experience, and driver experiences would be better characterized by the mean queue length. The table below details each LOS for signalized and unsignalized intersections, as specified within the HCM.

Table 8. Level of Service (LOS) Details

Level of Service*	Average Control Delay (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Source: HCM 2010, Exhibits 18-4 and 19-1

To determine the effectiveness of traffic operations within the study area a minimum LOS or baseline needs to be established. Any LOS below the established baseline will be considered unsatisfactory. LOS C is generally acceptable for typical roadway function while LOS D is typically considered to be the minimum acceptable LOS. According to the City of Columbia's *Connect Columbia Transportation Plan (2018)*, "In urban areas, LOS D is typically considered to be the minimum acceptable level of service." The following conditions shall be considered unsatisfactory for the purposes of this study:

1. Overall intersections with an LOS E or F.
2. Individual traffic movements with an LOS E or F.

The existing intersections within the study area were analyzed with existing traffic volumes under existing roadway conditions/geometries. It should be noted that existing traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard, Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, and Nashville Highway (US-31) and Hidden Creek Way for this analysis. The existing capacity analyses were conducted using *Synchro* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results.

¹ Transportation Research Board (TRB). *Highway Capacity Manual*, 5th Edition (2010). Washington, DC: 2010

Table 9. Existing Capacity Analyses

Study Intersection	Control	Approach	2022 Existing Conditions					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	F	81.4	134 ^m	E	74.6	89 ^m
		NB Thru	B	12.1	867	A	4.0	827 [#]
		NB Thru/Right	B	12.0	867	A	3.8	827 [#]
		SB Left	--	0.0	0	F	94.7	20
		SB Thru	C	23.2	719 [#]	C	30.7	1362 [#]
		SB Thru/Right	C	23.2	719 [#]	C	31.4	1362 [#]
		EB Left	E	71.2	253	E	71.3	205
		EB Thru/Right	D	50.8	0	E	59.7	0
		WB Left	--	0.0	0	E	69.1	13
		WB Thru/Right	E	78.5	14	E	73.3	20
		Overall	C	23.5	--	C	22.1	--
2. Nashville Highway (US-31) and Hospitality Drive	TWSC	NB Left/Thru	B	13.3	20	C	19.6	40
		SB Left	C	17.3	20	C	18.1	40
		EB L/T/R	C	18.5	20	F	300.0+	80
		WB L/T/R	F	52.6	80	F	300.0+	280
3. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	C	15.7	40	C	21.9	20
		EB Left/Right	C	22.7	40	F	80.6	100
4. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	E	61.0	10 ^m	E	67.5	37 ^m
		NB Thru	C	22.5	1016 ^m	A	3.9	1144 [#]
		NB Right	A	8.8	0 ^m	A	0.1	0 ^m
		SB Left	E	67.2	36 ^m	E	73.9	87 ^m
		SB Thru	D	38.8	732	A	2.9	388 ^{m#}
		SB Right	B	19.5	0 ^m	A	0.1	0 ^m
		EB Left/Thru	E	69.4	140	E	73.5	92
		EB Right	E	57.0	0	E	65.9	0
		WB Left/Thru	E	59.7	34	E	65.9	79
		WB Right	E	74.6	0	E	76.2	0
		Overall	C	31.8	--	A	8.1	--
5. Nashville Highway (US-31) and Greens Mill Road	TWSC	SB Left	C	17.8	20	C	19.4	20
		WB Left/Right	F	69.9	100	F	74.0	80
6. Nashville Highway (US-31) and Hidden Creek Way	Signal	NB Left	A	8.8	6	A	2.4	10
		NB Thru	A	4.2	350	A	3.9	339
		SB Thru	B	17.2	681	A	1.9	268
		SB Right	A	4.3	12 ^m	A	0.1	0 ^m
		EB Left	E	70.0	115	E	70.3	77
		EB Right	E	57.2	26	E	60.4	31
		Overall	B	11.8	--	A	3.8	--

– 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.

m – Volumes for 95th percentile queue is metered by upstream signal.

The following assessment are based on the results of the Existing Capacity Analyses as shown in the table above:

Nashville Highway (US-31) and Spring Meade Boulevard

- The exclusive northbound left-turn movement currently operates at LOS F and LOS E during the AM and PM peak hour periods, respectively, with existing traffic volumes.
- The exclusive southbound left-turn movement currently operates at LOS F during the PM peak hour period with existing traffic volumes.
- The exclusive eastbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The shared eastbound through and right-turn movement currently operates at LOS E during the PM peak hour periods with existing traffic volumes.
- The exclusive westbound left-turn movement currently operates at LOS E during the PM peak hour period with existing traffic volumes.
- The shared westbound through and right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- All critical movements for this intersection currently operate at an acceptable minimum LOS D during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Hospitality Drive

- The shared eastbound left-turn, through, and right-turn movement currently operates at LOS F during the PM peak hour period with existing traffic volumes.
- The shared westbound left-turn, through, and right-turn movement currently operates at LOS F during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Old Highway 31N

- The shared eastbound left-turn and right-turn movement currently operates at LOS F during the PM peak hour period with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- The exclusive northbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive southbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The shared eastbound left-turn and through movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive eastbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.

- The shared westbound left-turn and through movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive westbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS D during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Greens Mill Road

- The shared left-turn and right-turn movement currently operates at LOS F during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Hidden Creek Way

- The exclusive eastbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive eastbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS B during both AM and PM peak with existing traffic volumes.

Intersection Assessments (Existing Conditions)

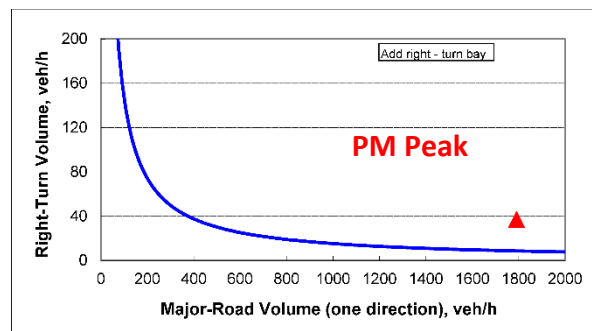
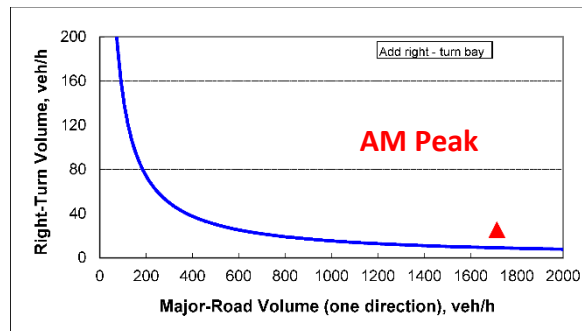
Engineering assessments were performed on the intersections within the study area to identify underlying inefficiencies and solutions to alleviate any concerns associated with intersection geometries and existing traffic volumes along the roadway network. Major-road approach right-turn lane warrants were performed based on Figure 2-6 in the *NCHRP Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide*² and projected traffic volumes. Minor-road approach geometric warrants were performed based on Figure 2-4 in the *NCHRP Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide*. The results of the warrants are shown below.

Nashville Highway (US-31) and Hospitality Drive

Table 10. Major-Road Approach Geometry, NBR Nashville Highway (US-31) at Hospitality Drive

Variable	AM Peak	PM Peak
Major-road speed, mph:	55	55
Major-road volume (one direction), veh/h:	1714	1791
Major-road right-turn volume, veh/h:	25	37
Limiting right-turn volume, veh/h:	9	9
Right-turn bay warranted:	YES	YES

Source: *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*

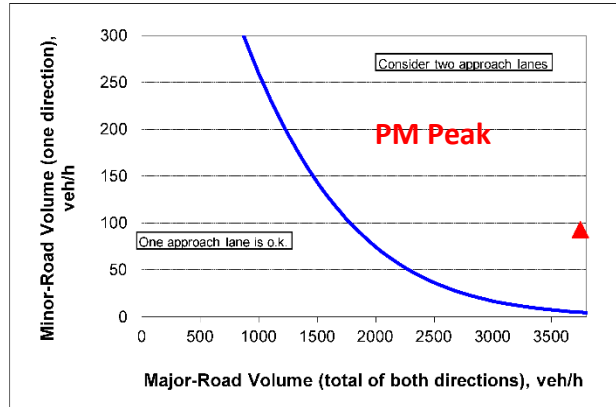
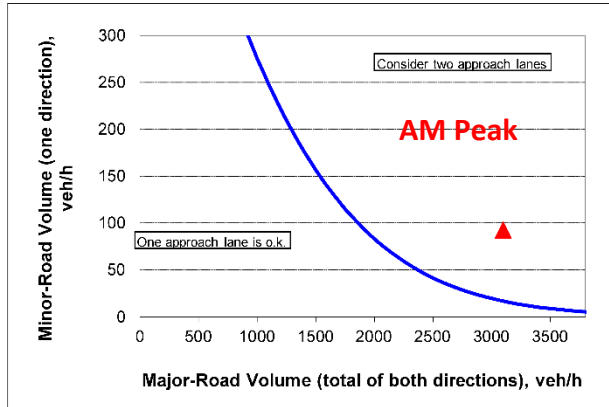


As shown in the table above and the corresponding graphs, it was determined that a northbound right-turn lane is warranted along Nashville Highway (US-31) at its intersection with Hospitality Drive during both peak hour periods with existing traffic volumes.

² Transportation Research Board (TRB). *Evaluating Intersection Improvements: An Engineering Study Guide*. Washington, DC: 2001

Table 11. Minor-Road Approach Geometry, WBR Hospitality Drive at Nashville Highway (US-31)

Variable	AM Peak	PM Peak
Major-road volume (total both directions), veh/h:	3100	3751
Percentage of right-turns on minor road, %:	79%	75%
Minor-road volume (one direction), veh/h:	92	93
Limiting minor-road volume (one direction), veh/h:	17	5
Right-turn bay warranted:	Two (2) approach lanes warranted	Two (2) approach lanes warranted
Source: NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide		



As shown in the table above and the corresponding graphs, it was determined that two (2) exclusive lanes for left-turning and right-turning movements on the westbound approach of Hospitality Drive at Nashville Highway (US-31) is warranted with existing traffic volumes.

Background Traffic Volumes

To account for traffic growth within the vicinity of the project site prior to the completion of the proposed 2558 Nashville Highway Development, background traffic volumes were established. Average annual daily traffic (AADT) volumes were obtained from Tennessee Department of Transportation (TDOT) count stations, and an average growth trend per year was established. This growth trend was used as a multiplication factor to grow the existing traffic volumes to the 2022 design year (development completion). Figure 6 displays the locations of the TDOT Count Stations within the surrounding area.

As shown in Figure 6, the average yearly percent change in traffic over a six (6) year period from 2016 - 2021 was 0.89%. However, to conform to the recently conducted traffic impact studies within the area, the existing traffic volumes as shown on Figure 4 were grown by +2.00% per year for five (5) years. Figure D1 in Appendix D shows the background peak hour totals at the study intersections for the AM and PM peak hour periods.

To account for the additional traffic growth within the vicinity of the project site, the generated traffic volumes from previously conducted Traffic Studies near the project site were added to the grown background traffic volumes. These developments are listed below as outlined within the Drumright Property Update Traffic Impact Study conducted by KCI Technologies in November 2021 and the McClure Farms Traffic Impact Study conducted by T-Square Engineering in August 2021.

- Villages at Carters Station (Single-Family Residential)
- Arden Village (Retail Space)
- Grove Park (Single-Family Residential)
- MSC Apartments (Multifamily Residential)
- Greens Mill PUD (Single Family Residential)
- Drumright Property Update (Single-Family and Multifamily Residential)
- McClure Farms (Single-Family Residential and Retail Space)

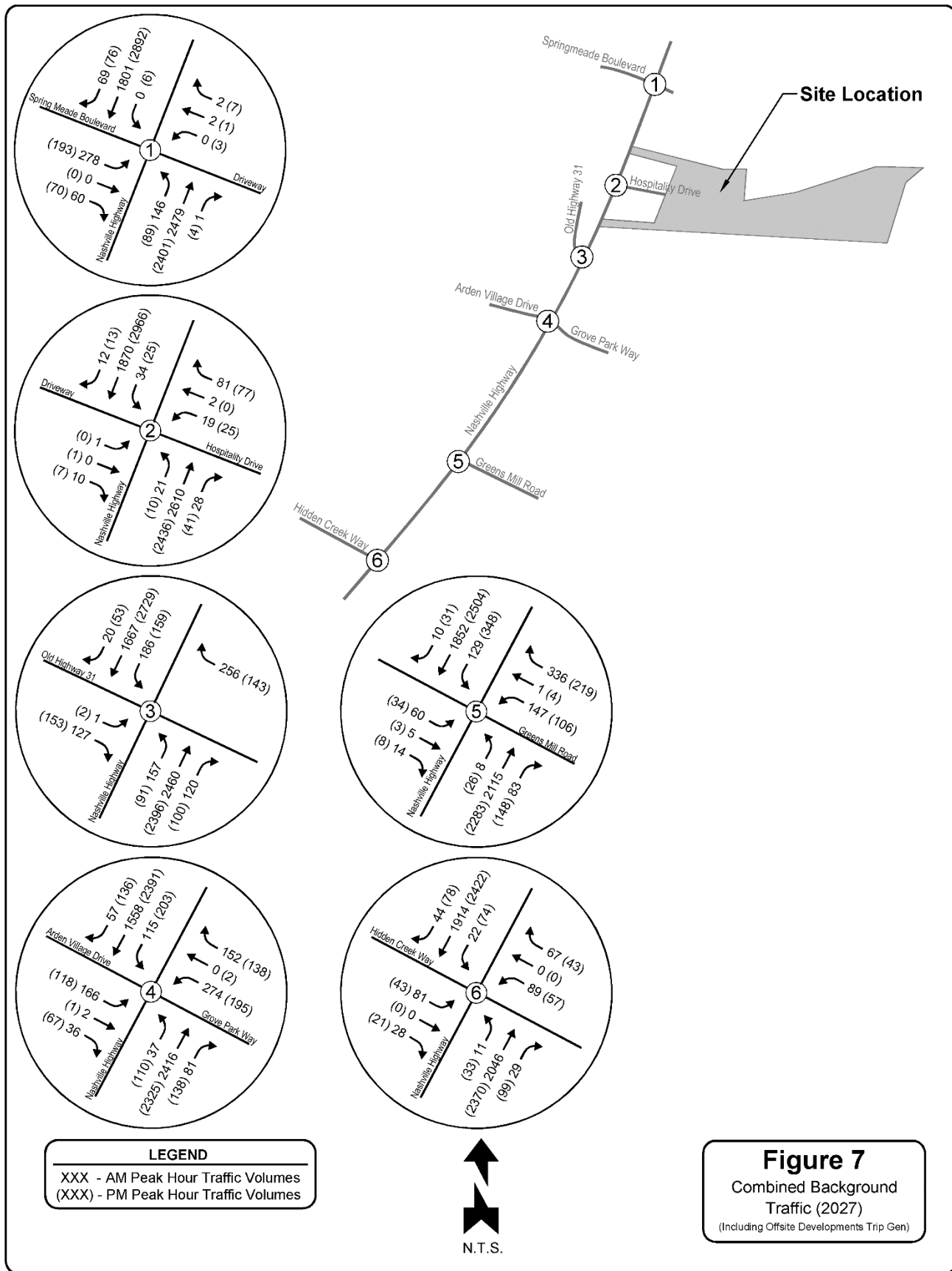
The total generated background development volumes can be found on Figure D2 in Appendix D. The generated traffic volumes from each development above are shown on Figures D3 – D9 in Appendix D. The background traffic volumes as shown in Figure D1 were added to the total generated background development volumes as shown in Figure D2, resulting in the total combined background peak hour traffic volumes for the study intersections, as shown on Figure 7.



TDOT Count Station:	Maury 000091		Maury 000019		Average % Growth
Year	AADT	% Change	AADT	% Change	
2021	35,920	--	1,368	--	--
2020	35,050	2.48%	1,348	1.48%	1.98%
2019	41,975	-7.21%	1,357	0.41%	-3.40%
2018	36,823	-0.82%	1,251	3.12%	1.15%
2017	35,063	0.61%	1,202	3.45%	2.03%
2016	33,930	1.17%	1,131	4.19%	2.68%
Average % Change	-0.75%		2.53%		0.89%
			Applied % Growth*		2.00%*



Figure 6
TDOT Count Locations &
Background Traffic
Growth Trends



Background Capacity Analyses

To evaluate the background traffic operations at the study intersections within the vicinity of the project site, the AM and PM peak hour capacity analyses were performed based on calculations outlined in the Highway Capacity Manual (HCM). Levels of service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement.

The previously conducted Traffic Studies for the background developments resulted in multiple recommended roadway improvements to study intersections. These recommended improvements will be utilized as part of the background roadway conditions and have been included in the background capacity analyses. The improvements are listed below by intersection. Figure 8 shows a summary of the off-site improvements from previously conducted traffic studies for background developments.

Nashville Highway (US-31) and Spring Meade Boulevard

- Modify the eastbound approach to include one (1) exclusive lane for left-turn movements, one (1) shared lane for left-turn and through movements, and one (1) exclusive right-turn lane.
- Install an exclusive southbound right-turn lane with 100 feet of storage.

Nashville Highway (US-31) and Old Highway 31N

- Install an exclusive southbound right-turn lane with 150 feet of storage.
- Install an exclusive northbound left-turn lane with 225 feet of storage.
- Install a raised concrete median along the eastbound approach to prohibit eastbound left-turn movements.
- Construct the westbound approach with a left-in/right-in/right-out configuration to be aligned with Old Highway 31 with one (1) inbound lane and one (1) outbound lane.
- Install an exclusive southbound left-turn lane with 300 feet of storage.
- Install an exclusive northbound right-turn lane with 300 feet of storage.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- Extend the exclusive northbound right-turn lane to provide a total of 300 feet of storage.
- Extend the exclusive southbound left-turn lane to provide a total of 200 feet of storage.
- Extend the exclusive westbound right-turn lane to provide a total of 250 feet of storage.

Nashville Highway (US-31) and Greens Mill Road

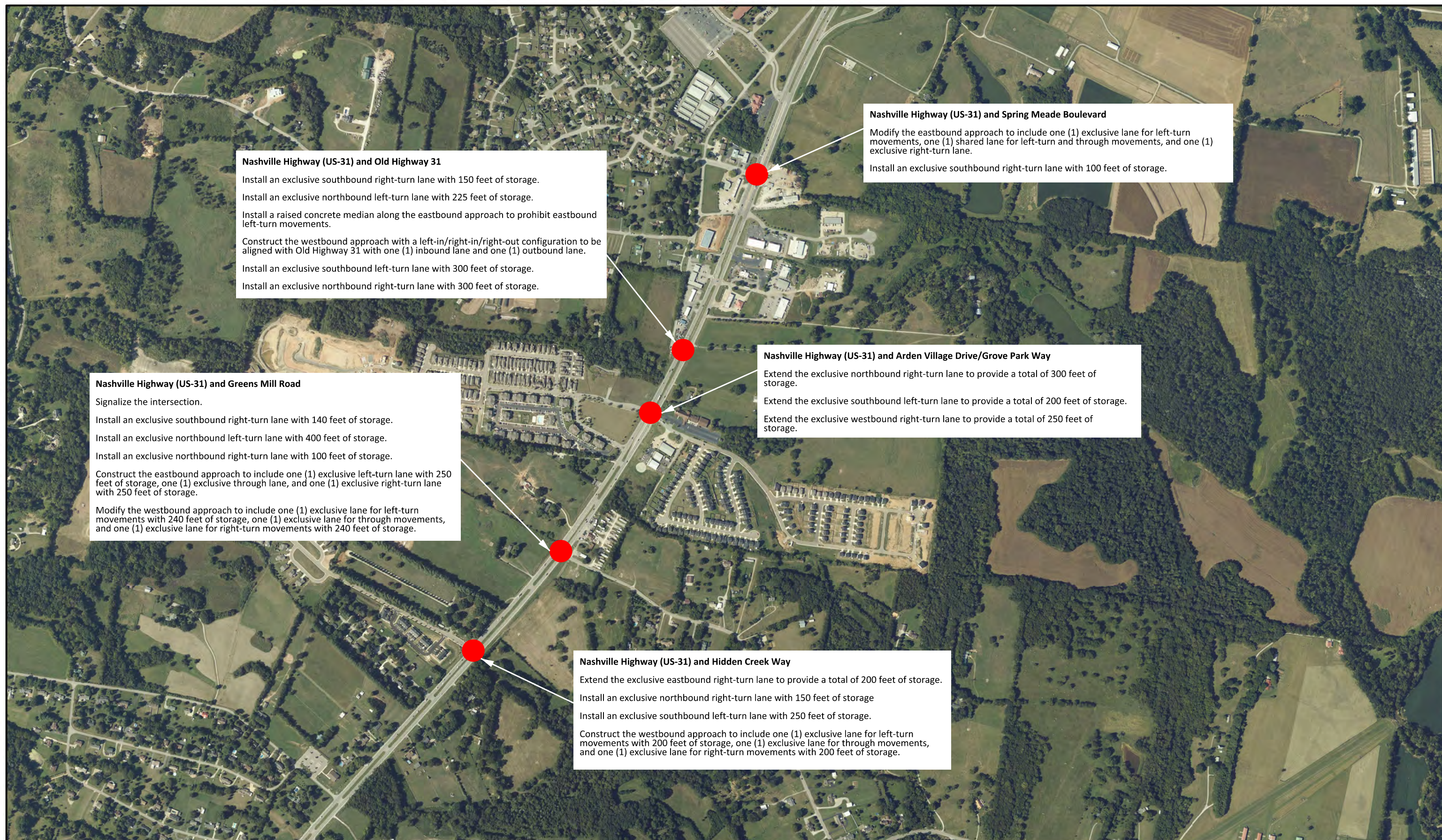
- Signalize the intersection.
- Install an exclusive southbound right-turn lane with 140 feet of storage.
- Install an exclusive northbound left-turn lane with 400 feet of storage.
- Install an exclusive northbound right-turn lane with 100 feet of storage.
- Construct the eastbound approach to include one (1) exclusive left-turn lane with 250 feet of storage, one (1) exclusive through lane, and one (1) exclusive right-turn lane with 250 feet of storage.

- Modify the westbound approach to include one (1) exclusive lane for left-turn movements with 240 feet of storage, one (1) exclusive lane for through movements, and one (1) exclusive lane for right-turn movements with 240 feet of storage.

Nashville Highway (US-31) and Hidden Creek Way

- Extend the exclusive eastbound right-turn lane to provide a total of 200 feet of storage.
- Install an exclusive northbound right-turn lane with 150 feet of storage
- Install an exclusive southbound left-turn lane with 250 feet of storage.
- Construct the westbound approach to include one (1) exclusive lane for left-turn movements with 200 feet of storage, one (1) exclusive lane for through movements, and one (1) exclusive lane for right-turn movements with 200 feet of storage.

The intersections were analyzed with background traffic volumes and roadway conditions based on lane geometries as outlined in the Background Traffic Volumes section above. It should be noted that existing traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard, Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, and Nashville Highway (US-31) and Hidden Creek Way for this analysis. Additionally, optimized traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Greens Mill Road for this analysis. The background capacity analyses were conducted using *Synchro* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results.



Nashville Highway (US-31) and Old Highway 31

Install an exclusive southbound right-turn lane with 150 feet of storage.

Install an exclusive northbound left-turn lane with 225 feet of storage.

Install a raised concrete median along the eastbound approach to prohibit eastbound left-turn movements.

Construct the westbound approach with a left-in/right-in/right-out configuration to be aligned with Old Highway 31 with one (1) inbound lane and one (1) outbound lane.

Install an exclusive southbound left-turn lane with 300 feet of storage.

Install an exclusive northbound right-turn lane with 300 feet of storage.

Nashville Highway (US-31) and Greens Mill Road

Signalize the intersection.

Install an exclusive southbound right-turn lane with 140 feet of storage.

Install an exclusive northbound left-turn lane with 400 feet of storage.

Install an exclusive northbound right-turn lane with 100 feet of storage.

Construct the eastbound approach to include one (1) exclusive left-turn lane with 250 feet of storage, one (1) exclusive through lane, and one (1) exclusive right-turn lane with 250 feet of storage.

Modify the westbound approach to include one (1) exclusive lane for left-turn movements with 240 feet of storage, one (1) exclusive lane for through movements, and one (1) exclusive lane for right-turn movements with 240 feet of storage.

Nashville Highway (US-31) and Spring Meade Boulevard

Modify the eastbound approach to include one (1) exclusive lane for left-turn movements, one (1) shared lane for left-turn and through movements, and one (1) exclusive right-turn lane.

Install an exclusive southbound right-turn lane with 100 feet of storage.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

Extend the exclusive northbound right-turn lane to provide a total of 300 feet of storage.

Extend the exclusive southbound left-turn lane to provide a total of 200 feet of storage.

Extend the exclusive westbound right-turn lane to provide a total of 250 feet of storage.

Nashville Highway (US-31) and Hidden Creek Way

Extend the exclusive eastbound right-turn lane to provide a total of 200 feet of storage.

Install an exclusive northbound right-turn lane with 150 feet of storage

Install an exclusive southbound left-turn lane with 250 feet of storage.

Construct the westbound approach to include one (1) exclusive lane for left-turn movements with 200 feet of storage, one (1) exclusive lane for through movements, and one (1) exclusive lane for right-turn movements with 200 feet of storage.

Figure 8 - Off-Site Improvements for Background Developments

2558 Nashville Highway Mixed-Use Development • Columbia, TN • Approximate Scale: 1" = 800'

Prepared by T-Square Engineering, Inc.

1329 West Main Street • Franklin, TN 37064 • www.T2-Eng.com



Table 12. Background Capacity Analyses

Study Intersection	Control	Approach	2027 Background Conditions					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	F	82.1	116 ^m	E	76.7	72 ^m
		NB Thru	C	21.9	498 ^m	E	58.1	922 ^m
		NB Thru/Right	C	21.3	498 ^m	E	57.6	0
		SB Left	--	0.0	0	E	66.1	23
		SB Thru	C	31.6	1201 ^m	F	178.1	2345 [#]
		SB Right	B	11.1	0	A	8.5	0
		EB Left	E	60.6	193	E	67.4	157
		EB Left/Thru	--	0.0	193	--	0.0	157
		EB Right	E	55.5	0	E	67.3	0
		WB Left	--	0.0	0	E	68.7	13
		WB Thru/Right	E	78.5	14	E	73.2	21
		Overall	C	29.7	--	F	118.5	--
2. Nashville Highway (US-31) and Hospitality Drive	TWSC	NB Left/Thru	C	19.5	20	F	50.4	20
		SB Left	E	44.2	40	D	34.2	20
		EB L/T/R	--	0.0	0	E	48.2	20
		WB L/T/R	F	+300.0	320	F	89.0	100
3. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	D	27.2	60	F	129.6	120
		SB Left	F	+300.0	280	F	189.5	200
		EB Right	D	30.1	60	F	+300.0	260
		WB Right	F	+300.0	440	F	140.7	160
4. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	E	61.4	35 ^m	E	57.9	128 ^{m#}
		NB Thru	F	253.8	1548 ^{m#}	F	201.9	1796 ^{m#}
		NB Right	B	12.0	0 ^m	B	11.9	15 ^m
		SB Left	F	106.9	131 ^m	F	+300.0	182 ^{m#}
		SB Thru	A	7.3	836 ^{m#}	F	264.2	1105 ^{m#}
		SB Right	A	0.2	1 ^m	C	20.7	31 ^m
		EB Left/Thru	F	84.4	274 [#]	E	75.6	183
		EB Right	D	52.5	0	E	63.8	0
		WB Left/Thru	F	+300.0	531 [#]	F	111.2	361 [#]
		WB Right	F	106.2	77	E	74.7	37
		Overall	F	154.8	--	F	209.2	--
5. Nashville Highway (US-31) and Greens Mill Road	Signal	NB Left	A	7.6	1 ^m	C	33.5	8 ^m
		NB Thru	A	7.6	1052 ^{m#}	E	73.4	412 ^{m#}
		NB Right	A	0.0	0 ^m	A	0.0	20 ^m
		SB Left	D	38.6	82 ^m	F	183.9	359 ^{m#}
		SB Thru	A	1.1	397 ^m	D	34.5	1008 ^m
		SB Right	A	0.0	0 ^m	A	0.0	0 ^m
		EB Left	D	52.2	93	E	63.8	64
		EB Thru	D	54.9	18	E	65.5	13
		EB Right	D	54.2	0	E	62.7	0
		WB Left	D	49.7	199 [#]	E	60.5	159
		WB Thru	D	50.5	7	E	59.9	17
		WB Right	F	259.1	383 [#]	D	39.6	200 [#]
		Overall	C	25.6	--	E	59.0	--
6. Nashville Highway (US-31) and Hidden Creek Way	Signal	NB Left	A	6.4	8	B	12.2	26
		NB Thru	C	24.0	1185 [#]	F	99.5	1571 [#]
		NB Right	A	4.2	0	A	8.6	20
		SB Left	C	26.1	5 ^m	D	48.0	21 ^m
		SB Thru	A	3.0	718 ^{m#}	C	26.7	1554 ^{m#}
		SB Right	A	0.0	0 ^m	A	0.0	0 ^m
		EB Left	F	81.3	115	E	66.2	75
		EB Thru/Right	E	60.9	0	E	66.2	0
		WB Left	D	54.3	162 [#]	E	67.0	104
		WB Right	E	61.0	53	D	52.5	0
		Overall	B	16.8	--	E	60.2	--

– 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.

m – Volumes for 95th percentile queue is metered by upstream signal.

The following assessment are based on the results of the Background Capacity Analyses as shown in the table above:

Nashville Highway (US-31) and Spring Meade Boulevard

- The exclusive northbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The exclusive northbound through movement will operate at LOS E during the PM peak period with background traffic volumes.
- The shared northbound through and right-turn movement will operate at LOS E during the PM peak period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The shared westbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The overall intersection will operate at LOS F during the PM peak hour period with background traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Hospitality Drive

- The shared northbound left-turn and through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS E during the AM peak hour period with background traffic volumes.
- The shared eastbound left-turn, through, and right-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The shared westbound left-turn, through, and right-turn movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Old Highway 31N

- The exclusive northbound left-turn movement will operate at LOS F during the PM peak hour period with background traffic volumes.

- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour period with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during both the AM and PM peak hour period with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- The exclusive northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive northbound through movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The shared eastbound left-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The shared westbound left-turn and through movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive westbound right-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The overall intersection will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Greens Mill Road

- The exclusive northbound through movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive eastbound through movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.

- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive westbound through movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during the AM peak hour period with background traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Hidden Creek Way

- The exclusive northbound through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The shared eastbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour periods with background traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS E during the AM peak hour periods with background traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Impacts

Trips were generated to establish projected traffic volumes for the proposed 2558 Nashville Highway Mixed-Use Development. Daily and peak hour trips were generated by formulas presented in the *Trip Generation Manual*³ based on the land uses proposed by the development. As previously stated, the proposed development will consist of 143 multi-family (low-rise) housing units and a self-storage facility of approximately 61,000 SF. The Multi-Family Housing (Low-Rise) (220) and the Mini-Warehouse (151) ITE Land Uses were used to estimate the generated traffic volumes. The table below provides the new trips generated for the proposed development. Appendix B contains detailed trip generation calculations.

Table 13. 2558 Nashville Highway Mixed-Use Development Trip Generation

ITE Land Use (Code)	Size	Generated Traffic Volumes				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Multi-Family Housing (Low-Rise) (220)	143 Units	992	16	51	52	30
Mini-Warehouse (151)	61,000 SF	88	3	2	4	5
TOTAL		1,080	19	53	56	35

Projected Traffic Distribution and Assignments

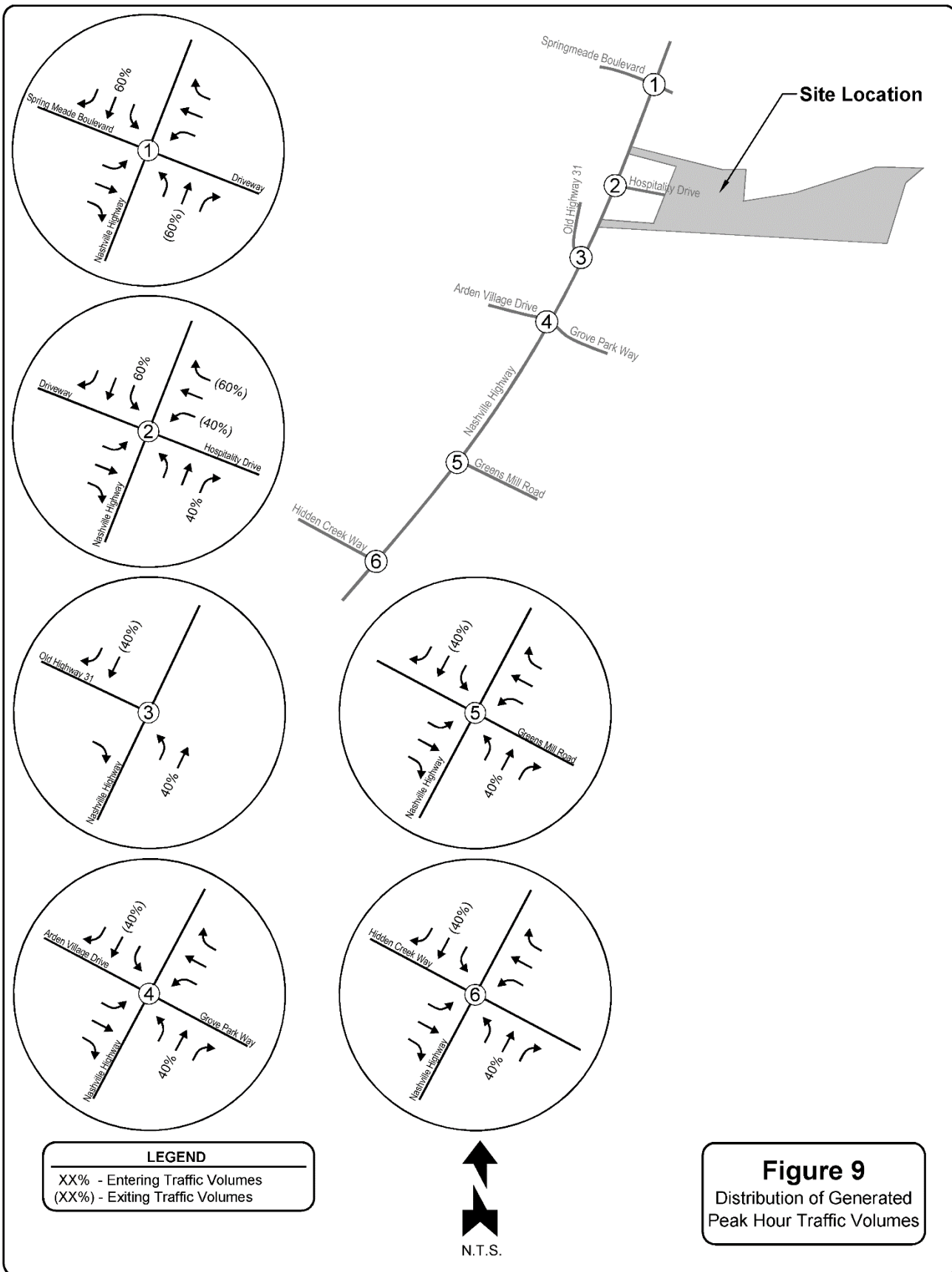
For the purposes of this study, estimated directional distributions shown on Figure 9 were made for the proposed development's generated traffic volumes. The development of these directional distributions was established based on the following:

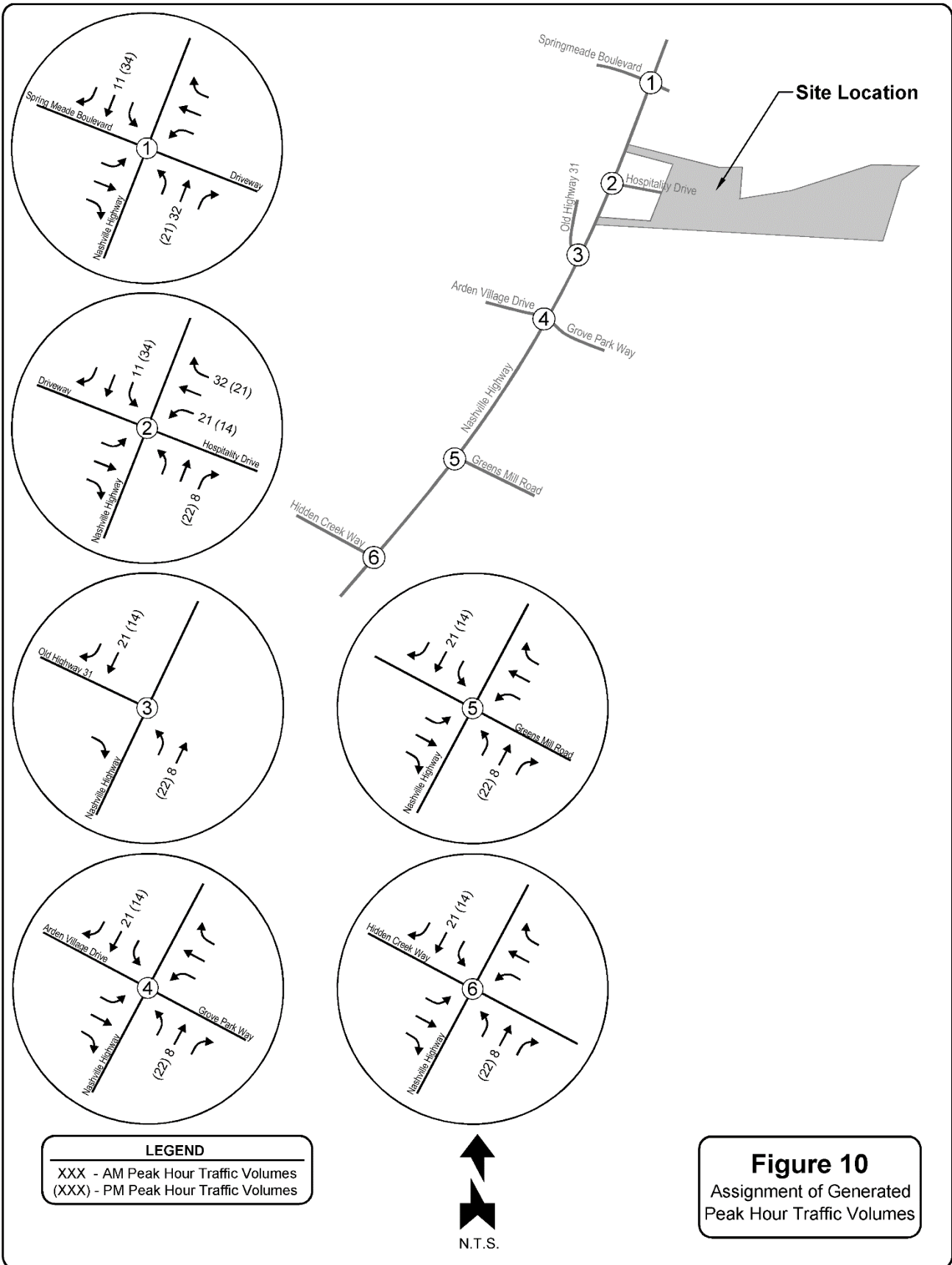
- Conducted hourly turning movement counts.
- Proposed land use characteristics.
- Existing roadway network.
- Existing lane geometry of surrounding intersections.
- The access locations of the proposed development.
- Locations of populations centers within the surrounding area.

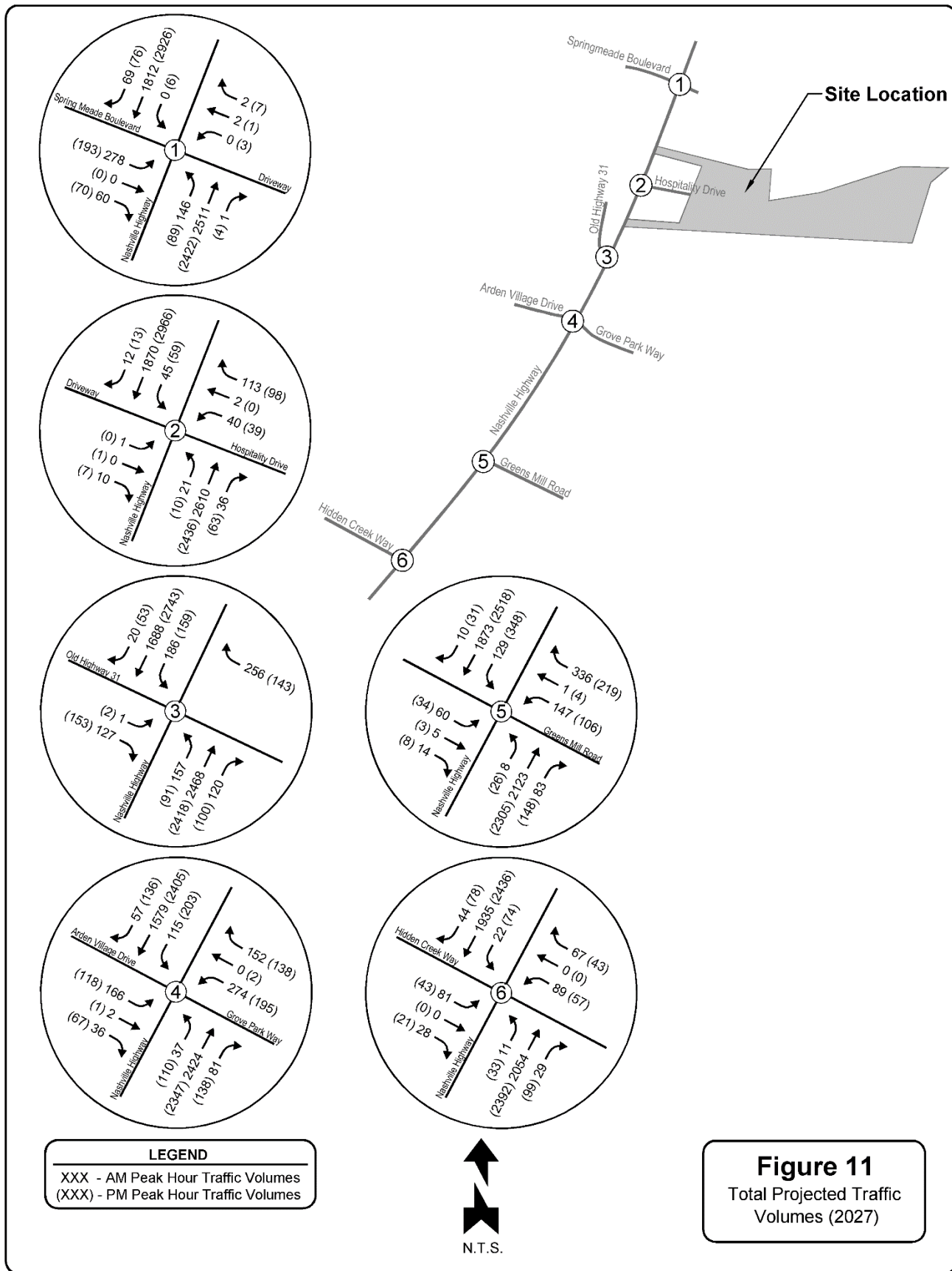
The primary trips generated were assigned to the existing roadway network per the distributions shown on Figure 9, resulting in the generated peak hour traffic volumes shown on Figure 10. The generated peak hour traffic volumes were added to the total combined background volumes as shown in Figure 7, resulting in the total projected peak hour traffic volumes in Figure 11. T

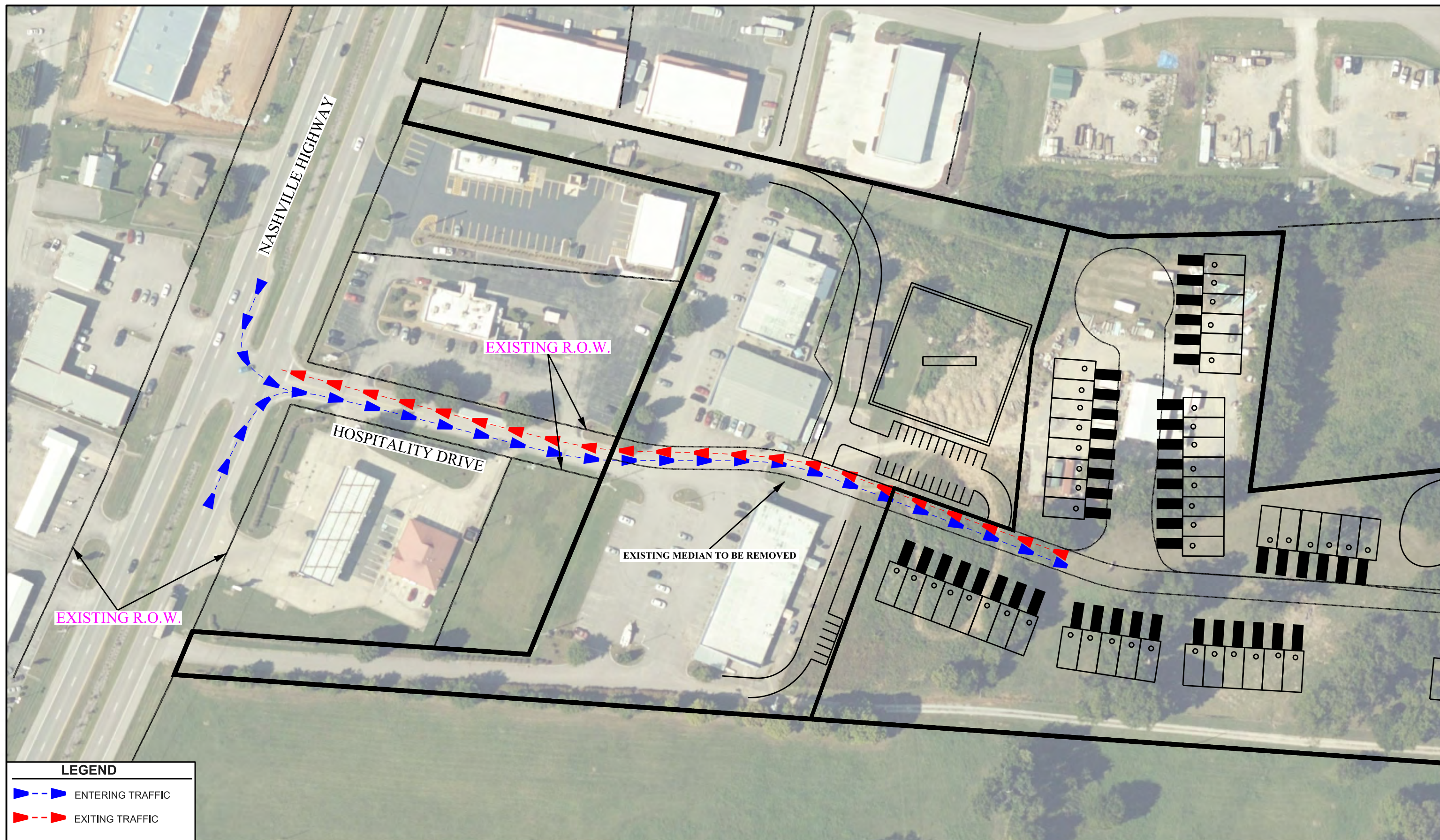
The proposed development will utilize the intersection of Nashville Highway (US-31) and Hospitality Drive for access to and from the site. A diagram detailing the traffic flow to and from Nashville Highway (US-31) is shown on Figure 12.

³ Institute of Transportation Engineers (ITE). *Trip Generation Manual*, 11th Edition. Washington, DC: ITE, 2022









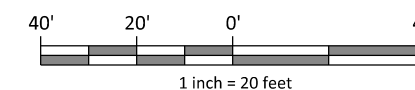
T-SQUARE ENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

Figure 12 - Traffic Flow Diagram

2558 Nashville Highway Development • Columbia, TN • Approximate Scale: 1" = 100'

Prepared by T-Square Engineering, Inc.

1329 West Main Street • Franklin, TN 37064 • www.T2-Eng.com



Projected Capacity Analysis

To evaluate the projected traffic operations at the study intersections within the vicinity of the project site, AM and PM peak hour capacity analyses were performed. The capacity analyses include the total projected traffic volumes generated from the proposed development in addition to background traffic volumes. Levels-of-service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement. The intersections were analyzed based on background roadway conditions and lane geometries as outlined previously with projected traffic volumes.

The intersections were analyzed with projected traffic volumes and roadway conditions based on lane geometries as outlined in the Background Traffic Volumes section above. It should be noted that existing traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard, Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, and Nashville Highway (US-31) and Hidden Creek Way for this analysis. Additionally, optimized traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Greens Mill Road for this analysis. The background capacity analyses were conducted using *Synchro* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results

Table 14. Projected Capacity Analyses

Study Intersection	Control	Approach	2027 Projected Conditions					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	F	82.1	117 ^m	E	76.7	72 ^m
		NB Thru	C	24.7	508 ^m	E	61.0	933 ^m
		NB Thru/Right	C	24.1	508 ^m	E	60.5	933 ^m
		SB Left	--	0.0	0	E	66.1	23
		SB Thru	C	32.2	1212 [#]	F	185.0	2381 [#]
		SB Right	B	11.1	0	A	8.5	0
		EB Left	E	60.6	193	E	67.4	157
		EB Left/Thru	--	0.0	193	--	0.0	157
		EB Right	E	55.5	0	E	67.3	0
		WB Left	--	0.0	0	E	68.7	13
		WB Thru/Right	E	78.5	14	E	73.2	21
		Overall	C	31.3	--	F	123.4	--
2. Nashville Highway (US-31) and Hospitality Drive	TWSC	NB Left/Thru	C	19.5	20	F	50.4	20
		SB Left	F	50.1	40	E	47.2	40
		EB L/T/R	--	0.0	0	E	48.2	20
		WB L/T/R	F	+300.0	480	F	159.8	180
3. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	D	28.1	60	F	135.2	120
		SB Left	F	+300.0	280	F	199.7	220
		EB Right	D	31.0	60	F	+300.0	260
		WB Right	F	+300.0	440	F	145.8	60
4. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	E	61.4	35 ^m	E	57.8	124 ^{m#}
		NB Thru	F	256.2	1548 ^{m#}	F	207.8	1797 ^{m#}
		NB Right	B	12.0	0 ^m	B	11.8	15 ^m
		SB Left	F	106.9	131 ^{m#}	F	300.7	181 ^{m#}
		SB Thru	A	8.1	852 ^{m#}	F	268.1	1102 ^{m#}
		SB Right	A	0.2	1 ^m	C	20.7	30 ^m
		EB Left/Thru	F	84.4	274 [#]	E	75.6	183
		EB Right	D	52.5	0	E	63.8	0
		WB Left/Thru	F	+300.0	531 [#]	F	111.2	361 [#]
		WB Right	F	106.2	77	E	74.7	37
		Overall	F	155.7	--	F	213.3	--
5. Nashville Highway (US-31) and Greens Mill Road	Signal	NB Left	A	7.9	2 ^m	C	33.5	8 ^m
		NB Thru	B	16.3	1312 [#]	E	78.2	412 ^{m#}
		NB Right	A	0.1	0 ^m	A	0.0	20 ^m
		SB Left	D	38.4	82 ^m	F	183.9	362 ^{m#}
		SB Thru	A	1.1	399 ^m	D	37.1	1016 ^m
		SB Right	A	0.0	0 ^m	A	0.0	0 ^m
		EB Left	D	52.2	93	E	63.8	64
		EB Thru	D	54.9	18	E	65.5	13
		EB Right	D	54.2	0	E	62.7	0
		WB Left	D	49.7	199 [#]	E	60.5	159
		WB Thru	D	50.5	7	E	59.9	17
		WB Right	F	241.1	383 [#]	D	39.6	200 [#]
		Overall	C	28.0	--	E	62.1	--
6. Nashville Highway (US-31) and Hidden Creek Way	Signal	NB Left	A	6.4	8	B	12.2	26
		NB Thru	C	24.4	1194 [#]	F	104.1	1595 [#]
		NB Right	A	4.2	0	A	8.6	20
		SB Left	C	26.6	5 ^m	D	48.0	21 ^m
		SB Thru	A	3.2	767 ^{m#}	C	29.1	1553 ^{m#}
		SB Right	A	0.0	0 ^m	A	0.0	0 ^m
		EB Left	F	81.3	115	E	66.2	75
		EB Thru/Right	E	60.9	0	E	66.2	0
		WB Left	D	54.3	162 [#]	E	67.0	104
		WB Right	E	61.0	53	D	52.5	0
		Overall	B	17.0	--	E	63.5	--

– 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.

m – Volumes for 95th percentile queue is metered by upstream signal.

The following assessment are based on the results of the Projected Capacity Analyses as shown in the table above:

Nashville Highway (US-31) and Spring Meade Boulevard

- The exclusive northbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The exclusive northbound through movement will operate at LOS E during the PM peak period with projected traffic volumes.
- The shared northbound through and right-turn movement will operate at LOS E during the PM peak period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The shared westbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The overall intersection will operate at LOS F during the PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Hospitality Drive

- The shared northbound left-turn and through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The shared eastbound left-turn, through, and right-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The shared westbound left-turn, through, and right-turn movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS C during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Old Highway 31N

- The exclusive northbound left-turn movement will operate at LOS F during the PM peak hour period with projected traffic volumes.

- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour period with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during both the AM and PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- The exclusive northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive northbound through movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The shared eastbound left-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The shared westbound left-turn and through movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive westbound right-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The overall intersection will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Greens Mill Road

- The exclusive northbound through movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound through movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.

- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive westbound through movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during the AM peak hour period with projected traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Hidden Creek Way

- The exclusive northbound through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The shared eastbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour periods with projected traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS E during the AM peak hour periods with projected traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Traffic Signal Warrants (Projected Conditions)

The *Manual on Uniform Traffic Control Devices* (MUTCD) has developed nine (9) separate warrants to determine when an intersection warrants signalization. These nine (9) warrants are used to describe the minimum thresholds needed to warrant a traffic signal. “A traffic control signal should not be installed unless one or more of the factors described in *Chapter 4C (Traffic Control Signal Needs Studies)* are met.”⁴ The *TDOT Traffic Design Manual* subsection 4.1.2 – *Traffic Signal Warrants* states “Even though these nine warrants can justify a traffic signal installation, TDOT considers Warrant 1 and Warrant 7 as the primary warrants that should be utilized for traffic signal installation approval”.

Volumes Warrants

Traffic volume related signal warrants were performed based on projected traffic volumes and 70 percent minimum vehicular volumes provided in Table 4C-1, Figure 4C-2, and Figure 4C-4 of the MUTCD. As directed within the MUTCD, traffic volumes within the 70 percent columns were used due to the statutory speed limit exceeding 40 MPH. The results of the signal analysis are provided in the table below.

Table 15. Signal Warrant Analysis, Nashville Highway (US-31) and Hospitality Drive

Hour	Traffic Volumes		Warrants ⁵ Fulfilled				
	Major	Minor	1A	1B	1C	2	3
	Both Directions	Highest Approach					
6:00-7:00 AM	3159	87	--	Yes	Yes	Yes	Yes
7:00-8:00	4308	113	Yes	Yes	Yes	Yes	Yes
8:00-9:00	3822	94	--	Yes	Yes	Yes	Yes
9:00-10:00	3350	74	--	Yes	--	Yes	--
10:00-11:00	3311	57	--	Yes	--	--	--
11:00 AM-12:00 PM	3619	70	--	Yes	--	Yes	--
12:00-1:00	3940	98	--	Yes	Yes	Yes	Yes
1:00-2:00	3891	91	--	Yes	Yes	Yes	Yes
2:00-3:00	4586	69	--	Yes	--	Yes	--
3:00-4:00	5315	85	--	Yes	Yes	Yes	Yes
4:00-5:00	4683	77	--	Yes	--	Yes	Yes
5:00-6:00	3319	78	--	Yes	--	Yes	Yes
Total Hours Warranted			1	12	6	11	8

As shown in the table above, three (3) of the five (5) traffic volume related signal warrants were fulfilled for the required number of hours at the intersection of Nashville Highway (US-31) and Hospitality Drive with projected traffic volumes. Specifically, Warrant 1B (Interruption of Continuous Traffic), Warrant 2 (Four-Hour Vehicular Volume), and Warrant 3 (Peak Hour Volume) were fulfilled. Therefore, since Warrant 1 (Eight-Hour Vehicular Volume) was fulfilled as required by TDOT, this intersection warrants a traffic signal installation based on projected traffic conditions.

⁴ Federal Highway Administration (FHWA). *Manual on Uniform Traffic Control Devices*, 2009 Edition. Washington, DC: 2009

Conclusions

Existing Conditions

Intersection Capacity Analyses

Nashville Highway (US-31) and Spring Meade Boulevard

- The exclusive northbound left-turn movement currently operates at LOS F and LOS E during the AM and PM peak hour periods, respectively, with existing traffic volumes.
- The exclusive southbound left-turn movement currently operates at LOS F during the PM peak hour period with existing traffic volumes.
- The exclusive eastbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The shared eastbound through and right-turn movement currently operates at LOS E during the PM peak hour periods with existing traffic volumes.
- The exclusive westbound left-turn movement currently operates at LOS E during the PM peak hour period with existing traffic volumes.
- The shared westbound through and right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- All critical movements for this intersection currently operate at an acceptable minimum LOS D during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Hospitality Drive

- The shared eastbound left-turn, through, and right-turn movement currently operates at LOS F during the PM peak hour period with existing traffic volumes.
- The shared westbound left-turn, through, and right-turn movement currently operates at LOS F during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Old Highway 31N

- The shared eastbound left-turn and right-turn movement currently operates at LOS F during the PM peak hour period with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- The exclusive northbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive southbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The shared eastbound left-turn and through movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.

- The exclusive eastbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The shared westbound left-turn and through movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive westbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS D during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Greens Mill Road

- The shared left-turn and right-turn movement currently operates at LOS F during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Hidden Creek Way

- The exclusive eastbound left-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- The exclusive eastbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods with existing traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS B during both AM and PM peak with existing traffic volumes.

Turn Lane Analyses

- It was determined that the northbound approach of Nashville Highway (US-31) at its intersection with Hospitality Drive currently warrants one (1) exclusive lane for right-turning movements with existing traffic volumes.
 - Coordination with the City will need to occur prior to the design of this turn lane in order to provide an adequate turn lane layout.
 - This installation of this turn lane will require the closure of the access/driveway located along Nashville Highway (US-31) south of the Twice Daily driveway.
- It was determined that two (2) exclusive lanes for left-turning and right-turning movements are currently warranted along the westbound approach of Hospitality Drive at its intersection with Nashville Highway (US-31) with existing traffic volumes.

Background Conditions

Intersection Capacity Analyses

- The exclusive northbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The exclusive northbound through movement will operate at LOS E during the PM peak period with background traffic volumes.
- The shared northbound through and right-turn movement will operate at LOS E during the PM peak period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The shared westbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The overall intersection will operate at LOS F during the PM peak hour period with background traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Hospitality Drive

- The shared northbound left-turn and through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS E during the AM peak hour period with background traffic volumes.
- The shared eastbound left-turn, through, and right-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The shared westbound left-turn, through, and right-turn movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with existing traffic volumes.

Nashville Highway (US-31) and Old Highway 31N

- The exclusive northbound left-turn movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour period with background traffic volumes.

- The exclusive eastbound right-turn movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during both the AM and PM peak hour period with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- The exclusive northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive northbound through movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The shared eastbound left-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The shared westbound left-turn and through movement will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive westbound right-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The overall intersection will operate at LOS F during both the AM and PM peak hour periods with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Greens Mill Road

- The exclusive northbound through movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive eastbound through movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with background traffic volumes.

- The exclusive westbound through movement will operate at LOS E during the PM peak hour period with background traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during the AM peak hour period with background traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Hidden Creek Way

- The exclusive northbound through movement will operate at LOS F during the PM peak hour period with background traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with background traffic volumes.
- The shared eastbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with background traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour periods with background traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS E during the AM peak hour periods with background traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with background traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with background traffic volumes.

Projected Conditions

Intersection Capacity Analyses

- The exclusive northbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The exclusive northbound through movement will operate at LOS E during the PM peak period with projected traffic volumes.
- The shared northbound through and right-turn movement will operate at LOS E during the PM peak period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The shared westbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The overall intersection will operate at LOS F during the PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection currently operate at an acceptable minimum LOS C during both AM and PM peak with background traffic volumes.

Nashville Highway (US-31) and Hospitality Drive

- The shared northbound left-turn and through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The shared eastbound left-turn, through, and right-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The shared westbound left-turn, through, and right-turn movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS C during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Old Highway 31N

- The exclusive northbound left-turn movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour period with projected traffic volumes.

- The exclusive eastbound right-turn movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during both the AM and PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- The exclusive northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive northbound through movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive southbound through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The shared eastbound left-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The shared westbound left-turn and through movement will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive westbound right-turn and through movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The overall intersection will operate at LOS F during both the AM and PM peak hour periods with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Greens Mill Road

- The exclusive northbound through movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive southbound left-turn movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound through movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound right-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour period with projected traffic volumes.

- The exclusive westbound through movement will operate at LOS E during the PM peak hour period with projected traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS F during the AM peak hour period with projected traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Nashville Highway (US-31) and Hidden Creek Way

- The exclusive northbound through movement will operate at LOS F during the PM peak hour period with projected traffic volumes.
- The exclusive eastbound left-turn movement will operate at LOS F and LOS E during the AM and PM peak hour periods, respectively, with projected traffic volumes.
- The shared eastbound through and right-turn movement will operate at LOS E during both the AM and PM peak hour periods with projected traffic volumes.
- The exclusive westbound left-turn movement will operate at LOS E during the PM peak hour periods with projected traffic volumes.
- The exclusive westbound right-turn movement will operate at LOS E during the AM peak hour periods with projected traffic volumes.
- The overall intersection will operate at LOS E during the PM peak hour period with projected traffic volumes.
- All other critical movements for this intersection will operate at an acceptable minimum LOS D during both AM and PM peak with projected traffic volumes.

Signal Warrant Analyses

- Three (3) of the five (5) traffic volume related signal warrants were fulfilled for the required number of hours at the intersection of Nashville Highway (US-31) and Hospitality Drive with projected traffic volumes. Specifically, Warrant 1B (Interruption of Continuous Traffic), Warrant 2 (Four-Hour Vehicular Volume), and Warrant 3 (Peak Hour Volume) were fulfilled.
- All the criteria for Warrant 7 – Crash Experience was satisfied for the intersection of Nashville Highway (US-31) and Hospitality Drive.
 - Therefore, since Warrant 1 (Eight-Hour Vehicular Volume) and Warrant 7 (Crash Experience) were fulfilled, it was determined that the intersection of Nashville Highway (US-31) and Hospitality Drive will warrant a traffic signal installation with the addition of projected traffic volumes.

Turn Lane Analyses

- Based on the projected traffic volumes, extend the storage length of the southbound left-turn lane at the intersection of Nashville Highway (US-31) and Hospitality Drive from sixty (60) feet to approximately 100 feet.

Recommendations

Based on the analyses within this study, and a review of the proposed development's access plan, the recommendations below have been presented to be implemented as part of the proposed 2558 Nashville Highway Mixed-Use Development in Columbia, TN. These recommendations will be constructed in addition to the various improvements at the study intersections outlined in previously conducted traffic studies within the area. Figure 13 shows a summary of the recommended improvements for this development.

Improvement Recommendations for the 2558 Nashville Highway Mixed-Use Development

Nashville Highway (US-31) and Spring Meade Boulevard

- Optimize the existing signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Hospitality Drive

- Install a traffic signal at the intersection of Nashville Highway (US-31) and Hospitality Drive. Ensure the proposed signal is installed with the necessary equipment to allow signal coordination and interconnection with nearby signalized intersections along Nashville Highway (US-31).
- Construct one (1) exclusive right-turn lane on the northbound approach of Nashville Highway (US-31) at its intersection with Hospitality Drive. The right-turn lane shall provide a minimum of 100 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
 - Coordination with the City will need to occur prior to the design of this turn lane in order to provide an adequate turn lane layout.
 - This installation of this turn lane will require the closure of the access/driveway located along Nashville Highway (US-31) south of the Twice Daily driveway.
- Extend the existing left-turn lane on the southbound approach of Nashville Highway (US-31) at its intersection with Hospitality Drive. The left-turn lane shall be extended to a minimum of 100 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Construct one (1) exclusive right-turn lane on the westbound approach of Hospitality Drive at its intersection with Nashville Highway (US-31). The right-turn lane shall provide 100 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Optimize the proposed signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Old Highway 31N

- No additional improvements are recommended for this intersection as part of the construction of the 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

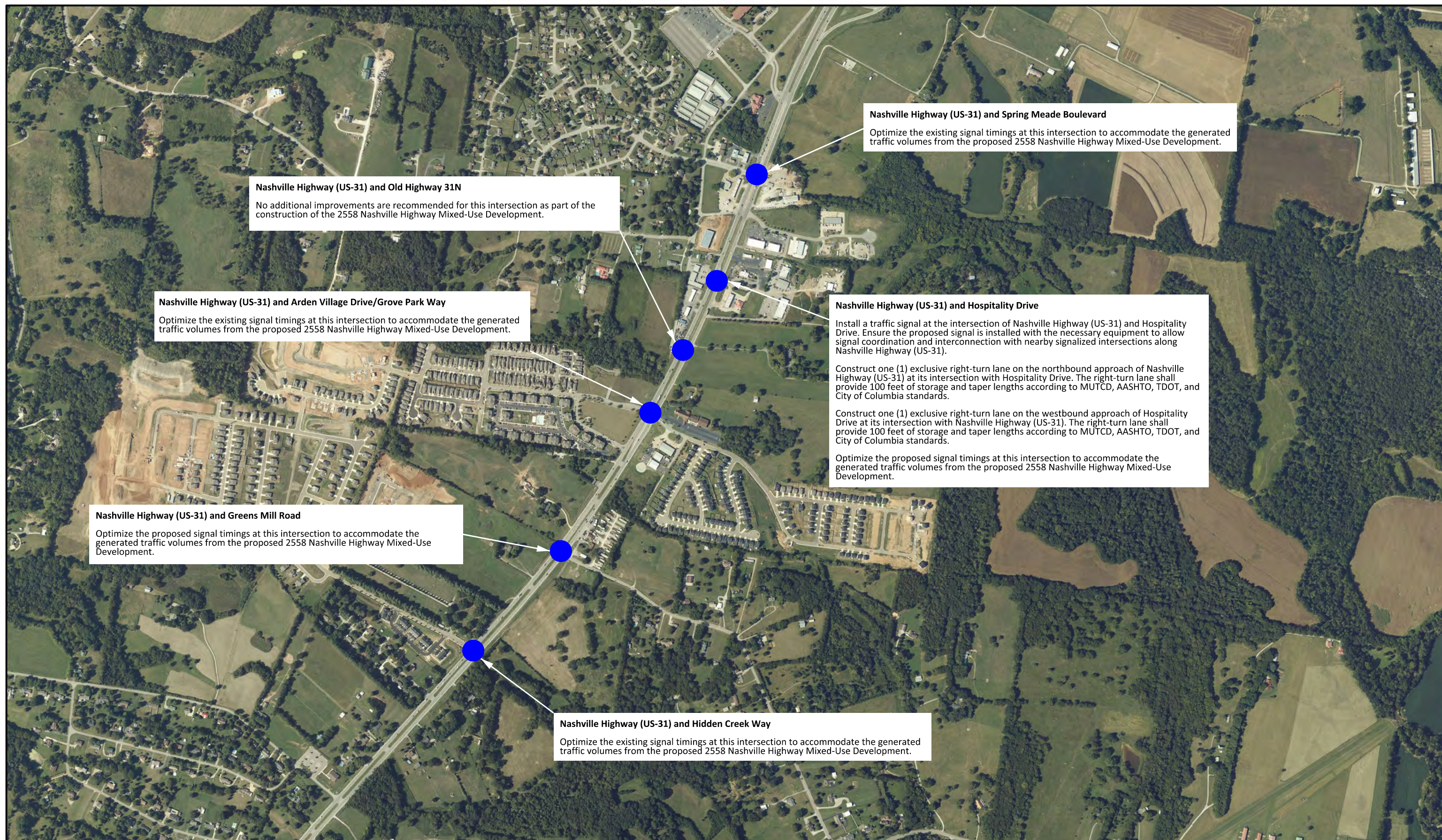
- Optimize the existing signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Greens Mill Road

- Optimize the proposed signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Hidden Creek Way

- Optimize the existing signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.



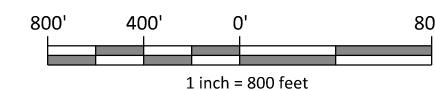
T-SQUARE ENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

Figure 13 - Recommended Improvements for 2558 Nashville Highway Development

2558 Nashville Highway Development • Columbia, TN • Approximate Scale: 1" = 800'

Prepared by T-Square Engineering, Inc.

1329 West Main Street • Franklin, TN 37064 • www.T2-Eng.com



Projected Capacity Analysis with Improvements

To evaluate the impact of the proposed improvements on the projected traffic operations at the study intersections within the vicinity of the project site, AM and PM peak hour capacity analyses were performed with projected traffic volumes. Levels-of-service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement. The study intersections were analyzed under projected conditions with the proposed recommendations outlined in the Conclusions and Recommendations portion of this study. Appendix C contains the detailed capacity analyses results.

It should be noted that optimized traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard, Nashville Highway (US-31) and Hospitality Drive, Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, Nashville Highway (US-31) and Greens Mill Road, and Nashville Highway (US-31) and Hidden Creek Way for this analysis. The projected capacity analyses with improvements were conducted using *Synchro* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results

Table 16. Projected Capacity Analyses with Improvements

Study Intersection	Control	Approach	2027 Projected Conditions with Improvements					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	D	48.4	144 ^m	E	55.1	78 ^{m#}
		NB Thru	F	76.7	750 ^m	B	16.1	497 ^m
		NB Thru/Right	F	73.7	750 ^m	B	16.1	497 ^m
		SB Left	--	0.0	0	E	71.2	24
		SB Thru	D	43.3	1134 [#]	F	215.0	2289 [#]
		SB Right	B	14.2	0	B	10.6	11
		EB Left	F	81.5	276 [#]	E	74.2	174
		EB Left/Thru	--	0.0	276 [#]	--	0.0	174
		EB Right	E	65.2	0	E	73.0	0
		WB Left	--	0.0	0	E	73.6	14
		WB Thru/Right	F	88.7	15	E	78.3	21
		Overall	E	62.7	--	F	119.8	--
2. Nashville Highway (US-31) and Hospitality Drive	Signal	NB Left/Thru	F	66.0	146 ^m	F	148.1	1346 ^{m#}
		NB Thru	D	45.4	146 ^m	F	124.2	1346 ^{m#}
		NB Right	A	0.0	0 ^m	A	0.1	0 ^m
		SB Left	D	49.0	22 ^m	D	49.4	18 ^m
		SB Thru	A	1.0	28	C	29.0	318 ^m
		SB Thru/Right	A	1.0	28	C	29.6	318 ^m
		EB L/T/R	E	62.9	0	E	64.2	24
		WB Left/Thru	E	64.8	85	E	67.2	82
		WB Right	E	67.7	152	E	67.1	132
		Overall	C	34.4	--	E	75.1	--
3. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	D	28.1	60	F	135.2	120
		SB Left	F	+300.0	280	F	199.7	220
		EB Right	D	31.0	60	F	+300.0	260
		WB Right	F	+300.0	440	F	145.8	160
4. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	D	43.8	40 ^m	F	163.6	148 ^{m#}
		NB Thru	F	175.9	1825 ^{m#}	F	119.5	1591 ^{m#}
		NB Right	A	0.0	0 ^m	A	0.0	2 ^m
		SB Left	F	102.2	289 ^{m#}	F	251.5	281 ^{m#}
		SB Thru	D	46.7	491	F	113.6	1535 ^{m#}
		SB Right	A	3.7	4 ^m	A	6.1	20 ^m
		EB Left/Thru	F	217.7	381 [#]	F	200.3	290 [#]
		EB Right	E	65.8	0	F	92.1	0
		WB Left/Thru	F	255.2	576 [#]	F	218.2	433 [#]
		WB Right	F	91.7	115	F	134.1	49
		Overall	F	129.3	--	F	122.0	--
5. Nashville Highway (US-31) and Greens Mill Road	Signal	NB Left	B	11.4	2 ^m	E	69.6	3 ^m
		NB Thru	C	25.1	1398 [#]	F	66.5	1593 [#]
		NB Right	A	0.1	3 ^m	A	1.4	9 ^m
		SB Left	D	46.9	103 ^m	F	145.3	305 ^{m#}
		SB Thru	A	1.0	88 ^m	B	15.8	68 ^m
		SB Right	A	0.0	0 ^m	A	0.0	0 ^m
		EB Left	E	67.7	109	E	68.9	71
		EB Thru	E	70.8	21	E	70.5	15
		EB Right	E	70.8	0	D	47.4	0
		WB Left	F	88.4	240 [#]	F	85.5	232 [#]
		WB Thru	E	67.9	8	E	69.0	18
		WB Right	F	153.2	455 [#]	D	51.8	232
		Overall	C	27.4	--	D	46.8	--
6. Nashville Highway (US-31) and Hidden Creek Way	Signal	NB Left	A	9.3	10	A	7.4	21
		NB Thru	C	27.6	1019	D	37.2	1504 [#]
		NB Right	A	5.9	0	B	18.2	9
		SB Left	D	51.5	8 ^m	C	21.1	31 ^m
		SB Thru	A	1.7	382 ^m	A	0.2	1563 ^{m#}
		SB Right	A	0.0	0 ^m	A	0.0	1 ^m
		EB Left	F	83.3	133	E	73.9	84
		EB Thru/Right	E	73.0	0	E	71.6	0
		WB Left	F	84.4	182 [#]	E	76.7	161 [#]
		WB Right	D	44.0	0	C	23.1	0
		Overall	B	18.5	--	B	19.6	--

– 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.

m – Volumes for 95th percentile queue is metered by upstream signal.

APPENDIX

APPENDIX A – DETAILED TURNING MOVEMENT COUNTS AND SIGNAL TIMINGS

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
Intersection #: 1
Intersection: Nashville Highway and Spring Meade Boulevard

Southbound: Nashville Highway
Westbound: N/A
Northbound: Nashville Highway
Eastbound: Spring Meade Boulevard

Lat/Long: 35.71191583723535, -86.97361732675098

Count Date: 4/7/2022

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

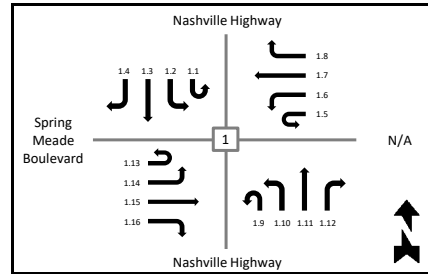
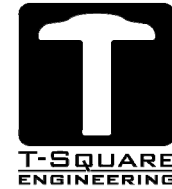
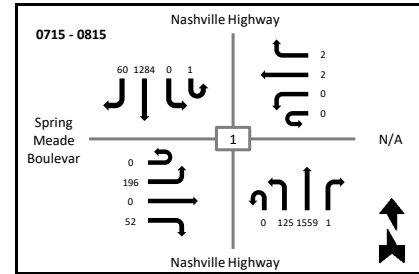


Figure 2 - AM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	Nashville Highway						N/A						Nashville Highway						Spring Meade Boulevard					
Time	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds X-Walk	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds X-Walk	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds X-Walk	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds X-Walk	App Total
0600 - 0615	0	0	137	10	0	147	0	0	0	0	0	0	0	2	430	0	0	432	0	21	0	4	0	25
0615 - 0630	0	0	178	6	0	184	0	0	0	0	0	0	0	5	427	0	0	432	0	33	0	6	0	39
0630 - 0645	0	0	191	8	0	199	0	0	0	0	0	0	0	9	475	0	0	484	0	30	0	7	0	37
0645 - 0700	0	0	238	10	0	248	0	0	0	0	0	0	0	12	404	0	0	416	0	32	0	4	0	36
0700 - 0715	0	0	218	15	0	233	0	0	0	0	0	0	0	29	412	0	0	441	0	50	0	13	0	63
0715 - 0730	0	0	277	22	0	299	0	0	0	0	0	0	0	39	377	1	0	417	0	51	0	13	0	64
0730 - 0745	0	0	373	20	0	393	0	0	0	2	0	2	0	52	377	0	0	429	0	62	0	22	0	84
0745 - 0800	0	0	331	7	0	338	0	0	1	0	0	1	0	18	402	0	0	420	0	49	0	11	0	60
0800 - 0815	1	0	303	11	0	315	0	0	1	0	0	1	0	16	403	0	0	419	0	34	0	6	0	40
0815 - 0830	1	0	301	9	0	311	0	0	0	0	0	0	1	10	378	0	0	389	0	32	0	9	0	41
0830 - 0845	0	3	296	7	0	306	0	0	0	1	0	1	0	7	378	1	0	386	0	29	0	7	0	36
0845 - 0900	0	2	283	9	0	294	0	1	0	1	0	2	0	7	370	0	0	377	0	23	0	11	0	34
Grand Total	2	5	3126	134	0	3267	0	1	2	4	0	7	1	206	4833	2	0	5042	0	446	0	113	0	559
Peak Hour Total																								
0715 - 0815	1	0	1284	60	0	1345	0	0	2	2	0	4	0	125	1559	1	0	1685	0	196	0	52	0	248
App %	0.06%	0.15%	95.68%	4.10%			0.00%	14.29%	28.57%	57.14%			0.02%	4.09%	95.85%	0.04%			0.00%	79.79%	0.00%	20.21%		
Int %	0.02%	0.06%	35.22%	1.51%		36.81%	0.00%	0.01%	0.02%	0.05%		0.08%	0.01%	2.32%	54.46%	0.02%		56.81%	0.00%	5.03%	0.00%	1.27%		6.30%
Cars Total	2	5	2878	123			0	1	2	4			1	197	4628	2			0	430	0	112		
Heavy Total	0	0	248	11			0	0	0	0			0	9	205	0			0	16	0	1		
% Cars	100.00%	100.00%	92.07%	91.79%			0.00%	100.00%	100.00%	100.00%			100.00%	95.63%	95.76%	100.00%			0.00%	96.41%	0.00%	99.12%		
% Heavy	0.00%	0.00%	7.93%	8.21%			0.00%	0.00%	0.00%	0.00%			0.00%	4.37%	4.24%	0.00%			0.00%	3.59%	0.00%	0.88%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
Intersection #: 1
Intersection: Nashville Highway and Spring Meade Boulevard

Southbound: Nashville Highway
Westbound: N/A
Northbound: Nashville Highway
Eastbound: Spring Meade Boulevard

Lat/Long: 35.71191583723535, -86.97361732675098

Count Date: 4/7/2022

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

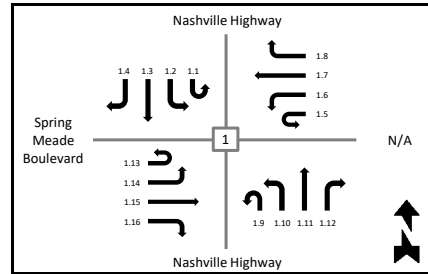
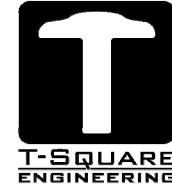
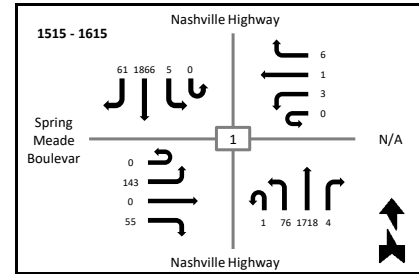


Figure 2 - PM Peak Hour TMC



Time	Southbound						Westbound						Northbound						Eastbound					
	Nashville Highway						N/A						Nashville Highway						Spring Meade Boulevard					
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds X-Walk	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds X-Walk	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds X-Walk	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds X-Walk	App Total
1500 - 1515	0	0	426	17	0	443	0	1	0	2	0	3	1	17	401	1	0	420	0	62	0	29	0	91
1515 - 1530	0	1	412	12	0	425	0	1	0	0	0	1	0	26	406	0	0	432	0	51	0	13	0	64
1530 - 1545	0	0	505	16	0	521	0	0	1	1	0	2	1	6	487	1	0	495	0	33	0	14	0	47
1545 - 1600	0	3	444	14	0	461	0	1	0	2	0	3	0	28	418	1	0	447	0	27	0	14	0	41
1600 - 1615	0	1	505	19	0	525	0	1	0	3	0	4	0	16	407	2	0	425	0	32	0	14	0	46
1615 - 1630	0	1	361	14	0	376	0	1	0	0	0	1	0	24	355	1	0	380	0	23	0	26	0	49
1630 - 1645	0	0	248	5	0	253	0	1	1	1	0	3	2	8	354	1	0	365	0	36	0	22	0	58
1645 - 1700	0	0	260	17	0	277	0	0	2	1	0	3	1	12	355	0	0	368	0	34	0	14	0	48
1700 - 1715	0	0	404	24	0	428	0	1	0	0	0	1	1	16	304	0	0	321	0	34	0	23	0	57
1715 - 1730	0	0	472	18	0	490	0	0	0	0	0	0	0	19	383	1	0	403	0	36	0	20	0	56
1730 - 1745	1	0	487	12	0	500	0	0	0	0	0	0	0	18	353	0	0	371	0	36	0	16	0	52
1745 - 1800	0	0	474	12	0	486	0	1	0	0	0	1	0	26	339	0	0	365	0	22	0	14	0	36
Grand Total	1	6	4998	180	0	5185	0	8	4	10	0	22	6	216	4562	8	0	4792	0	426	0	219	0	645
Peak Hour Total																								
1515 - 1615	0	5	1866	61	0	1932	0	3	1	6	0	10	1	76	1718	4	0	1799	0	143	0	55	0	198
App %	0.02%	0.12%	96.39%	3.47%			0.00%	36.36%	18.18%	45.45%			0.13%	4.51%	95.20%	0.17%			0.00%	66.05%	0.00%	33.95%		
Int %	0.01%	0.06%	46.96%	1.69%		48.71%	0.00%	0.08%	0.04%	0.09%		0.21%	0.06%	2.03%	42.86%	0.08%		45.02%	0.00%	4.00%	0.00%	2.06%		6.06%
Cars Total	1	5	4862	175			0	8	3	8			6	211	4403	8			0	419	0	217		
Heavy Total	0	1	136	5			0	0	1	2			0	5	159	0			0	7	0	2		
% Cars	100.00%	83.33%	97.28%	97.22%			0.00%	100.00%	75.00%	80.00%			100.00%	97.69%	96.51%	100.00%			0.00%	98.36%	0.00%	99.09%		
% Heavy	0.00%	16.67%	2.72%	2.78%			0.00%	0.00%	25.00%	20.00%			0.00%	2.31%	3.49%	0.00%			0.00%	1.64%	0.00%	0.91%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 2
 Intersection: Nashville Highway and Hospitality Drive

Southbound: Nashville Highway
 Westbound: Hospitality Drive
 Northbound: Nashville Highway
 Eastbound: N/A

Lat/Long: 35.70932986039468, -86.9747888968114

Count Date: 4/7/2022

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

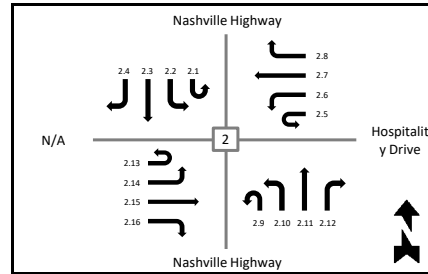
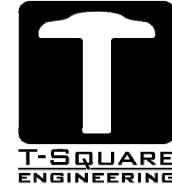
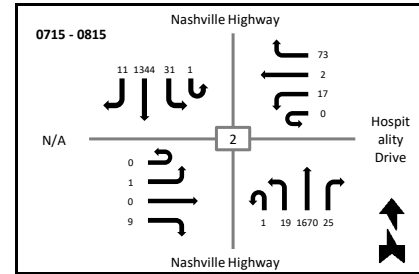


Figure 2 - AM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound Hospitality Drive						Northbound Nashville Highway						Eastbound N/A					
	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds X-Walk	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds X-Walk	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds X-Walk	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds X-Walk	App Total
0600 - 0615	0	1	139	2	0	142	0	3	1	27	0	31	0	1	409	1	0	411	0	0	0	0	0	0
0615 - 0630	0	2	177	1	0	180	0	1	0	29	0	30	0	5	410	5	0	420	0	1	1	0	0	2
0630 - 0645	0	1	195	2	0	198	0	1	1	24	0	26	0	3	472	0	0	475	0	1	0	0	0	1
0645 - 0700	0	2	229	1	0	232	0	0	1	23	0	24	0	3	405	2	0	410	0	0	0	1	0	1
0700 - 0715	1	4	249	2	0	256	0	7	1	24	0	32	0	0	424	10	0	434	0	1	1	1	0	3
0715 - 0730	0	6	304	3	0	313	0	5	1	16	0	22	0	6	443	14	0	463	0	0	0	5	0	5
0730 - 0745	0	9	396	4	0	409	0	5	1	17	0	23	0	5	429	7	0	441	0	0	0	1	0	1
0745 - 0800	0	7	343	0	0	350	0	4	0	18	0	22	1	4	388	1	0	394	0	0	0	2	0	2
0800 - 0815	1	9	301	4	0	315	0	3	0	22	0	25	0	4	410	3	0	417	0	1	0	1	0	2
0815 - 0830	0	5	305	3	0	313	0	3	0	23	0	26	0	0	311	4	0	315	0	0	0	0	0	0
0830 - 0845	0	15	293	7	0	315	0	2	0	23	0	25	1	4	370	4	0	379	0	1	0	1	0	2
0845 - 0900	0	6	292	5	0	303	0	2	0	22	0	24	0	3	334	11	0	348	0	4	0	0	0	4
Grand Total	2	67	3223	34	0	3326	0	36	6	268	0	310	2	38	4805	62	0	4907	0	9	2	12	0	23
Peak Hour Total																								
0715 - 0815	1	31	1344	11	0	1387	0	17	2	73	0	92	1	19	1670	25	0	1715	0	1	0	9	0	10
App %	0.06%	2.01%	96.90%	1.02%			0.00%	11.61%	1.94%	86.45%			0.04%	0.77%	97.92%	1.26%			0.00%	39.13%	8.70%	52.17%		
Int %	0.02%	0.78%	37.63%	0.40%		38.83%	0.00%	0.42%	0.07%	3.13%		3.62%	0.02%	0.44%	56.09%	0.72%		57.28%	0.00%	0.11%	0.02%	0.14%		0.27%
Cars Total	2	67	2968	34			0	35	6	263			2	38	4600	57			0	9	2	12		
Heavy Total	0	0	255	0			0	1	0	5			0	0	205	5			0	0	0	0		
% Cars	100.00%	100.00%	92.09%	100.00%			0.00%	97.22%	100.00%	98.13%			100.00%	100.00%	95.73%	91.94%			0.00%	100.00%	100.00%	100.00%		
% Heavy	0.00%	0.00%	7.91%	0.00%			0.00%	2.78%	0.00%	1.87%			0.00%	0.00%	4.27%	8.06%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 2
 Intersection: Nashville Highway and Hospitality Drive

Southbound: Nashville Highway
 Westbound: Hospitality Drive
 Northbound: Nashville Highway
 Eastbound: N/A

Lat/Long: 35.70932986039468, -86.9747888968114

Count Date: 4/7/2022

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

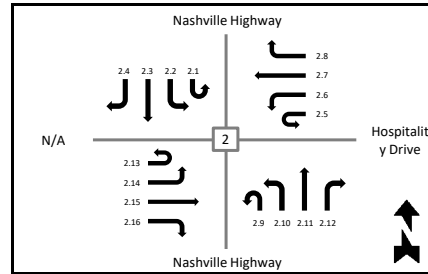
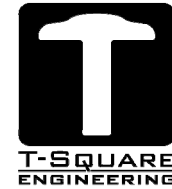
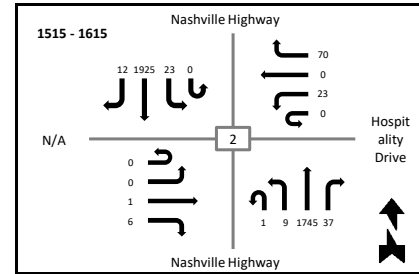


Figure 2 - PM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound Hospitality Drive						Northbound Nashville Highway						Eastbound N/A					
	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds X-Walk	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds X-Walk	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds X-Walk	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds X-Walk	App Total
1500 - 1515	1	11	449	2	0	463	0	8	0	10	0	18	0	4	383	13	0	400	0	0	0	2	0	2
1515 - 1530	0	5	452	4	0	461	0	5	0	12	0	17	0	3	461	10	0	474	0	0	0	1	0	1
1530 - 1545	0	8	496	4	0	508	0	8	0	31	0	39	0	3	433	11	0	447	0	0	0	1	0	1
1545 - 1600	0	6	480	3	0	489	0	4	0	12	0	16	0	1	449	9	0	459	0	0	0	2	0	2
1600 - 1615	0	4	497	1	0	502	0	6	0	15	0	21	1	2	402	7	0	412	0	0	1	2	0	3
1615 - 1630	0	6	388	0	0	394	0	7	0	9	0	16	2	1	368	11	0	382	0	0	0	0	0	0
1630 - 1645	0	1	282	0	0	283	0	6	0	13	0	19	0	5	347	5	0	357	0	0	0	1	0	1
1645 - 1700	1	3	271	0	0	275	0	6	2	12	0	20	0	2	340	7	0	349	0	0	0	1	0	1
1700 - 1715	2	8	438	1	0	449	0	9	0	9	0	18	0	1	312	12	0	325	0	0	0	1	0	1
1715 - 1730	1	12	496	0	0	509	0	4	0	9	0	13	1	0	400	10	0	411	0	0	0	0	0	0
1730 - 1745	2	3	510	0	0	515	0	3	0	16	0	19	0	2	369	15	0	386	0	0	0	2	0	2
1745 - 1800	0	9	469	2	0	480	0	6	2	9	0	17	1	3	354	3	0	361	0	0	0	1	0	1
Grand Total	7	76	5228	17	0	5328	0	72	4	157	0	233	5	27	4618	113	0	4763	0	0	1	14	0	15
Peak Hour Total																								
1515 - 1615	0	23	1925	12	0	1960	0	23	0	70	0	93	1	9	1745	37	0	1792	0	0	1	6	0	7
App %	0.13%	1.43%	98.12%	0.32%			0.00%	30.90%	1.72%	67.38%			0.10%	0.57%	96.96%	2.37%			0.00%	0.00%	6.67%	93.33%		
Int %	0.07%	0.74%	50.57%	0.16%		51.53%	0.00%	0.70%	0.04%	1.52%		2.25%	0.05%	0.26%	44.67%	1.09%		46.07%	0.00%	0.00%	0.01%	0.14%		0.15%
Cars Total	7	75	5091	17			0	72	4	151			5	27	4457	111			0	0	1	14		
Heavy Total	0	1	137	0			0	0	0	6			0	0	161	2			0	0	0	0		
% Cars	100.00%	98.68%	97.38%	100.00%			0.00%	100.00%	100.00%	96.18%			100.00%	100.00%	96.51%	98.23%			0.00%	0.00%	100.00%	100.00%		
% Heavy	0.00%	1.32%	2.62%	0.00%			0.00%	0.00%	0.00%	3.82%			0.00%	0.00%	3.49%	1.77%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 3
 Intersection: Nashville Highway and Old Highway 31

Southbound: Nashville Highway
 Westbound: N/A
 Northbound: Nashville Highway
 Eastbound: Old Highway 31

Lat/Long: 35.70762355411057, -86.97576281240332

Count Date: 4/7/2022

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

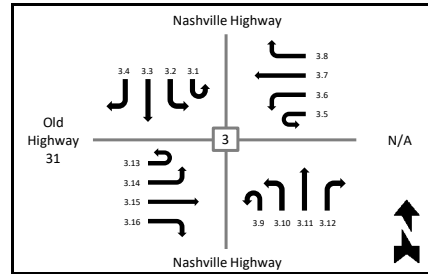
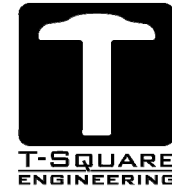
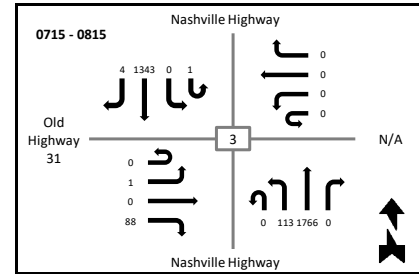


Figure 2 - AM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound N/A						Northbound Nashville Highway						Eastbound Old Highway 31					
	U-Turn 3.1	Left 3.2	Thru 3.3	Right 3.4	Peds X-Walk	App Total	U-Turn 3.5	Left 3.6	Thru 3.7	Right 3.8	Peds X-Walk	App Total	U-Turn 3.9	Left 3.10	Thru 3.11	Right 3.12	Peds X-Walk	App Total	U-Turn 3.13	Left 3.14	Thru 3.15	Right 3.16	Peds X-Walk	App Total
0600 - 0615	0	0	140	0	0	140	0	0	0	0	0	0	0	5	440	0	0	445	0	0	0	4	0	4
0615 - 0630	0	0	177	1	0	178	0	0	0	0	0	0	0	8	451	0	0	459	0	0	0	6	0	6
0630 - 0645	0	0	196	1	0	197	0	0	0	0	0	0	0	32	489	0	0	521	0	1	0	4	0	5
0645 - 0700	0	0	233	1	0	234	0	0	0	0	0	0	0	32	448	0	0	480	0	0	0	5	0	5
0700 - 0715	0	0	254	2	0	256	0	0	0	0	0	0	0	31	442	0	0	473	0	0	0	12	0	12
0715 - 0730	0	0	304	2	0	306	0	0	0	0	0	0	0	52	463	0	0	515	0	0	0	20	0	20
0730 - 0745	0	0	392	0	0	392	0	0	0	0	0	0	0	34	454	0	0	488	0	0	0	25	0	25
0745 - 0800	0	0	347	1	0	348	0	0	0	0	0	0	0	15	416	0	0	431	0	0	0	31	0	31
0800 - 0815	1	0	300	1	0	302	0	0	0	0	0	0	0	12	433	0	0	445	0	1	0	12	0	13
0815 - 0830	0	0	304	4	0	308	0	0	0	0	0	0	0	11	395	0	0	406	0	1	0	11	0	12
0830 - 0845	0	0	299	0	0	299	0	0	0	0	0	0	0	6	398	0	0	404	0	0	0	14	0	14
0845 - 0900	0	0	289	2	0	291	0	0	0	0	0	0	1	7	365	0	0	373	0	1	0	13	0	14
Grand Total	1	0	3235	15	0	3251	0	0	0	0	0	0	1	245	5194	0	0	5440	0	4	0	157	0	161
Peak Hour Total																								
0715 - 0815	1	0	1343	4	0	1348	0	0	0	0	0	0	0	113	1766	0	0	1879	0	1	0	88	0	89
App %	0.03%	0.00%	99.51%	0.46%			0.00%	0.00%	0.00%	0.00%			0.02%	4.50%	95.48%	0.00%			0.00%	2.48%	0.00%	97.52%		
Int %	0.01%	0.00%	36.55%	0.17%		36.73%	0.00%	0.00%	0.00%	0.00%		0.00%	0.01%	2.77%	58.68%	0.00%		61.46%	0.00%	0.05%	0.00%	1.77%		1.82%
Cars Total	1	0	2984	14			0	0	0	0			1	229	4977	0			0	4	0	138		
Heavy Total	0	0	251	1			0	0	0	0			0	16	217	0			0	0	0	19		
% Cars	100.00%	0.00%	92.24%	93.33%			0.00%	0.00%	0.00%	0.00%			100.00%	93.47%	95.82%	0.00%			0.00%	100.00%	0.00%	87.90%		
% Heavy	0.00%	0.00%	7.76%	6.67%			0.00%	0.00%	0.00%	0.00%			0.00%	6.53%	4.18%	0.00%			0.00%	0.00%	0.00%	12.10%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 3
 Intersection: Nashville Highway and Old Highway 31

Southbound: Nashville Highway
 Westbound: N/A
 Northbound: Nashville Highway
 Eastbound: Old Highway 31

Lat/Long: 35.70762355411057, -86.97576281240332

Count Date: 4/7/2022

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

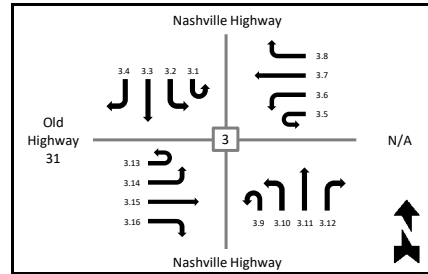
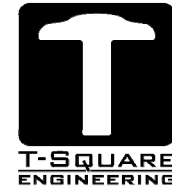
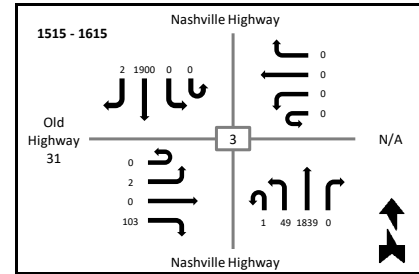


Figure 2 - PM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	Nashville Highway						N/A						Nashville Highway						Old Highway 31					
Time	U-Turn 3.1	Left 3.2	Thru 3.3	Right 3.4	Peds X-Walk	App Total	U-Turn 3.5	Left 3.6	Thru 3.7	Right 3.8	Peds X-Walk	App Total	U-Turn 3.9	Left 3.10	Thru 3.11	Right 3.12	Peds X-Walk	App Total	U-Turn 3.13	Left 3.14	Thru 3.15	Right 3.16	Peds X-Walk	App Total
1500 - 1515	1	0	452	1	0	454	0	0	0	0	0	0	0	8	416	0	0	424	0	2	0	33	0	35
1515 - 1530	0	0	458	2	0	460	0	0	0	0	0	0	0	14	488	0	0	502	0	1	0	35	0	36
1530 - 1545	0	0	449	0	0	449	0	0	0	0	0	0	1	12	460	0	0	473	0	0	0	23	0	23
1545 - 1600	0	0	486	0	0	486	0	0	0	0	0	0	0	12	476	0	0	488	0	0	0	16	0	16
1600 - 1615	0	0	507	0	0	507	0	0	0	0	0	0	0	11	415	0	0	426	0	1	0	29	0	30
1615 - 1630	0	0	400	1	0	401	0	0	0	0	0	0	0	10	390	0	0	400	0	0	0	17	0	17
1630 - 1645	0	0	285	2	0	287	0	0	0	0	0	0	0	19	369	0	0	388	0	1	0	46	0	47
1645 - 1700	1	0	280	0	0	281	0	0	0	0	0	0	0	14	354	0	0	368	0	1	0	57	0	58
1700 - 1715	0	0	444	0	0	444	0	0	0	0	0	0	1	7	328	0	0	336	0	0	0	40	0	40
1715 - 1730	2	0	483	0	0	485	0	0	0	0	0	0	0	6	403	0	0	409	0	0	0	34	0	34
1730 - 1745	0	0	530	2	0	532	0	0	0	0	0	0	0	4	389	0	0	393	0	1	0	29	0	30
1745 - 1800	0	0	485	0	0	485	0	0	0	0	0	0	0	7	377	0	0	384	0	0	0	13	0	13
Grand Total	4	0	5259	8	0	5271	0	0	0	0	0	0	2	124	4865	0	0	4991	0	7	0	372	0	379
Peak Hour Total																								
1515 - 1615	0	0	1900	2	0	1902	0	0	0	0	0	0	1	49	1839	0	0	1889	0	2	0	103	0	105
App %	0.08%	0.00%	99.77%	0.15%			0.00%	0.00%	0.00%	0.00%			0.04%	2.48%	97.48%	0.00%			0.00%	1.85%	0.00%	98.15%		
Int %	0.04%	0.00%	49.42%	0.08%		49.53%	0.00%	0.00%	0.00%	0.00%		0.00%	0.02%	1.17%	45.72%	0.00%		46.90%	0.00%	0.07%	0.00%	3.50%		3.56%
Cars Total	4	0	5124	8			0	0	0	0			2	121	4702	0			0	7	0	362		
Heavy Total	0	0	135	0			0	0	0	0			0	3	163	0			0	0	0	10		
% Cars	100.00%	0.00%	97.43%	100.00%			0.00%	0.00%	0.00%	0.00%			100.00%	97.58%	96.65%	0.00%			0.00%	100.00%	0.00%	97.31%		
% Heavy	0.00%	0.00%	2.57%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	2.42%	3.35%	0.00%			0.00%	0.00%	0.00%	2.69%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 4
 Intersection: Arden Village Drive and Grove Park Way

Southbound: Nashville Highway
 Westbound: Grove Park Way
 Northbound: Nashville Highway
 Eastbound: Arden Village Drive

Lat/Long: 35.7060835576897, -86.97670463876794

Count Date: 4/7/2022

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

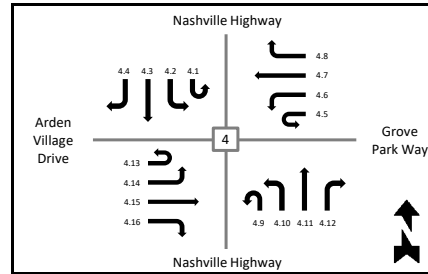
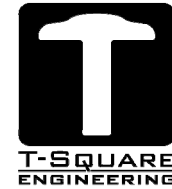
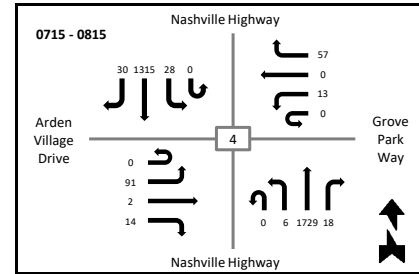


Figure 2 - AM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound Grove Park Way						Northbound Nashville Highway						Eastbound Arden Village Drive					
	U-Turn 4.1	Left 4.2	Thru 4.3	Right 4.4	Peds X-Walk	App Total	U-Turn 4.5	Left 4.6	Thru 4.7	Right 4.8	Peds X-Walk	App Total	U-Turn 4.9	Left 4.10	Thru 4.11	Right 4.12	Peds X-Walk	App Total	U-Turn 4.13	Left 4.14	Thru 4.15	Right 4.16	Peds X-Walk	App Total
0600 - 0615	0	0	136	2	0	138	0	4	0	3	0	7	0	1	418	1	0	420	0	12	0	3	0	15
0615 - 0630	0	1	176	5	0	182	0	0	0	9	0	9	0	0	439	0	0	439	0	15	0	0	0	15
0630 - 0645	0	3	191	1	0	195	0	2	0	6	0	8	0	0	494	1	0	495	0	19	0	0	0	19
0645 - 0700	0	3	239	3	0	245	0	4	0	13	0	17	0	1	448	5	0	454	0	19	0	6	0	25
0700 - 0715	0	2	248	5	0	255	0	3	0	20	0	23	0	4	435	4	0	443	0	34	0	8	0	42
0715 - 0730	0	3	308	8	0	319	0	1	0	22	0	23	0	2	476	4	0	482	0	28	0	1	0	29
0730 - 0745	0	7	373	7	0	387	0	4	0	18	0	22	0	3	440	6	0	449	0	22	1	9	0	32
0745 - 0800	0	8	348	7	0	363	0	3	0	10	0	13	0	1	395	3	0	399	0	19	0	3	0	22
0800 - 0815	0	10	286	8	0	304	0	5	0	7	0	12	0	0	418	5	0	423	0	22	1	1	0	24
0815 - 0830	0	8	293	9	0	310	0	5	0	9	0	14	0	1	369	5	0	375	0	16	0	2	0	18
0830 - 0845	0	8	302	4	0	314	0	6	1	12	0	19	1	1	379	4	0	385	0	18	0	1	0	19
0845 - 0900	0	9	287	9	0	305	0	4	0	13	0	17	1	1	354	0	0	356	0	15	1	7	0	23
Grand Total	0	62	3187	68	0	3317	0	41	1	142	0	184	2	15	5065	38	0	5120	0	239	3	41	0	283
Peak Hour Total	0	28	1315	30	0	1373	0	13	0	57	0	70	0	6	1729	18	0	1753	0	91	2	14	0	107
App %	0.00%	1.87%	96.08%	2.05%			0.00%	22.28%	0.54%	77.17%			0.04%	0.29%	98.93%	0.74%			0.00%	84.45%	1.06%	14.49%		
Int %	0.00%	0.70%	35.79%	0.76%		37.25%	0.00%	0.46%	0.01%	1.59%		2.07%	0.02%	0.17%	56.88%	0.43%		57.50%	0.00%	2.68%	0.03%	0.46%		3.18%
Cars Total	0	60	2917	65			0	41	0	139			2	13	4834	36			0	239	3	41		
Heavy Total	0	2	270	3			0	0	1	3			0	2	231	2			0	0	0	0		
% Cars	0.00%	96.77%	91.53%	95.59%			0.00%	100.00%	0.00%	97.89%			100.00%	86.67%	95.44%	94.74%			0.00%	100.00%	100.00%	100.00%		
% Heavy	0.00%	3.23%	8.47%	4.41%			0.00%	0.00%	100.00%	2.11%			0.00%	13.33%	4.56%	5.26%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 4
 Intersection: Arden Village Drive and Grove Park Way

Southbound: Nashville Highway
 Westbound: Grove Park Way
 Northbound: Nashville Highway
 Eastbound: Arden Village Drive

Lat/Long: 35.7060835576897, -86.97670463876794

Count Date: 4/7/2022

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

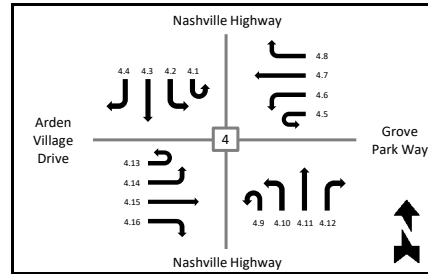
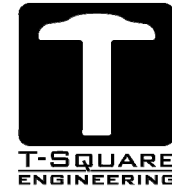
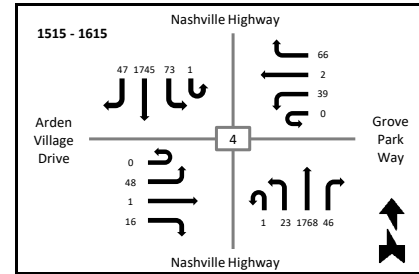


Figure 2 - PM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound Grove Park Way						Northbound Nashville Highway						Eastbound Arden Village Drive					
	U-Turn 4.1	Left 4.2	Thru 4.3	Right 4.4	Peds X-Walk	App Total	U-Turn 4.5	Left 4.6	Thru 4.7	Right 4.8	Peds X-Walk	App Total	U-Turn 4.9	Left 4.10	Thru 4.11	Right 4.12	Peds X-Walk	App Total	U-Turn 4.13	Left 4.14	Thru 4.15	Right 4.16	Peds X-Walk	App Total
1500 - 1515	0	13	430	17	0	460	0	11	0	5	0	16	0	5	415	10	0	430	0	8	0	5	0	13
1515 - 1530	1	15	424	15	0	455	0	6	0	24	0	30	0	6	459	13	0	478	0	16	0	3	0	19
1530 - 1545	0	18	460	10	0	488	0	14	1	16	0	31	0	6	458	12	0	476	0	8	0	4	0	12
1545 - 1600	0	17	396	13	0	426	0	10	0	14	0	24	1	7	457	10	0	475	0	16	0	4	0	20
1600 - 1615	0	23	465	9	0	497	0	9	1	12	0	22	0	4	394	11	0	409	0	8	1	5	0	14
1615 - 1630	0	16	354	12	0	382	0	10	1	17	0	28	0	6	382	6	0	394	0	9	1	6	0	16
1630 - 1645	1	19	291	11	0	322	0	9	2	8	0	19	0	5	359	13	0	377	0	13	1	4	0	18
1645 - 1700	0	11	293	14	0	318	0	10	0	16	0	26	0	3	356	4	0	363	0	9	0	6	0	15
1700 - 1715	0	16	428	22	0	466	0	3	0	13	0	16	0	9	314	11	0	334	0	18	1	8	0	27
1715 - 1730	2	19	439	26	0	486	0	13	0	13	0	26	0	8	377	9	0	394	0	12	0	2	0	14
1730 - 1745	0	20	464	30	0	514	0	7	1	23	0	31	0	7	354	11	0	372	0	11	1	0	0	12
1745 - 1800	0	15	448	31	0	494	0	7	0	23	0	30	0	4	355	8	0	367	0	10	1	3	0	14
Grand Total	4	202	4892	210	0	5308	0	109	6	184	0	299	1	70	4680	118	0	4869	0	138	6	50	0	194
Peak Hour Total																								
1515 - 1615	1	73	1745	47	0	1866	0	39	2	66	0	107	1	23	1768	46	0	1838	0	48	1	16	0	65
App %	0.08%	3.81%	92.16%	3.96%			0.00%	36.45%	2.01%	61.54%			0.02%	1.44%	96.12%	2.42%			0.00%	71.13%	3.09%	25.77%		
Int %	0.04%	1.89%	45.85%	1.97%		49.75%	0.00%	1.02%	0.06%	1.72%		2.80%	0.01%	0.66%	43.86%	1.11%		45.63%	0.00%	1.29%	0.06%	0.47%		1.82%
Cars Total	4	200	4747	208			0	106	6	183			1	69	4514	116			0	137	6	48		
Heavy Total	0	2	145	2			0	3	0	1			0	1	166	2			0	1	0	2		
% Cars	100.00%	99.01%	97.04%	99.05%			0.00%	97.25%	100.00%	99.46%			100.00%	98.57%	96.45%	98.31%			0.00%	99.28%	100.00%	96.00%		
% Heavy	0.00%	0.99%	2.96%	0.95%			0.00%	2.75%	0.00%	0.54%			0.00%	1.43%	3.55%	1.69%			0.00%	0.72%	0.00%	4.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 5
 Intersection: Nashville Highway and Greens Mill Road

Southbound: Nashville Highway
 Westbound: Greens Mill Road
 Northbound: Nashville Highway
 Eastbound: N/A

Lat/Long: 35.70269647506504, -86.97937283171547

Count Date: 4/7/2022

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

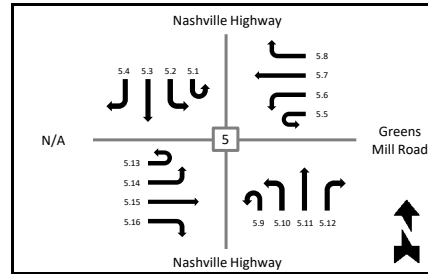
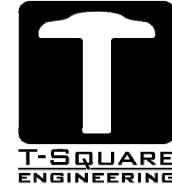
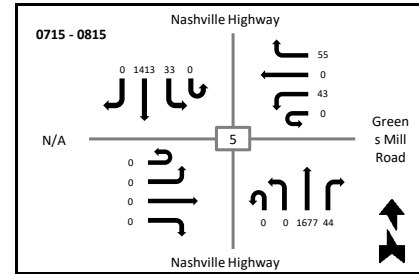


Figure 2 - AM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound Greens Mill Road						Northbound Nashville Highway						Eastbound N/A					
	U-Turn S.1	Left S.2	Thru S.3	Right S.4	Peds X-Walk	App Total	U-Turn S.5	Left S.6	Thru S.7	Right S.8	Peds X-Walk	App Total	U-Turn S.9	Left S.10	Thru S.11	Right S.12	Peds X-Walk	App Total	U-Turn S.13	Left S.14	Thru S.15	Right S.16	Peds X-Walk	App Total
0600 - 0615	0	1	204	0	0	205	0	1	0	2	0	3	0	0	414	1	0	415	0	0	0	0	0	0
0615 - 0630	0	2	178	0	0	180	0	3	0	4	0	7	0	0	440	3	0	443	0	0	0	0	0	0
0630 - 0645	0	1	207	0	0	208	0	6	0	8	0	14	0	0	476	3	0	479	0	0	0	0	0	0
0645 - 0700	0	3	241	0	0	244	0	7	0	7	0	14	0	0	452	14	0	466	0	0	0	0	0	0
0700 - 0715	0	5	250	0	0	255	0	4	0	21	0	25	0	0	452	16	0	468	0	0	0	0	0	0
0715 - 0730	0	11	317	0	0	328	0	12	0	26	0	38	0	0	420	20	0	440	0	0	0	0	0	0
0730 - 0745	0	9	422	0	0	431	0	10	0	21	0	31	0	0	438	8	0	446	0	0	0	0	0	0
0745 - 0800	0	8	367	0	0	375	0	16	0	1	0	17	0	0	415	10	0	425	0	0	0	0	0	0
0800 - 0815	0	5	307	0	0	312	0	5	0	7	0	12	0	0	404	6	0	410	0	0	0	0	0	0
0815 - 0830	0	5	313	0	0	318	0	9	0	10	0	19	0	0	362	3	0	365	0	0	0	0	0	0
0830 - 0845	0	2	311	0	0	313	0	6	0	11	0	17	0	0	395	5	0	400	0	0	0	0	0	0
0845 - 0900	0	5	306	0	0	311	0	8	0	8	0	16	0	0	337	4	0	341	0	0	0	0	0	0
Grand Total	0	57	3423	0	0	3480	0	87	0	126	0	213	0	0	5005	93	0	5098	0	0	0	0	0	0
Peak Hour Total	0	33	1413	0	0	1446	0	43	0	55	0	98	0	0	1677	44	0	1721	0	0	0	0	0	0
App %	0.00%	1.64%	98.36%	0.00%			0.00%	40.85%	0.00%	59.15%			0.00%	0.00%	98.18%	1.82%			0.00%	0.00%	0.00%	0.00%		
Int %	0.00%	0.65%	38.94%	0.00%		39.59%	0.00%	0.99%	0.00%	1.43%		2.42%	0.00%	0.00%	56.93%	1.06%		57.99%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	0	54	3160	0			0	84	0	120			0	0	4777	92			0	0	0	0		
Heavy Total	0	3	263	0			0	3	0	6			0	0	228	1			0	0	0	0		
% Cars	0.00%	94.74%	92.32%	0.00%			0.00%	96.55%	0.00%	95.24%			0.00%	0.00%	95.44%	98.92%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	5.26%	7.68%	0.00%			0.00%	3.45%	0.00%	4.76%			0.00%	0.00%	4.56%	1.08%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 5
 Intersection: Nashville Highway and Greens Mill Road

Southbound: Nashville Highway
 Westbound: Greens Mill Road
 Northbound: Nashville Highway
 Eastbound: N/A

Lat/Long: 35.70269647506504, -86.97937283171547

Count Date: 4/7/2022

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

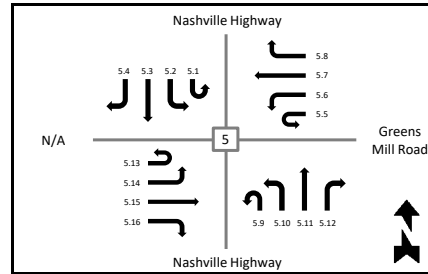
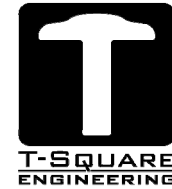
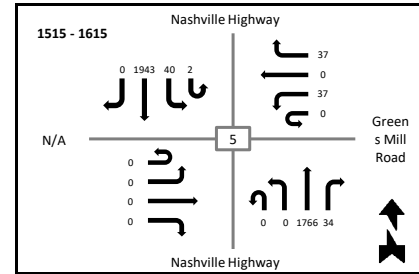


Figure 2 - PM Peak Hour TMC



Time	Southbound Nashville Highway						Westbound Greens Mill Road						Northbound Nashville Highway						Eastbound N/A					
	U-Turn 5.1	Left 5.2	Thru 5.3	Right 5.4	Peds X-Walk	App Total	U-Turn 5.5	Left 5.6	Thru 5.7	Right 5.8	Peds X-Walk	App Total	U-Turn 5.9	Left 5.10	Thru 5.11	Right 5.12	Peds X-Walk	App Total	U-Turn 5.13	Left 5.14	Thru 5.15	Right 5.16	Peds X-Walk	App Total
1500 - 1515	1	20	460	0	0	481	0	12	0	4	0	16	0	0	426	11	0	437	0	0	0	0	0	0
1515 - 1530	0	8	468	0	0	476	0	5	0	10	0	15	0	0	484	11	0	495	0	0	0	0	0	0
1530 - 1545	0	15	472	0	0	487	0	12	0	11	0	23	0	0	462	7	0	469	0	0	0	0	0	0
1545 - 1600	0	13	486	0	0	499	0	11	0	8	0	19	0	0	444	10	0	454	0	0	0	0	0	0
1600 - 1615	2	4	517	0	0	523	0	9	0	8	0	17	0	0	376	6	0	382	0	0	0	0	0	0
1615 - 1630	0	7	403	0	0	410	0	8	0	5	0	13	0	0	394	11	0	405	0	0	0	0	0	0
1630 - 1645	0	8	321	0	0	329	0	11	0	7	0	18	0	0	370	13	0	383	0	0	0	0	0	0
1645 - 1700	0	13	298	0	0	311	0	16	0	11	0	27	0	0	358	9	0	367	0	0	0	0	0	0
1700 - 1715	1	3	447	0	0	451	0	7	0	14	0	21	0	0	326	12	0	338	0	0	0	0	0	0
1715 - 1730	0	11	475	0	0	486	0	22	0	13	0	35	0	0	388	9	0	397	0	0	0	0	0	0
1730 - 1745	0	9	508	0	0	517	0	18	0	7	0	25	0	0	361	7	0	368	0	0	0	0	0	0
1745 - 1800	1	2	477	0	0	480	0	4	0	8	0	12	0	0	339	10	0	349	0	0	0	0	0	0
Grand Total	5	113	5332	0	0	5450	0	135	0	106	0	241	0	0	4728	116	0	4844	0	0	0	0	0	0
Peak Hour Total																								
1515 - 1615	2	40	1943	0	0	1985	0	37	0	37	0	74	0	0	1766	34	0	1800	0	0	0	0	0	0
App %	0.09%	2.07%	97.83%	0.00%			0.00%	56.02%	0.00%	43.98%			0.00%	0.00%	97.61%	2.39%			0.00%	0.00%	0.00%	0.00%		
Int %	0.05%	1.07%	50.61%	0.00%		51.73%	0.00%	1.28%	0.00%	1.01%		2.29%	0.00%	0.00%	44.88%	1.10%		45.98%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	5	112	5186	0			0	132	0	103			0	0	4565	111			0	0	0	0		
Heavy Total	0	1	146	0			0	3	0	3			0	0	163	5			0	0	0	0		
% Cars	100.00%	99.12%	97.26%	0.00%			0.00%	97.78%	0.00%	97.17%			0.00%	0.00%	96.55%	95.69%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	0.88%	2.74%	0.00%			0.00%	2.22%	0.00%	2.83%			0.00%	0.00%	3.45%	4.31%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 6
 Intersection: Nashville Highway and Hidden Creek Way

Southbound: Nashville Highway
 Westbound: N/A
 Northbound: Nashville Highway
 Eastbound: Hidden Creek Way

Lat/Long: 35.700224995006906, -86.98192457861359

Count Date: 4/7/2022

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

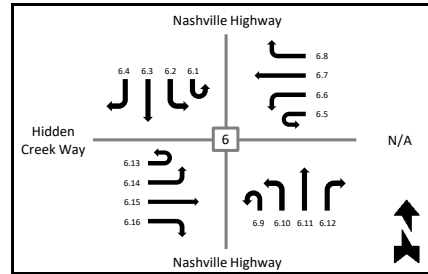
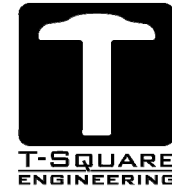
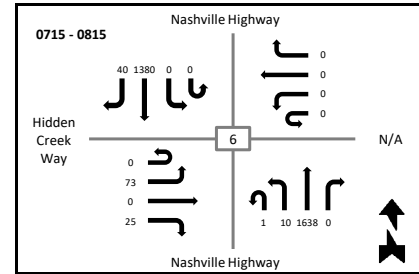


Figure 2 - AM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	Nashville Highway						N/A						Nashville Highway						Hidden Creek Way					
Time	U-Turn 6.1	Left 6.2	Thru 6.3	Right 6.4	Peds X-Walk	App Total	U-Turn 6.5	Left 6.6	Thru 6.7	Right 6.8	Peds X-Walk	App Total	U-Turn 6.9	Left 6.10	Thru 6.11	Right 6.12	Peds X-Walk	App Total	U-Turn 6.13	Left 6.14	Thru 6.15	Right 6.16	Peds X-Walk	App Total
0600 - 0615	0	0	144	1	0	145	0	0	0	0	0	0	0	1	384	0	0	385	0	9	0	4	0	13
0615 - 0630	0	0	183	4	0	187	0	0	0	0	0	0	0	1	422	0	0	423	0	13	0	4	0	17
0630 - 0645	0	0	203	1	0	204	0	0	0	0	0	0	0	5	472	0	0	477	0	10	0	5	0	15
0645 - 0700	0	0	247	4	0	251	0	0	0	0	0	0	0	0	457	0	0	457	0	20	0	6	0	26
0700 - 0715	0	0	262	7	0	269	0	0	0	0	0	0	0	1	441	0	0	442	0	25	0	13	0	38
0715 - 0730	0	0	318	6	0	324	0	0	0	0	0	0	0	2	423	0	0	425	0	21	0	7	0	28
0730 - 0745	0	0	407	13	0	420	0	0	0	0	0	0	0	2	423	0	0	425	0	19	0	10	0	29
0745 - 0800	0	0	369	9	0	378	0	0	0	0	0	0	0	3	400	0	0	403	0	14	0	3	0	17
0800 - 0815	0	0	286	12	0	298	0	0	0	0	0	0	1	3	392	0	0	396	0	19	0	5	0	24
0815 - 0830	0	0	304	15	0	319	0	0	0	0	0	0	0	3	353	0	0	356	0	9	0	5	0	14
0830 - 0845	0	0	319	13	0	332	0	0	0	0	0	0	0	5	383	0	0	388	0	12	0	11	0	23
0845 - 0900	0	0	291	11	0	302	0	0	0	0	0	0	0	2	330	0	0	332	0	10	0	5	0	15
Grand Total	0	0	3333	96	0	3429	0	0	0	0	0	0	1	28	4880	0	0	4909	0	181	0	78	0	259
Peak Hour Total																								
0715 - 0815	0	0	1380	40	0	1420	0	0	0	0	0	0	1	10	1638	0	0	1649	0	73	0	25	0	98
App %	0.00%	0.00%	97.20%	2.80%			0.00%	0.00%	0.00%	0.00%			0.02%	0.57%	99.41%	0.00%			0.00%	69.88%	0.00%	30.12%		
Int %	0.00%	0.00%	38.77%	1.12%		39.89%	0.00%	0.00%	0.00%	0.00%		0.00%	0.01%	0.33%	56.76%	0.00%		57.10%	0.00%	2.11%	0.00%	0.91%		3.01%
Cars Total	0	0	3078	92			0	0	0	0			1	26	4649	0			0	179	0	75		
Heavy Total	0	0	255	4			0	0	0	0			0	2	231	0			0	2	0	3		
% Cars	0.00%	0.00%	92.35%	95.83%			0.00%	0.00%	0.00%	0.00%			100.00%	92.86%	95.27%	0.00%			0.00%	98.90%	0.00%	96.15%		
% Heavy	0.00%	0.00%	7.65%	4.17%			0.00%	0.00%	0.00%	0.00%			0.00%	7.14%	4.73%	0.00%			0.00%	1.10%	0.00%	3.85%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 6
 Intersection #: 6
 Intersection: Nashville Highway and Hidden Creek Way

Southbound: Nashville Highway
 Westbound: N/A
 Northbound: Nashville Highway
 Eastbound: Hidden Creek Way

Lat/Long: 35.700224995006906, -86.98192457861359

Count Date: 4/7/2022

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

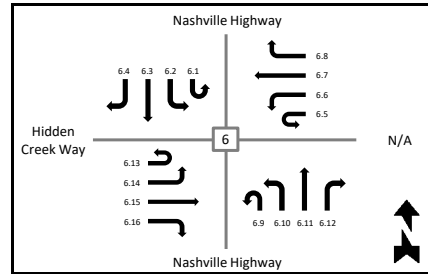
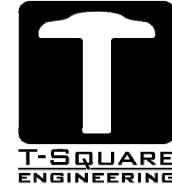
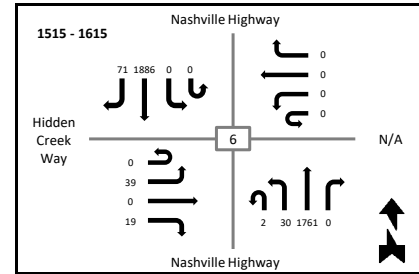


Figure 2 - PM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	Nashville Highway						N/A						Nashville Highway						Hidden Creek Way					
Time	U-Turn 6.1	Left 6.2	Thru 6.3	Right 6.4	Peds X-Walk	App Total	U-Turn 6.5	Left 6.6	Thru 6.7	Right 6.8	Peds X-Walk	App Total	U-Turn 6.9	Left 6.10	Thru 6.11	Right 6.12	Peds X-Walk	App Total	U-Turn 6.13	Left 6.14	Thru 6.15	Right 6.16	Peds X-Walk	App Total
1500 - 1515	0	0	452	21	0	473	0	0	0	0	0	0	0	2	434	0	0	436	0	8	0	2	0	10
1515 - 1530	0	0	437	17	0	454	0	0	0	0	0	0	0	2	470	0	0	472	0	6	0	10	0	16
1530 - 1545	0	0	483	18	0	501	0	0	0	0	0	0	1	5	486	0	0	492	0	7	0	3	0	10
1545 - 1600	0	0	448	16	0	464	0	0	0	0	0	0	1	12	415	0	0	428	0	11	0	4	0	15
1600 - 1615	0	0	518	20	0	538	0	0	0	0	0	0	0	11	390	0	0	401	0	15	0	2	0	17
1615 - 1630	0	0	407	7	0	414	0	0	0	0	0	0	1	5	399	0	0	405	0	11	0	7	0	18
1630 - 1645	0	0	307	13	0	320	0	0	0	0	0	0	0	2	355	0	0	357	0	12	0	7	0	19
1645 - 1700	0	0	311	12	0	323	0	0	0	0	0	0	0	4	358	0	0	362	0	10	0	9	0	19
1700 - 1715	0	0	427	20	0	447	0	0	0	0	0	0	0	3	338	0	0	341	0	19	0	4	0	23
1715 - 1730	0	0	460	27	0	487	0	0	0	0	0	0	0	8	361	0	0	369	0	14	0	1	0	15
1730 - 1745	0	0	478	28	0	506	0	0	0	0	0	0	1	10	358	0	0	369	0	15	0	2	0	17
1745 - 1800	0	0	437	28	0	465	0	0	0	0	0	0	0	3	332	0	0	335	0	14	0	4	0	18
Grand Total	0	0	5165	227	0	5392	0	0	0	0	0	0	4	67	4696	0	0	4767	0	142	0	55	0	197
Peak Hour Total																								
1515 - 1615	0	0	1886	71	0	1957	0	0	0	0	0	0	2	30	1761	0	0	1793	0	39	0	19	0	58
App %	0.00%	0.00%	95.79%	4.21%			0.00%	0.00%	0.00%	0.00%			0.08%	1.41%	98.51%	0.00%			0.00%	72.08%	0.00%	27.92%		
Int %	0.00%	0.00%	49.87%	2.19%		52.07%	0.00%	0.00%	0.00%	0.00%		0.00%	0.04%	0.65%	45.35%	0.00%		46.03%	0.00%	1.37%	0.00%	0.53%		1.90%
Cars Total	0	0	5026	224			0	0	0	0			4	64	4528	0			0	140	0	50		
Heavy Total	0	0	139	3			0	0	0	0			0	3	168	0			0	2	0	5		
% Cars	0.00%	0.00%	97.31%	98.68%			0.00%	0.00%	0.00%	0.00%			100.00%	95.52%	96.42%	0.00%			0.00%	98.59%	0.00%	90.91%		
% Heavy	0.00%	0.00%	2.69%	1.32%			0.00%	0.00%	0.00%	0.00%			0.00%	4.48%	3.58%	0.00%			0.00%	1.41%	0.00%	9.09%		

LOCAL CONTROLLER PROGRAMMING

14 EPAC300 PROGRAM LOG

Prepared By: <u>NSI</u> :	Neel-Schaffer, Inc	Date: <u>3/31/2021</u>
Approved By: _____ :		Date: _____
Intersection ID: _____ :	Arden Village Dr AT Nashville Highway	

UTILITIES ACCESS

Access Code..... : _____ Codes: Four Digits (0000-9999)

PHASE DATA VEHICLE TIMINGS

Basic Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green		5	25	7	7	5	25										
Passage Time		2.0	5.0	3.0	3.0	2.0	5.0										
Maximum No 1		15	45	20	20	15	45										
Maximum No 2		20	55	30	30	20	55										
Yellow Change		4.5	5.0	3.5	3.5	4.0	5.0										
Red Clearance		2.5	1.5	3.0	3.0	2.5	1.5										

Density Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seconds/Actuation																	
Maximum Initial																	
Time B4 Reduction																	
Cars B4 Reduction																	
Time To Reduce																	
Minimum Gap																	

PHASE DATA PEDESTRIAN TIMINGS & CONTROL

Pedestrian Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk																	
Pedestrian Clearance																	

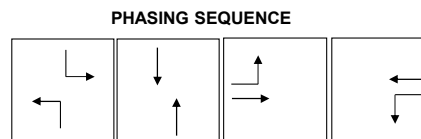
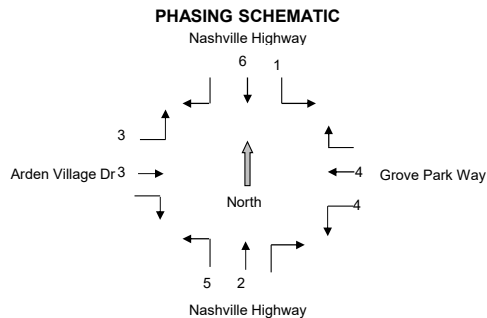
Pedestrian Control	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Walk.....																	
Extended Pedestrian Clear :																	
Act Rest In Walk																	

Pedestrian Control Entry : "1" = Yes & "0" = No

PHASE DATA VEHICLE CONTROL

Veh Control	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Non-Lock Memory		X		X	X	X											
Dual Entry																	
Last Car Passage																	
Conditional Service																	
No Simultaneous Gap																	
Minimum Recall.....		X				X											

Vehicle Control Entry : "1" = Yes & "0" = No



COORDINATION AND OPERATION

Intersection ID: 0 Arden Village Dr AT Nashville Highway

COORD DATA MODE

Control	Codes:	0	1	2	3	4	5
Operation		FRE	AUT	MAN	-	-	-
Mode		PRM	YLD	PYL	POM	SOM	FAC
Maximum		INH	MX1	MX2	-	-	-
Correction		DW	MDW	SWY	SW+	-	-
Offset (?? Of Green)		BEGIN	END OF GREEN				
Force		PLAN	CYCLE TIME				
Max Dwell Time		Time in Seconds					
Yield Period		Time in Seconds					
Manual Pattern (Dial/Split/Offset)		1 / 1 / 1					

COORD DATA TIMING PLANS

Control	Timing Plan :	D1/S1	D1/S2	D1/S3	D1/S4	D2/S1	D2/S2	D2/S3	D2/S4
Cycle Length		105				120			
Phase 01 Time/Mode		15 /	/	/	/	17 /	/	/	/
Phase 02 Time/Mode		50 / 1	/	/	/	56 / 1	/	/	/
Phase 03 Time/Mode		20 /	/	/	/	24 /	/	/	/
Phase 04 Time/Mode		20 /	/	/	/	23 /	/	/	/
Phase 05 Time/Mode		15 /	/	/	/	17 /	/	/	/
Phase 06 Time/Mode		50 / 1	/	/	/	56 / 1	/	/	/
Phase 07 Time/Mode		/	/	/	/	/	/	/	/
Phase 08 Time/Mode		/	/	/	/	/	/	/	/
Offset 1		103				119			
Offset 2									
Offset 3									
Offset Pattern Mode									

Control	Timing Plan :	D3/S1	D3/S2	D3/S3	D3/S4	D4/S1	D4/S2	D4/S3	D4/S4
Cycle Length		130	130			140			
Phase 01 Time/Mode		17 /	19 /	/	/	19 /	/	/	/
Phase 02 Time/Mode		69 / 1	68 / 1	/	/	72 / 1	/	/	/
Phase 03 Time/Mode		23 /	22 /	/	/	25 /	/	/	/
Phase 04 Time/Mode		21 /	21 /	/	/	24 /	/	/	/
Phase 05 Time/Mode		17 /	15 /	/	/	16 /	/	/	/
Phase 06 Time/Mode		69 / 1	72 / 1	/	/	75 / 1	/	/	/
Phase 07 Time/Mode		/	/	/	/	/	/	/	/
Phase 08 Time/Mode		/	/	/	/	/	/	/	/
Offset 1		18				31			
Offset 2			5						
Offset 3									
Offset Pattern Mode									

Codes							
Phase Mode		0 - Actuated	1 - Coord Phase	2 - Min Rec	3 - Max Rec		
		4 - Ped Rec	5 - Max+Ped Recall	6 - Phase Omitted	7 - Dual Coord Phase		
Pattern Mode		0-Normal / 1-Perm / 2-Yield / 3-Perm Yield / 4-Perm Omit / 5-Seq Omit / 6-Full Act					

Note: Dial, Split, and Offset are all shown in seconds
Offsets are referenced from the end of the coordinated phase green



TIME OF DAY PROGRAMMING

Intersection: Arden Village Dr AT Nashville Highway

TIME BASE DATA MESCELLANEOUS

DST: BEGIN MONTH 3 WEEK 2
DST: END MONTH 11 WEEK 1

DST: Daylight Savings Timg
Month = 01 to 12 (Begin < End)
Week = 1 to 5 (5= Last Week)

COORD CYCLE ZERO 24 : 00 AM

CYCLE ZERO: Time (HH:MM) Set Reference For Coord Sync
00:00 = Event Time / Other = That HH:MM

EQUATED DAY: (DEFINE DAY = DAY)

<u>2</u>	=	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>			
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							

DAY EQUATES: Care Must Be Used To Insure Days Are Not
Equated To Undefined Days Or Days That Are Equated To
Other Days. The Rest Will Be A Day Without Events To Run.

TIME BASE DATA TRAFFIC EVENTS

PDAY	DAY HH : MM	PATTERN	TRAFFIC EVENT FUNCTIONS MAX II PHASE(S)	OMIT PHASE(S)
1	00 : 00	0 / 0 / 4	Free	
1	08 : 00	1 / 1 / 1	Off Peak - 105s	
1	10 : 30	2 / 1 / 1	MD Peak - 120s	
1	17 : 00	1 / 1 / 1	Off Peak - 105s	
1	19 : 30	0 / 0 / 0	MAX 2	
1	21 : 00	0 / 0 / 4	Free	
2	00 : 00	0 / 0 / 4	Free	
2	06 : 30	3 / 1 / 1	AM Peak - 130s	
2	08 : 30	2 / 1 / 1	MD Peak - 120s	
2	14 : 00	4 / 1 / 1	PM-1 Peak (School) - 140s	
2	16 : 15	3 / 2 / 2	PM-2 Peak - 130s	
2	18 : 15	2 / 1 / 1	MD Peak - 120s	
2	19 : 45	1 / 1 / 1	Off Peak - 105s	
2	22 : 45	0 / 0 / 4	Free	
7	00 : 00	0 / 0 / 4	Free	
7	09 : 30	1 / 1 / 1	Off Peak - 105s	
7	11 : 00	2 / 1 / 1	MD Peak - 120s	
7	17 : 00	1 / 1 / 1	Off Peak - 105s	
7	19 : 00	0 / 0 / 0	MAX 2	
7	21 : 00	0 / 0 / 4	Free	

REFERENCE DATA:

PDAY - 01-99 Program Day
HH:MM - 24 Hour Clock
PATTERN : (D/S/O)
Flash - 5 / 5 / 0
Free - 0 / 0 / 4
MAX 2 & OMITs: Call Free, Set
Pattern To 0 / 0 / 0



LOCAL CONTROLLER PROGRAMMING

14 EPAC300 PROGRAM LOG

Prepared By: <u>NSI</u> :	Neel-Schaffer, Inc	Date: <u>3/31/2021</u>
Approved By: _____ :		Date: _____
Intersection ID: _____ :	Hidden Creek Way AT _____	Nashville Highway

UTILITIES ACCESS

Access Code..... : _____ Codes: Four Digits (0000-9999)

PHASE DATA VEHICLE TIMINGS

Basic Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green		7	10		7		10										
Passage Time		3.0	4.5		3.0		4.5										
Maximum No 1		15	45		20		45										
Maximum No 2		20	55		30		55										
Yellow Change		4.5	5.0		3.5		5.0										
Red Clearance		2.5	1.5		3.0		1.5										

Density Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seconds/Actuation																	
Maximum Initial																	
Time B4 Reduction																	
Cars B4 Reduction																	
Time To Reduce																	
Minimum Gap																	

PHASE DATA PEDESTRIAN TIMINGS & CONTROL

Pedestrian Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk																	
Pedestrian Clearance																	

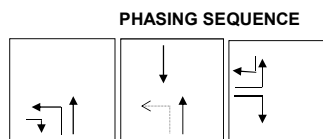
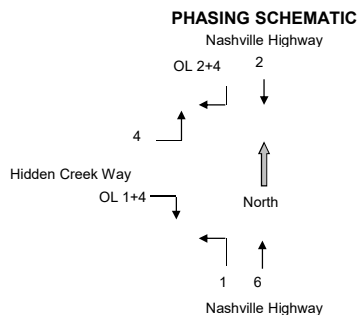
Pedestrian Control	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Walk																	
Extended Pedestrian Clear																	
Act Rest In Walk																	

Pedestrian Control Entry : "1" = Yes & "0" = No

PHASE DATA VEHICLE CONTROL

Veh Control	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Non-Lock Memory		X			X												
Dual Entry																	
Last Car Passage																	
Conditional Service																	
No Simultaneous Gap																	
Minimum Recall.....		X					X										

Vehicle Control Entry : "1" = Yes & "0" = No



COORDINATION AND OPERATION

Intersection ID: 0 Hidden Creek Way AT Nashville Highway

COORD DATA MODE

Control		Codes:	0	1	2	3	4	5
Operation	 : 1		FRE	AUT	MAN	-	-	-
Mode	 : 0		PRM	YLD	PYL	POM	SOM	FAC
Maximum	 : 0		INH	MX1	MX2	-	-	-
Correction	 : 2		DW	MDW	SWY	SW+	-	-
Offset (?? Of Green)	 : 1		BEGIN	END OF GREEN				
Force	 : 1		PLAN	CYCLE TIME				
Max Dwell Time	 : 0		Time in Seconds					
Yield Period	 : 0		Time in Seconds					
Manual Pattern (Dial/Split/Offset)	1 / 1 / 1							

COORD DATA TIMING PLANS

Control	Timing Plan :	D1/S1	D1/S2	D1/S3	D1/S4	D2/S1	D2/S2	D2/S3	D2/S4
Cycle Length		105				120			
Phase 01 Time/Mode		15 /	/	/	/	15 /	/	/	/
Phase 02 Time/Mode		68 / 1	/	/	/	77 / 1	/	/	/
Phase 03 Time/Mode		/	/	/	/	/	/	/	/
Phase 04 Time/Mode		22 /	/	/	/	28 /	/	/	/
Phase 05 Time/Mode		/	/	/	/	/	/	/	/
Phase 06 Time/Mode		83 / 1	/	/	/	92 / 1	/	/	/
Phase 07 Time/Mode		/	/	/	/	/	/	/	/
Phase 08 Time/Mode		/	/	/	/	/	/	/	/
Offset 1		27				33			
Offset 2									
Offset 3									
Offset Pattern Mode									

Control	Timing Plan :	D3/S1	D3/S2	D3/S3	D3/S4	D4/S1	D4/S2	D4/S3	D4/S4
Cycle Length		130	130			140			
Phase 01 Time/Mode		15 /	15 /	/	/	15 /	/	/	/
Phase 02 Time/Mode		80 / 1	87 / 1	/	/	95 / 1	/	/	/
Phase 03 Time/Mode		/	/	/	/	/	/	/	/
Phase 04 Time/Mode		35 /	28 /	/	/	30 /	/	/	/
Phase 05 Time/Mode		/	/	/	/	/	/	/	/
Phase 06 Time/Mode		95 / 1	102 / 1	/	/	110 / 1	/	/	/
Phase 07 Time/Mode		/	/	/	/	/	/	/	/
Phase 08 Time/Mode		/	/	/	/	/	/	/	/
Offset 1		48				49			
Offset 2			49						
Offset 3									
Offset Pattern Mode									

Codes	.....								
Phase Mode	.....	0 - Actuated	1 - Coord Phase	2 - Min Rec	3 - Max Rec				
	.....	4 - Ped Rec	5 - Max+Ped Recall	6 - Phase Omitted	7 - Dual Coord Phase				
Pattern Mode	.....	0-Normal / 1-Perm / 2-Yield / 3-Perm Yield / 4-Perm Omit / 5-Seq Omit / 6-Full Act							

Note: Dial, Split, and Offset are all shown in seconds
Offsets are referenced from the end of the coordinated phase green



TIME OF DAY PROGRAMMING

Intersection: Hidden Creek Way AT Nashville Highway

TIME BASE DATA MESCELLANEOUS

DST: BEGIN MONTH 3 WEEK 2
DST: END MONTH 11 WEEK 1

DST: Daylight Savings Time
Month = 01 to 12 (Begin < End)
Week = 1 to 5 (5= Last Week)

COORD CYCLE ZERO 24 : 00 AM

CYCLE ZERO: Time (HH:MM) Set Reference For Coord Sync
00:00 = Event Time / Other = That HH:MM

EQUATED DAY: (DEFINE DAY = DAY)

<u>2</u>	=	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>			
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							
	=							

DAY EQUATES: Care Must Be Used To Insure Days Are Not
Equated To Undefined Days Or Days That Are Equated To
Other Days. The Rest Will Be A Day Without Events To Run.

TIME BASE DATA TRAFFIC EVENTS

PDAY	DAY HH : MM	PATTERN	TRAFFIC EVENT FUNCTIONS MAX II PHASE(S)	OMIT PHASE(S)
1	00 : 00	0 / 0 / 4	Free	
1	08 : 00	1 / 1 / 1	Off Peak - 105s	
1	10 : 30	2 / 1 / 1	MD Peak - 120s	
1	17 : 00	1 / 1 / 1	Off Peak - 105s	
1	19 : 30	0 / 0 / 0	MAX 2	
1	21 : 00	0 / 0 / 4	Free	
2	00 : 00	0 / 0 / 4	Free	
2	06 : 30	3 / 1 / 1	AM Peak - 130s	
2	08 : 30	2 / 1 / 1	MD Peak - 120s	
2	14 : 00	4 / 1 / 1	PM-1 Peak (School) - 140s	
2	16 : 15	3 / 2 / 2	PM-2 Peak - 130s	
2	18 : 15	2 / 1 / 1	MD Peak - 120s	
2	19 : 45	1 / 1 / 1	Off Peak - 105s	
2	21 : 00	0 / 0 / 4	Free	
7	00 : 00	0 / 0 / 4	Free	
7	09 : 30	1 / 1 / 1	Off Peak - 105s	
7	11 : 00	2 / 1 / 1	MD Peak - 120s	
7	17 : 00	1 / 1 / 1	Off Peak - 105s	
7	19 : 00	0 / 0 / 0	MAX 2	
7	21 : 00	0 / 0 / 4	Free	

REFERENCE DATA:

PDAY - 01-99 Program Day
HH:MM - 24 Hour Clock
PATTERN : (D/S/O)
Flash - 5 / 5 / 0
Free - 0 / 0 / 4
MAX 2 & OMITs: Call Free, Set
Pattern To 0 / 0 / 0



LOCAL CONTROLLER PROGRAMMING

14 EPAC300 PROGRAM LOG

Prepared By: <u>NSI</u> :	Neel-Schaffer, Inc	Date: <u>3/31/2021</u>
Approved By: _____ :		Date: _____
Intersection ID: _____ :	Spring Meade Blvd AT _____	Nashville Highway

UTILITIES ACCESS

Access Code..... : _____ Codes: Four Digits (0000-9999)

PHASE DATA VEHICLE TIMINGS

Basic Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green		5	25	7	5	5	25										
Passage Time		1.5	4.0	3.0	2.0	1.5	4.0										
Maximum No 1		15	45	15	20	15	45										
Maximum No 2		20	55	20	30	20	55										
Yellow Change		4.0	4.5	3.0	3.5	4.5	4.5										
Red Clearance		2.5	1.5	2.5	2.5	2.5	1.5										

Density Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seconds/Actuation																	
Maximum Initial																	
Time B4 Reduction																	
Cars B4 Reduction																	
Time To Reduce																	
Minimum Gap																	

PHASE DATA PEDESTRIAN TIMINGS & CONTROL

Pedestrian Times	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk																	
Pedestrian Clearance																	

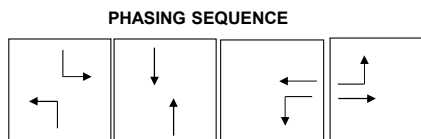
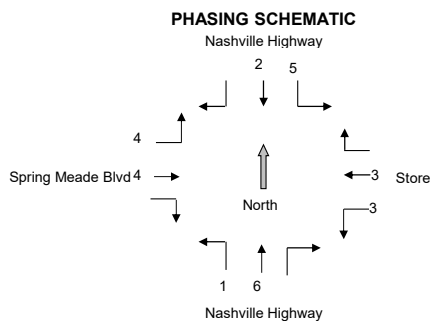
Pedestrian Control	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Walk.....																	
Extended Pedestrian Clear :																	
Act Rest In Walk																	

Pedestrian Control Entry : "1" = Yes & "0" = No

PHASE DATA VEHICLE CONTROL

Veh Control	Phase :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Non-Lock Memory		X		X	X	X											
Dual Entry																	
Last Car Passage																	
Conditional Service																	
No Simultaneous Gap																	
Minimum Recall.....		X				X											

Vehicle Control Entry : "1" = Yes & "0" = No



COORDINATION AND OPERATION

Intersection ID: 0

Spring Meade Blvd

AT

Nashville Highway

COORD DATA MODE

Control		Codes:	0	1	2	3	4	5
Operation	.....		FRE	AUT	MAN	-	-	-
Mode	.....		PRM	YLD	PYL	POM	SOM	FAC
Maximum	.....		INH	MX1	MX2	-	-	-
Correction	.....		DW	MDW	SWY	SW+	-	-
Offset (?? Of Green)	.....		BEGIN	END OF GREEN				
Force	.....		PLAN	CYCLE TIME				
Max Dwell Time	.....		Time in Seconds					
Yield Period	.....		Time in Seconds					
Manual Pattern (Dial/Split/Offset)	<u>1 / 1 / 1</u>							

COORD DATA TIMING PLANS

Control	Timing Plan :	D1/S1	D1/S2	D1/S3	D1/S4	D2/S1	D2/S2	D2/S3	D2/S4
Cycle Length		<u>105</u>				<u>120</u>			
Phase 01 Time/Mode		<u>16 /</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>18 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 02 Time/Mode		<u>53 / 1</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>66 / 1</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 03 Time/Mode		<u>13 /</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>13 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 04 Time/Mode		<u>23 /</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>23 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 05 Time/Mode		<u>13 /</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>13 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 06 Time/Mode		<u>56 / 1</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>71 / 1</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 07 Time/Mode		<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 08 Time/Mode		<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
Offset 1		<u>11</u>				<u>119</u>			
Offset 2									
Offset 3									
Offset Pattern Mode									

Control	Timing Plan :	D3/S1	D3/S2	D3/S3	D3/S4	D4/S1	D4/S2	D4/S3	D4/S4
Cycle Length		<u>130</u>	<u>130</u>			<u>140</u>			
Phase 01 Time/Mode		<u>21 /</u>	<u>17 /</u>	<u>/</u>	<u>/</u>	<u>23 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 02 Time/Mode		<u>65 / 1</u>	<u>75 / 1</u>	<u>/</u>	<u>/</u>	<u>72 / 1</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 03 Time/Mode		<u>13 /</u>	<u>14 /</u>	<u>/</u>	<u>/</u>	<u>14 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 04 Time/Mode		<u>31 /</u>	<u>24 /</u>	<u>/</u>	<u>/</u>	<u>31 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 05 Time/Mode		<u>14 /</u>	<u>14 /</u>	<u>/</u>	<u>/</u>	<u>14 /</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 06 Time/Mode		<u>72 / 1</u>	<u>78 / 1</u>	<u>/</u>	<u>/</u>	<u>81 / 1</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 07 Time/Mode		<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
Phase 08 Time/Mode		<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
Offset 1		<u>29</u>				<u>12</u>			
Offset 2			<u>0</u>						
Offset 3									
Offset Pattern Mode									

Codes							
Phase Mode	.....	0 - Actuated	1 - Coord Phase	2 - Min Rec	3 - Max Rec		
		4 - Ped Rec	5 - Max+Ped Recall	6 - Phase Omitted	7 - Dual Coord Phase		
Pattern Mode	.....	0-Normal / 1-Perm / 2-Yield / 3-Perm Yield / 4-Perm Omit / 5-Seq Omit / 6-Full Act					

Note: Dial, Split, and Offset are all shown in seconds
Offsets are referenced from the end of the coordinated phase green



TIME OF DAY PROGRAMMING

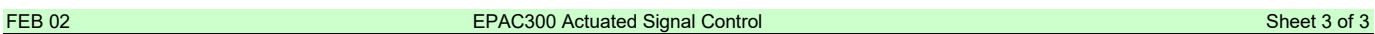
Intersection: Spring Meade Blvd AT Nashville Highway

TIME BASE DATA MESCELLANEOUS

[illegible]

TIME BASE DATA TRAFFIC EVENTS

REFERENCE DATA:
PDAY - 01-99 Program Day
HH:MM - 24 Hour Clock
PATTERN : (D/S/O)
Flash - 5 / 5 / 0
Free - 0 / 0 / 4
MAX 2 & OMITS: Call Free, Set
Pattern To 0 / 0 / 0



APPENDIX B – DETAILED TRIP GENERATION CALCULATIONS



TRIP GENERATION

Project:	2558 Nashville Highway Development – Columbia, TN
ITE Land Use:	Multi-Family Housing (Low-Rise) & Mini-Warehouse
ITE Code:	220 & 151
Trip Ends vs:	ITE 220 – 143 DU and ITE 151 – 61,000 SF
Daily Equation:	Weekday – Varies by Land Use
AM Equation:	Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 AM – Varies by Land Use
PM Equation:	Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM – Varies by Land Use

Total Site Generated Traffic

Land Use	Size	Generated Traffic Volumes				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Multi-Family Housing (Low-Rise) (220)	143 DU	992	16	51	52	30
Mini-Warehouse (151)	61,000 SF	88	3	2	4	5
TOTAL		1,080	19	53	56	35

Multi-Family (Low-Rise) Homes (220) – 143 Dwelling Units

Time Period	Formula ¹	Calculation ¹	Trips
Daily	$T = 6.41(X) + 75.31$	$T = 6.41(143) + 75.31$	992
AM Peak (Total)	$T = 0.31(X) + 22.85$	$T = 0.31(143) + 22.85$	67
AM Peak (Entering)	$T = 0.24(\text{Total AM Trips})$	$T = 0.24(67)$	16
AM Peak (Exiting)	$T = 0.76(\text{Total AM Trips})$	$T = 0.76(67)$	51
PM Peak (Total)	$T = 0.43(X) + 20.55$	$T = 0.43(143) + 20.55$	82
PM Peak (Entering)	$T = 0.63(\text{Total PM Trips})$	$T = 0.63(82)$	52
PM Peak (Exiting)	$T = 0.37(\text{Total PM Trips})$	$T = 0.37(82)$	30

¹ Institute of Transportation Engineers (ITE). Trip Generation Manual, 11th Edition. Washington, DC: ITE, 2022

**Mini-Warehouse (151) – 61,000 SF**

<i>Time Period</i>	<i>Formula²</i>	<i>Calculation¹</i>	<i>Trips</i>
<i>Daily</i>	$T = 1.45(X)$	$T = 1.45(61)$	88
<i>AM Peak (Total)</i>	$T = 0.09(X)$	$T = 0.09(61)$	5
<i>AM Peak (Entering)</i>	$T = 0.60(\text{Total AM Trips})$	$T = 0.59(5)$	3
<i>AM Peak (Exiting)</i>	$T = 0.40(\text{Total AM Trips})$	$T = 0.41(5)$	2
<i>PM Peak (Total)</i>	$T = 0.15(X)$	$T = 0.15(61)$	9
<i>PM Peak (Entering)</i>	$T = 0.50(\text{Total PM Trips})$	$T = 0.47(9)$	4
<i>PM Peak (Exiting)</i>	$T = 0.50(\text{Total PM Trips})$	$T = 0.53(9)$	5

² Institute of Transportation Engineers (ITE). Trip Generation Manual, 11th Edition. Washington, DC: ITE, 2022

Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

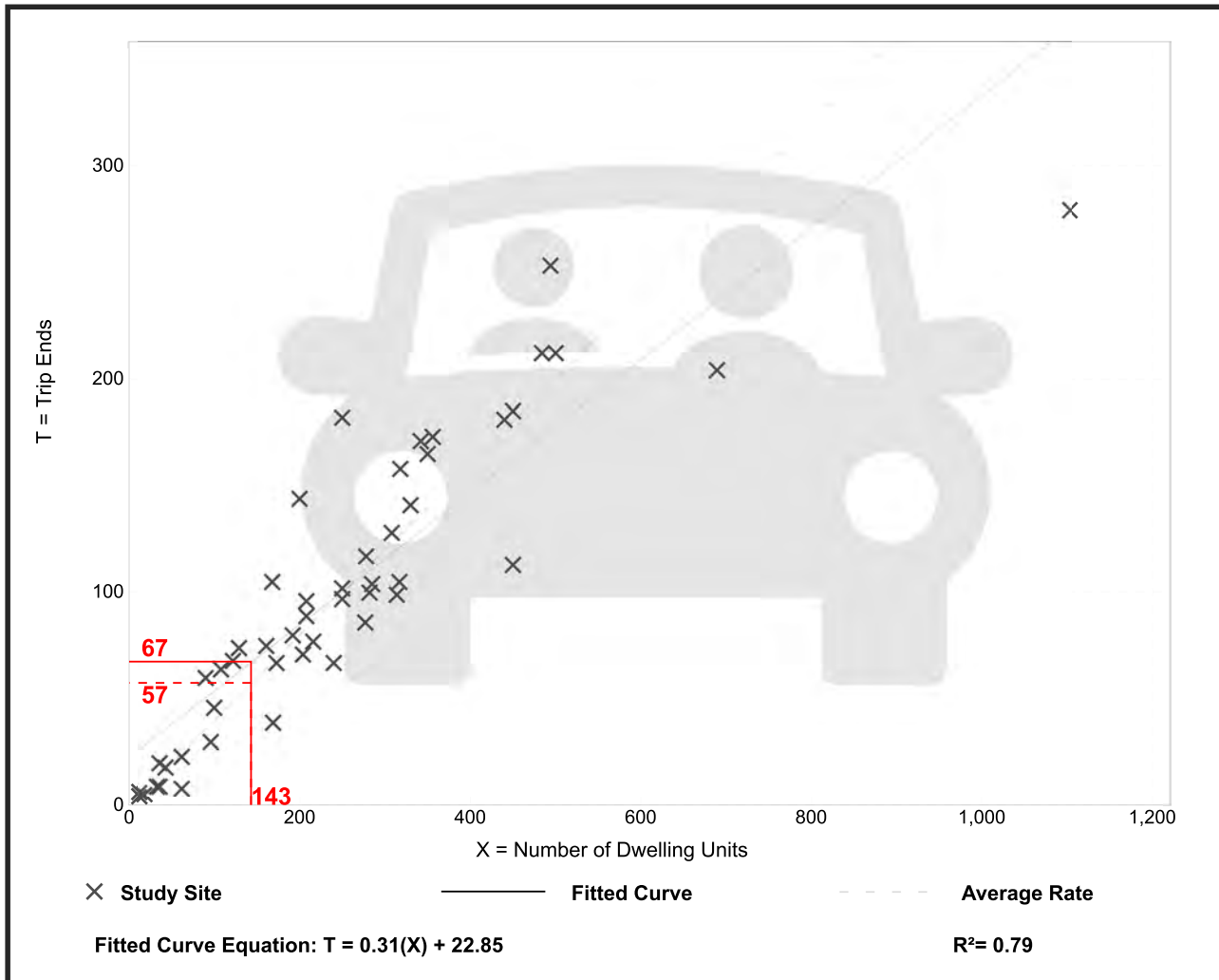
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban
 Number of Studies: 49
 Avg. Num. of Dwelling Units: 249
 Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 59

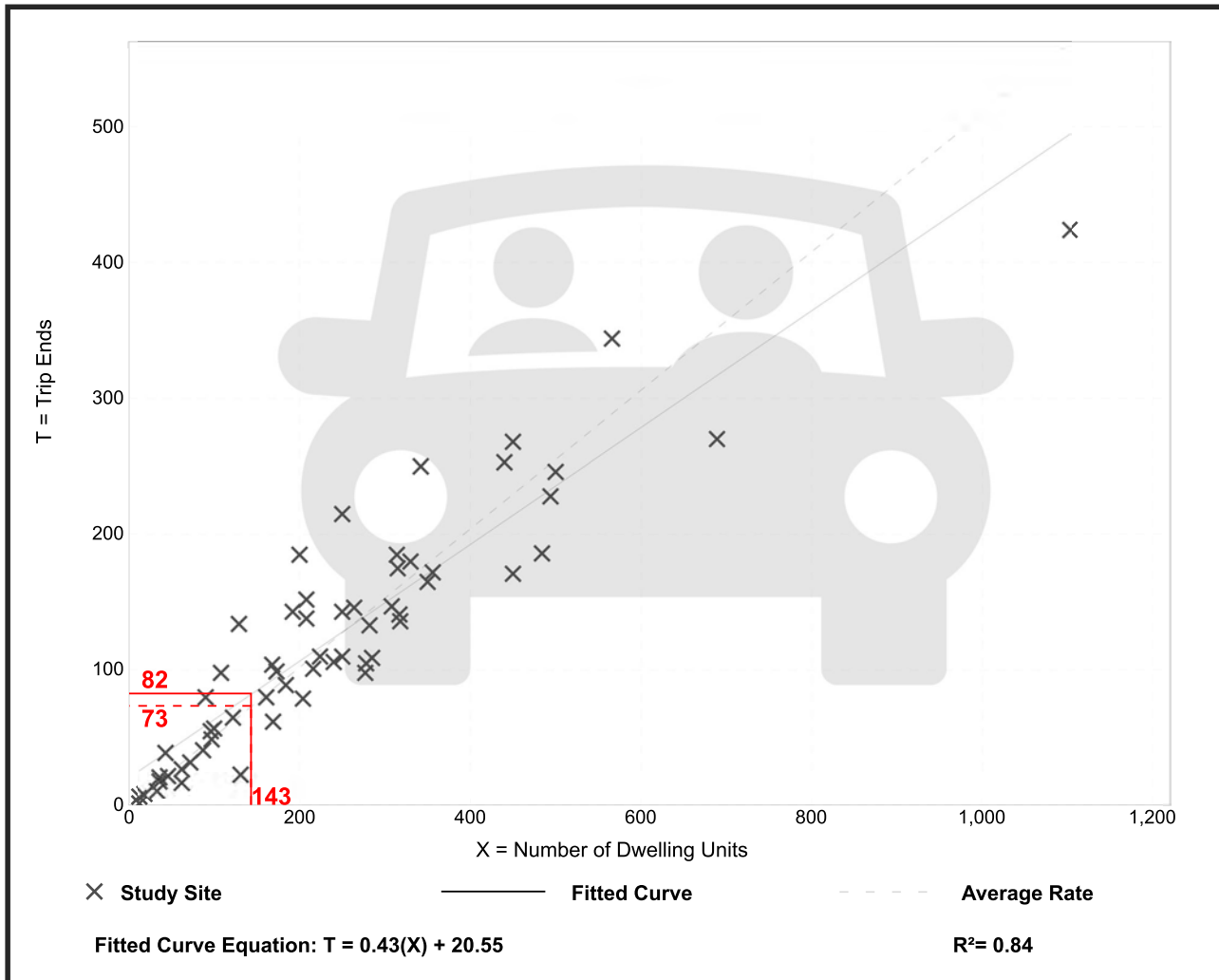
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

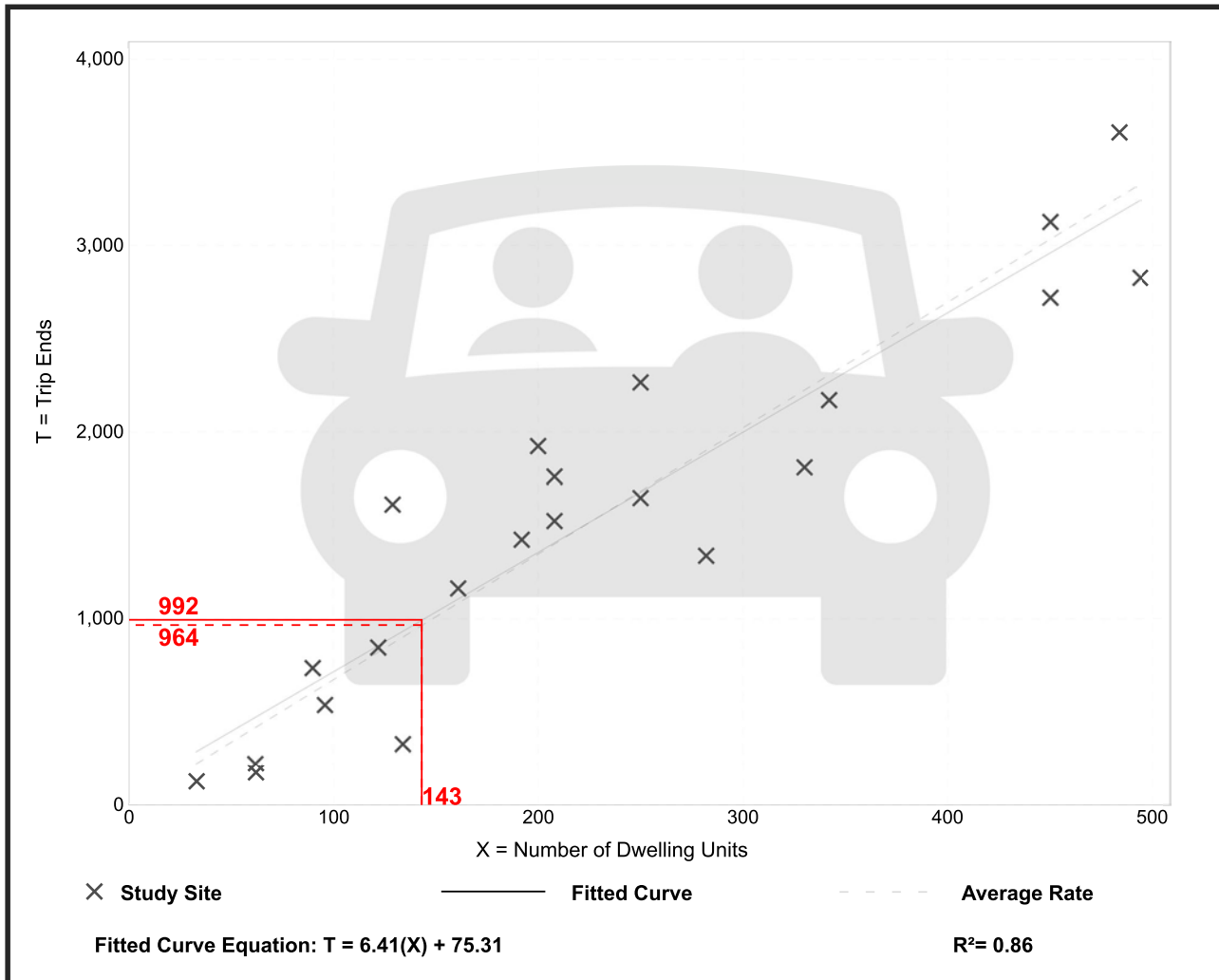
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



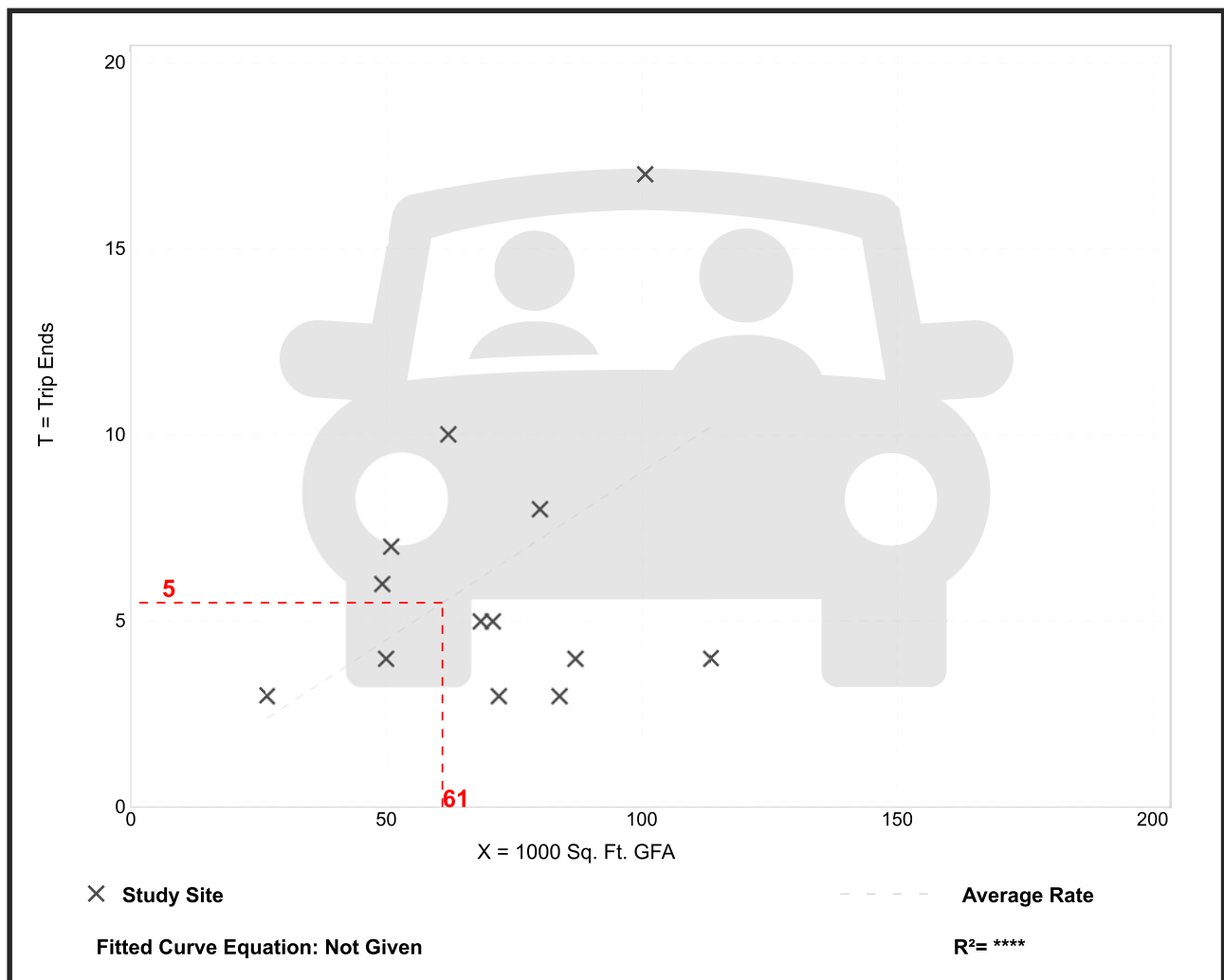
Mini-Warehouse (151)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 13
 Avg. 1000 Sq. Ft. GFA: 70
 Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.09	0.04 - 0.17	0.05

Data Plot and Equation



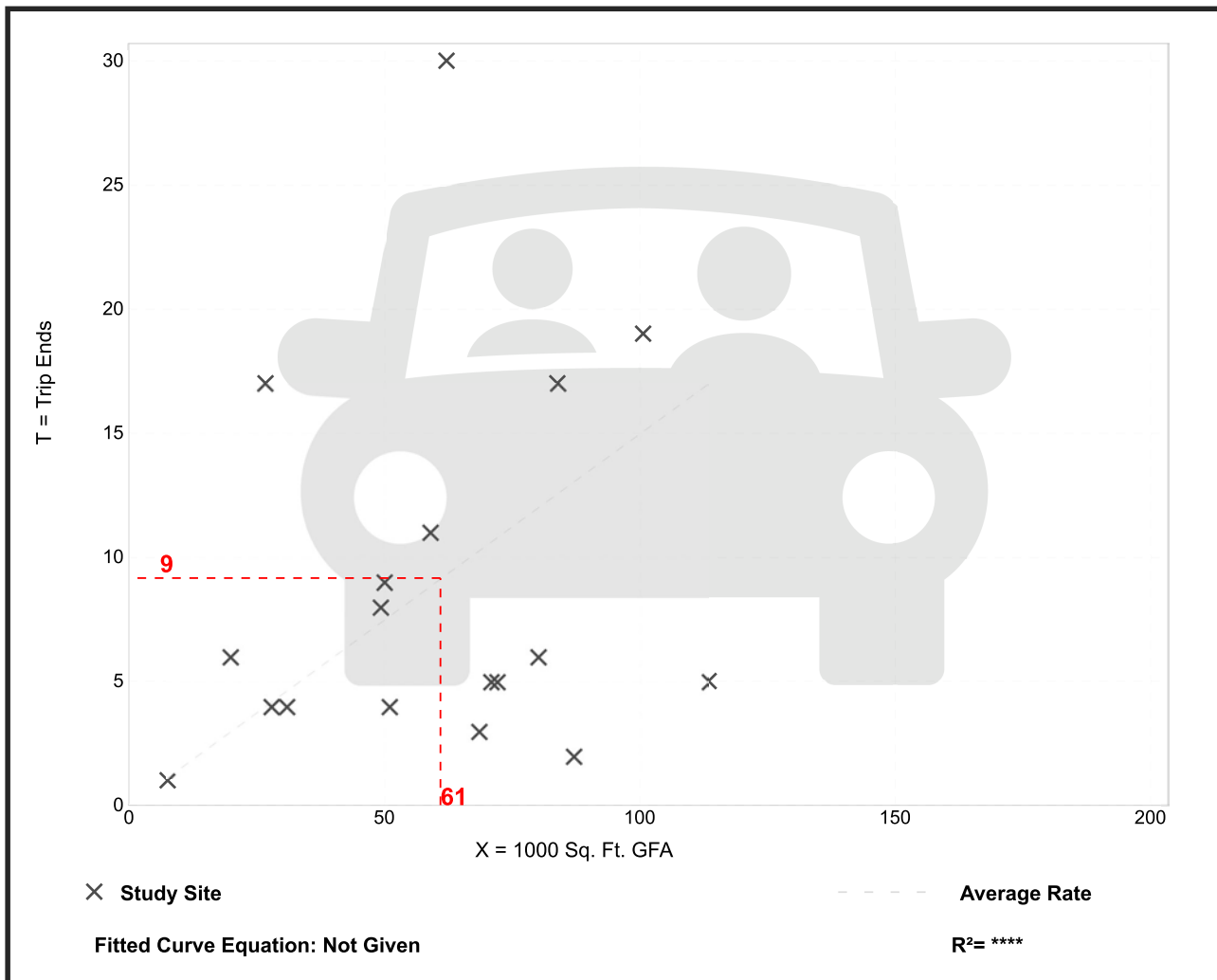
Mini-Warehouse (151)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 18
 Avg. 1000 Sq. Ft. GFA: 59
 Directional Distribution: 47% entering, 53% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.15	0.02 - 0.64	0.14

Data Plot and Equation



Mini-Warehouse (151)

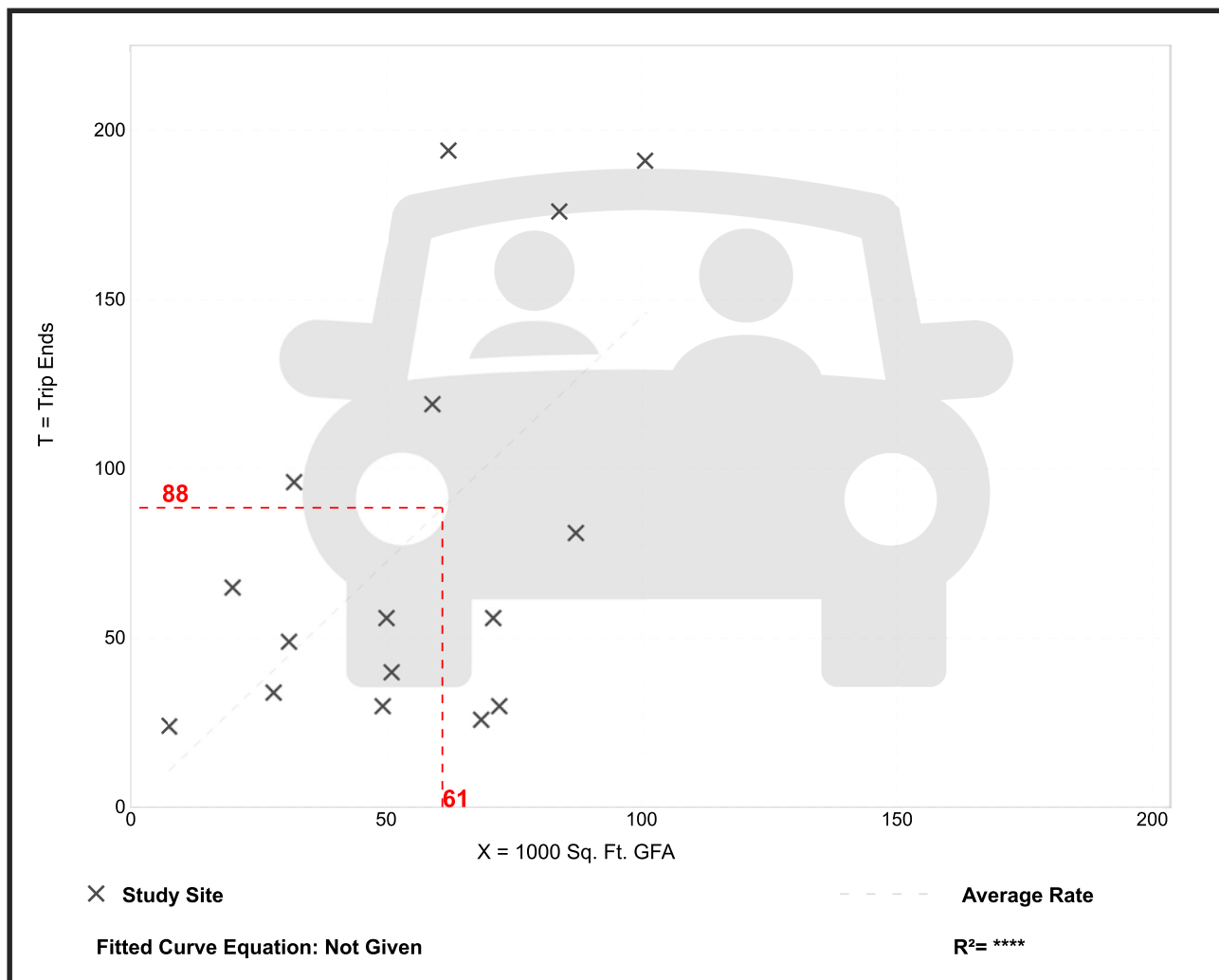
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 16
Avg. 1000 Sq. Ft. GFA: 55
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.45	0.38 - 3.25	0.92

Data Plot and Equation



APPENDIX C – CAPACITY ANALYSES

EXISTING CAPACITY ANALYSES

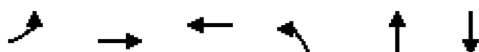
HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Existing AM

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	196	0	52	0	2	2	125	1559	1	0	1284	60								
Future Volume (veh/h)	196	0	52	0	2	2	125	1559	1	0	1284	60								
Number	7	4	14	3	8	18	1	6	16	5	2	12								
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0								
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00								
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900								
Adj Flow Rate, veh/h	213	0	57	0	2	2	136	1695	1	0	1396	65								
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2								
Cap, veh/h	244	0	218	13	6	6	161	2616	2	1	1997	93								
Arrive On Green	0.14	0.00	0.14	0.00	0.01	0.01	0.09	0.72	0.72	0.00	0.58	0.58								
Sat Flow, veh/h	1774	0	1583	1774	856	856	1774	3630	2	1774	3444	160								
Grp Volume(v), veh/h	213	0	57	0	0	4	136	826	870	0	716	745								
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1712	1774	1770	1862	1774	1770	1835								
Q Serve(g_s), s	15.3	0.0	4.2	0.0	0.0	0.3	9.8	31.8	31.8	0.0	37.1	37.4								
Cycle Q Clear(g_c), s	15.3	0.0	4.2	0.0	0.0	0.3	9.8	31.8	31.8	0.0	37.1	37.4								
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.00	1.00		0.09								
Lane Grp Cap(c), veh/h	244	0	218	13	0	12	161	1275	1342	1	1026	1064								
V/C Ratio(X)	0.87	0.00	0.26	0.00	0.00	0.32	0.84	0.65	0.65	0.00	0.70	0.70								
Avail Cap(c_a), veh/h	341	0	304	102	0	99	198	1275	1342	96	1026	1064								
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00								
Uniform Delay (d), s/veh	54.9	0.0	50.2	0.0	0.0	64.2	58.2	9.5	9.5	0.0	19.3	19.3								
Incr Delay (d2), s/veh	16.2	0.0	0.6	0.0	0.0	14.3	23.2	2.6	2.4	0.0	3.9	3.8								
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
%ile BackOfQ(50%),veh/ln	8.6	0.0	1.9	0.0	0.0	0.2	5.9	16.3	17.1	0.0	19.2	20.0								
LnGrp Delay(d),s/veh	71.2	0.0	50.8	0.0	0.0	78.5	81.4	12.1	12.0	0.0	23.2	23.2								
LnGrp LOS	E		D			E	F	B	B		C	C								
Approach Vol, veh/h	270					4		1832		1461										
Approach Delay, s/veh	66.9					78.5		17.2		23.2										
Approach LOS	E					E		B		C										
Timer	1	2	3	4	5	6	7	8												
Assigned Phs	1	2	4		5	6	8													
Phs Duration (G+Y+Rc), s	18.3	81.4	23.9		0.0	99.7	6.4													
Change Period (Y+Rc), s	6.5	6.0	6.0		7.0	6.0	5.5													
Max Green Setting (Gmax), s	14.5	59.0	25.0		7.0	66.0	7.5													
Max Q Clear Time (g_c+l1), s	11.8	39.4	17.3		0.0	33.8	2.3													
Green Ext Time (p_c), s	0.1	8.9	0.6		0.0	14.0	0.0													
Intersection Summary																				
HCM 2010 Ctrl Delay	23.5																			
HCM 2010 LOS	C																			

Timings
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Existing AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	Ø5
Lane Configurations							
Traffic Volume (vph)	196	0	2	125	1559	1284	
Future Volume (vph)	196	0	2	125	1559	1284	
Turn Type	Split	NA	NA	Prot	NA	NA	
Protected Phases	4	4	8	1	6	2	5
Permitted Phases							
Detector Phase	4	4	8	1	6	2	
Switch Phase							
Minimum Initial (s)	5.0	5.0	7.0	5.0	25.0	25.0	5.0
Minimum Split (s)	23.0	23.0	12.5	11.5	32.5	32.5	12.0
Total Split (s)	31.0	31.0	13.0	21.0	72.0	65.0	14.0
Total Split (%)	23.8%	23.8%	10.0%	16.2%	55.4%	50.0%	11%
Yellow Time (s)	3.5	3.5	3.0	4.0	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	1.5	1.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	5.5	6.5	6.0	6.0	
Lead/Lag				Lead	Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	20.2	20.2	7.0	14.3	95.3	74.5	
Actuated g/C Ratio	0.16	0.16	0.05	0.11	0.73	0.57	
v/c Ratio	0.77	0.13	0.04	0.70	0.65	0.73	
Control Delay	71.1	0.6	48.0	61.0	21.2	24.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.1	0.6	48.0	61.0	21.2	24.8	
LOS	E	A	D	E	C	C	
Approach Delay		56.2	48.0		24.2	24.8	
Approach LOS		E	D		C	C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 29 (22%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 26.9

Intersection LOS: C

Intersection Capacity Utilization 80.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

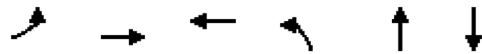


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Existing AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	213	57	4	136	1696	1461
v/c Ratio	0.77	0.13	0.04	0.70	0.65	0.73
Control Delay	71.1	0.6	48.0	61.0	21.2	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	0.6	48.0	61.0	21.2	24.8
Queue Length 50th (ft)	174	0	2	101	747	444
Queue Length 95th (ft)	253	0	14	m134	867	#719
Internal Link Dist (ft)		390	206		929	1223
Turn Bay Length (ft)				250		
Base Capacity (vph)	340	493	101	210	2593	2015
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.12	0.04	0.65	0.65	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	9	17	2	73	19	1670	25	31	1344	11
Future Vol, veh/h	1	0	9	17	2	73	19	1670	25	31	1344	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	60	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	10	18	2	79	21	1815	27	34	1461	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2486	3419	737	2670	3412	921	1473	0	0	1842	0	0
Stage 1	1535	1535	-	1871	1871	-	-	-	-	-	-	-
Stage 2	951	1884	-	799	1541	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	7	361	~ 11	7	273	454	-	-	326	-	-
Stage 1	122	176	-	74	120	-	-	-	-	-	-	-
Stage 2	279	118	-	345	175	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	10	6	361	~ 10	6	273	454	-	-	326	-	-
Mov Cap-2 Maneuver	90	69	-	68	82	-	-	-	-	-	-	-
Stage 1	122	158	-	74	120	-	-	-	-	-	-	-
Stage 2	194	118	-	301	157	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	18.5		52.6		0.1		0.4					
HCM LOS	C		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	454	-	-	277	170	326	-	-				
HCM Lane V/C Ratio	0.045	-	-	0.039	0.588	0.103	-	-				
HCM Control Delay (s)	13.3	0	-	18.5	52.6	17.3	-	-				
HCM Lane LOS	B	A	-	C	F	C	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	3.2	0.3	-	-				
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	88	113	1766	1343	4
Future Vol, veh/h	1	88	113	1766	1343	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	96	123	1920	1460	4
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2668	732	1464	0	-	0
Stage 1	1462	-	-	-	-	-
Stage 2	1206	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	18	364	457	-	-	-
Stage 1	179	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	18	364	457	-	-	-
Mov Cap-2 Maneuver	18	-	-	-	-	-
Stage 1	179	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	22.7	0.9		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	457	-	299	-	-	
HCM Lane V/C Ratio	0.269	-	0.324	-	-	
HCM Control Delay (s)	15.7	0	22.7	-	-	
HCM Lane LOS	C	A	C	-	-	
HCM 95th %tile Q(veh)	1.1	-	1.4	-	-	

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	2	14	13	0	57	6	1729	18	28	1315	30
Future Volume (veh/h)	91	2	14	13	0	57	6	1729	18	28	1315	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	99	2	15	14	0	62	7	1879	20	30	1429	33
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	3	114	91	0	81	68	2244	1004	68	2258	1010
Arrive On Green	0.07	0.07	0.07	0.05	0.00	0.05	0.04	0.63	0.63	0.01	0.21	0.21
Sat Flow, veh/h	1741	35	1583	1774	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	101	0	15	14	0	62	7	1879	20	30	1429	33
Grp Sat Flow(s),veh/h/ln	1776	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.3	0.0	1.2	1.0	0.0	5.0	0.5	53.8	0.6	2.2	47.8	2.2
Cycle Q Clear(g_c), s	7.3	0.0	1.2	1.0	0.0	5.0	0.5	53.8	0.6	2.2	47.8	2.2
Prop In Lane	0.98		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	0	114	91	0	81	68	2244	1004	68	2258	1010
V/C Ratio(X)	0.79	0.00	0.13	0.15	0.00	0.76	0.10	0.84	0.02	0.44	0.63	0.03
Avail Cap(c_a), veh/h	225	0	201	198	0	177	143	2244	1004	136	2258	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	56.5	59.0	0.0	60.9	60.3	18.5	8.8	62.8	37.4	19.4
Incr Delay (d2), s/veh	10.1	0.0	0.5	0.8	0.0	13.7	0.7	3.9	0.0	4.4	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.5	0.5	0.0	2.5	0.3	27.3	0.3	1.2	23.9	1.0
LnGrp Delay(d),s/veh	69.4	0.0	57.0	59.7	0.0	74.6	61.0	22.5	8.8	67.2	38.8	19.5
LnGrp LOS	E		E	E		E	E	C	A	E	D	B
Approach Vol, veh/h		116			76			1906			1492	
Approach Delay, s/veh		67.8			71.8			22.5			39.0	
Approach LOS		E			E			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	88.9		15.9	11.5	89.4		13.2				
Change Period (Y+Rc), s	7.0	6.5		6.5	6.5	6.5		6.5				
Max Green Setting (Gmax), s	10.0	62.5		16.5	10.5	62.5		14.5				
Max Q Clear Time (g_c+I1), s	4.2	55.8		9.3	2.5	49.8		7.0				
Green Ext Time (p_c), s	0.0	5.4		0.3	0.0	7.3		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			31.8									
HCM 2010 LOS			C									

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Existing AM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	2	14	0	57	6	1729	18	28	1315	30
Future Volume (vph)	2	14	0	57	6	1729	18	28	1315	30
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	23.0	23.0	21.0	21.0	17.0	69.0	69.0	17.0	69.0	69.0
Total Split (%)	17.7%	17.7%	16.2%	16.2%	13.1%	53.1%	53.1%	13.1%	53.1%	53.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	12.5	12.5	7.3	7.3	6.1	83.9	83.9	7.7	90.7	90.7
Actuated g/C Ratio	0.10	0.10	0.06	0.06	0.05	0.65	0.65	0.06	0.70	0.70
v/c Ratio	0.59	0.05	0.14	0.28	0.08	0.82	0.02	0.29	0.58	0.03
Control Delay	70.1	0.4	61.4	3.1	62.5	27.5	0.0	79.0	11.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.1	0.4	61.4	3.1	62.5	27.5	0.0	79.0	11.0	0.0
LOS	E	A	E	A	E	C	A	E	B	A
Approach Delay	61.1		13.8			27.4			12.2	
Approach LOS	E		B			C			B	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 18 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 21.9

Intersection LOS: C

Intersection Capacity Utilization 75.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way





Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	15	14	62	7	1879	20	30	1429	33
v/c Ratio	0.59	0.05	0.14	0.28	0.08	0.82	0.02	0.29	0.58	0.03
Control Delay	70.1	0.4	61.4	3.1	62.5	27.5	0.0	79.0	11.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.1	0.4	61.4	3.1	62.5	27.5	0.0	79.0	11.0	0.0
Queue Length 50th (ft)	83	0	11	0	5	851	0	21	498	0
Queue Length 95th (ft)	140	0	34	0	m10	#1016	m0	m36	732	m0
Internal Link Dist (ft)	561		1965			1392			519	
Turn Bay Length (ft)				100	330		130	125		175
Base Capacity (vph)	225	325	197	303	142	2284	1072	137	2468	1147
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.05	0.07	0.20	0.05	0.82	0.02	0.22	0.58	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	55	1677	44	33	1413
Future Vol, veh/h	43	55	1677	44	33	1413
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	60	1823	48	36	1536
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2687	936	0	0	1871	0
Stage 1	1847	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 18	266	-	-	318	-
Stage 1	110	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 16	266	-	-	318	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	110	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	69.9	0		0.4		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	153	318	-	
HCM Lane V/C Ratio	-	-	0.696	0.113	-	
HCM Control Delay (s)	-	-	69.9	17.8	-	
HCM Lane LOS	-	-	F	C	-	
HCM 95th %tile Q(veh)	-	-	4.1	0.4	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Existing AM

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	73	25	10	1638	1380	40		
Future Volume (veh/h)	73	25	10	1638	1380	40		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	79	27	11	1780	1500	43		
Adj No. of Lanes	1	1	1	2	2	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	106	123	248	2974	2721	1312		
Arrive On Green	0.06	0.06	0.02	0.84	0.52	0.52		
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583		
Grp Volume(v), veh/h	79	27	11	1780	1500	43		
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583		
Q Serve(g_s), s	5.7	2.1	0.2	21.0	37.3	1.3		
Cycle Q Clear(g_c), s	5.7	2.1	0.2	21.0	37.3	1.3		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	106	123	248	2974	2721	1312		
V/C Ratio(X)	0.74	0.22	0.04	0.60	0.55	0.03		
Avail Cap(c_a), veh/h	389	375	326	2974	2721	1312		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.67	0.67		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	60.1	56.3	8.7	3.3	16.3	4.2		
Incr Delay (d2), s/veh	9.8	0.9	0.1	0.9	0.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.1	1.9	0.1	10.3	18.6	0.8		
LnGrp Delay(d),s/veh	70.0	57.2	8.8	4.2	17.2	4.3		
LnGrp LOS	E	E	A	A	B	A		
Approach Vol, veh/h	106			1791	1543			
Approach Delay, s/veh	66.7			4.3	16.8			
Approach LOS	E			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	9.3	106.4		14.3		115.7		
Change Period (Y+Rc), s	7.0	6.5		6.5		6.5		
Max Green Setting (Gmax), s	8.0	73.5		28.5		88.5		
Max Q Clear Time (g_c+I1), s	2.2	39.3		7.7		23.0		
Green Ext Time (p_c), s	0.0	21.1		0.3		38.7		
Intersection Summary								
HCM 2010 Ctrl Delay			11.8					
HCM 2010 LOS			B					

Timings 6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Existing AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	25	10	1638	1380	40
Future Volume (vph)	73	25	10	1638	1380	40
Turn Type	Prot	pm+ov	pm+pt	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4	6			2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0	7.0
Minimum Split (s)	24.5	14.0	14.0	24.5	24.5	24.5
Total Split (s)	35.0	15.0	15.0	95.0	80.0	35.0
Total Split (%)	26.9%	11.5%	11.5%	73.1%	61.5%	26.9%
Yellow Time (s)	3.5	4.5	4.5	5.0	5.0	3.5
All-Red Time (s)	3.0	2.5	2.5	1.5	1.5	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.0	7.0	6.5	6.5	6.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	11.2	22.0	108.0	109.8	101.4	117.7
Actuated g/C Ratio	0.09	0.17	0.83	0.84	0.78	0.91
v/c Ratio	0.52	0.09	0.04	0.60	0.54	0.03
Control Delay	68.2	14.5	3.2	5.4	23.7	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	14.5	3.2	5.4	23.7	2.2
LOS	E	B	A	A	C	A
Approach Delay	54.5			5.4	23.1	
Approach LOS	D			A	C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 48 (37%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 61.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way



Queues
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Existing AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	79	27	11	1780	1500	43
v/c Ratio	0.52	0.09	0.04	0.60	0.54	0.03
Control Delay	68.2	14.5	3.2	5.4	23.7	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	14.5	3.2	5.4	23.7	2.2
Queue Length 50th (ft)	65	0	1	238	636	6
Queue Length 95th (ft)	115	26	6	350	681	m12
Internal Link Dist (ft)	1269			4876	1079	
Turn Bay Length (ft)			260			265
Base Capacity (vph)	388	302	292	2989	2760	1546
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.09	0.04	0.60	0.54	0.03
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	0	55	3	1	6	76	1718	4	5	1866	61
Future Volume (veh/h)	143	0	55	3	1	6	76	1718	4	5	1866	61
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	155	0	60	3	1	7	83	1867	4	5	2028	66
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	0	165	31	4	25	103	2526	5	11	2271	73
Arrive On Green	0.10	0.00	0.10	0.02	0.02	0.02	0.12	1.00	1.00	0.01	0.65	0.65
Sat Flow, veh/h	1774	0	1583	1774	202	1412	1774	3623	8	1774	3499	113
Grp Volume(v), veh/h	155	0	60	3	0	8	83	912	959	5	1020	1074
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1614	1774	1770	1861	1774	1770	1843
Q Serve(g_s), s	12.0	0.0	4.9	0.2	0.0	0.7	6.4	0.0	0.0	0.4	66.9	68.6
Cycle Q Clear(g_c), s	12.0	0.0	4.9	0.2	0.0	0.7	6.4	0.0	0.0	0.4	66.9	68.6
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.00	1.00		0.06
Lane Grp Cap(c), veh/h	185	0	165	31	0	28	103	1234	1298	11	1148	1196
V/C Ratio(X)	0.84	0.00	0.36	0.10	0.00	0.28	0.81	0.74	0.74	0.45	0.89	0.90
Avail Cap(c_a), veh/h	317	0	283	108	0	98	209	1234	1298	89	1148	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.6	0.0	58.4	67.7	0.0	67.9	61.1	0.0	0.0	69.3	20.4	20.7
Incr Delay (d2), s/veh	9.7	0.0	1.3	1.4	0.0	5.4	13.5	4.0	3.8	25.4	10.3	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	2.2	0.1	0.0	0.3	3.5	1.4	1.4	0.3	35.6	38.2
LnGrp Delay(d),s/veh	71.3	0.0	59.7	69.1	0.0	73.3	74.6	4.0	3.8	94.7	30.7	31.4
LnGrp LOS	E		E	E		E	E	A	A	F	C	C
Approach Vol, veh/h	215				11		1954				2099	
Approach Delay, s/veh	68.0				72.2		6.9				31.2	
Approach LOS	E				E		A				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	14.6	96.9	20.6		7.9	103.6	7.9					
Change Period (Y+Rc), s	6.5	6.0	6.0		7.0	6.0	5.5					
Max Green Setting (Gmax), s	16.5	66.0	25.0		7.0	75.0	8.5					
Max Q Clear Time (g_c+I1), s	8.4	70.6	14.0		2.4	2.0	2.7					
Green Ext Time (p_c), s	0.1	0.0	0.6		0.0	22.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			22.1									
HCM 2010 LOS			C									

Timings
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Existing PM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	143	0	3	1	76	1718	5	1866
Future Volume (vph)	143	0	3	1	76	1718	5	1866
Turn Type	Split	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	4	8	8	1	6	5	2
Permitted Phases								
Detector Phase	4	4	8	8	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0
Minimum Split (s)	23.0	23.0	12.5	12.5	11.5	32.5	12.0	32.5
Total Split (s)	31.0	31.0	14.0	14.0	23.0	81.0	14.0	72.0
Total Split (%)	22.1%	22.1%	10.0%	10.0%	16.4%	57.9%	10.0%	51.4%
Yellow Time (s)	3.5	3.5	3.0	3.0	4.0	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.5	2.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.5	5.5	6.5	6.0	7.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)	17.5	17.5	7.0	7.0	11.9	102.7	6.0	87.1
Actuated g/C Ratio	0.12	0.12	0.05	0.05	0.08	0.73	0.04	0.62
v/c Ratio	0.70	0.15	0.03	0.09	0.55	0.72	0.07	0.96
Control Delay	74.9	0.8	64.3	39.0	49.4	24.6	65.8	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	0.8	64.3	39.0	49.4	24.6	65.8	37.3
LOS	E	A	E	D	D	C	E	D
Approach Delay		54.2		45.9		25.7		37.3
Approach LOS		D		D		C		D

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 12 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 32.9
 Intersection Capacity Utilization 87.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

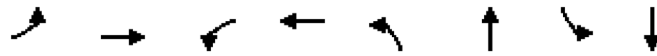


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Existing PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	155	60	3	8	83	1871	5	2094
v/c Ratio	0.70	0.15	0.03	0.09	0.55	0.72	0.07	0.96
Control Delay	74.9	0.8	64.3	39.0	49.4	24.6	65.8	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	0.8	64.3	39.0	49.4	24.6	65.8	37.3
Queue Length 50th (ft)	137	0	3	1	70	602	5	790
Queue Length 95th (ft)	205	0	13	20	m89	#827	20	#1362
Internal Link Dist (ft)		390		206		929		1223
Turn Bay Length (ft)					250		220	
Base Capacity (vph)	316	470	107	104	208	2595	88	2192
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.13	0.03	0.08	0.40	0.72	0.06	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	96.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	0	1	6	23	0	70	9	1745	37	23	1925	12
Future Vol, veh/h	0	1	6	23	0	70	9	1745	37	23	1925	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	7	25	0	76	10	1897	40	25	2092	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3118	4106	1053	3034	4092	969	2105	0	0	1937	0	0
Stage 1	2149	2149	-	1937	1937	-	-	-	-	-	-	-
Stage 2	969	1957	-	1097	2155	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	5	2	223	~6	2	253	257	-	-	300	-	-
Stage 1	49	87	-	68	111	-	-	-	-	-	-	-
Stage 2	272	109	-	227	86	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	3	2	223	~3	2	253	257	-	-	300	-	-
Mov Cap-2 Maneuver	3	2	-	~3	2	-	-	-	-	-	-	-
Stage 1	49	80	-	68	111	-	-	-	-	-	-	-
Stage 2	190	109	-	199	79	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	474.3	3957.1	0.1	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	257	-	-	13 12	300	-	-
HCM Lane V/C Ratio	0.038	-	-	0.585 8.424	0.083	-	-
HCM Control Delay (s)	19.6	0	-	474.3 3957.1	18.1	-	-
HCM Lane LOS	C	A	-	F F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4 13.9	0.3	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	TT			TT	TT	
Traffic Vol, veh/h	2	103	49	1839	1900	2
Future Vol, veh/h	2	103	49	1839	1900	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	112	53	1999	2065	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	3172	1034	2067	0	-	0
Stage 1	2066	-	-	-	-	-
Stage 2	1106	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	8	229	266	-	-	-
Stage 1	83	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	8	229	266	-	-	-
Mov Cap-2 Maneuver	8	-	-	-	-	-
Stage 1	83	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	80.6	0.6		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	266	-	150	-	-	
HCM Lane V/C Ratio	0.2	-	0.761	-	-	
HCM Control Delay (s)	21.9	0	80.6	-	-	
HCM Lane LOS	C	A	F	-	-	
HCM 95th %tile Q(veh)	0.7	-	4.7	-	-	

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	1	16	39	2	66	23	1768	46	73	1745	47
Future Volume (veh/h)	48	1	16	39	2	66	23	1768	46	73	1745	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	52	1	17	42	2	72	25	1922	50	79	1897	51
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	2	74	102	5	95	63	2286	1023	103	2377	1064
Arrive On Green	0.05	0.05	0.05	0.06	0.06	0.06	0.07	1.00	1.00	0.12	1.00	1.00
Sat Flow, veh/h	1742	34	1583	1697	81	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	53	0	17	44	0	72	25	1922	50	79	1897	51
Grp Sat Flow(s),veh/h/ln	1776	0	1583	1778	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.1	0.0	1.4	3.3	0.0	6.3	1.9	0.0	0.0	6.1	0.0	0.0
Cycle Q Clear(g_c), s	4.1	0.0	1.4	3.3	0.0	6.3	1.9	0.0	0.0	6.1	0.0	0.0
Prop In Lane	0.98		1.00	0.95		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	0	74	107	0	95	63	2286	1023	103	2377	1064
V/C Ratio(X)	0.64	0.00	0.23	0.41	0.00	0.76	0.39	0.84	0.05	0.77	0.80	0.05
Avail Cap(c_a), veh/h	235	0	209	222	0	198	120	2286	1023	152	2377	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.6	0.0	64.3	63.4	0.0	64.8	63.6	0.0	0.0	61.0	0.0	0.0
Incr Delay (d2), s/veh	7.9	0.0	1.6	2.5	0.0	11.5	3.9	3.9	0.1	12.9	2.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.7	1.7	0.0	3.0	1.0	1.2	0.0	3.3	1.0	0.0
LnGrp Delay(d),s/veh	73.5	0.0	65.9	65.9	0.0	76.2	67.5	3.9	0.1	73.9	2.9	0.1
LnGrp LOS	E		E	E		E	E	A	A	E	A	A
Approach Vol, veh/h	70					116		1997		2027		
Approach Delay, s/veh	71.6					72.3		4.6		5.6		
Approach LOS	E					E		A		A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	15.1	96.9	13.0		11.5	100.5	14.9					
Change Period (Y+Rc), s	7.0	6.5	6.5		6.5	6.5	6.5					
Max Green Setting (Gmax), s	12.0	65.5	18.5		9.5	68.5	17.5					
Max Q Clear Time (g_c+I1), s	8.1	2.0	6.1		3.9	2.0	8.3					
Green Ext Time (p_c), s	0.0	25.0	0.2		0.0	24.6	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay			8.1									
HCM 2010 LOS			A									

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Existing PM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	1	16	2	66	23	1768	46	73	1745	47
Future Volume (vph)	1	16	2	66	23	1768	46	73	1745	47
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	25.0	25.0	24.0	24.0	16.0	72.0	72.0	19.0	75.0	75.0
Total Split (%)	17.9%	17.9%	17.1%	17.1%	11.4%	51.4%	51.4%	13.6%	53.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	9.8	9.8	9.1	9.1	7.5	88.4	88.4	11.6	99.3	99.3
Actuated g/C Ratio	0.07	0.07	0.06	0.06	0.05	0.63	0.63	0.08	0.71	0.71
v/c Ratio	0.43	0.07	0.38	0.32	0.26	0.86	0.05	0.54	0.76	0.04
Control Delay	72.5	0.6	71.5	3.8	67.7	25.0	0.1	72.4	13.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.5	0.6	71.5	3.8	67.7	25.0	0.1	72.4	13.2	0.5
LOS	E	A	E	A	E	C	A	E	B	A
Approach Delay	55.0		29.5			24.9			15.2	
Approach LOS	E		C			C			B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 31 (22%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 20.9

Intersection LOS: C

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way





Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	17	44	72	25	1922	50	79	1897	51
v/c Ratio	0.43	0.07	0.38	0.32	0.26	0.86	0.05	0.54	0.76	0.04
Control Delay	72.5	0.6	71.5	3.8	67.7	25.0	0.1	72.4	13.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.5	0.6	71.5	3.8	67.7	25.0	0.1	72.4	13.2	0.5
Queue Length 50th (ft)	47	0	39	0	23	785	0	76	170	0
Queue Length 95th (ft)	92	0	79	0	m37	#1144	m0	m87	m#388	m0
Internal Link Dist (ft)	561		1965			1392			519	
Turn Bay Length (ft)				100	330		130	125		175
Base Capacity (vph)	234	321	222	310	121	2235	1047	165	2509	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.05	0.20	0.23	0.21	0.86	0.05	0.48	0.76	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	37	1766	34	40	1943
Future Vol, veh/h	37	37	1766	34	40	1943
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	40	1920	37	43	2112
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	3081	979	0	0	1957	0
Stage 1	1939	-	-	-	-	-
Stage 2	1142	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 9	249	-	-	294	-
Stage 1	98	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 8	249	-	-	294	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	98	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	74	0		0.4		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	126	294	-	
HCM Lane V/C Ratio	-	-	0.638	0.148	-	
HCM Control Delay (s)	-	-	74	19.4	-	
HCM Lane LOS	-	-	F	C	-	
HCM 95th %tile Q(veh)	-	-	3.3	0.5	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Existing PM

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	39	19	30	1761	1886	71		
Future Volume (veh/h)	39	19	30	1761	1886	71		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	42	21	33	1914	2050	77		
Adj No. of Lanes	1	1	1	2	2	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	81	130	262	3049	2744	1300		
Arrive On Green	0.05	0.05	0.04	0.86	1.00	1.00		
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583		
Grp Volume(v), veh/h	42	21	33	1914	2050	77		
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583		
Q Serve(g_s), s	3.2	1.7	0.5	22.8	0.0	0.0		
Cycle Q Clear(g_c), s	3.2	1.7	0.5	22.8	0.0	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	81	130	262	3049	2744	1300		
V/C Ratio(X)	0.52	0.16	0.13	0.63	0.75	0.06		
Avail Cap(c_a), veh/h	298	323	300	3049	2744	1300		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	65.3	59.8	2.2	2.9	0.0	0.0		
Incr Delay (d2), s/veh	5.0	0.6	0.2	1.0	1.9	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.7	1.6	0.2	11.3	0.7	0.0		
LnGrp Delay(d),s/veh	70.3	60.4	2.4	3.9	1.9	0.1		
LnGrp LOS	E	E	A	A	A	A		
Approach Vol, veh/h	63			1947	2127			
Approach Delay, s/veh	67.0			3.9	1.8			
Approach LOS	E			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.1	115.0		12.9		127.1		
Change Period (Y+Rc), s	7.0	6.5		6.5		6.5		
Max Green Setting (Gmax), s	8.0	88.5		23.5		103.5		
Max Q Clear Time (g_c+I1), s	2.5	2.0		5.2		24.8		
Green Ext Time (p_c), s	0.0	58.9		0.1		48.4		
Intersection Summary								
HCM 2010 Ctrl Delay			3.8					
HCM 2010 LOS			A					

Timings
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Existing PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	19	30	1761	1886	71
Future Volume (vph)	39	19	30	1761	1886	71
Turn Type	Prot	pm+ov	pm+pt	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4	6			2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0	7.0
Minimum Split (s)	24.5	14.0	14.0	24.5	24.5	24.5
Total Split (s)	30.0	15.0	15.0	110.0	95.0	30.0
Total Split (%)	21.4%	10.7%	10.7%	78.6%	67.9%	21.4%
Yellow Time (s)	3.5	4.5	4.5	5.0	5.0	3.5
All-Red Time (s)	3.0	2.5	2.5	1.5	1.5	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.0	7.0	6.5	6.5	6.5
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	9.0	22.5	117.5	118.0	106.8	123.6
Actuated g/C Ratio	0.06	0.16	0.84	0.84	0.76	0.88
v/c Ratio	0.37	0.08	0.20	0.64	0.76	0.05
Control Delay	71.3	28.7	4.8	5.1	9.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	28.7	4.8	5.1	9.4	0.1
LOS	E	C	A	A	A	A
Approach Delay	57.1			5.1	9.1	
Approach LOS	E			A	A	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 49 (35%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 69.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way



Queues
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Existing PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	42	21	33	1914	2050	77
v/c Ratio	0.37	0.08	0.20	0.64	0.76	0.05
Control Delay	71.3	28.7	4.8	5.1	9.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	28.7	4.8	5.1	9.4	0.1
Queue Length 50th (ft)	37	6	4	240	205	0
Queue Length 95th (ft)	77	31	10	339	268	m0
Internal Link Dist (ft)	1269			4876	1079	
Turn Bay Length (ft)			260			265
Base Capacity (vph)	297	276	178	2982	2699	1526
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.08	0.19	0.64	0.76	0.05
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

BACKGROUND CAPACITY ANALYSES

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	0	60	0	2	2	146	2479	1	0	1801	69
Future Volume (veh/h)	278	0	60	0	2	2	146	2479	1	0	1801	69
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	302	0	65	0	2	2	159	2695	1	0	1958	75
Adj No. of Lanes	2	0	1	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	0	169	13	6	6	181	2729	1	1	2121	949
Arrive On Green	0.11	0.00	0.11	0.00	0.01	0.01	0.20	1.00	1.00	0.00	0.60	0.60
Sat Flow, veh/h	3548	0	1583	1774	856	856	1774	3631	1	1774	3539	1583
Grp Volume(v), veh/h	302	0	65	0	0	4	159	1313	1383	0	1958	75
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1712	1774	1770	1863	1774	1770	1583
Q Serve(g_s), s	10.8	0.0	5.0	0.0	0.0	0.3	11.3	0.0	0.0	0.0	64.5	2.6
Cycle Q Clear(g_c), s	10.8	0.0	5.0	0.0	0.0	0.3	11.3	0.0	0.0	0.0	64.5	2.6
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	378	0	169	13	0	12	181	1330	1400	1	2121	949
V/C Ratio(X)	0.80	0.00	0.39	0.00	0.00	0.32	0.88	0.99	0.99	0.00	0.92	0.08
Avail Cap(c_a), veh/h	682	0	304	102	0	99	198	1330	1400	96	2121	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	0.0	54.1	0.0	0.0	64.2	50.9	0.0	0.0	0.0	23.4	11.0
Incr Delay (d2), s/veh	3.9	0.0	1.4	0.0	0.0	14.3	31.2	21.9	21.3	0.0	8.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	2.3	0.0	0.0	0.2	7.0	8.1	8.3	0.0	33.7	1.2
LnGrp Delay(d),s/veh	60.6	0.0	55.5	0.0	0.0	78.5	82.1	21.9	21.3	0.0	31.6	11.1
LnGrp LOS	E		E			E	F	C	C		C	B
Approach Vol, veh/h		367			4			2855			2033	
Approach Delay, s/veh		59.7			78.5			25.0			30.8	
Approach LOS		E			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.8	83.9		19.9	0.0	103.7		6.4				
Change Period (Y+Rc), s	6.5	6.0		6.0	7.0	6.0		5.5				
Max Green Setting (Gmax), s	14.5	59.0		25.0	7.0	66.0		7.5				
Max Q Clear Time (g_c+I1), s	13.3	66.5		12.8	0.0	2.0		2.3				
Green Ext Time (p_c), s	0.0	0.0		1.1	0.0	50.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.7									
HCM 2010 LOS			C									
Notes												

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Background AM

									
Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR	Ø5
Lane Configurations									
Traffic Volume (vph)	278	0	60	2	146	2479	1801	69	
Future Volume (vph)	278	0	60	2	146	2479	1801	69	
Turn Type	Split	NA	Perm	NA	Prot	NA	NA	Perm	
Protected Phases	4	4		8	1	6	2		5
Permitted Phases			4					2	
Detector Phase	4	4	4	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	25.0	25.0	25.0	5.0
Minimum Split (s)	23.0	23.0	23.0	12.5	11.5	32.5	32.5	32.5	12.0
Total Split (s)	31.0	31.0	31.0	13.0	21.0	72.0	65.0	65.0	14.0
Total Split (%)	23.8%	23.8%	23.8%	10.0%	16.2%	55.4%	50.0%	50.0%	11%
Yellow Time (s)	3.5	3.5	3.5	3.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	5.5	6.5	6.0	6.0	6.0	
Lead/Lag					Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	17.4	17.4	17.4	7.0	16.1	98.1	75.5	75.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.05	0.12	0.75	0.58	0.58	
v/c Ratio	0.67	0.67	0.17	0.04	0.73	1.01	0.95	0.08	
Control Delay	67.3	67.3	1.0	48.0	46.7	36.6	38.5	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	67.3	67.3	1.0	48.0	46.7	36.6	38.5	0.1	
LOS	E	E	A	D	D	D	D	A	
Approach Delay		55.6		48.0		37.2	37.1		
Approach LOS		E		D		D	D		

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 38.4

Intersection LOS: D

Intersection Capacity Utilization 102.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

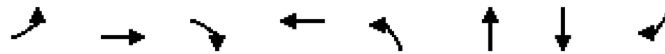


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Background AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	151	151	65	4	159	2696	1958	75
v/c Ratio	0.67	0.67	0.17	0.04	0.73	1.01	0.95	0.08
Control Delay	67.3	67.3	1.0	48.0	46.7	36.6	38.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	67.3	1.0	48.0	46.7	36.6	38.5	0.1
Queue Length 50th (ft)	129	129	0	2	135	831	758	0
Queue Length 95th (ft)	193	193	0	14	m116	m498	#1201	0
Internal Link Dist (ft)		390		206		921	2610	
Turn Bay Length (ft)					250			100
Base Capacity (vph)	323	323	453	101	226	2669	2055	996
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.47	0.14	0.04	0.70	1.01	0.95	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	238.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	10	19	2	81	21	2610	28	34	1870	12
Future Vol, veh/h	1	0	10	19	2	81	21	2610	28	34	1870	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	11	21	2	88	23	2837	30	37	2033	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3580	5027	1023	3989	5018	1434	2046	0	0	2867	0	0
Stage 1	2114	2114	-	2898	2898	-	-	-	-	-	-	-
Stage 2	1466	2913	-	1091	2120	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	2	1	233	~ 1	~ 1	123	271	-	-	128	-	-
Stage 1	52	90	-	~ 16	35	-	-	-	-	-	-	-
Stage 2	134	34	-	229	90	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	1	233	~ 1	~ 1	123	271	-	-	128	-	-
Mov Cap-2 Maneuver	-	1	-	~ 1	~ 1	-	-	-	-	-	-	-
Stage 1	52	64	-	~ 16	35	-	-	-	-	-	-	-
Stage 2	36	34	-	155	64	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s			\$ 10955.5		0.2		0.8					
HCM LOS	-		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	271	-	-	-	5	128	-	-				
HCM Lane V/C Ratio	0.084	-	-	-	22.174	0.289	-	-				
HCM Control Delay (s)	19.5	0	-	\$ 10955.5	44.2	-	-					
HCM Lane LOS	C	A	-	-	F	E	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	-	15.9	1.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	39.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗	↗	↗	↗	↗
Traffic Vol, veh/h	0	0	128	0	0	256	157	2460	120	186	1667	20
Future Vol, veh/h	0	0	128	0	0	256	157	2460	120	186	1667	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	300	300	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	139	0	0	278	171	2674	130	202	1812	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	906	-	-	1337	1834	0	0	2804	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	279	0	0	~ 143	329	-	-	~ 136	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	279	-	-	~ 143	329	-	-	~ 136	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.1	\$ 502.5	1.6	31.1
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	329	-	-	279 143 ~ 136	-	-	-
HCM Lane V/C Ratio	0.519	-	-	0.499 1.946 1.487	-	-	-
HCM Control Delay (s)	27.2	-	-	30.1\$ 502.5\$ 313.3	-	-	-
HCM Lane LOS	D	-	-	D F F	-	-	-
HCM 95th %tile Q(veh)	2.8	-	-	2.6 21.7 13.8	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 Signalized Intersection Summary

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	2	36	274	0	152	37	2416	81	115	1558	57
Future Volume (veh/h)	166	2	36	274	0	152	37	2416	81	115	1558	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	180	2	39	298	0	165	40	2626	88	125	1693	62
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	2	186	198	0	177	68	1735	776	136	1885	843
Arrive On Green	0.12	0.12	0.12	0.11	0.00	0.11	0.05	0.65	0.65	0.15	1.00	1.00
Sat Flow, veh/h	1755	20	1583	1774	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	182	0	39	298	0	165	40	2626	88	125	1693	62
Grp Sat Flow(s),veh/h/ln	1775	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	13.1	0.0	2.9	14.5	0.0	13.4	2.9	63.7	2.7	9.0	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	2.9	14.5	0.0	13.4	2.9	63.7	2.7	9.0	0.0	0.0
Prop In Lane	0.99		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	0	186	198	0	177	68	1735	776	136	1885	843
V/C Ratio(X)	0.87	0.00	0.21	1.51	0.00	0.93	0.59	1.51	0.11	0.92	0.90	0.07
Avail Cap(c_a), veh/h	225	0	201	198	0	177	143	1735	776	136	1885	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	0.0	51.9	57.8	0.0	57.3	60.7	22.6	12.0	54.6	0.0	0.0
Incr Delay (d2), s/veh	28.0	0.0	0.6	252.2	0.0	49.0	0.7	231.2	0.0	52.4	7.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	1.3	21.0	0.0	8.3	1.4	86.4	1.2	6.4	1.9	0.0
LnGrp Delay(d),s/veh	84.4	0.0	52.5	309.9	0.0	106.2	61.4	253.8	12.0	106.9	7.3	0.2
LnGrp LOS	F		D	F		F	E	F	B	F	A	A
Approach Vol, veh/h		221			463			2754			1880	
Approach Delay, s/veh		78.8			237.3			243.3			13.7	
Approach LOS		E			F			F			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	70.2		21.8	11.5	75.7		21.0				
Change Period (Y+Rc), s	7.0	6.5		6.5	6.5	6.5		6.5				
Max Green Setting (Gmax), s	10.0	62.5		16.5	10.5	62.5		14.5				
Max Q Clear Time (g_c+I1), s	11.0	65.7		15.1	4.9	2.0		16.5				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	19.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			154.8									
HCM 2010 LOS			F									

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Background AM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	2	36	0	152	37	2416	81	115	1558	57
Future Volume (vph)	2	36	0	152	37	2416	81	115	1558	57
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	23.0	23.0	21.0	21.0	17.0	69.0	69.0	17.0	69.0	69.0
Total Split (%)	17.7%	17.7%	16.2%	16.2%	13.1%	53.1%	53.1%	13.1%	53.1%	53.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	15.8	15.8	15.2	15.2	8.2	62.5	62.5	10.0	67.2	67.2
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.06	0.48	0.48	0.08	0.52	0.52
v/c Ratio	0.85	0.12	1.44	0.51	0.36	1.54	0.11	0.92	0.93	0.07
Control Delay	87.4	0.8	264.5	16.0	67.7	269.3	0.5	102.6	29.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.4	0.8	264.5	16.0	67.7	269.3	0.5	102.6	29.5	1.7
LOS	F	A	F	B	E	F	A	F	C	A
Approach Delay	72.1		176.0			257.8			33.5	
Approach LOS	E		F			F			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.54

Intersection Signal Delay: 163.6

Intersection LOS: F

Intersection Capacity Utilization 111.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way

Ø1	Ø2 (R)	Ø4	Ø8
17 s	69 s	23 s	21 s
Ø5	Ø6 (R)		
17 s	69 s		



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	182	39	298	165	40	2626	88	125	1693	62
v/c Ratio	0.85	0.12	1.44	0.51	0.36	1.54	0.11	0.92	0.93	0.07
Control Delay	87.4	0.8	264.5	16.0	67.7	269.3	0.5	102.6	29.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.4	0.8	264.5	16.0	67.7	269.3	0.5	102.6	29.5	1.7
Queue Length 50th (ft)	151	0	~349	8	34	~1632	0	112	336	0
Queue Length 95th (ft)	#274	0	#531	77	m35	m#1548	m0	m#131	m#836	m1
Internal Link Dist (ft)	1438		351			1392			519	
Turn Bay Length (ft)				250	330		300	200		175
Base Capacity (vph)	225	325	207	321	142	1701	835	136	1830	887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.12	1.44	0.51	0.28	1.54	0.11	0.92	0.93	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

5: Nashville Highway & Green Mills

2558 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	14	147	1	336	8	2115	83	129	1852	10
Future Volume (veh/h)	60	5	14	147	1	336	8	2115	83	129	1852	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	65	5	15	160	1	365	9	2299	90	140	2013	11
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	154	148	310	222	259	210	2286	1150	163	2406	1146
Arrive On Green	0.04	0.08	0.08	0.08	0.12	0.12	0.02	1.00	1.00	0.09	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	65	5	15	160	1	365	9	2299	90	140	2013	11
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.3	0.3	1.1	10.5	0.1	15.5	0.2	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.3	1.1	10.5	0.1	15.5	0.2	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	154	148	310	222	259	210	2286	1150	163	2406	1146
V/C Ratio(X)	0.30	0.03	0.10	0.52	0.00	1.41	0.04	1.01	0.08	0.86	0.84	0.01
Avail Cap(c_a), veh/h	282	222	206	310	222	259	334	2286	1150	227	2406	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.39	0.39	0.39	0.30	0.30	0.30
Uniform Delay (d), s/veh	51.4	54.8	53.9	48.2	50.5	54.4	7.6	0.0	0.0	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.1	0.3	1.5	0.0	204.8	0.0	13.1	0.1	7.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.2	0.5	5.3	0.0	24.1	0.1	4.2	0.0	5.1	0.4	0.0
LnGrp Delay(d),s/veh	52.2	54.9	54.2	49.7	50.5	259.1	7.7	13.1	0.1	38.6	1.1	0.0
LnGrp LOS	D	D	D	D	D	F	A	F	A	D	A	A
Approach Vol, veh/h	85				526				2398			
Approach Delay, s/veh	52.7				195.0				12.6			
Approach LOS	D				F				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	89.4	15.0	15.2	5.9	93.9	10.2	20.0				
Change Period (Y+Rc), s	4.5	5.5	4.5	4.5	4.5	5.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	74.5	10.5	15.5	10.5	74.5	10.5	15.5				
Max Q Clear Time (g_c+I1), s	5.8	2.0	12.5	3.1	2.2	2.0	6.3	17.5				
Green Ext Time (p_c), s	0.1	39.0	0.0	0.0	0.0	28.3	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	28.0											
HCM 2010 LOS	C											

Timings

5: Nashville Highway & Green Mills

2558 Nashville Highway
Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	5	14	147	1	336	8	2115	83	129	1852	10
Future Volume (vph)	60	5	14	147	1	336	8	2115	83	129	1852	10
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	25.0	5.0	5.0	25.0	5.0
Minimum Split (s)	10.5	9.5	10.5	10.5	9.5	10.5	10.5	30.5	10.5	10.5	30.5	10.5
Total Split (s)	15.0	20.0	15.0	15.0	20.0	15.0	15.0	80.0	15.0	15.0	80.0	15.0
Total Split (%)	11.5%	15.4%	11.5%	11.5%	15.4%	11.5%	11.5%	61.5%	11.5%	11.5%	61.5%	11.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.5	4.5	4.5	5.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	11.0	6.0	7.9	11.9	6.8	27.8	86.8	80.2	96.2	108.2	101.1	117.2
Actuated g/C Ratio	0.08	0.05	0.06	0.09	0.05	0.21	0.67	0.62	0.74	0.83	0.78	0.90
v/c Ratio	0.43	0.06	0.10	0.98	0.01	0.89	0.06	1.05	0.08	0.38	0.73	0.01
Control Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	48.3	0.1	25.7	9.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	48.3	0.1	25.7	9.3	0.0
LOS	E	E	A	F	E	E	A	D	A	C	A	A
Approach Delay		51.9			79.0			46.3			10.3	
Approach LOS		D			E			D			B	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 34.6

Intersection LOS: C

Intersection Capacity Utilization 95.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Nashville Highway & Green Mills



Queues
5: Nashville Highway & Green Mills

2558 Nashville Highway
Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	65	5	15	160	1	365	9	2299	90	140	2013	11
v/c Ratio	0.43	0.06	0.10	0.98	0.01	0.89	0.06	1.05	0.08	0.38	0.73	0.01
Control Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	48.3	0.1	25.7	9.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	48.3	0.1	25.7	9.3	0.0
Queue Length 50th (ft)	53	4	0	~155	1	225	1	~1167	1	74	213	0
Queue Length 95th (ft)	93	18	0	#199	7	#383	m2	#1304	m0	m82	m397	m0
Internal Link Dist (ft)	1713			3835			1079			1392		
Turn Bay Length (ft)	250		250	240		240	400		100	480		140
Base Capacity (vph)	162	222	208	163	222	419	224	2182	1184	374	2752	1452
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.02	0.07	0.98	0.00	0.87	0.04	1.05	0.08	0.37	0.73	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	0	28	89	0	67	11	2046	29	22	1914	44
Future Volume (veh/h)	81	0	28	89	0	67	11	2046	29	22	1914	44
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	88	0	30	97	0	73	12	2224	32	24	2080	48
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	0	92	224	112	131	216	2429	1189	121	2373	1061
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.06	0.02	0.69	0.69	0.04	1.00	1.00
Sat Flow, veh/h	1774	0	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	88	0	30	97	0	73	12	2224	32	24	2080	48
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.4	0.0	2.4	6.6	0.0	5.8	0.3	69.0	0.7	0.5	0.0	0.0
Cycle Q Clear(g_c), s	6.4	0.0	2.4	6.6	0.0	5.8	0.3	69.0	0.7	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	0	92	224	112	131	216	2429	1189	121	2373	1061
V/C Ratio(X)	0.80	0.00	0.33	0.43	0.00	0.56	0.06	0.92	0.03	0.20	0.88	0.05
Avail Cap(c_a), veh/h	143	0	164	253	222	224	291	2429	1189	225	2373	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	60.2	0.0	58.8	53.0	0.0	57.3	6.3	17.2	4.1	25.7	0.0	0.0
Incr Delay (d2), s/veh	21.1	0.0	2.1	1.3	0.0	3.7	0.1	6.8	0.0	0.5	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.1	3.3	0.0	2.7	0.1	35.7	0.3	0.5	1.0	0.0
LnGrp Delay(d),s/veh	81.3	0.0	60.9	54.3	0.0	61.0	6.4	24.0	4.2	26.1	3.0	0.0
LnGrp LOS	F		E	D		E	A	C	A	C	A	A
Approach Vol, veh/h	118				170			2268			2152	
Approach Delay, s/veh	76.1				57.2			23.7			3.2	
Approach LOS	E				E			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	93.6	12.9	14.0	7.4	95.7	12.5	14.3				
Change Period (Y+Rc), s	7.0	6.5	4.5	6.5	4.5	6.5	4.5	* 6.5				
Max Green Setting (Gmax), s	8.0	73.5	10.5	13.5	10.5	73.5	10.5	* 16				
Max Q Clear Time (g_c+I1), s	2.3	2.0	8.6	4.4	2.5	71.0	8.4	7.8				
Green Ext Time (p_c), s	0.0	52.2	0.0	0.0	0.0	2.5	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	16.8											
HCM 2010 LOS	B											
Notes												

Timings 6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Background AM

											
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø8
Lane Configurations											
Traffic Volume (vph)	81	0	89	67	11	2046	29	22	1914	44	
Future Volume (vph)	81	0	89	67	11	2046	29	22	1914	44	
Turn Type	Prot	NA	pm+pt	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	7	4	3	5	1	6	3	5	2		8
Permitted Phases			8	8	6		6	2		2	
Detector Phase	7	4	3	5	1	6	3	5	2	2	
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	10.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	9.5	13.5	9.5	9.5	14.0	24.5	9.5	9.5	24.5	24.5	9.5
Total Split (s)	15.0	20.0	15.0	15.0	15.0	80.0	15.0	15.0	80.0	80.0	20.0
Total Split (%)	11.5%	15.4%	11.5%	11.5%	11.5%	61.5%	11.5%	11.5%	61.5%	61.5%	15%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	5.0	3.5	3.5	5.0	5.0	3.5
All-Red Time (s)	1.0	3.0	1.0	1.0	2.5	1.5	1.0	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.5	4.5	4.5	7.0	6.5	4.5	4.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min	C-Min	None
Act Effect Green (s)	18.0	7.0	9.9	7.2	96.3	91.2	108.6	101.2	95.4	95.4	
Actuated g/C Ratio	0.14	0.05	0.08	0.06	0.74	0.70	0.84	0.78	0.73	0.73	
v/c Ratio	0.36	0.15	0.72	0.48	0.08	0.90	0.02	0.15	0.80	0.04	
Control Delay	52.7	1.5	87.1	26.4	6.1	24.4	0.0	5.7	13.7	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.7	1.5	87.1	26.4	6.1	24.4	0.0	5.7	13.7	0.1	
LOS	D	A	F	C	A	C	A	A	B	A	
Approach Delay		39.6				24.0			13.3		
Approach LOS		D				C			B		

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 20.8

Intersection LOS: C

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way

 Ø1	 Ø2 (R)		 Ø3	 Ø4
15 s	80 s		15 s	20 s
 Ø5	 Ø6 (R)		 Ø7	 Ø8
15 s	80 s		15 s	20 s

										
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	30	97	73	12	2224	32	24	2080	48
v/c Ratio	0.36	0.15	0.72	0.48	0.08	0.90	0.02	0.15	0.80	0.04
Control Delay	52.7	1.5	87.1	26.4	6.1	24.4	0.0	5.7	13.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	1.5	87.1	26.4	6.1	24.4	0.0	5.7	13.7	0.1
Queue Length 50th (ft)	64	0	81	5	2	864	0	5	524	0
Queue Length 95th (ft)	115	0	#162	53	8	#1185	0	m5	m#718	m0
Internal Link Dist (ft)	2034						4876	1079		
Turn Bay Length (ft)			200	200	260			150	250	265
Base Capacity (vph)	252	277	142	190	167	2483	1332	203	2596	1194
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.11	0.68	0.38	0.07	0.90	0.02	0.12	0.80	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Background PM

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	193	0	70	3	1	7	89	2401	4	6	2892	76						
Future Volume (veh/h)	193	0	70	3	1	7	89	2401	4	6	2892	76						
Number	7	4	14	3	8	18	1	6	16	5	2	12						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863						
Adj Flow Rate, veh/h	210	0	76	3	1	8	97	2610	4	7	3143	83						
Adj No. of Lanes	2	0	1	1	1	0	1	2	0	1	2	1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2						
Cap, veh/h	278	0	124	33	3	27	119	2510	4	63	2351	1052						
Arrive On Green	0.08	0.00	0.08	0.02	0.02	0.02	0.07	0.69	0.69	0.04	0.66	0.66						
Sat Flow, veh/h	3548	0	1583	1774	179	1431	1774	3626	6	1774	3539	1583						
Grp Volume(v), veh/h	210	0	76	3	0	9	97	1273	1341	7	3143	83						
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1610	1774	1770	1862	1774	1770	1583						
Q Serve(g_s), s	8.1	0.0	6.5	0.2	0.0	0.8	7.6	96.9	96.9	0.5	93.0	2.6						
Cycle Q Clear(g_c), s	8.1	0.0	6.5	0.2	0.0	0.8	7.6	96.9	96.9	0.5	93.0	2.6						
Prop In Lane	1.00		1.00	1.00		0.89	1.00		0.00	1.00		1.00						
Lane Grp Cap(c), veh/h	278	0	124	33	0	30	119	1225	1289	63	2351	1052						
V/C Ratio(X)	0.76	0.00	0.61	0.09	0.00	0.30	0.81	1.04	1.04	0.11	1.34	0.08						
Avail Cap(c_a), veh/h	634	0	283	108	0	98	209	1225	1289	89	2351	1052						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Uniform Delay (d), s/veh	63.2	0.0	62.5	67.5	0.0	67.8	64.4	21.5	21.5	65.3	23.5	8.3						
Incr Delay (d2), s/veh	4.2	0.0	4.8	1.2	0.0	5.5	12.3	36.6	36.1	0.8	154.6	0.1						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	4.2	0.0	3.0	0.1	0.0	0.4	4.1	59.1	62.0	0.3	95.5	1.2						
LnGrp Delay(d),s/veh	67.4	0.0	67.3	68.7	0.0	73.2	76.7	58.1	57.6	66.1	178.1	8.5						
LnGrp LOS	E		E	E		E	E	F	F	E	F	A						
Approach Vol, veh/h	286				12			2711			3233							
Approach Delay, s/veh	67.4				72.1			58.5			173.5							
Approach LOS	E				E			E			F							
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	15.9	99.0			17.0	12.0	102.9	8.1										
Change Period (Y+Rc), s	6.5	6.0			6.0	7.0	6.0	5.5										
Max Green Setting (Gmax), s	16.5	66.0			25.0	7.0	75.0	8.5										
Max Q Clear Time (g_c+I1), s	9.6	95.0			10.1	2.5	98.9	2.8										
Green Ext Time (p_c), s	0.1	0.0			0.8	0.0	0.0	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay	118.5																	
HCM 2010 LOS	F																	
Notes																		

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Background PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	193	0	70	3	1	89	2401	6	2892	76
Future Volume (vph)	193	0	70	3	1	89	2401	6	2892	76
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	Prot	NA	Perm
Protected Phases	4	4		8	8	1	6	5	2	
Permitted Phases			4							2
Detector Phase	4	4	4	8	8	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0	25.0
Minimum Split (s)	23.0	23.0	23.0	12.5	12.5	11.5	32.5	12.0	32.5	32.5
Total Split (s)	31.0	31.0	31.0	14.0	14.0	23.0	81.0	14.0	72.0	72.0
Total Split (%)	22.1%	22.1%	22.1%	10.0%	10.0%	16.4%	57.9%	10.0%	51.4%	51.4%
Yellow Time (s)	3.5	3.5	3.5	3.0	3.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.5	5.5	6.5	6.0	7.0	6.0	6.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effect Green (s)	14.2	14.2	14.2	7.0	7.0	13.0	105.9	6.2	89.2	89.2
Actuated g/C Ratio	0.10	0.10	0.10	0.05	0.05	0.09	0.76	0.04	0.64	0.64
v/c Ratio	0.62	0.62	0.24	0.03	0.10	0.59	0.98	0.09	1.39	0.08
Control Delay	74.9	74.9	1.8	64.0	37.6	82.7	20.0	66.3	204.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	74.9	1.8	64.0	37.6	82.7	20.0	66.3	204.6	0.1
LOS	E	E	A	E	D	F	B	E	F	A
Approach Delay		55.5			44.2		22.2		199.1	
Approach LOS		E			D		C		F	

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.39
 Intersection Signal Delay: 115.4
 Intersection Capacity Utilization 104.7%
 Analysis Period (min) 15

Intersection LOS: F
 ICU Level of Service G

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

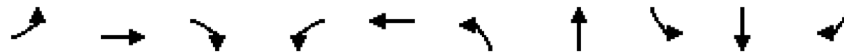


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Background PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	105	105	76	3	9	97	2614	7	3143	83
v/c Ratio	0.62	0.62	0.24	0.03	0.10	0.59	0.98	0.09	1.39	0.08
Control Delay	74.9	74.9	1.8	64.0	37.6	82.7	20.0	66.3	204.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	74.9	1.8	64.0	37.6	82.7	20.0	66.3	204.6	0.1
Queue Length 50th (ft)	97	97	0	3	1	93	431	6	~1938	0
Queue Length 95th (ft)	157	157	0	13	21	m72	m922	23	#2345	0
Internal Link Dist (ft)		390			206		921		2610	
Turn Bay Length (ft)						250		220		100
Base Capacity (vph)	300	300	423	107	105	212	2676	89	2255	1071
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.35	0.18	0.03	0.09	0.46	0.98	0.08	1.39	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	0	1	7	25	0	77	10	2436	41	25	2966	13
Future Vol, veh/h	0	1	7	25	0	77	10	2436	41	25	2966	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	8	27	0	84	11	2648	45	27	3224	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	4631	6000	1619	4360	5985	1347	3238	0	0	2693	0	0
Stage 1	3285	3285	-	2693	2693	-	-	-	-	-	-	-
Stage 2	1346	2715	-	1667	3292	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	92	0	0	141	90	-	-	150	-	-
Stage 1	9	21	-	~ 22	45	-	-	-	-	-	-	-
Stage 2	159	44	-	100	21	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	0	0	92	0	0	141	90	-	-	150	-	-
Mov Cap-2 Maneuver	0	0	-	0	0	-	-	-	-	-	-	-
Stage 1	9	17	-	~ 22	45	-	-	-	-	-	-	-
Stage 2	65	44	-	70	17	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	48.2		89		0.2		0.3					
HCM LOS	E		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	90	-	-	92	141	150	-	-	-	-	-	-
HCM Lane V/C Ratio	0.121	-	-	0.095	0.786	0.181	-	-	-	-	-	-
HCM Control Delay (s)	50.4	0	-	48.2	89	34.2	-	-	-	-	-	-
HCM Lane LOS	F	A	-	E	F	D	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.3	4.8	0.6	-	-	-	-	-	-
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection												
Int Delay, s/veh	19.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↗↗	↗	↘	↗↗	↗
Traffic Vol, veh/h	0	0	155	0	0	143	91	2396	100	159	2729	53
Future Vol, veh/h	0	0	155	0	0	143	91	2396	100	159	2729	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	300	300	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	168	0	0	155	99	2604	109	173	2966	58
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1483	-	-	1302	3024	0	0	2713	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	~ 114	0	0	~ 151	111	-	-	~ 147	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 114	-	-	~ 151	111	-	-	~ 147	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	324.6		140.7		4.6		10.2					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	111	-	-	114	151	~ 147	-	-				
HCM Lane V/C Ratio	0.891	-	-	1.478	1.029	1.176	-	-				
HCM Control Delay (s)	129.6	-	-	\$ 324.6	140.7	189.5	-	-				
HCM Lane LOS	F	-	-	F	F	F	-	-				
HCM 95th %tile Q(veh)	5.4	-	-	12.1	7.9	9.8	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1	67	195	2	138	110	2325	138	203	2391	136
Future Volume (veh/h)	118	1	67	195	2	138	110	2325	138	203	2391	136
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	1	73	212	2	150	120	2527	150	221	2599	148
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	1	141	220	2	198	197	1808	809	152	1732	775
Arrive On Green	0.09	0.09	0.09	0.13	0.13	0.13	0.15	0.68	0.68	0.09	0.49	0.49
Sat Flow, veh/h	1761	14	1583	1758	17	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	129	0	73	214	0	150	120	2527	150	221	2599	148
Grp Sat Flow(s),veh/h/ln	1775	0	1583	1775	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	10.0	0.0	6.2	16.8	0.0	12.8	8.9	71.5	4.9	12.0	68.5	7.4
Cycle Q Clear(g_c), s	10.0	0.0	6.2	16.8	0.0	12.8	8.9	71.5	4.9	12.0	68.5	7.4
Prop In Lane	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	0	141	222	0	198	197	1808	809	152	1732	775
V/C Ratio(X)	0.82	0.00	0.52	0.96	0.00	0.76	0.61	1.40	0.19	1.45	1.50	0.19
Avail Cap(c_a), veh/h	235	0	209	222	0	198	197	1808	809	152	1732	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.20	0.20	0.20	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.6	0.0	60.9	60.9	0.0	59.2	56.8	22.4	11.7	64.0	35.8	20.1
Incr Delay (d2), s/veh	12.9	0.0	2.9	50.3	0.0	15.5	1.1	179.5	0.1	236.7	228.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	2.8	11.4	0.0	6.5	4.4	79.2	2.1	15.9	88.4	3.3
LnGrp Delay(d),s/veh	75.6	0.0	63.8	111.2	0.0	74.7	57.9	201.9	11.9	300.7	264.2	20.7
LnGrp LOS	E		E	F		E	E	F	B	F	F	C
Approach Vol, veh/h		202			364			2797			2968	
Approach Delay, s/veh		71.3			96.1			185.6			254.8	
Approach LOS		E			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	78.0		19.0	22.0	75.0		24.0				
Change Period (Y+Rc), s	7.0	6.5		6.5	6.5	6.5		6.5				
Max Green Setting (Gmax), s	12.0	65.5		18.5	9.5	68.5		17.5				
Max Q Clear Time (g_c+I1), s	14.0	73.5		12.0	10.9	70.5		18.8				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			209.2									
HCM 2010 LOS			F									

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Background PM

	→	↘	←	↖	↙	↑	↗	↘	↓	↖
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	1	67	2	138	110	2325	138	203	2391	136
Future Volume (vph)	1	67	2	138	110	2325	138	203	2391	136
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	25.0	25.0	24.0	24.0	16.0	72.0	72.0	19.0	75.0	75.0
Total Split (%)	17.9%	17.9%	17.1%	17.1%	11.4%	51.4%	51.4%	13.6%	53.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	14.9	14.9	19.8	19.8	9.5	65.5	65.5	13.3	69.8	69.8
Actuated g/C Ratio	0.11	0.11	0.14	0.14	0.07	0.47	0.47	0.10	0.50	0.50
v/c Ratio	0.69	0.22	0.85	0.39	1.00	1.53	0.19	1.32	1.47	0.17
Control Delay	78.3	1.5	87.3	6.5	107.7	265.0	4.3	186.1	249.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	1.5	87.3	6.5	107.7	265.0	4.3	186.1	249.6	11.0
LOS	E	A	F	A	F	F	A	F	F	B
Approach Delay	50.5		54.0			244.3			233.0	
Approach LOS	D		D			F			F	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 28 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.53

Intersection Signal Delay: 221.9

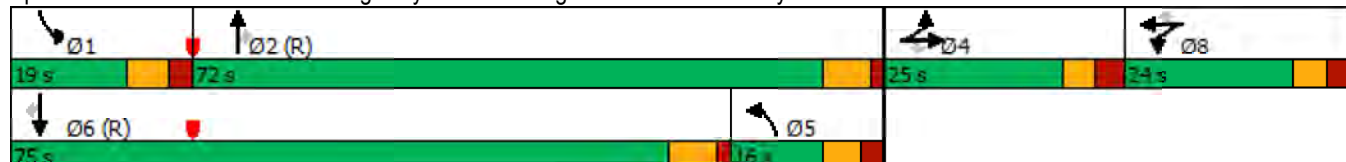
Intersection LOS: F

Intersection Capacity Utilization 109.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way





Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	73	214	150	120	2527	150	221	2599	148
v/c Ratio	0.69	0.22	0.85	0.39	1.00	1.53	0.19	1.32	1.47	0.17
Control Delay	78.3	1.5	87.3	6.5	107.7	265.0	4.3	186.1	249.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	1.5	87.3	6.5	107.7	265.0	4.3	186.1	249.6	11.0
Queue Length 50th (ft)	115	0	192	0	~110	~1692	11	~275	~1733	40
Queue Length 95th (ft)	183	0	#361	37	m#128	m#1796	m15	m#182	m#1105	m31
Internal Link Dist (ft)	1438		351			1392			519	
Turn Bay Length (ft)				250	330		300	200		175
Base Capacity (vph)	234	368	251	381	120	1655	810	167	1763	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.20	0.85	0.39	1.00	1.53	0.19	1.32	1.47	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

5: Nashville Highway & Green Mills

2558 Nashville Highway
Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	3	8	106	4	219	26	2283	148	348	2504	31
Future Volume (veh/h)	34	3	8	106	4	219	26	2283	148	348	2504	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	37	3	9	115	4	238	28	2482	161	378	2722	34
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	67	94	220	142	336	93	2136	1063	292	2533	1176
Arrive On Green	0.03	0.04	0.04	0.07	0.08	0.08	0.05	1.00	1.00	0.27	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	37	3	9	115	4	238	28	2482	161	378	2722	34
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.8	0.2	0.8	8.6	0.3	1.6	0.9	84.5	0.0	19.0	100.2	0.0
Cycle Q Clear(g_c), s	2.8	0.2	0.8	8.6	0.3	1.6	0.9	84.5	0.0	19.0	100.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	67	94	220	142	336	93	2136	1063	292	2533	1176
V/C Ratio(X)	0.26	0.05	0.10	0.52	0.03	0.71	0.30	1.16	0.15	1.29	1.07	0.03
Avail Cap(c_a), veh/h	212	193	202	220	193	379	172	2136	1063	292	2533	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	0.09	0.09	0.09
Uniform Delay (d), s/veh	62.8	65.2	62.3	58.3	59.9	34.4	33.4	0.0	0.0	49.3	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.3	0.4	2.3	0.1	5.2	0.2	73.4	0.0	134.5	34.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.1	0.3	4.3	0.1	7.4	0.6	21.8	0.0	22.1	12.2	0.0
LnGrp Delay(d),s/veh	63.8	65.5	62.7	60.5	59.9	39.6	33.5	73.4	0.0	183.9	34.5	0.0
LnGrp LOS	E	E	E	E	E	D	C	F	A	F	F	A
Approach Vol, veh/h	49				357				2671			
Approach Delay, s/veh	63.7				46.6				68.6			
Approach LOS	E				D				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.5	90.0	15.0	10.5	8.8	105.7	9.3	16.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	84.5	9.5	14.5	9.5	84.5	9.5	14.5				
Max Q Clear Time (g_c+I1), s	21.0	86.5	10.6	2.8	2.9	102.2	4.8	3.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay	59.0											
HCM 2010 LOS	E											

Timings

5: Nashville Highway & Green Mills

2558 Nashville Highway
Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	3	8	106	4	219	26	2283	148	348	2504	31
Future Volume (vph)	34	3	8	106	4	219	26	2283	148	348	2504	31
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	10.5	10.5	10.5	10.5	10.5	10.5	23.5	10.5	10.5	23.5	10.5
Total Split (s)	15.0	20.0	15.0	15.0	20.0	15.0	15.0	90.0	15.0	15.0	90.0	15.0
Total Split (%)	10.7%	14.3%	10.7%	10.7%	14.3%	10.7%	10.7%	64.3%	10.7%	10.7%	64.3%	10.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	10.0	5.9	8.6	10.7	6.6	13.7	102.2	102.2	116.0	110.0	110.0	125.3
Actuated g/C Ratio	0.07	0.04	0.06	0.08	0.05	0.10	0.73	0.73	0.83	0.79	0.79	0.90
v/c Ratio	0.29	0.04	0.05	0.84	0.05	0.95	0.21	0.96	0.12	2.12	0.98	0.02
Control Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.1	1.8	530.2	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7	0.0
Total Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.1	1.8	530.2	58.8	0.0
LOS	E	E	A	F	E	E	B	B	A	F	E	A
Approach Delay		52.3			87.2			15.2			115.0	
Approach LOS		D			F			B			F	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 35 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.12

Intersection Signal Delay: 70.0

Intersection LOS: E

Intersection Capacity Utilization 108.7%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 5: Nashville Highway & Green Mills



Queues
5: Nashville Highway & Green Mills

2558 Nashville Highway
Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	37	3	9	115	4	238	28	2482	161	378	2722	34
v/c Ratio	0.29	0.04	0.05	0.84	0.05	0.95	0.21	0.96	0.12	2.12	0.98	0.02
Control Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.1	1.8	530.2	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7	0.0
Total Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.1	1.8	530.2	58.8	0.0
Queue Length 50th (ft)	33	3	0	106	4	~162	8	449	21	~514	364	0
Queue Length 95th (ft)	64	13	0	159	17	#200	m8	m#412	m20	m#359	m1008	m0
Internal Link Dist (ft)	1713			3835			1079			1392		
Turn Bay Length (ft)	250		250	240		240	400		100	480		140
Base Capacity (vph)	138	192	231	139	192	250	174	2582	1311	178	2780	1431
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	444	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.02	0.04	0.83	0.02	0.95	0.16	0.96	0.12	2.12	1.17	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Background PM

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	43	0	21	57	0	43	33	2370	99	74	2422	78				
Future Volume (veh/h)	43	0	21	57	0	43	33	2370	99	74	2422	78				
Number	7	4	14	3	8	18	1	6	16	5	2	12				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863				
Adj Flow Rate, veh/h	47	0	23	62	0	47	36	2576	108	80	2633	85				
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	108	0	78	139	66	237	175	2237	1052	254	2496	1117				
Arrive On Green	0.06	0.00	0.05	0.03	0.00	0.04	0.04	0.63	0.63	0.23	1.00	1.00				
Sat Flow, veh/h	1774	0	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583				
Grp Volume(v), veh/h	47	0	23	62	0	47	36	2576	108	80	2633	85				
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583				
Q Serve(g_s), s	3.6	0.0	2.0	0.0	0.0	0.0	1.2	88.5	0.0	0.9	0.0	0.0				
Cycle Q Clear(g_c), s	3.6	0.0	2.0	0.0	0.0	0.0	1.2	88.5	0.0	0.9	0.0	0.0				
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Lane Grp Cap(c), veh/h	108	0	78	139	66	237	175	2237	1052	254	2496	1117				
V/C Ratio(X)	0.44	0.00	0.29	0.45	0.00	0.20	0.21	1.15	0.10	0.31	1.05	0.08				
Avail Cap(c_a), veh/h	108	0	153	151	206	357	210	2237	1052	254	2496	1117				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00				
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.16	0.16	0.16				
Uniform Delay (d), s/veh	63.4	0.0	64.2	64.8	0.0	52.1	11.7	25.8	8.4	47.9	0.0	0.0				
Incr Delay (d2), s/veh	2.8	0.0	2.1	2.2	0.0	0.4	0.6	73.8	0.2	0.1	26.7	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.9	2.4	0.0	1.6	0.6	65.8	1.5	2.4	9.3	0.0				
LnGrp Delay(d),s/veh	66.2	0.0	66.2	67.0	0.0	52.5	12.2	99.5	8.6	48.0	26.7	0.0				
LnGrp LOS	E		E	E		D	B	F	A	D	F	A				
Approach Vol, veh/h	70				109				2720							
Approach Delay, s/veh	66.2				60.8				94.8							
Approach LOS	E				E				F							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	12.3	105.2	9.1	13.4	22.5	95.0	13.0	9.5								
Change Period (Y+Rc), s	7.0	6.5	4.5	6.5	6.5	* 6.5	4.5	4.5								
Max Green Setting (Gmax), s	8.0	88.5	5.5	13.5	10.5	* 89	5.5	15.5								
Max Q Clear Time (g_c+I1), s	3.2	2.0	2.0	4.0	2.9	90.5	5.6	2.0								
Green Ext Time (p_c), s	0.0	78.1	0.0	0.0	0.1	0.0	0.0	0.1								
Intersection Summary																
HCM 2010 Ctrl Delay	60.2															
HCM 2010 LOS	E															
Notes																

Timings 6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Background PM

											
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø8
Lane Configurations											
Traffic Volume (vph)	43	0	57	43	33	2370	99	74	2422	78	
Future Volume (vph)	43	0	57	43	33	2370	99	74	2422	78	
Turn Type	Prot	NA	pm+pt	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	7	4	3	5	1	6	3	5	2		8
Permitted Phases			8	8	6		6	2		2	
Detector Phase	7	4	3	5	1	6	3	5	2	2	
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	10.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	9.5	13.5	9.5	9.5	14.0	24.5	9.5	9.5	24.5	24.5	9.5
Total Split (s)	10.0	20.0	10.0	15.0	15.0	95.0	10.0	15.0	95.0	95.0	20.0
Total Split (%)	7.1%	14.3%	7.1%	10.7%	10.7%	67.9%	7.1%	10.7%	67.9%	67.9%	14%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	5.0	3.5	3.5	5.0	5.0	3.5
All-Red Time (s)	1.0	3.0	1.0	1.0	2.5	1.5	1.0	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.5	4.5	4.5	7.0	6.5	4.5	4.5	6.5	6.5	
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min	C-Min	None
Act Effect Green (s)	17.9	7.0	9.9	12.7	95.5	96.0	112.4	101.7	99.7	99.7	
Actuated g/C Ratio	0.13	0.05	0.07	0.09	0.68	0.69	0.80	0.73	0.71	0.71	
v/c Ratio	0.21	0.10	0.50	0.19	0.25	1.06	0.08	0.42	1.05	0.07	
Control Delay	53.0	0.8	75.7	1.7	13.2	60.1	1.5	23.1	36.9	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	
Total Delay	53.0	0.8	75.7	1.7	13.2	60.1	1.5	23.1	37.7	0.1	
LOS	D	A	E	A	B	E	A	C	D	A	
Approach Delay		35.9				57.2			36.2		
Approach LOS		D				E			D		

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 117 (84%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 46.3
Intersection Capacity Utilization 86.8%
Analysis Period (min) 15

Intersection LOS: D
ICU Level of Service E

Splits and Phases: 6: Nashville Highway & Hidden Creek Way



Queues
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway

Background PM

										
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	23	62	47	36	2576	108	80	2633	85
v/c Ratio	0.21	0.10	0.50	0.19	0.25	1.06	0.08	0.42	1.05	0.07
Control Delay	53.0	0.8	75.7	1.7	13.2	60.1	1.5	23.1	36.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Total Delay	53.0	0.8	75.7	1.7	13.2	60.1	1.5	23.1	37.7	0.1
Queue Length 50th (ft)	37	0	55	0	11	~1429	6	19	~1468	0
Queue Length 95th (ft)	75	0	104	0	26	#1571	20	m21	m#1554	m0
Internal Link Dist (ft)	2034						4876	1079		
Turn Bay Length (ft)			200	200	260			150	250	265
Base Capacity (vph)	226	304	125	249	157	2427	1286	190	2519	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	5	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.50	0.19	0.23	1.06	0.08	0.42	1.05	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

PROJECTED CAPACITY ANALYSES

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected AM

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	278	0	60	0	2	2	146	2511	1	0	1812	69						
Future Volume (veh/h)	278	0	60	0	2	2	146	2511	1	0	1812	69						
Number	7	4	14	3	8	18	1	6	16	5	2	12						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863						
Adj Flow Rate, veh/h	302	0	65	0	2	2	159	2729	1	0	1970	75						
Adj No. of Lanes	2	0	1	1	1	0	1	2	0	1	2	1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2						
Cap, veh/h	378	0	169	13	6	6	181	2729	1	1	2121	949						
Arrive On Green	0.11	0.00	0.11	0.00	0.01	0.01	0.20	1.00	1.00	0.00	0.60	0.60						
Sat Flow, veh/h	3548	0	1583	1774	856	856	1774	3631	1	1774	3539	1583						
Grp Volume(v), veh/h	302	0	65	0	0	4	159	1330	1400	0	1970	75						
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1712	1774	1770	1863	1774	1770	1583						
Q Serve(g_s), s	10.8	0.0	5.0	0.0	0.0	0.3	11.3	97.7	97.7	0.0	65.4	2.6						
Cycle Q Clear(g_c), s	10.8	0.0	5.0	0.0	0.0	0.3	11.3	97.7	97.7	0.0	65.4	2.6						
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.00	1.00		1.00						
Lane Grp Cap(c), veh/h	378	0	169	13	0	12	181	1330	1400	1	2121	949						
V/C Ratio(X)	0.80	0.00	0.39	0.00	0.00	0.32	0.88	1.00	1.00	0.00	0.93	0.08						
Avail Cap(c_a), veh/h	682	0	304	102	0	99	198	1330	1400	96	2121	949						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	56.7	0.0	54.1	0.0	0.0	64.2	50.9	0.0	0.0	0.0	23.5	11.0						
Incr Delay (d2), s/veh	3.9	0.0	1.4	0.0	0.0	14.3	31.2	24.7	24.1	0.0	8.7	0.2						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	5.5	0.0	2.3	0.0	0.0	0.2	7.0	9.1	9.4	0.0	34.3	1.2						
LnGrp Delay(d),s/veh	60.6	0.0	55.5	0.0	0.0	78.5	82.1	24.7	24.1	0.0	32.2	11.1						
LnGrp LOS	E		E			E	F	F	F		C	B						
Approach Vol, veh/h	367				4			2889			2045							
Approach Delay, s/veh	59.7				78.5			27.6			31.5							
Approach LOS	E				E			C			C							
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	19.8	83.9			19.9	0.0	103.7	6.4										
Change Period (Y+Rc), s	6.5	6.0			6.0	7.0	6.0	5.5										
Max Green Setting (Gmax), s	14.5	59.0			25.0	7.0	66.0	7.5										
Max Q Clear Time (g_c+I1), s	13.3	67.4			12.8	0.0	99.7	2.3										
Green Ext Time (p_c), s	0.0	0.0			1.1	0.0	0.0	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay	31.3																	
HCM 2010 LOS	C																	
Notes																		

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected AM

									
Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR	Ø5
Lane Configurations									
Traffic Volume (vph)	278	0	60	2	146	2511	1812	69	
Future Volume (vph)	278	0	60	2	146	2511	1812	69	
Turn Type	Split	NA	Perm	NA	Prot	NA	NA	Perm	
Protected Phases	4	4		8	1	6	2		5
Permitted Phases			4					2	
Detector Phase	4	4	4	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	25.0	25.0	25.0	5.0
Minimum Split (s)	23.0	23.0	23.0	12.5	11.5	32.5	32.5	32.5	12.0
Total Split (s)	31.0	31.0	31.0	13.0	21.0	72.0	65.0	65.0	14.0
Total Split (%)	23.8%	23.8%	23.8%	10.0%	16.2%	55.4%	50.0%	50.0%	11%
Yellow Time (s)	3.5	3.5	3.5	3.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	5.5	6.5	6.0	6.0	6.0	
Lead/Lag					Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	17.4	17.4	17.4	7.0	16.1	98.1	75.5	75.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.05	0.12	0.75	0.58	0.58	
v/c Ratio	0.67	0.67	0.17	0.04	0.73	1.02	0.96	0.08	
Control Delay	67.3	67.3	1.0	48.0	46.9	41.0	39.4	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	67.3	67.3	1.0	48.0	46.9	41.0	39.4	0.1	
LOS	E	E	A	D	D	D	D	A	
Approach Delay		55.6		48.0		41.4	37.9		
Approach LOS		E		D		D	D		

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 41.0

Intersection LOS: D

Intersection Capacity Utilization 103.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

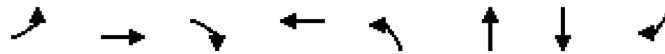


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Projected AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	151	151	65	4	159	2730	1970	75
v/c Ratio	0.67	0.67	0.17	0.04	0.73	1.02	0.96	0.08
Control Delay	67.3	67.3	1.0	48.0	46.9	41.0	39.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	67.3	1.0	48.0	46.9	41.0	39.4	0.1
Queue Length 50th (ft)	129	129	0	2	134	849	768	0
Queue Length 95th (ft)	193	193	0	14	m117	m508	#1212	0
Internal Link Dist (ft)		390		206		921	2610	
Turn Bay Length (ft)					250			100
Base Capacity (vph)	323	323	453	101	226	2669	2055	996
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.47	0.14	0.04	0.70	1.02	0.96	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	661.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	1	0	10	40	2	113	21	2610	36	45	1870	12
Future Vol, veh/h	1	0	10	40	2	113	21	2610	36	45	1870	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	11	43	2	123	23	2837	39	49	2033	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3604	5060	1023	4018	5047	1438	2046	0	0	2876	0	0
Stage 1	2138	2138	-	2903	2903	-	-	-	-	-	-	-
Stage 2	1466	2922	-	1115	2144	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	2	1	233	~ 1	~ 1	~ 122	271	-	-	127	-	-
Stage 1	50	88	-	~ 16	35	-	-	-	-	-	-	-
Stage 2	134	34	-	222	87	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	1	233	~ 1	~ 1	~ 122	271	-	-	127	-	-
Mov Cap-2 Maneuver	-	1	-	~ 1	~ 1	-	-	-	-	-	-	-
Stage 1	50	54	-	~ 16	35	-	-	-	-	-	-	-
Stage 2	-	34	-	130	53	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 20288.8	0.2	1.2
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	271	-	-	- 4	127	-	-
HCM Lane V/C Ratio	0.084	-	-	- 42.12	0.385	-	-
HCM Control Delay (s)	19.5	0	-	\$ 20288.8	50.1	-	-
HCM Lane LOS	C	A	-	F	F	-	-
HCM 95th %tile Q(veh)	0.3	-	-	- 23.3	1.6	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	39.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↗↗	↗	↘	↗↗	↗
Traffic Vol, veh/h	0	0	128	0	0	256	157	2468	120	186	1688	20
Future Vol, veh/h	0	0	128	0	0	256	157	2468	120	186	1688	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	300	300	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	139	0	0	278	171	2683	130	202	1835	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	918	-	-	1342	1857	0	0	2813	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	274	0	0	~ 142	322	-	-	~ 134	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	274	-	-	~ 142	322	-	-	~ 134	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	31		\$ 508.9		1.6		31.8					
HCM LOS	D		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	322	-	-	274	142	~ 134	-	-				
HCM Lane V/C Ratio	0.53	-	-	0.508	1.96	1.509	-	-				
HCM Control Delay (s)	28.1	-	-	31\$	508.9\$	323.4	-	-				
HCM Lane LOS	D	-	-	D	F	F	-	-				
HCM 95th %tile Q(veh)	2.9	-	-	2.7	21.8	14	-	-				
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Projected AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	2	36	274	0	152	37	2424	81	115	1579	57
Future Volume (veh/h)	166	2	36	274	0	152	37	2424	81	115	1579	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	180	2	39	298	0	165	40	2635	88	125	1716	62
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	2	186	198	0	177	68	1735	776	136	1885	843
Arrive On Green	0.12	0.12	0.12	0.11	0.00	0.11	0.05	0.65	0.65	0.15	1.00	1.00
Sat Flow, veh/h	1755	20	1583	1774	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	182	0	39	298	0	165	40	2635	88	125	1716	62
Grp Sat Flow(s),veh/h/ln	1775	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	13.1	0.0	2.9	14.5	0.0	13.4	2.9	63.7	2.7	9.0	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	2.9	14.5	0.0	13.4	2.9	63.7	2.7	9.0	0.0	0.0
Prop In Lane	0.99		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	0	186	198	0	177	68	1735	776	136	1885	843
V/C Ratio(X)	0.87	0.00	0.21	1.51	0.00	0.93	0.59	1.52	0.11	0.92	0.91	0.07
Avail Cap(c_a), veh/h	225	0	201	198	0	177	143	1735	776	136	1885	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	0.0	51.9	57.8	0.0	57.3	60.7	22.6	12.0	54.6	0.0	0.0
Incr Delay (d2), s/veh	28.0	0.0	0.6	252.2	0.0	49.0	0.7	233.6	0.0	52.4	8.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	1.3	21.0	0.0	8.3	1.4	87.0	1.2	6.4	2.1	0.0
LnGrp Delay(d),s/veh	84.4	0.0	52.5	309.9	0.0	106.2	61.4	256.2	12.0	106.9	8.1	0.2
LnGrp LOS	F		D	F		F	E	F	B	F	A	A
Approach Vol, veh/h	221					463		2763		1903		
Approach Delay, s/veh	78.8					237.3		245.6		14.3		
Approach LOS	E					F		F		B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	17.0	70.2	21.8		11.5	75.7	21.0					
Change Period (Y+Rc), s	7.0	6.5	6.5		6.5	6.5	6.5					
Max Green Setting (Gmax), s	10.0	62.5	16.5		10.5	62.5	14.5					
Max Q Clear Time (g_c+I1), s	11.0	65.7	15.1		4.9	2.0	16.5					
Green Ext Time (p_c), s	0.0	0.0	0.2		0.0	19.6	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	155.7											
HCM 2010 LOS	F											

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Projected AM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	2	36	0	152	37	2424	81	115	1579	57
Future Volume (vph)	2	36	0	152	37	2424	81	115	1579	57
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	23.0	23.0	21.0	21.0	17.0	69.0	69.0	17.0	69.0	69.0
Total Split (%)	17.7%	17.7%	16.2%	16.2%	13.1%	53.1%	53.1%	13.1%	53.1%	53.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	15.8	15.8	15.2	15.2	8.2	62.5	62.5	10.0	67.2	67.2
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.06	0.48	0.48	0.08	0.52	0.52
v/c Ratio	0.85	0.12	1.44	0.51	0.36	1.55	0.11	0.92	0.94	0.07
Control Delay	87.4	0.8	264.5	16.0	67.7	271.6	0.5	102.8	30.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.4	0.8	264.5	16.0	67.7	271.6	0.5	102.8	30.7	1.7
LOS	F	A	F	B	E	F	A	F	C	A
Approach Delay	72.1		176.0			260.1			34.5	
Approach LOS	E		F			F			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.55

Intersection Signal Delay: 164.8

Intersection LOS: F

Intersection Capacity Utilization 111.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way





Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	182	39	298	165	40	2635	88	125	1716	62
v/c Ratio	0.85	0.12	1.44	0.51	0.36	1.55	0.11	0.92	0.94	0.07
Control Delay	87.4	0.8	264.5	16.0	67.7	271.6	0.5	102.8	30.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.4	0.8	264.5	16.0	67.7	271.6	0.5	102.8	30.7	1.7
Queue Length 50th (ft)	151	0	~349	8	34	~1640	0	112	386	0
Queue Length 95th (ft)	#274	0	#531	77	m35	m#1548	m0	m#131	m#852	m1
Internal Link Dist (ft)	1438		351			1392			519	
Turn Bay Length (ft)				250	330		300	200		175
Base Capacity (vph)	225	325	207	321	142	1701	835	136	1830	887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.12	1.44	0.51	0.28	1.55	0.11	0.92	0.94	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary 5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	14	147	1	336	8	2123	83	129	1873	10
Future Volume (veh/h)	60	5	14	147	1	336	8	2123	83	129	1873	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	65	5	15	160	1	365	9	2308	90	140	2036	11
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	154	148	310	222	267	205	2268	1143	167	2406	1146
Arrive On Green	0.04	0.08	0.08	0.08	0.12	0.12	0.02	1.00	1.00	0.10	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	65	5	15	160	1	365	9	2308	90	140	2036	11
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.3	0.3	1.1	10.5	0.1	15.5	0.2	83.3	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.3	1.1	10.5	0.1	15.5	0.2	83.3	0.0	4.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	154	148	310	222	267	205	2268	1143	167	2406	1146
V/C Ratio(X)	0.30	0.03	0.10	0.52	0.00	1.37	0.04	1.02	0.08	0.84	0.85	0.01
Avail Cap(c_a), veh/h	282	222	206	310	222	267	329	2268	1143	223	2406	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.38	0.38	0.38	0.27	0.27	0.27
Uniform Delay (d), s/veh	51.4	54.8	53.9	48.2	50.5	54.0	7.8	0.0	0.0	32.7	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.1	0.3	1.5	0.0	187.1	0.0	16.3	0.1	5.8	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.2	0.5	5.3	0.0	23.5	0.1	5.1	0.0	5.1	0.4	0.0
LnGrp Delay(d),s/veh	52.2	54.9	54.2	49.7	50.5	241.1	7.9	16.3	0.1	38.4	1.1	0.0
LnGrp LOS	D	D	D	D	D	F	A	F	A	D	A	A
Approach Vol, veh/h	85			526			2407			2187		
Approach Delay, s/veh	52.7			182.5			15.7			3.5		
Approach LOS	D			F			B			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	89.0	15.0	15.2	5.9	93.9	10.2	20.0				
Change Period (Y+Rc), s	4.5	5.5	4.5	4.5	4.5	5.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	74.5	10.5	15.5	10.5	74.5	10.5	15.5				
Max Q Clear Time (g_c+I1), s	6.0	85.3	12.5	3.1	2.2	2.0	6.3	17.5				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	29.1	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	28.0											
HCM 2010 LOS	C											

Timings

5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	5	14	147	1	336	8	2123	83	129	1873	10
Future Volume (vph)	60	5	14	147	1	336	8	2123	83	129	1873	10
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	25.0	5.0	5.0	25.0	5.0
Minimum Split (s)	10.5	9.5	10.5	10.5	9.5	10.5	10.5	30.5	10.5	10.5	30.5	10.5
Total Split (s)	15.0	20.0	15.0	15.0	20.0	15.0	15.0	80.0	15.0	15.0	80.0	15.0
Total Split (%)	11.5%	15.4%	11.5%	11.5%	15.4%	11.5%	11.5%	61.5%	11.5%	11.5%	61.5%	11.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.5	4.5	4.5	5.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	11.0	6.0	7.9	11.9	6.8	27.8	86.8	80.2	96.2	108.2	101.1	117.2
Actuated g/C Ratio	0.08	0.05	0.06	0.09	0.05	0.21	0.67	0.62	0.74	0.83	0.78	0.90
v/c Ratio	0.43	0.06	0.10	0.98	0.01	0.89	0.06	1.06	0.08	0.38	0.74	0.01
Control Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	49.9	0.1	25.5	9.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	49.9	0.1	25.5	9.7	0.0
LOS	E	E	A	F	E	E	A	D	A	C	A	A
Approach Delay		51.9			79.0			47.8			10.7	
Approach LOS		D			E			D			B	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 35.4

Intersection LOS: D

Intersection Capacity Utilization 95.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Nashville Highway & Green Mills

							
Ø1	Ø2 (R)					Ø3	Ø4
15 s	80 s					15 s	20 s
							
Ø5	Ø6 (R)					Ø7	Ø8
15 s	80 s					15 s	20 s

Queues
5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	65	5	15	160	1	365	9	2308	90	140	2036	11
v/c Ratio	0.43	0.06	0.10	0.98	0.01	0.89	0.06	1.06	0.08	0.38	0.74	0.01
Control Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	49.9	0.1	25.5	9.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	60.4	1.3	123.1	59.0	59.7	3.6	49.9	0.1	25.5	9.7	0.0
Queue Length 50th (ft)	53	4	0	~155	1	225	1	~1175	1	74	223	0
Queue Length 95th (ft)	93	18	0	#199	7	#383	m2	#1312	m0	m82	m399	m0
Internal Link Dist (ft)	1713			3835			1079			1392		
Turn Bay Length (ft)	250		250	240		240	400		100	480		140
Base Capacity (vph)	162	222	208	163	222	419	219	2182	1184	374	2752	1452
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.02	0.07	0.98	0.00	0.87	0.04	1.06	0.08	0.37	0.74	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	0	28	89	0	67	11	2054	29	22	1935	44
Future Volume (veh/h)	81	0	28	89	0	67	11	2054	29	22	1935	44
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	88	0	30	97	0	73	12	2233	32	24	2103	48
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	0	92	224	112	131	213	2429	1189	120	2373	1061
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.06	0.02	0.69	0.69	0.04	1.00	1.00
Sat Flow, veh/h	1774	0	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	88	0	30	97	0	73	12	2233	32	24	2103	48
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.4	0.0	2.4	6.6	0.0	5.8	0.3	69.7	0.7	0.5	0.0	0.0
Cycle Q Clear(g_c), s	6.4	0.0	2.4	6.6	0.0	5.8	0.3	69.7	0.7	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	0	92	224	112	131	213	2429	1189	120	2373	1061
V/C Ratio(X)	0.80	0.00	0.33	0.43	0.00	0.56	0.06	0.92	0.03	0.20	0.89	0.05
Avail Cap(c_a), veh/h	143	0	164	253	222	224	288	2429	1189	223	2373	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	60.2	0.0	58.8	53.0	0.0	57.3	6.3	17.3	4.1	26.1	0.0	0.0
Incr Delay (d2), s/veh	21.1	0.0	2.1	1.3	0.0	3.7	0.1	7.1	0.0	0.5	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.1	3.3	0.0	2.7	0.1	35.9	0.3	0.5	1.1	0.0
LnGrp Delay(d),s/veh	81.3	0.0	60.9	54.3	0.0	61.0	6.4	24.4	4.2	26.6	3.2	0.0
LnGrp LOS	F		E	D		E	A	C	A	C	A	A
Approach Vol, veh/h	118			170			2277			2175		
Approach Delay, s/veh	76.1			57.2			24.0			3.4		
Approach LOS	E			E			C			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	93.6	12.9	14.0	7.4	95.7	12.5	14.3				
Change Period (Y+Rc), s	7.0	6.5	4.5	6.5	4.5	6.5	4.5	* 6.5				
Max Green Setting (Gmax), s	8.0	73.5	10.5	13.5	10.5	73.5	10.5	* 16				
Max Q Clear Time (g_c+I1), s	2.3	2.0	8.6	4.4	2.5	71.7	8.4	7.8				
Green Ext Time (p_c), s	0.0	53.0	0.0	0.0	0.0	1.7	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	17.0											
HCM 2010 LOS	B											
Notes												

Timings

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected AM

											
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø8
Lane Configurations											
Traffic Volume (vph)	81	0	89	67	11	2054	29	22	1935	44	
Future Volume (vph)	81	0	89	67	11	2054	29	22	1935	44	
Turn Type	Prot	NA	pm+pt	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	7	4	3	5	1	6	3	5	2		8
Permitted Phases			8	8	6		6	2		2	
Detector Phase	7	4	3	5	1	6	3	5	2	2	
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	10.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	9.5	13.5	9.5	9.5	14.0	24.5	9.5	9.5	24.5	24.5	9.5
Total Split (s)	15.0	20.0	15.0	15.0	15.0	80.0	15.0	15.0	80.0	80.0	20.0
Total Split (%)	11.5%	15.4%	11.5%	11.5%	11.5%	61.5%	11.5%	11.5%	61.5%	61.5%	15%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	5.0	3.5	3.5	5.0	5.0	3.5
All-Red Time (s)	1.0	3.0	1.0	1.0	2.5	1.5	1.0	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.5	4.5	4.5	7.0	6.5	4.5	4.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min	C-Min	None
Act Effect Green (s)	18.0	7.0	9.9	7.2	96.3	91.2	108.6	101.2	95.4	95.4	
Actuated g/C Ratio	0.14	0.05	0.08	0.06	0.74	0.70	0.84	0.78	0.73	0.73	
v/c Ratio	0.36	0.15	0.72	0.48	0.08	0.90	0.02	0.15	0.81	0.04	
Control Delay	52.7	1.5	87.1	26.4	6.1	24.7	0.0	5.6	13.9	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.7	1.5	87.1	26.4	6.1	24.7	0.0	5.6	13.9	0.1	
LOS	D	A	F	C	A	C	A	A	B	A	
Approach Delay		39.6				24.3			13.5		
Approach LOS		D				C			B		

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way

							
Ø1	Ø2 (R)					Ø3	Ø4
15 s	80 s					15 s	20 s
							
Ø5	Ø6 (R)					Ø7	Ø8
15 s	80 s					15 s	20 s

										
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	30	97	73	12	2233	32	24	2103	48
v/c Ratio	0.36	0.15	0.72	0.48	0.08	0.90	0.02	0.15	0.81	0.04
Control Delay	52.7	1.5	87.1	26.4	6.1	24.7	0.0	5.6	13.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	1.5	87.1	26.4	6.1	24.7	0.0	5.6	13.9	0.1
Queue Length 50th (ft)	64	0	81	5	2	873	0	5	560	0
Queue Length 95th (ft)	115	0	#162	53	8	#1194	0	m5	m#767	m0
Internal Link Dist (ft)	2034						4876	1079		
Turn Bay Length (ft)			200	200	260			150	250	265
Base Capacity (vph)	252	277	142	190	167	2483	1332	203	2596	1194
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.11	0.68	0.38	0.07	0.90	0.02	0.12	0.81	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected PM

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	193	0	70	3	1	7	89	2422	4	6	2926	76						
Future Volume (veh/h)	193	0	70	3	1	7	89	2422	4	6	2926	76						
Number	7	4	14	3	8	18	1	6	16	5	2	12						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863						
Adj Flow Rate, veh/h	210	0	76	3	1	8	97	2633	4	7	3180	83						
Adj No. of Lanes	2	0	1	1	1	0	1	2	0	1	2	1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2						
Cap, veh/h	278	0	124	33	3	27	119	2510	4	63	2351	1052						
Arrive On Green	0.08	0.00	0.08	0.02	0.02	0.02	0.07	0.69	0.69	0.04	0.66	0.66						
Sat Flow, veh/h	3548	0	1583	1774	179	1431	1774	3626	6	1774	3539	1583						
Grp Volume(v), veh/h	210	0	76	3	0	9	97	1285	1352	7	3180	83						
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1610	1774	1770	1862	1774	1770	1583						
Q Serve(g_s), s	8.1	0.0	6.5	0.2	0.0	0.8	7.6	96.9	96.9	0.5	93.0	2.6						
Cycle Q Clear(g_c), s	8.1	0.0	6.5	0.2	0.0	0.8	7.6	96.9	96.9	0.5	93.0	2.6						
Prop In Lane	1.00		1.00	1.00		0.89	1.00		0.00	1.00		1.00						
Lane Grp Cap(c), veh/h	278	0	124	33	0	30	119	1225	1289	63	2351	1052						
V/C Ratio(X)	0.76	0.00	0.61	0.09	0.00	0.30	0.81	1.05	1.05	0.11	1.35	0.08						
Avail Cap(c_a), veh/h	634	0	283	108	0	98	209	1225	1289	89	2351	1052						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Uniform Delay (d), s/veh	63.2	0.0	62.5	67.5	0.0	67.8	64.4	21.5	21.5	65.3	23.5	8.3						
Incr Delay (d2), s/veh	4.2	0.0	4.8	1.2	0.0	5.5	12.3	39.4	39.0	0.8	161.5	0.1						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	4.2	0.0	3.0	0.1	0.0	0.4	4.1	60.0	63.0	0.3	97.8	1.2						
LnGrp Delay(d),s/veh	67.4	0.0	67.3	68.7	0.0	73.2	76.7	61.0	60.5	66.1	185.0	8.5						
LnGrp LOS	E		E	E		E	E	F	F	E	F	A						
Approach Vol, veh/h	286				12			2734			3270							
Approach Delay, s/veh	67.4				72.1			61.3			180.3							
Approach LOS	E				E			E			F							
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	15.9	99.0			17.0	12.0	102.9	8.1										
Change Period (Y+Rc), s	6.5	6.0			6.0	7.0	6.0	5.5										
Max Green Setting (Gmax), s	16.5	66.0			25.0	7.0	75.0	8.5										
Max Q Clear Time (g_c+I1), s	9.6	95.0			10.1	2.5	98.9	2.8										
Green Ext Time (p_c), s	0.1	0.0			0.8	0.0	0.0	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay	123.4																	
HCM 2010 LOS	F																	
Notes																		

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	193	0	70	3	1	89	2422	6	2926	76
Future Volume (vph)	193	0	70	3	1	89	2422	6	2926	76
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	Prot	NA	Perm
Protected Phases	4	4		8	8	1	6	5	2	
Permitted Phases			4							2
Detector Phase	4	4	4	8	8	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0	25.0
Minimum Split (s)	23.0	23.0	23.0	12.5	12.5	11.5	32.5	12.0	32.5	32.5
Total Split (s)	31.0	31.0	31.0	14.0	14.0	23.0	81.0	14.0	72.0	72.0
Total Split (%)	22.1%	22.1%	22.1%	10.0%	10.0%	16.4%	57.9%	10.0%	51.4%	51.4%
Yellow Time (s)	3.5	3.5	3.5	3.0	3.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.5	5.5	6.5	6.0	7.0	6.0	6.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effect Green (s)	14.2	14.2	14.2	7.0	7.0	13.0	105.9	6.2	89.2	89.2
Actuated g/C Ratio	0.10	0.10	0.10	0.05	0.05	0.09	0.76	0.04	0.64	0.64
v/c Ratio	0.62	0.62	0.24	0.03	0.10	0.59	0.99	0.09	1.41	0.08
Control Delay	74.9	74.9	1.8	64.0	37.6	82.7	21.0	66.3	211.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	74.9	1.8	64.0	37.6	82.7	21.0	66.3	211.8	0.1
LOS	E	E	A	E	D	F	C	E	F	A
Approach Delay		55.5			44.2		23.2		206.1	
Approach LOS		E			D		C		F	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.41

Intersection Signal Delay: 119.6

Intersection LOS: F

Intersection Capacity Utilization 105.6%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

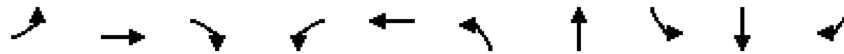


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Projected PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	105	105	76	3	9	97	2637	7	3180	83
v/c Ratio	0.62	0.62	0.24	0.03	0.10	0.59	0.99	0.09	1.41	0.08
Control Delay	74.9	74.9	1.8	64.0	37.6	82.7	21.0	66.3	211.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	74.9	1.8	64.0	37.6	82.7	21.0	66.3	211.8	0.1
Queue Length 50th (ft)	97	97	0	3	1	93	440	6	~1975	0
Queue Length 95th (ft)	157	157	0	13	21	m72	m933	23	#2381	0
Internal Link Dist (ft)		390			206		921		2610	
Turn Bay Length (ft)						250		220		100
Base Capacity (vph)	300	300	423	107	105	212	2676	89	2255	1071
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.35	0.18	0.03	0.09	0.46	0.99	0.08	1.41	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	7	39	0	98	10	2436	63	59	2966	13
Future Vol, veh/h	0	1	7	39	0	98	10	2436	63	59	2966	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	8	42	0	107	11	2648	68	64	3224	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	4705	6097	1619	4445	6070	1358	3238	0	0	2716	0	0
Stage 1	3359	3359	-	2704	2704	-	-	-	-	-	-	-
Stage 2	1346	2738	-	1741	3366	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	92	0	0	139	90	-	-	147	-	-
Stage 1	8	20	-	~ 21	44	-	-	-	-	-	-	-
Stage 2	159	43	-	90	19	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	0	0	92	0	0	139	90	-	-	147	-	-
Mov Cap-2 Maneuver	0	0	-	0	0	-	-	-	-	-	-	-
Stage 1	8	11	-	~ 21	44	-	-	-	-	-	-	-
Stage 2	37	43	-	~ 42	11	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	48.2		159.8		0.2		0.9					
HCM LOS	E		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	90	-	-	92	139	147	-	-				
HCM Lane V/C Ratio	0.121	-	-	0.095	1.071	0.436	-	-				
HCM Control Delay (s)	50.4	0	-	48.2	159.8	47.2	-	-				
HCM Lane LOS	F	A	-	E	F	E	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	0.3	8.1	2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection												
Int Delay, s/veh	19.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↗↗	↗	↘	↗↗	↗
Traffic Vol, veh/h	0	0	155	0	0	143	91	2418	100	159	2743	53
Future Vol, veh/h	0	0	155	0	0	143	91	2418	100	159	2743	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	300	300	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	168	0	0	155	99	2628	109	173	2982	58
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1491	-	-	1314	3040	0	0	2737	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	~ 113	0	0	~ 149	109	-	-	~ 144	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 113	-	-	~ 149	109	-	-	~ 144	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	330.6		145.8		4.7		10.7					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	109	-	-	113	149	~ 144	-	-				
HCM Lane V/C Ratio	0.907	-	-	1.491	1.043	1.2	-	-				
HCM Control Delay (s)	135.2	-	-	\$ 330.6	145.8	199.7	-	-				
HCM Lane LOS	F	-	-	F	F	F	-	-				
HCM 95th %tile Q(veh)	5.5	-	-	12.1	8	10.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Projected PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1	67	195	2	138	110	2347	138	203	2405	136
Future Volume (veh/h)	118	1	67	195	2	138	110	2347	138	203	2405	136
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	1	73	212	2	150	120	2551	150	221	2614	148
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	1	141	220	2	198	197	1808	809	152	1732	775
Arrive On Green	0.09	0.09	0.09	0.13	0.13	0.13	0.15	0.68	0.68	0.09	0.49	0.49
Sat Flow, veh/h	1761	14	1583	1758	17	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	129	0	73	214	0	150	120	2551	150	221	2614	148
Grp Sat Flow(s),veh/h/ln	1775	0	1583	1775	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	10.0	0.0	6.2	16.8	0.0	12.8	8.9	71.5	4.9	12.0	68.5	7.4
Cycle Q Clear(g_c), s	10.0	0.0	6.2	16.8	0.0	12.8	8.9	71.5	4.9	12.0	68.5	7.4
Prop In Lane	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	0	141	222	0	198	197	1808	809	152	1732	775
V/C Ratio(X)	0.82	0.00	0.52	0.96	0.00	0.76	0.61	1.41	0.19	1.45	1.51	0.19
Avail Cap(c_a), veh/h	235	0	209	222	0	198	197	1808	809	152	1732	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.19	0.19	0.19	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.6	0.0	60.9	60.9	0.0	59.2	56.8	22.4	11.7	64.0	35.8	20.1
Incr Delay (d2), s/veh	12.9	0.0	2.9	50.3	0.0	15.5	1.0	185.4	0.1	236.7	232.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	2.8	11.4	0.0	6.5	4.4	80.7	2.1	15.9	89.3	3.3
LnGrp Delay(d),s/veh	75.6	0.0	63.8	111.2	0.0	74.7	57.8	207.8	11.8	300.7	268.1	20.7
LnGrp LOS	E		E	F		E	E	F	B	F	F	C
Approach Vol, veh/h		202			364			2821			2983	
Approach Delay, s/veh		71.3			96.1			191.0			258.2	
Approach LOS		E			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	78.0		19.0	22.0	75.0		24.0				
Change Period (Y+Rc), s	7.0	6.5		6.5	6.5	6.5		6.5				
Max Green Setting (Gmax), s	12.0	65.5		18.5	9.5	68.5		17.5				
Max Q Clear Time (g_c+I1), s	14.0	73.5		12.0	10.9	70.5		18.8				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			213.3									
HCM 2010 LOS			F									

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Projected PM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	1	67	2	138	110	2347	138	203	2405	136
Future Volume (vph)	1	67	2	138	110	2347	138	203	2405	136
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	25.0	25.0	24.0	24.0	16.0	72.0	72.0	19.0	75.0	75.0
Total Split (%)	17.9%	17.9%	17.1%	17.1%	11.4%	51.4%	51.4%	13.6%	53.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	14.9	14.9	19.8	19.8	9.5	65.5	65.5	13.3	69.8	69.8
Actuated g/C Ratio	0.11	0.11	0.14	0.14	0.07	0.47	0.47	0.10	0.50	0.50
v/c Ratio	0.69	0.22	0.85	0.39	1.00	1.54	0.19	1.32	1.48	0.17
Control Delay	78.3	1.5	87.3	6.5	106.7	271.3	4.2	186.2	253.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	1.5	87.3	6.5	106.7	271.3	4.2	186.2	253.3	11.0
LOS	E	A	F	A	F	F	A	F	F	B
Approach Delay	50.5		54.0			250.1			236.3	
Approach LOS	D		D			F			F	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 28 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.54

Intersection Signal Delay: 226.1

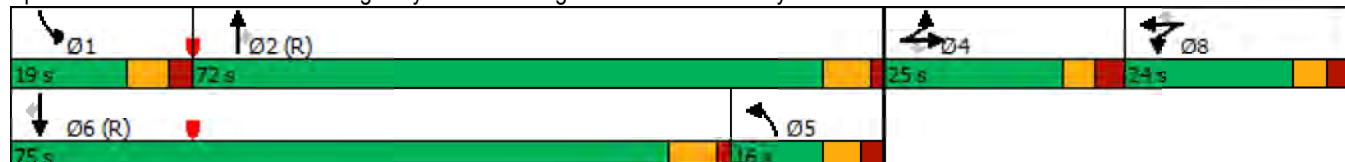
Intersection LOS: F

Intersection Capacity Utilization 110.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way





Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	73	214	150	120	2551	150	221	2614	148
v/c Ratio	0.69	0.22	0.85	0.39	1.00	1.54	0.19	1.32	1.48	0.17
Control Delay	78.3	1.5	87.3	6.5	106.7	271.3	4.2	186.2	253.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	1.5	87.3	6.5	106.7	271.3	4.2	186.2	253.3	11.0
Queue Length 50th (ft)	115	0	192	0	~110	~1717	11	~274	~1747	40
Queue Length 95th (ft)	183	0	#361	37	m#124	m#1797	m15	m#181	m#1102	m30
Internal Link Dist (ft)	1438		351			1392			519	
Turn Bay Length (ft)				250	330		300	200		175
Base Capacity (vph)	234	368	251	381	120	1655	810	167	1763	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.20	0.85	0.39	1.00	1.54	0.19	1.32	1.48	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary 5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	3	8	106	4	219	26	2305	147	348	2518	31
Future Volume (veh/h)	34	3	8	106	4	219	26	2305	147	348	2518	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	37	3	9	115	4	238	28	2505	160	378	2737	34
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	67	94	220	142	336	93	2136	1063	292	2533	1176
Arrive On Green	0.03	0.04	0.04	0.07	0.08	0.08	0.05	1.00	1.00	0.27	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	37	3	9	115	4	238	28	2505	160	378	2737	34
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.8	0.2	0.8	8.6	0.3	1.6	0.9	84.5	0.0	19.0	100.2	0.0
Cycle Q Clear(g_c), s	2.8	0.2	0.8	8.6	0.3	1.6	0.9	84.5	0.0	19.0	100.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	67	94	220	142	336	93	2136	1063	292	2533	1176
V/C Ratio(X)	0.26	0.05	0.10	0.52	0.03	0.71	0.30	1.17	0.15	1.29	1.08	0.03
Avail Cap(c_a), veh/h	212	193	202	220	193	379	172	2136	1063	292	2533	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	0.09	0.09	0.09
Uniform Delay (d), s/veh	62.8	65.2	62.3	58.3	59.9	34.4	33.4	0.0	0.0	49.3	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.3	0.4	2.3	0.1	5.2	0.2	78.2	0.0	134.5	37.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.1	0.3	4.3	0.1	7.4	0.6	23.2	0.0	22.1	13.1	0.0
LnGrp Delay(d),s/veh	63.8	65.5	62.7	60.5	59.9	39.6	33.5	78.2	0.0	183.9	37.1	0.0
LnGrp LOS	E	E	E	E	E	D	C	F	A	F	F	A
Approach Vol, veh/h	49				357				2693			
Approach Delay, s/veh	63.7				46.6				73.1			
Approach LOS	E				D				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.5	90.0	15.0	10.5	8.8	105.7	9.3	16.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	84.5	9.5	14.5	9.5	84.5	9.5	14.5				
Max Q Clear Time (g_c+I1), s	21.0	86.5	10.6	2.8	2.9	102.2	4.8	3.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay	62.1											
HCM 2010 LOS	E											

Timings 5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	3	8	106	4	219	26	2305	147	348	2518	31
Future Volume (vph)	34	3	8	106	4	219	26	2305	147	348	2518	31
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	10.5	10.5	10.5	10.5	10.5	10.5	23.5	10.5	10.5	23.5	10.5
Total Split (s)	15.0	20.0	15.0	15.0	20.0	15.0	15.0	90.0	15.0	15.0	90.0	15.0
Total Split (%)	10.7%	14.3%	10.7%	10.7%	14.3%	10.7%	10.7%	64.3%	10.7%	10.7%	64.3%	10.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	10.0	5.9	8.6	10.7	6.6	13.7	102.2	102.2	116.0	110.0	110.0	125.3
Actuated g/C Ratio	0.07	0.04	0.06	0.08	0.05	0.10	0.73	0.73	0.83	0.79	0.79	0.90
v/c Ratio	0.29	0.04	0.05	0.84	0.05	0.95	0.21	0.97	0.12	2.12	0.98	0.02
Control Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.8	1.8	530.2	17.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.0	0.0
Total Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.8	1.8	530.2	58.7	0.0
LOS	E	E	A	F	E	E	B	B	A	F	E	A
Approach Delay		52.3			87.2			15.9			114.6	
Approach LOS		D			F			B			F	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 35 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.12

Intersection Signal Delay: 70.0

Intersection LOS: E

Intersection Capacity Utilization 109.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Nashville Highway & Green Mills



Queues
5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	37	3	9	115	4	238	28	2505	160	378	2737	34
v/c Ratio	0.29	0.04	0.05	0.84	0.05	0.95	0.21	0.97	0.12	2.12	0.98	0.02
Control Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.8	1.8	530.2	17.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.0	0.0
Total Delay	63.9	65.0	0.5	104.7	65.2	79.2	11.8	16.8	1.8	530.2	58.7	0.0
Queue Length 50th (ft)	33	3	0	106	4	~162	8	461	21	~514	~375	0
Queue Length 95th (ft)	64	13	0	159	17	#200	m8	m#412	m20	m#362	m1016	m0
Internal Link Dist (ft)	1713			3835			1079			1392		
Turn Bay Length (ft)	250		250	240		240	400		100	480		140
Base Capacity (vph)	138	192	231	139	192	250	174	2582	1311	178	2780	1431
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	457	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.02	0.04	0.83	0.02	0.95	0.16	0.97	0.12	2.12	1.18	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	21	57	0	43	33	2392	99	74	2436	78
Future Volume (veh/h)	43	0	21	57	0	43	33	2392	99	74	2436	78
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	47	0	23	62	0	47	36	2600	108	80	2648	85
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	0	78	139	66	237	175	2237	1052	254	2496	1117
Arrive On Green	0.06	0.00	0.05	0.03	0.00	0.04	0.04	0.63	0.63	0.23	1.00	1.00
Sat Flow, veh/h	1774	0	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	47	0	23	62	0	47	36	2600	108	80	2648	85
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.6	0.0	2.0	0.0	0.0	0.0	1.2	88.5	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.0	2.0	0.0	0.0	0.0	1.2	88.5	0.0	0.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	0	78	139	66	237	175	2237	1052	254	2496	1117
V/C Ratio(X)	0.44	0.00	0.29	0.45	0.00	0.20	0.21	1.16	0.10	0.31	1.06	0.08
Avail Cap(c_a), veh/h	108	0	153	151	206	357	209	2237	1052	254	2496	1117
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.15	0.15	0.15
Uniform Delay (d), s/veh	63.4	0.0	64.2	64.8	0.0	52.1	11.7	25.8	8.4	47.9	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	2.1	2.2	0.0	0.4	0.6	78.3	0.2	0.1	29.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.9	2.4	0.0	1.6	0.6	67.2	1.5	2.4	10.1	0.0
LnGrp Delay(d),s/veh	66.2	0.0	66.2	67.0	0.0	52.5	12.2	104.1	8.6	48.0	29.1	0.0
LnGrp LOS	E		E	E		D	B	F	A	D	F	A
Approach Vol, veh/h	70				109			2744			2813	
Approach Delay, s/veh	66.2				60.8			99.1			28.7	
Approach LOS	E				E			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	105.2	9.1	13.4	22.5	95.0	13.0	9.5				
Change Period (Y+Rc), s	7.0	6.5	4.5	6.5	6.5	* 6.5	4.5	4.5				
Max Green Setting (Gmax), s	8.0	88.5	5.5	13.5	10.5	* 89	5.5	15.5				
Max Q Clear Time (g_c+I1), s	3.2	2.0	2.0	4.0	2.9	90.5	5.6	2.0				
Green Ext Time (p_c), s	0.0	78.4	0.0	0.0	0.1	0.0	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	63.5											
HCM 2010 LOS	E											
Notes												

Timings 6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected PM

											
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø8
Lane Configurations											
Traffic Volume (vph)	43	0	57	43	33	2392	99	74	2436	78	
Future Volume (vph)	43	0	57	43	33	2392	99	74	2436	78	
Turn Type	Prot	NA	pm+pt	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	7	4	3	5	1	6	3	5	2		8
Permitted Phases			8	8	6		6	2		2	
Detector Phase	7	4	3	5	1	6	3	5	2	2	
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	10.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	9.5	13.5	9.5	9.5	14.0	24.5	9.5	9.5	24.5	24.5	9.5
Total Split (s)	10.0	20.0	10.0	15.0	15.0	95.0	10.0	15.0	95.0	95.0	20.0
Total Split (%)	7.1%	14.3%	7.1%	10.7%	10.7%	67.9%	7.1%	10.7%	67.9%	67.9%	14%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	5.0	3.5	3.5	5.0	5.0	3.5
All-Red Time (s)	1.0	3.0	1.0	1.0	2.5	1.5	1.0	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.5	4.5	4.5	7.0	6.5	4.5	4.5	6.5	6.5	
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min	C-Min	None
Act Effect Green (s)	17.9	7.0	9.9	12.7	95.5	96.0	112.4	101.7	99.7	99.7	
Actuated g/C Ratio	0.13	0.05	0.07	0.09	0.68	0.69	0.80	0.73	0.71	0.71	
v/c Ratio	0.21	0.10	0.50	0.19	0.25	1.07	0.08	0.42	1.05	0.07	
Control Delay	53.0	0.8	75.7	1.7	13.2	63.8	1.5	23.0	39.2	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	
Total Delay	53.0	0.8	75.7	1.7	13.2	63.8	1.5	23.0	40.1	0.1	
LOS	D	A	E	A	B	E	A	C	D	A	
Approach Delay		35.9				60.7			38.4		
Approach LOS		D				E			D		

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 49.1

Intersection LOS: D

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way



Queues
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected PM

										
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	23	62	47	36	2600	108	80	2648	85
v/c Ratio	0.21	0.10	0.50	0.19	0.25	1.07	0.08	0.42	1.05	0.07
Control Delay	53.0	0.8	75.7	1.7	13.2	63.8	1.5	23.0	39.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Total Delay	53.0	0.8	75.7	1.7	13.2	63.8	1.5	23.0	40.1	0.1
Queue Length 50th (ft)	37	0	55	0	11	~1453	6	18	~1484	0
Queue Length 95th (ft)	75	0	104	0	26	#1595	20	m21	m#1553	m0
Internal Link Dist (ft)	2034						4876	1079		
Turn Bay Length (ft)			200	200	260			150	250	265
Base Capacity (vph)	226	304	125	249	157	2427	1286	190	2519	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	5	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.50	0.19	0.23	1.07	0.08	0.42	1.05	0.07
Intersection Summary										
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.										
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.										
m Volume for 95th percentile queue is metered by upstream signal.										

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected Imp AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	0	60	0	2	2	146	2511	1	0	1812	69
Future Volume (veh/h)	278	0	60	0	2	2	146	2511	1	0	1812	69
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	302	0	65	0	2	2	159	2729	1	0	1970	75
Adj No. of Lanes	2	0	1	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	353	0	157	13	6	6	271	2336	1	154	2043	914
Arrive On Green	0.10	0.00	0.10	0.00	0.01	0.01	0.31	1.00	1.00	0.00	0.58	0.58
Sat Flow, veh/h	3548	0	1583	1774	856	856	1774	3631	1	1774	3539	1583
Grp Volume(v), veh/h	302	0	65	0	0	4	159	1330	1400	0	1970	75
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1712	1774	1770	1863	1774	1770	1583
Q Serve(g_s), s	12.6	0.0	5.8	0.0	0.0	0.3	11.4	0.0	96.5	0.0	79.6	3.2
Cycle Q Clear(g_c), s	12.6	0.0	5.8	0.0	0.0	0.3	11.4	0.0	96.5	0.0	79.6	3.2
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	353	0	157	13	0	12	271	1138	1198	154	2043	914
V/C Ratio(X)	0.86	0.00	0.41	0.00	0.00	0.33	0.59	1.17	1.17	0.00	0.96	0.08
Avail Cap(c_a), veh/h	402	0	179	83	0	80	271	1138	1198	154	2065	924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	0.09	0.09	0.09	0.00	1.00	1.00
Uniform Delay (d), s/veh	66.5	0.0	63.4	0.0	0.0	74.1	48.1	0.0	0.0	0.0	30.2	14.1
Incr Delay (d2), s/veh	15.0	0.0	1.7	0.0	0.0	14.6	0.3	76.7	76.7	0.0	13.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	2.6	0.0	0.0	0.2	5.6	24.3	25.5	0.0	42.3	1.4
LnGrp Delay(d),s/veh	81.5	0.0	65.2	0.0	0.0	88.7	48.4	76.7	76.7	0.0	43.3	14.2
LnGrp LOS	F		E			F	D	F	F		D	B
Approach Vol, veh/h	367				4			2889			2045	
Approach Delay, s/veh	78.6				88.7			75.1			42.2	
Approach LOS	E				F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	29.9	92.6	20.9		20.0	102.5	6.6					
Change Period (Y+Rc), s	7.0	* 6	6.0		7.0	6.0	5.5					
Max Green Setting (Gmax), s	14.5	* 88	17.0		5.0	96.5	7.0					
Max Q Clear Time (g_c+I1), s	13.4	81.6	14.6		0.0	98.5	2.3					
Green Ext Time (p_c), s	0.0	5.0	0.3		0.0	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			62.7									
HCM 2010 LOS			E									
Notes												

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected Imp AM

									
Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR	Ø5
Lane Configurations									
Traffic Volume (vph)	278	0	60	2	146	2511	1812	69	
Future Volume (vph)	278	0	60	2	146	2511	1812	69	
Turn Type	Split	NA	Perm	NA	Prot	NA	NA	Perm	
Protected Phases	4	4		8	1	6	2		5
Permitted Phases			4					2	
Detector Phase	4	4	4	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	25.0	25.0	25.0	5.0
Minimum Split (s)	23.0	23.0	23.0	12.5	11.5	32.5	32.5	32.5	12.0
Total Split (s)	23.0	23.0	23.0	12.5	21.0	102.5	93.5	93.5	12.0
Total Split (%)	15.3%	15.3%	15.3%	8.3%	14.0%	68.3%	62.3%	62.3%	8%
Yellow Time (s)	3.5	3.5	3.5	3.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	5.5	6.5	6.0	6.0	6.0	
Lead/Lag					Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	16.1	16.1	16.1	7.0	17.6	119.4	95.2	95.2	
Actuated g/C Ratio	0.11	0.11	0.11	0.05	0.12	0.80	0.63	0.63	
v/c Ratio	0.84	0.84	0.21	0.05	0.76	0.97	0.88	0.07	
Control Delay	99.9	99.9	1.6	56.0	57.7	8.8	28.4	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	16.8	0.0	0.0	
Total Delay	99.9	99.9	1.6	56.0	57.7	25.6	28.4	0.1	
LOS	F	F	A	E	E	C	C	A	
Approach Delay		82.5		56.0		27.3	27.4		
Approach LOS		F		E		C	C		

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 31.2
 Intersection LOS: C
 Intersection Capacity Utilization 103.8%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

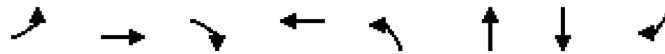


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Projected Imp AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	151	151	65	4	159	2730	1970	75
v/c Ratio	0.84	0.84	0.21	0.05	0.76	0.97	0.88	0.07
Control Delay	99.9	99.9	1.6	56.0	57.7	8.8	28.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	16.8	0.0	0.0
Total Delay	99.9	99.9	1.6	56.0	57.7	25.6	28.4	0.1
Queue Length 50th (ft)	153	153	0	2	155	205	714	0
Queue Length 95th (ft)	#276	#276	0	15	m137	m191	#1134	0
Internal Link Dist (ft)		390		206		921	2610	
Turn Bay Length (ft)					250			100
Base Capacity (vph)	190	190	317	82	208	2815	2246	1061
Starvation Cap Reductn	0	0	0	0	0	184	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.79	0.21	0.05	0.76	1.04	0.88	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

2: Nashville Highway & Driveway/Hospitality Drive

2558 Nashville Highway
Projected Imp AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	10	40	2	113	21	2610	36	45	1870	12
Future Volume (veh/h)	1	0	10	40	2	113	21	2610	36	45	1870	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	1	0	11	43	2	123	23	2837	39	49	2033	13
Adj No. of Lanes	0	1	0	0	1	1	0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	9	130	169	7	187	36	2577	1222	99	2995	19
Arrive On Green	0.09	0.00	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	35	97	1456	1366	76	1583	15	3339	1583	1774	3605	23
Grp Volume(v), veh/h	12	0	0	45	0	123	1534	1326	39	49	997	1049
Grp Sat Flow(s),veh/h/ln	1589	0	0	1442	0	1583	1743	1610	1583	1774	1770	1859
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	11.1	68.6	115.8	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	4.2	0.0	11.1	115.8	115.8	0.0	0.8	0.0	0.0
Prop In Lane	0.08		0.92	0.96		1.00	0.01		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	168	0	0	175	0	187	1370	1243	1222	99	1470	1544
V/C Ratio(X)	0.07	0.00	0.00	0.26	0.00	0.66	1.12	1.07	0.03	0.49	0.68	0.68
Avail Cap(c_a), veh/h	215	0	0	219	0	236	1370	1243	1222	107	1470	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.40	0.40	0.40
Uniform Delay (d), s/veh	62.7	0.0	0.0	64.1	0.0	63.2	1.8	0.0	0.0	47.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.8	0.0	4.5	64.2	45.4	0.0	1.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.8	0.0	5.1	50.1	15.7	0.0	1.6	0.4	0.4
LnGrp Delay(d),s/veh	62.9	0.0	0.0	64.8	0.0	67.7	66.0	45.4	0.0	49.0	1.0	1.0
LnGrp LOS	E			E		E	F	F	A	D	A	A
Approach Vol, veh/h	12			168			2899			2095		
Approach Delay, s/veh	62.9			66.9			55.7			2.1		
Approach LOS	E			E			E			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	8.9	121.8	19.4		130.6		19.4					
Change Period (Y+Rc), s	4.5	6.0	6.0		6.0		6.0					
Max Green Setting (Gmax), s	5.0	110.5	18.0		120.0		18.0					
Max Q Clear Time (g_c+I1), s	2.8	117.8	3.0		2.0		13.1					
Green Ext Time (p_c), s	0.0	0.0	0.0		30.6		0.2					
Intersection Summary												
HCM 2010 Ctrl Delay	34.4											
HCM 2010 LOS	C											

Timings 2: Nashville Highway & Driveway/Hospitality Drive

2558 Nashville Highway
Projected Imp AM

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	0	40	2	113	21	2610	36	45	1870
Future Volume (vph)	1	0	40	2	113	21	2610	36	45	1870
Turn Type	Perm	NA	Perm	NA	pm+ov	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8	1		2		1	6
Permitted Phases	4		8		8	2		2	6	
Detector Phase	4	4	8	8	1	2	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	25.0	25.0	25.0	5.0	25.0
Minimum Split (s)	24.0	24.0	24.0	24.0	9.5	31.5	31.5	31.5	9.5	31.5
Total Split (s)	24.0	24.0	24.0	24.0	9.5	116.5	116.5	116.5	9.5	126.0
Total Split (%)	16.0%	16.0%	16.0%	16.0%	6.3%	77.7%	77.7%	77.7%	6.3%	84.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	4.5	4.5	4.5	3.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	1.0	1.5	1.5	1.5	1.0	1.5
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	4.5		6.0	6.0	4.5	6.0
Lead/Lag					Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max
Act Effect Green (s)		10.3		10.3	21.0		118.5	118.5	131.5	131.2
Actuated g/C Ratio		0.07		0.07	0.14		0.79	0.79	0.88	0.87
v/c Ratio		0.07		0.48	0.51		1.15	0.03	0.37	0.66
Control Delay		0.9		83.3	54.8		83.6	0.0	34.9	2.0
Queue Delay		0.0		0.0	0.0		0.1	0.0	0.0	0.1
Total Delay		0.9		83.3	54.8		83.7	0.0	34.9	2.1
LOS		A		F	D		F	A	C	A
Approach Delay		0.9		62.4			82.5			2.8
Approach LOS		A		E			F			A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 21 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 49.4

Intersection LOS: D

Intersection Capacity Utilization 105.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 2: Nashville Highway & Driveway/Hospitality Drive



Queues
2: Nashville Highway & Driveway/Hospitality Drive

2558 Nashville Highway
Projected Imp AM



Lane Group	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	45	123	2860	39	49	2046
v/c Ratio	0.07	0.48	0.51	1.15	0.03	0.37	0.66
Control Delay	0.9	83.3	54.8	83.6	0.0	34.9	2.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Total Delay	0.9	83.3	54.8	83.7	0.0	34.9	2.1
Queue Length 50th (ft)	0	43	92	~1782	0	10	9
Queue Length 95th (ft)	0	85	152	m146	m0	m22	28
Internal Link Dist (ft)	40	458		654			921
Turn Bay Length (ft)			100		100	60	
Base Capacity (vph)	238	162	240	2491	1262	132	3093
Starvation Cap Reductn	0	0	0	0	0	0	196
Spillback Cap Reductn	0	0	0	102	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.28	0.51	1.20	0.03	0.37	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	39.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗	↗	↗	↗	↗
Traffic Vol, veh/h	0	0	128	0	0	256	157	2468	120	186	1688	20
Future Vol, veh/h	0	0	128	0	0	256	157	2468	120	186	1688	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	300	300	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	139	0	0	278	171	2683	130	202	1835	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	918	-	-	1342	1857	0	0	2813	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	274	0	0	~ 142	322	-	-	~ 134	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	274	-	-	~ 142	322	-	-	~ 134	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31	\$ 508.9	1.6	31.8
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	322	-	-	274	142 ~ 134	-	-
HCM Lane V/C Ratio	0.53	-	-	0.508	1.96	1.509	-
HCM Control Delay (s)	28.1	-	-	31\$ 508.9\$	323.4	-	-
HCM Lane LOS	D	-	-	D	F	F	-
HCM 95th %tile Q(veh)	2.9	-	-	2.7	21.8	14	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Projected Imp AM

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	166	2	36	274	0	152	37	2424	81	115	1579	57						
Future Volume (veh/h)	166	2	36	274	0	152	37	2424	81	115	1579	57						
Number	7	4	14	3	8	18	5	2	12	1	6	16						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863						
Adj Flow Rate, veh/h	180	2	39	298	0	165	40	2635	88	125	1716	62						
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2						
Cap, veh/h	146	2	132	219	0	195	283	1896	848	143	1618	724						
Arrive On Green	0.08	0.08	0.08	0.12	0.00	0.12	0.32	1.00	1.00	0.16	0.91	0.91						
Sat Flow, veh/h	1755	20	1583	1774	0	1583	1774	3539	1583	1774	3539	1583						
Grp Volume(v), veh/h	182	0	39	298	0	165	40	2635	88	125	1716	62						
Grp Sat Flow(s),veh/h/ln	1775	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583						
Q Serve(g_s), s	12.5	0.0	3.5	18.5	0.0	15.3	2.4	80.4	0.0	10.3	68.6	0.5						
Cycle Q Clear(g_c), s	12.5	0.0	3.5	18.5	0.0	15.3	2.4	80.4	0.0	10.3	68.6	0.5						
Prop In Lane	0.99		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Lane Grp Cap(c), veh/h	148	0	132	219	0	195	283	1896	848	143	1618	724						
V/C Ratio(X)	1.23	0.00	0.30	1.36	0.00	0.84	0.14	1.39	0.10	0.87	1.06	0.09						
Avail Cap(c_a), veh/h	148	0	132	219	0	195	283	1994	892	143	2050	917						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00						
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.17	0.17	0.17	1.00	1.00	1.00						
Uniform Delay (d), s/veh	68.8	0.0	64.6	65.8	0.0	64.3	43.8	0.0	0.0	62.1	6.4	3.5						
Incr Delay (d2), s/veh	148.9	0.0	1.2	189.5	0.0	27.3	0.0	175.9	0.0	40.1	40.3	0.2						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	12.2	0.0	1.6	20.6	0.0	8.2	1.2	46.3	0.0	6.7	37.8	0.3						
LnGrp Delay(d),s/veh	217.7	0.0	65.8	255.2	0.0	91.7	43.8	175.9	0.0	102.2	46.7	3.7						
LnGrp LOS	F		E	F		F	D	F	A	F	F	A						
Approach Vol, veh/h	221			463			2763			1903								
Approach Delay, s/veh	190.9			197.0			168.4			49.0								
Approach LOS	F			F			F			D								
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	17.1	88.9			19.0	24.7	81.3	25.0										
Change Period (Y+Rc), s	7.0	6.5			6.5	7.0	* 6.5	6.5										
Max Green Setting (Gmax), s	8.0	84.5			12.5	6.1	* 87	18.5										
Max Q Clear Time (g_c+I1), s	12.3	82.4			14.5	4.4	70.6	20.5										
Green Ext Time (p_c), s	0.0	2.1			0.0	0.0	10.5	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay	129.3																	
HCM 2010 LOS	F																	
Notes																		

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Projected Imp AM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕
Traffic Volume (vph)	2	36	0	152	37	2424	81	115	1579	57
Future Volume (vph)	2	36	0	152	37	2424	81	115	1579	57
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	19.0	19.0	25.0	25.0	12.6	91.0	91.0	15.0	93.4	93.4
Total Split (%)	12.7%	12.7%	16.7%	16.7%	8.4%	60.7%	60.7%	10.0%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	12.5	12.5	18.5	18.5	6.7	84.5	84.5	8.0	88.7	88.7
Actuated g/C Ratio	0.08	0.08	0.12	0.12	0.04	0.56	0.56	0.05	0.59	0.59
v/c Ratio	1.24	0.16	1.37	0.54	0.51	1.32	0.09	1.33	0.82	0.06
Control Delay	205.6	1.4	238.4	25.1	65.0	168.8	0.5	238.5	18.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	205.6	1.4	238.4	25.1	65.0	168.8	0.5	238.5	18.6	1.1
LOS	F	A	F	C	E	F	A	F	B	A
Approach Delay	169.6		162.4			162.0			32.5	
Approach LOS	F		F			F			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 142 (95%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.37

Intersection Signal Delay: 116.3

Intersection LOS: F

Intersection Capacity Utilization 111.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way

↑ Ø2 (R)	↘ Ø1	↗ Ø4	↙ Ø8
91 s	15 s	19 s	25 s
↓ Ø6 (R)	↘ Ø5		
93.4 s	12.6 s		



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	182	39	298	165	40	2635	88	125	1716	62
v/c Ratio	1.24	0.16	1.37	0.54	0.51	1.32	0.09	1.33	0.82	0.06
Control Delay	205.6	1.4	238.4	25.1	65.0	168.8	0.5	238.5	18.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	205.6	1.4	238.4	25.1	65.0	168.8	0.5	238.5	18.6	1.1
Queue Length 50th (ft)	~219	0	~383	37	39	~1748	0	~158	268	0
Queue Length 95th (ft)	#381	0	#576	115	m40	m#1825	m0	m#289	491	m4
Internal Link Dist (ft)	1438		351			1392			519	
Turn Bay Length (ft)				250	330		300	200		175
Base Capacity (vph)	147	245	218	303	80	1993	945	94	2109	993
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.16	1.37	0.54	0.50	1.32	0.09	1.33	0.81	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected Imp AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	14	147	1	336	8	2123	83	129	1873	10
Future Volume (veh/h)	60	5	14	147	1	336	8	2123	83	129	1873	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	65	5	15	160	1	365	9	2308	90	140	2036	11
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	62	69	199	92	308	187	2218	1089	306	2719	1288
Arrive On Green	0.05	0.03	0.03	0.06	0.05	0.05	0.02	1.00	1.00	0.29	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	65	5	15	160	1	365	9	2308	90	140	2036	11
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.3	0.4	1.4	9.2	0.1	5.0	0.3	94.0	0.0	5.2	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.4	1.4	9.2	0.1	5.0	0.3	94.0	0.0	5.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	62	69	199	92	308	187	2218	1089	306	2719	1288
V/C Ratio(X)	0.40	0.08	0.22	0.80	0.01	1.18	0.05	1.04	0.08	0.46	0.75	0.01
Avail Cap(c_a), veh/h	189	62	69	199	92	308	239	2218	1089	318	2719	1288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.45	0.45	0.45	0.49	0.49	0.49
Uniform Delay (d), s/veh	66.1	70.3	69.2	67.9	67.8	42.4	11.4	0.0	0.0	46.4	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.5	1.5	20.5	0.0	110.8	0.0	25.1	0.1	0.5	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.2	0.6	3.3	0.0	21.6	0.1	7.7	0.0	4.6	0.4	0.0
LnGrp Delay(d),s/veh	67.7	70.8	70.8	88.4	67.9	153.2	11.4	25.1	0.1	46.9	1.0	0.0
LnGrp LOS	E	E	E	F	E	F	B	F	A	D	A	A
Approach Vol, veh/h	85			526			2407			2187		
Approach Delay, s/veh	68.4			133.3			24.1			3.9		
Approach LOS	E			F			C			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.3	99.5	13.7	9.5	6.1	120.7	11.3	11.9				
Change Period (Y+Rc), s	5.5	* 5.5	4.5	4.5	4.5	5.5	4.5	4.5				
Max Green Setting (Gmax), s	22.8	* 94	9.2	5.0	6.0	110.8	9.1	5.1				
Max Q Clear Time (g_c+I1), s	7.2	96.0	11.2	3.4	2.3	2.0	7.3	7.0				
Green Ext Time (p_c), s	0.3	0.0	0.0	0.0	0.0	31.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.4									
HCM 2010 LOS			C									
Notes												

Timings

5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected Imp AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	5	14	147	1	336	8	2123	83	129	1873	10
Future Volume (vph)	60	5	14	147	1	336	8	2123	83	129	1873	10
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	25.0	5.0	5.0	25.0	5.0
Minimum Split (s)	10.5	9.5	10.5	10.5	9.5	10.5	10.5	30.5	10.5	10.5	30.5	10.5
Total Split (s)	13.6	9.5	10.5	13.7	9.6	27.3	10.5	99.5	13.7	27.3	116.3	13.6
Total Split (%)	9.1%	6.3%	7.0%	9.1%	6.4%	18.2%	7.0%	66.3%	9.1%	18.2%	77.5%	9.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.5	4.5	4.5	5.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	9.7	5.0	7.6	10.2	5.9	26.6	102.6	101.6	115.4	123.7	122.7	137.7
Actuated g/C Ratio	0.06	0.03	0.05	0.07	0.04	0.18	0.68	0.68	0.77	0.82	0.82	0.92
v/c Ratio	0.57	0.08	0.09	1.31	0.01	1.05	0.07	0.96	0.07	0.43	0.70	0.01
Control Delay	85.3	73.2	1.1	238.1	71.0	103.4	5.4	20.3	0.7	27.5	1.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	85.3	73.2	1.1	238.1	71.0	103.4	5.4	20.4	0.7	27.5	1.3	0.0
LOS	F	E	A	F	E	F	A	C	A	C	A	A
Approach Delay		69.7			144.3			19.6			3.0	
Approach LOS		E			F			B			A	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 141 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.31
 Intersection Signal Delay: 26.0
 Intersection Capacity Utilization 95.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 5: Nashville Highway & Green Mills



Queues

5: Nashville Highway & Green Mills

2558 Nashville Highway

Projected Imp AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	65	5	15	160	1	365	9	2308	90	140	2036	11
v/c Ratio	0.57	0.08	0.09	1.31	0.01	1.05	0.07	0.96	0.07	0.43	0.70	0.01
Control Delay	85.3	73.2	1.1	238.1	71.0	103.4	5.4	20.3	0.7	27.5	1.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	85.3	73.2	1.1	238.1	71.0	103.4	5.4	20.4	0.7	27.5	1.3	0.0
Queue Length 50th (ft)	63	5	0	~214	1	~351	1	151	1	69	14	0
Queue Length 95th (ft)	109	21	0	#240	8	#455	m2	#1398	m3	m103	m88	m0
Internal Link Dist (ft)	1713			3835			1079			1392		
Turn Bay Length (ft)	250		250	240		240	400		100	480		140
Base Capacity (vph)	120	62	169	122	73	349	129	2396	1229	322	2894	1462
Starvation Cap Reductn	0	0	0	0	0	0	0	3	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	20	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.08	0.09	1.31	0.01	1.05	0.07	0.96	0.07	0.43	0.71	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected Imp AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	0	28	89	0	67	11	2054	29	22	1935	44
Future Volume (veh/h)	81	0	28	89	0	67	11	2054	29	22	1935	44
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	88	0	30	97	0	73	12	2233	32	24	2103	48
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	0	74	119	72	171	195	2422	1147	192	2589	1158
Arrive On Green	0.06	0.00	0.05	0.04	0.00	0.04	0.02	0.68	0.68	0.14	1.00	1.00
Sat Flow, veh/h	1774	0	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	88	0	30	97	0	73	12	2233	32	24	2103	48
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.3	0.0	2.8	4.0	0.0	0.7	0.4	81.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.3	0.0	2.8	4.0	0.0	0.7	0.4	81.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	109	0	74	119	72	171	195	2422	1147	192	2589	1158
V/C Ratio(X)	0.81	0.00	0.41	0.81	0.00	0.43	0.06	0.92	0.03	0.12	0.81	0.04
Avail Cap(c_a), veh/h	174	0	74	185	73	172	245	2461	1164	192	2589	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	69.5	0.0	69.5	70.0	0.0	42.3	9.2	20.3	5.8	51.3	0.0	0.0
Incr Delay (d2), s/veh	13.8	0.0	3.6	14.3	0.0	1.7	0.1	7.3	0.0	0.2	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	1.3	4.4	0.0	2.4	0.2	41.5	0.4	0.9	0.6	0.0
LnGrp Delay(d),s/veh	83.3	0.0	73.0	84.4	0.0	44.0	9.3	27.6	5.9	51.5	1.7	0.0
LnGrp LOS	F		E	F		D	A	C	A	D	A	A
Approach Vol, veh/h	118				170			2277			2175	
Approach Delay, s/veh	80.7				67.0			27.2			2.2	
Approach LOS	F				E			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	116.2	10.5	13.5	16.9	109.1	13.7	10.3				
Change Period (Y+Rc), s	7.0	6.5	4.5	6.5	6.5	* 6.5	4.5	4.5				
Max Green Setting (Gmax), s	7.0	99.9	11.6	7.0	5.1	* 1E2	14.7	5.9				
Max Q Clear Time (g_c+I1), s	2.4	2.0	6.0	4.8	2.0	83.0	9.3	2.7				
Green Ext Time (p_c), s	0.0	65.9	0.1	0.0	0.0	19.7	0.1	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			18.5									
HCM 2010 LOS			B									
Notes												

Timings

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected Imp AM

											
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø8
Lane Configurations											
Traffic Volume (vph)	81	0	89	67	11	2054	29	22	1935	44	
Future Volume (vph)	81	0	89	67	11	2054	29	22	1935	44	
Turn Type	Prot	NA	pm+pt	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	7	4	3	5	1	6	3	5	2		8
Permitted Phases			8	8	6		6	2		2	
Detector Phase	7	4	3	5	1	6	3	5	2	2	
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	10.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	9.5	13.5	9.5	9.5	14.0	24.5	9.5	9.5	24.5	24.5	9.5
Total Split (s)	19.2	13.5	16.1	9.6	14.0	110.8	16.1	9.6	106.4	106.4	10.4
Total Split (%)	12.8%	9.0%	10.7%	6.4%	9.3%	73.9%	10.7%	6.4%	70.9%	70.9%	7%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	5.0	3.5	3.5	5.0	5.0	3.5
All-Red Time (s)	1.0	3.0	1.0	1.0	2.5	1.5	1.0	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.5	4.5	4.5	7.0	6.5	4.5	4.5	6.5	6.5	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min	C-Min	None
Act Effect Green (s)	19.2	7.0	11.1	5.3	109.5	110.0	127.6	116.2	114.2	114.2	
Actuated g/C Ratio	0.13	0.05	0.07	0.04	0.73	0.73	0.85	0.77	0.76	0.76	
v/c Ratio	0.39	0.12	0.75	0.35	0.09	0.86	0.02	0.21	0.78	0.04	
Control Delay	63.0	1.0	99.4	4.7	8.4	20.4	0.0	15.1	12.1	0.0	
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.0	
Total Delay	63.0	1.0	99.4	4.8	8.4	21.2	0.0	15.1	12.2	0.0	
LOS	E	A	F	A	A	C	A	B	B	A	
Approach Delay		47.3				20.8			11.9		
Approach LOS		D				C			B		

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 138 (92%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 18.7

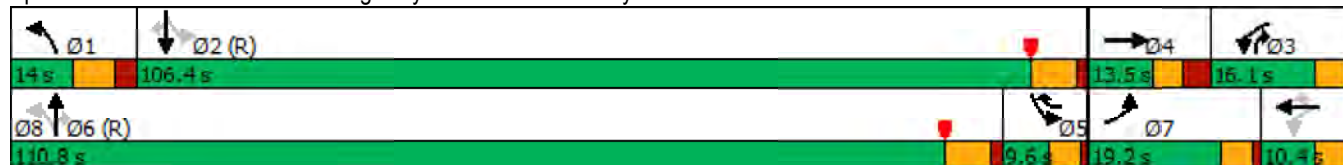
Intersection LOS: B

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way



Queues

2558 Nashville Highway

6: Nashville Highway & Hidden Creek Way

Projected Imp AM

										
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	30	97	73	12	2233	32	24	2103	48
v/c Ratio	0.39	0.12	0.75	0.35	0.09	0.86	0.02	0.21	0.78	0.04
Control Delay	63.0	1.0	99.4	4.7	8.4	20.4	0.0	15.1	12.1	0.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.0
Total Delay	63.0	1.0	99.4	4.8	8.4	21.2	0.0	15.1	12.2	0.0
Queue Length 50th (ft)	77	0	94	0	3	878	0	6	367	0
Queue Length 95th (ft)	133	0	#182	0	10	1019	0	m8	m382	m0
Internal Link Dist (ft)	2034						4876	1079		
Turn Bay Length (ft)			200	200	260			150	250	265
Base Capacity (vph)	247	254	137	206	134	2595	1354	117	2694	1239
Starvation Cap Reductn	0	0	0	0	0	0	0	0	23	0
Spillback Cap Reductn	0	0	0	5	0	128	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.12	0.71	0.36	0.09	0.91	0.02	0.21	0.79	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected Imp PM

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	193	0	70	3	1	7	89	2422	4	6	2926	76						
Future Volume (veh/h)	193	0	70	3	1	7	89	2422	4	6	2926	76						
Number	7	4	14	3	8	18	1	6	16	5	2	12						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863						
Adj Flow Rate, veh/h	210	0	76	3	1	8	97	2633	4	7	3180	83						
Adj No. of Lanes	2	0	1	1	1	0	1	2	0	1	2	1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2						
Cap, veh/h	266	0	119	33	3	26	195	2562	4	59	2253	1008						
Arrive On Green	0.08	0.00	0.08	0.02	0.02	0.02	0.22	1.00	1.00	0.03	0.64	0.64						
Sat Flow, veh/h	3548	0	1583	1774	179	1431	1774	3626	6	1774	3539	1583						
Grp Volume(v), veh/h	210	0	76	3	0	9	97	1285	1352	7	3180	83						
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1610	1774	1770	1862	1774	1770	1583						
Q Serve(g_s), s	8.7	0.0	7.0	0.2	0.0	0.8	7.2	106.0	82.2	0.6	95.5	3.0						
Cycle Q Clear(g_c), s	8.7	0.0	7.0	0.2	0.0	0.8	7.2	106.0	82.2	0.6	95.5	3.0						
Prop In Lane	1.00		1.00	1.00		0.89	1.00		0.00	1.00		1.00						
Lane Grp Cap(c), veh/h	266	0	119	33	0	30	195	1250	1316	59	2253	1008						
V/C Ratio(X)	0.79	0.00	0.64	0.09	0.00	0.30	0.50	1.03	1.03	0.12	1.41	0.08						
Avail Cap(c_a), veh/h	402	0	179	83	0	75	195	1250	1316	59	2253	1008						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00						
Uniform Delay (d), s/veh	68.2	0.0	67.4	72.4	0.0	72.7	54.9	0.0	0.0	70.4	27.3	10.4						
Incr Delay (d2), s/veh	6.0	0.0	5.6	1.2	0.0	5.7	0.2	16.1	16.1	0.9	187.8	0.2						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	4.5	0.0	3.2	0.1	0.0	0.4	3.5	5.6	5.9	0.3	105.1	1.4						
LnGrp Delay(d),s/veh	74.2	0.0	73.0	73.6	0.0	78.3	55.1	16.1	16.1	71.2	215.0	10.6						
LnGrp LOS	E		E	E		E	E	F	F	E	F	B						
Approach Vol, veh/h	286				12			2734			3270							
Approach Delay, s/veh	73.9				77.1			17.5			209.5							
Approach LOS	E				E			B			F							
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	23.0	101.5			17.3	12.0	112.5	8.3										
Change Period (Y+Rc), s	6.5	6.0			6.0	7.0	* 6.5	5.5										
Max Green Setting (Gmax), s	6.5	95.5			17.0	5.0	* 97	7.0										
Max Q Clear Time (g_c+I1), s	9.2	97.5			10.7	2.6	108.0	2.8										
Green Ext Time (p_c), s	0.0	0.0			0.5	0.0	0.0	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay	119.8																	
HCM 2010 LOS	F																	
Notes																		

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2558 Nashville Highway
Projected Imp PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	193	0	70	3	1	89	2422	6	2926	76
Future Volume (vph)	193	0	70	3	1	89	2422	6	2926	76
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	Prot	NA	Perm
Protected Phases	4	4		8	8	1	6	5	2	
Permitted Phases			4							2
Detector Phase	4	4	4	8	8	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0	25.0
Minimum Split (s)	23.0	23.0	23.0	12.5	12.5	11.5	32.5	12.0	32.5	32.5
Total Split (s)	23.0	23.0	23.0	12.5	12.5	13.0	102.5	12.0	101.5	101.5
Total Split (%)	15.3%	15.3%	15.3%	8.3%	8.3%	8.7%	68.3%	8.0%	67.7%	67.7%
Yellow Time (s)	3.5	3.5	3.5	3.0	3.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.5	5.5	6.5	6.0	7.0	6.0	6.0
Lead/Lag						Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effect Green (s)	14.0	14.0	14.0	7.0	7.0	6.5	116.6	5.4	106.0	106.0
Actuated g/C Ratio	0.09	0.09	0.09	0.05	0.05	0.04	0.78	0.04	0.71	0.71
v/c Ratio	0.67	0.67	0.26	0.04	0.11	1.28	0.96	0.11	1.27	0.07
Control Delay	86.2	86.2	2.2	69.3	40.2	179.4	8.5	74.2	148.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	31.4	0.0	0.0	0.0
Total Delay	86.2	86.2	2.2	69.3	40.2	179.4	39.9	74.2	148.9	0.9
LOS	F	F	A	E	D	F	D	E	F	A
Approach Delay		63.8			47.5		44.8		145.0	
Approach LOS		E			D		D		F	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.28
 Intersection Signal Delay: 97.7
 Intersection Capacity Utilization 105.6%
 Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

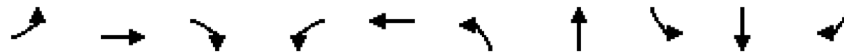


Queues

2558 Nashville Highway

1: Nashville Highway & Spring Meade Road/Private Drive

Projected Imp PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	105	105	76	3	9	97	2637	7	3180	83
v/c Ratio	0.67	0.67	0.26	0.04	0.11	1.28	0.96	0.11	1.27	0.07
Control Delay	86.2	86.2	2.2	69.3	40.2	179.4	8.5	74.2	148.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	31.4	0.0	0.0	0.0
Total Delay	86.2	86.2	2.2	69.3	40.2	179.4	39.9	74.2	148.9	0.9
Queue Length 50th (ft)	106	106	0	3	1	~119	50	7	~2004	0
Queue Length 95th (ft)	174	174	0	14	21	m#78	m497	24	#2289	11
Internal Link Dist (ft)		390			206		921		2610	
Turn Bay Length (ft)						250		220		100
Base Capacity (vph)	190	190	321	82	82	76	2751	63	2501	1150
Starvation Cap Reductn	0	0	0	0	0	0	290	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.55	0.24	0.04	0.11	1.28	1.07	0.11	1.27	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

2: Nashville Highway & Driveway/Hospitality Drive

2558 Nashville Highway
Projected Imp PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	7	39	0	98	10	2436	63	59	2966	13
Future Volume (veh/h)	0	1	7	39	0	98	10	2436	63	59	2966	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	1	8	42	0	107	11	2648	68	64	3224	14
Adj No. of Lanes	0	1	0	0	1	1	0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	14	114	152	0	175	24	2108	1234	103	3038	13
Arrive On Green	0.00	0.08	0.08	0.08	0.00	0.08	1.00	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	0	179	1431	1309	0	1583	0	2704	1583	1774	3614	16
Grp Volume(v), veh/h	0	0	9	42	0	107	1075	1584	68	64	1577	1661
Grp Sat Flow(s),veh/h/ln	0	0	1610	1309	0	1583	1093	1610	1583	1774	1770	1860
Q Serve(g_s), s	0.0	0.0	0.8	4.3	0.0	9.7	0.0	116.9	0.0	1.1	126.1	108.6
Cycle Q Clear(g_c), s	0.0	0.0	0.8	5.1	0.0	9.7	116.9	116.9	0.0	1.1	126.1	108.6
Prop In Lane	0.00		0.89	1.00		1.00	0.01		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	128	152	0	175	877	1255	1234	103	1488	1564
V/C Ratio(X)	0.00	0.00	0.07	0.28	0.00	0.61	1.23	1.26	0.06	0.62	1.06	1.06
Avail Cap(c_a), veh/h	0	0	193	209	0	239	877	1255	1234	107	1488	1564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	0.0	0.0	63.9	66.3	0.0	63.7	35.9	0.0	0.0	48.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	1.0	0.0	3.4	112.2	124.2	0.1	0.9	29.0	29.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	1.7	0.0	4.4	62.3	43.3	0.0	2.6	12.0	12.8
LnGrp Delay(d),s/veh	0.0	0.0	64.2	67.2	0.0	67.1	148.1	124.2	0.1	49.4	29.0	29.6
LnGrp LOS			E	E		E	F	F	A	D	F	F
Approach Vol, veh/h		9			149			2727			3302	
Approach Delay, s/veh		64.2			67.1			130.5			29.7	
Approach LOS		E			E			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.2	122.9		17.9		132.1		17.9				
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	5.0	110.5		18.0		120.0		18.0				
Max Q Clear Time (g_c+I1), s	3.1	118.9		2.8		128.1		11.7				
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			75.1									
HCM 2010 LOS			E									

Timings 2: Nashville Highway & Driveway/Hospitality Drive

2558 Nashville Highway
Projected Imp PM

	→	↖	←	↗	↖	↑	↗	↖	↓
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↕		↕	↗		↕	↗	↖	↕
Traffic Volume (vph)	1	39	0	98	10	2436	63	59	2966
Future Volume (vph)	1	39	0	98	10	2436	63	59	2966
Turn Type	NA	Perm	NA	pm+ov	Perm	NA	Perm	pm+pt	NA
Protected Phases	4		8	1		2		1	6
Permitted Phases		8		8	2		2	6	
Detector Phase	4	8	8	1	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	9.5	24.0	24.0	24.0	9.5	24.0
Total Split (s)	24.0	24.0	24.0	9.5	116.5	116.5	116.5	9.5	126.0
Total Split (%)	16.0%	16.0%	16.0%	6.3%	77.7%	77.7%	77.7%	6.3%	84.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	4.5	4.5	3.5	4.5
All-Red Time (s)	2.5	2.5	2.5	1.0	1.5	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	4.5		6.0	6.0	4.5	6.0
Lead/Lag				Lead	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min
Act Effect Green (s)	9.9		9.9	20.9		118.6	118.6	131.9	131.6
Actuated g/C Ratio	0.07		0.07	0.14		0.79	0.79	0.88	0.88
v/c Ratio	0.08		0.46	0.45		1.30	0.05	0.47	1.04
Control Delay	49.8		81.9	50.7		154.3	0.0	30.0	38.2
Queue Delay	0.0		0.0	0.0		0.2	0.0	0.0	0.0
Total Delay	49.8		81.9	50.7		154.5	0.0	30.0	38.2
LOS	D		F	D		F	A	C	D
Approach Delay	49.8		59.5			150.7			38.1
Approach LOS	D		E			F			D

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 88.2
Intersection Capacity Utilization 105.7%
Analysis Period (min) 15
Intersection LOS: F
ICU Level of Service G

Splits and Phases: 2: Nashville Highway & Driveway/Hospitality Drive



Queues
2: Nashville Highway & Driveway/Hospitality Drive

2558 Nashville Highway
Projected Imp PM



Lane Group	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	9	42	107	2659	68	64	3238
v/c Ratio	0.08	0.46	0.45	1.30	0.05	0.47	1.04
Control Delay	49.8	81.9	50.7	154.3	0.0	30.0	38.2
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	49.8	81.9	50.7	154.5	0.0	30.0	38.2
Queue Length 50th (ft)	5	40	76	~1803	0	23	~613
Queue Length 95th (ft)	24	82	132	m#1346	m0	m18	m318
Internal Link Dist (ft)	40	458		654			921
Turn Bay Length (ft)			100		100	60	
Base Capacity (vph)	200	168	239	2045	1263	137	3102
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	1	140	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.25	0.45	1.40	0.05	0.47	1.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection												
Int Delay, s/veh	19.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗	↗	↗	↗↗	↗
Traffic Vol, veh/h	0	0	155	0	0	143	91	2418	100	159	2743	53
Future Vol, veh/h	0	0	155	0	0	143	91	2418	100	159	2743	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	300	300	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	168	0	0	155	99	2628	109	173	2982	58

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	1491	-	-	1314	3040	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-
Pot Cap-1 Maneuver	0	0	~ 113	0	0	~ 149	109	-
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 113	-	-	~ 149	109	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	330.6	145.8	4.7	10.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	109	-	-	113 149 ~ 144	-	-	-
HCM Lane V/C Ratio	0.907	-	-	1.491 1.043 1.2	-	-	-
HCM Control Delay (s)	135.2	-	-	\$ 330.6 145.8 199.7	-	-	-
HCM Lane LOS	F	-	-	F F F	-	-	-
HCM 95th %tile Q(veh)	5.5	-	-	12.1 8 10.1	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 2010 Signalized Intersection Summary
4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway
Projected Imp PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1	67	195	2	138	110	2347	138	203	2405	136
Future Volume (veh/h)	118	1	67	195	2	138	110	2347	138	203	2405	136
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	1	73	212	2	150	120	2551	150	221	2614	148
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1	100	170	2	153	101	2017	902	166	2159	966
Arrive On Green	0.06	0.06	0.06	0.10	0.10	0.10	0.11	1.00	1.00	0.12	0.81	0.81
Sat Flow, veh/h	1761	14	1583	1758	17	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	129	0	73	214	0	150	120	2551	150	221	2614	148
Grp Sat Flow(s),veh/h/ln	1775	0	1583	1775	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.5	0.0	6.8	14.5	0.0	14.2	8.5	85.5	0.0	14.0	91.5	3.0
Cycle Q Clear(g_c), s	9.5	0.0	6.8	14.5	0.0	14.2	8.5	85.5	0.0	14.0	91.5	3.0
Prop In Lane	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	0	100	172	0	153	101	2017	903	166	2159	966
V/C Ratio(X)	1.15	0.00	0.73	1.25	0.00	0.98	1.19	1.26	0.17	1.33	1.21	0.15
Avail Cap(c_a), veh/h	112	0	100	172	0	153	101	2017	903	166	2159	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.3	0.0	69.0	67.8	0.0	67.6	66.5	0.0	0.0	65.7	14.2	5.8
Incr Delay (d2), s/veh	130.1	0.0	23.2	150.4	0.0	66.5	97.1	119.5	0.0	185.8	99.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	3.6	14.3	0.0	9.0	6.8	33.5	0.0	15.4	72.8	1.4
LnGrp Delay(d),s/veh	200.3	0.0	92.1	218.2	0.0	134.1	163.6	119.5	0.0	251.5	113.6	6.1
LnGrp LOS	F		F	F		F	F	F	A	F	F	A
Approach Vol, veh/h	202					364		2821		2983		
Approach Delay, s/veh	161.2					183.6		115.0		118.5		
Approach LOS	F					F		F		F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	21.0	92.0	16.0		15.0	98.0	21.0					
Change Period (Y+Rc), s	7.0	6.5	6.5		6.5	6.5	6.5					
Max Green Setting (Gmax), s	14.0	85.5	9.5		8.5	91.5	14.5					
Max Q Clear Time (g_c+I1), s	16.0	87.5	11.5		10.5	93.5	16.5					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	122.0											
HCM 2010 LOS	F											

Timings

4: Nashville Highway & Arden Village Dr. /Grove Park Way

2558 Nashville Highway

Projected Imp PM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	1	67	2	138	110	2347	138	203	2405	136
Future Volume (vph)	1	67	2	138	110	2347	138	203	2405	136
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	13.5	13.5	13.5	13.5	11.5	33.0	33.0	12.0	33.0	33.0
Total Split (s)	16.0	16.0	21.0	21.0	15.0	92.0	92.0	21.0	98.0	98.0
Total Split (%)	10.7%	10.7%	14.0%	14.0%	10.0%	61.3%	61.3%	14.0%	65.3%	65.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	5.0	5.0	4.5	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	6.5	6.5
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	9.5	9.5	14.5	14.5	8.5	85.5	85.5	14.0	91.5	91.5
Actuated g/C Ratio	0.06	0.06	0.10	0.10	0.06	0.57	0.57	0.09	0.61	0.61
v/c Ratio	1.15	0.28	1.25	0.49	1.20	1.26	0.16	1.34	1.21	0.15
Control Delay	190.2	2.7	204.5	11.1	159.6	140.8	0.6	209.3	126.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	190.2	2.7	204.5	11.1	159.6	140.8	0.6	209.3	126.1	5.0
LOS	F	A	F	B	F	F	A	F	F	A
Approach Delay	122.5		124.8			134.2			126.2	
Approach LOS	F		F			F			F	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 29 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 129.5

Intersection LOS: F

Intersection Capacity Utilization 110.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 4: Nashville Highway & Arden Village Dr. /Grove Park Way





Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	73	214	150	120	2551	150	221	2614	148
v/c Ratio	1.15	0.28	1.25	0.49	1.20	1.26	0.16	1.34	1.21	0.15
Control Delay	190.2	2.7	204.5	11.1	159.6	140.8	0.6	209.3	126.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	190.2	2.7	204.5	11.1	159.6	140.8	0.6	209.3	126.1	5.0
Queue Length 50th (ft)	~148	0	~260	0	~142	~1644	7	~287	~1640	19
Queue Length 95th (ft)	#290	0	#433	49	m#148	m#1591	m2	m#281	m#1535	m20
Internal Link Dist (ft)	1438		351			1392			519	
Turn Bay Length (ft)				250	330		300	200		175
Base Capacity (vph)	112	260	171	307	100	2017	955	165	2158	1012
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.28	1.25	0.49	1.20	1.26	0.16	1.34	1.21	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected Imp PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	3	8	106	4	219	26	2305	147	348	2518	31
Future Volume (veh/h)	34	3	8	106	4	219	26	2305	147	348	2518	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	37	3	9	115	4	238	28	2505	160	378	2737	34
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	62	106	157	82	307	107	2242	1061	314	2654	1229
Arrive On Green	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.84	0.84	0.30	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	37	3	9	115	4	238	28	2505	160	378	2737	34
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.0	0.2	0.1	5.5	0.3	1.7	0.0	95.0	0.5	22.5	112.5	0.0
Cycle Q Clear(g_c), s	3.0	0.2	0.1	5.5	0.3	1.7	0.0	95.0	0.5	22.5	112.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	132	62	106	157	82	307	107	2242	1061	314	2654	1229
V/C Ratio(X)	0.28	0.05	0.09	0.73	0.05	0.78	0.26	1.12	0.15	1.20	1.03	0.03
Avail Cap(c_a), veh/h	145	62	106	157	82	307	107	2242	1061	314	2654	1229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.25	0.25	0.25	0.09	0.09	0.09
Uniform Delay (d), s/veh	67.7	70.2	47.1	69.7	68.7	40.0	69.3	11.8	1.3	50.8	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.3	0.3	15.8	0.2	11.8	0.3	54.7	0.1	94.5	15.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.1	0.3	2.8	0.2	8.7	1.1	61.2	0.6	21.2	5.8	0.0
LnGrp Delay(d),s/veh	68.9	70.5	47.4	85.5	69.0	51.8	69.6	66.5	1.4	145.3	15.8	0.0
LnGrp LOS	E	E	D	F	E	D	E	F	A	F	F	A
Approach Vol, veh/h	49			357			2693			3149		
Approach Delay, s/veh	65.0			62.8			62.7			31.2		
Approach LOS	E			E			E			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.0	100.5	11.0	10.5	10.5	118.0	9.4	12.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	22.5	95.0	5.5	5.0	5.0	112.5	5.0	5.5				
Max Q Clear Time (g_c+I1), s	24.5	97.0	7.5	2.2	2.0	114.5	5.0	3.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	46.8											
HCM 2010 LOS	D											

Timings 5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected Imp PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	3	8	106	4	219	26	2305	147	348	2518	31
Future Volume (vph)	34	3	8	106	4	219	26	2305	147	348	2518	31
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	10.5	10.5	10.5	10.5	10.5	10.5	23.5	10.5	10.5	23.5	10.5
Total Split (s)	10.5	10.5	10.5	11.0	11.0	28.0	10.5	100.5	11.0	28.0	118.0	10.5
Total Split (%)	7.0%	7.0%	7.0%	7.3%	7.3%	18.7%	7.0%	67.0%	7.3%	18.7%	78.7%	7.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	6.3	5.0	6.0	6.6	5.5	25.8	108.4	103.4	113.3	131.4	125.1	135.9
Actuated g/C Ratio	0.04	0.03	0.04	0.04	0.04	0.17	0.72	0.69	0.76	0.88	0.83	0.91
v/c Ratio	0.50	0.05	0.06	1.46	0.06	0.74	0.25	1.03	0.13	1.19	0.93	0.02
Control Delay	89.9	72.0	0.8	310.8	71.8	57.0	11.3	29.8	0.3	122.5	9.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	13.2	0.0
Total Delay	89.9	72.0	0.8	310.8	71.8	57.0	11.3	32.5	0.3	122.5	22.9	0.0
LOS	F	E	A	F	E	E	B	C	A	F	C	A
Approach Delay		72.5			138.9			30.4			34.7	
Approach LOS		E			F			C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 2 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.46

Intersection Signal Delay: 39.1

Intersection LOS: D

Intersection Capacity Utilization 109.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Nashville Highway & Green Mills



Queues
5: Nashville Highway & Green Mills

2558 Nashville Highway
Projected Imp PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	37	3	9	115	4	238	28	2505	160	378	2737	34
v/c Ratio	0.50	0.05	0.06	1.46	0.06	0.74	0.25	1.03	0.13	1.19	0.93	0.02
Control Delay	89.9	72.0	0.8	310.8	71.8	57.0	11.3	29.8	0.3	122.5	9.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	13.2	0.0
Total Delay	89.9	72.0	0.8	310.8	71.8	57.0	11.3	32.5	0.3	122.5	22.9	0.0
Queue Length 50th (ft)	36	3	0	~167	4	176	1	~435	0	~399	234	0
Queue Length 95th (ft)	71	15	0	#232	18	232	m3	#1593	m9	m#305	m68	m0
Internal Link Dist (ft)	1713			3835			1079			1392		
Turn Bay Length (ft)	250		250	240		240	400		100	480		140
Base Capacity (vph)	74	62	157	79	68	320	111	2439	1219	318	2951	1439
Starvation Cap Reductn	0	0	0	0	0	0	0	18	0	0	8	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	270	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.05	0.06	1.46	0.06	0.74	0.25	1.03	0.13	1.19	1.02	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected Imp PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	21	57	0	43	33	2392	99	74	2436	78
Future Volume (veh/h)	43	0	21	57	0	43	33	2392	99	74	2436	78
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	47	0	23	62	0	47	36	2600	108	80	2648	85
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	0	73	115	62	719	180	2603	1224	795	3953	1768
Arrive On Green	0.05	0.00	0.05	0.04	0.00	0.03	0.04	0.74	0.74	0.56	1.00	1.00
Sat Flow, veh/h	1774	0	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	47	0	23	62	0	47	36	2600	108	80	2648	85
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.9	0.0	2.1	5.2	0.0	0.0	0.9	109.9	1.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.9	0.0	2.1	5.2	0.0	0.0	0.9	109.9	1.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	0	73	115	62	719	180	2603	1224	795	3953	1768
V/C Ratio(X)	0.52	0.00	0.31	0.54	0.00	0.07	0.20	1.00	0.09	0.10	0.67	0.05
Avail Cap(c_a), veh/h	114	0	74	115	63	721	198	2603	1224	795	3953	1768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.22	0.22	0.22
Uniform Delay (d), s/veh	69.4	0.0	69.2	71.8	0.0	23.0	6.8	19.8	18.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.0	2.4	4.9	0.0	0.0	0.5	17.4	0.1	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.0	2.7	0.0	1.1	0.5	59.0	1.2	1.3	0.1	0.0
LnGrp Delay(d),s/veh	73.9	0.0	71.6	76.7	0.0	23.1	7.4	37.2	18.2	21.1	0.2	0.0
LnGrp LOS	E		E	E		C	A	D	B	C	A	A
Approach Vol, veh/h	70				109			2744			2813	
Approach Delay, s/veh	73.1				53.6			36.1			0.8	
Approach LOS	E				D			D			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	175.8	10.2	13.4	71.4	116.8	14.2	9.5				
Change Period (Y+Rc), s	7.0	6.5	4.5	6.5	6.5	* 6.5	6.5	* 4.5				
Max Green Setting (Gmax), s	7.0	105.8	5.7	7.0	5.0	* 1.1E2	9.6	* 5.1				
Max Q Clear Time (g_c+I1), s	2.9	2.0	7.2	4.1	2.0	111.9	5.9	2.0				
Green Ext Time (p_c), s	0.0	92.4	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	19.6											
HCM 2010 LOS	B											
Notes												

Timings

6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected Imp PM

											
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø8
Lane Configurations											
Traffic Volume (vph)	43	0	57	43	33	2392	99	74	2436	78	
Future Volume (vph)	43	0	57	43	33	2392	99	74	2436	78	
Turn Type	Prot	NA	pm+pt	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	7	4	3	5	1	6	3	5	2		8
Permitted Phases			8	8	6		6	2		2	
Detector Phase	7	4	3	5	1	6	3	5	2	2	
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	10.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	9.5	13.5	9.5	9.5	14.0	24.5	9.5	9.5	24.5	24.5	9.5
Total Split (s)	14.1	13.5	10.2	9.5	14.0	116.8	10.2	9.5	112.3	112.3	9.6
Total Split (%)	9.4%	9.0%	6.8%	6.3%	9.3%	77.9%	6.8%	6.3%	74.9%	74.9%	6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.5	5.0	3.5	3.5	5.0	5.0	3.5
All-Red Time (s)	1.0	3.0	1.0	1.0	2.5	1.5	1.0	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.5	4.5	4.5	7.0	6.5	4.5	4.5	6.5	6.5	
Lead/Lag	Lag	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min	C-Min	None
Act Effect Green (s)	14.3	7.0	6.1	7.0	114.8	115.3	125.2	115.6	113.6	113.6	
Actuated g/C Ratio	0.10	0.05	0.04	0.05	0.77	0.77	0.83	0.77	0.76	0.76	
v/c Ratio	0.28	0.10	0.86	0.24	0.27	0.96	0.08	0.71	0.99	0.07	
Control Delay	64.8	1.0	140.6	3.0	10.4	26.5	0.8	47.1	25.5	1.3	
Queue Delay	0.0	0.0	0.0	0.1	0.0	17.0	0.0	0.0	2.3	0.0	
Total Delay	64.8	1.0	140.6	3.1	10.4	43.4	0.8	47.1	27.7	1.3	
LOS	E	A	F	A	B	D	A	D	C	A	
Approach Delay		43.8				41.3			27.5		
Approach LOS		D				D			C		

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 83 (55%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 35.3

Intersection LOS: D

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way



Queues
6: Nashville Highway & Hidden Creek Way

2558 Nashville Highway
Projected Imp PM

										
Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	23	62	47	36	2600	108	80	2648	85
v/c Ratio	0.28	0.10	0.86	0.24	0.27	0.96	0.08	0.71	0.99	0.07
Control Delay	64.8	1.0	140.6	3.0	10.4	26.5	0.8	47.1	25.5	1.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	17.0	0.0	0.0	2.3	0.0
Total Delay	64.8	1.0	140.6	3.1	10.4	43.4	0.8	47.1	27.7	1.3
Queue Length 50th (ft)	42	0	62	0	9	1209	3	25	~1489	0
Queue Length 95th (ft)	84	0	#161	0	21	#1504	9	m31	m#1563	m1
Internal Link Dist (ft)	2034						4876	1079		
Turn Bay Length (ft)			200	200	260			150	250	265
Base Capacity (vph)	181	222	72	192	135	2719	1333	113	2679	1224
Starvation Cap Reductn	0	0	0	0	0	0	0	0	30	0
Spillback Cap Reductn	0	0	0	6	0	207	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.10	0.86	0.25	0.27	1.04	0.08	0.71	1.00	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

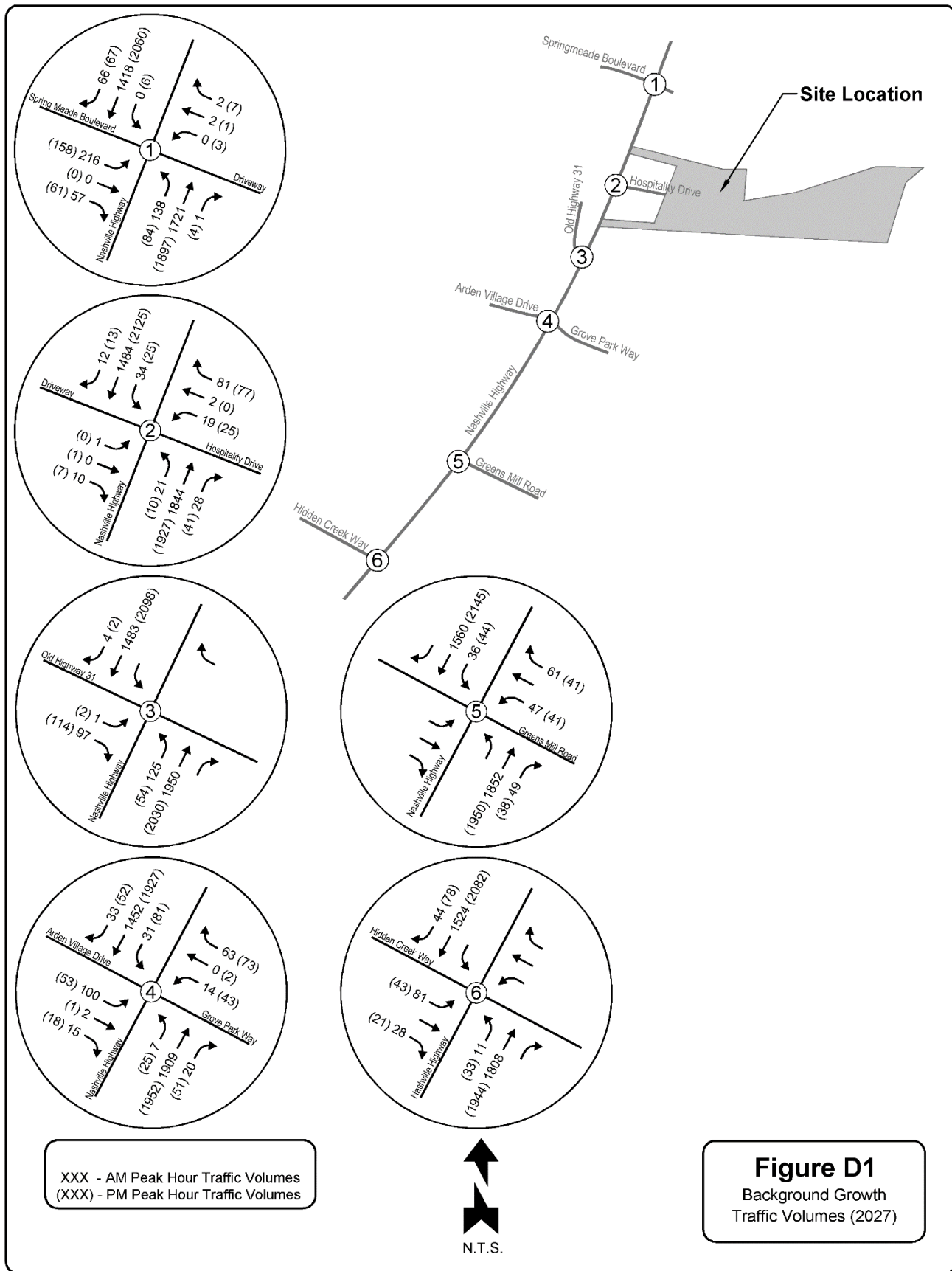
Queue shown is maximum after two cycles.

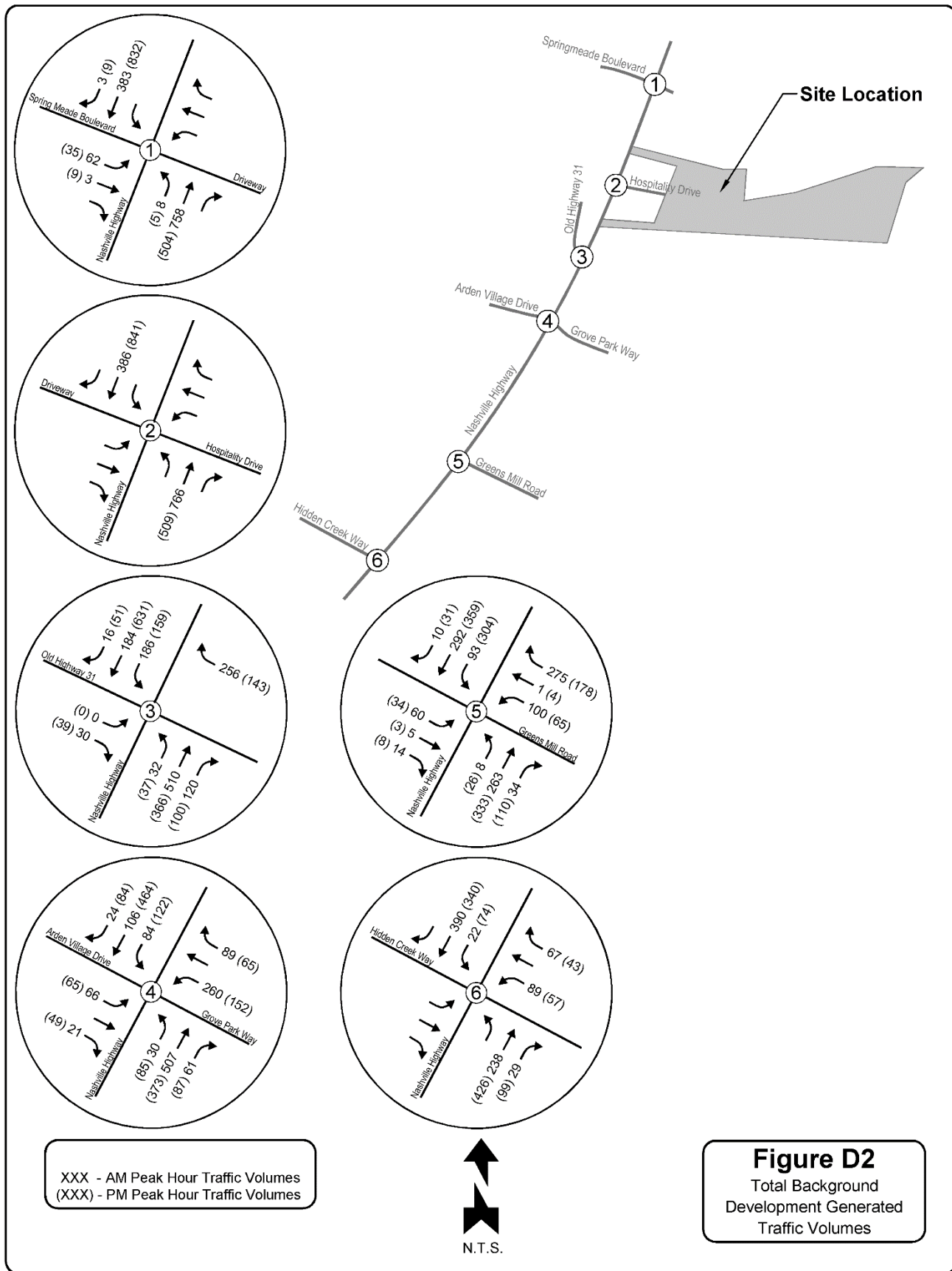
95th percentile volume exceeds capacity, queue may be longer.

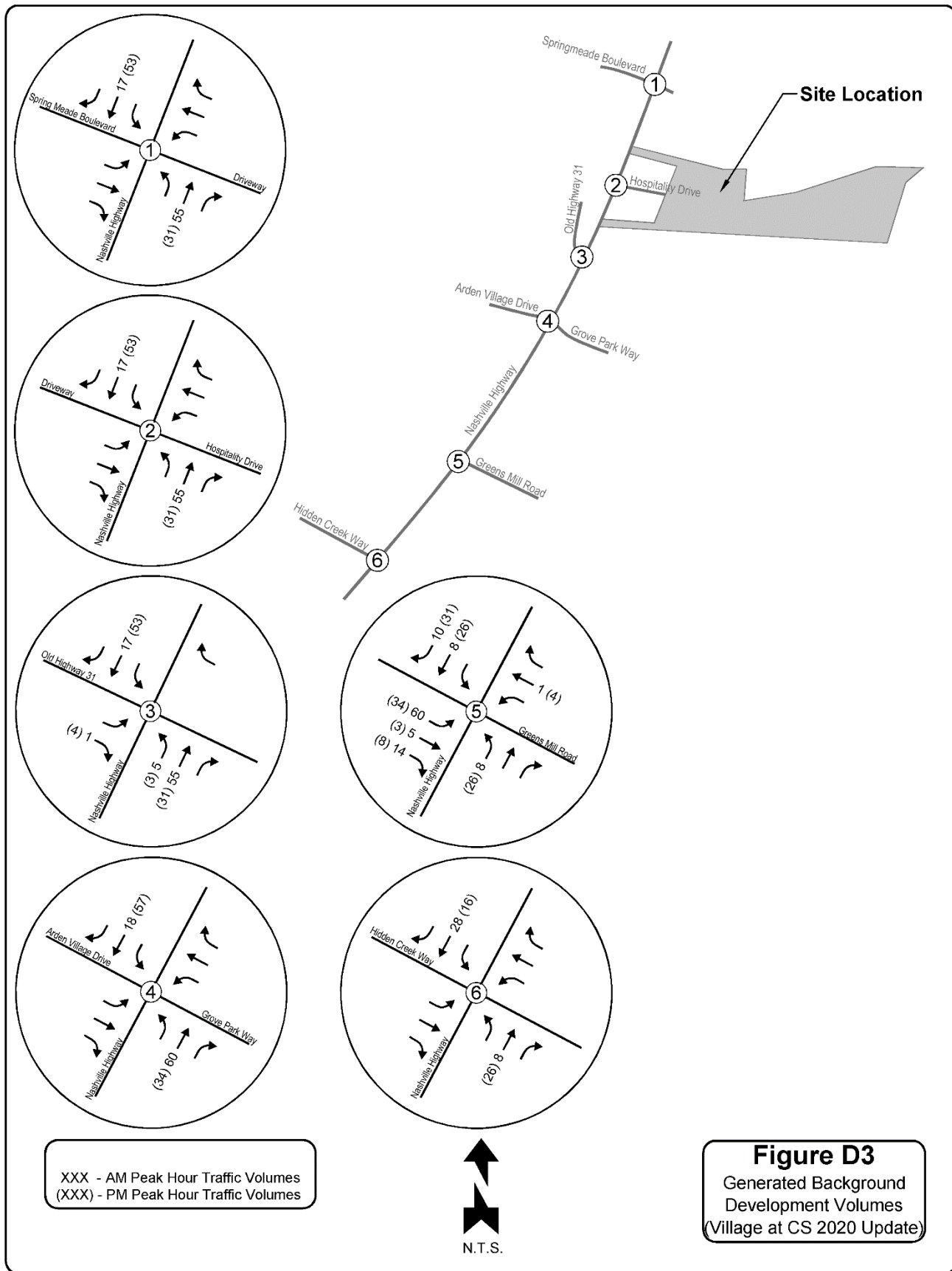
Queue shown is maximum after two cycles.

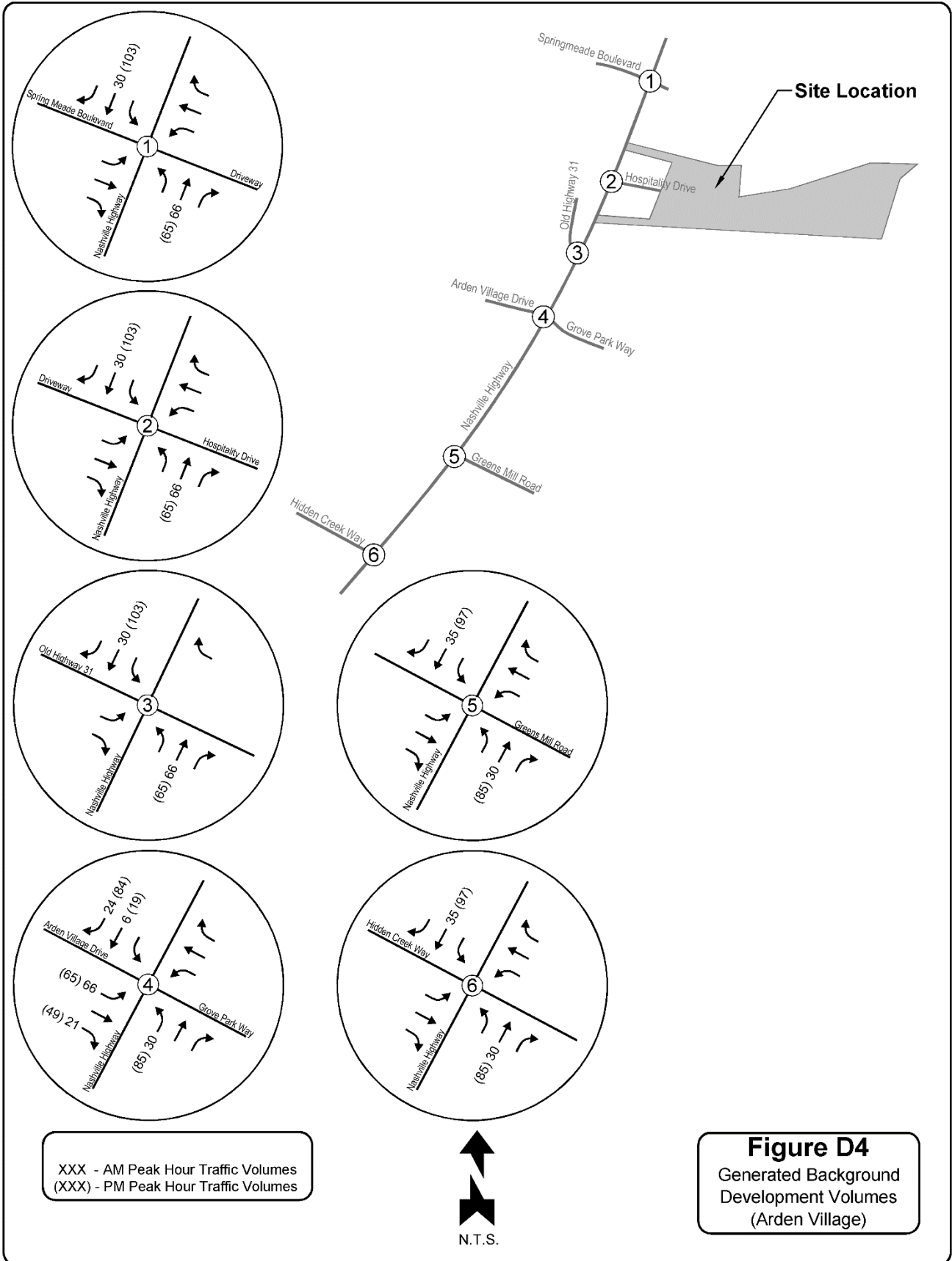
m Volume for 95th percentile queue is metered by upstream signal.

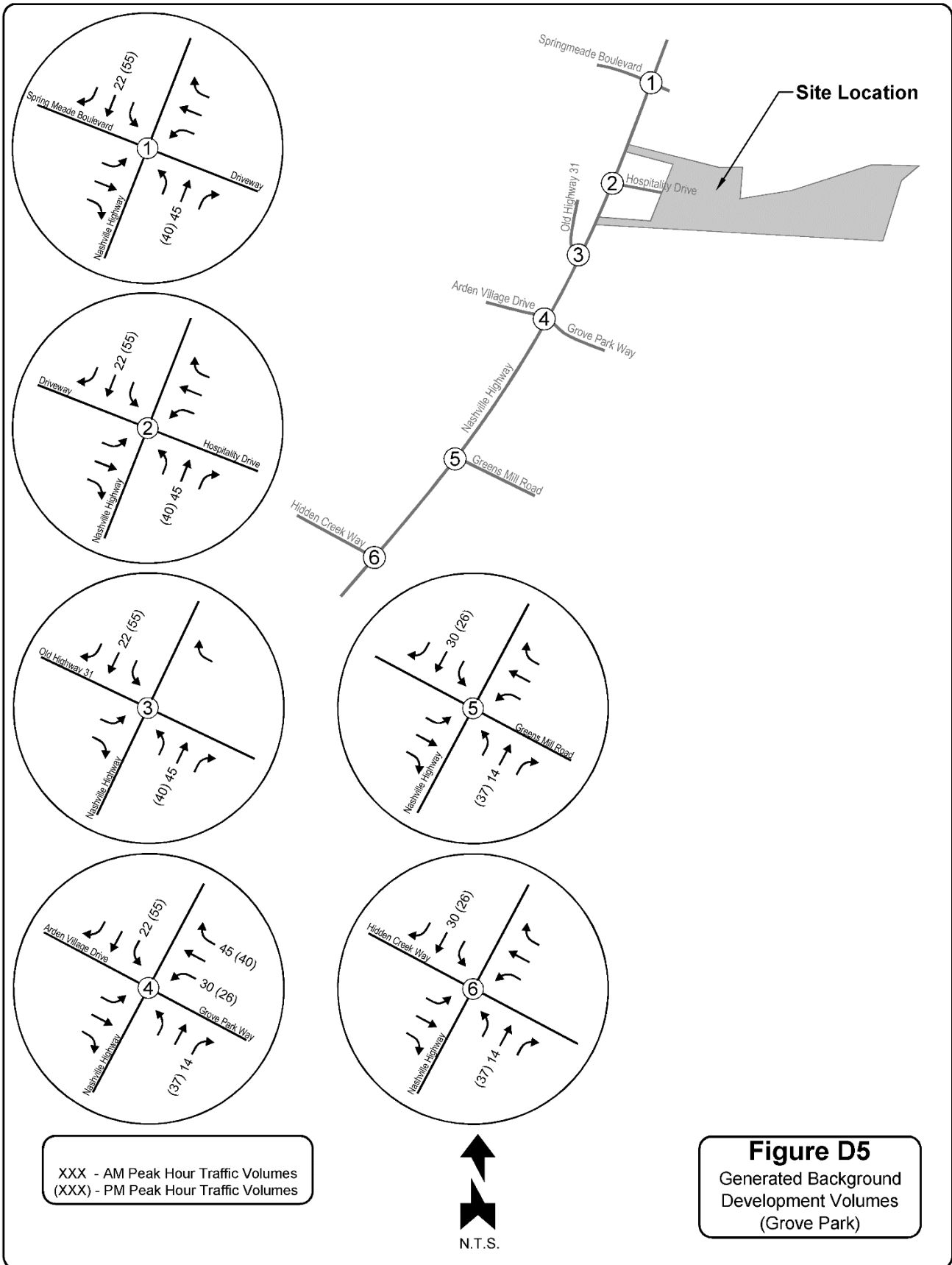
APPENDIX D – ADDITIONAL FIGURES

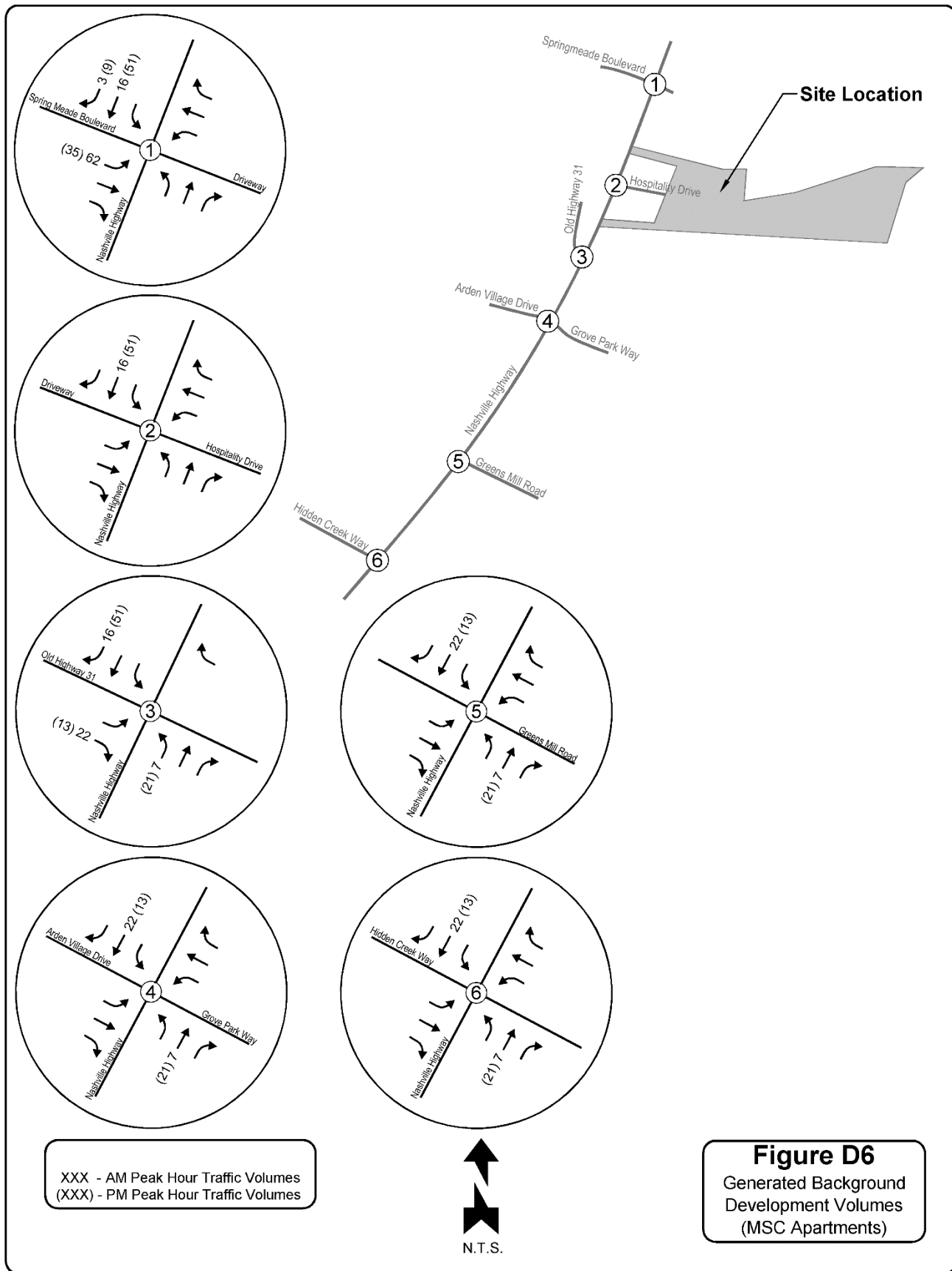


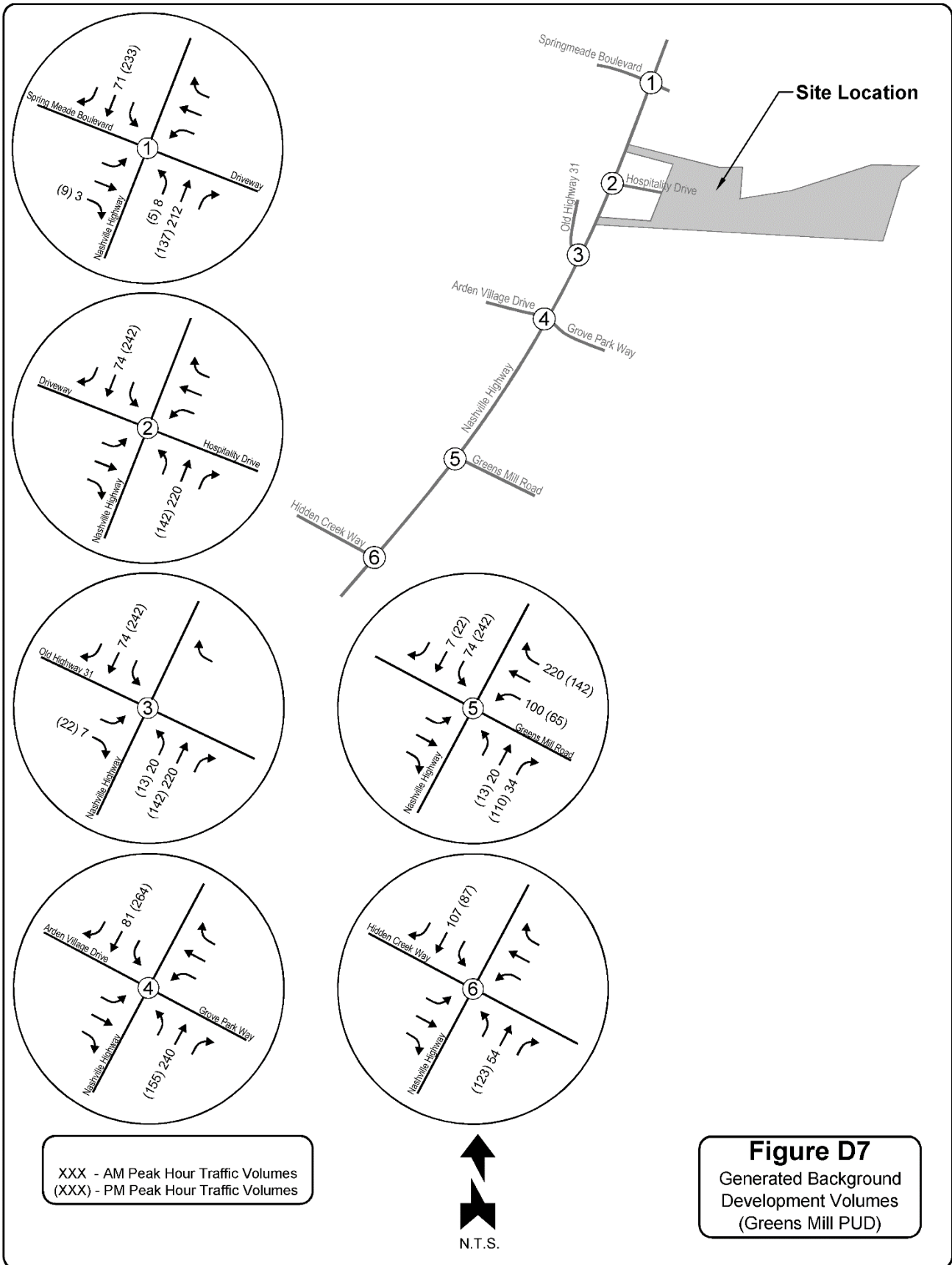


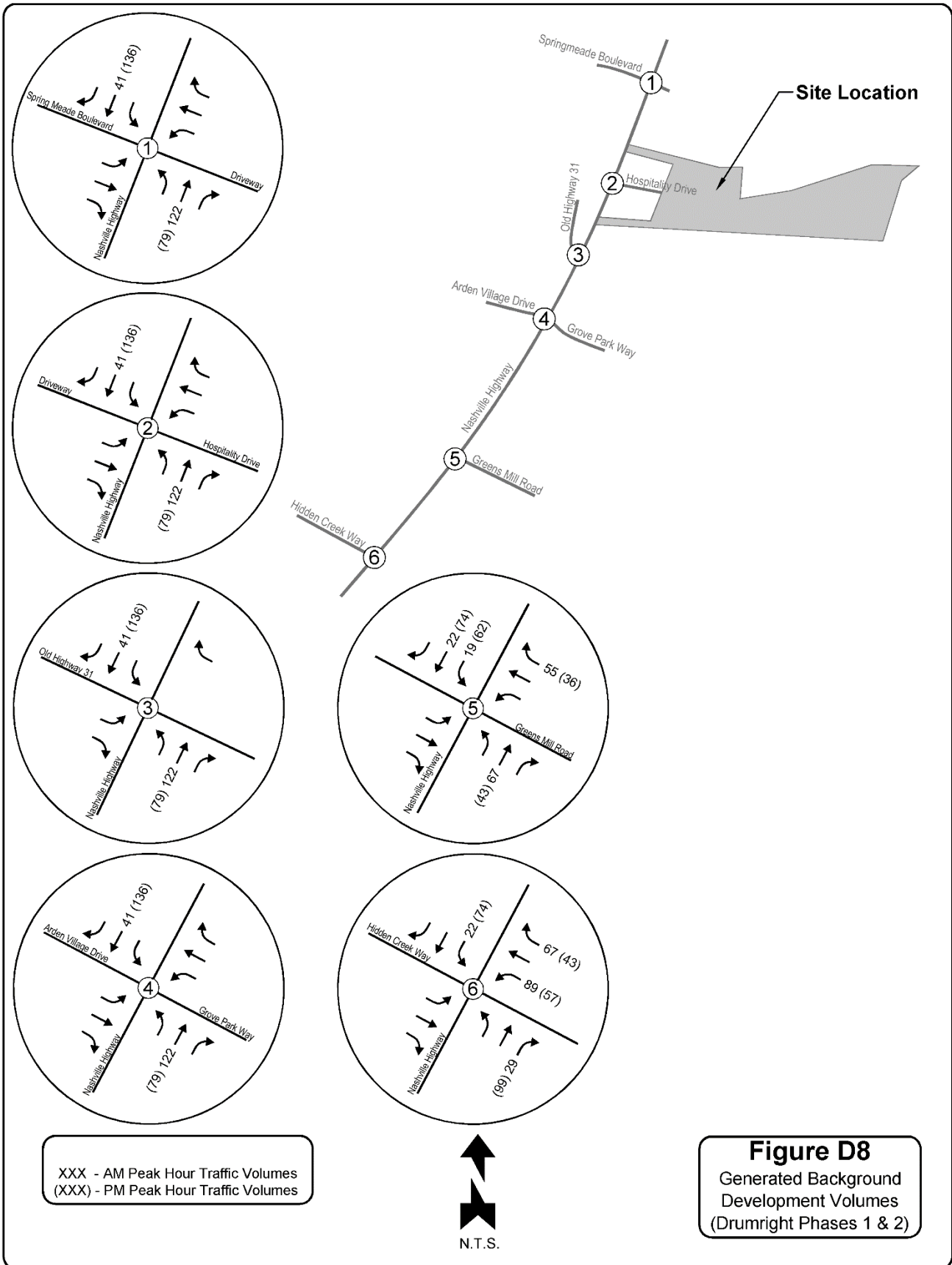


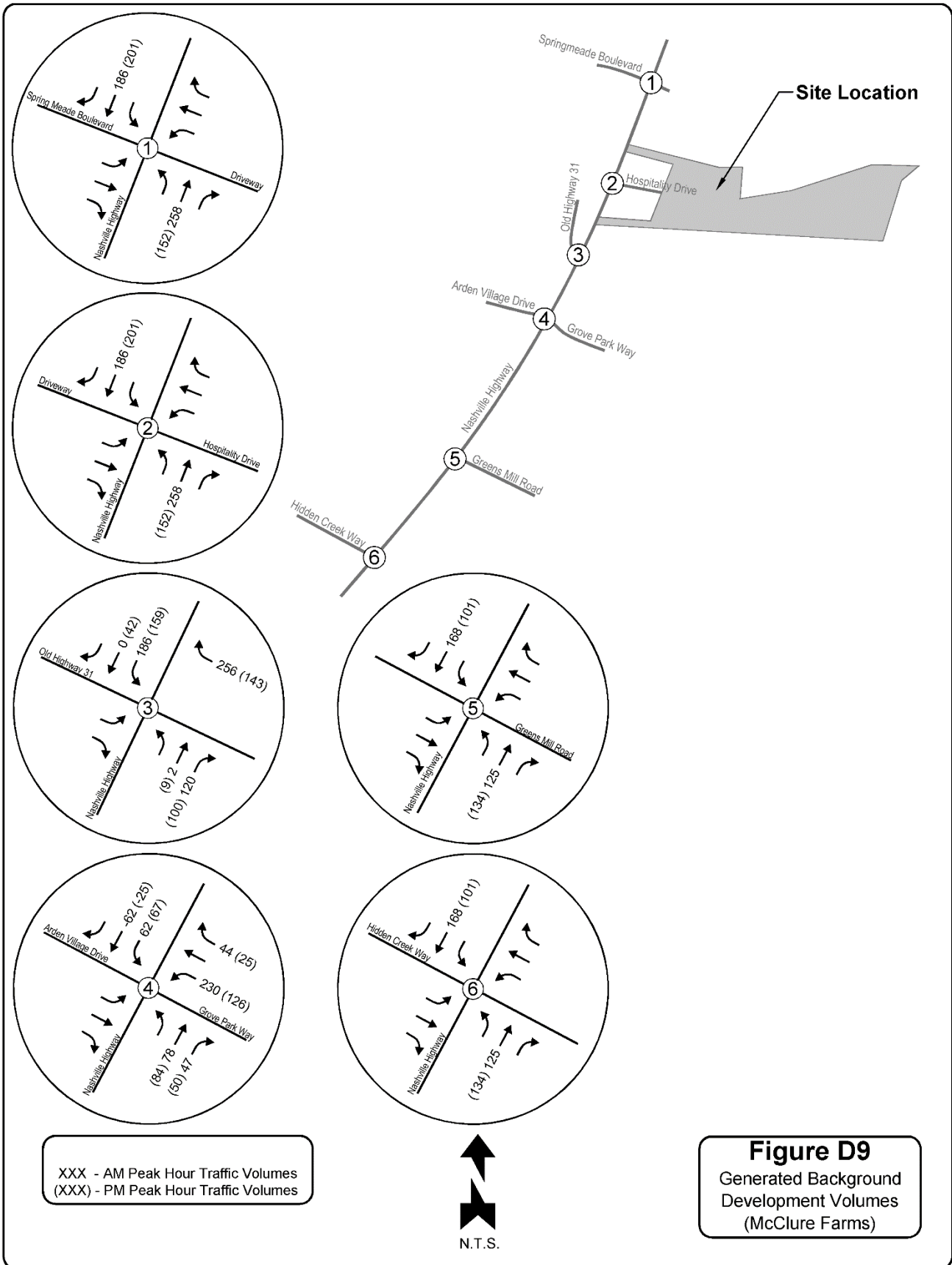












APPENDIX E – SIGNAL WARRANTS

HCS7 Warrants Report

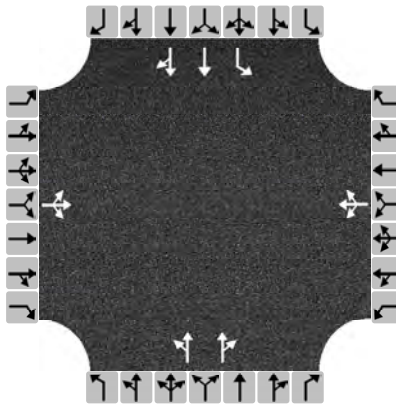
Project Information

Analyst		Date	5/6/2022
Agency	T-Square Engineering	Analysis Year	2022
Jurisdiction	City of Columbia	Time Period Analyzed	Projected 2027
Project Description	Nashville Highway and Hospitality Drive		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	6	Coordinated Signal System	Yes
Median Type	Divided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	55	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1015		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	0	0	1	0	0	2	0	1	2	0
Lane Usage		LTR			LTR			LTR		L	TR	
Vehicle Volumes Averages (veh/h)	2	0	2	35	1	45	8	1907	25	52	1944	5
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	4A (70%)	4B (70%)
06 - 07	3159	87	3250	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
07 - 08	4308	113	4428	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
08 - 09	3822	94	3924	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
09 - 10	3350	74	3432	0	0	No	No	Yes	Yes	Yes	No	No	No	No
10 - 11	3311	57	3373	0	0	No	No	Yes	Yes	No	No	No	No	No
11 - 12	3619	70	3694	0	0	No	No	Yes	Yes	Yes	No	No	No	No
12 - 13	3940	98	4044	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
13 - 14	3891	91	3987	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
14 - 15	4586	69	4657	0	0	No	No	Yes	Yes	Yes	No	No	No	No
15 - 16	5315	85	5404	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
16 - 17	4683	77	4763	0	0	No	No	Yes	Yes	Yes	No	Yes	No	No
17 - 18	3319	78	3399	0	0	No	No	Yes	Yes	Yes	No	Yes	No	No
Total	47303	993	48355	0	0	1	6	12	12	11	0	8	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	✓
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	✓
56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	✓
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	✓
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	✓
Degree of Platooning (Predominant direction or both directions)	✓
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	✓
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

INTERSECTION SIGNAL WARRANTS

LOCATION: NASHVILLE HIGHWAY AND HOSPITALITY DRIVE
DATE:
RECORDER: T-Square Engineering
NOTES: 22-0335

EXISTING TRAFFIC

LOCATION TIME	S/B NASHVILLE HIGHWAY			N/B NASHVILLE HIGHWAY			W/B HOSPITALITY DRIVE			E/B DRIVEWAY		
	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR	EBL	EBT	EBR
6:00-7:00	6	740	6	12	1696	8	5	3	103	2	1	1
7:00-8:00	26	1292	9	15	1684	32	21	3	75	1	1	9
8:00-9:00	35	1191	19	11	1425	22	10	0	90	6	0	2
9:00-10:00	23	1009	12	4	1319	29	12	0	60	4	0	6
10:00-11:00	15	905	11	6	1348	26	10	1	49	2	1	3
11:00-12:00	55	1172	6	4	1128	36	22	1	40	3	0	4
12:00-1:00	67	1200	10	4	1230	64	30	1	78	2	0	6
1:00-2:00	36	1245	4	2	1236	38	33	1	60	3	0	4
2:00-3:00	25	1649	13	6	1377	38	19	0	42	1	0	2
3:00-4:00	30	1877	13	11	1726	43	25	0	65	0	0	6
4:00-5:00	14	1438	1	10	1457	30	25	2	49	0	1	4
5:00-6:00	32	1913	3	6	1435	40	22	2	43	0	0	4
TOTAL	364	15631	107	91	17061	406	234	14	754	24	4	51

BACKGROUND AMBIENT TRAFFIC

FACTOR = 1.10

Percent Growth
Years Grown

2.00%
5

LOCATION TIME	S/B NASHVILLE HIGHWAY			N/B NASHVILLE HIGHWAY			W/B HOSPITALITY DRIVE			E/B DRIVEWAY		
	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR	EBL	EBT	EBR
6:00-7:00	7	817	7	13	1873	9	6	3	114	2	1	1
7:00-8:00	29	1426	10	17	1859	35	23	3	83	1	1	10
8:00-9:00	39	1315	21	12	1573	24	11	0	99	7	0	2
9:00-10:00	25	1114	13	4	1456	32	13	0	66	4	0	7
10:00-11:00	17	999	12	7	1488	29	11	1	54	2	1	3
11:00-12:00	61	1294	7	4	1245	40	24	1	44	3	0	4
12:00-1:00	74	1325	11	4	1358	71	33	1	86	2	0	7
1:00-2:00	40	1375	4	2	1365	42	36	1	66	3	0	4
2:00-3:00	28	1821	14	7	1520	42	21	0	46	1	0	2
3:00-4:00	33	2072	14	12	1906	47	28	0	72	0	0	7
4:00-5:00	15	1588	1	11	1609	33	28	2	54	0	1	4
5:00-6:00	35	2112	3	7	1584	44	24	2	47	0	0	4
TOTAL	403	17258	117	100	18836	448	258	14	831	25	4	55

BACKGROUND DEVELOPMENT GENERATED TRAFFIC*

*BASED ON BACKGROUND DEVELOPMENTS

LOCATION TIME	S/B NASHVILLE HIGHWAY			N/B NASHVILLE HIGHWAY			W/B HOSPITALITY DRIVE			E/B DRIVEWAY		
	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR	EBL	EBT	EBR
6:00-7:00	0	104	0	0	331	0	0	0	0	0	0	0
7:00-8:00	0	260	0	0	683	0	0	0	0	0	0	0
8:00-9:00	0	311	0	0	529	0	0	0	0	0	0	0
9:00-10:00	0	325	0	0	386	0	0	0	0	0	0	0
10:00-11:00	0	405	0	0	355	0	0	0	0	0	0	0
11:00-12:00	0	540	0	0	428	0	0	0	0	0	0	0
12:00-1:00	0	588	0	0	524	0	0	0	0	0	0	0
1:00-2:00	0	539	0	0	524	0	0	0	0	0	0	0
2:00-3:00	0	600	0	0	555	0	0	0	0	0	0	0
3:00-4:00	0	703	0	0	524	0	0	0	0	0	0	0
4:00-5:00	0	825	0	0	573	0	0	0	0	0	0	0
5:00-6:00	0	874	0	0	616	0	0	0	0	0	0	0
TOTAL	0	6074	0	0	6028	0	0	0	0	0	0	0

SITE GENERATED TRAFFIC

LOCATION TIME	S/B			N/B			W/B			E/B		
	NASHVILLE HIGHWAY			NASHVILLE HIGHWAY			HOSPITALITY DRIVE			DRIVEWAY		
	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR	EBL	EBT	EBR
6:00-7:00	4	0	0	0	0	2	12	0	17	0	0	0
7:00-8:00	8	0	0	0	0	6	26	0	39	0	0	0
8:00-9:00	15	0	0	0	0	10	19	0	29	0	0	0
9:00-10:00	13	0	0	0	0	8	16	0	23	0	0	0
10:00-11:00	14	0	0	0	0	10	10	0	16	0	0	0
11:00-12:00	17	0	0	0	0	12	13	0	20	0	0	0
12:00-1:00	19	0	0	0	0	13	12	0	18	0	0	0
1:00-2:00	17	0	0	0	0	12	12	0	17	0	0	0
2:00-3:00	20	0	0	0	0	14	14	0	21	0	0	0
3:00-4:00	26	0	0	0	0	17	12	0	17	0	0	0
4:00-5:00	33	0	0	0	0	22	11	0	17	0	0	0
5:00-6:00	35	0	0	0	0	24	16	0	24	0	0	0
TOTAL	221	0	0	0	0	150	173	0	258	0	0	0

TOTAL PROJECTED (BACKGROUND & SITE)

LOCATION TIME	S/B			N/B			W/B			E/B		
	NASHVILLE HIGHWAY			NASHVILLE HIGHWAY			HOSPITALITY DRIVE			DRIVEWAY		
	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR	EBL	EBT	EBR
6:00-7:00	11	921	4	13	2204	6	18	3	66	2	1	1
7:00-8:00	37	1686	5	17	2542	21	49	3	61	1	1	5
8:00-9:00	54	1626	11	12	2102	17	30	0	64	7	0	1
9:00-10:00	38	1439	7	4	1842	20	29	0	45	4	0	4
10:00-11:00	31	1404	6	7	1843	20	21	1	35	2	1	2
11:00-12:00	78	1834	4	4	1673	26	37	1	32	3	0	2
12:00-1:00	93	1913	6	4	1882	42	45	1	52	2	0	4
1:00-2:00	57	1914	2	2	1889	27	48	1	42	3	0	2
2:00-3:00	48	2421	7	7	2075	28	35	0	34	1	0	1
3:00-4:00	59	2775	7	12	2430	32	40	0	45	0	0	4
4:00-5:00	48	2413	1	11	2182	28	39	2	36	0	1	2
5:00-6:00	70	2986	2	7	2200	34	40	2	36	0	0	2
TOTAL	624	23332	62	100	24864	301	431	14	548	25	4	30

50% RTOR Reduction



1 of 2

August 15, 2022

Greg Smith
Brookstone Group
PO Box 1301
Franklin, TN

Project: 2558 Nashville Highway Development – Columbia, TN

Subject: Traffic Impact Study – Recommended Improvements

Dear Greg,

The following improvements are recommended for the 2558 Nashville Highway Development based on the findings presented within the Traffic Impact Study (TIS).

Improvement Recommendations for the 2558 Nashville Highway Mixed-Use Development

Nashville Highway (US-31) and Spring Meade Boulevard

- Optimize the existing signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Hospitality Drive

- Install a traffic signal at the intersection of Nashville Highway (US-31) and Hospitality Drive. Ensure the proposed signal is installed with the necessary equipment to allow signal coordination and interconnection with nearby signalized intersections along Nashville Highway (US-31).
- Construct one (1) exclusive right-turn lane on the northbound approach of Nashville Highway (US-31) at its intersection with Hospitality Drive. The right-turn lane shall provide a minimum of 100 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
 - Coordination with the City will need to occur prior to the design of this turn lane in order to provide an adequate turn lane layout.
 - This installation of this turn lane will require the closure of the access/driveway located along Nashville Highway (US-31) south of the Twice Daily driveway.



- Extend the existing left-turn lane on the southbound approach of Nashville Highway (US-31) at its intersection with Hospitality Drive. The left-turn lane shall be extended to a minimum of 100 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Construct one (1) exclusive right-turn lane on the westbound approach of Hospitality Drive at its intersection with Nashville Highway (US-31). The right-turn lane shall provide 100 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Optimize the proposed signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Old Highway 31N

- No additional improvements are recommended for this intersection as part of the construction of the 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- Optimize the existing signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Greens Mill Road

- Optimize the proposed signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Nashville Highway (US-31) and Hidden Creek Way

- Optimize the existing signal timings at this intersection to accommodate the generated traffic volumes from the proposed 2558 Nashville Highway Mixed-Use Development.

Please let me know if you have any questions, comments, or concerns.

Sincerely,

Date: August 15, 2022

James O. Ensley, III, P.E.

Project Manager – Traffic Division

T-Square Engineering, Inc.

Wynnsong Valley – PUD Revision

The proposed site at 2558 Nashville Highway in Columbia (Map 42, Parcel 13.00, 13.07, 13.08, and 13.09) is proposed to be redivided into 4 lots, as a PUD revision. There are three existing structures located on this site.

We are requesting a variance to the proposed parcel buffer between the portions of parcel 13.07 zoned PUD and residential. We are proposing landscaping around the existing parking and will add approximately 10 parking spaces behind the existing building for additional employee parking. All pavement will be screened from the residential portion of the parcel by heavy landscaping.

We are requesting a variance to 4.3.9.E.6.ag.1 & 4.3.9.E.6.ag.2 in the fence screening requirement around the parcel. We believe this regulation is intended for self-service storage units that are accessed from the exterior of the building. All units within this building will be accessible from one of two primary entrance doors on the first floor. These entrances will be secured.

With the above variance requests, we believe this site conforms to the City of Columbia Zoning Ordinance standards. Thank you for your consideration.

-Allison Baldwin, EI

11/1/2022

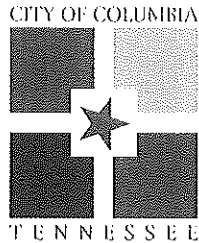
To the City of Columbia

Re: PUD Revision

My goals for the PUD revision are to develop and construct 2 new additional buildings, consisting of a climate-controlled storage facility and an office/flex building. Each building will be designed, reviewed and constructed according to the newly adopted code. I also plan to dedicate public Right of Way to access the rear portion of the property.

Sincerely,

Gregory T Smith



WASTEWATER DEPARTMENT

13 July 2022

Allison Baldwin
1329 West Main St
Franklin, TN 37064

RE: Wynnsong Valley

Allison,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. As of the writing of this letter, there is an ongoing flow monitoring study of the sewershed that this parcel belongs to. Major or minor improvements to existing infrastructure may or may not be necessary to satisfactorily convey the additional sanitary sewer flow from the above-referenced proposed development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. No detailed design plan for an extension of the sewer has been proposed at this time.

A handwritten signature in black ink, appearing to read "Donnie Boshers".

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

Something Good Around Every Corner

1244 Treatment Plant Road Columbia, Tennessee 38401 Phone 931.560.1001



August 5, 2022

Ms. Allison Baldwin, El
T-Square Engineering
1329 West Main Street
Franklin, TN 37064

Sent via email: allison.baldwin@t2-eng.com; greg@brookstonegroup.com

RE: Water Availability Letter
Wynnsong Valley – 150 Lots
2558 Nashville Hwy
Tax Map 42, Parcel 13.00, 13.02, 13.07, 13.08, & 13.09
Columbia, Maury, TN

Dear Ms. Baldwin:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 150 units. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,500 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- A new 16-inch water main will be constructed from the Spring Hill Pump Station to the 20-inch water main at Ultium TDOT Access Road (see attached figure). CPWS will subsidize the material cost difference between a 12-inch main (required for the proposed development) and a 16-inch main (desired for CPWS system improvement). The developer will be responsible for land acquisition for the water line.

Commented [JG1]: With the line improvements listed below, we can support 1,500 GPM at 20 psi.

201 Pickens Lane • Columbia, TN 38401 • (931) 388-4833
Columbia Power and Water Systems is an Equal Opportunity Provider and Employer



- Domestic waterline connection will be made to the existing 8-inch water main located on Hospitality Drive.
- Minimum size 8-inch trunk water mains will be required along "Wynnsong Valley Lane", with looped 8-inch mains throughout the remainder of the development.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide construction drawings for all public water infrastructure for the proposed development in both CAD and PDF format for CPWS review.
- When applicant has resolved all comments provided by CPWS for the construction drawings, CPWS will provide an approval letter and flow calculations to support TDEC approval of the construction drawings.
- Applicant then submits drawings to TDEC for approval. Upon approval by TDEC, applicant may schedule a pre-construction meeting with CPWS. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 615-934-7499 or jason.english@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

Jason English, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS; File 22-055

201 Pickens Lane • Columbia, TN 38401 • (931) 388-4833
Columbia Power and Water Systems is an Equal Opportunity Provider and Employer

Commented [JG2]: There is an 8-inch on Hospitality Drive. The residential can connect to this line and wouldn't have to connect to the 12-inch on Nashville Highway.

Commented [JG3]: 8-inch is sufficient to provide the 1,500 GPM at 20 PSI.

Property Description
0.55 Acres-John Greenwell Co-Trustees

Commencing at an Iron Pin Found (IPF) in the intersection of the east Right of Way of Nashville Highway, U.S. Highway 31 and the south Right of Way (R.O.W.) of a Non-Exclusive Ingress-Egress Easement, as recorded in Plat Book 13, Page 132, Register's Office Maury County (R.O.M.C.); Said IPF being the southwest corner of Gregory and Stephanie Smith, as recorded in Record Book R2874, Page 1252, R.O.M.C. and the northwest corner of Columbia Nashville Highway LLC, as recorded in Record Book R2808, Page 1467, R.O.M.C.; thence, leaving said Hwy with Smith, Columbia Nashville Highway LLC, and the south R.O.W. of said easement, S 86°00'57" E, passing through a Point on the north boundary of GH Tennessee LLC, a total distance of 656.49' to an IPF at the True Point of Beginning; said IPF being the southeast corner of Smith; thence leaving said easement and GH Tennessee LLC and continuing with Smith, N 22°19'11" E, a distance of 344.61' to a Point; thence leaving Smith and with John Greenwell Co-Trustees, as recorded in Record Book R2437, Page 632, R.O.M.C. S 80°28'09" E, a distance of 175.12' to a Point; thence with John and Tami Greenwell, as recorded in Record Book R1991, Page 500, R.O.M.C., S 14°31'51" W, a distance of 70.00' to a Point being the northwest corner of Dean and Julie Norton, as recorded in Record Book R1154, Page 520, R.O.M.C.; thence leaving Norton and with a severance line, the following calls: S 49°27'53" W, a distance of 9.56' to a Point; thence N 70°25'21" W, a distance of 138.83' to a Point; thence S 19°34'39" W, a distance of 282.38' to a Point in the north boundary of GH Tennessee LLC; thence with the same, N 86°00'57" W, a distance of 53.45' to the True Point of Beginning. Containing 0.55 Acres, more or less, as surveyed by T-Square Engineering, J. Mark Cantrell, TN PLS# 1859, on October 31, 2022.

Being a portion of the property as conveyed to Steven R.Greenwell, Jan M. Wingfield and John G. Greenwell, Co-Trustees of the of the John R. Greenwell C Trust UAD by Deed dated February 6, 1989 from Jonina L. Butler, Trustee, Jonina L. Butler Revocable Living Trust, as recorded in Book 2434, page 916, Register's Office for Maury County, Tennessee.

Property Description
0.93 Acres-John Greenwell Co-Trustees

Commencing at an Iron Pin Found (IPF) in the intersection of the east Right of Way of Nashville Highway, U.S. Highway 31 and the south Right of Way (R.O.W.) of a Non-Exclusive Ingress-Egress Easement, as recorded in Plat Book 13, Page 132, Register's Office Maury County (R.O.M.C.); Said IPF being the southwest corner of Gregory and Stephanie Smith, as recorded in Record Book R2874, Page 1252, R.O.M.C. and the northwest corner of Columbia Nashville Highway LLC, as recorded in Record Book R2808, Page 1467, R.O.M.C.; thence, leaving said Hwy with Smith, Columbia Nashville Highway LLC, and the south R.O.W. of said easement, S 86°00'57" E, passing through a Point on the north boundary of GH Tennessee LLC, a total distance of 709.94' to the True Point of Beginning; thence leaving said easement and GH Tennessee LLC and with a severance line, the following calls: N 19°34'39" E, a distance of 282.38' to a Point; thence S 70°25'21" E, a distance of 138.83' to a Point; thence N 49°27'53" E, a distance of 9.56' to a Point being the northwest corner of Dean and Julie Norton, as recorded in Record Book R1154, Page 520, R.O.M.C.; thence with Norton, S 14°31'41" W, a distance of 245.51' to a Point on the north boundary of GH Tennessee LLC; thence with the same N 86°00'57" W, a distance of 171.52' to the True Point of Beginning. Containing 0.93 Acres, more or less, as surveyed by T-Square Engineering, J. Mark Cantrell, TN PLS# 1859, on October 31, 2022.

Being a portion of the property as conveyed to Steven R.Greenwell, Jan M. Wingfield and John G. Greenwell, Co-Trustees of the of the John R. Greenwell C Trust UAD by Deed dated February 6, 1989 from Jonina L. Butler, Trustee, Jonina L. Butler Revocable Living Trust, as recorded in Book 2434, page 916, Register's Office for Maury County, Tennessee.



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy of submittal on USB thumb drive or CD
Fold hard copy submittals larger than 8½"x11"*

ADDRESS/LOCATION	2258 Nashville Highway		
	TAX MAP: ⁴²	GROUP:	PARCEL: ^{13.00, 13.07, 13.08, 13.09}
SUMMARY OF NATURE OF REQUEST AND WORK	We are requesting approval for the revision of an existing CEG-PUD at Map 42, Parcel 13.00, 13.07, 13.08, and 13.09. The revision will include the addition of a self-service storage unit building and office/warehouse building, additional parking behind existing buildings, and the dedication of public ROW.		

REQUEST DATE FOR PRE-APPLICATION CONFERENCE	8/19/22	Pre-application meetings are scheduled for Wednesdays.
---	---------	--

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Sketch Plat – <i>Must be submitted at least two weeks prior to Preliminary Plat submittal</i> ☐ Preliminary Plat ☐ Final Plat ☒ PUD Preliminary Master Plan + Checklist ☐ PUD Final Site Plan + Checklist ☐ Multi-Family Site Plan ☐ Other: <i>*File naming nomenclature examples: Freedom Point Site Plan Freedom Point Master Plan Freedom Point Final Plat</i>	<u>Annexations/Rezoning/PUD's:</u> ☒ Written Legal Description copy ☒ Requested Zone Listed ☒ Compliance with Comprehensive Plan ☒ Annexation Permission Form ☒ Plans and/or Plats conforming to City standards ☒ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) Wynnsong Valley ☒ Total Number of Lots 4 ☒ Total acreage 7.78

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Allison Baldwin	PHONE	615.678.8212
ADDRESS	1329 West Main Street, Franklin	EMAIL	Allison.Baldwin@T2-Eng.com

PROPERTY OWNER NAME	John Greenwell Trust, Dean and Julie Norton, John Greenwell Trust, and Robin McFarlane	PHONE	
ADDRESS		EMAIL	Greg@Brookstonegroupllc.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>Gregory T Smith</u> APPLICANT NAME	 APPLICANT SIGNATURE	<u>6-17-22</u> DATE						
<u>John R. Greenwell Trust Co Trustees John G. Greenwell, Steven Greenwell and Jan Wingfield</u> PROPERTY OWNER NAME <u>105 Carr Drive, Spring Hill, TN 37174</u> PROPERTY OWNER SIGNATURE	<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;"><i>Jan Wingfield</i></td> <td style="width: 40%;">dotloop verified 06/18/22 3:02 PM CDT VDBG-FC56-YOGS-DCUW</td> </tr> <tr> <td><i>John Greenwell</i></td> <td>dotloop verified 06/20/22 4:18 PM CDT QA3-LWHW-DTEL-CKT5</td> </tr> <tr> <td><i>Steve Greenwell</i></td> <td>dotloop verified 06/20/22 6:35 PM EDT 3PMD-RHGX-FRFB-ODUV</td> </tr> </table>	<i>Jan Wingfield</i>	dotloop verified 06/18/22 3:02 PM CDT VDBG-FC56-YOGS-DCUW	<i>John Greenwell</i>	dotloop verified 06/20/22 4:18 PM CDT QA3-LWHW-DTEL-CKT5	<i>Steve Greenwell</i>	dotloop verified 06/20/22 6:35 PM EDT 3PMD-RHGX-FRFB-ODUV	<u>DATE</u>
<i>Jan Wingfield</i>	dotloop verified 06/18/22 3:02 PM CDT VDBG-FC56-YOGS-DCUW							
<i>John Greenwell</i>	dotloop verified 06/20/22 4:18 PM CDT QA3-LWHW-DTEL-CKT5							
<i>Steve Greenwell</i>	dotloop verified 06/20/22 6:35 PM EDT 3PMD-RHGX-FRFB-ODUV							

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Allison Baldwin	PHONE	615.678.8212
ADDRESS	1329 West Main Street, Franklin	EMAIL	Allison.Baldwin@T2-Eng.com

PROPERTY OWNER NAME	John Greenwell Trust, Dean and Julie Norton, John Greenwell Trust, and Robin McFarlane	PHONE	
ADDRESS		EMAIL	Greg@Brookstonegroupllc.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Gregory T Smith

APPLICANT NAME



APPLICANT SIGNATURE

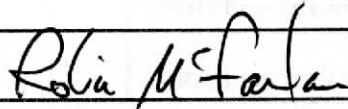
6-17-22

DATE

Robin L. McFarlane

PROPERTY OWNER NAME

3210 Les Chappel Road, Spring Hill, TN 37174



PROPERTY OWNER SIGNATURE

6-20-22

DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy of submittal on USB thumb drive or CD
Fold hard copy submittals larger than 8½"x11"*

ADDRESS/LOCATION	2258 Nashville Highway		
	TAX MAP: 42	GROUP:	PARCEL: 13.00 & 13.08
SUMMARY OF NATURE OF REQUEST AND WORK	We are requesting the approval of a PUD revision for Map 42, Parcel 13.00 and 13.08. Each of these parcels will remain in PUD zoning.		

REQUEST DATE FOR PRE-APPLICATION CONFERENCE	8/19/22	Pre-application meetings are scheduled for Wednesdays.
---	---------	--

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Sketch Plat – <i>Must be submitted at least two weeks prior to Preliminary Plat submittal</i> ☐ Preliminary Plat ☐ Final Plat ☒ PUD Preliminary Master Plan + Checklist ☐ PUD Final Site Plan + Checklist ☐ Multi-Family Site Plan ☐ Other: <i>*File naming nomenclature examples: Freedom Point Site Plan Freedom Point Master Plan Freedom Point Final Plat</i>	<u>Annexations/Rezoning/PUD's:</u> ☒ Written Legal Description copy ☒ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☒ Plans and/or Plats conforming to City standards ☒ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) Wynnsong Valley PUD ☒ Total Number of Lots N/A ☒ Total acreage 6.11 AC

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Allison Baldwin	PHONE	615.678.8212
ADDRESS	1329 West Main Street, Franklin	EMAIL	Allison.Baldwin@T2-Eng.com

PROPERTY OWNER NAME	John Greenwell Trust, Dean and Julie Norton, John Greenwell Trust, and Robin McFarlane	PHONE	
ADDRESS		EMAIL	Greg@Brookstonegroupllc.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Gregory T Smith

APPLICANT NAME



APPLICANT SIGNATURE

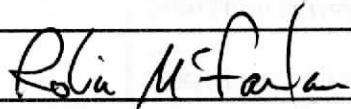
6-17-22

DATE

Robin L. McFarlane

PROPERTY OWNER NAME

3210 Les Chappel Road, Spring Hill, TN 37174



PROPERTY OWNER SIGNATURE

6-20-22

DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Allison Baldwin	PHONE	615.678.8212
ADDRESS	1329 West Main Street, Franklin	EMAIL	Allison.Baldwin@T2-Eng.com

PROPERTY OWNER NAME	John Greenwell Trust, Dean and Julie Norton, John Greenwell Trust, and Robin McFarlane	PHONE	
ADDRESS		EMAIL	Greg@Brookstonegroupllc.com

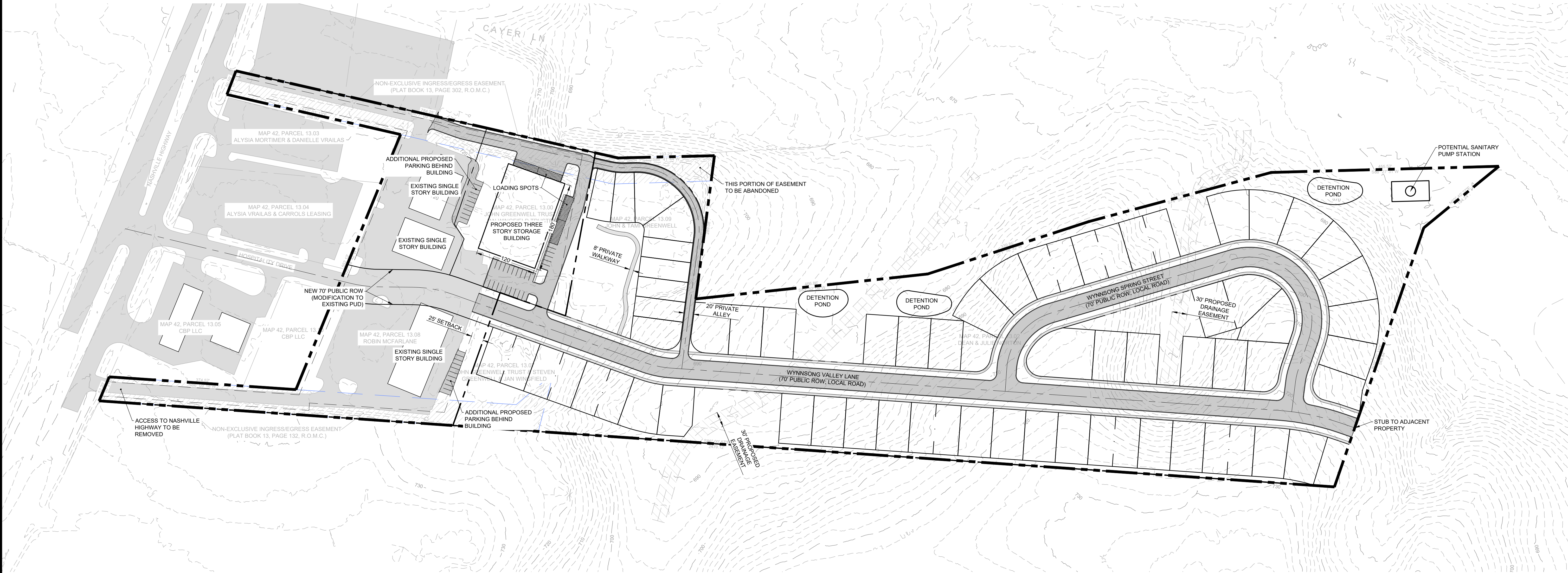
In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Gregory T Smith APPLICANT NAME	 APPLICANT SIGNATURE	6-17-22 DATE
John R. Greenwell Trust Co Trustees John G. Greenwell, Steven Greenwell and Jan Wingfield PROPERTY OWNER NAME 105 Carr Drive, Spring Hill, TN 37174	<i>Jan Wingfield</i> dotloop verified 06/18/22 3:02 PM CDT VDBG-FC56-YOGS-DCUW <i>John Greenwell</i> dotloop verified 06/20/22 4:18 PM CDT GJ3-LWHW-DTEL-CKT5 <i>Steve Greenwell</i> dotloop verified 06/20/22 6:35 PM EDT 3MD5-RHGX-FRFB-ODUV PROPERTY OWNER SIGNATURE	DATE

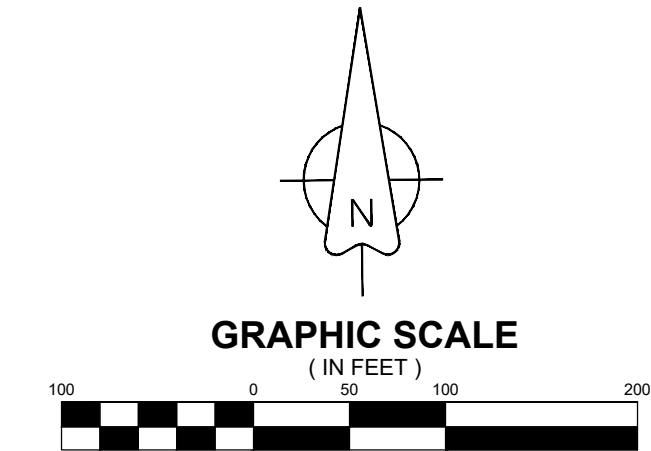
STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

P:\Projects\2022-0335 Nashville Hwy - Greg Smith\Production\22-0335 Preliminary PUD Plan.dwg, 8/19/2022 4:28:16 PM

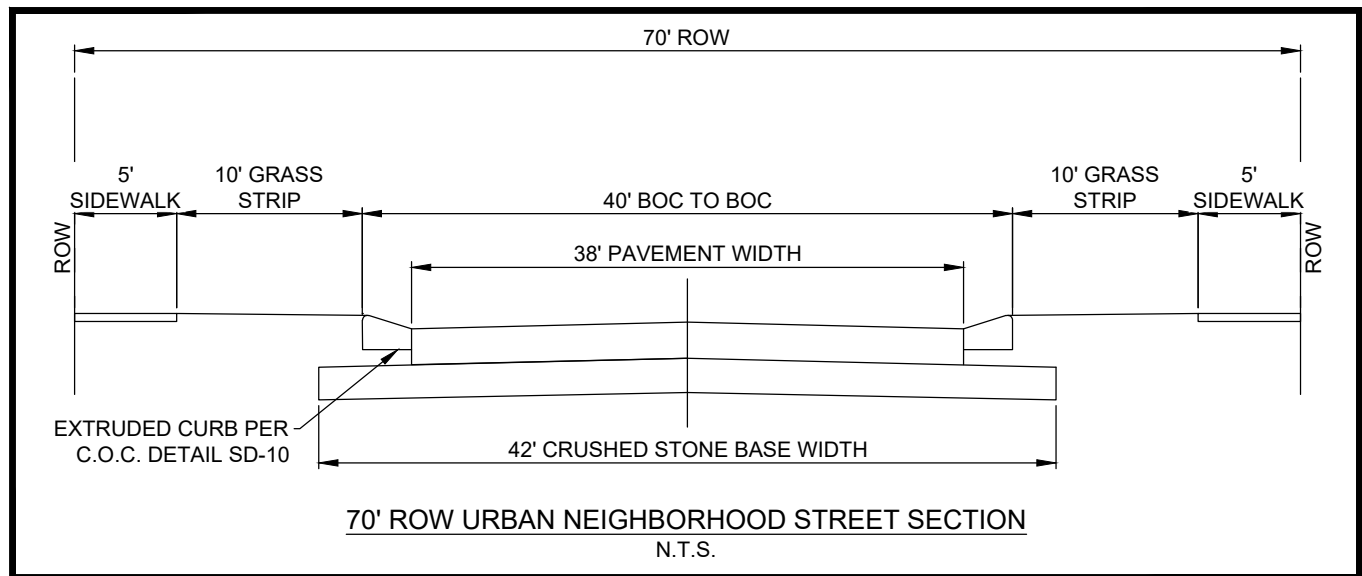


SITE DATA
PROPOSED RESIDENTIAL ZONE: CD-3
EXISTING COMMERCIAL ZONE: PUD-CEG
TOTAL RESIDENTIAL AREA: 19.27 ACRES (839,589 SF)
MAXIMUM DENSITY: 4 UNITS/ACRE (77 UNITS)
PROPOSED DENSITY: 3.43 UNITS/ACRE (66 UNITS)
TOTAL COMMERCIAL AREA: 6.11 ACRES (266,217 SF)
MINIMUM COMMERCIAL PARKING: 1 SPACES/2,000 SF STORAGE (26 SPACES)
PROPOSED COMMERCIAL PARKING: 26 SPACES



LEGEND	
---	EXISTING BOUNDARY LINE
---	EXISTING MAJOR CONTOUR LINE
---	EXISTING MINOR CONTOUR LINE
---	PROPOSED LOT LINE
---	PROPOSED UTILITY EASEMENT
---	PROPOSED DRAINAGE EASEMENT
---	PROPOSED WATER LINE
---	PROPOSED FORCE MAIN

NOTES: TRAFFIC STUDY HAS BEEN SUBMITTED TO THE CITY AND IS CURRENTLY UNDER REVIEW.



FLOOD NOTE NO PORTION OF THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS A 100 YEAR FLOOD ZONE AS EVIDENCED ON FEMA PANEL #47119C0180E OF MAURY COUNTY, TN, DATED 04/10/2007.	
OWNER OF RECORD PARCEL 13.09: JOHN GREENWELL TRUST PARCEL 13.02: DEAN AND JULIE NORTON PARCEL 13.07: JOHN GREENWELL TRUST AND JAN WINGFIELD PARCEL 13.08: ROBIN MCFARLANE PARCEL 13.09: JOHN AND TAMI GREENWELL	
APPLICANT T-SQUARE ENGINEERING 1320 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212	

T-SQUARE ENGINEERING

REVISIONS

DATE

NO.

CONCEPT PLAN

MAP 42, PARCELS 13.00, 13.02, 13.07, 13.08, 13.09
COLUMBIA, TENNESSEE

WYNNSONG VALLEY

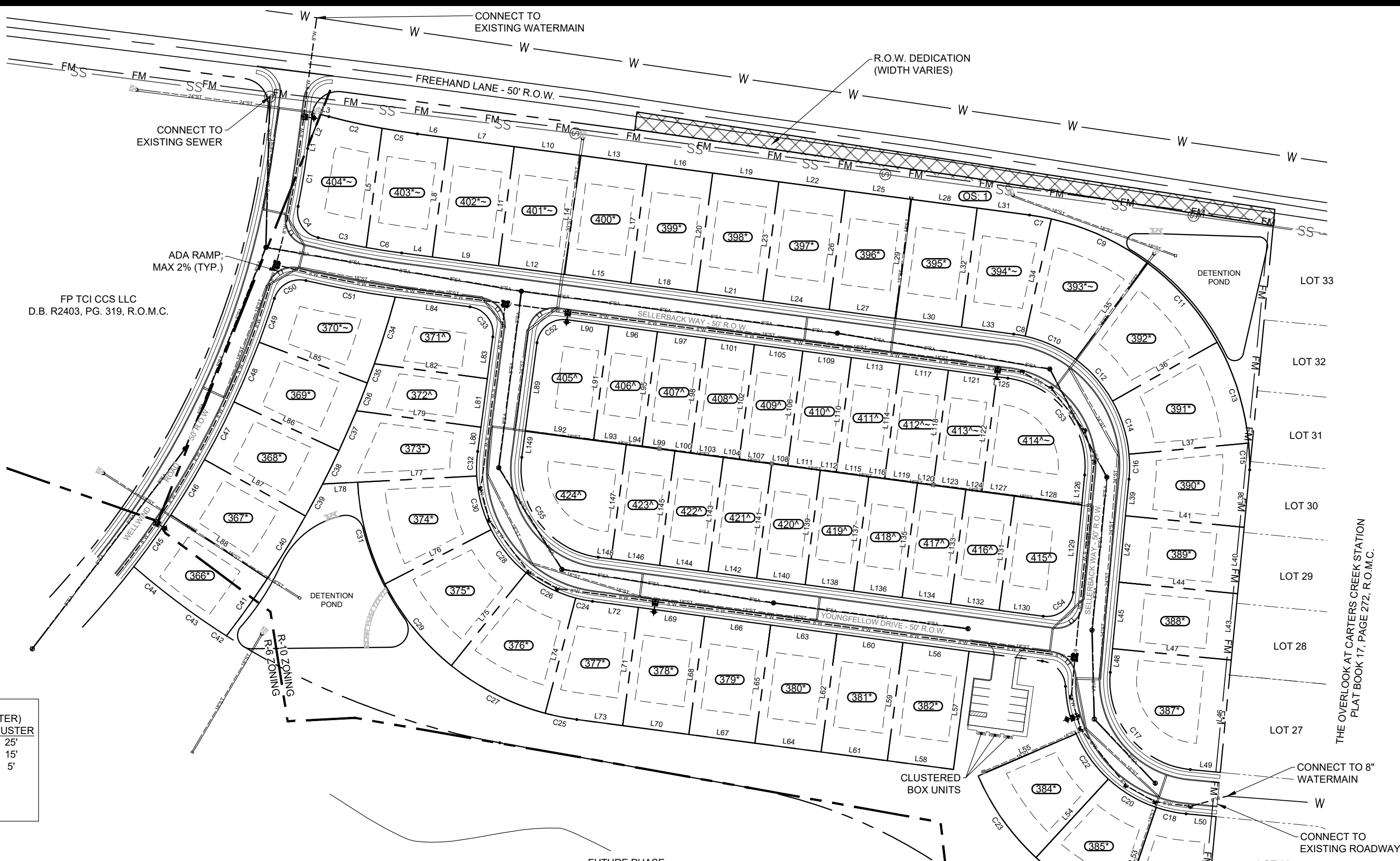


PROJECT
22-0335

SHEET
C-2.0



VICINITY MAP - NOT TO SCALE



- FM PROPOSED SEWER FORCE MAIN
SS EX. SANITARY SEWER LINE
W EX. WATER LINE
HEADWALL
CATCH BASIN
PROPOSED SEWER LINE (TYP.)
PROPOSED STORM LINE (TYP.)
PROPOSED WATER LINE (TYP.)
CURB INLET
SEWER MANHOLE
WATER VALVE
FIRE HYDRANT (TYP.)

GENERAL NOTES

- THE PURPOSE OF THIS PLAT IS TO CREATE 58 LOTS, 2 OPEN SPACE AREAS AND DEDICATE RIGHT-OF-WAY.
- THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF COLUMBIA, MAURY COUNTY, TN. ALL MATTERS PERTAINING TO CONSTRUCTION, USE, LOCATION OF IMPROVEMENTS, SIGNAGE, PARKING, NOISE, VIBRATION, EMISSIONS, FIRE HAZARDS, RADIATION, ILLUMINATION, SETBACK PROVISIONS, ETC. ARE SUBJECT TO THE CITY OF COLUMBIA'S ZONING REGULATIONS AS INTERPRETED AND REGULATED BY THE DEPARTMENT OF DEVELOPMENT SERVICES.
- SUBJECT PROPERTY IS PARCEL 35.00 AS SHOWN ON MAURY COUNTY TAX MAP 42.
- NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
- THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS LESS THAN 1:10,000.
- ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTERS OFFICE FOR MAURY COUNTY, TENNESSEE.
- COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
- STORMWATER MANAGEMENT OPERATION & MAINTENANCE WILL BE GOVERNED BY THE INSPECTION & MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES, DATED _____, RECORDED IN DEED BOOK _____, PAGE _____, REGISTER'S OFFICE OF MAURY COUNTY, TN.
- BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 471900180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 SUFFIX E, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
- ACCORDING TO THE TYPICAL LOT DETAIL, ALL LOTS ARE TO HAVE A 10' PUDE IN THE FRONT AND REAR OF THE LOTS, AS WELL AS A 5' PUDE IN THE SIDE OF THE LOTS.

SPECIAL UTILITY NOTE

THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE, PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DOWN SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE, IT IS A REQUIREMENT PER THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN (3) NOR MORE THAN (10) WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT.

OWNER OF RECORD
TAMARACK LAND - CARTERS STATION LLC
DEED BK. R2828 PG. 296, MAP 042 PARCEL 035.00
APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212



PROJECT
21-0515

SHEET
1 OF 1

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

DATE: _____, 20____ NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN SUMMIT AT CARTERS STATION PHASE 1 HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF \$ _____ FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

DATE: _____, 20____ CITY ENGINEER

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

DATE: _____, 20____ NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF SURVEY ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY 1 LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS LESS THAN OR EQUAL TO 1:10,000.

DATE: _____, 20____ MARK CANTRELL, R.L.S.

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

DATE: _____, 20____ CITY ENGINEER

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

DATE: _____, 20____ MAURY E911

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT THE SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

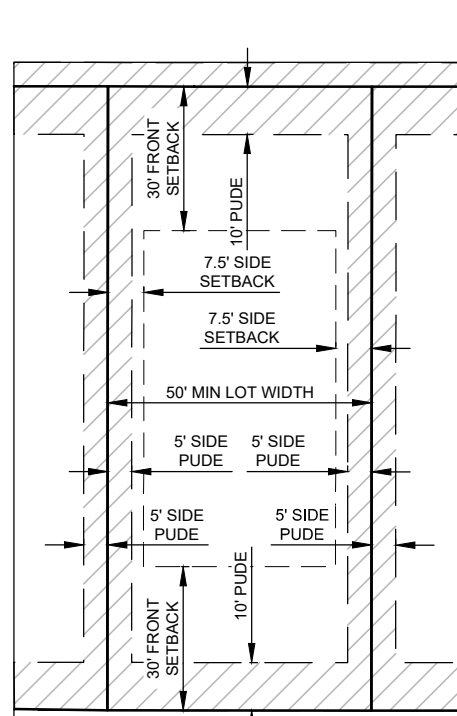
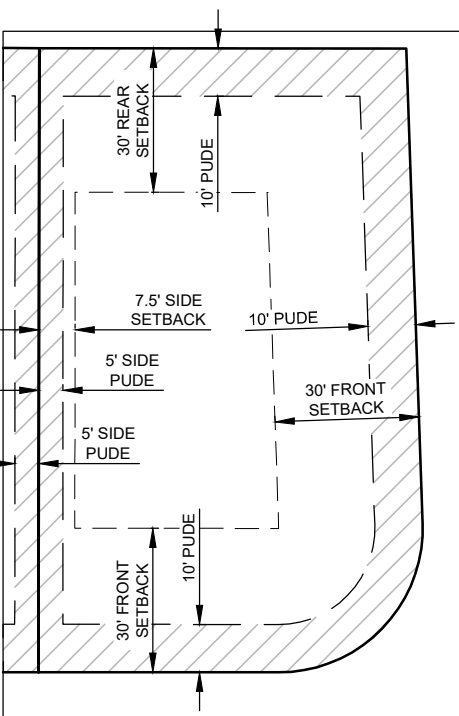
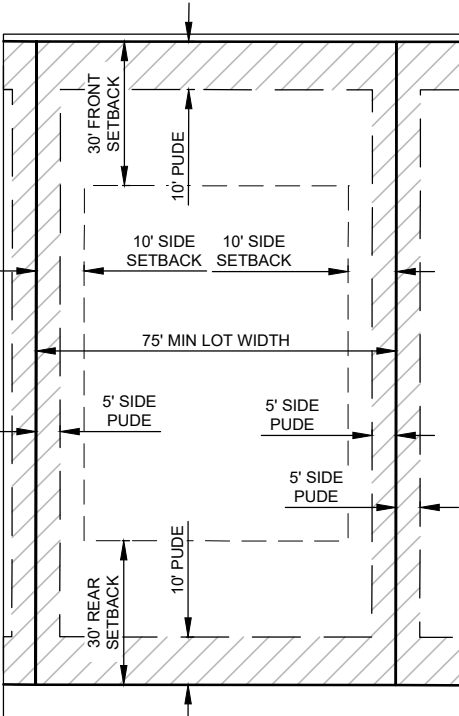
DATE: _____, 20____ DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN RECORD BOOK NUMBER R2828, PAGE 296, MAURY COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

DATE: _____, 20____ OWNER

SITE DATA		
CURRENT ZONING:	R-10 (CLUSTER)	
MINIMUM BUILDING SETBACKS:	R-10	CLUSTER
FRONT:	30'	25'
REAR:	30'	15'
SIDE:	10'	5'
TOTAL PHASE AREA:	21.43 ACRES	
NEW ROW:	3.40 ACRES	
ROW DEDICATION:	0.30 ACRES	



- * DENOTES R-10 LOT
- * DENOTES R-10 CLUSTER LOT
- * DENOTES A CRITICAL LOT THAT WILL REQUIRE A LOT GRADING PLAN

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	N 07°26'58" E	12.87	L56	S 82°26'46" W	75.00
L2	N 21°42'20" E	38.31	L57	S 07°33'14" W	134.00
L3	S 75°31'11" E	9.52	L58	N 82°26'46" W	75.00
L4	N 82°26'46" W	34.77	L59	N 07°33'14" E	134.00
L5	N 82°26'46" W	34.77	L60	S 82°26'46" W	75.00
L6	S 82°26'46" W	135.13	L61	N 82°26'46" W	75.00
L7	S 82°26'46" W	34.77	L62	N 07°33'14" E	134.00
L8	N 07°33'14" E	135.00	L63	S 82°26'46" W	75.00
L9	S 82°26'46" W	75.00	L64	N 82°26'46" W	75.00
L10	S 82°26'46" W	75.00	L65	N 07°33'14" E	134.00
L11	N 07°33'14" E	135.00	L66	S 82°26'46" W	75.00
L12	N 82°26'46" W	75.00	L67	N 82°26'46" W	75.00
L13	S 82°26'46" W	75.00	L68	N 07°33'14" E	134.00
L14	N 07°33'14" E	135.00	L69	S 82°26'46" W	75.00
L15	N 82°26'46" W	75.00	L70	N 07°33'14" E	134.00
L16	S 82°26'46" W	75.00	L71	S 82°26'46" W	75.00
L17	N 07°33'14" E	135.00	L72	S 82°26'46" W	75.00
L18	N 82°26'46" W	75.00	L73	N 82°26'46" W	75.00
L19	S 82°26'46" W	75.00	L74	N 14°52'00" E	134.00
L20	N 07°33'14" E	135.00	L75	N 38°54'06" E	134.00
L21	S 82°26'46" W	75.00	L76	N 62°57'55" E	134.00
L22	S 82°26'46" W	75.00	L77	N 87°00'53" E	134.00
L23	N 07°33'14" E	135.00	L78	N 87°00'53" E	134.00
L24	N 82°26'46" W	75.00	L79	S 82°26'46" W	141.16
L25	S 82°26'46" W	75.00	L80	S 07°33'14" W	27.50
L26	N 07°33'14" E	135.00	L81	S 82°26'46" W	75.00
L27	N 82°26'46" W	75.00	L82	S 82°26'46" W	126.08
L28	S 82°26'46" W	75.00	L83	S 07°33'14" W	47.50
L29	N 07°33'14" E	135.00	L84	S 82°26'46" W	75.00
L30	N 82°26'46" W	75.00	L85	N 69°19'46" W	130.00
L31	S 82°26'46" W	75.00	L86	N 65°03'12" W	130.00
L32	N 07°33'14" E	135.00	L87	N 60°46'55" W	130.00
L33	N 82°26'46" W	75.00	L88	N 56°28'57" W	130.00
L34	N 12°35'15" E	135.00	L89	N 07°33'14" E	130.00
L35	N 38°37'48" E	135.00	L90	S 82°26'46" W	75.00
L36	N 60°46'46" E	135.00	L91	S 07°33'14" W	130.00
L37	N 84°53'44" E	135.00	L92	N 82°26'46" W	75.00
L38	S 05°32'04" W	64.83	L93	N 82°26'46" W	130.00
L39	N 07°33'14" E	135.00	L94	N 82°26'46" W	17.94
L40	S 05°32'04" W	75.00	L95	S 07°33'14" E	135.00
L41	S 84°26'03" E	134.02	L96	S 82°26'46" W	55.00
L42	N 05°15'19" E	75.00	L97	S 82°26'46" W	55.00
L43	S 05°32'04" W	75.00	L98	S 07°33'14" W	130.00
L44	S 84°26'03" E	134.01	L99	N 82°26'46" W	37.06
L45	N 05°15'19" E	75.00	L100	N 82°26'46" W	55.00
L46	S 05°32'04" W	75.00	L101	N 82°26'46" W	55.00
L47	S 84°26'03" E	134.01	L102	S 07°33'14" W	130.00
L48	N 05°15'19" E	75.00	L103	N 82°26'46" W	130.00
L49	S 05°32'04" W	75.00	L104	N 82°26'46" W	17.94
L50	S 84°26'03" E	134.01	L105	N 82°26'46" W	55.00
L51	N 05°15'19" E	75.00	L106	N 07°33'14" W	130.00
L52	S 05°32'04" W	75.00	L107	N 82°26'46" W	37.06
L53	N 84°26'03" E	134.01	L108	N 82°26'46" W	55.00
L54	N 18°36'58" E	120.00	L109	S 82°26'46" W	55.00
L55	N 42°39'52" E	120.00	L110	S 07°33'14" W	130.00
L56	N 62°42'42" E	120.00	L111	N 82°26'46" W	37.06

LINE	BEARING	DISTANCE
L112	N 82°26'46" W	17.94
L113	S 82°26'46" W	55.00
L114	S 07°33'14" W	130.00
L115	N 82°26'46" W	37.06
L116	N 82°26'46" W	17.94
L117	S 82°26'46" E	55.00
L118	S 07°33'14" W	130.00
L119	N 82°26'46" W	37.06
L120	N 82°26'46" W	17.94
L121	S 82°26'46" E	55.00
L122	S 07°33'14" W	130.00
L123	N 82°26'46" W	37.06
L124	N 82°26'46" W	17.94
L125	S 82°26'46" E	12.40
L126	S 05°31'57" W	53.55
L127	N 82°26'46" W	37.06
L128	N 82°26'46" W	75.00
L129	S 05°31'57" W	99.90
L130	N 82°26'46" W	49.97
L131	N 07°33'14" E	130.00
L132	N 82°26'46" W	55.00
L133	N 07°33'14" E	130.00
L134	N 82°26'46" W	55.00
L135	N 07°33'14" E	130.00
L136	N 82°26'46" W	55.00
L137	N 07°33'14" E	130.00
L138	N 82°26'46" W	55.00
L139	N 07°33'14" E	130.00
L140	N 82°26'46" W	55.00
L141	N 07°33'14" E	130.00
L142	N 82°26'46" W	55.00
L143	N 07°33'14" E	130.00
L144	N 82°26'46" W	55.00
L145	N 07°33'14" E	130.00
L146	N 82°26'46" W	55.00
L147	N 07°33'14" E	130.00
L148	N 82°26'46" W	55.00
L149	N 07°33'14" E	130.00
L150	N 82°26'46" W	55.00
L151	N 07°33'14" E	130.00
L152	N 82°26'46" W	55.00
L153	N 07°33'14" E	130.00
L154	N 82°26'46" W	55.00
L155	N 07°33'14" E	130.00
L156	N 82°26'46" W	55.00
L157	N 07°33'14" E	130.00
L158	N 82°26'46" W	55.00
L159	N 07°33'14" E	130.00
L160	N 82°26'46" W	55.00
L161	N 07°33'14" E	130.00
L162	N 82°26'46" W	55.00
L163	N 07°33'14" E	130.00
L164	N 82°26'46" W	55.00
L165	N 07°33'14" E	130.00
L166	N 82°26'46" W	55.00
L167	N 07°33'14" E	130.00
L168	N 82°26'46" W	55.00
L169	N 07°33'14" E	130.00
L170	N 82°26'46" W	55.00
L171	N 07°33'14" E	130.00
L172	N 82°26'46" W	55.00

DOCUMENT PREPARED BY:

Name: Allison Baldwin

Company: T-Square Engineering

Address: 1329 West Main Street
Franklin, TN 37067

After recording return copy to City of Columbia, Development Services

**INSPECTION AND MAINTENANCE AGREEMENT OF
PRIVATE STORMWATER MANAGEMENT FACILITIES**

Map & Parcel Number: Map 42, Parcel 35.00

Project Name: Summit at Carter's Station, Phase 1

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2828, Page(s) 296.

THIS AGREEMENT, made this ____ day of _____, 20____, by and between
Tamarack Land -- Carter's Station LLC, hereinafter referred to as the "OWNER(S)" of the following property
and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the
property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.
2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.
3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.
4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.
5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.
6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the OWNER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S).
7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.
8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.
9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.
11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.
12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.
13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name _____	Owner _____
Title _____	Address _____

Signature _____	City, State ZIP _____

STATE OF _____
COUNTY OF _____

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20____.

Notary Public

My Commission Expires: _____

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT

APPROVED BY : _____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20____.

Notary Public
My Commission Expires: _____



11/21/2022

City of Columbia
Development Services
700 N. Garden Street
Columbia, TN 38401

POST CONSTRUCTION LONG TERM MAINTENANCE PLAN
PROJECT NAME: THE SUMMIT AT CARTER'S STATION, PHASE 1

SYSTEM DESCRIPTION:

The site consists of stormwater conveyances through piped channel and detention ponds.

- There are two (2) ponds in Phase 1 that are sized to detain the 100-year peak event.
- 4,510 LF of round concrete pipe and 47 storms inlets.

Upon completion of the site construction, 'Record Drawings' in a version not less than AutoCAD 2006 LT (NAD83, NAVD88) of the stormwater controls will be provided to the City of Columbia for verification.

A copy of the INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES that has been completed, notarized and recorded in the Land Records of the County of Maury, Tennessee will be kept on site with this document.

MAINTENANCE PROCEDURES

1. STORMWATER DETENTION PONDS

- a. The outlet structures shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.
- b. Check banks and bottom surface of basins for erosion and correct as necessary.
- c. Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitoes.
- d. This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.



- e. Pond vegetation needs to be trimmed or harvested as appropriate, grassy areas frequently mowed. Grass should be mowed so that it does not get over 12 inches.
 - f. Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.
 - g. Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.
 - h. Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.
2. 4,510 LF OF RCP AND 47 STORM DRAINS
- These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.

CONSTRUCTION PLANS
FOR
SUMMIT AT CARTER'S STATION
PHASE 1
3040 CLEBURNE ROAD
COLUMBIA, TN 37174
CITY OF COLUMBIA, WARD #5

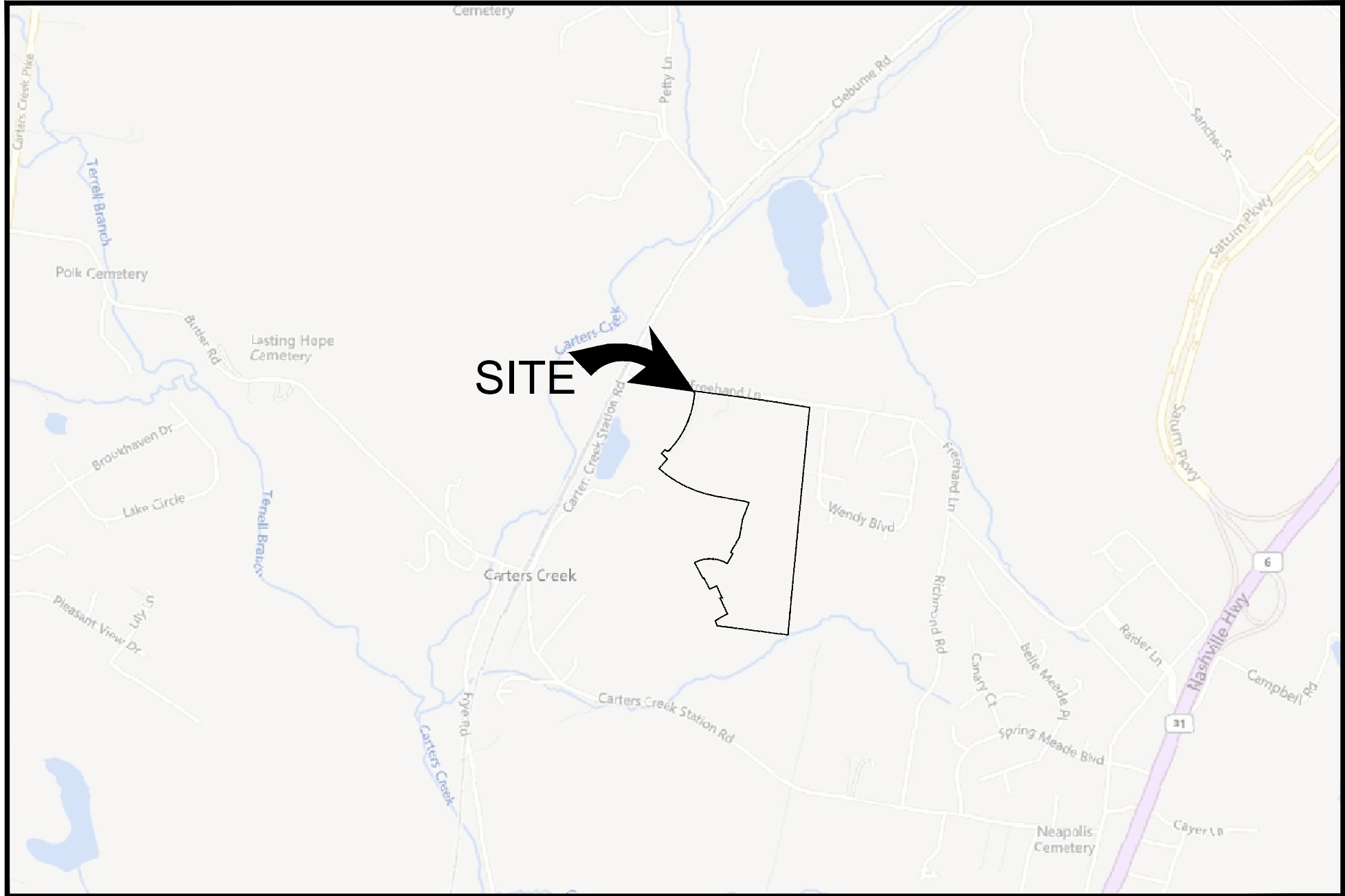
DEVELOPER: RICHMOND AMERICAN HOMES
12220 SUNRISE VALLEY DRIVE SUITE 400
RESTON, VA 20191
703-390-0900

ENGINEER: T-SQUARE ENGINEERING
1329 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

SURVEYOR: T-SQUARE ENGINEERING
1329 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

WATER UTILITY: CPWS Shane Andrews
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

POWER UTILITY: CPWS Doug Burgess
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833



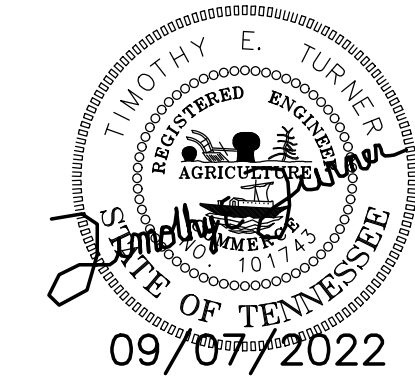
SITE VICINITY MAP
N.T.S.

Sheet Schedule	
C-0.0	Cover Sheet
C-1.0	Preliminary Plat
C-1.1	Existing Conditions
C-2.0	Site Plan
C-2.1	Parcel Site Plan
C-2.2	Parcel Data Tables
C-3.0	Initial Erosion Control
C-3.1	Temporary Erosion Control
C-3.2	Final Erosion Control
C-4.0	Predevelopment Stormwater Plan
C-4.1	Postdevelopment Stormwater Plan
C-5.0	Grading Plan
C-5.1	Drainage Plan
C-5.2	Drainage Plan Tables
C-5.3	Inlet Area Plan
C-6.0	Roadway Plan and Profile Wellwind Road
C-6.1	Roadway Plan and Profile Sellerback Way
C-6.2	Roadway Plan and Profile Youngfellow Drive
C-6.3	Fellowship Road
C-6.4	Fellowship Road & Haplander Court
C-6.5	Cobler Court & Candler Road
C-6.6	Pippin Street
C-7.0	Utility Plan
C-7.1	Sanitary Plan and Profile
C-7.2	Sanitary Plan and Profile
C-7.3	Sanitary Plan and Profile
C-7.4	Sanitary Plan and Profile
C-7.5	Sanitary Plan and Profile
C-7.6	Sanitary Plan and Profile
C-8.0	Detail Sheet
C-8.1	Detail Sheet
C-8.2	Detail Sheet
C-8.3	Detail Sheet
C-8.4	Detail Sheet
C-8.5	Detail Sheet
C-8.6	Detail Sheet
C-8.7	Detail Sheet

FLOOD NOTE A PORTION OF THIS PROPERTY LIES WITHIN AN AREA DESIGNATED AS AE, AS EVIDENCED ON FEMA PANEL #4711900180E OF MAURY COUNTY, TN, DATED 04/16/2007.	
OWNER OF RECORD	
FP TCI CCS LLC MAP 41, P/O PARCEL 15.00	
APPLICANT	
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615-678-8212	

COVER SHEET

MAP 41, P/O PARCEL 15.00
COLUMBIA, TENNESSEE 37174



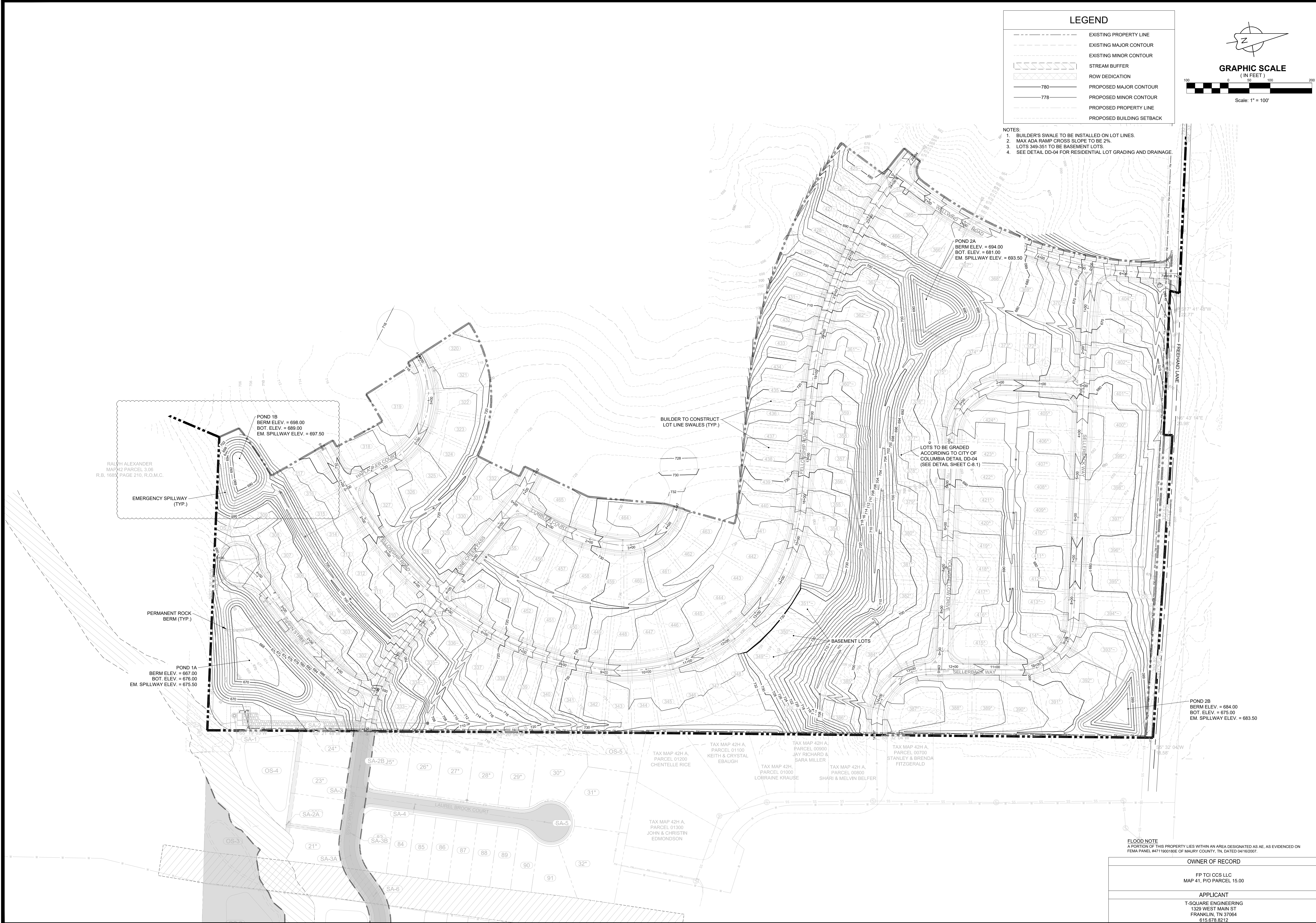
PROJECT
21-0515

SHEET
C-0.0



SUMMIT AT CARTER'S STATION

NO.		DATE	REVISIONS
1	10/13/21	03/02/22	SANITARY SEWER MAIN REVISION
2	SCALE:	03/16/22	REVISIONS PER TDEC COMMENTS
3	AS SHOWN	04/14/22	REVISIONS PER CITY COMMENTS
4	DRAWN BY:	08/03/22	REVISIONS PER TDEC COMMENTS
5	T-SQUARE	09/07/22	REVISIONS PER PULTE COMMENTS
REVIEWER:			
TET			



GRADING PLAN
MAP 41, P/O PARCEL 15.00
COLUMBIA, TENNESSEE 37174

09/07/2022

PROJECT
21-0515

SHEET
C-5.0

T-SQUARE ENGINEERING

DATE:		NO.		DATE		REVISIONS	
10/13/21	SCALE: AS SHOWN	DRAWN BY: T-SQUARE	REVIEWER: TET			1	SANITARY SEWER MAIN REVISION
						2	REVISIONS PER TDEC COMMENTS
						3	REVISIONS PER CITY COMMENTS
						4	REVISIONS PER TDEC COMMENTS
						5	REVISIONS PER PULTE COMMENTS

SUMMIT AT CARTER'S STATION



STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
HW-1A	RIM = 669.10 TOP = 666.87	INV. IN = 666.39		HEADWALL
HW-2A	RIM = 681.12 TOP = ???	INV. IN = 678.41		HEADWALL
HW-2C	RIM = 675.77 TOP = 674.33	INV. IN = 673.06		HEADWALL
RISER-1A	RIM = 675.00 TOP = 668.00		INV. OUT =667.00	RISER
RISER-2A	RIM = 692.00 TOP = 682.00		INV. OUT =681.00	RISER
RISER-2C	RIM = 682.00 TOP = 676.00		INV. OUT =675.00	RISER

STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
HW-A1	RIM = 677.67 TOP = 691.98	INV. IN = 690.00		HEADWALL
ST-A1	RIM = 715.53 TOP = 715.53	INV. IN = 711.28	INV. OUT =711.28	SINGLE INLET
ST-A1A	RIM = 715.53 TOP = 715.53		INV. OUT =711.53	SINGLE INLET
ST-A2	RIM = 714.03 TOP = 714.03	INV. IN = 709.68 INV. IN = 709.68		SINGLE INLET
ST-A2A	RIM = 714.03 TOP = 714.03		INV. OUT =710.03	SINGLE INLET
ST-A2B	RIM = 714.80 TOP = 714.80	INV. IN = 710.50	INV. OUT =710.50	SINGLE INLET
ST-A3	RIM = 711.99 TOP = 711.99	INV. IN = 707.99	INV. OUT =707.99	SINGLE INLET
ST-A4	RIM = 709.32 TOP = 709.32	INV. IN = 705.12 INV. IN = 705.12	INV. OUT =705.12	SINGLE INLET
ST-A4A	RIM = 709.32 TOP = 709.32	INV. IN = 705.37	INV. OUT =705.37	SINGLE INLET
ST-A5	RIM = 708.45 TOP = 708.45	INV. IN = 704.57 INV. IN = 704.57	INV. OUT =704.57	SINGLE INLET
ST-A5A	RIM = 708.45 TOP = 708.45	INV. IN = 704.32 INV. IN = 704.32	INV. OUT =704.32	SINGLE INLET
ST-A5B	RIM = 696.80 TOP = 696.80	INV. IN = 692.31 INV. IN = 692.31		AREA DRAIN
ST-A5C	RIM = 695.60 TOP = 695.60	INV. IN = 691.11 INV. IN = 691.11	INV. OUT =691.11	AREA DRAIN
ST-A5D	RIM = 696.65 TOP = 696.65		INV. OUT =694.15	AREA DRAIN
ST-A6	RIM = 709.67 TOP = 709.67		INV. OUT =705.83	SINGLE INLET
ST-A7	RIM = 713.43 TOP = 713.43	INV. IN = 709.20	INV. OUT =709.20	SINGLE INLET
ST-A7A	RIM = 713.45 TOP = 713.45		INV. OUT =709.45	SINGLE INLET
ST-A8	RIM = 709.97 TOP = 709.97	INV. IN = 705.97 INV. IN = 705.97	INV. OUT =705.97	SINGLE INLET
ST-A8A	RIM = 717.41 TOP = 716.76		INV. OUT =714.20	AREA DRAIN

STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
HW-B1	RIM = 678.48 TOP = 674.73	INV. IN = 674.18		HEADWALL
HW-B2	RIM = 671.95 TOP = 670.00	INV. IN = 669.25		HEADWALL
RISER-1B	RIM = 690.71 TOP = 690.00		INV. OUT =689.00	RISER
ST-B1	RIM = 730.92 TOP = 730.92	INV. IN = 726.65	INV. OUT =726.65	SINGLE INLET
ST-B1A	RIM = 730.92 TOP = 730.92	INV. IN = 723.18 INV. IN = 723.18	INV. OUT =726.90	SINGLE INLET
ST-B2	RIM = 727.43 TOP = 727.43	INV. IN = 723.18 INV. IN = 723.18	INV. OUT =723.18	SINGLE INLET
ST-B2A	RIM = 727.43 TOP = 727.43		INV. OUT =723.43	SINGLE INLET
ST-B3	RIM = 724.82 TOP = 724.82	INV. IN = 720.82	INV. OUT =720.82	SINGLE INLET
ST-B3A	RIM = 724.81 TOP = 724.81	INV. IN = 720.57	INV. OUT =720.57	SINGLE INLET
ST-B4	RIM = 723.98 TOP = 723.98	INV. IN = 719.73 INV. IN = 719.73	INV. OUT =719.73	SINGLE INLET
ST-B4A	RIM = 723.98 TOP = 723.98		INV. OUT =719.98	SINGLE INLET
ST-B4B	RIM = 721.88 TOP = 721.88	INV. IN = 717.38 INV. IN = 717.38	INV. OUT =717.38	SINGLE INLET
ST-B4C	RIM = 722.00 TOP = 722.00		INV. OUT =718.00	AREA DRAIN
ST-B5	RIM = 717.88 TOP = 717.88	INV. IN = 713.38 INV. IN = 713.38	INV. OUT =713.38	SINGLE INLET
ST-B5A	RIM = 717.88 TOP = 717.88		INV. OUT =713.88	SINGLE INLET
ST-B6	RIM = 710.18 TOP = 710.18	INV. IN = 705.68 INV. IN = 705.68	INV. OUT =705.68	SINGLE INLET
ST-B6A	RIM = 710.18 TOP = 710.18		INV. OUT =706.18	SINGLE INLET
ST-B7	RIM = 698.78 TOP = 698.78	INV. IN = 694.28 INV. IN = 694.28	INV. OUT =694.28	SINGLE INLET
ST-B7A	RIM = 698.78 TOP = 698.78		INV. OUT =694.78	SINGLE INLET
ST-B8	RIM = 687.62 TOP = 687.62	INV. IN = 678.49 INV. IN = 678.49	INV. OUT =678.49	SINGLE INLET
ST-B9	RIM = 684.10 TOP = 684.10	INV. IN = 679.10 INV. IN = 679.10	INV. OUT =679.10	SINGLE INLET
ST-B9A	RIM = 683.49 TOP = 683.49		INV. OUT =679.99	SINGLE INLET
ST-B9B	RIM = 704.00 TOP = 704.00		INV. OUT =700.00	AREA DRAIN
ST-B10	RIM = 687.69 TOP = 687.69	INV. IN = 677.70	INV. OUT =677.70	SINGLE INLET
ST-B10A	RIM = 687.70 TOP = 687.70	INV. IN = 677.95	INV. OUT =677.95	SINGLE INLET
ST-B11	RIM = 685.71 TOP = 685.71	INV. IN = 676.68 INV. IN = 676.68	INV. OUT =676.68	SINGLE INLET
ST-B11A	RIM = 685.71 TOP = 685.71		INV. OUT =682.26	SINGLE INLET
ST-B11B	RIM = 686.35 TOP = 686.35	INV. IN = 676.31	INV. OUT =676.31	SINGLE INLET
ST-B12	RIM = 686.49 TOP = 686.49	INV. IN = 674.92	INV. OUT =674.92	SINGLE INLET
ST-B12A	RIM = 686.49 TOP = 686.49	INV. IN = 674.67	INV. OUT =674.67	SINGLE INLET
ST-B13	RIM = 736.85 TOP = 736.85	INV. IN = 732.60	INV. OUT =732.60	SINGLE INLET
ST-B13A	RIM = 736.85 TOP = 736.85		INV. OUT =732.85	SINGLE INLET
ST-B14	RIM = 735.24 TOP = 735.24	INV. IN = 730.96 INV. IN = 730.96	INV. OUT =730.96	SINGLE INLET
ST-B14A	RIM = 735.24 TOP = 735.24		INV. OUT =731.24	SINGLE INLET
ST-B15	RIM = 733.28 TOP = 733.28	INV. IN = 729.03 INV. IN = 729.03	INV. OUT =729.03	SINGLE INLET
ST-B15A	RIM = 733.28 TOP = 733.28		INV. OUT =729.28	SINGLE INLET
ST-B16	RIM = 722.71 TOP = 722.71	INV. IN = 718.46 INV. IN = 718.46	INV. OUT =718.46	SINGLE INLET
ST-B16A	RIM = 722.71 TOP = 722.71		INV. OUT =718.71	SINGLE INLET
ST-B17	RIM = 714.47 TOP = 714.47	INV. IN = 710.22 INV. IN = 710.22	INV. OUT =710.22	SINGLE INLET
ST-B17A	RIM = 714.47 TOP = 714.47		INV. OUT =710.47	SINGLE INLET
ST-B18	RIM = 682.00 TOP = 682.00	INV. IN = 675.17 INV. IN = 675.17	INV. OUT =675.17	SINGLE INLET

STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
ST-B18A	RIM = 689.89 TOP = 688.87	INV. IN = 688.80	INV. OUT =679.42	SINGLE INLET
ST-C1	RIM = 733.69 TOP = 733.69	INV. IN = 729.44	INV. OUT =729.44	SINGLE INLET
ST-C1A	RIM = 733.69 TOP = 733.69		INV. OUT =729.69	SINGLE INLET
ST-C2	RIM = 727.10 TOP = 727.10	INV. IN = 723.10	INV. OUT =723.10	SINGLE INLET
ST-C3	RIM = 721.90 TOP = 721.90	INV. IN = 717.65 INV. IN = 717.65	INV. OUT =717.65	SINGLE INLET
ST-C3A	RIM = 721.90 TOP = 721.90		INV. OUT =717.90	SINGLE INLET
ST-C4	RIM = 716.91 TOP = 716.91	INV. IN = 712.91	INV. OUT =712.91	SINGLE INLET
ST-C5	RIM = 711.28 TOP = 711.28	INV. IN = 707.03 INV. IN = 707.03	INV. OUT =707.03	SINGLE INLET
ST-C5A	RIM = 711.28 TOP = 711.28		INV. OUT =707.28	SINGLE INLET
ST-C6	RIM = 700.85 TOP = 700.85	INV. IN = 691.14 INV. IN = 691.14	INV. OUT =691.14	SINGLE INLET
ST-C6A	RIM = 696.00 TOP = 696.00		INV. OUT =692.50	AREA DRAIN
ST-C7	RIM = 693.96 TOP = 693.96	INV. IN = 689.96	INV. OUT =689.96	SINGLE INLET
ST-C7A	RIM = 693.96 TOP = 693.96	INV. IN = 689.71	INV. OUT =689.71	SINGLE INLET

STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
HW-D1	RIM = 681.45 TOP = 680.00	INV. IN = 676.20		HEADWALL
ST-D1	RIM = 696.28 TOP = 696.28	INV. IN = 692.03 INV. IN = 692.03	INV. OUT =692.03	SINGLE INLET
ST-D1A	RIM = 696.28 TOP = 696.28		INV. OUT =692.28	SINGLE INLET
ST-D1B	RIM = 707.88 TOP = 707.88		INV. OUT =703.00	AREA DRAIN
ST-D2	RIM = 689.67 TOP = 689.67	INV. IN = 689.67 INV. IN = 689.67	INV. OUT =689.67	SINGLE INLET
ST-D2A	RIM = 701.67 TOP = 701.67		INV. OUT =697.67	AREA DRAIN
ST-D3	RIM = 693.15 TOP = 693.15	INV. IN = 688.65	INV. OUT =688.65	SINGLE INLET
ST-D3A	RIM = 693.76 TOP = 693.76	INV. IN = 688.38	INV. OUT =688.38	SINGLE INLET
ST-D4	RIM = 689.15 TOP = 689.15	INV. IN = 684.54	INV. OUT =684.54	SINGLE INLET
ST-D5	RIM = 684.64 TOP = 684.64	INV. IN = 679.78 INV. IN = 679.78	INV. OUT =679.78	SINGLE INLET
ST-D5A	RIM = 684.64 TOP = 684.64		INV. OUT =680.28	SINGLE INLET

STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
HW-E1	RIM = 653.77 TOP = ???	INV. IN = 650.52		HEADWALL
HW-E2	RIM = 676.10 TOP = 674.48	INV. IN = 673.39		HEADWALL
HW-E3	RIM = 675.62 TOP = ???	INV. IN = 672.91		HEADWALL
HW-E4	RIM = 655.45 TOP = 654.00		INV. OUT =652.74	HEADWALL
HW-E5	RIM = 675.71 TOP = 672.75	INV. IN = 671.92		HEADWALL
ST-E1	RIM = 694.11 TOP = 694.11		INV. OUT =690.11	SINGLE INLET
ST-E1A	RIM = 692.82 TOP = 692.82	INV. IN = 688.82	INV. OUT =688.82	SINGLE INLET
ST-E2A	RIM = 692.82 TOP = 692.82	INV. IN = 688.57	INV. OUT =688.57	SINGLE INLET
ST-E2B	RIM = 692.26 TOP = 692.26	INV. IN = 688.09	INV. OUT =688.09	SINGLE INLET
ST-E2C	RIM = 691.12 TOP = 691.12	INV. IN = 687.04	INV. OUT =687.04	SINGLE INLET
ST-E3	RIM = 689.67 TOP = 689.67	INV. IN = 685.23	INV. OUT =685.23	AREA DRAIN
ST-E4	RIM = 685.67 TOP = 685.67	INV. IN = 681.94	INV. OUT =681.94	AREA DRAIN
ST-E5	RIM = 684.70 TOP = 684.70	INV. IN = 679.20	INV. OUT =679.20	AREA DRAIN
ST-E6	RIM = 679.87 TOP = 679.87	INV. IN = 675.37 INV. IN = 675.37	INV. OUT =675.37	SINGLE INLET
ST-E6A	RIM = 679.87 TOP = 679.87	INV. IN = 675.87	INV. OUT =675.87	SINGLE INLET
ST-E7	RIM = 678.75 TOP = 678.75	INV. IN = 674.25	INV. OUT =674.25	SINGLE INLET
ST-E7A	RIM = 678.75 TOP = 678.75		INV. OUT =674.75	SINGLE INLET
ST-E8	RIM = 675.91 TOP = 675.91	INV. IN = 671.91	INV. OUT =671.91	SINGLE INLET
ST-E9	RIM = 669.62 TOP = 669.62	INV. IN = 665.82	INV. OUT =665.82	SINGLE INLET
ST-E10	RIM = 667.61 TOP = 667.61	INV. IN = 663.61 INV. IN = 663.61	INV. OUT =663.61	SINGLE INLET
ST-E10A	RIM = 667.61 TOP = 667.61	INV. IN = 663.36	INV. OUT =663.36	SINGLE INLET
ST-E11	RIM = 664.57 TOP = 664.57	INV. IN = 660.32	INV. OUT =660.32	SINGLE INLET
ST-E11A	RIM = 664.57 TOP = 664.57	INV. IN = 660.57	INV. OUT =660.57	SINGLE INLET
ST-E12	RIM = 656.61 TOP = 656.61	INV. IN = 652.11 INV. IN = 652.11	INV. OUT =652.11	SINGLE INLET
ST-E12A	RIM = 656.62 TOP = 656.62	INV. IN = 652.62	INV. OUT =652.62	SINGLE INLET
ST-E13	RIM = 680.87 TOP = 680.87	INV. IN = 673.82	INV. OUT =673.82	SINGLE INLET

STRUCTURE TABLE				
STRUCTURE NAME	DETAILS	PIPES IN	PIPES OUT	STRUCTURE
ST-E13A	RIM = 680.87 TOP = 680.87	INV. IN = 673.57	INV. OUT =673.57	SINGLE INLET
ST-E14	RIM = 670.59 TOP = 670.59	INV. IN = 666.59	INV. OUT =666.59	SINGLE INLET
ST-E15	RIM = 680.21 TOP = 680.21	INV. IN = 675.96	INV. OUT =675.96	SINGLE INLET
ST-E15A	RIM = 680.21 TOP = 680.21		INV. OUT =676.21	SINGLE INLET
ST-E16	RIM = 681.44 TOP = 681.44		INV. OUT =677.44	SINGLE INLET
ST-E17	RIM = 680.34 TOP = 680.34	INV. IN = 676.09 INV. IN = 676.09	INV. OUT =676.09	SINGLE INLET
ST-E17A	RIM = 680.34 TOP = 680.34		INV. OUT =676.34	SINGLE INLET
ST-E18	RIM = 680.15 TOP = 680.15	INV. IN = 675.11 INV. IN = 675.11	INV. OUT =675.11	DOUBLE INLET
ST-E18A	RIM = 679.54 TOP = 679.54	INV. IN = 674.86	INV. OUT =674.86	SINGLE INLET
ST-E18B	RIM = 680.54 TOP = 680.54		INV. OUT =676.19	SINGLE INLET
ST-E19	RIM = 682.14 TOP = 682.14		INV. OUT =678.14	SINGLE INLET
ST-E20	RIM = 681.32 TOP = 681.32	INV. IN = 676.18	INV. OUT =676.18	SINGLE INLET
ST-E20A	RIM = 680.14 TOP = 680.14	INV. IN = 676.53	INV. OUT =676.53	SINGLE INLET
ST-E20B	RIM = 682.00 TOP = 682.00		INV. OUT =678.00	AREA DRAIN
ST-E21	RIM = 679.35 TOP = 679.35	INV. IN = 675.35 INV. IN = 675.35	INV. OUT =675.35	SINGLE INLET
ST-E21A	RIM = 679.35 TOP = 679.35	INV. IN = 675.10	INV. OUT =675.10	SINGLE INLET
ST-E22	RIM = 677.48 TOP = 677.48	INV. IN = 673.23 INV. IN = 673.23	INV. OUT =673.23	SINGLE INLET
ST-E22A	RIM = 677.48 TOP = 677.48		INV. OUT =673.48	SINGLE INLET
ST-E23	RIM = 694.16 TOP = 694.16	INV. IN = 689.91	INV. OUT =689.91	SINGLE INLET
ST-E23A	RIM = 694.16 TOP = 694.16		INV. OUT =690.16	SINGLE INLET
ST-E24	RIM = 690.09 TOP = 690.09	INV. IN = 686.09	INV. OUT =686.09	SINGLE INLET
ST-E25	RIM = 687.61 TOP = 687.61	INV. IN = 683.36 INV. IN = 683.36	INV. OUT =683.36	SINGLE INLET
ST-E25A	RIM = 687.61 TOP = 687.61	INV. IN = 683.61	INV. OUT =683.61	SINGLE INLET
ST-E26	RIM = 683.63 TOP = 683.63	INV. IN = 679.63	INV. OUT =679.63	SINGLE INLET
ST-E27	RIM = 680.57 TOP = 680.57	INV. IN = 676.57	INV. OUT =676.57	SINGLE INLET

PIPE TABLE			
NAME	SIZE	LENGTH	SLOPE
RISER-1A TO HW-1A	18" Reinforced Concrete Pipe	56.80	1.00%
RISER-2A TO HW-2A	18" Reinforced Concrete Pipe	258.10	1.00%
RISER-2C TO HW-2C	18" Reinforced Concrete Pipe	189.97	1.00%

PIPE TABLE			
NAME	SIZE	LENGTH	SLOPE
ST-A1 TO ST-A2B	18" Reinforced Concrete Pipe	76.87	1.00%
ST-A1A TO ST-A1	18" Reinforced Concrete Pipe	24.17	1.00%
ST-A2 TO ST-A3	18" Reinforced Concrete Pipe	99.35	1.68%
ST-A2A TO ST-A2	18" Reinforced Concrete Pipe	24.20	1.38%
ST-A2B TO ST-A2	18" Reinforced Concrete Pipe	80.91	1.00%
ST-A3 TO ST-A4	18" Reinforced Concrete Pipe	96.12	2.95%
ST-A4 TO ST-A5	18" Reinforced Concrete Pipe	53.55	1.00%
ST-A4A TO ST-A4	18" Reinforced Concrete Pipe	24.17	1.00%
ST-A5 TO ST-A5A	18" Reinforced Concrete Pipe	24.17	1.00%
ST-A6 TO ST-A6B	18" Reinforced Concrete Pipe	131.76	9.08%
ST-A6B TO ST-A6	24" Reinforced Concrete Pipe	119.07	1.00%
ST-A6C TO HW-A1	24" Reinforced Concrete Pipe	57.78	9.00%
ST-A5D TO ST-A6B	24" Reinforced Concrete Pipe	183.04	1.00%
ST-A6 TO ST-A6A	18" Reinforced Concrete Pipe	44.19	1.00%
ST-A7 TO ST-A8	18" Reinforced Concrete Pipe	150.04	2.14%
ST-A7A TO ST-A7	18" Reinforced Concrete Pipe	24.23	1.00%
ST-A8 TO ST-A5	18" Reinforced Concrete Pipe	94.63	1.46%



HYDRANT FLOW ANALYSIS



HYDRANT # & LOCATION: Cobbler Court DATE: 11/1/2022
MODEL BY: Inflo Design Group, LLC SYS. DEMAND Max Day DURATION: 2 hrs
WATER SUPPLIED BY: Columbia Power and Water Systems
PURPOSE OF TEST: Summit at Carters Station

MODEL DATA

FLOW HYDRANT(S) 0 n/a n/a
GPM: 1000 0 0
TOTAL FLOW DURING SIMULATION: 1000 GPM

GAUGE HYDRANT

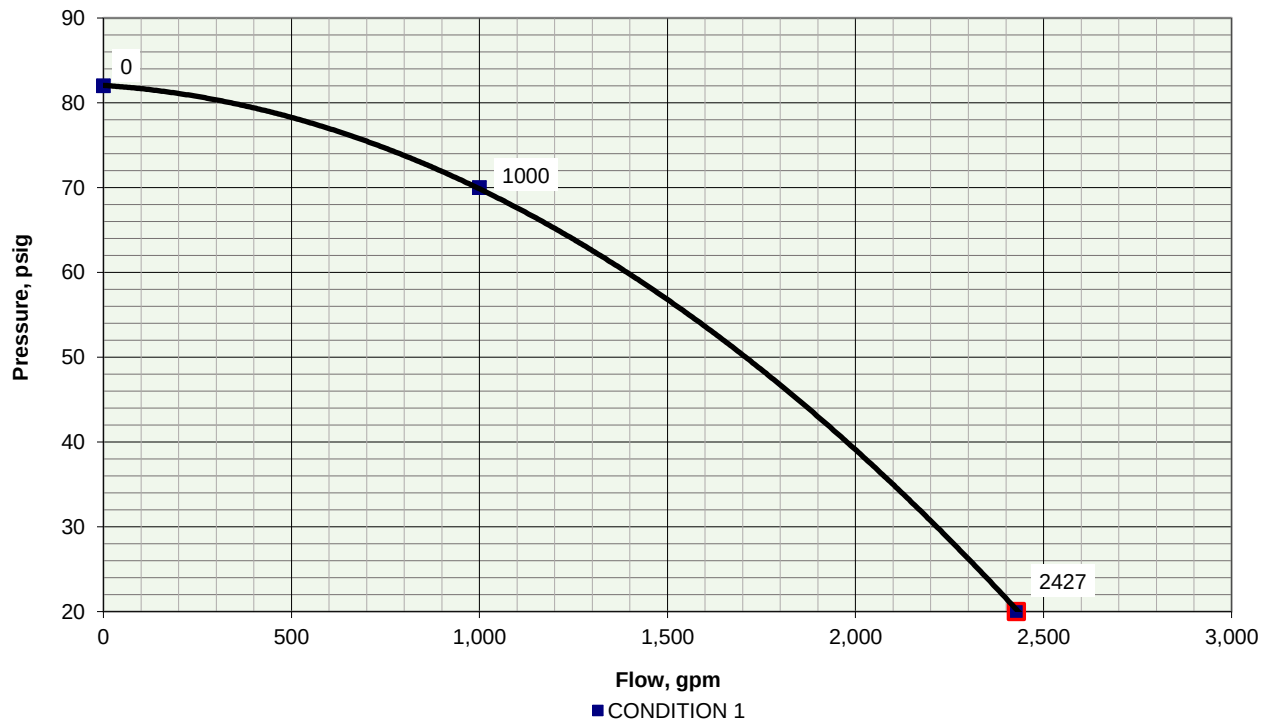
HYDRANT # & LOCATION: Stone Creek Pass

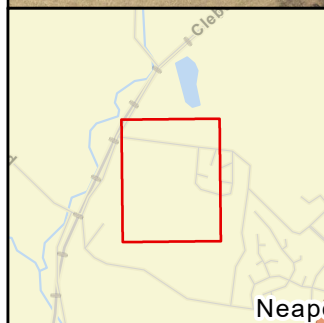
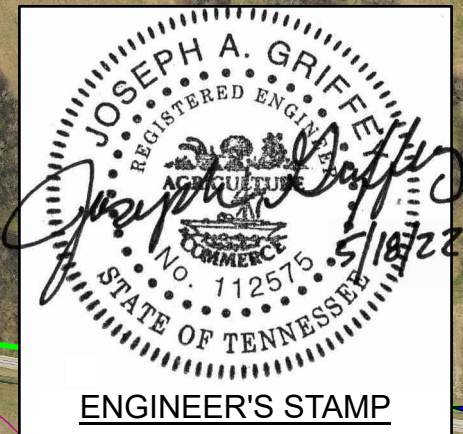
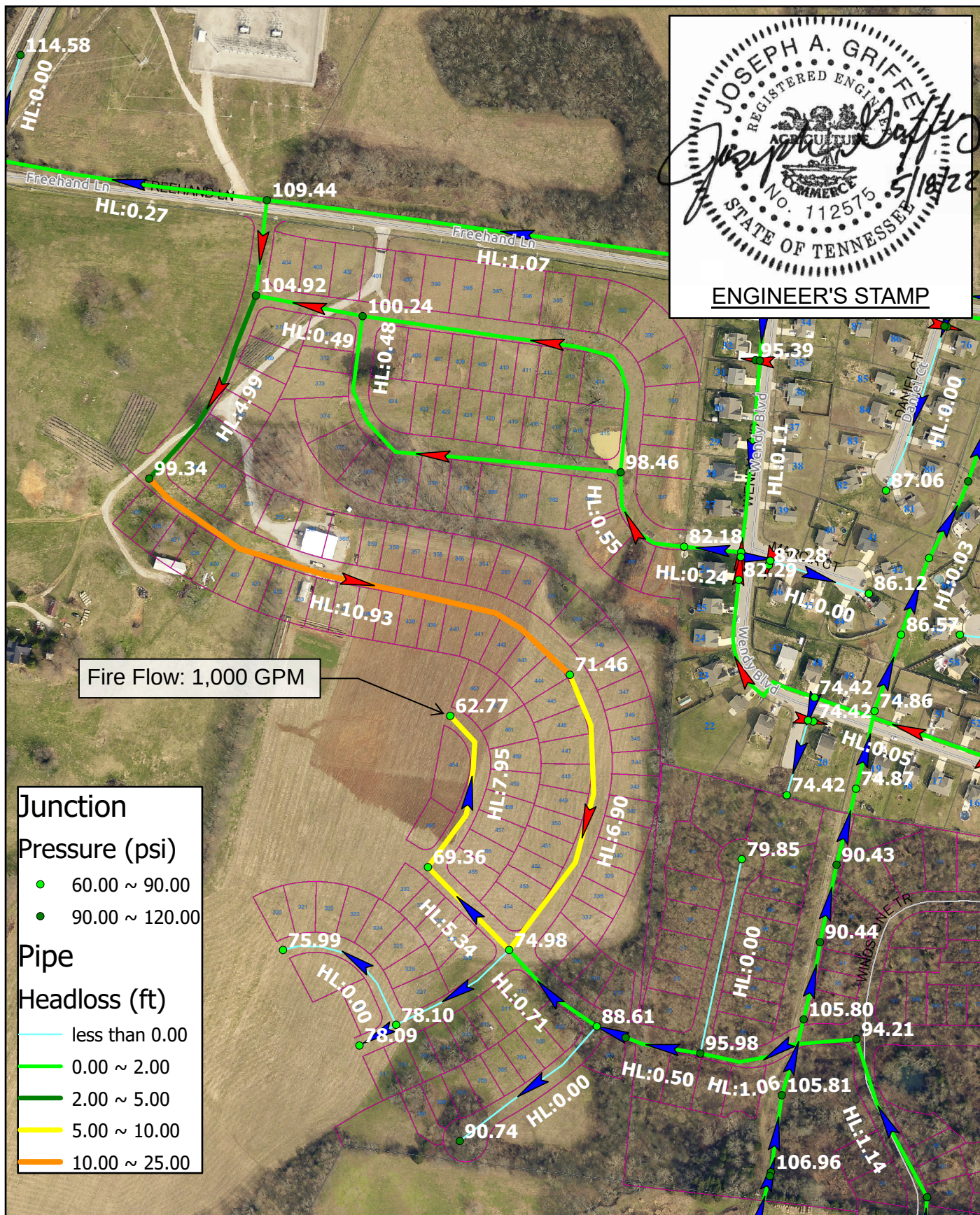
CONDITION 1
STATIC 82 PSI RESIDUAL: 70 PSI
CONDITION 2
STATIC PSI RESIDUAL: PSI

RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 2427 GPM
CONDITION 2 --- GPM

REMARKS: Performance based on service elevation of 725' and current CPWS water infrastructure and do not account for additional losses associated with development piping.



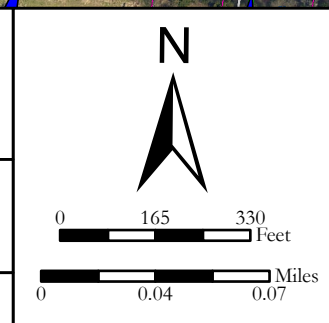


Hydraulic Calculations
Summit at Carter's Station
Pressure and Head Loss @ Fire Flow

Esri Community Maps Contributors, Tennessee STS GIS, ©
 OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph,
 GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census
 Bureau, USDA, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc,
 METI/NASA, USGS, EPA, NPS, USDA

2022

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet



Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20____, ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Tamarack Land -- Carter's Station, LLC, the DEVELOPER (hereinafter the "DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20____, ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS"); and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost; and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council approval by resolution, and subject to the applicant's compliance with all requirements in this agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELOPER's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

- A. The Preliminary Plat has been approved by the CMPC;
- B. The Construction Plans are approved by the CITY;
- C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
- D. The CITY shall have received an appropriately executed Development Agreement; and
- E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Summit at Carter's Station, Phase 1 PROJECT	
<i>Completed by the Developer</i>	<i>Completed by the City</i>
<u>Tamarack Land -- Carter's Station LLC</u> DEVELOPER NAME	
<u>Jeff Leone</u> AUTHORIZED AGENT NAME	
 SIGNATURE	 CITY ENGINEER
 DATE	 SIGNATURE
 STREET	 DATE
 CITY, STATE, ZIP	
 PHONE	
 EMAIL	
 <i>Attest</i>	 <i>Attest</i>
 ATTEST NAME	 ATTEST NAME
 ATTEST SIGNATURE	 ATTEST SIGNATURE
 DATE	 DATE



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*

Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	Freehand Road		
	TAX MAP: 42	GROUP:	PARCEL: 035.00
SUMMARY OF NATURE OF REQUEST AND WORK	We are requesting the approval of a final plat for 59 single family lots in phase 1 of Summit at Carter's Station.		

DATE OF PRE-APPLICATION CONFERENCE	4/28/22	<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	---------	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other: <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) <u>Summit at Carter's Station, Phase 1</u> ☒ Total Number of Lots <u>58</u> ☒ Total acreage <u>20.62</u>

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Allison Baldwin	PHONE	615.678.8212
ADDRESS	1329 West Main Street, Franklin, TN	EMAIL	Allison.Baldwin@T2-Eng.com

PROPERTY OWNER NAME		PHONE	
ADDRESS		EMAIL	

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>Allison Baldwin</u> APPLICANT NAME	<u>Allison Baldwin</u> APPLICANT SIGNATURE	<u>11/21/22</u> DATE
<u>Tamarack Land - Carter's Station, LLC</u> PROPERTY OWNER NAME	<u>Jeff Leone</u> PROPERTY OWNER SIGNATURE	<u>11/10/22</u> DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

LEGAL DESCRIPTION OF PROPERTY:
LEGAL DESCRIPTION
FOR PART OF MAP 90, PARCEL 12.01
DEED BOOK R2051, PAGE 792
BIG BEAR BLUFFS, LLC

LAND LYING IN THE 4TH CIVIL DISTRICT OF MAURY COUNTY, TENNESSEE, BOUNDED ON THE NORTH BY BEAR CREEK PIKE, ROCK N' ROLL JESUS, LLC, AS OF RECORD IN DEED BOOK R2727, PAGE 1242 OF THE REGISTER'S OFFICE OF MAURY COUNTY, TENNESSEE (ROMCTN); AMT. J. PATEL AND WIFE, MINAIBEN S. PATEL AS OF RECORD IN DEED BOOK R2411, PAGE 1348, ROMCTN, LENA ELLEN CRAIG AS OF RECORD IN DEED BOOK R1445, PAGE 168, ROMCTN, ON THE EAST BY JEFFERY L. HEAD AND ROSE HEAD, WIFE & HUSBAND AS OF RECORD IN DEED BOOK R2230, PAGE 388, ROMCTN, STEVEN CHARLES FOSTER AND REBECCA JANE FOSTER, HUSBAND & WIFE AS OF RECORD IN DEED BOOK R2497, PAGE 1304, ROMCTN, BARRY C. BLACKBURN, TRUSTEE FOR BARRY C. BLACKBURN REVOCABLE TRUST AS OF RECORD IN DEED BOOK R2233, PAGE 375, ROMCTN, BRENT W. THORNTON AND WIFE TERRI L. THORNTON AS OF RECORD IN DEED BOOK R2096, PAGE 766, ROMCTN, CALVIN DEAN JOHNSON FORMERLY CARL JOHNSON AND WIFE, BARBARA D. JOHNSON AS OF RECORD IN DEED BOOK R2173, PAGE 542, ROMCTN, AND CALVIN DEAN JOHNSON AND WIFE SHERYL GAY JOHNSON AS OF RECORD IN DEED BOOK R747, PAGE 602, ROMCTN; ON THE SOUTH BY IRON BRIDGE ROAD; AND ON THE WEST BY JIMMY MATHEWS AS OF RECORD IN DEED BOOK 131.1, PAGE 80, DAVID LUNN HARRIS, ELUX AS OF RECORD IN DEED BOOK R2173, PAGE 1148, ROMCTN, DUCK RIVER, AND MARK A. SEAGO AND WIFE TINA SEAGO AS OF RECORD DEED BOOK R2369, PAGE 973 ROMCTN; AND CONTINUED TO THE NORTH BY MIKE BIKES AS OF RECORD IN DEED BOOK R1884, PAGE 1082, DWAYNE SAM GOODMAN AS OF RECORD IN DEED BOOK R2732, PAGE 1288, DWAYNE SAM GOODMAN AS OF RECORD IN DEED BOOK R2775, PAGE 580 AND DWAYNE SAM GOODMAN AS OF RECORD IN DEED BOOK R2775, PAGE 20 AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE TRUE POINT OF BEGINNING, BEGIN AT AN IRON PIN FOUND IN THE SOUTHERN ROW OF BEAR CREEK PIKE, SAID POINT ALSO BEING THE NORTHWEST BOUNDARY OF ROCK N' ROLL JESUS, LLC (BK R2727, PG. 1242) AND HAVING A TENNESSEE STATE PLANE COORDINATE OF NORTH 475.793.95 EAST 1.672,944.21.

THENCE, WITH THE WEST BOUNDARY OF JESUS, THE FOLLOWING CALLS:

S 08°01'16" W, FOR A DISTANCE OF 269.51 FEET, TO AN IRON PIN FOUND;
S 21°32'47" E, FOR A DISTANCE OF 51.20 FEET TO A FENCE POST FOUND AT THE SOUTHWEST CORNER OF ROCK N' ROLL JESUS THE TRUE POINT OF BEGINNING.

THENCE, WITH THE SOUTH BOUNDARY OF JESUS, PATEL AND CRAIG, THE FOLLOWING CALLS:

N 85°53'31" E, FOR A DISTANCE OF 393.35 FEET TO A FENCE POST FOUND; THENCE S 51°55'4" W, 94.04 FEET TO A POINT; THENCE LEAVING THE LINE OF CRAIG, BY A CURVE, TO THE RIGHT, HAVING A RADIUS OF 565.00 FEET, AN ARC DISTANCE OF 326.88 FEET, A CHORD BEARING OF S21°50'21" W, A CHORD DISTANCE OF 322.34 FEET. THENCE S 51°35'19" E, 70.00 FEET TO A POINT; THENCE BY A CURVE TO THE RIGHT, HAVING A RADIUS OF 636.00 FEET, AN ARC DISTANCE OF 83.08 FEET, A CHORD BEARING OF S 42°09'38" W, A CHORD DISTANCE OF 83.00 FEET. THENCE ALONG MCKAYS BRANCH THE FOLLOWING CALLS:

S 22°22'21" E, FOR A DISTANCE OF 13.80 FEET.
S 24°52'17" E, FOR A DISTANCE OF 2.84 FEET.
S 25°09'11" E, FOR A DISTANCE OF 6.77 FEET.

S 21°49'19" E, FOR A DISTANCE OF 5.30 FEET.
S 25°10'43" E, FOR A DISTANCE OF 5.47 FEET.
S 26°22'06" E, FOR A DISTANCE OF 4.21 FEET.
S 27°33'58" E, FOR A DISTANCE OF 9.74 FEET.
S 28°46'51" E, FOR A DISTANCE OF 8.08 FEET.
S 32°53'03" E, FOR A DISTANCE OF 4.74 FEET.
S 41°19'44" E, FOR A DISTANCE OF 5.90 FEET.
S 40°46'27" E, FOR A DISTANCE OF 5.79 FEET.
S 36°45'50" E, FOR A DISTANCE OF 16.29 FEET.
S 37°37'43" E, FOR A DISTANCE OF 3.46 FEET.
S 33°54'07" E, FOR A DISTANCE OF 20.78 FEET.
S 35°38'45" E, FOR A DISTANCE OF 8.21 FEET.
S 31°06'58" E, FOR A DISTANCE OF 5.96 FEET.
S 28°32'05" E, FOR A DISTANCE OF 8.96 FEET.
S 29°50'20" E, FOR A DISTANCE OF 4.81 FEET.
S 32°48'26" E, FOR A DISTANCE OF 16.84 FEET.
S 31°18'55" E, FOR A DISTANCE OF 8.66 FEET.
S 30°24'03" E, FOR A DISTANCE OF 7.81 FEET.
S 34°19'28" E, FOR A DISTANCE OF 10.59 FEET.
S 32°40'37" E, FOR A DISTANCE OF 3.54 FEET.
S 34°42'00" E, FOR A DISTANCE OF 8.02 FEET.
S 32°40'11" E, FOR A DISTANCE OF 5.60 FEET.
S 29°06'57" E, FOR A DISTANCE OF 16.34 FEET.
S 28°07'58" E, FOR A DISTANCE OF 6.51 FEET.
S 31°05'16" E, FOR A DISTANCE OF 7.00 FEET.
S 34°40'32" E, FOR A DISTANCE OF 21.26 FEET.
S 38°12'07" E, FOR A DISTANCE OF 9.90 FEET.
S 39°17'19" E, FOR A DISTANCE OF 15.05 FEET.
S 33°12'19" E, FOR A DISTANCE OF 18.77 FEET.
S 33°38'11" E, FOR A DISTANCE OF 38.72 FEET.
S 33°18'43" E, FOR A DISTANCE OF 11.72 FEET.
S 38°23'46" E, FOR A DISTANCE OF 14.08 FEET.
S 43°48'36" E, FOR A DISTANCE OF 24.72 FEET.
S 41°52'11" E, FOR A DISTANCE OF 34.28 FEET.
S 40°01'57" E, FOR A DISTANCE OF 19.66 FEET.
S 38°07'58" E, FOR A DISTANCE OF 23.10 FEET.
S 39°38'43" E, FOR A DISTANCE OF 14.08 FEET.
S 38°46'51" E, FOR A DISTANCE OF 14.70 FEET.

S 37°33'28" E, FOR A DISTANCE OF 8.89 FEET.
S 33°50'53" E, FOR A DISTANCE OF 10.09 FEET.
S 30°22'32" E, FOR A DISTANCE OF 13.44 FEET.
S 32°38'45" E, FOR A DISTANCE OF 8.47 FEET.
S 44°09'38" E, FOR A DISTANCE OF 14.88 FEET.
S 44°05'27" E, FOR A DISTANCE OF 24.91 FEET.
S 39°06'13" E, FOR A DISTANCE OF 12.02 FEET.
S 27°00'37" E, FOR A DISTANCE OF 17.44 FEET.
S 26°57'14" E, FOR A DISTANCE OF 18.86 FEET.
S 21°58'48" E, FOR A DISTANCE OF 19.16 FEET.
S 22°54'41" E, FOR A DISTANCE OF 6.60 FEET.
S 17°06'08" E, FOR A DISTANCE OF 50.02 FEET.
S 23°40'02" E, FOR A DISTANCE OF 12.35 FEET.
S 21°26'04" E, FOR A DISTANCE OF 8.40 FEET.
S 19°23'38" E, FOR A DISTANCE OF 4.70 FEET.
S 24°26'21" E, FOR A DISTANCE OF 13.63 FEET.
S 34°17'03" E, FOR A DISTANCE OF 7.49 FEET.
S 28°18'04" E, FOR A DISTANCE OF 11.26 FEET.
S 25°37'38" E, FOR A DISTANCE OF 12.87 FEET.
S 29°40'26" E, FOR A DISTANCE OF 19.38 FEET.
S 32°21'41" E, FOR A DISTANCE OF 9.25 FEET.
S 28°32'02" E, FOR A DISTANCE OF 22.01 FEET.
S 26°23'54" E, FOR A DISTANCE OF 19.17 FEET.
S 39°31'19" E, FOR A DISTANCE OF 19.10 FEET.
S 35°12'48" E, FOR A DISTANCE OF 19.56 FEET.
S 33°29'34" E, FOR A DISTANCE OF 7.00 FEET.
S 32°09'24" E, FOR A DISTANCE OF 10.18 FEET.
S 31°07'58" E, FOR A DISTANCE OF 9.27 FEET.
S 40°53'39" E, FOR A DISTANCE OF 15.42 FEET.
S 0°53'17" E, FOR A DISTANCE OF 118.33 FEET.
S 30°52'05" E, FOR A DISTANCE OF 36.69 FEET.

S 17°15'39" E, FOR A DISTANCE OF 254.66 FEET TO FENCE CORNER 6" ROTTED HACKBERRY FENCE POST TO THE SOUTHWEST CORNER OF HEAD.

THENCE, WITH THE WEST BOUNDARY OF FOSTER, THE FOLLOWING CALLS:

S 54°11'15" W, FOR A DISTANCE OF 100.29 FEET TO FENCE CORNER 6" ROTTED HACKBERRY FENCE POST;
S 21°53'18" E, FOR A DISTANCE OF 130.86 FEET TO FENCE LINE CEDAR FENCE POST;
S 17°11'57" E, FOR A DISTANCE OF 221.38 FEET TO FENCE LINE 12" ELM;
S 23°46'07" E, FOR A DISTANCE OF 240.86 FEET TO FENCE LINE TPOST TAGGED;
S 37°24'05" E, FOR A DISTANCE OF 315.73 FEET TO FENCE LINE 14" BROKEN ELM;
S 50°37'42" E, FOR A DISTANCE OF 91.73 FEET TO FENCE LINE 60" TWIN OAK;
S 28°58'39" W, FOR A DISTANCE OF 35.62 FEET TO FENCE LINE 60" OAK;
S 40°35'26" W, FOR A DISTANCE OF 9.08 FEET TO FENCE LINE TPOST TAGGED;
S 42°52'20" E, FOR A DISTANCE OF 62.79 FEET TO A FENCE POST FOUND;
S 1°50'17" W, FOR A DISTANCE OF 30.25 FEET TO FENCE LINE TPOST TAGGED;
S 23°53'47" W, FOR A DISTANCE OF 42.59 FEET TO FENCE LINE 14" HACKBERRY;
S 11°25'58" W, FOR A DISTANCE OF 117.73 FEET TO FENCE LINE TPOST TAGGED;
S 2°03'52" W, FOR A DISTANCE OF 130.34 FEET TO FENCE LINE ROTTED HACKBERRY;
S 9°12'29" W, FOR A DISTANCE OF 87.18 FEET FENCE POST FENCE LINE INTERSECTION;
S 33°56'58" W, FOR A DISTANCE OF 89.94 FEET TO FENCE POST 30" HACKBERRY;
S 61°19'46" E, FOR A DISTANCE OF 54.74 FEET TO FENCE POST 24" HACKBERRY;
S 70°11'17" E, FOR A DISTANCE OF 34.53 FEET TO FENCE POST 12" CEDAR POST FLAGGED AT THE SOUTH WEST CORNER OF FOSTER;

THENCE, WITH THE WEST BOUNDARY OF BLACKBURN, THE FOLLOWING CALLS:

S 25°13'18" W, FOR A DISTANCE OF 228.44 FEET TO FENCE LINE 36" HACKBERRY;
S 7°06'46" W, FOR A DISTANCE OF 177.84 FEET TO FENCE LINE 8" DOGWOOD;
S 0°16'28" W, FOR A DISTANCE OF 41.40 FEET TO FENCE LINE 24" HACKBERRY FLAGGED;
S 8°53'22" E, FOR A DISTANCE OF 173.37 FEET TO FENCE LINE TPOST TAGGED;
S 60°40'30" E, FOR A DISTANCE OF 13.02 FEET TO FENCE POST 6" TREE;
S 39°18'12" W, FOR A DISTANCE OF 34.16 FEET TO FENCE POST FOUND;
S 1°12'18" E, FOR A DISTANCE OF 95.58 FEET TO FENCE POST 12" OSAGE;
S 7°58'27" W, FOR A DISTANCE OF 43.94 FEET TO FENCE POST 6" ROTTED TREE;
S 15°41'30" W, FOR A DISTANCE OF 13.75 FEET TO A FENCE POST 6" TREE USED AS FENCE POST;
S 38°17'00" W, FOR A DISTANCE OF 100.34 FEET TO FENCE POST 14" ROTTEN CEDAR;
S 84°35'04" W, FOR A DISTANCE OF 173.30 FEET TO FENCE CORNER PK FOUND;
S 9°48'35" W, FOR A DISTANCE OF 1187.84 FEET TO FENCE POST FOUND;
S 4°03'46" W, FOR A DISTANCE OF 112.86 FEET TO 24" CEDAR;
S 12°22'22" W, FOR A DISTANCE OF 465.96 FEET TO 1" PIPE IRON PIN FOUND.

THENCE, WITH THE WEST BOUNDARY OF BLACKBURN AND CONTINUING TO THORNTON, THE FOLLOWING CALLS:

S 8°47'49" W, FOR A DISTANCE OF 411.13 FEET TO 1" PIPE IRON PIN FOUND.

THENCE, WITH THE WEST BOUNDARY THORNTON, THE FOLLOWING CALLS:

S 13°09'41" W, FOR A DISTANCE OF 759.59 FEET TO 1" PIPE IRON PIN FOUND;
S 21°10'50" W, FOR A DISTANCE OF 265.00 FEET TO 1" PIPE FENCE CORNER AT THE SOUTHWEST CORNER OF THORNTON.

THENCE, WITH THE NORTH BOUNDARY OF JOHNSON, THE FOLLOWING CALLS:

N 82°44'49" W, FOR A DISTANCE OF 800.97 FEET TO 1" PIPE IRON PIN FOUND;
N 78°43'22" W, FOR A DISTANCE OF 130.34 FEET TO FENCE POST IRON PIN FOUND.

THENCE, WITH THE WEST BOUNDARY OF JOHNSON, THE FOLLOWING CALLS:

S 5°32'34" W, FOR A DISTANCE OF 375.75 FEET TO 1" PIPE IRON PIN FOUND;
S 4°27'28" W, FOR A DISTANCE OF 508.55 FEET TO FENCE POST FOUND;
S 3°32'19" W, FOR A DISTANCE OF 523.31 FEET TO IRON PIN FOUND AT THE SOUTHWEST CORNER OF THORNTON.

THENCE, WITH THE NORTH BOUNDARY OF IRON BRIDGE ROAD RIGHT-OF-WAY, THE FOLLOWING CALLS:

N 82°45'55" W, FOR A DISTANCE OF 501.29 FEET TO AN 5/8" ROD IRON PIN FOUND;
N 82°46'20" W, FOR A DISTANCE OF 525.64 FEET TO RAILROAD SPIKE PK FOUND;
N 83°23'15" W, FOR A DISTANCE OF 396.04 FEET TO 5/8" ROD IRON PIN FOUND AT NORTHWEST CORNER OF RIGHT-OF-WAY.

THENCE, WITH THE EAST BOUNDARY OF MATHEWS, HARRIS AND DUCK RIVER, THE FOLLOWING CALLS:

N 8°06'23" E, FOR A DISTANCE OF 664.54 FEET TO IRON PIN FOUND;
N 16°56'08" E, FOR A DISTANCE OF 479.23 FEET TO FENCE POST FOUND;
N 48°46'57" E, FOR A DISTANCE OF 312.04 FEET TO FENCE POST FOUND;
N 44°09'58" E, FOR A DISTANCE OF 600.70 FEET TO FENCE POST FOUND;
N 38°27'00" E, FOR A DISTANCE OF 305.02 FEET TO FENCE POST FOUND;
N 27°21'22" E, FOR A DISTANCE OF 264.82 FEET TO FENCE POST FOUND;
N 26°51'38" E, FOR A DISTANCE OF 301.40 FEET TO 1" PIPE IRON PIN FOUND;
N 15°43'20" W, FOR A DISTANCE OF 197.42 FEET TO FENCE POST FOUND;
N 18°21'24" W, FOR A DISTANCE OF 744.16 FEET TO FENCE POST FOUND;
N 21°56'04" W, FOR A DISTANCE OF 631.16 FEET TO FENCE POST FOUND;
N 23°44'52" W, FOR A DISTANCE OF 409.10 FEET TO FENCE POST FOUND;
N 32°48'41" W, FOR A DISTANCE OF 296.98 FEET TO FENCE POST FOUND;
N 27°28'08" W, FOR A DISTANCE OF 632.36 FEET TO FENCE POST FOUND.

THENCE, DIRECTING RIGHT AWAY FROM DUCK RIVER TO THE SOUTH AND EAST BOUNDARY OF SEAGO, THE FOLLOWING CALLS:

N 85°09'29" E, FOR A DISTANCE OF 22.00 FEET TO FENCE POST FOUND;
N 81°22'36" E, FOR A DISTANCE OF 109.60 FEET TO 4" DEAD CEDAR AND FENCE POST FOUND;
N 87°28'25" E, FOR A DISTANCE OF 42.46 FEET TO 36" OAK;
N 48°08'47" E, FOR A DISTANCE OF 244.67 FEET TO FENCE POST FOUND;
N 49°53'38" E, FOR A DISTANCE OF 291.18 FEET TO 10" HACKBERRY AND 8" CEDAR;
N 49°46'26" E, FOR A DISTANCE OF 367.28 FEET TO 1" PIPE IRON PIN FOUND;
N 55°27'24" W, FOR A DISTANCE OF 350.42 FEET TO FENCE POST FOUND;
N 28°16'23" W, FOR A DISTANCE OF 411.36 FEET TO 1" PIPE IRON PIN FOUND;
N 01°17'30" E, FOR A DISTANCE OF 223.84 FEET TO FENCE POST IRON PIN FOUND;
N 39°56'42" W, FOR A DISTANCE OF 228.86 FEET TO IRON PIN FOUND;
N 16°17'40" E, FOR A DISTANCE OF 158.31 FEET TO FENCE POST FOUND;
N 24°10'58" E, FOR A DISTANCE OF 62.03 FEET TO FENCE POST FOUND;
N 23°26'46" E, FOR A DISTANCE OF 28.14 FEET TO 1" PIPE IRON PIN FENCE POST FOUND;
N 19°40'08" E, FOR A DISTANCE OF 67.72 FEET TO 12" CEDAR;
N 30°15'58" E, FOR A DISTANCE OF 125.71 FEET TO FENCE POST FOUND;
N 32°10'27" E, FOR A DISTANCE OF 87.69 FEET TO FENCE POST FOUND;
N 33°44'57" E, FOR A DISTANCE OF 105.82 FEET TO 1" PIPE IRON PIN FOUND;
N 31°11'17" W, FOR A DISTANCE OF 116.30 FEET TO FENCE POST FOUND AT THE NORTHEAST CORNER OF SEAGO.

THENCE, ALONG THE SOUTH BOUNDARY OF BIKES, THE FOLLOWING CALLS:

N 75°48'45" E, FOR A DISTANCE OF 280.14 FEET TO FENCE POST FOUND;
N 69°23'51" E, FOR A DISTANCE OF 281.90 FEET TO FENCE POST FOUND AT THE SOUTHEAST CORNER OF BIKES

THENCE, ALONG THE SOUTH AND EAST BOUNDARY OF GOODMAN PROPERTIES (BK R2732, PG. 1288, BK R2775, PG. 580 & BK R2775, PG. 20)

N 63°42'14" E, FOR A DISTANCE OF 199.93 FEET TO FENCE POST FOUND.

THENCE WITH THE APPROXIMATE CENTERLINE OF BEAR CREEK, N 84°41'16" E, 385.81 FEET, THENCE N 75°36'41" E, 141.99 FEET TO A POINT; THENCE N 63°11'05" E, 188.83 FEET; THENCE N 77°31'18" E, 234.79 FEET TO THE TRUE POINT OF BEGINNING CONTAINING 15,960.819.8 SQ. FT. OR 368.41 ACRES MORE OR LESS.

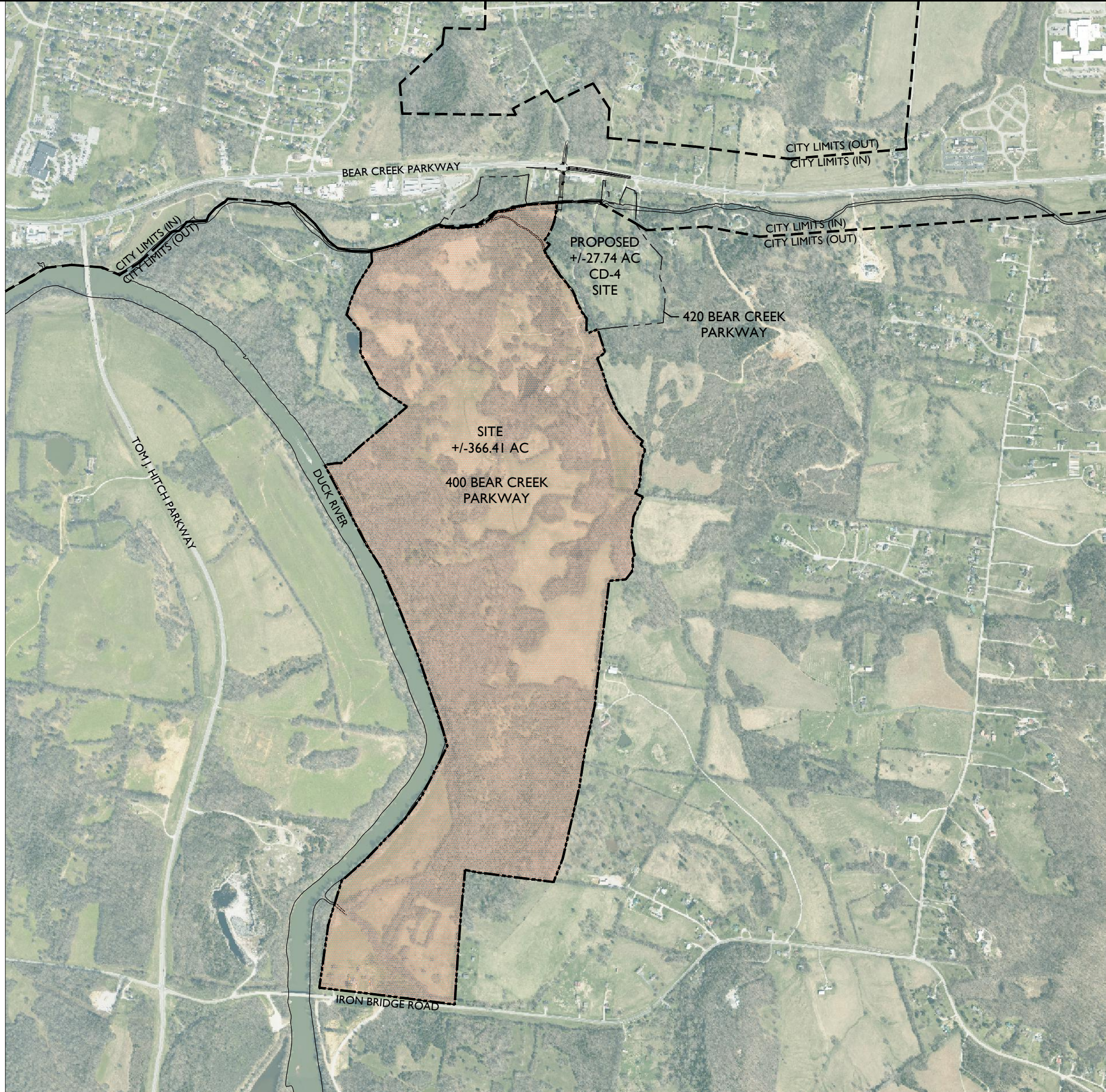
BEING THE SAME PROPERTY CONVEYED TO BIG BEAR BLUFFS, LLC BY DEED OF RECORD IN BOOK R2051, PAGE 792 AND BOOK R2060, PAGE 129 IN THE REGISTER'S OFFICE OF MAURY COUNTY, TENNESSEE.

ANNEXATION AND REZONING REQUEST:

REQUEST TO ANNEX +/-366.41 ACRES AND REZONE TO CD-3
FUTURE LAND USE: SUBURBAN NEIGHBORHOOD

PER CONNECT COLUMBIA, THE SUBURBAN NEIGHBORHOOD DISTRICT IS TO ENHANCE SUBURBAN NEIGHBORHOODS AND CREATE NEW SUBURBAN NEIGHBORHOODS THAT WILL IMPROVE THE QUALITY OF LIFE IN COLUMBIA, WITH AN INCREASED SENSE OF PLACE AND A MORE INTERCONNECTED COMMUNITY.

THE CONCEPTUAL DEVELOPMENT PLAN PROPOSES SINGLE FAMILY DETACHED RESIDENTIAL HOMES AND CIVIC/OPEN SPACES CONSISTENT WITH CD-3 ZONING. CD-3 ZONING IS COMPATIBLE WITH THE SUBURBAN NEIGHBORHOOD LAND USE DISTRICT. SIDEWALKS AND WALKING TRAILS WILL PROVIDE PEDESTRIAN CONNECTIVITY THROUGH THE NEIGHBORHOOD. WITH COMPLETION OF THE NEIGHBORHOOD, A ROADWAY CONNECTION WILL EXTEND FROM BEAR CREEK PARKWAY TO IRON BRIDGE ROAD.



LOCATION MAP

PROJECT INFORMATION:

PARCEL: MAP 90 PORTION PARCELS 01600 & 01201
ADDRESS: 420 & 400 BEAR CREEK PARKWAY

AREA OF ANNEXATION REQUEST: 366.41 ACS
LAND USE MAP: SUBURBAN NEIGHBORHOOD

REQUESTED ZONING: CD-3

CONTACT:

APPLICANT/LANDSCAPE ARCHITECT:
GREG GAMBLE OR KELI FRYMIRE
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37069
615-975-5765
greg.gamble@gdc-tn.com
keli@gdc-tn.com

DEVELOPER:
KOLTER LAND
JOSHUA GIBBS
615-582-3253
jgibbs@kolter.com

CONCEPTUAL DEVELOPMENT PLAN CD-3 DESIGN CRITERIA:

CONCEPTUAL PLAN AREA INCLUDES AREA CURRENTLY IN CITY LIMITS AND NOT INCLUDED IN THIS REZONING REQUEST

GROSS SITE AREA: +/-390.37 AC

DENSITY ALLOWED: 4 DUA

BLOCK PERIMETER: ALL UNDER 2,800 LF

CIVIC SPACE: 19.5 AC MIN (5%) TO 78 AC (20%) MAX.
IN THE FORM OF NATURAL AREAS (8 AC MIN);
GREENS (0.5 AC - 8 AC); PLAYGROUNDS;
COURTYARDS AND POCKET PARKS.

PARKING REQUIRED: 2 SPACES PER HOME
PARKING PROVIDED IN DRIVEWAYS AND GARAGES
LOCATED IN 2ND AND 3RD LAYERS AS WELL AS
ON-STREET IN SELECT LOCATIONS.

TYPICAL SINGLE-FAMILY FRONT LOADED LOT

MINIMUM LOT WIDTH: 65'
MINIMUM LOT DEPTH: 130'
FRONT SETBACK: 25' MIN.
SIDE SETBACK: 8' MIN.
CORNER SETBACK: 20' MIN.
REAR SETBACK: 25' MIN.
PARKING PROVIDED IN GARAGE & DRIVEWAY

TYPICAL SINGLE-FAMILY ALLEY LOADED LOT

MINIMUM LOT WIDTH: 40'
MINIMUM LOT DEPTH: 115'
FRONT SETBACK: 25' MIN.
SIDE SETBACK: 8' MIN.
CORNER SETBACK: 20' MIN.
REAR SETBACK: 5' MIN.
PARKING PROVIDED IN GARAGE & DRIVEWAY
AS WELL AS ON-STREET SPACES

Date: NOVEMBER 20, 2022

Revision Date

△

△

△



400 & 420 BEAR CREEK PARKWAY ANNEXATION, REZONING REQUEST & CONCEPTUAL DEVELOPMENT PLAN

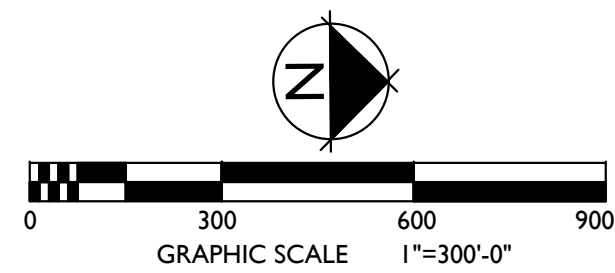


Revision Date _____

CONCEPTUAL
DEVELOPMENT PLAN
SHEET
LI.I



OVERALL CONCEPT DEVELOPMENT PLAN



**LEGAL DESCRIPTION
FOR PART OF MAP 90, PARCEL 12.01
DEED BOOK R2051, PAGE 792
BIG BEAR BLUFFS, LLC**

LAND LYING IN THE 4TH CIVIL DISTRICT OF MAURY COUNTY, TENNESSEE, BOUNDED ON THE NORTH BY BEAR CREEK PIKE, ROCK 'N' ROLL JESUS, LLC, AS OF RECORD IN DEED BOOK R2727, PAGE 1242 OF THE REGISTERS OFFICE OF MAURY COUNTY, TENNESSEE (ROMCTN), AMIT J. PATEL AND WIFE, MINAXIBEN G. PATEL AS OF RECORD IN DEED BOOK R2411, PAGE 1348, ROMCTN, LENA ELLEN CRAIG AS OF RECORD IN DEED BOOK R1445, PAGE 168, ROMCTN, ON THE EAST BY JEFFERY L. HEAD AND ROSE HEAD, WIFE & HUSBAND AS OF RECORD IN DEED BOOK R2230, PAGE 388, ROMCTN, STEVEN CHARLES FOSTER AND REBECCA JANE FOSTER, HUSBAND & WIFE AS OF RECORD IN DEED BOOK R2497, PAGE 1304, ROMCTN, BARRY C. BLACKBURN, TRUSTEE FOR BARRY C. BLACKBURN REVOCABLE TRUST AS OF RECORD IN DEED BOOK R2301, PAGE 1492, ROMCTN, BRENT W. THORNTON AND WIFE TERRI L. THORNTON AS OF RECORD IN DEED BOOK R2096, PAGE 766, ROMCTN, CALVIN DEAN JOHNSON FORMERLY CARL JOHNSON AND WIFE, BARBARA D. JOHNSON AS OF RECORD IN DEED BOOK 375, PAGE 542, ROMCTN, AND CALVIN DEAN JOHNSON AND WIFE SHERYL GAY JOHNSON AS OF RECORD IN DEED BOOK R747, PAGE 602, ROMCTN; ON THE SOUTH BY IRON BRIDGE ROAD; AND ON THE WEST BY JIMMY MATHEWS AS OF RECORD IN DEED BOOK 1311, PAGE 80, DAVID LUNN HARRIS ETUX AS OF RECORD IN DEED BOOK R2173, PAGE 1148, ROMCTN, DUCK RIVER, AND MARK A. SEAGO AND WIFE TINA SEAGO AS OF RECORD DEED BOOK R2369, PAGE 973 ROMCTN; AND CONTINUED TO THE NORTH BY MIKE BIKES AS OF RECORD IN DEED BOOK R1884, PAGE 1082, DWAYNE SAM GOODMAN AS OF RECORD IN DEED BOOK R2732, PAGE 1288, DWAYNE SAM GOODMAN AS OF RECORD IN DEED BOOK R2775, PAGE 580 AND DWAYNE SAM GOODMAN AS OF RECORD IN DEED BOOK R2775, PAGE 20 AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS;

TO FIND THE TRUE POINT OF BEGINNING, BEGIN AT AN IRON PIN FOUND IN THE SOUTHERN ROW OF BEAR CREEK PIKE, SAID POINT ALSO BEING THE NORTHWEST BOUNDARY OF ROCK 'N' ROLL JESUS, LLC (BK R2727, PG 1242) AND HAVING A TENNESSEE STATE PLANE COORDINATE OF NORTH 475,793.95 EAST 1,672,944.21.

THENCE, WITH THE WEST BOUNDARY OF JESUS, THE FOLLOWING CALLS:

S 08°01'16" W, FOR A DISTANCE OF 269.51 FEET, TO AN IRON PIN FOUND;
S 21°32'47" E, FOR A DISTANCE OF 51.20 FEET TO A FENCE POST FOUND AT THE SOUTHWEST CORNER OF ROCK N ROLL JESUS THE TRUE POINT OF BEGINNING.

THENCE, WITH THE SOUTH BOUNDARY OF JESUS, PATEL AND CRAIG, THE FOLLOWING CALLS:

N 85°53'31" E, FOR A DISTANCE OF 393.35 FEET TO A FENCE POST FOUND; THENCE S 5°15'54" W, 94.04 FEET TO A POINT. THENCE LEAVING THE LINE OF CRAIG, BY A CURVE TO THE RIGHT, HAVING A RADIUS OF 565.00 FEET, AN ARC DISTANCE OF 326.88 FEET, A CHORD BEARING OF S21°50'21" W, A CHORD DISTANCE OF 322.34 FEET. THENCE S 51°35'13" E, 70.00 FEET TO A POINT. THENCE BY A CURVE TO THE RIGHT, HAVING A RADIUS OF 635.00 FEET, AN ARC DISTANCE OF 83.06 FEET, A CHORD BEARING OF S 42°09'38" W, A CHORD DISTANCE OF 83.00 FEET.

THENCE ALONG MCKAYS BRANCH THE FOLLOWING CALLS:

S 22°22'17" E FOR A DISTANCE OF 13.60 FEET.
S 24°52'17" E FOR A DISTANCE OF 2.84 FEET.
S 25°09'11" E FOR A DISTANCE OF 6.77 FEET.

S 21°49'19" E FOR A DISTANCE OF 5.30 FEET.
S 25°10'43" E FOR A DISTANCE OF 5.47 FEET.
S 25°22'08" E FOR A DISTANCE OF 4.21 FEET.
S 27°33'58" E FOR A DISTANCE OF 9.74 FEET.
S 26°46'51" E FOR A DISTANCE OF 8.06 FEET.
S 32°53'03" E FOR A DISTANCE OF 4.74 FEET.
S 41°19'44" E FOR A DISTANCE OF 5.90 FEET.
S 40°46'27" E FOR A DISTANCE OF 5.79 FEET.
S 36°54'50" E FOR A DISTANCE OF 18.29 FEET.
S 37°37'43" E FOR A DISTANCE OF 3.46 FEET.
S 33°54'07" E FOR A DISTANCE OF 20.78 FEET.
S 35°38'45" E FOR A DISTANCE OF 8.21 FEET.
S 31°05'56" E FOR A DISTANCE OF 5.96 FEET.
S 28°23'06" E FOR A DISTANCE OF 8.96 FEET.
S 29°50'20" E FOR A DISTANCE OF 4.81 FEET.
S 32°48'26" E FOR A DISTANCE OF 15.84 FEET.
S 31°18'55" E FOR A DISTANCE OF 8.66 FEET.
S 30°24'03" E FOR A DISTANCE OF 7.81 FEET.
S 34°19'28" E FOR A DISTANCE OF 10.59 FEET.
S 32°40'37" E FOR A DISTANCE OF 3.54 FEET.
S 34°32'50" E FOR A DISTANCE OF 9.02 FEET.
S 32°40'11" E FOR A DISTANCE OF 5.60 FEET.
S 29°56'57" E FOR A DISTANCE OF 16.34 FEET.
S 29°57'58" E FOR A DISTANCE OF 6.51 FEET.
S 31°35'16" E FOR A DISTANCE OF 7.00 FEET.
S 34°40'32" E FOR A DISTANCE OF 21.28 FEET.
S 38°12'07" E FOR A DISTANCE OF 9.90 FEET.
S 39°17'19" E FOR A DISTANCE OF 15.05 FEET.
S 33°12'19" E FOR A DISTANCE OF 18.77 FEET.
S 33°36'11" E FOR A DISTANCE OF 39.72 FEET.
S 33°18'43" E FOR A DISTANCE OF 11.72 FEET.
S 38°23'46" E FOR A DISTANCE OF 14.08 FEET.
S 43°48'36" E FOR A DISTANCE OF 24.72 FEET.
S 41°52'17" E FOR A DISTANCE OF 34.26 FEET.
S 40°01'57" E FOR A DISTANCE OF 19.66 FEET.
S 36°07'58" E FOR A DISTANCE OF 23.10 FEET.
S 39°38'43" E FOR A DISTANCE OF 14.08 FEET.
S 38°45'51" E FOR A DISTANCE OF 14.78 FEET.

S 37°33'28" E FOR A DISTANCE OF 8.89 FEET.
S 33°50'53" E FOR A DISTANCE OF 10.09 FEET.
S 30°22'32" E FOR A DISTANCE OF 13.44 FEET.
S 32°36'45" E FOR A DISTANCE OF 8.47 FEET.
S 44°39'35" E FOR A DISTANCE OF 14.65 FEET.

S 44°05'27" E FOR A DISTANCE OF 24.91 FEET.
S 35°56'13" E FOR A DISTANCE OF 12.02 FEET.
S 27°50'37" E FOR A DISTANCE OF 17.44 FEET.
S 26°57'14" E FOR A DISTANCE OF 18.86 FEET.
S 21°58'48" E FOR A DISTANCE OF 19.16 FEET.
S 22°34'41" E FOR A DISTANCE OF 6.60 FEET.
S 17°06'08" E FOR A DISTANCE OF 50.02 FEET.
S 23°40'02" E FOR A DISTANCE OF 12.35 FEET.
S 21°26'04" E FOR A DISTANCE OF 8.40 FEET.
S 18°22'36" E FOR A DISTANCE OF 4.70 FEET.
S 24°26'21" E FOR A DISTANCE OF 13.63 FEET.
S 30°17'03" E FOR A DISTANCE OF 7.49 FEET.
S 28°18'04" E FOR A DISTANCE OF 11.28 FEET.
S 25°37'36" E FOR A DISTANCE OF 12.87 FEET.
S 29°40'26" E FOR A DISTANCE OF 19.38 FEET.
S 32°21'41" E FOR A DISTANCE OF 9.25 FEET.
S 23°32'02" E FOR A DISTANCE OF 22.01 FEET.
S 26° 23'54" E FOR A DISTANCE OF 19.17 FEET.
S 39°31'19" E FOR A DISTANCE OF 19.10 FEET.
S 35°12'48" E FOR A DISTANCE OF 13.58 FEET.
S 33°29'34" E FOR A DISTANCE OF 7.00 FEET.
S 32°09'24" E FOR A DISTANCE OF 10.18 FEET.
S 31°07'58" E FOR A DISTANCE OF 9.27 FEET.
S 40°55'39" E FOR A DISTANCE OF 15.42 FEET.
S 0°53'17" E FOR A DISTANCE OF 118.33 FEET.
S 30°52'05" E FOR A DISTANCE OF 36.69 FEET.

S 17°15'39" E, FOR A DISTANCE OF 254.66 FEET TO FENCE CORNER 6" ROTTED HACKBERRY FENCE POST TO THE SOUTHWEST CORNER OF HEAD.

THENCE, WITH THE WEST BOUNDARY OF FOSTER, THE FOLLOWING CALLS:

S 54°11'15" W, FOR A DISTANCE OF 100.29 FEET TO FENCE CORNER 6" ROTTED HACKBERRY FENCE POST;
S 21°53'18" E, FOR A DISTANCE OF 130.86 FEET TO FENCE LINE CEDAR FENCE POST;
S 17°11'57" E, FOR A DISTANCE OF 221.38 FEET TO FENCE LINE 12" ELM;
S 23°46'07" E, FOR A DISTANCE OF 240.66 FEET TO FENCE LINE TPOST TAGGED;
S 37°24'05" E, FOR A DISTANCE OF 315.73 FEET TO FENCE LINE 14" BROKEN ELM;
S 50°37'42" E, FOR A DISTANCE OF 91.73 FEET TO FENCE LINE 60" TWIN OAK;
S 26°59'39" W, FOR A DISTANCE OF 35.62 FEET TO FENCE LINE 60" OAK;
S 40°35'26" W, FOR A DISTANCE OF 9.08 FEET TO FENCE LINE TPOST TAGGED;
S 42°52'20" E, FOR A DISTANCE OF 62.79 FEET TO A FENCE POST FOUND;
S 1°50'17" W, FOR A DISTANCE OF 30.25 FEET TO FENCE LINE TPOST TAGGED;
S 23°53'47" W, FOR A DISTANCE OF 42.59 FEET TO FENCE LINE 14" HACKBERRY;
S 11°25'58" W, FOR A DISTANCE OF 117.73 FEET TO FENCE LINE TPOST TAGGED;
S 2°03'52" W, FOR A DISTANCE OF 130.34 FEET TO FENCE LINE ROTTED HACKBERRY;
S 9°12'29" W, FOR A DISTANCE OF 87.18 FEET FENCE POST FENCE LINE INTERSECTION;
S 33°56'56" W, FOR A DISTANCE OF 69.94 FEET TO FENCE POST 30" HACKBERRY;
S 61°19'48" E, FOR A DISTANCE OF 54.74 FEET TO FENCE POST 24" HACKBERRY;
S 70°11'17" E, FOR A DISTANCE OF 34.53 FEET TO FENCE POST 12" CEDAR POST

FLAGGED AT THE SOUTH WEST CORNER OF FOSTER;

THENCE, WITH THE WEST BOUNDARY OF BLACKBURN, THE FOLLOWING CALLS:

S 25°13'18" W, FOR A DISTANCE OF 228.44 FEET TO FENCE LINE 36" HACKBERRY;
S 7°06'46" W, FOR A DISTANCE OF 177.84 FEET TO FENCE LINE 8" DOGWOOD;
S 0°16'28" W, FOR A DISTANCE OF 41.40 FEET TO FENCE LINE 24" HACKBERRY
FLAGGED;
S 8°53'22" E, FOR A DISTANCE OF 173.37 FEET TO FENCE LINE TPOST TAGGED;
S 50°40'30" E, FOR A DISTANCE OF 13.02 FEET TO FENCE POST 6" TREE;
S 39°18'12" W, FOR A DISTANCE OF 34.16 FEET TO FENCE POST FOUND;
S 1°12'18" W, FOR A DISTANCE OF 95.58 FEET TO FENCE POST 12" OSAGE;
S 7°58'27" W, FOR A DISTANCE OF 43.94 FEET TO FENCE POST 6" ROTTED TREE;
S 15°41'30" W, FOR A DISTANCE OF 13.75 FEET TO A FENCE POST 6" TREE USED AS
FENCE POST;
S 38°17'00" W, FOR A DISTANCE OF 100.34 FEET TO FENCE POST 14" ROTTEN CEDAR;
S 84°35'04" W, FOR A DISTANCE OF 173.30 FEET TO FENCE CORNER PK FOUND;
S 6°49'35" W, FOR A DISTANCE OF 1187.64 FEET TO FENCE POST FOUND;
S 4°03'46" W, FOR A DISTANCE OF 112.86 FEET TO 24" CEDAR;
S 12°22'22" W, FOR A DISTANCE OF 465.96 FEET TO 1" PIPE IRON PIN FOUND.

THENCE, WITH THE WEST BOUNDARY OF BLACKBURN AND CONTINUING TO
THORNTON, THE FOLLOWING CALLS:

S 8°47'49" W, FOR A DISTANCE OF 411.13 FEET TO 1" PIPE IRON PIN FOUND.

THENCE, WITH THE WEST BOUNDARY THORNTON, THE FOLLOWING CALLS:

S 13°08'41" W, FOR A DISTANCE OF 759.59 FEET TO 1" PIPE IRON PIN FOUND;
S 21°10'50" W, FOR A DISTANCE OF 265.00 FEET TO 1" PIPE FENCE CORNER AT THE
SOUTHWEST CORNER OF THORNTON.

THENCE, WITH THE NORTH BOUNDARY OF JOHNSON, THE FOLLOWING CALLS:

N 82°44'49" W, FOR A DISTANCE OF 800.97 FEET TO 1" PIPE IRON PIN FOUND;
N 78°43'22" W, FOR A DISTANCE OF 130.34 FEET TO FENCE POST IRON PIN FOUND.

THENCE, WITH THE WEST BOUNDARY OF JOHNSON, THE FOLLOWING CALLS:

S 5°32'34" W, FOR A DISTANCE OF 375.75 FEET TO 1" PIPE IRON PIN FOUND;
S 4°27'28" W, FOR A DISTANCE OF 508.55 FEET TO FENCE POST FOUND;
S 3°32'19" W, FOR A DISTANCE OF 523.31 FEET TO IRON PIN FOUND AT THE
SOUTHWEST CORNER OF THORNTON.

THENCE, WITH THE NORTH BOUNDARY OF IRON BRIDGE ROAD RIGHT-OF-WAY, THE
FOLLOWING CALLS:

N 82°45'55" W, FOR A DISTANCE OF 501.29 FEET TO AN 5/8" ROD IRON PIN FOUND.
N 82°46'20" W, FOR A DISTANCE OF 525.64 FEET TO RAILROAD SPIKE PK FOUND;
N 83°23'15" W, FOR A DISTANCE OF 396.04 FEET TO 5/8" ROD IRON PIN FOUND AT
NORTHWEST CORNER OF RIGHT-OF-WAY.

THENCE, WITH THE EAST BOUNDARY OF MATHEWS, HARRIS AND DUCK RIVER, THE FOLLOWING CALLS:

N 8°06'23" E, FOR A DISTANCE OF 664.54 FEET TO IRON PIN FOUND;
N 16°56'08" E, FOR A DISTANCE OF 479.23 FEET TO FENCE POST FOUND;
N 48°48'57" E, FOR A DISTANCE OF 312.04 FEET TO FENCE POST FOUND;
N 44°09'58" E, FOR A DISTANCE OF 600.70 FEET TO FENCE POST FOUND;
N 36°27'00" E, FOR A DISTANCE OF 305.02 FEET TO FENCE POST FOUND;
N 27°21'22" E, FOR A DISTANCE OF 284.62 FEET TO FENCE POST FOUND;
N 26°51'38" E, FOR A DISTANCE OF 301.40 FEET TO 1" PIPE IRON PIN FOUND;
N 15°43'20" W, FOR A DISTANCE OF 197.42 FEET TO FENCE POST FOUND;
N 18°21'24" W, FOR A DISTANCE OF 744.16 FEET TO FENCE POST FOUND.
N 21°56'04" W, FOR A DISTANCE OF 631.16 FEET TO FENCE POST FOUND;
N 23°44'52" W, FOR A DISTANCE OF 409.10 FEET TO FENCE POST FOUND;
N 32°46'41" W, FOR A DISTANCE OF 296.98 FEET TO FENCE POST FOUND;
N 27°28'08" W, FOR A DISTANCE OF 932.36 FEET TO FENCE POST FOUND.

THENCE, DIRECTING RIGHT AWAY FROM DUCK RIVER TO THE SOUTH AND EAST BOUNDARY OF SEAGO, THE FOLLOWING CALLS:

N 85°09'29" E, FOR A DISTANCE OF 22.00 FEET TO FENCE POST FOUND;
N 81°22'35" E, FOR A DISTANCE OF 109.60 FEET TO 4" DEAD CEDAR AND FENCE POST FOUND;
N 87°28'25" E, FOR A DISTANCE OF 42.46 FEET TO 36" OAK;
N 48°08'47" E, FOR A DISTANCE OF 244.67 FEET TO FENCE POST FOUND;
N 49°58'39" E, FOR A DISTANCE OF 291.18 FEET TO 10" HACKBERRY AND 8" CEDAR;
N 49°46'26" E, FOR A DISTANCE OF 367.28 FEET TO 1" PIPE IRON PIN FOUND;
N 55°27'24" W, FOR A DISTANCE OF 350.42 FEET TO FENCE POST FOUND;
N 28°16'29" W, FOR A DISTANCE OF 411.36 FEET TO 1" PIPE IRON PIN FOUND;
N 0°17'30" E, FOR A DISTANCE OF 223.84 FEET TO FENCE POST IRON PIN FOUND.
N 39°56'42" W, FOR A DISTANCE OF 228.86 FEET TO IRON PIN FOUND;
N 16°17'40" E, FOR A DISTANCE OF 158.31 FEET TO FENCE POST FOUND;
N 24°10'55" E, FOR A DISTANCE OF 52.03 FEET TO FENCE POST FOUND;
N 23°26'46" E, FOR A DISTANCE OF 28.14 FEET TO 1" PIPE IRON PIN FENCE POST FOUND.
N 19°40'08" E, FOR A DISTANCE OF 57.72 FEET TO 12" CEDAR;
N 30°13'58" E, FOR A DISTANCE OF 123.71 FEET TO FENCE POST FOUND;
N 32°10'27" E, FOR A DISTANCE OF 87.69 FEET TO FENCE POST FOUND.
N 33°44'57" E, FOR A DISTANCE OF 105.82 FEET TO 1" PIPE IRON PIN FOUND;
N 3°11'17" W, FOR A DISTANCE OF 116.30 FEET TO FENCE POST FOUND AT THE NORTHEAST CORNER OF SEAGO.

THENCE, ALONG THE SOUTH BOUNDARY OF BIKES, THE FOLLOWING CALLS:

N 75°48'45" E, FOR A DISTANCE OF 280.14 FEET TO FENCE POST FOUND;
N 65°23'51" E, FOR A DISTANCE OF 281.90 FEET TO FENCE POST FOUND AT THE SOUTHEAST CORNER OF BIKES.

THENCE, ALONG THE SOUTH AND EAST BOUNDARY OF GOODMAN PROPERTIES (BK R2732, PG 1288, BK R2775, PG 580 & BK R2775, PG 20)

N 63°42'14" E FOR A DISTANCE OF 199.93 FEET TO FENCE POST FOUND.

THENCE WITH THE APPROXIMATE CENTERLINE OF BEAR CREEK, N 84°41'16" E, 385.81 FEET, THENCE N 75°36'41" E, 141.99 FEET TO A POINT. THENCE N 63°11'05 E, 188.83 FEET, THENCE N 77°31'16" E, 234.79 FEET TO THE TRUE POINT OF BEGINNING CONTAINING 15,960,819.6 SQ.FT. OR 366.41 ACRES MORE OR LESS.

BEING THE SAME PROPERTY CONVEYED TO BIG BEAR BLUFFS, LLC BY DEED OF RECORD IN BOOK R2051, PAGE 792 AND BOOK R2060, PAGE 129 IN THE REGISTER'S OFFICE OF MAURY COUNTY, TENNESSEE.



November 18, 2022

Mr. Joshua Gibbs

Kolter Land

14025 Riveredge Drive, Suite 175

Tampa, FL 33637

Sent via email: jgibbs@kolter.com

RE: Water Availability Letter
Big Bear Bluffs Phase 2 – 850 Lots
400 Bear Creek Pike
Tax Map 90, Parcel 12.01
Columbia, Maury County, TN

Dear Mr. Gibbs:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 850 single-family. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,000 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connection will be made to the existing 16-inch water main located on Bear Creek Pike and 12-inch mains on Tom J Hitch Parkway, as described further below and shown on the attached figure.



- A new 16-inch water main will be required from Bear Creek Pike, South through the spine road of the proposed development to Iron Bridge Road, and from there West to Tom J Hitch Parkway. From the intersection of Tom J Hitch Parkway and Iron Bridge Road, a new 16-inch water main will be installed South to the existing 12-inch main, and a new 16-inch water main will be installed North to the existing 12-inch main.
- For the approximately 10,000 lineal feet of new 16-inch main along Tom J. Hitch Parkway. CPWS will pay the difference in material cost between 12-inch pipe and 16-inch pipe for the new water mains.
- A permanent, exclusive 20-foot water main easement will be acquired by the developer and provided for the new 16-inch water mains. Within the development, the easement may be within the right-of-way of the spine road.
- All off-site improvements must be constructed prior to connection of single-family unit meters.
- Minimum size 8-inch, looped water mains will be required throughout the remainder of the development. Final design to accommodate fire protection loads may necessitate an increase in some water main sizes in the development.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.
- Remit to CPWS new water service fees:

New Water Service Fee: \$1500 + \$370 per SFU (850 SFUs)	\$316,000.00
--	--------------

- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and capacity fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid in full. Final meter and capacity fees are subject to change based on final design and meter size determination.



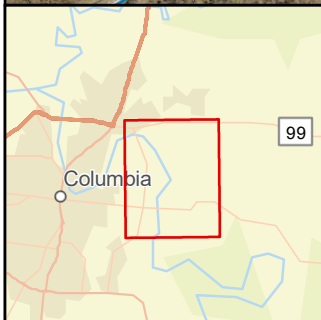
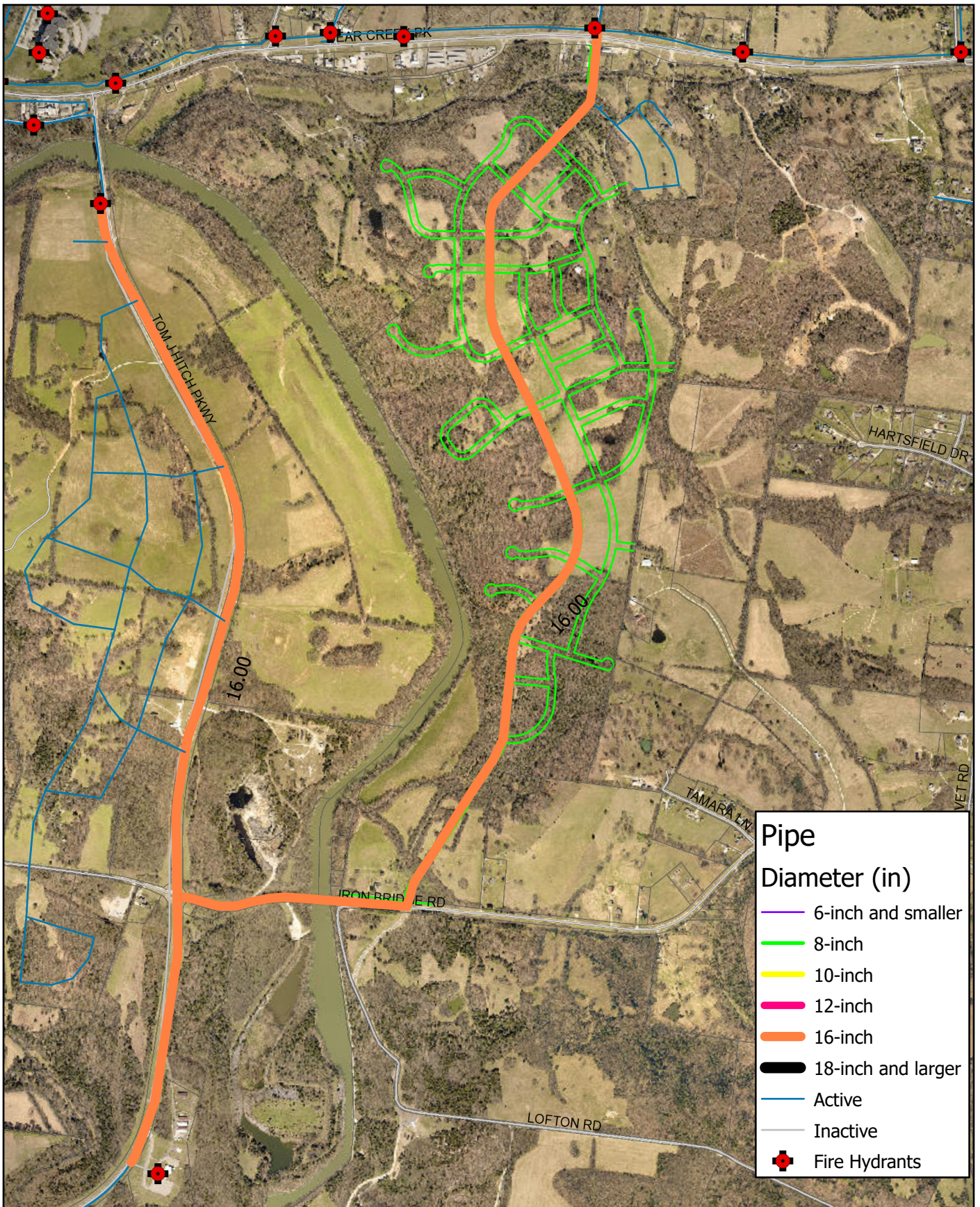
Meter Fee: \$540 per ¾" meter (850 meters)	\$459,000.00
Capacity Fee: \$875 per ¾" meter (850 meters)	\$743,750.00
Total Meter and Capacity Fees Due =	\$1,202,750.00

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,
Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-092



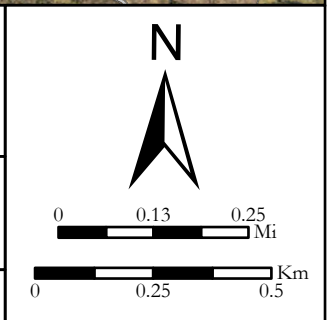
Water Availability Review

Big Bear Bluff Phase 2
Tax Map 090, Parcel 012.01

Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

2022





November 21, 2022

Paul Keltner, Director
Development Services
City of Columbia, TN

RE: Initial Submittal 420 and 400 Bear Creek Parkway – Annexation Request and Rezoning Request with Conceptual Development Plan

Dear Mr. Keltner,

The accompanying documents are for a submittal for a portion of the property previously reviewed under the Columbia Bluffs Preliminary Master Development Plan application. The subject property for this new application is approximately 367 acres and composed of parcels at 420 and a portion of 400 Bear Creek Parkway.

The applicant is requesting an annexation of this property. Additionally, the application is seeking a rezoning request to the CD-3 zoning district. As required by the Rezoning Request, a Conceptual Development Plan, compliant with CD-3 zoning is also included.

Included in the submittal are the following:

1. One full-size (24x36) copy of the Conceptual Development Plan document (Sheets LI.0 & LI.1)
2. Annexation Application
3. Submittal Application
4. Water Availability Letter
5. Word file of Legal Description
6. Check submittal fee (amount \$800)
7. Flash Drive with digital copy of submittal

If there are any questions or additional information needed, please feel free to reach out to me, or Keli Frymire (keli@gdc-tn.com) in my office.

Thank you,

Gamble Design Collaborative
Greg Gamble



CITY OF
COLUMBIA
TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*

Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	portion of 400 Bear Creek Parkway and 420 Bear Creek Parkway		
	TAX MAP: 090	GROUP:	PARCEL: 01201 and 01600
SUMMARY OF NATURE OF REQUEST AND WORK	Annexation Request, Rezoning Request for about 366.41 acres off Bear Creek Parkway. The Conceptual Development Plan submitted as part of the rezoning application depicts a CD-3 compliant development with single-family alley loaded and front loaded homes, club house/amenity, and civic spaces.		

DATE OF PRE-APPLICATION CONFERENCE	held Oct 26, 2022	<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	-------------------	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☒ Annexation ☒ Rezoning ☐ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☐ Project Name (include Sections & Phases) _____ ☐ Total Number of Lots _____ ☐ Total acreage _____
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

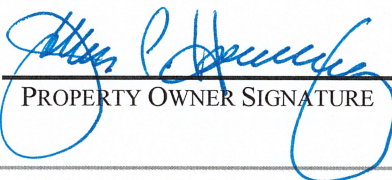
APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Greg Gamble - Gamble Design Collaborative	PHONE	615.975.5765
ADDRESS	3020 Stansberry Lane, Suite 201, Franklin TN 37069	EMAIL	info@gdc-tn.com

PROPERTY OWNER NAME	HK Big Bear Bluffs, LLC	PHONE	813-615-1244
ADDRESS	14025 Riveredge Dr. Ste 175 Tampa FL 33637	EMAIL	jgibbs@kolter.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>Greg Gamble</u> APPLICANT NAME	 APPLICANT SIGNATURE	<u>11/21/2022</u> DATE
James P. Harvey Authorized Signatory HK Big Bear Bluffs LLC PROPERTY OWNER NAME	 PROPERTY OWNER SIGNATURE	<u>11/10/2022</u> DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			



DEVELOPMENT SERVICES

I, HK Big Bear Bluffs, LLC_ being the sole ownership of the property__ more particularly described as 090 012.01; 090-16.00____ on Plat of Record in Plat Book **R2827** Page **576-586** in the Maury County Register of Deeds office, do hereby, formally, request that the City of Columbia, Tennessee annex such property into such City.

James P. Harvey

11/10/2022

Print Name

Date

Signature

A handwritten signature in blue ink, appearing to read "James P. Harvey", is written over a horizontal line.

STAFF USE ONLY

Docket Number:

Requested Agenda:

Something Good Around Every Corner

City Hall 700 North Garden Street Columbia, Tennessee 38401 Phone 931.560.1560

HONEY FARM STORPLACE

NASHVILLE HWY (HWY 31)

COLUMBIA, TN 38401

REVIEW DOCUMENTS

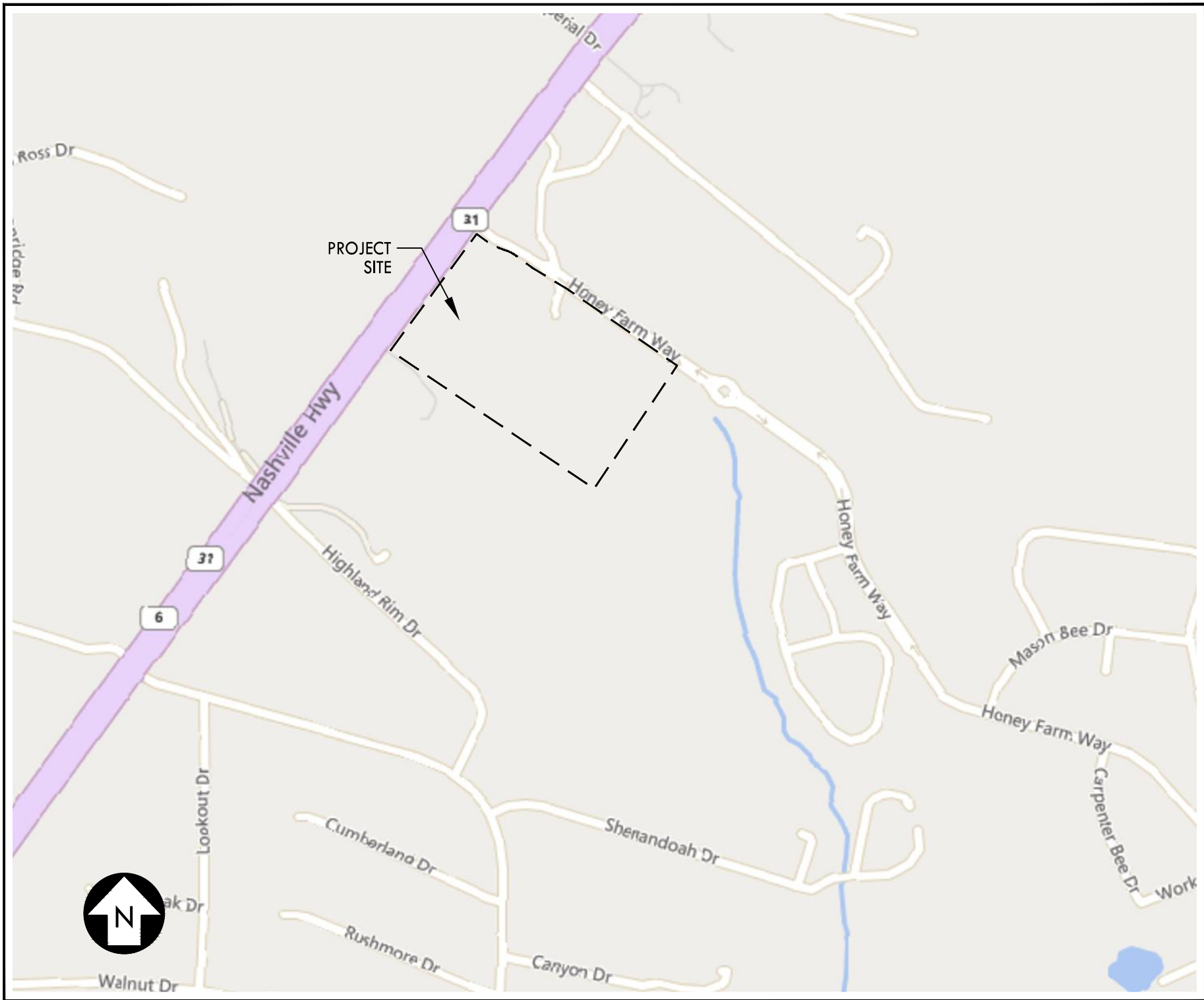
GENERAL INFORMATION

DEVELOPER

EQUITAS MANAGEMENT GROUP, LLC
5525 N MACARTHUR BLVD. SUITE 400
IRVING, TX 75038
Contact: DREW SMITH
Phone: 972-582-3471

CIVIL ENGINEER

Crunk Engineering LLC
7112 Crossroads Boulevard, Suite 201
Brentwood, TN 37027
Contact: Adam Crunk, PE
Phone: 615.873.1795
Email: adam@crunkeng.com



LOCATION MAP
NOT TO SCALE

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	EXISTING CONDITIONS
C2.0	NOTES
C3.0	INITIAL EROSION SEDIMENT PLAN
C3.1	INTERIM EROSION SEDIMENT PLAN
C3.2	FINAL EROSION SEDIMENT PLAN
C3.3	EROSION SEDIMENT PLAN AND DETAILS
C4.0	DEMOLITION PLAN
C5.0	SITE LAYOUT PLAN
C6.0	GRADING & DRAINAGE PLAN
C7.0	UTILITY PLAN
C8.0	DETAILS
C8.1	DETAILS
L1.0	LANDSCAPE PLAN
L2.0	LANDSCAPE BUFFER PLAN

CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM STORPLACE

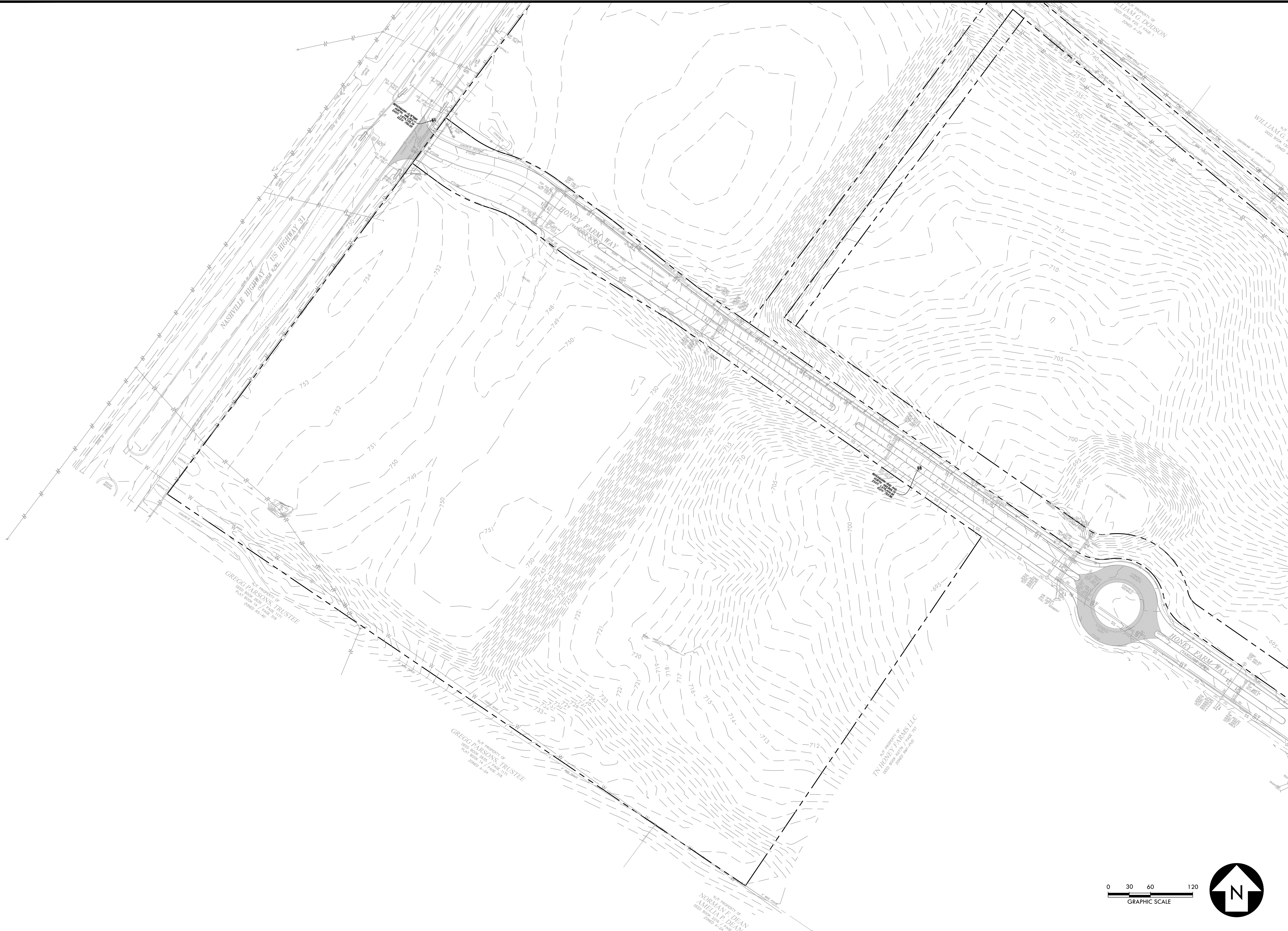
COLUMBIA, TN

REVISIONS	
No.	DATE

11/21/2022 22132

C0.0
COVER SHEET

Drawing Date: 11/20/2022 11:32 Honey Farm Commercial Day Construction C1.0 201.dwg



CRUNK ENGINEERING LLC

7112 CROSSROADS BOULEVARD

SUITE 201

BRENTWOOD, TN 37027

(615) 873-1795

WWW.CRUNKENG.COM

HONEY FARM STORPLACE

COLUMBIA, TN

REVISIONS	
No.	DATE

11/21/202222132

C1.0

EXISTING CONDITIONS

Page 383 of 412

GENERAL NOTES:

1. BASE INFORMATION WAS TAKEN FROM A BOUNDARY & TOPOGRAPHIC SURVEY PERFORMED BY GEOSURVEY DATED 06-23-2022. CRUNK ENGINEERING LLC SHALL NOT BE RESPONSIBLE FOR ERRORS AND OMISSIONS RESULTING FROM THIS INFORMATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE PROJECT AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS.
3. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL QUANTITIES, TAKE-OFF MEASUREMENTS, MATERIALS, ETC., DURING THE BID PROCESS. ANY QUANTITIES PROVIDED ON PLANS ARE PROVIDED AS A COURTESY. WHEN DISCREPANCIES OCCUR, THE PHYSICAL PLAN TAKES PRECEDENCE.
5. A COPY OF THE ELECTRONIC DRAWING FILE MAY BE REQUESTED FROM ENGINEER BY CONTRACTOR TO PROVIDE COORDINATES FOR LOCATION IN FIELD. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST ELECTRONIC FILES AFTER ANY REVISIONS TO PLANS, IF ANY OCCUR.
6. THE CONTRACTOR SHALL CHECK ALL EXISTING CONDITIONS, UTILITY INVERTS, UTILITY ROUTINGS, UTILITY CROSSINGS, AND DIMENSIONS IN THE FIELD PRIOR TO COMMENCEMENT OF WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO INSTALLATION.
7. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY. THE CONTRACTOR SHALL CALL NATIONAL ONE CALL (811) 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION. THE CONTRACTOR SHALL REPAIR ANY DAMAGED UTILITIES ACCORDING TO LOCAL STANDARDS AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL CONFORM TO ALL LOCAL CODES AND RECEIVE APPROVAL WHERE NECESSARY BEFORE CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS-BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS. ALL AS-BUILTS SHALL BE PREPARED IN ACCORDANCE WITH LOCAL AGENCY(S) REQUIREMENTS. IF A CERTIFIED AS-BUILT SURVEY IS REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A STAMPED SURVEY AND SUBMITTING TO ENGINEER.
9. THE CONTRACTOR SHALL LIMIT CONSTRUCTION OPERATIONS TO WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGES OUTSIDE THE LIMITS OF CONSTRUCTION. CARE SHALL BE TAKEN TO PROTECT ANY UTILITIES, TREES, BUILDINGS ETC. WHICH ARE TO REMAIN AND NOT TO BE DISTURBED BY THE CONSTRUCTION.
10. EXISTING PAVEMENT OF PUBLIC ROADWAYS SHALL BE PATCHED IN ACCORDANCE WITH LOCAL AGENCY STANDARDS WHEREVER UTILITY INSTALLATION REQUIRES REMOVAL OF THE EXISTING PAVEMENT. COORDINATE PAVEMENT TRENCHING LOCATIONS WITH SITE CIVIL, PLUMBING AND ELECTRICAL PLANS.
11. DIMENSIONS AND COORDINATES PROVIDED ARE TO FACE OF CURB AND/OR EXTERIOR FACE OF BUILDING UNLESS OTHERWISE NOTED.
12. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE MANUAL OF ACCIDENT PREVENTION AND CONSTRUCTION ISSUED BY AGC OF AMERICA, INC. AND THE SAFETY AND HEALTH REGULATIONS OF CONSTRUCTION ISSUED BY THE U.S. DEPARTMENT OF LABOR.
13. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY WORKS SUCH AS BRACING, SHEETING AND SHORING, BLASTING PROTECTION, WARNING LIGHTS AND BARRICADES, ETC. AS MAY BE NECESSARY FOR THE PROTECTION OF LIFE AND PROPERTY FOR HIS OWN EMPLOYEES AND THE GENERAL PUBLIC.
14. PORTIONS OF THE WORK SHOWN ON THESE PLANS MAY REQUIRE TRENCH AND/OR MASS EXCAVATION. IN SOME CASES, THIS WILL REQUIRE THE REMOVAL OF ROCK. IN THE USE OF EXPLOSIVES FOR THE SUBSEQUENT EXCAVATION OF ROCK MATERIAL, ALL APPLICABLE LOCAL AND STATE REQUIREMENTS REGARDING THE USE AND STORAGE OF EXPLOSIVE MATERIAL SHALL BE FOLLOWED. THE PROPER PERMITS MUST BE SECURED AND PRE-BLAST SURVEYS WILL BE CONDUCTED IN AREAS WHERE ADJACENT PROPERTIES OR IMPROVEMENTS OFF OF THE PROJECT PROPERTY COULD BE IMPACTED. IN PORTIONS OF THE PROJECT WHERE TRENCH EXCAVATION IS REQUIRED, THE CONTRACTOR WILL BECOME FAMILIAR WITH ALL APPLICABLE TRENCH SAFETY REQUIREMENTS AND REGULATIONS AND TAKE THE NECESSARY MEASURES TO INSURE THE SAFETY OF HIS EMPLOYEES AND ANY OTHER INDIVIDUALS HAVING A NEED TO BE IN AND AROUND THE WORK.
15. ANY WORK UNACCEPTABLE TO THE OWNER'S REPRESENTATIVE OR TO THE LOCAL AGENCY(S) SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL VERIFY THE LIMITS OF DEMOLITION WITH THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS UNLESS OTHERWISE INDICATED, REMOVING TREES, STUMPS, ROOTS, MUCK, EXISTING PAVEMENT AND ALL OTHER DELETERIOUS MATERIAL. UPON REMOVAL NO ROOT GREATER THAN THREE INCHES IN DIAMETER SHALL REMAIN WITHIN FIVE FEET OF AN UNDERGROUND STRUCTURE OR UTILITY LINE OR UNDER PAVED FOOTINGS OR PAVED AREAS.
3. IN AREAS WHERE EXISTING PAVEMENT, WALKS, OR CURBS ARE TO BE REMOVED, SAW CUT TO PROVIDE A CLEAN EDGE. COORDINATE EXTENT OF PAVEMENT DEMOLITION WITH THE LIMIT OF IMPROVEMENTS ON THE SITE LAYOUT PLAN AND UTILITY PLAN.
4. THE CONTRACTOR SHALL COORDINATE PHASING OF THE DEMOLITION WITH THE OWNER'S REPRESENTATIVE AND UTILITY PROVIDERS PRIOR TO BEGINNING WORK. DISRUPTION OF EXISTING UTILITY SERVICES AND TRAFFIC PATTERNS SHALL BE MINIMIZED TO THE EXTENT POSSIBLE AND INITIATED ONLY AFTER APPROVAL BY THE LOCAL AGENCY(S) AND UTILITY PROVIDER(S).
5. NO UTILITY OR STORM SEWER LINES SHALL BE DEMOLISHED UNTIL THE NEW LINES HAVE BEEN INSTALLED AND ARE PLACED INTO OPERATION.
6. THE CONTRACTOR SHALL INCORPORATE INTO HIS WORK ANY ISOLATION VALVES OR TEMPORARY PLUGS REQUIRED TO CONSTRUCT NEW UTILITY LINES AND DEMOLISH EXISTING UTILITY LINES.
7. WHERE WATER LINE AND SEWER LINE ABANDONMENT IS PLANNED, THE CONTRACTOR MAY ABANDON WATER LINES AND SEWER LINES IN PLACE WHERE THEY OCCUR AT LEAST 24 INCHES (TO TOP OF PIPE) BELOW FINAL SUBGRADE ELEVATIONS AND OUTSIDE THE BUILDING FOOT PRINT. ALL UTILITY LINES BEING ABANDONED IN PLACE SHALL HAVE ALL ENDS PERMANENTLY CLOSED USING A CONCRETE PLUG.
8. CAVITIES AND TRENCHES LEFT BY DEMOLITION WORK SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
9. ALL MATERIALS BEING REMOVED AND NOT RELOCATED UNDER THE NEW CONSTRUCTION, INCLUDING TREES AND SHRUBS, SIGNS, LIGHT POLES, UTILITY STRUCTURES, ETC., SHALL BE FIRST OFFERED TO THE OWNER'S REPRESENTATIVE AND IF NOT ACCEPTED SHALL THEN BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

SITE GRADING NOTES:

1. THE EXISTING AND PROPOSED TOPOGRAPHIC INFORMATION IS BASED OFF THE TOPOGRAPHIC SURVEY PERFORMED BY GEOSURVEY DATED 06-23-2022. ELEVATIONS ARE BASED OF NAVD 88. BENCHMARK LOCATION AND ELEVATIONS ARE AS REPRESENTED BY THE SURVEYOR AT THE TIME OF THE SURVEY. THE CONTRACTOR SHALL VERIFY ITS CORRECTNESS PRIOR TO CONSTRUCTION.
2. THE DISTURBED AREA FOR THIS PROJECT IS APPROXIMATELY 5.06 ACRES.
3. THE SUBJECT PROPERTY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD ZONE ACCORDING TO PANEL No. 47119C01806 OF THE F.E.M.A. FLOOD INSURANCE RATE MAPS FOR MAURY COUNTY, TENNESSEE, DATED 04/16/2007.
4. MULCH AND SEED ALL DISTURBED AREAS AS SOON AS POSSIBLE AFTER FINAL GRADING IS COMPLETED, UNLESS OTHERWISE INDICATED. CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
5. THE CONTRACTOR SHALL CHECK EXISTING GRADES AND DIMENSIONS PRIOR TO BEGINNING WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER. THIS GRADING & DRAINAGE PLAN IS NOT A DETERMINATION OR GUARANTEE OF THE SUITABILITY OF THE SUBSURFACE CONDITIONS FOR THE WORK INDICATED. A GEOTECHNICAL SOILS REPORT HAS BEEN PREPARED AND IS AVAILABLE FROM THE OWNER. DETERMINATION OF THE SUBSURFACE CONDITIONS FOR THE WORK INDICATED IS THE CONTRACTOR'S SOLE RESPONSIBILITY.
6. IF ANY SPRINGS OR UNDERGROUND STREAMS ARE EXPOSED DURING CONSTRUCTION THE OWNER'S REPRESENTATIVE AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY. PERMANENT MEDIATION MAY BE REQUIRED, THE LOCATION AND SPECIFICATION OF WHICH WILL BE DETERMINED BY THE CONDITIONS WHICH ARE ENCOUNTERED.
7. THE PROPOSED GRADING AND DRAINAGE PLAN CONTAIN CONTOUR LINES AND SPOT ELEVATIONS RESULTING FROM AN ENGINEERED DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE AND MOVEMENT OF MATERIALS. SHOULD THE CONTRACTOR HAVE ANY QUESTION OF THE INTENT OR ANY PROBLEM WITH THE CONTINUITY OF GRADES, THE ENGINEER SHALL BE CONTACTED IMMEDIATELY.
8. ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE INDICATED ON PLANS. FILL SLOPES OF 3:1 AND GREATER SHALL BE PLACED AND COMPACTED A MINIMUM OF 5 FEET BEYOND THE PROPOSED SLOPE LIMITS AND THEN EXCAVATED BACK TO THE PROPOSED LOCATION.
9. THE MAXIMUM SLOPE WITHIN ACCESSIBLE PARKING SPACES SHALL BE 2.0% IN ANY DIRECTION. THE MINIMUM GRADE ON ASPHALT OR CONCRETE PAVING SHALL BE 1.0% UNLESS OTHERWISE INDICATED ON PLANS.
10. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. SURFIELD ADJUSTMENT MAY BE REQUIRED. THE CONTRACTOR WILL BE REQUIRED TO ADJUST GRADES OF INTERSECTING STREETS, ALLEYS, PUBLIC ENTRANCES AND PRIVATE DRIVES AS DIRECTED BY THE ENGINEER.
11. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION. SOIL AFFECTED BY PERCHED WATER IN FOUNDATION AND PAVEMENT AREAS MUST BE UNDERCUT AND REPLACED WITH SUITABLE FILL MATERIALS APPROVED BY A GEOTECHNICAL ENGINEER. GROUNDWATER INFILTRATION INTO EXCAVATIONS SHOULD BE EXPECTED, AND THE WATER SHALL BE REMOVED USING GRAVITY DRAINAGE OR PUMPING.
12. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO COMPACT FILL SUFFICIENTLY AROUND AND OVER ALL PIPES, STRUCTURES, VALVE STEMS, ETC., INSIDE THE PROPOSED PAVED AREAS TO AVOID SETTLEMENT. ANY SETTLEMENT DURING THE WARRANTY PERIOD SHALL BE RESTORED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
13. THE CONTRACTOR SHALL NOT DISTURB VEGETATION OR REMOVE ANY TREES EXCEPT WHEN NECESSARY FOR GRADING PURPOSES.
14. THE CONTRACTOR SHALL STRIP TOPSOIL FROM ALL CUT AND FILL AREAS AND STOCKPILE UPON COMPLETION OF GENERAL GRADING THE TOPSOIL SHALL BE PLACED OVER ALL DISTURBED AREAS TO A MINIMUM DEPTH OF 6". CONTRACTOR SHALL PROVIDE ADDITIONAL TOPSOIL IF INSUFFICIENT QUANTITIES EXIST ON SITE. THE CONTRACTOR SHALL PROVIDE MEASURES TO PREVENT SEDIMENT FROM STOCKPILED TOPSOIL OR FILL MATERIAL FROM CONTAMINATING SURROUNDING AREAS OR ENTERING NEARBY STREAMS.
15. ALL FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THIS MATERIAL SHALL BE PLACED IN LIFTS AND COMPACTED AS DIRECTED BY THE GEOTECHNICAL ENGINEER (TO 95% STANDARD PROCTOR).
16. THE CONTRACTOR IS RESPONSIBLE FOR PERMITTING ANY SITE USED FOR DISPOSAL AND/OR STOCKPILE OF ANY MATERIAL FOR SUCH ACTIVITY. A COPY OF THE APPROVED PERMIT MUST BE PROVIDED TO THE INSPECTOR PRIOR TO COMMENCEMENT OF WORK ON ANY PROPERTY. FAILURE TO DO SO MAY RESULT IN THE CONTRACTOR REMOVING ANY ILLEGALLY PLACED MATERIAL AT HIS OWN EXPENSE.
17. ANY EXCESS EARTH MATERIAL AS A RESULT FROM GRADING ACTIVITIES SHALL BE FIRST OFFERED TO THE OWNER. IF NOT ACCEPTED BY THE OWNER, THE CONTRACTOR SHALL DISPOSE OF EARTH MATERIAL OFF SITE AT NO ADDITIONAL COST TO THE OWNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPORT SUITABLE MATERIAL FOR GRADING ACTIVITIES IF SUFFICIENT AMOUNTS OF EARTH MATERIAL ARE NOT AVAILABLE ON SITE AT NO ADDITIONAL COST TO THE OWNER.
18. SEGMENTAL WALLS SHALL BE PROVIDED BY THE CONTRACTOR ON A DESIGN BUILD BASIS. WALL DESIGN PLANS STAMPED BY A REGISTERED ENGINEER IN THE STATE OF THE PROJECT SHALL BE SUBMITTED TO THE ENGINEER AS A SHOP DRAWING AND INCLUDED IN THE CONSTRUCTION DOCUMENTS.
19. TOP OF GRATE ELEVATIONS FOR DRAINAGE STRUCTURES SHALL BE AS SHOWN ON THE DETAIL AND GRADING PLAN, UNLESS NOTED OTHERWISE. THE GRATES SHALL SLOPE WITH THE PAVEMENT AND/OR CURB AND GUTTER GRADES. LOCATION OF DRAINAGE STRUCTURES IS AS SHOWN ON THE GRADING PLAN.
20. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION OF STORM DRAIN CONNECTIONS AT THE BUILDING WITH THE PLUMBING PLANS.
21. REINFORCED CONCRETE STORM PIPE SHALL MEET ASTM 76CLASS III, WALL TYPE "B" MESH REINFORCEMENT, HIGH DENSITY POLYETHYLENE PIPE (HDPE) SHALL MEET ASTM F 2648. POLYVINYLCHLORIDE PIPE (PVC) SHALL MEET ASTM D3034, SDR 35.

EROSION CONTROL NOTES:

1. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE GRADING ACTIVITIES BEGIN AND MUST BE CONSTRUCTED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. TEMPORARY MEASURES MAY BE REMOVED AT THE BEGINNING OF THE WORKDAY BUT MUST BE REPLACED AT THE END OF THE WORKDAY.
2. THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION TO MINIMIZE THE EXPOSURE TIME OF GRADED OR DENUDED AREAS.
3. CONSTRUCT SILT BARRIERS BEFORE BEGINNING GRADING OPERATIONS.
4. PROVIDE TEMPORARY CONSTRUCTION ACCESS(ES) AT THE POINT(S) WHERE CONSTRUCTION VEHICLES EXIT THE CONSTRUCTION AREA. MAINTAIN PUBLIC ROADWAYS FREE OF TRACKED MUD AND DIRT.
5. EXISTING VEGETATION AND GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 10 DAYS PRIOR TO GRADING OR EARTH MOVING UNLESS THE AREA IS SEEDED AND/OR MULCHED OR OTHER TEMPORARY COVER IS INSTALLED.
6. USE TEMPORARY VEGETATION AND/OR MULCH TO PROTECT BARE AREAS FROM EROSION DURING CONSTRUCTION.
7. INSPECTION AND MAINTENANCE OF EROSION CONTROL DEVICES SHALL BE PERFORMED ON A REGULAR BASIS. IF AT ANY TIME DURING CONSTRUCTION, THE EROSION AND SEDIMENT CONTROL MEASURES INSTALLED FAIL TO FUNCTION PROPERLY, NEED MAINTENANCE OR REPAIR, OR NEED NEW REPLACEMENT IN KIND, THE CONTRACTOR WILL EFFECT SUCH ACTIONS AS ARE NEEDED TO CORRECT THE SITUATION AT NO ADDITIONAL COST TO THE OWNER.
8. THE CONTRACTOR SHALL USE WATER SPRINKLING AND OTHER SUITABLE METHODS AS NECESSARY TO CONTROL DUST AND DIRT CAUSED BY CONSTRUCTION ACTIVITY. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST CONTROL ARE PROHIBITED.
9. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
10. STABILIZATION PRACTICES SHOULD BE INITIATED AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS WHERE CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED. DISTURBED AREAS WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRED.
11. SEDIMENT SHOULD BE REMOVED FROM SEDIMENT AND EROSION CONTROL DEVICES AS NECESSARY AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50% OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
12. THE CONTRACTOR SHALL REMOVED SEDIMENT BUILD UP FROM ALL DRAINAGE STRUCTURES BEFORE ACCEPTANCE BY LOCAL GOVERNING AGENCY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
13. THE CONTRACTOR SHALL REMOVE THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ONLY AFTER A GOOD STAND OF VEGETATIVE COVER HAS BEEN ESTABLISHED ON GRADED AREAS AND WHEN IN THE OPINION OF THE OWNER'S REPRESENTATIVE, THEY ARE NO LONGER NEEDED.

UTILITY NOTES:

1. ALL WATER LINES, SEWER LINES AND APPURTENANCES SHALL BE CONSTRUCTED OF MATERIALS THAT CONFORM WITH LOCAL AGENCY(S) AND UTILITY PROVIDER DETAILS AND SPECIFICATIONS.
2. SANITARY SEWER SHALL BE OF MATERIAL AS SPECIFIED ON PLANS. POLYVINYLCHLORIDE (PVC) SHALL MEETASTM D3034 SDR35. DUCTILE IRON PIPE (DIP) SHALL MEET ANSI21.51/AWWA C-151 CLASS 52.
3. WATER LINES SHALL BE OF MATERIAL AS SPECIFIED ON PLANS. CEMENT LINED DUCTILE IRON (DIP) SHALL MEET AWWA C-151CLASS 52. POLYVINYLCHLORIDE (PVC) SHALL MEET AWWA C-900, SDR 18, CLASS 150.
4. A MINIMUM COVER OF 36" SHALL BE PROVIDED OVER ALL WATER LINES.
5. THE CONTRACTOR SHALL MAINTAIN A HORIZONTAL SEPARATION OF 10 FEET BETWEEN SANITARY SEWER LINES AND WATER LINES. WHERE THESE CRITERIA CANNOT BE MET, THE CONTRACTOR SHALL MAINTAIN 18" VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES.
6. EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE SURVEYOR AT THE TIME OF THE TOPOGRAPHIC SURVEY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ENTIRELY ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE HE COMMENCES ANY WORK IN THE VICINITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
7. THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF THE POINT OF CONNECTIONS OF ALL UTILITIES PRIOR TO ORDERING OF MATERIALS OR COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
8. THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION FOR ALL UTILITY LINES TO PREVENT CONFLICTS WITH EXISTING OR PROPOSED WATER LINES, SANITARY SEWER LINES, SANITARY SEWER SERVICES, STORM SEWERS, OR ANY OTHER UTILITY OR STRUCTURE.
9. BEFORE CONNECTIONS ARE MADE INTO EXISTING UTILITIES, THE NEW LINES ARE TO BE FLUSHED AND TESTED BY THE CONTRACTOR IN ACCORDANCE WITH THE LOCAL AGENCY(S) AND UTILITY PROVIDER(S) WATER AND SEWER SPECIFICATIONS.
10. REDUCED PRESSURE BACKFLOW PREVENTOR (RBPB) OR DUAL CHECK WILL BE REQUIRED ON ALL TESTS AND FILL LINES (JUMPER) NEEDED FOR WATER MAIN CONSTRUCTION AND MUST BE APPROVED BY LOCAL AGENCY AND UTILITY PROVIDER.
11. THE CONTRACTOR SHALL PROVIDE ALL HORIZONTAL AND VERTICAL BENDS TO ATTAIN THE ALIGNMENT INDICATED ON THE PLANS. PROVIDE VERTICAL BENDS WHERE NECESSARY TO ALLOW WATER LINES TO PASS UNDER OR OVER OTHER UTILITY LINES (ALL BENDS AND BRACES NEEDED MAY NOT BE SHOWN ON THESE PLANS). PROVIDE BRACING AND/OR RODDING AT ALL BENDS AND TEES AS REQUIRED.
12. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION OF UTILITY CONNECTIONS AT THE BUILDING WITH PLUMBING PLANS.
13. PROPOSED GAS LINE, ELECTRIC LINE AND TELEPHONE LINE CONSTRUCTION AND INSTALLATION SHALL BE COORDINATED WITH THE RESPECTIVE UTILITY PROVIDERS.
14. EXISTING CASTINGS LOCATED IN FILL/CUT AREAS SHALL BE ADJUSTED TO ENSURE THAT THE TOP OF CASTING IS FLUSH WITH THE FINISHED GRADE.
15. THE CONTRACTOR SHALL MARK THE LOCATION OF ALL NEW PVC LINES WITH #8 WIRE.
16. ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE BY THE CORING AND RESILIENT SEAL METHOD.
17. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO FURNISH SUCH EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
18. ALL FIRE LINES SHALL BE INSTALLED BY A SPRINKLER CONTRACTOR LICENSED IN THE STATE OF THE PROJECT.
19. PRIOR TO SUBMITTING OF BID, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING OWNERS OF ALL AFFECTED UTILITIES IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF WORK FOR THE PROJECT. WHILE SOME WORK MAY BE REQUIRED 'AROUND' UTILITY FACILITIES THAT WILL REMAIN IN PLACE, OTHER UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS.

EROSION CONTROL TYPICAL NOTES:

1. ALL CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURE'S SPECIFICATIONS AND THE CONTRACT DOCUMENTS. IF PERIODIC INSPECTIONS OR OTHER INFORMATION INDICATES A CONTROL HAS BEEN USED INAPPROPRIATELY OR INCORRECTLY, THE CONTRACTOR MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS.
2. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT THAT HAVE NOT REACHED A STREAM MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS. PERMITTEES SHALL NOT INITIATE REMEDIATION/RESTORATION OF A STREAM WITHOUT CONSULTING THE DIVISION FIRST. THIS PERMIT DOES NOT, HOWEVER, AUTHORIZE ACCESS TO PRIVATE PROPERTY.
3. SEDIMENT SHOULD BE REMOVED FROM SEDIMENT TRAPS, SILT FENCES, SEDIMENTATION PONDS, AND OTHER SEDIMENT CONTROLS AS NECESSARY, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 33%.
4. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER SHALL BE PICKED UP PRIOR TO ANTICIPATED STORM EVENTS, OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES.
5. PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 20 CALENDAR DAYS PRIOR TO GRADING OR EARTH MOVING UNLESS THE AREA IS SEEDED AND/OR MULCHED OR OTHER TEMPORARY COVER IS INSTALLED.
6. CLEARING AND GRUBBING MUST BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.
7. CONSTRUCTION MUST BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF GRADED OR DENUDED AREAS.
8. EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN, AND MUST BE CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. TEMPORARY MEASURES MAY BE REMOVED AT THE BEGINNING OF THE WORK DAY, BUT MUST BE REPLACED AT THE END OF THE WORK DAY.
9. THE FOLLOWING RECORDS SHALL BE MAINTAINED ON SITE; THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. EXCEPT IN THE FOLLOWING TWO SITUATIONS: 1. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL; OR 2. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 15 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE.
11. CONSTRUCTION MUST BE PHASED FOR PROJECTS IN WHICH OVER 50 ACRES OF SOIL WILL BE DISTURBED. AREAS OF THE COMPLETED PHASE MUST BE STABILIZED WITHIN 21 DAYS AFTER ANOTHER PHASE HAS BEEN INITIATED OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES. AFTER USE, SILT FENCES SHOULD BE REMOVED OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES.
12. TEMPORARY OR PERMANENT SOIL STABILIZATION SHALL BE ACCOMPLISHED WITHIN 15 DAYS AFTER FINAL GRADING OR OTHER EARTH WORK. PERMANENT STABILIZATION WITH PERENNIAL VEGETATION OR OTHER PERMANENTLY STABLE, NON-ERODING SURFACE SHALL REPLACE ANY TEMPORARY MEASURES AS SOON AS PRACTICABLE.
13. NO SOLID MATERIALS INCLUDING BUILDING MATERIAL, SHALL BE DISCHARGED TO WATERS OF THE UNITED STATES EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT AND/OR TENNESSEE AQUATIC RESOURCE ALTERATION PERMIT
14. OFFSITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED.

SITE DESCRIPTION:

1. THE SITE IS LOCATED IN COLUMBIA, TENNESSEE, MAURY COUNTY, PARCEL 051 05800 000 THE SITE IS LOCATED AT NASHVILLE HWY 2248. THE SITE CONSISTS OF 13.42 ACRES, 5.06 ACRES WILL BE DISTURBED AS PART OF THIS PROJECT.
2. APPROXIMATE CONSTRUCTION TIME TABLE:
BEGIN CONSTRUCTION - JULY 2023
COMPLETE CONSTRUCTION - FEBRUARY 2024
3. CONSTRUCTION SEQUENCE:
A. INSTALL CONSTRUCTION EXIT.
B. INSTALL SILT FENCE AND TREE PROTECTION.
C. CLEAR, GRUB, AND GRADE THE REMAINING SITE.
D. INSTALL GRASSED CHANNEL AND DRY-DETENTION POND PER APPROVED PLANS. INSTALL POND OUTLET WITH MODIFIED ORIFICE.
E. UPON PERMANENT SITE STABILIZATION, REMOVE SILT FENCE, TREE PROTECTION, MODIFIED ORIFICE AND ALL OTHER TEMPORARY EROSION CONTROL DEVICES WILL BE REMOVED.
H. ROCK CHECK DAMS ARE TO BE CLEANED.

TOTAL SITE AREA = 13.42 ACRES, 584,575.2 SQUARE FEET
DISTURBED AREA = 5.06 ACRES, 220,413.6 SQUARE FEET
5. THE ESTIMATED EXISTING CURVE NUMBER IS ____
UPON COMPLETION OF THE SITE, THE ESTIMATED CURVE NUMBER WILL INCREASE TO ____.
6. THE RECEIVING WATER FOR THE DISCHARGE FROM THIS SITE IS RUTHERFORD CREEK.
7. PROPERTY ZONING: PUD

SCHEDULE OF INSPECTIONS AND MAINTENANCE NOTES

1. INSPECTIONS SHALL BE DONE BEFORE ANTICIPATED STORM EVENTS (OR SERIES OF STORM EVENTS SUCH AS INTERMITTENT SHOWERS OVER ONE OR MORE DAYS), AND WITHIN 24 HOURS AFTER THE END OF A STORM EVENT OF 0.25 INCHES OR GREATER, AND AT LEAST TWICE EVERY SEVEN CALENDAR DAYS, NOT ON CONSECUTIVE DAYS. WHEN PORTIONS OF THE SITE HAVE BEEN FINALLY OR TEMPORARILY STABILIZED, OR RUNOFF IS UNLIKELY DUE TO WINTER CONDITIONS (E.G. SITE COVERED WITH SNOW, ICE OR FROZEN GROUND), SUCH INSPECTION ONLY HAS TO BE CONDUCTED ONCE PER MONTH.
2. INSPECTIONS AND ASSOCIATED NECESSARY REPAIRS DONE 60 HOURS BEFORE A RAIN EVENT CONSTITUTE COMPLIANCE WITH "BEFORE ANTICIPATED STORM EVENTS," AND INSPECTIONS AND REPAIRS ON A FRIDAY MEET THE REQUIREMENTS FOR RAIN EVENTS OVER THE WEEKEND.
3. QUALIFIED PERSONNEL SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.
4. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE STORM WATER POLLUTION PREVENTION PLAN AND IN THE CONTRACT DOCUMENTS SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY.
5. OUTFALL POINTS (WHERE DISCHARGES FROM THE SITE ENTER STREAMS OR WET WEATHER CONVEYANCES) SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. WHERE DISCHARGE LOCATIONS ARE INACCESSIBLE, NEARBY DOWNSTREAM LOCATIONS SHALL BE INSPECTED IF POSSIBLE. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.
6. BASED ON THE RESULTS OF THE INSPECTION; ANY INADEQUATE CONTROL MEASURES OR CONTROL MEASURES IN DISREPAIR SHALL BE REPLACED OR MODIFIED, OR REPAIRED AS NECESSARY, BEFORE THE RAIN EVENT IF POSSIBLE, BUT IN NO CASE MORE THAN SEVEN DAYS AFTER THE NEED IS IDENTIFIED. IF MAINTENANCE PRIOR TO THE NEXT ANTICIPATED STORM EVENT IS IMPRACTICABLE, MAINTENANCE MUST BE SCHEDULED AND ACCOMPLISHED AS SOON AS PRATICABLE.
7. BASED ON THE RESULTS OF THE INSPECTION, THE SITE DESCRIPTION PROVIDED, AND THE POLLUTION PREVENTION MEASURES PRESENTED IN THIS PLAN MAY BE REVISED AS APPROPRIATE, BUT IN NO CASE LATER THAN 14 CALENDAR DAYS FOLLOWING THE INSPECTION. SUCH MODIFICATIONS SHALL PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THIS PLAN IN NO CASE LATER THAN 21 CALENDAR DAYS FOLLOWING THE INSPECTION.
8. INSPECTIONS SHALL BE DOCUMENTED AND INCLUDE THE SCOPE OF THE INSPECTION, NAME(S) AND TITLE OR QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (INCLUDING THE LOCATION(S) OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE AND OF ANY CONTROL DEVICE THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION AND ACTIONS TAKEN AND ACCOMPLISHED IN PARAGRAPH 6 ABOVE.

CRUNK ENGINEERING LLC



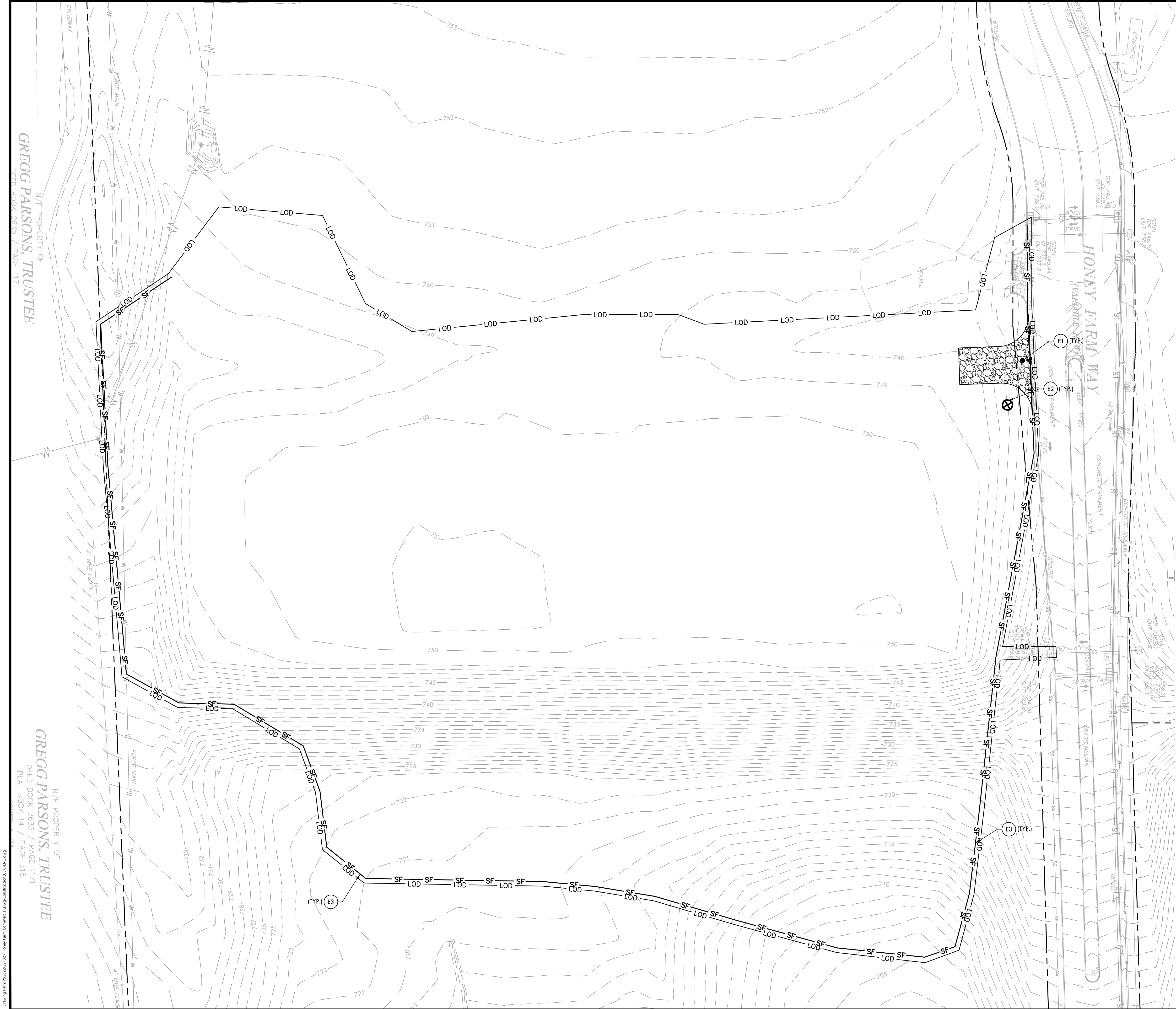
HONEY FARM STORPLACE

COLUMBIA, TN

REVISIONS	DATE				
	No.				

11/21/2022 22132

C2.0
NOTES

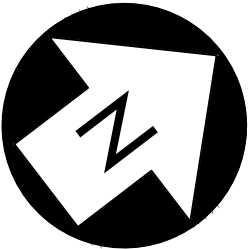
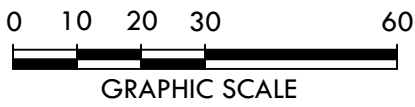


EROSION CONTROL PLAN KEYNOTES		
CODE	DESCRIPTION	DETAIL LOCATION
E1	TEMPORARY CONSTRUCTION ENTRANCE	C3.3 - 1
E2	CONCRETE WASHOUT AREA	C3.3 - 2
E3	TEMPORARY SILT FENCE	C3.3 - 3
E4	TEMPORARY INLET PROTECTION	C3.3 - 4
E5	TEMPORARY TREE PROTECTION FENCE	C3.3 - 5
E6	RIP RAP OUTLET PROTECTION	C3.3 - 6
E7	TEMPORARY ROCK CHECK DAM	-
E8	TEMPORARY SEDIMENT TRAP	-

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED EROSION & SEDIMENT CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- TP TEMPORARY TREE PROTECTION
- SF TEMPORARY SILT FENCE
- TEMPORARY INLET PROTECTION
- TEMPORARY ROCK CHECK DAM
- LOD LIMITS OF DISTURBANCE



CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM

HONEY FARM STORPLACE

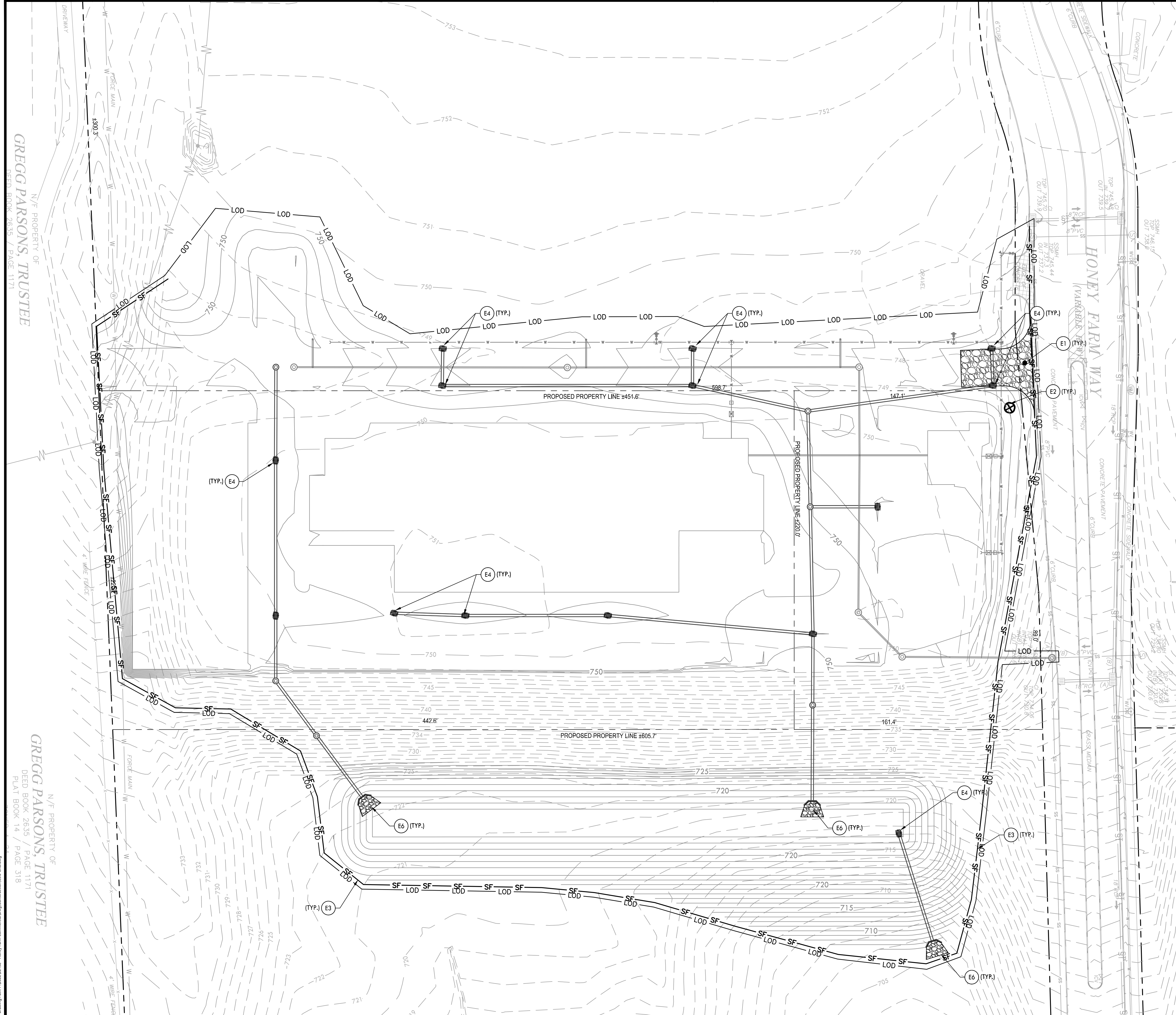
COLUMBIA, TN

REVISIONS	No.	DATE

11/21/202222132

C3.0

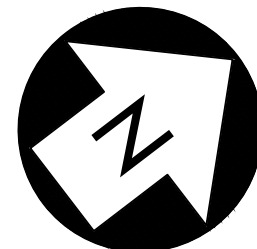
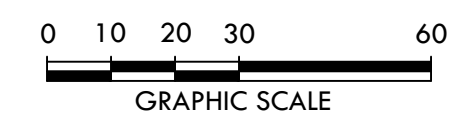
INITIAL EROSION
SEDIMENT PLAN



EROSION CONTROL PLAN KEYNOTES		
CODE	DESCRIPTION	DETAIL LOCATION
E1	TEMPORARY CONSTRUCTION ENTRANCE	C3.3 - 1
E2	CONCRETE WASHOUT AREA	C3.3 - 2
E3	TEMPORARY SILT FENCE	C3.3 - 3
E4	TEMPORARY INLET PROTECTION	C3.3 - 4
E5	TEMPORARY TREE PROTECTION FENCE	C3.3 - 5
E6	RIP RAP OUTLET PROTECTION	C3.3 - 6
E7	TEMPORARY ROCK CHECK DAM	-
E8	TEMPORARY SEDIMENT TRAP	-

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED EROSION & SEDIMENT CONTROL LEGEND	
	TEMPORARY CONSTRUCTION ENTRANCE
	TEMPORARY TREE PROTECTION
	TEMPORARY SILT FENCE
	TEMPORARY INLET PROTECTION
	TEMPORARY ROCK CHECK DAM
	LIMITS OF DISTURBANCE



CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



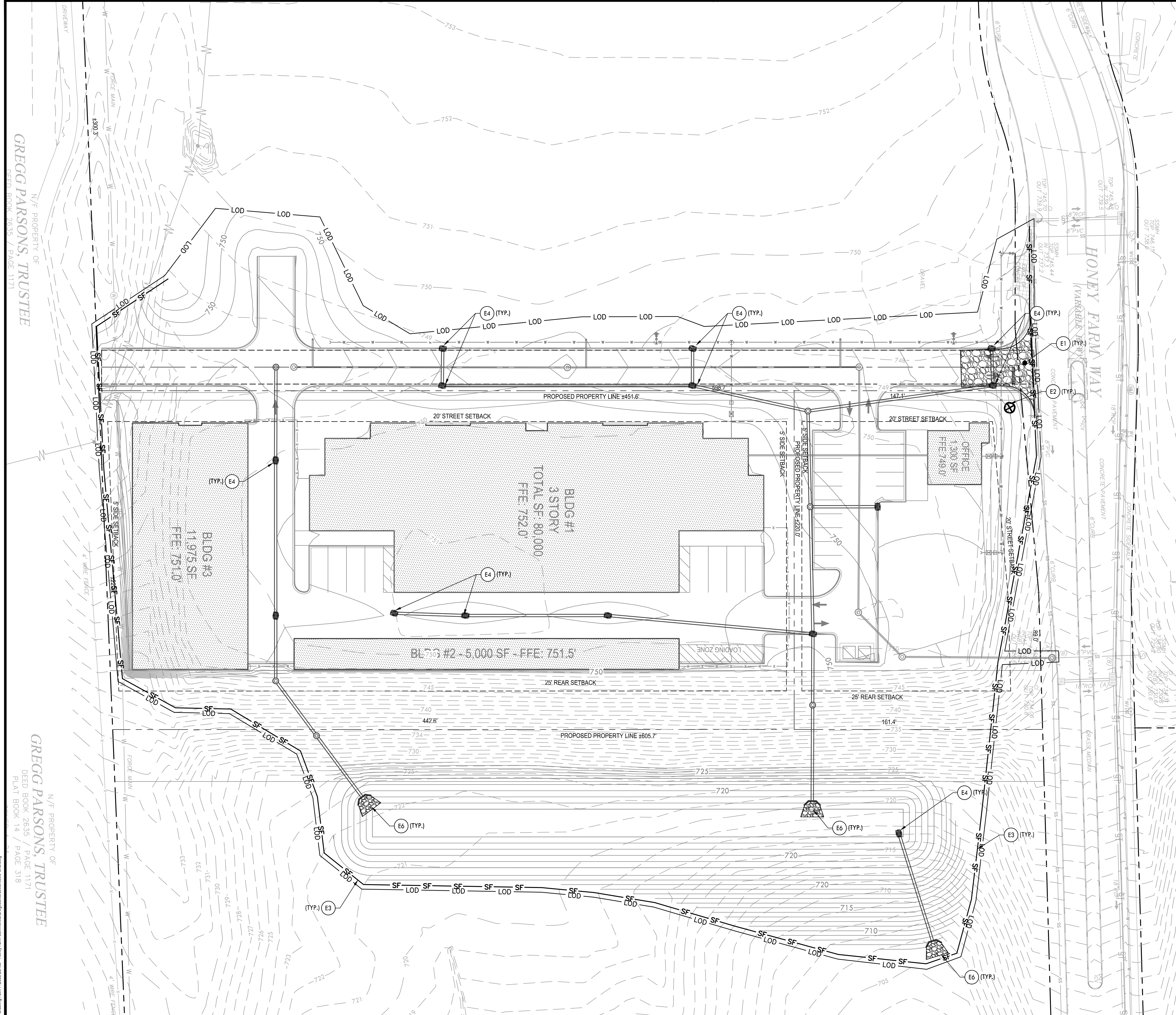
HONEY FARM STORPLACE
COLUMBIA, TN

REVISIONS	
No.	DATE
11/21/2022	22132

C3.1
INTERIM EROSION
SEDIMENT PLAN

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171
PLAT BOOK 14 / PAGE 318

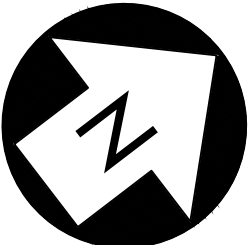


EROSION CONTROL PLAN KEYNOTES		
CODE	DESCRIPTION	DETAIL LOCATION
E1	TEMPORARY CONSTRUCTION ENTRANCE	C3.3 - 1
E2	CONCRETE WASHOUT AREA	C3.3 - 2
E3	TEMPORARY SILT FENCE	C3.3 - 3
E4	TEMPORARY INLET PROTECTION	C3.3 - 4
E5	TEMPORARY TREE PROTECTION FENCE	C3.3 - 5
E6	RIP RAP OUTLET PROTECTION	C3.3 - 6
E7	TEMPORARY ROCK CHECK DAM	-
E8	TEMPORARY SEDIMENT TRAP	-

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED EROSION & SEDIMENT CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- TEMPORARY TREE PROTECTION
- TEMPORARY SILT FENCE
- TEMPORARY INLET PROTECTION
- TEMPORARY ROCK CHECK DAM
- LIMITS OF DISTURBANCE



CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM

HONEY FARM STORPLACE

COLUMBIA, TN

REVISIONS	No.	DATE	

11/21/202222132

C3.2

FINAL EROSION
SEDIMENT PLAN

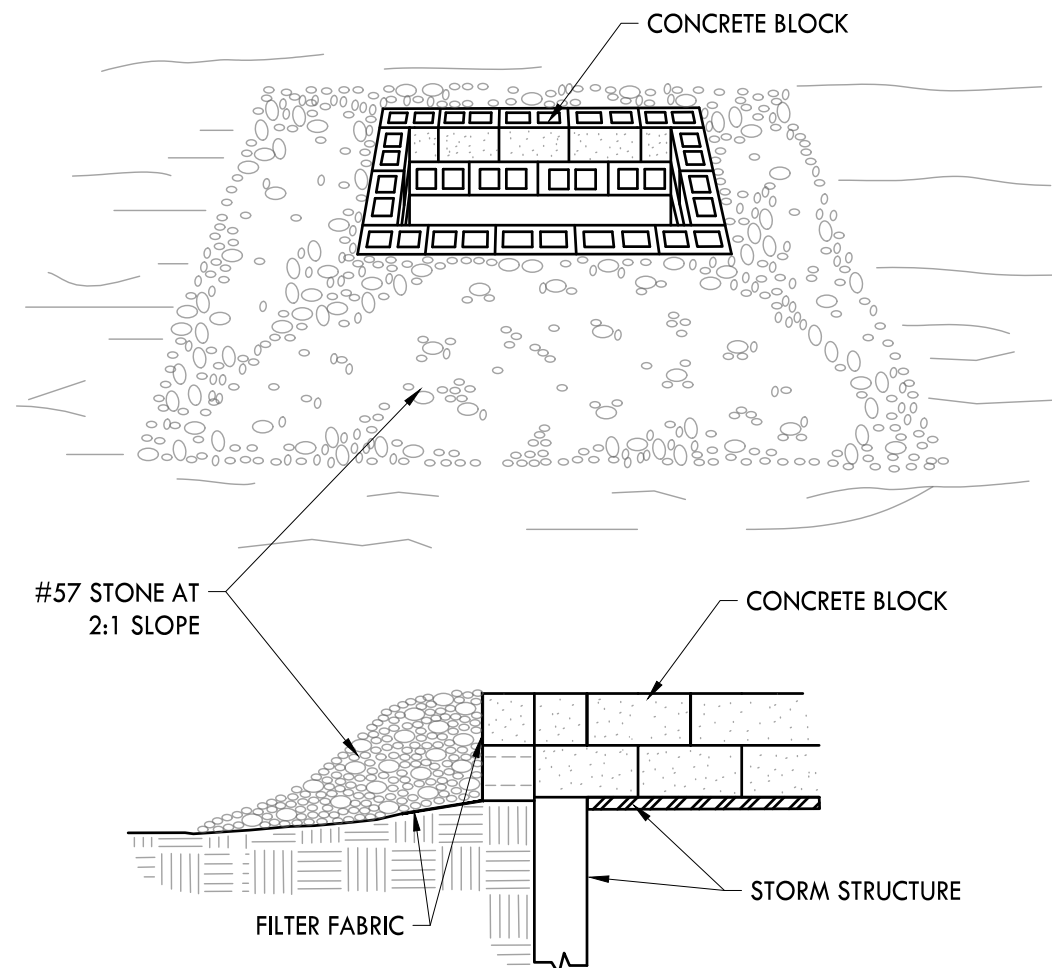
N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171
PLAT BOOK 14 / PAGE 318

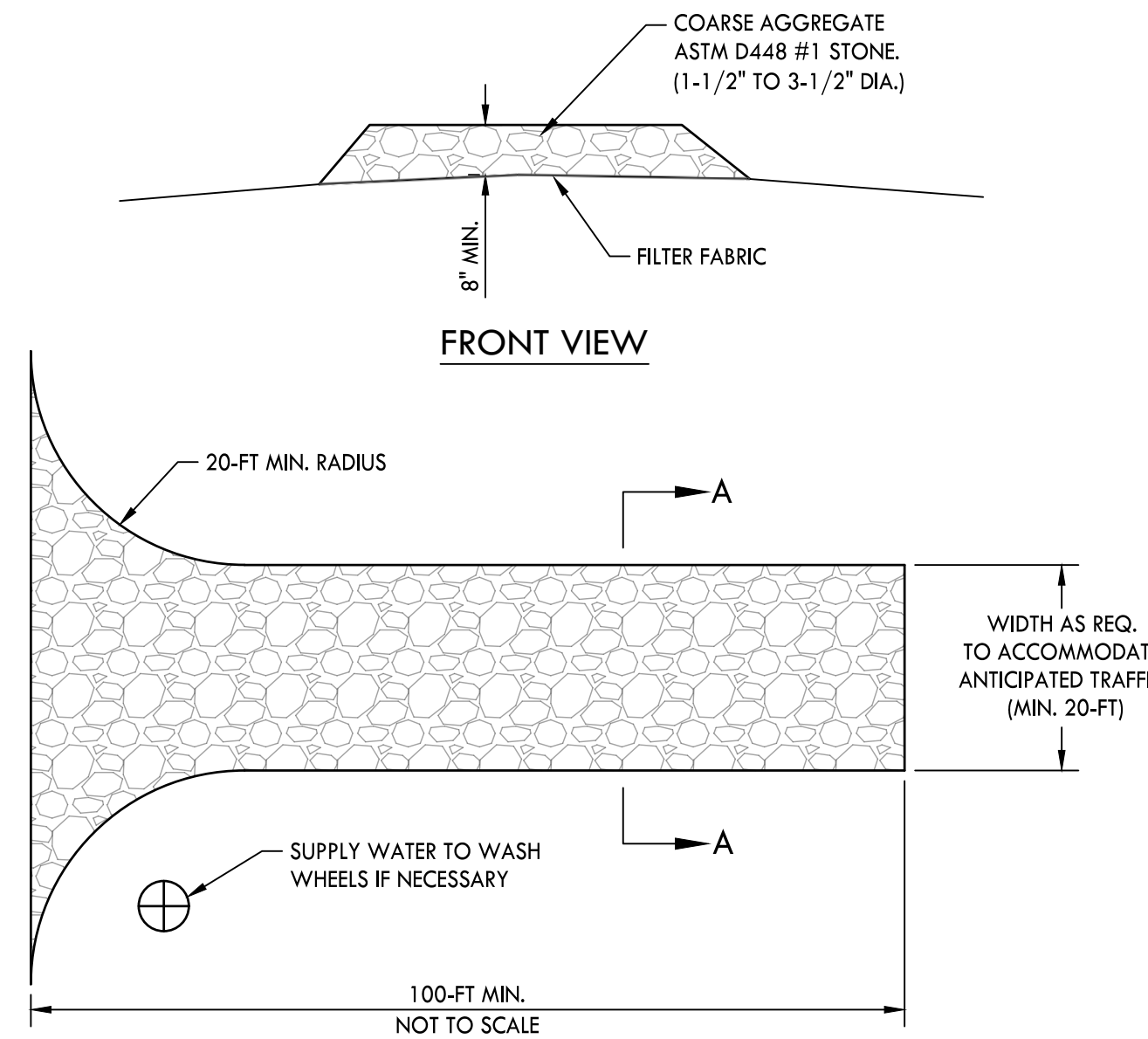
Drawn by: P. 11/20/2021 11:02 Honey Farm Storplace Erosion Control Plan C3.2.dwg

Page 387 of 412

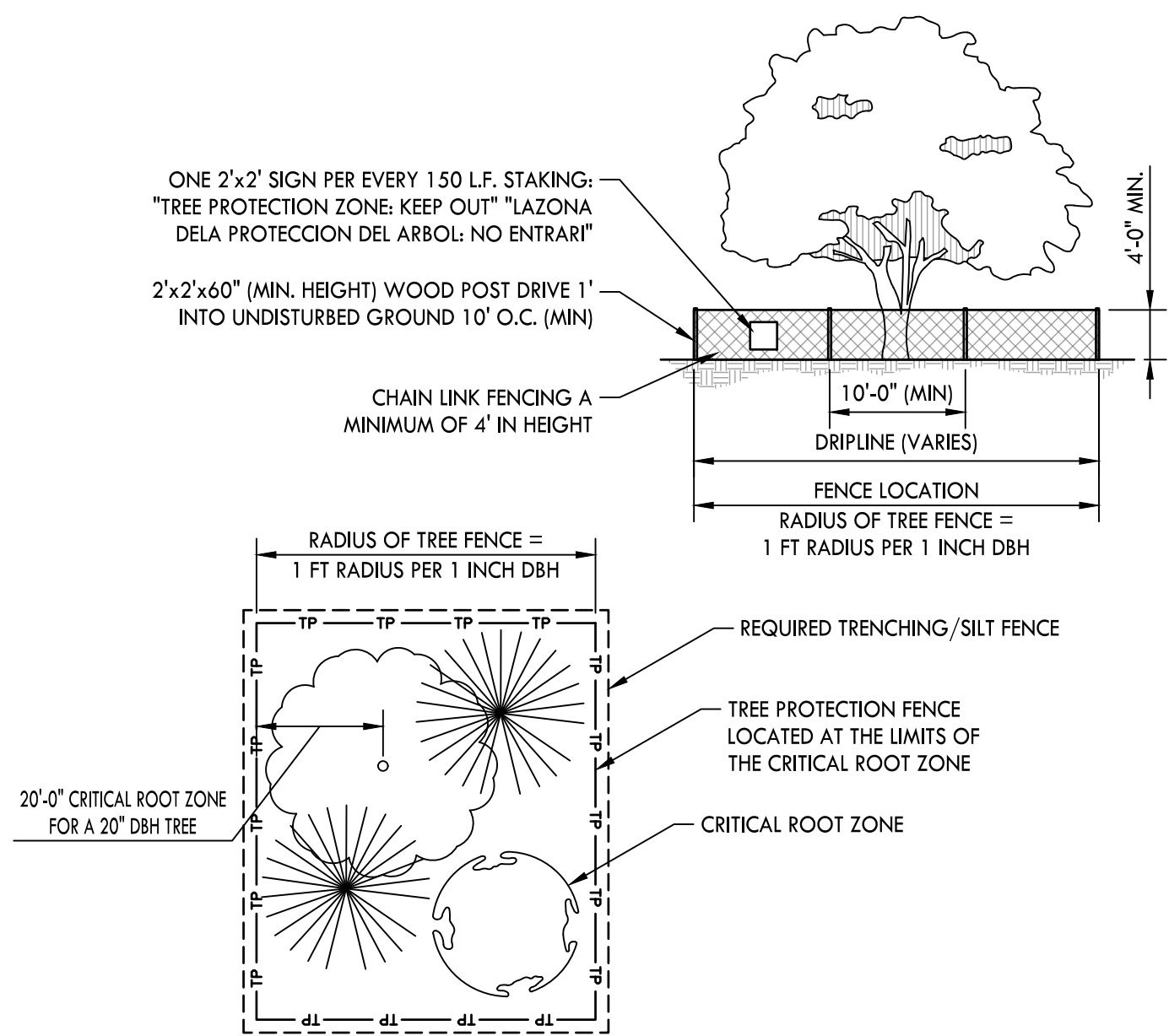
Drawings Date: 11/20/2022 22132 - Honey Farm Construction/Design/Construction/CS.3 - ERS.dwg



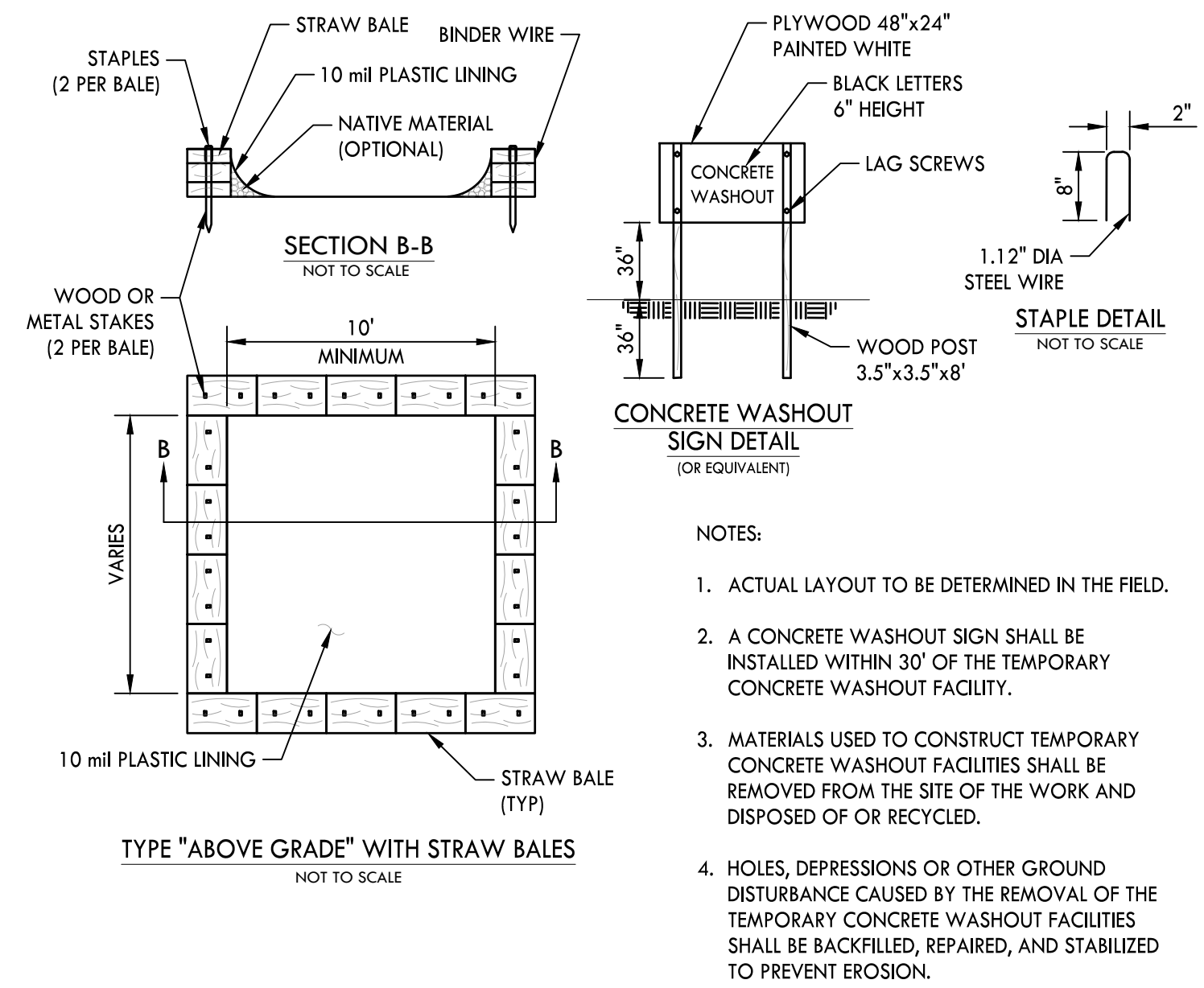
4 **TEMPORARY INLET PROTECTION**
NOT TO SCALE



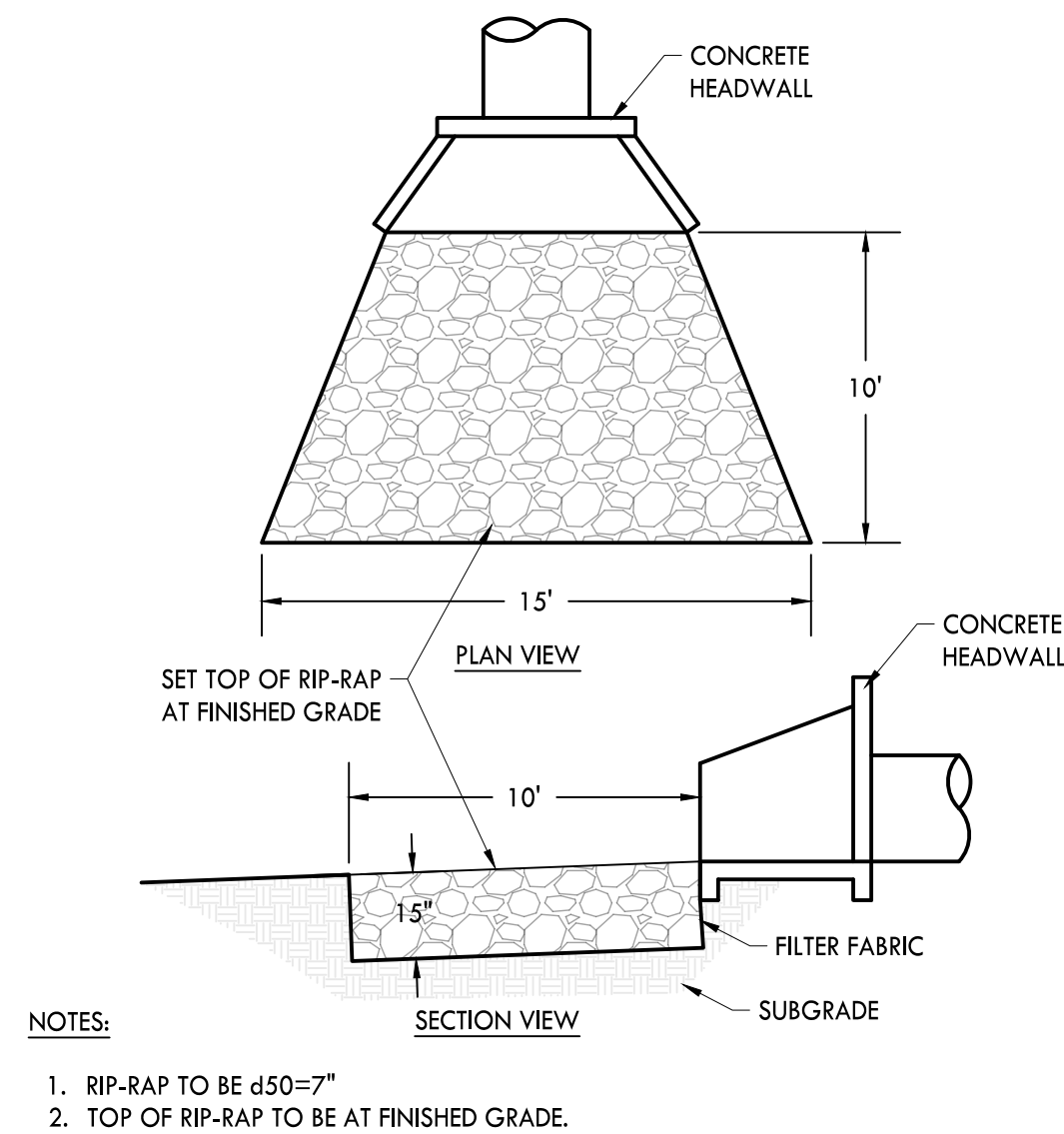
1 **TEMPORARY CONSTRUCTION EXIT**
NOT TO SCALE



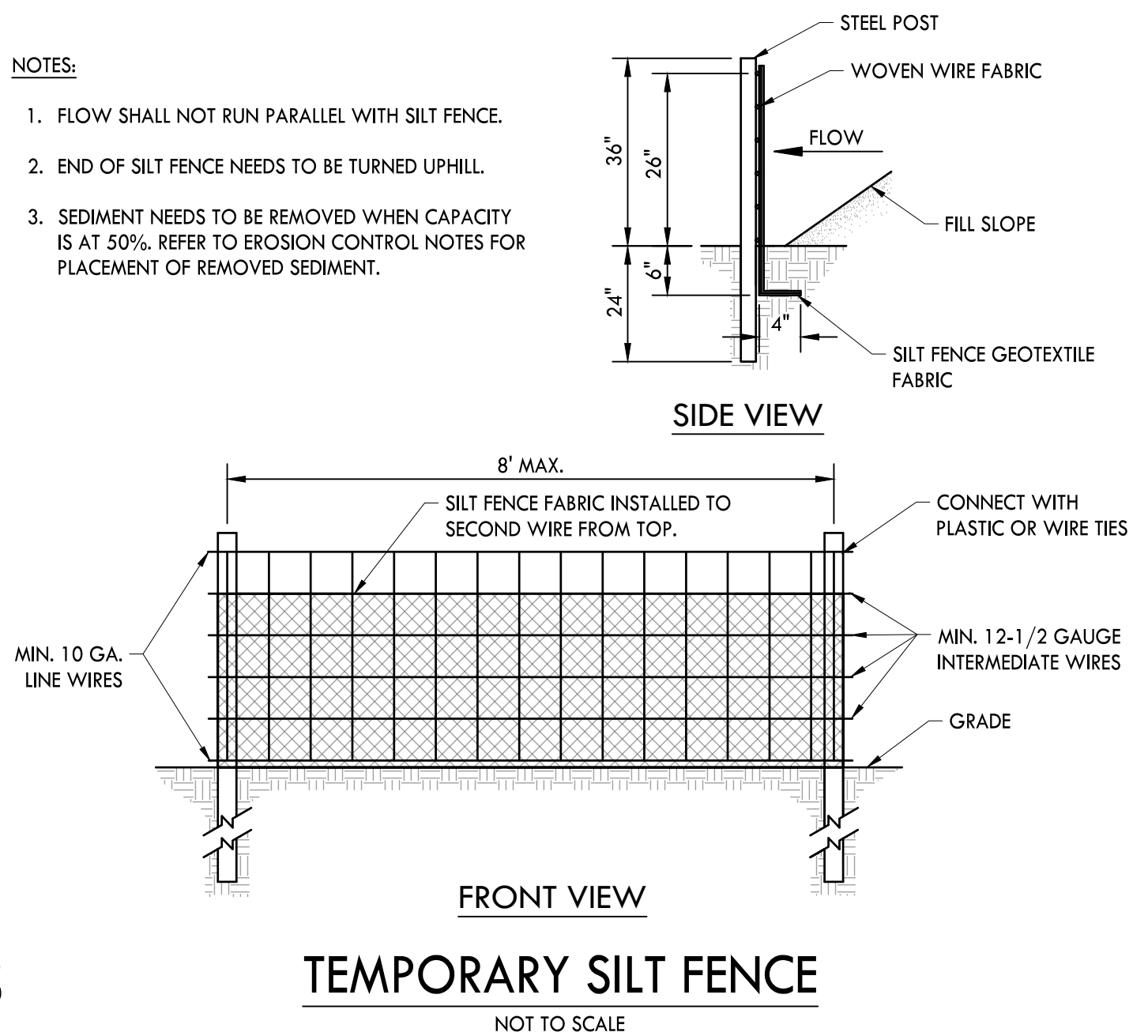
5 **TEMPORARY TREE PROTECTION**
NOT TO SCALE



2 **CONCRETE WASHOUT AREA**
NOT TO SCALE

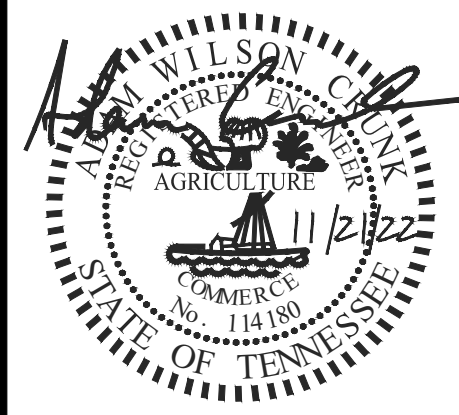


6 **RIP-RAP OUTLET PROTECTION**
NOT TO SCALE



3 **TEMPORARY SILT FENCE**
NOT TO SCALE

CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM STORPLACE
COLUMBIA, TN

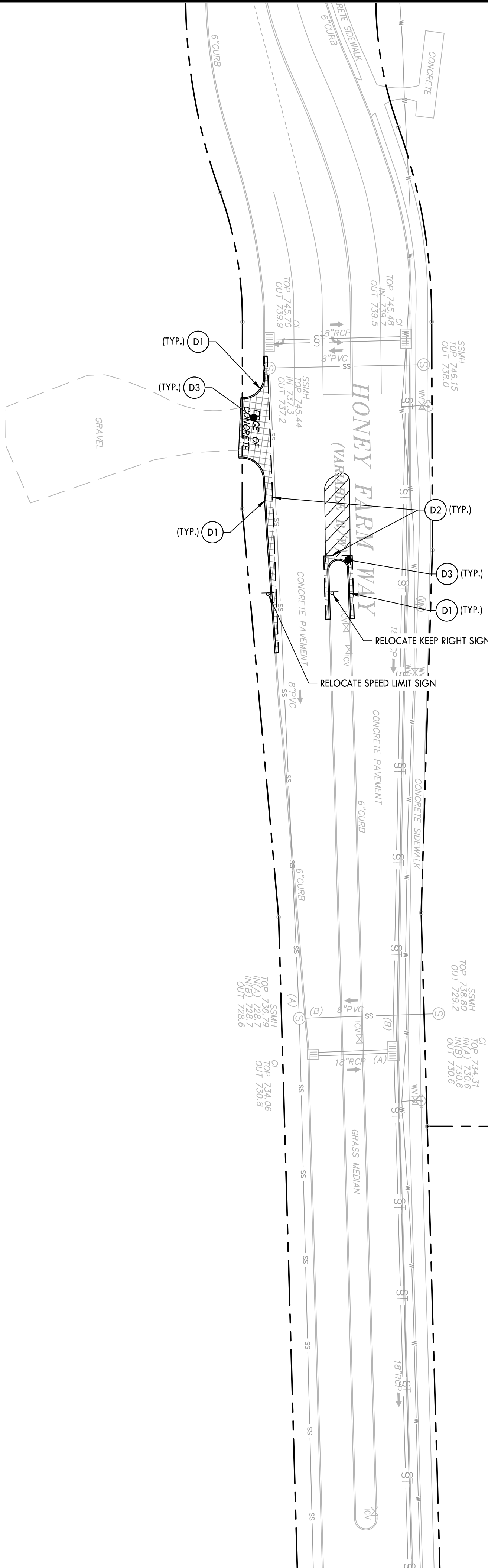
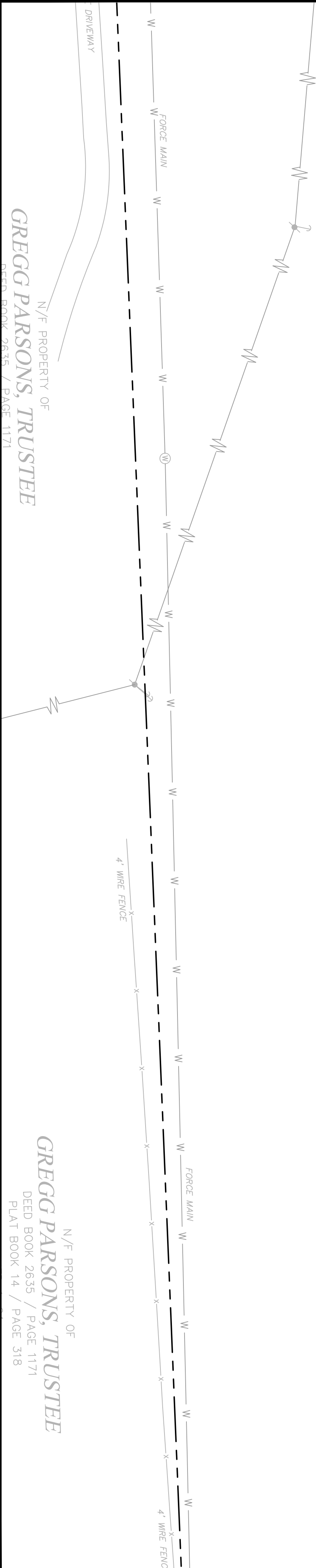
REVISIONS		DATE	
No.			

11/21/2022 22132

C3.3
EROSION SEDIMENT
PLAN AND DETAILS

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171
PLAT BOOK 14 / PAGE 318

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171

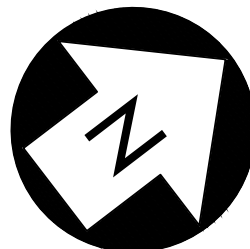
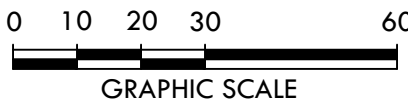


DEMOLITION PLAN KEYNOTES		
CODE	DESCRIPTION	DETAIL LOCATION
(D1)	REMOVE EXISTING CURB	-
(D2)	SAWCUT EDGE OF PAVEMENT DEMOLITION	-
(D3)	REMOVE EXISTING ASPHALT PAVEMENT	-

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED DEMOLITION
LEGEND

- ASPHALT PAVEMENT DEMOLITION
- EDGE OF PAVEMENT REMOVAL

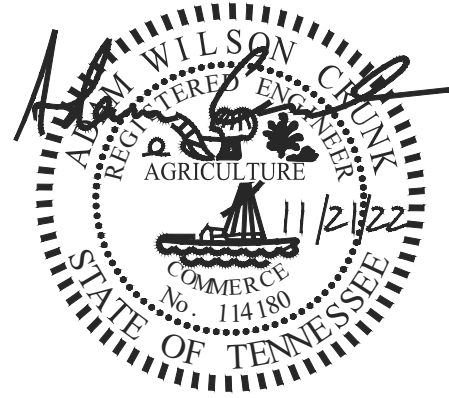


REVISIONS	
No.	DATE

11/21/2022 22132

C4.0
DEMOLITION PLAN

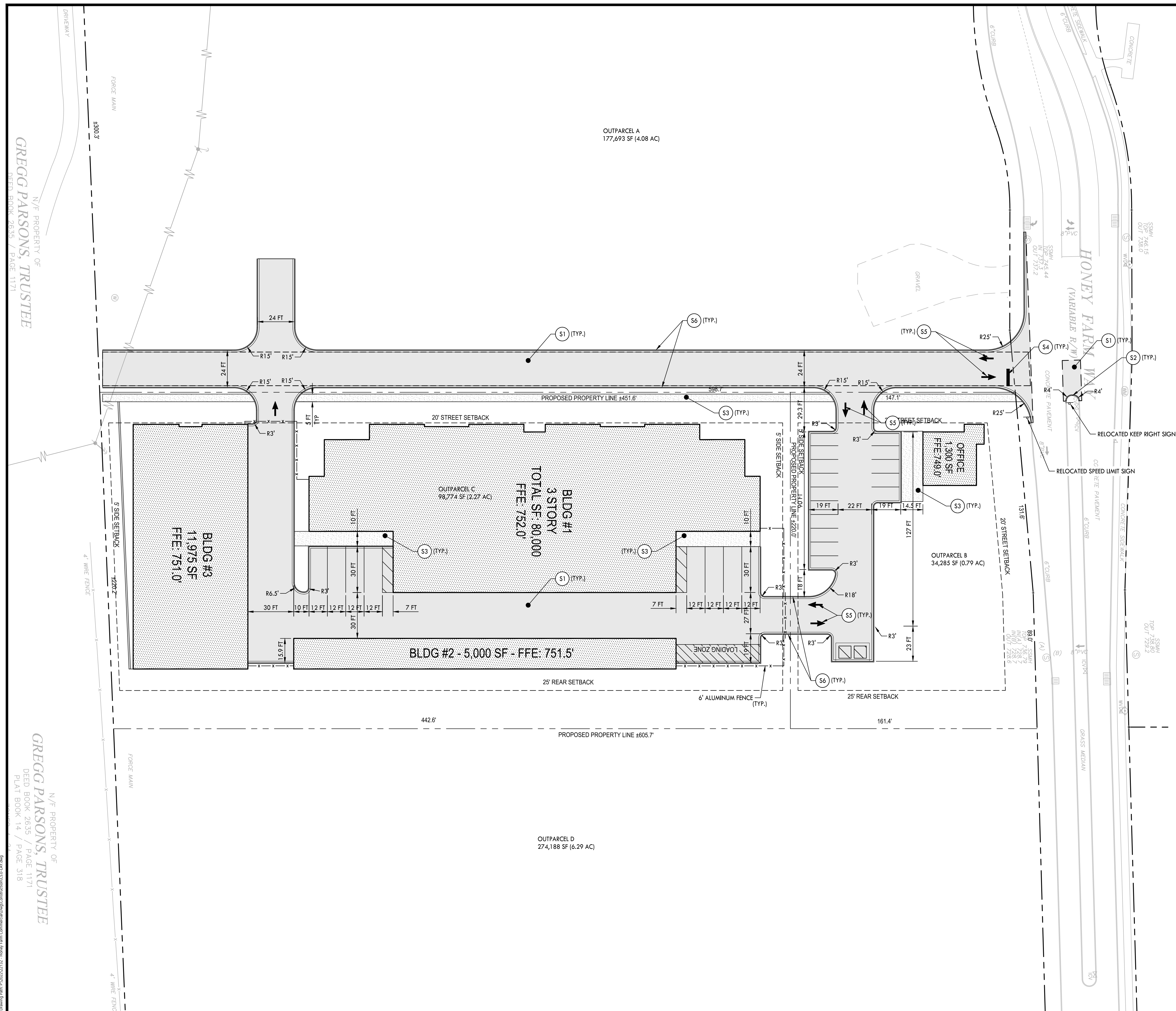
HONEY FARM STORPLACE
COLUMBIA, TN



CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171

N/F PROPERTY OF
GREGG PARSONS, TRUSTEE
DEED BOOK 2635 / PAGE 1171
PLAT BOOK 14 / PAGE 318



LAYOUT PLAN KEYNOTES		
CODE	DESCRIPTION	DETAIL LOCATION
S1	ASPHALT PAVEMENT HEAVY DUTY	C8.0 - 1
S2	POST CURB	C8.0 - 2
S3	CONCRETE SIDEWALK	C8.0 - 3
S4	24" PAINTED STOP BAR	C8.0 - 5
S5	DIRECTIONAL ARROW	C8.0 - 6
S6	CURB AND GUTTER	C8.0 - 4

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED LAYOUT LEGEND

PROPOSED BUILDING

HEAVY DUTY ASPHALT PAVEMENT

LIGHT DUTY ASPHALT PAVEMENT

CONCRETE PAVEMENT

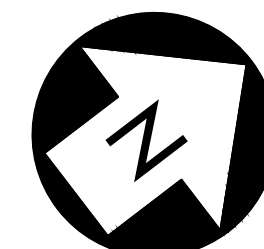
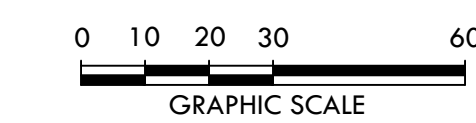
CONCRETE SIDEWALK

PROPERTY LINE

EDGE OF NEW PAVEMENT

SITE SUMMARY TABLE

ADDRESS	SOUTH CORNER OF NASHVILLE HWY AND HONEY FARM WAY, COLUMBIA, TN 38401
ZONING	PUD-CEG
EXISTING PARCEL ID	PORTION OF 051 058.00
EXISTING PARCEL ACREAGE	584,387 SF (13.42 AC)
OUTPARCEL A	177,693 SF (4.08 AC)
OUTPARCEL B	34,285 SF (0.79 AC)
PARKING REQUIREMENT	1 PER 300 SF = 5 SPACES
PARKING PROVIDED	15 SPACES
OUTPARCEL C (STORAGE)	98,774 SF (2.27 AC)
PARKING REQUIREMENT	1 PER 75 STORAGE UNITS = 9 SPACES
PARKING PROVIDED	10 SPACES (OUTPARCEL B SPACES)
LOADING SPACE REQUIREMENT	1 PER 10,000 SF = 9 SPACES
LOADING SPACES PROVIDED	9 SPACES
OUTPARCEL D	274,188 SF (6.29 AC)



CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM STORPLACE

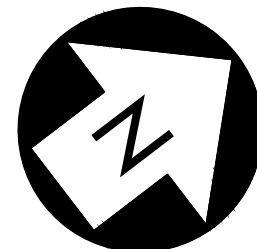
COLUMBIA, TN

[illegible]

11/21/2022 22132

C5.0

SITE LAYOUT PLAN



C7.0

UTILITY PLAN

Drawings File: 11/2023/201132 - Honey Farm Commercial/Drug/Construction/C&B - DET.dwg

10
RESERVED
NOT TO SCALE

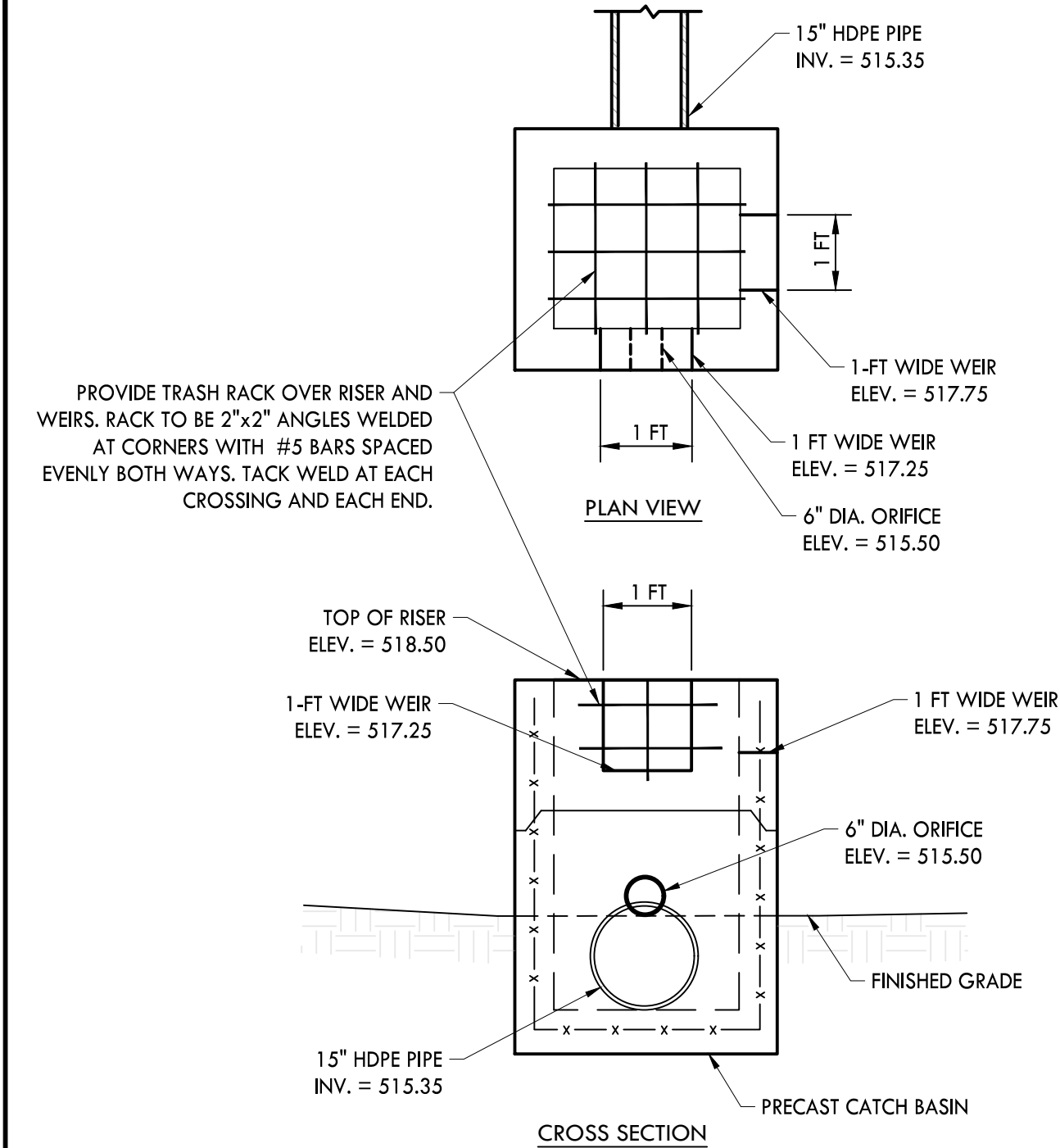
11
RESERVED
NOT TO SCALE

12
RESERVED
NOT TO SCALE

7
POND OUTLET STRUCTURE
NOT TO SCALE

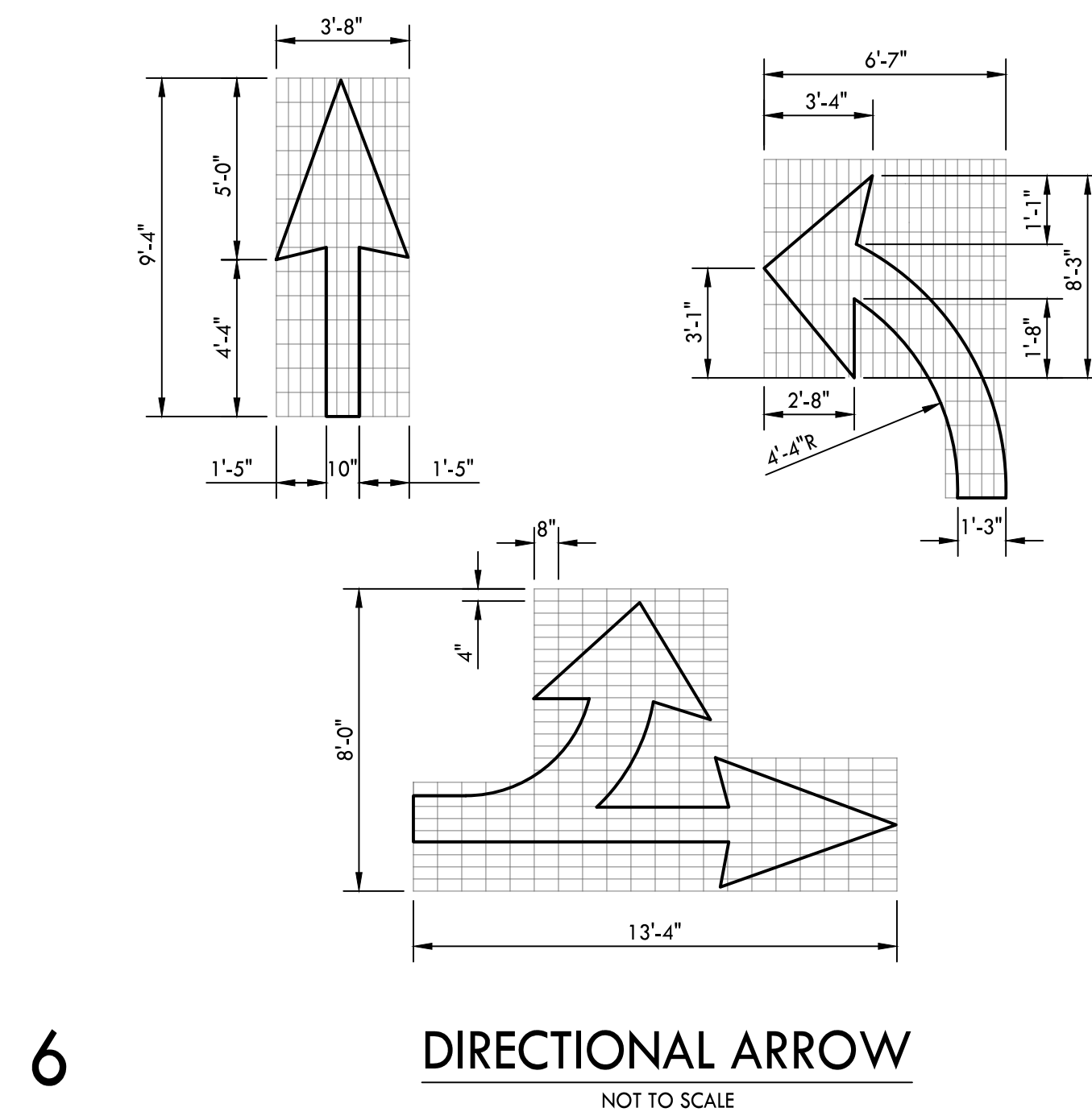
8
RESERVED
NOT TO SCALE

9
RESERVED
NOT TO SCALE

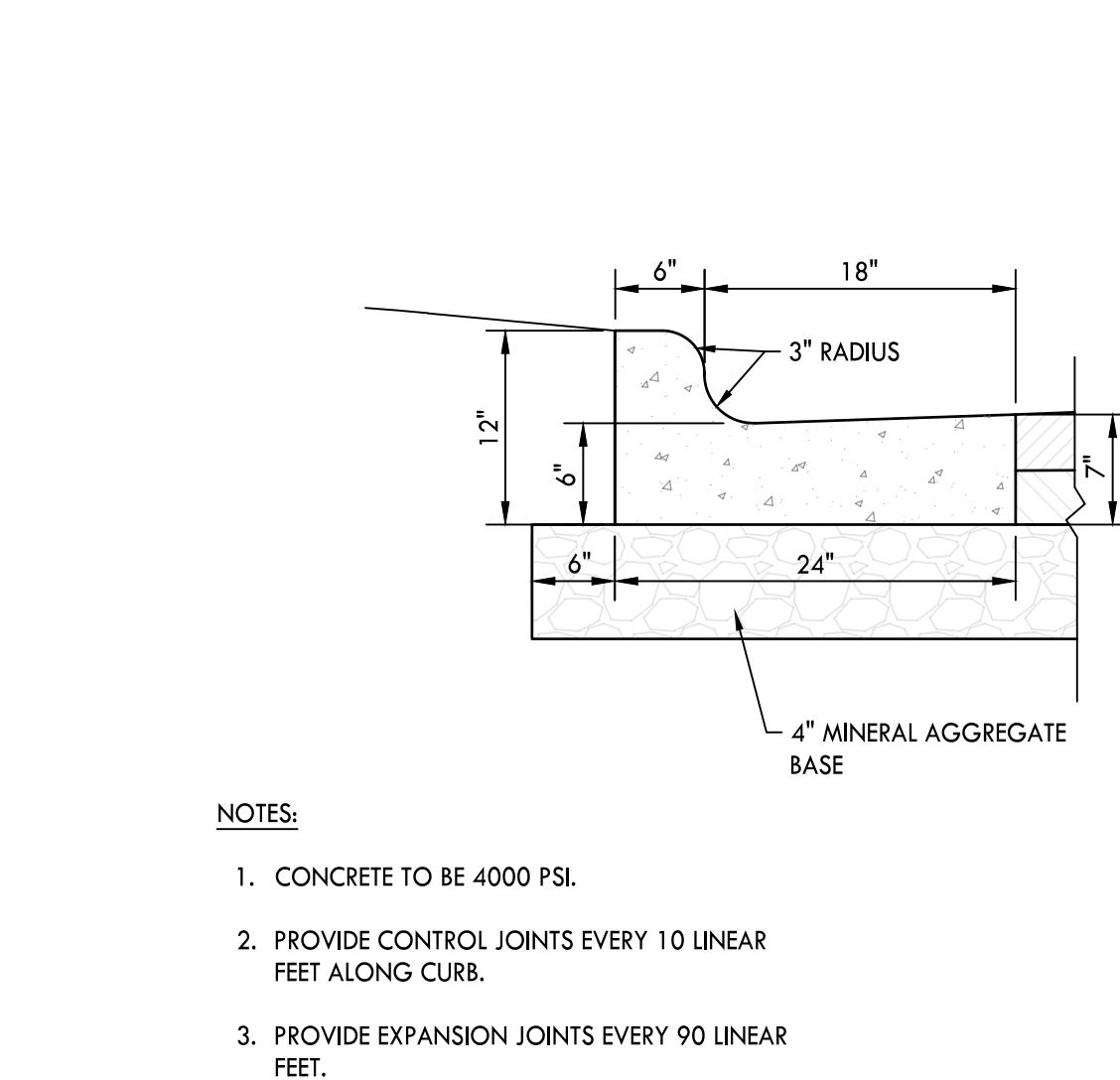


4
CURB AND GUTTER
NOT TO SCALE

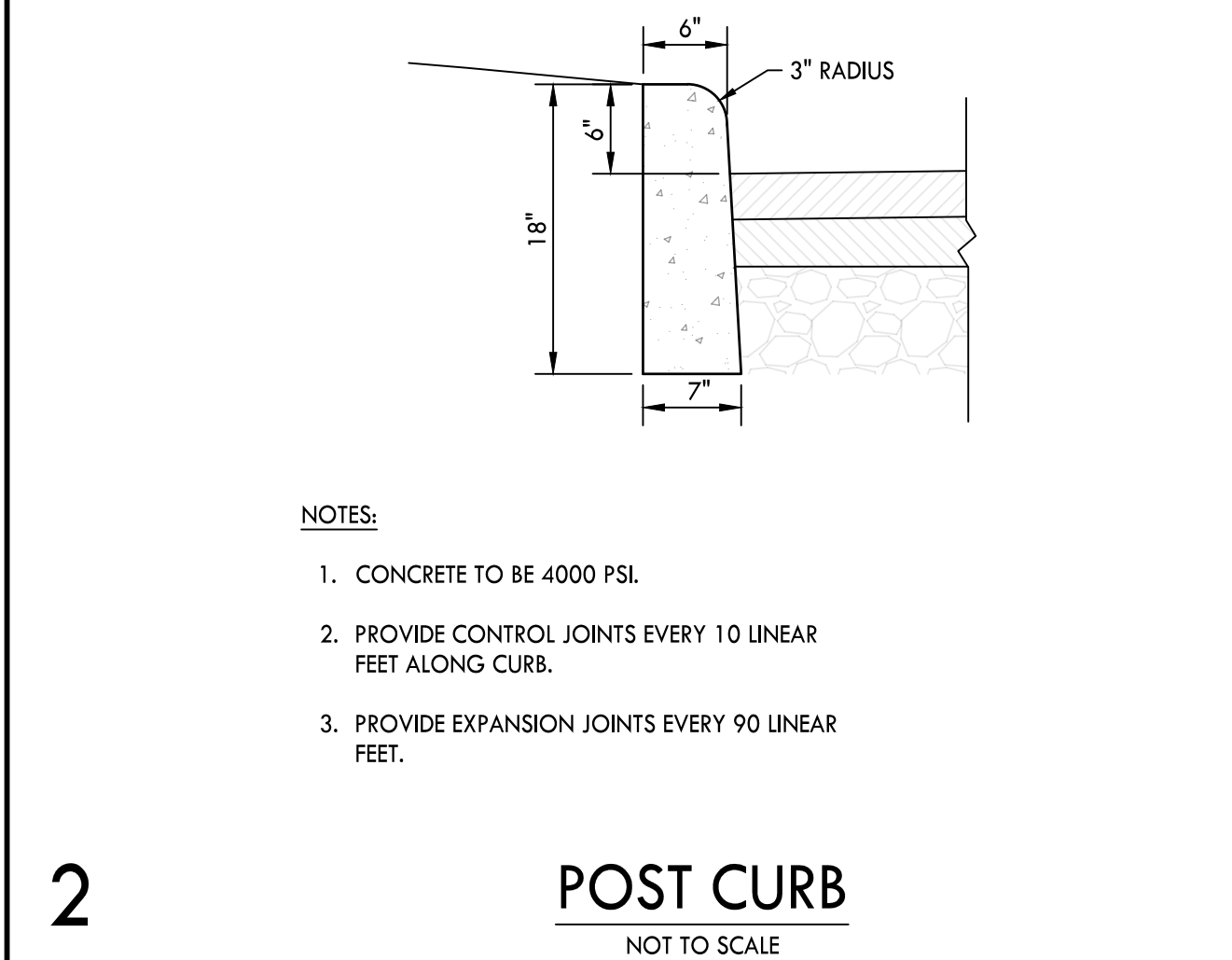
5
24" PAINTED STOP BAR
NOT TO SCALE



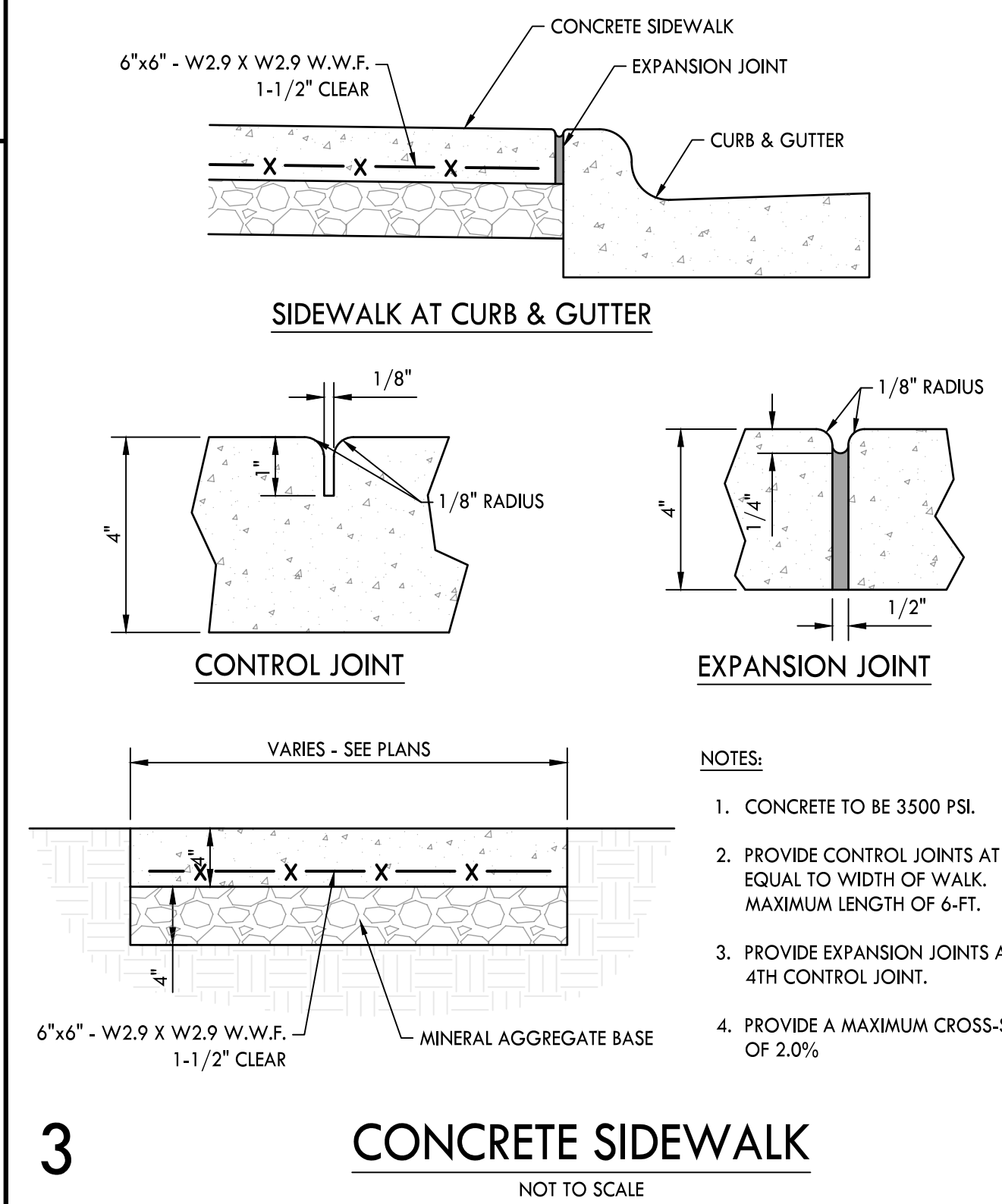
6
DIRECTIONAL ARROW
NOT TO SCALE



1
PAVEMENT SECTIONS
NOT TO SCALE

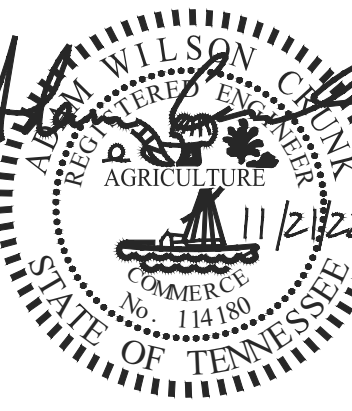


2
POST CURB
NOT TO SCALE



3
CONCRETE SIDEWALK
NOT TO SCALE

CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM STORPLACE
COLUMBIA, TN

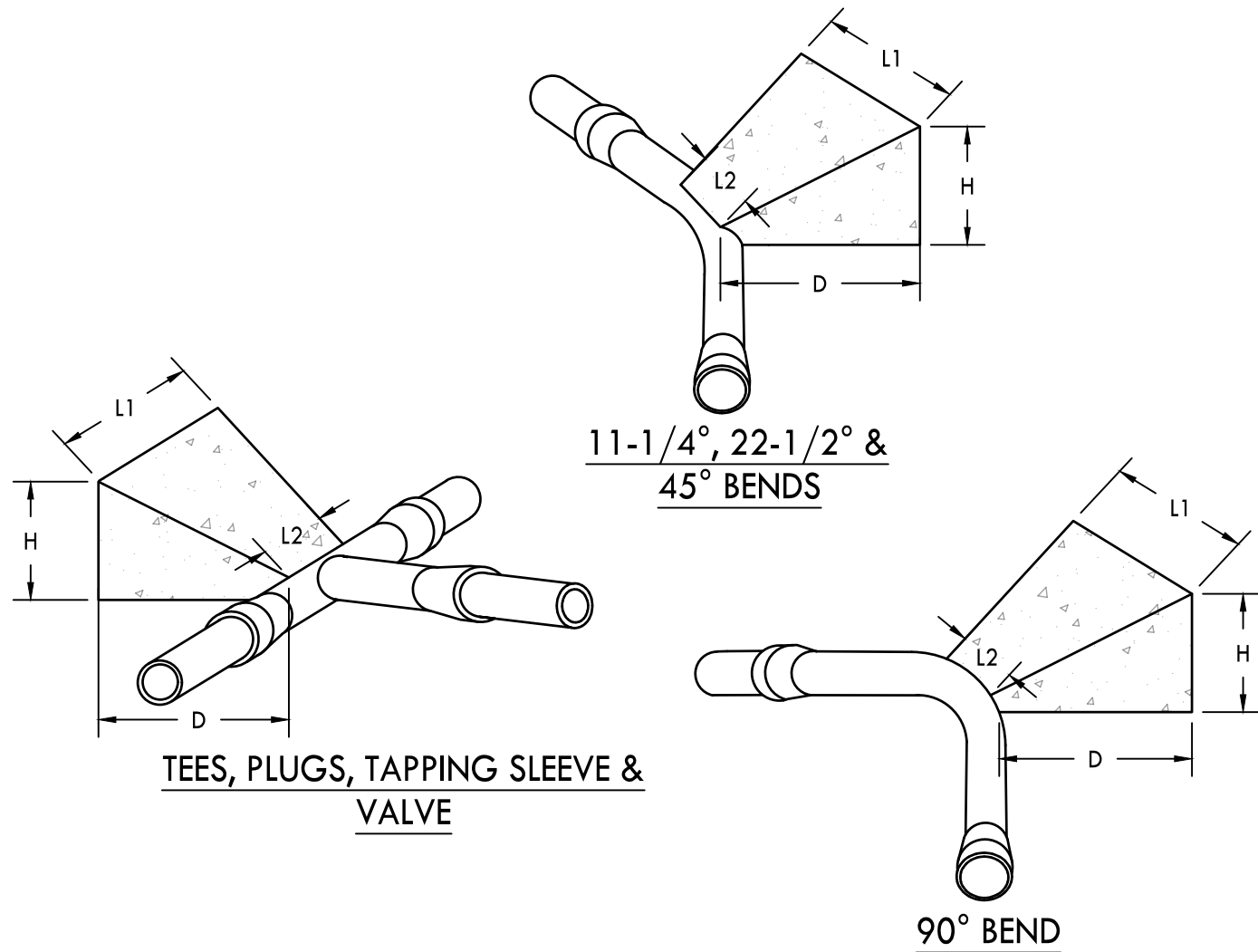
REVISIONS	DATE	
	No.	

11/21/2022 22132

C8.0
DETAILS

Drawings File: 11/20/2023 10:12 Honey Farm Construction/Drawings/C8.1 DET.dwg

THRUST BLOCK DIMENSIONS							
PIPE SIZE (IN)	2" & 2-1/4"	3" & 4"	6"	8"	10"	12"	
TEES, PLUGS & TAPPING SLEEVES	L1	18"	24"	24"	36"	48"	54"
	L2	10"	12"	16"	18"	24"	30"
	H	12"	12"	18"	18"	18"	24"
	D	18"	18"	18"	18"	24"	24"
90° BENDS	CU. FT	1.90	2.25	3.50	5.05	7.15	13.40
	L1	18"	24"	30"	39"	54"	54"
	L2	10"	12"	16"	18"	32"	32"
	H	12"	12"	18"	24"	24"	36"
45° BENDS	D	18"	18"	18"	18"	18"	24"
	CU. FT	1.90	2.25	4.05	7.30	10.25	18.15
	L1	18"	18"	24"	30"	36"	42"
	L2	6"	8"	10"	11"	18"	18"
22-1/2° BENDS	H	12"	12"	16"	18"	21"	24"
	D	18"	18"	18"	18"	18"	24"
	CU. FT	1.50	1.60	3.20	3.95	4.60	9.60
	L1	18"	18"	24"	24"	24"	24"
11-1/4° BENDS	L2	6"	8"	10"	11"	18"	18"
	H	12"	12"	16"	18"	21"	21"
	D	18"	18"	18"	18"	18"	24"
	CU. FT	1.50	1.60	3.20	3.40	4.60	6.10



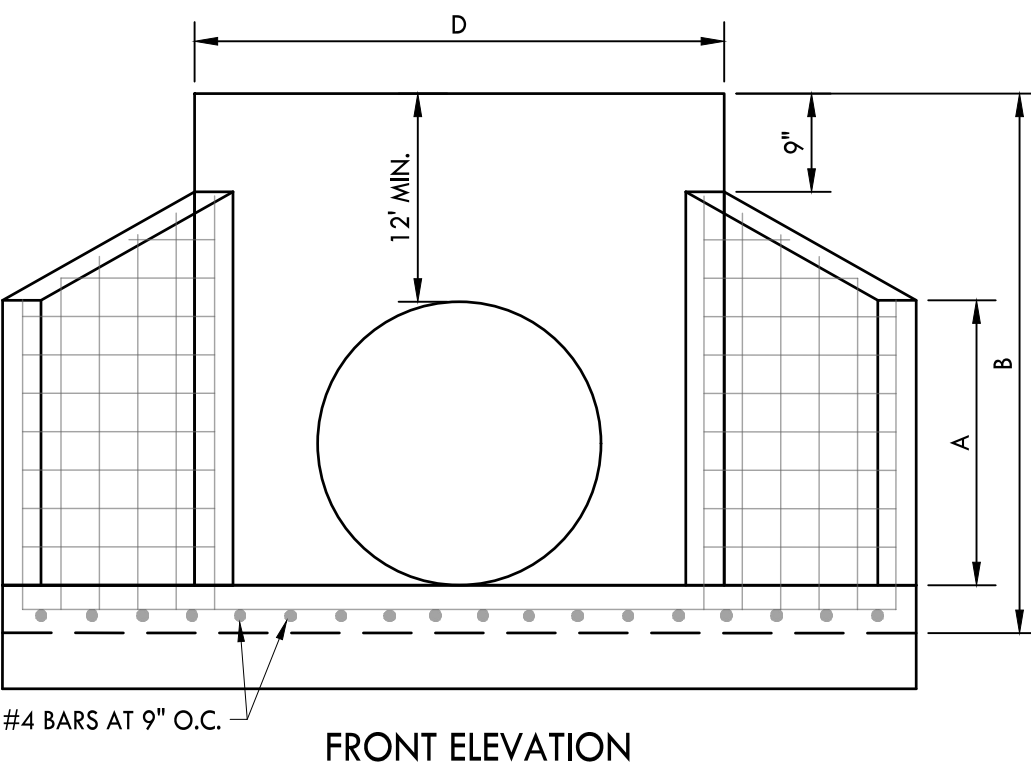
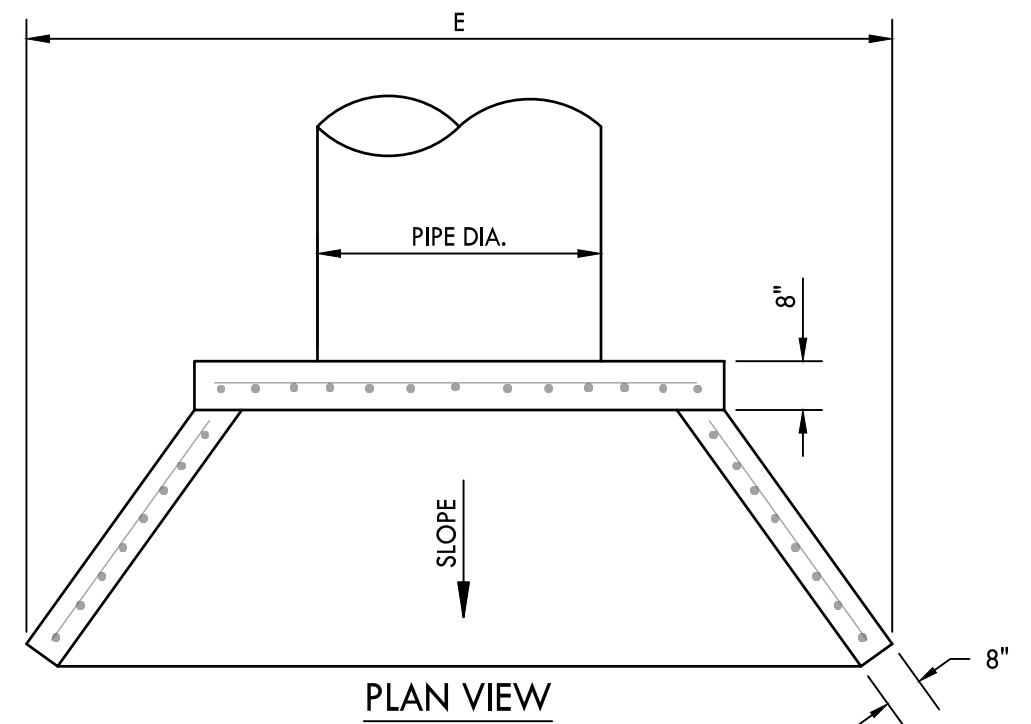
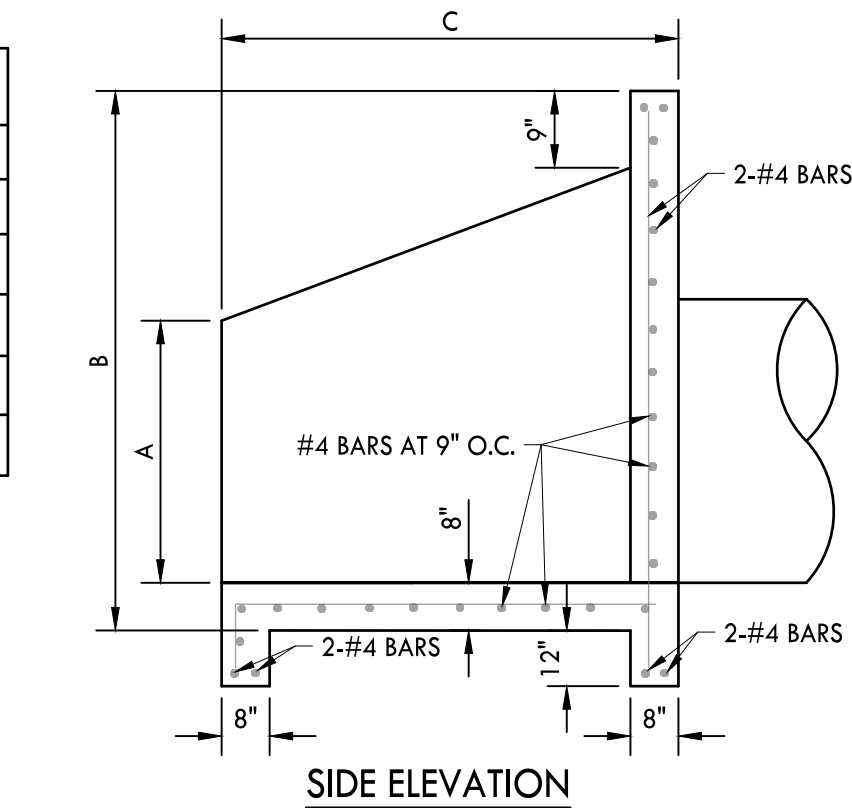
8

THRUST BLOCKS
NOT TO SCALE

DIMENSION TABLE					
PIPE DIA.	A	B	C	D	E
UP TO 18"	15"	36"	30"	50"	96"
18" TO 30"	24"	48"	42"	62"	120"
30" TO 42"	30"	60"	48"	76"	136"
42" TO 60"	36"	80"	54"	96"	160"
60" TO 72"	42"	92"	66"	108"	176"

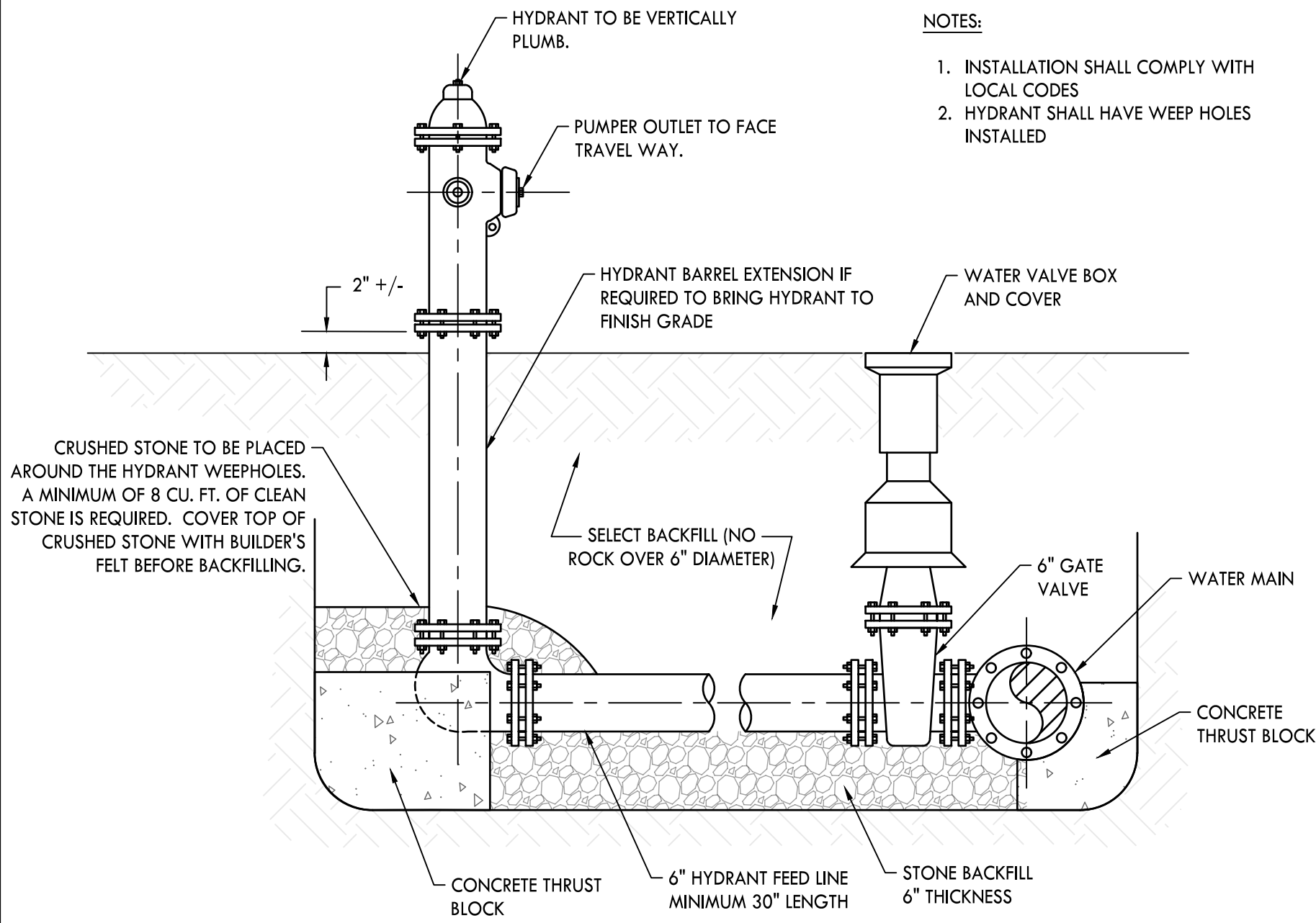
NOTES:

1. CONCRETE TO BE 4000 PSI.
2. REINFORCING STEEL SHALL MEET ASTM A615 FOR GRADE 60. MIN. 2" CLEARANCE.
3. PIPE TO BE GROUTED INTO HEADWALL ON SITE.
4. PRECAST HEADWALLS ARE ACCEPTABLE IN LIEU OF CAST IN PLACE. PRECAST ELEMENTS TO MEET ASTM C913
5. CHAMFER ALL CORNERS 1".



6

CONCRETE HEADWALL
NOT TO SCALE

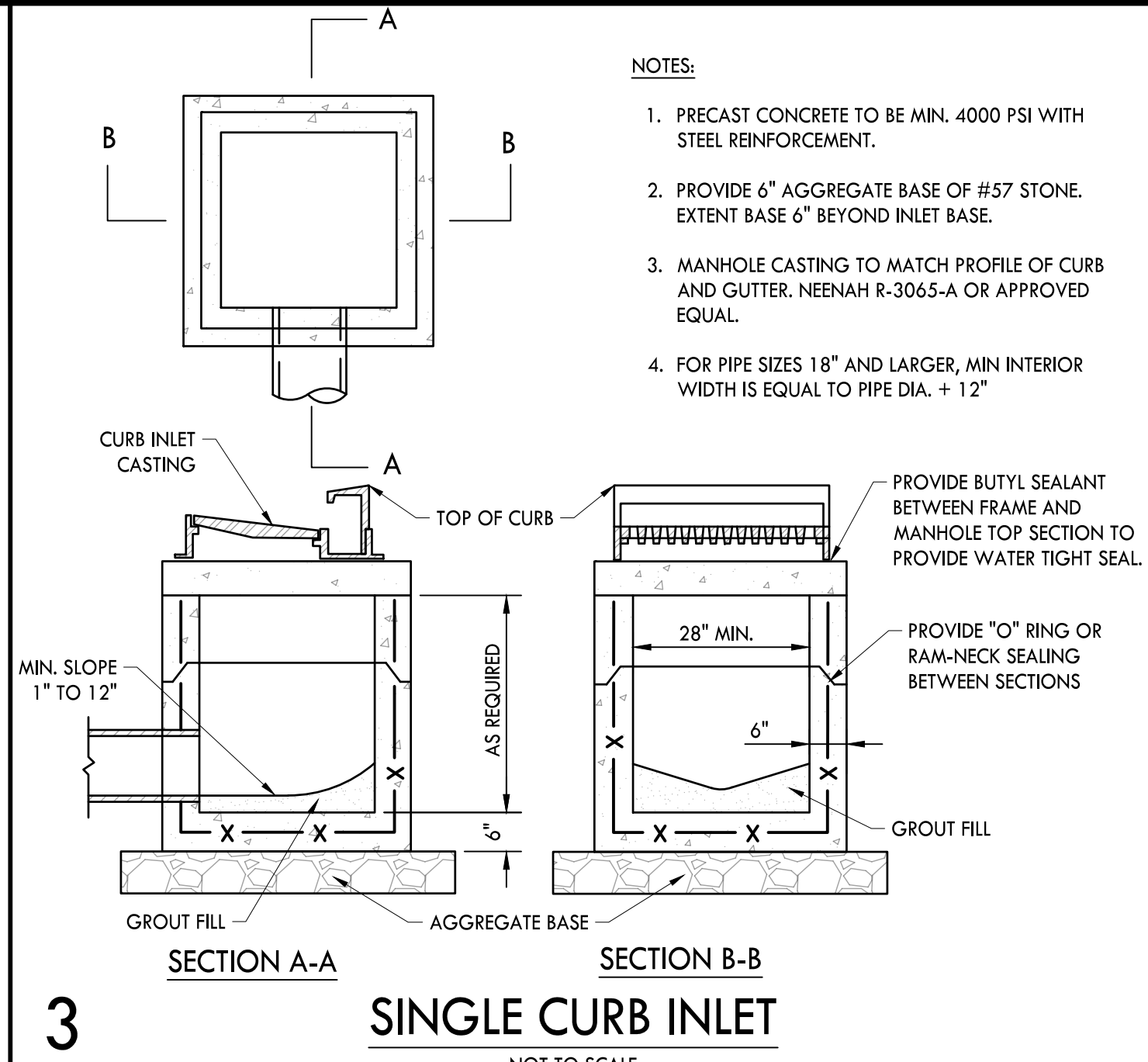


NOTES:

1. INSTALLATION SHALL COMPLY WITH LOCAL CODES
2. HYDRANT SHALL HAVE WEEP HOLES INSTALLED

7

FIRE HYDRANT ASSEMBLY
NOT TO SCALE

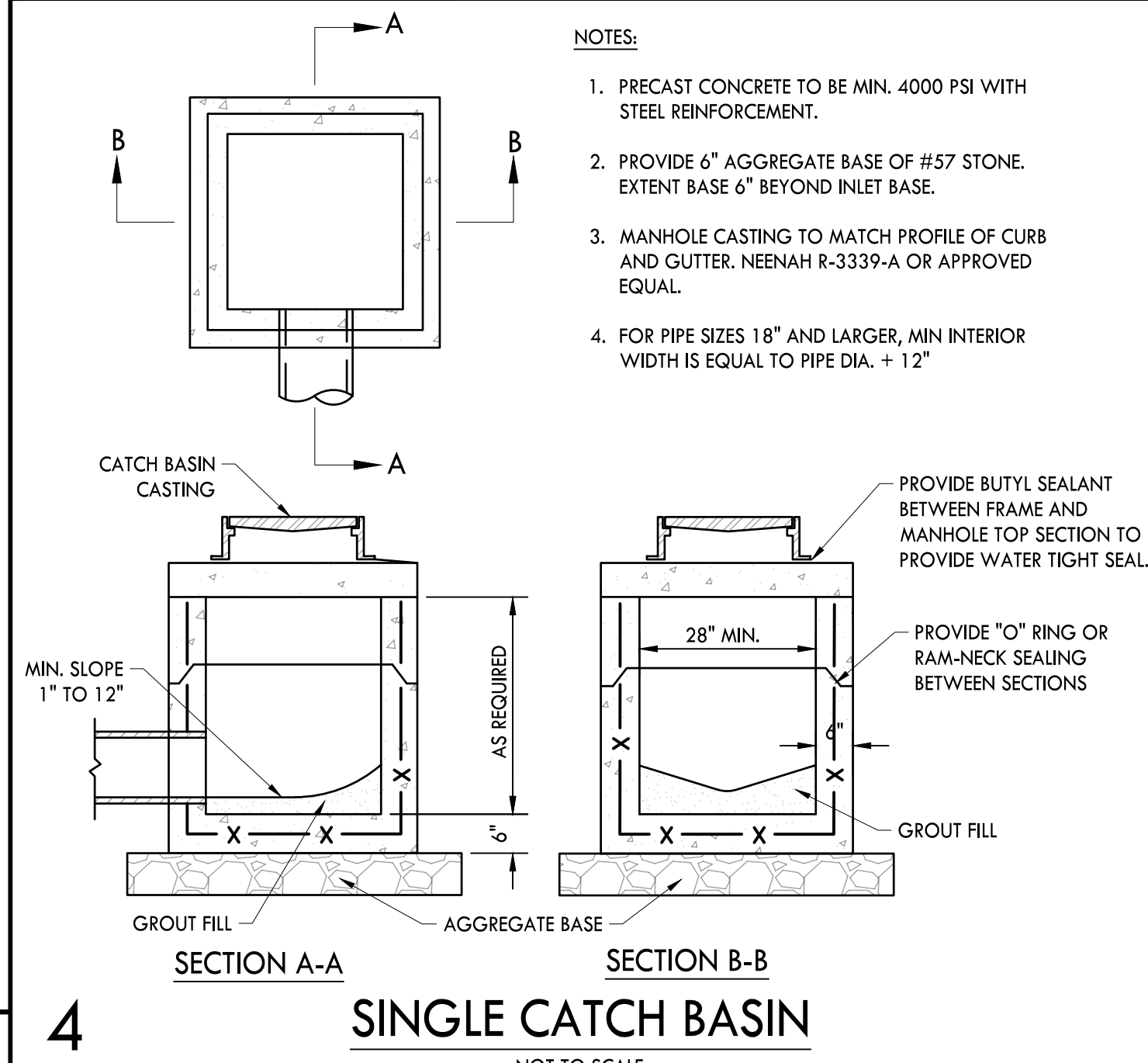


NOTES:

1. PRECAST CONCRETE TO BE MIN. 4000 PSI WITH STEEL REINFORCEMENT.
2. PROVIDE 6" AGGREGATE BASE OF #57 STONE. EXTENT BASE 6" BEYOND INLET BASE.
3. MANHOLE CASTING TO MATCH PROFILE OF CURB AND GUTTER. NEENAH R-3065-A OR APPROVED EQUAL.
4. FOR PIPE SIZES 18" AND LARGER, MIN INTERIOR WIDTH IS EQUAL TO PIPE DIA. + 12"

3

SINGLE CURB INLET
NOT TO SCALE

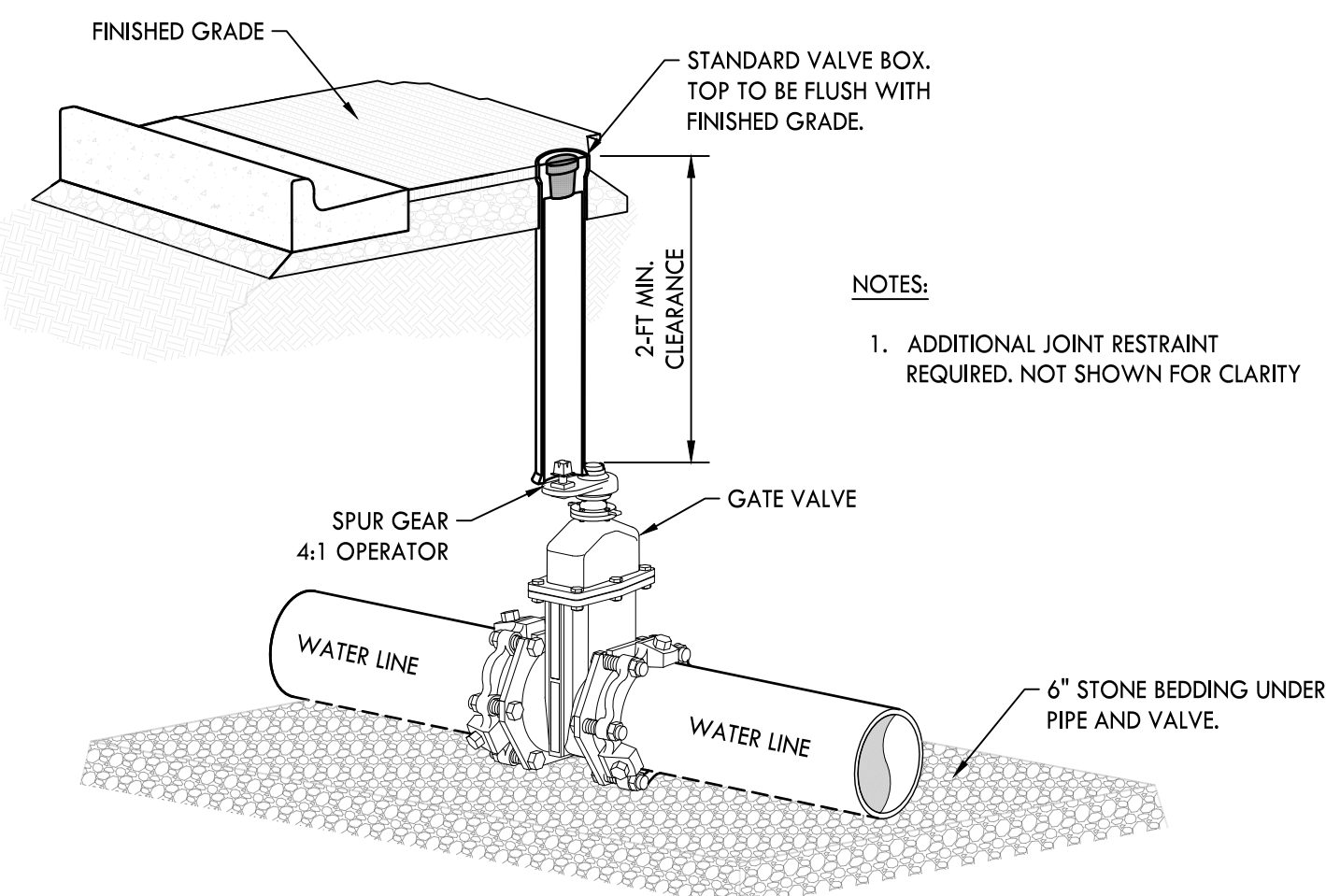


NOTES:

1. PRECAST CONCRETE TO BE MIN. 4000 PSI WITH STEEL REINFORCEMENT.
2. PROVIDE 6" AGGREGATE BASE OF #57 STONE. EXTENT BASE 6" BEYOND INLET BASE.
3. MANHOLE CASTING TO MATCH PROFILE OF CURB AND GUTTER. NEENAH R-3339-A OR APPROVED EQUAL.
4. FOR PIPE SIZES 18" AND LARGER, MIN INTERIOR WIDTH IS EQUAL TO PIPE DIA. + 12"

4

SINGLE CATCH BASIN
NOT TO SCALE

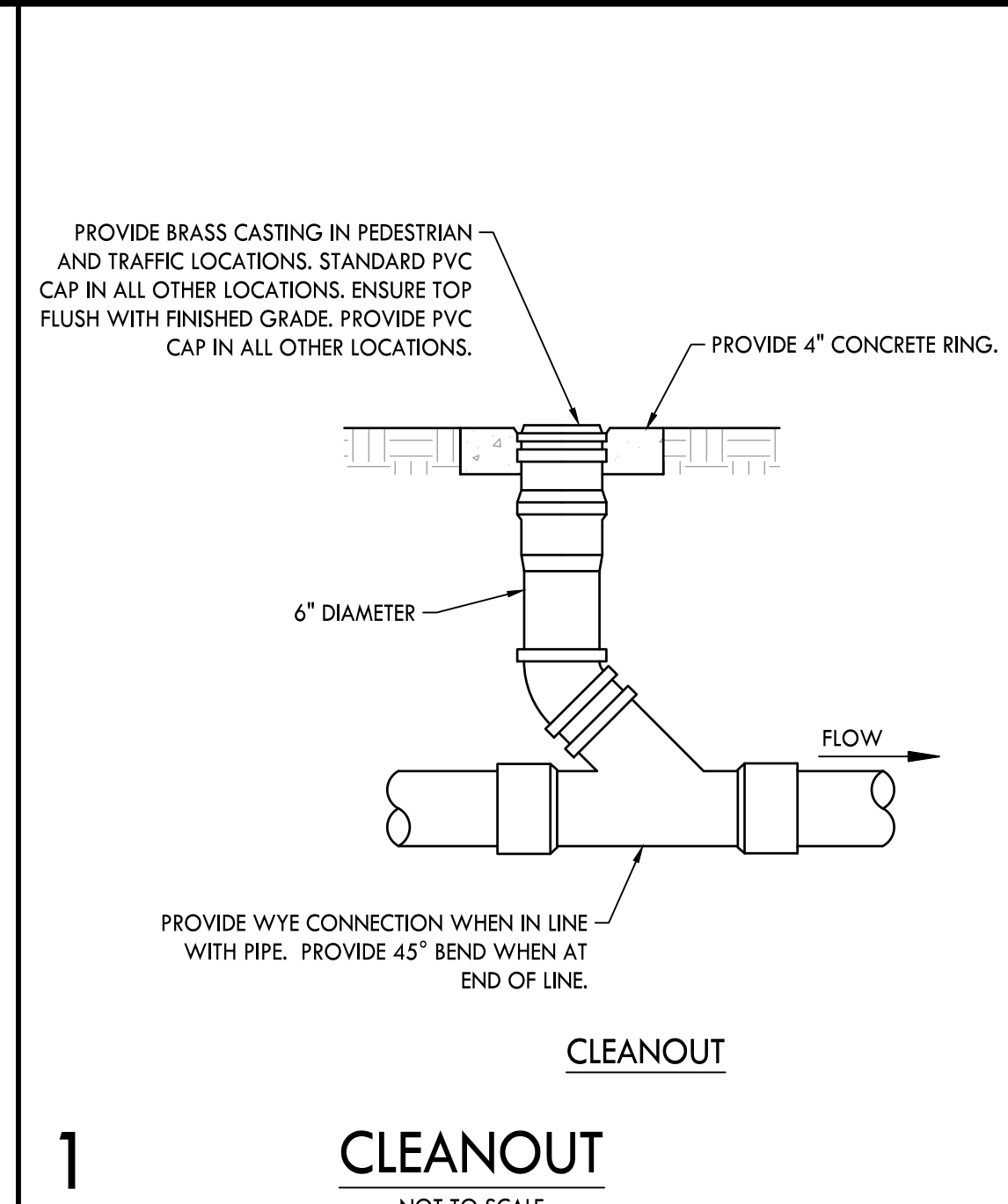


NOTES:

1. ADDITIONAL JOINT RESTRAINT REQUIRED. NOT SHOWN FOR CLARITY

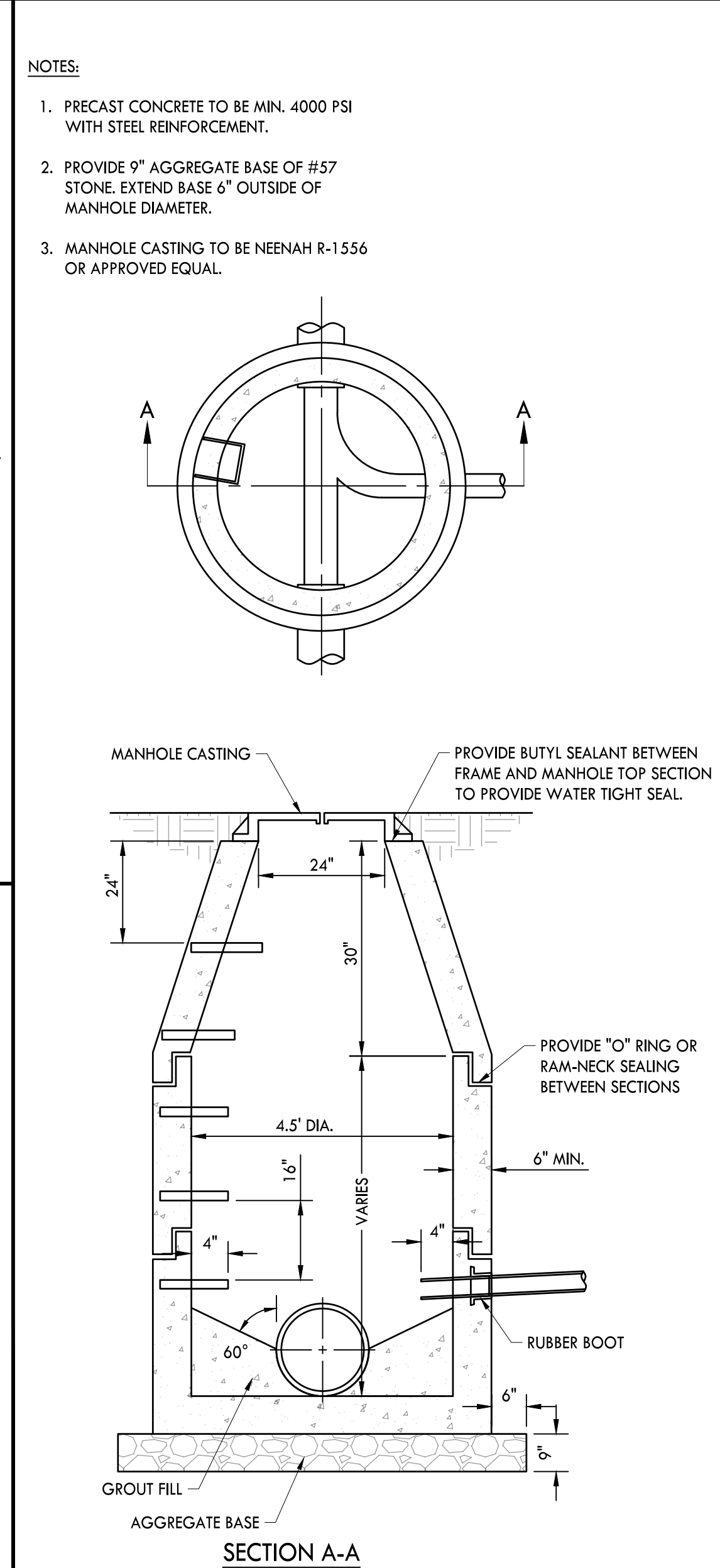
5

GATE VALVE
NOT TO SCALE



1

CLEANOUT
NOT TO SCALE



NOTES:

1. PRECAST CONCRETE TO BE MIN. 4000 PSI WITH STEEL REINFORCEMENT.
2. PROVIDE 9" AGGREGATE BASE OF #57 STONE. EXTEND BASE 6" OUTSIDE OF MANHOLE DIAMETER.
3. MANHOLE CASTING TO BE NEENAH R-1556 OR APPROVED EQUAL.

2

PRECAST CONCRETE MANHOLE
NOT TO SCALE

CRUNK ENGINEERING LLC

7112 CROSSROADS BOULEVARD

SUITE 201

BRENTWOOD, TN 37027

(615) 873-1795

WWW.CRUNKENG.COM



HONEY FARM STORPLACE

COLUMBIA, TN

REVISIONS

DATE

No.

11/21/2022

22132

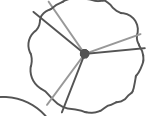
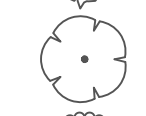
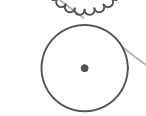
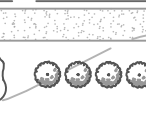
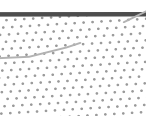
C8.1

DETAILS

9

RESERVED
NOT TO SCALE

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY
	CER CAN	Cercis canadensis / Eastern Redbud	1.5" Cal.	B&B	6
	COR PRI	Cornus florida 'Cherokee Princess' / Cherokee Princess Dogwood	2" Cal.	B&B	6
	FAG GRA	Fagus grandifolia / American Beech	2" Cal.	B&B	13
	JUN BR2	Juniperus virginiana 'Brodie' / Brodie Eastern Redcedar	8' Ht.	B&B	4
	MAG ACU	Magnolia acuminata / Cucumber Tree Magnolia	2" Cal.	B&B	12
	QOU NUT	Quercus nuttallii / Nuttall Oak	2" Cal.	B&B	5
SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY
	ILE LIT	Ilex x 'Little Red' / Little Red Holly	3 gal.	Pot	10
	LOR RUB	Loropetalum chinense rubrum / Purpleleaf Fringe Flower	3 gal.	Pot	31
	MYR DON	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	3 gal.	Pot	20
	PRU ENG	Prunus laurocerasus / English Laurel	3 gal.	Pot	57
	ROS 361	Rosa x 'Radtko' / Double Knock Out® Red Rose	3 gal.	Pot	37

LANDSCAPE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
(L1)	AREA TO BE SEEDED LAWN	AS NOTED
(L2)	AREA TO BE SODDED LAWN	AS NOTED
(L3)	PLANTING BED LIMITS	-
(L4)	IRRIGATION LIMITS	-

- NOTES:
- REFER TO SHEET L2.0 FOR ADDITIONAL NOTES.
 - REFER TO SHEET L2.0 FOR PLANT LIST

NOTES:

ALL PLANT MATERIAL SHALL CONSIST OF RECOMMENDED SPECIES LISTED IN THE URBAN FORESTRY RECOMMENDED AND PROHIBITED TREE AND SHRUB LIST. ALTERNATIVE REPLACEMENT TREES MAY BE ALLOWED, SUBJECT TO APPROVAL OF THE URBAN FORESTER, PROVIDED THAT SUCH TREES ARE NOT LISTED IN THE MOST RECENT EDITION OF THE TENNESSEE INVASIVE EXOTIC PLANT LIST.

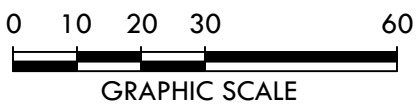
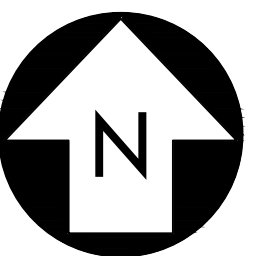
17.24.020 - LANDSCAPE PLAN REQUIRED.
THE PLAN SHALL SHOW LOCATION, SIZE, SPACING, SPECIES, FORM AND QUANTITY OF ALL EXISTING AND PROPOSED MATERIALS INTENDED TO FULFILL THE REQUIREMENTS OF THIS CHAPTER. THE PLAN SHALL ALSO SHOW TOPOGRAPHY, LOCATION OF UTILITIES, AND EITHER AN UNDERGROUND SPRINKLER SYSTEM OR HOSE BIB ATTACHMENTS.

17.24.090.B - RETENTION OF TREES
ANY TREE WITH A BREAST HEIGHT DIAMETER (DBH) OF TWENTY-FOUR INCHES (24") OR MORE, OR THAT QUALIFIES AS A HERITAGE TREE UNDER SECTION 17.40.450.B OF THIS TITLE, SHALL BE SURVEY LOCATED AND DEPICTED ON THE FINAL SITE PLAN.

WATERING NOTES:

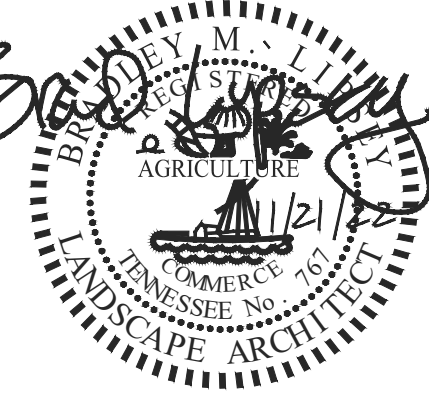
- PLANTS TO BE WATERED BY EITHER -
- AN UNDERGROUND SPRINKLER SYSTEM;
 - AN OUTSIDE HOSE ATTACHMENT WITHIN ONE HUNDRED FEET OF ALL LANDSCAPING. DRAWINGS SHALL DEFINE WHICH OPTION.

PROJECT INFORMATION	
ZONING:	PUD-CEG
OVERLAY DISTRICT:	N/A
STREET BUFFER REQUIREMENTS:	
HONEY FARM WAY: ±220 LF.	
10' WIDE	
3 CANOPY TREES per 100 LF.	
220/100 x 3 = 6.6 TREES REQUIRED	
7 CANOPY TREES PROVIDED	
PROJECT BOUNDARY BUFFER REQUIREMENTS:	
SOUTHWEST: ±200 LF.	
15 FEET WIDE	
5 CANOPY TREE Per 100 LF.	
200/100 x 5 = 10 CANOPY TREES REQUIRED	
9 SHRUBS per 100 LF.	
200/100 x 9 = 18 SHRUBS REQUIRED	
6-FOOT WALL	
10 CANOPY TREES, 19 SHRUBS & 6-FOOT WALL PROVIDED	
ADJACENT TO OUTPACEL-A: ±598 LF.	
DRIVEWAY = ± 72 LF.	
10 FEET WIDE	
1 CANOPY TREE Per 100 LF.	
(598 - 72)/100 = 5.26 TREES REQUIRED	
1 ACCENT TREE per 100 LF.	
(598 - 72)/100 = 5.26 ACCENT TREES REQUIRED	
7 SHRUBS per 100 LF.	
(598 - 72)/100 x 7 = 36.8 SHRUBS REQUIRED	
6 CANOPY TREES, 6 ACCENT TREES & 37 SHRUBS PROVIDED	
ADJACENT TO OUTPACEL-D: ±600 LF.	
10 FEET WIDE	
1 CANOPY TREE Per 100 LF.	
1 ACCENT TREE per 100 LF.	
7 SHRUBS per 100 LF.	
7 CANOPY TREES, 7 ACCENT TREES & 42 SHRUBS PROVIDED	
PARKING LOT LANDSCAPE REQUIREMENTS:	
1 TREE FOR EACH 50 LF. OF THE LANDSCAPE AREA	
6 PARKING LOT TREES PROVIDED	



CRUNK ENGINEERING LLC

7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM STORPLACE

COLUMBIA, TN

REVISIONS

No.	DATE

11/21/2022

22132

L1.0
LANDSCAPE PLAN

LANDSCAPE NOTES:

- SITE PREP
1. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND TAKE PRECAUTIONS TO PREVENT DAMAGE TO THESE UTILITIES.
 2. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGES TO UTILITIES.
 3. PLANT MATERIALS AND STUMPS INDICATED FOR REMOVAL SHALL BE REMOVED AND DISPOSED OFF-SITE BY THE CONTRACTOR. BACKFILL HOLES WITH QUALITY TOPSOIL FREE OF ROOTS AND ROCKS. SEE TOPSOIL SPECIFICATION.
 4. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINE GRADING OF ALL PLANTING AREAS.
 5. ALL CONTRACTORS APPLYING CHEMICALS ON SITE SHALL SUBMIT COPIES OF CERTIFICATION(S) AND LICENSES TO THE LANDSCAPE ARCHITECT.
 6. PLANTING BEDS SHALL BE CLEARED OF GRASS AND WEEDS PRIOR TO INSTALLATION OF PLANTS.
 7. SOD ALL AREAS DISTURBED BY CONSTRUCTION AND NOT DESIGNATED AS GROUND COVER AREAS.

- TOPSOIL
1. ALL PLANTED AREAS TO HAVE A MINIMUM OF 6" OF QUALITY TOPSOIL
 2. ALL COMPACTED AREAS TO BE AERATED AND AMENDED AS NEEDED.
 3. TOPSOIL IS TO BE NATURAL, FERTILE, FRIABLE, PRODUCTIVE SOIL, NEITHER EXCESSIVELY ACID NOR ALKALINE, AND FREE FROM TOXIC SUBSTANCES, STONES WEEDS, CLAY, CLOUDS, ROOTS, CINDERS, DEBRIS, AND CONSTRUCTION MATERIAL.

- PLANTING
1. ALL PLANTING BEDS OR MULCH BEDS SHALL BE FREE OF WEEDS PRIOR TO THE INSTALLATION OF MULCH..
 2. THE OPTIMUM TIME OF PLANTING IS FROM OCTOBER 1 TO APRIL 1. SCHEDULING FOR PLANTING AT OTHER TIMES MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
 3. UPON SECURING PLANT MATERIAL AND BEFORE INSTALLATION, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT FOR A PRE-INSTALLATION INSPECTION IN ORDER TO VERIFY ALL PLANT MATERIAL MEETS SPECIFICATIONS. TREES OF SAME SPECIES ARE TO BE MATCHED IN GROWTH CHARACTER AND UNIFORMITY.
 4. PLANTS SHALL BE ORIENTED FOR BEST APPEARANCE AND VERTICAL. ALL NON-BIODEGRADABLE ROOT CONTAINERS SHALL BE REMOVED.
 5. AFTER PLANTING, TREE BRANCHES SHALL BE SELECTIVELY TRIMMED BY 25%, MAINTAINING NATURAL SHAPE. ALL DEAD AND BROKEN BRANCHES IN TREES AND SHRUBS SHALL ALSO BE PRUNED. REMOVE TAGS, TWINE, OR OTHER NON-BIODEGRADABLE MATERIAL.
 6. WATERING: ALL TREES AND SHRUBS SHALL BE THOROUGHLY WATERED WITHIN ONE HOUR OF INSTALLATION.

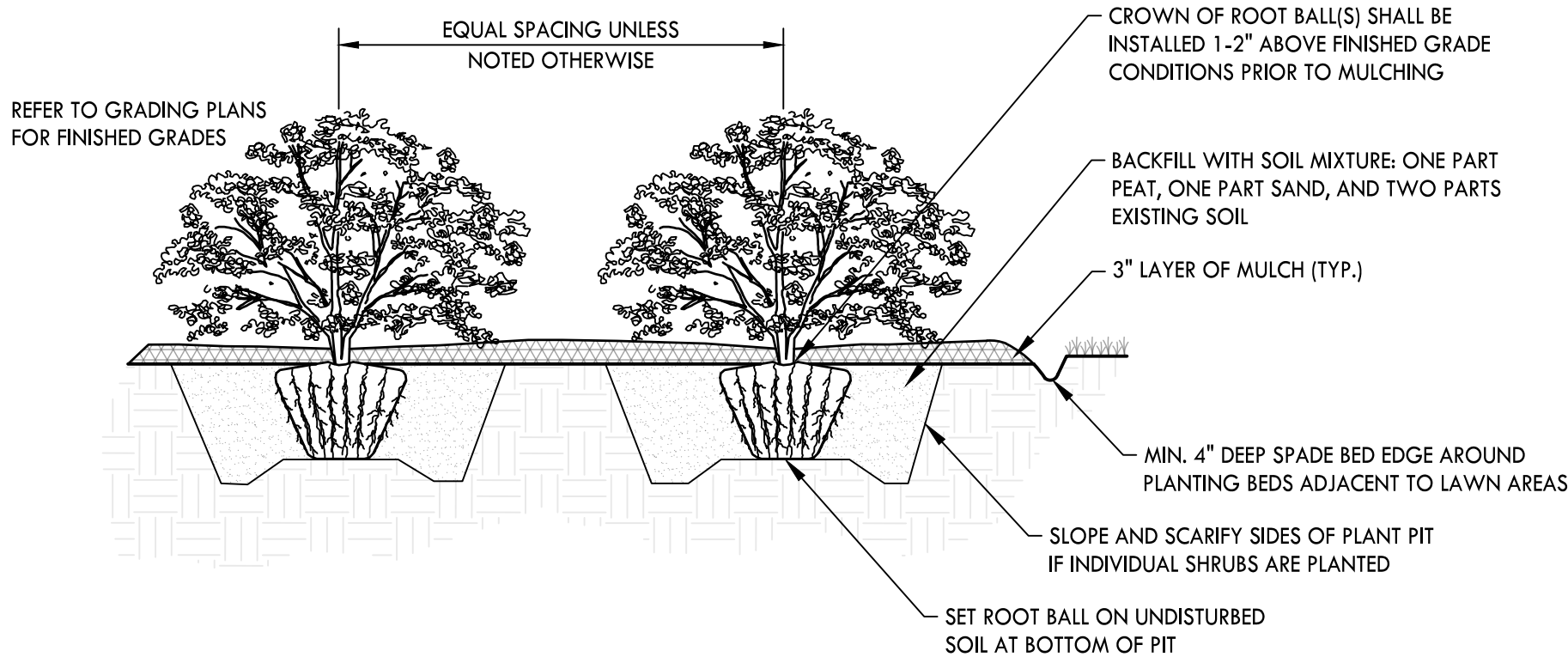
- PLANT MATERIALS
1. THE LANDSCAPE CONTRACTORS SHALL VERIFY ALL MATERIAL QUANTITIES. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES SHOWN ON THE PLAN WILL TAKE PRECEDENCE.
 2. ALL PLANT MATERIALS TO BE NURSERY GROWN AND TO COMPLY WITH THE AMERICAN STANDARDS FOR NURSERY STOCK: ANSI - LATEST EDITION FOR SIZE AND QUALITY.
 3. ONLY GRADE "A" TYPE PLANTS WILL BE ACCEPTED. PLANTS THAT ARE INFERIOR OR DAMAGED WILL NOT BE ACCEPTED.
 4. THE PLANTS DELIVERED TO THE PROJECT SITE SHALL BE PLANTED AS SOON AS SITE CONDITIONS PERMIT. TAKE CARE IN SCHEDULING PLANT DELIVERIES AND THE SIZE OF DELIVERIES SO THAT LONG PERIODS OF STORAGE ARE AVOIDED. ADEQUATELY PROTECT PLANTS PLACED IN TEMPORARY STORAGE FROM THE SUN AND WIND; WATER PLANTS SO AS TO MAINTAIN THEIR APPEARANCE AND HEALTH. PLANTS THAT HAVE NOT BEEN PROPERLY MAINTAINED DURING TEMPORARY STORAGE MAY BE REJECTED BY THE LANDSCAPE ARCHITECT.
 5. ALL TREES SHALL BE FIRST QUALITY REPRESENTATIVES OF THEIR SPECIES AND SHALL MEET ALL REQUIREMENTS OTHERWISE STIPULATED. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT PLANTED MATERIAL IN THE FIELD, AT THE GROWING SITE OR ON THE JOB SITE.

- MULCHING
1. ALL PLANTING BEDS OR MULCH BEDS SHALL HAVE WEEDS REMOVED PRIOR TO THE INSTALLATION OF MULCH.
 2. ALL PLANTING BEDS SHALL HAVE A MINIMUM OF 3" DEPTH OF AGED SHREDDED HARDWOOD BARK MULCH OR A MINIMUM OF 4" DEEP PINE STRAW MULCH.
 3. CONTRACTORS SHALL PROVIDE SMOOTH, NEATLY TRENCHED (3 INCH DEEP) BED EDGES.
 4. MULCH SHALL NOT CONTACT OUTER BARK AT BASE OF TREES. PULL BACK MULCH 3-4" FROM TRUNK.

- PLANT MAINTENANCE
1. THE LANDSCAPE CONTRACTOR SHALL PROVIDE OWNER WITH WRITTEN INSTRUCTIONS ON THE PROPER CARE OF ALL SPECIFIED PLANT MATERIALS PRIOR TO FINAL PAYMENT.
 2. CONTRACTOR TO WARRANTY ALL MATERIAL FOR 2 YEARS AFTER DATE OF FINAL ACCEPTANCE.
 3. ALL UNHEALTHY OR DEAD PLANT MATERIAL SHALL BE REPLACED WITHIN ONE YEAR, OR BY THE NEXT PLANTING PERIOD, WHICHEVER COMES FIRST. OTHER DEFECTIVE PLANT MATERIAL SHALL BE REPLACED OR REPAIRED WITHIN THREE (3) MONTHS.

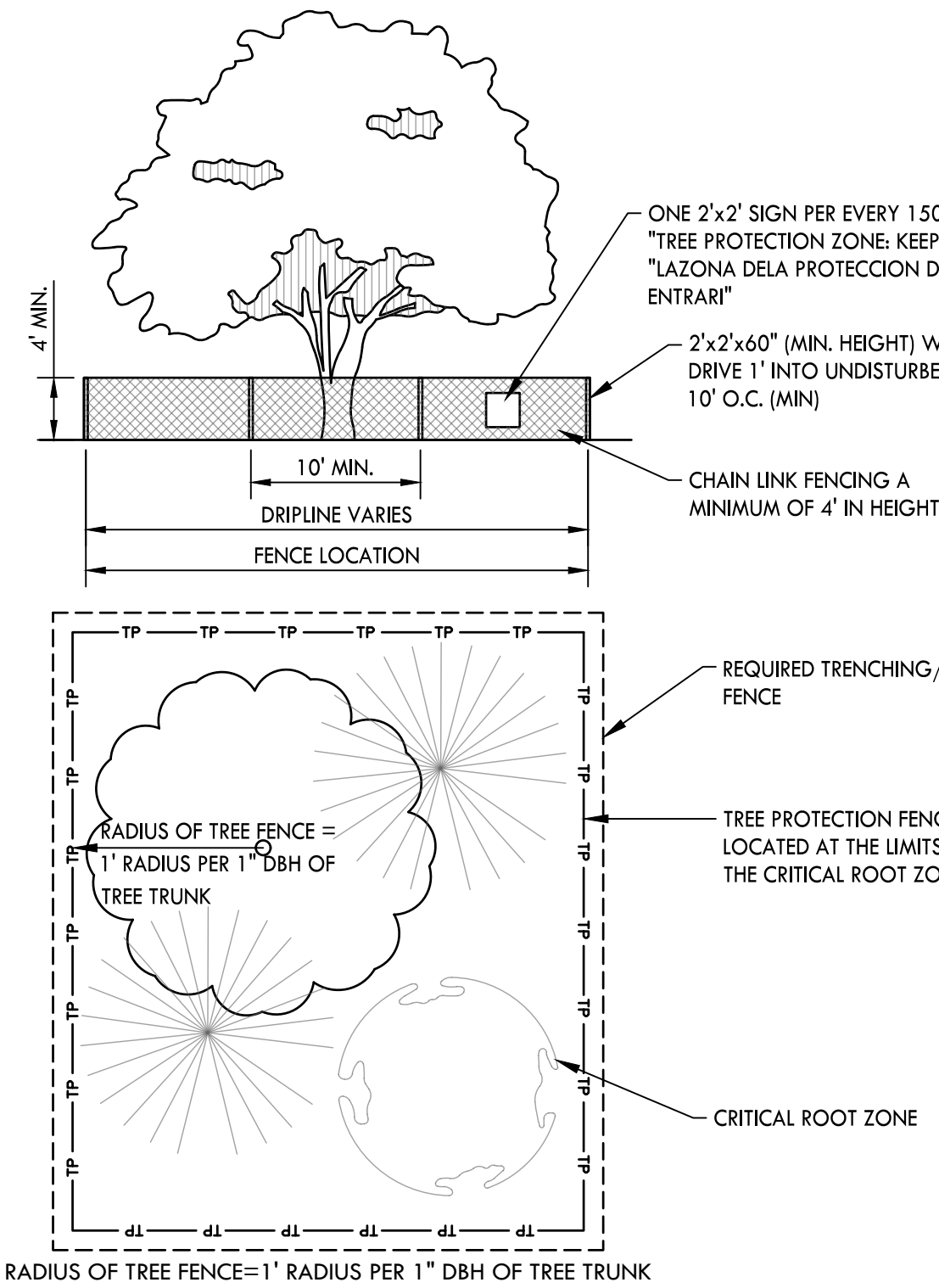
- TREE PROTECTION
1. EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION DAMAGE.
 2. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT EXISTING TREES THAT ARE TO REMAIN. NO HEAVY EQUIPMENT OR MATERIALS SHALL BE PERMITTED TO OPERATE OR BE STORED WITHIN THE DRIP LINES OF THE TREES, OUTSIDE THE LIMIT OF GRADING.
 3. TREE PROTECTION STEPS:
 - A) INSTALL TREE PROTECTION FENCING IN ACCORDANCE WITH METRO CODE 17.24.110 "PROTECTION OF TREES DURING DEVELOPMENT ACTIVITIES"
 - B) PLACE FENCE POST AND FENCING AT TREE DRIP LINE OR 10' FROM TRUNK, WHICHEVER IS GREATER.
 - C) POST SHALL NOT BE SPACED MORE THAN 10' APART.
 - D) POST TEMPORARY SIGNS - TREE ROOT PROTECTION ZONE.
 4. FENCING AND SIGNS SHALL REMAIN IN PLACE UNTIL THE SITE HAS BEEN INSPECTED BY URBAN FORESTER FOR USE AND OCCUPANCY PERMIT.

- NOTES:
1. WHERE SHRUBS APPEAR IN BED AREA, 3" OF MULCH SHALL BE SPREAD OVER THE ENTIRE AREA WITHIN THE BED AS INDICATED ON THE PLANS.
 2. DO NOT PRUNE SHRUBS BEFORE ACCEPTANCE.
 3. CAREFULLY REMOVE CONTAINER FROM ROOT BALL USED FOR SHRUB(S). ANY BROKEN OR CRUMBING ROOT BALL(S) WILL BE REJECTED.
 4. IF SHRUB IS B&B, REMOVE BURLAP FROM TOP $\frac{1}{2}$ OF ROOT BALL OR COMPLETELY REMOVE BURLAP IF SOILS ARE POORLY DRAINED.
 5. SCARIFY ROOTBALL IF ROOT ROUND IN CONTAINER PER HORTICULTURE STANDARDS.



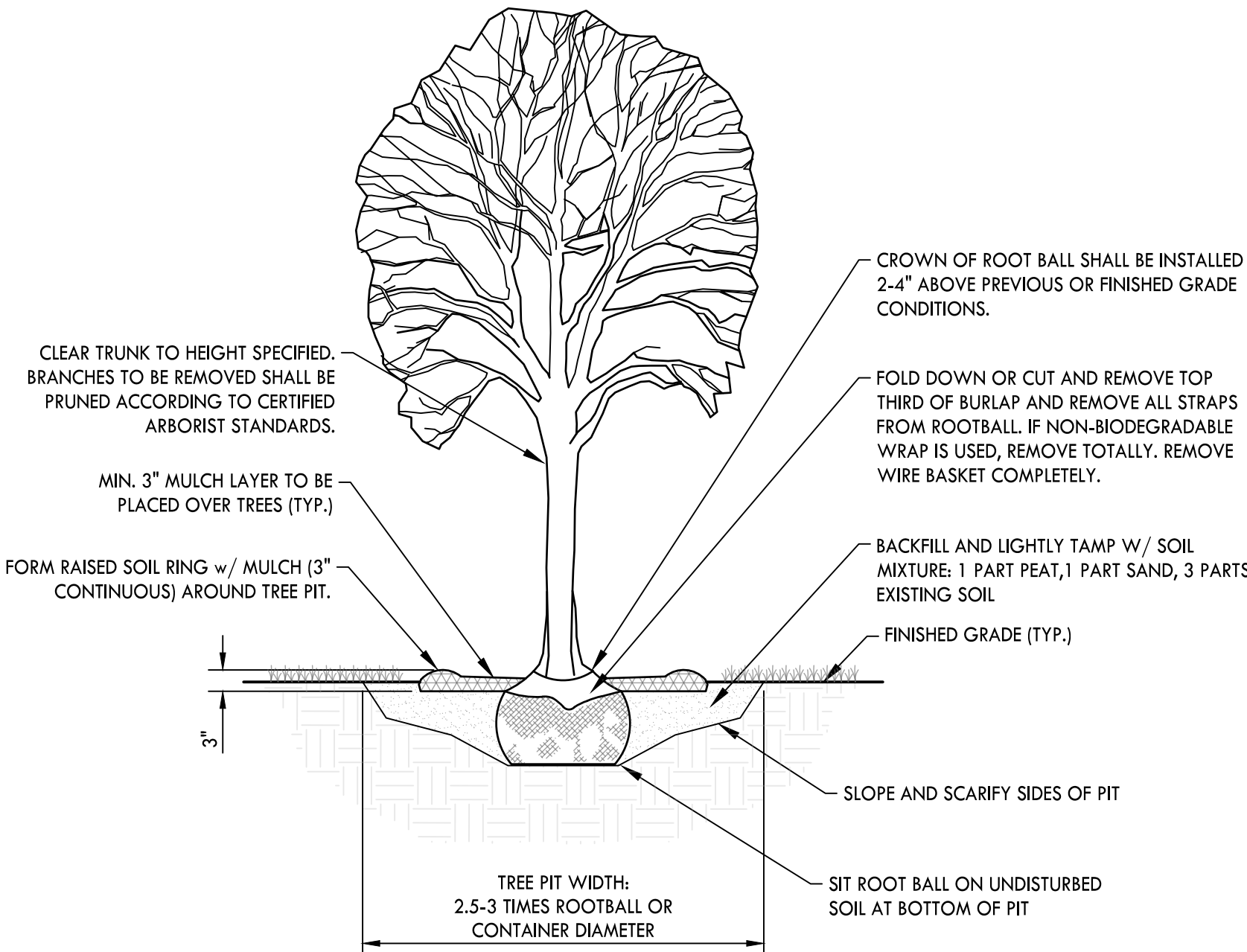
SHRUB PLANTING

NOT TO SCALE



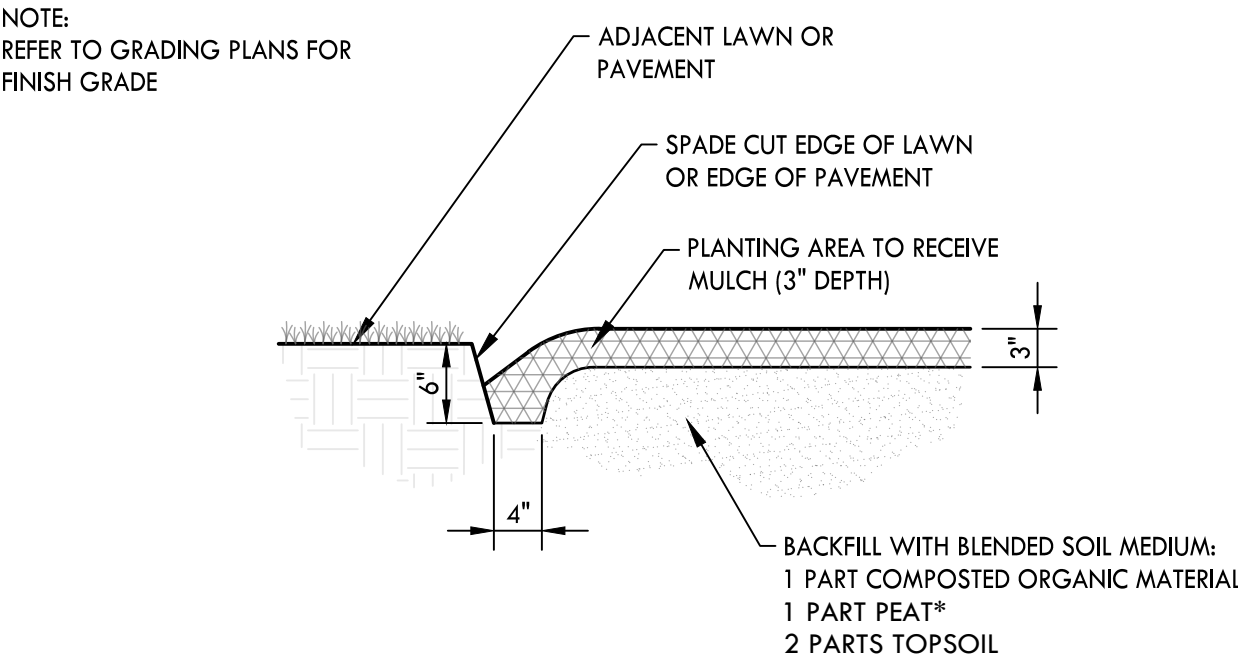
TREE PROTECTION

NOT TO SCALE



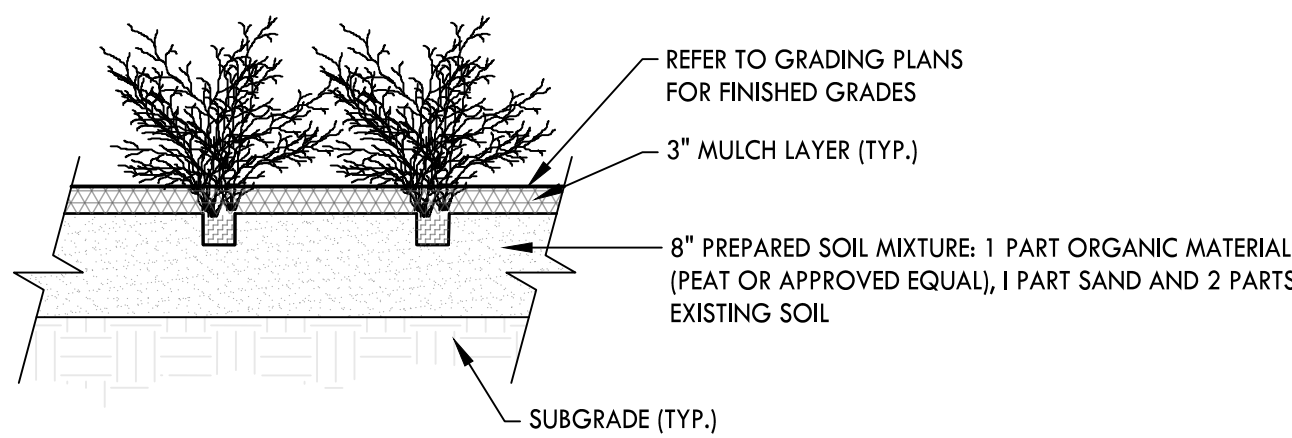
DECIDUOUS TREE PLANTING

NOT TO SCALE



SPADE BED EDGE

NOT TO SCALE

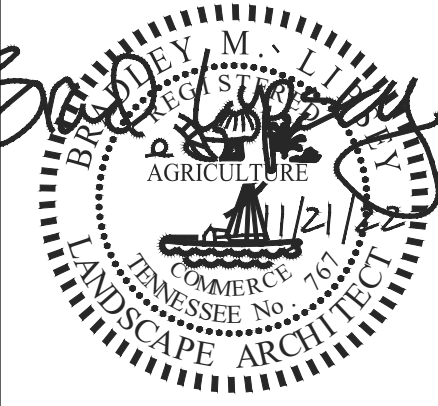


GROUNDCOVER PLANTING

NOT TO SCALE

CRUNK ENGINEERING LLC

7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM STORPLACE

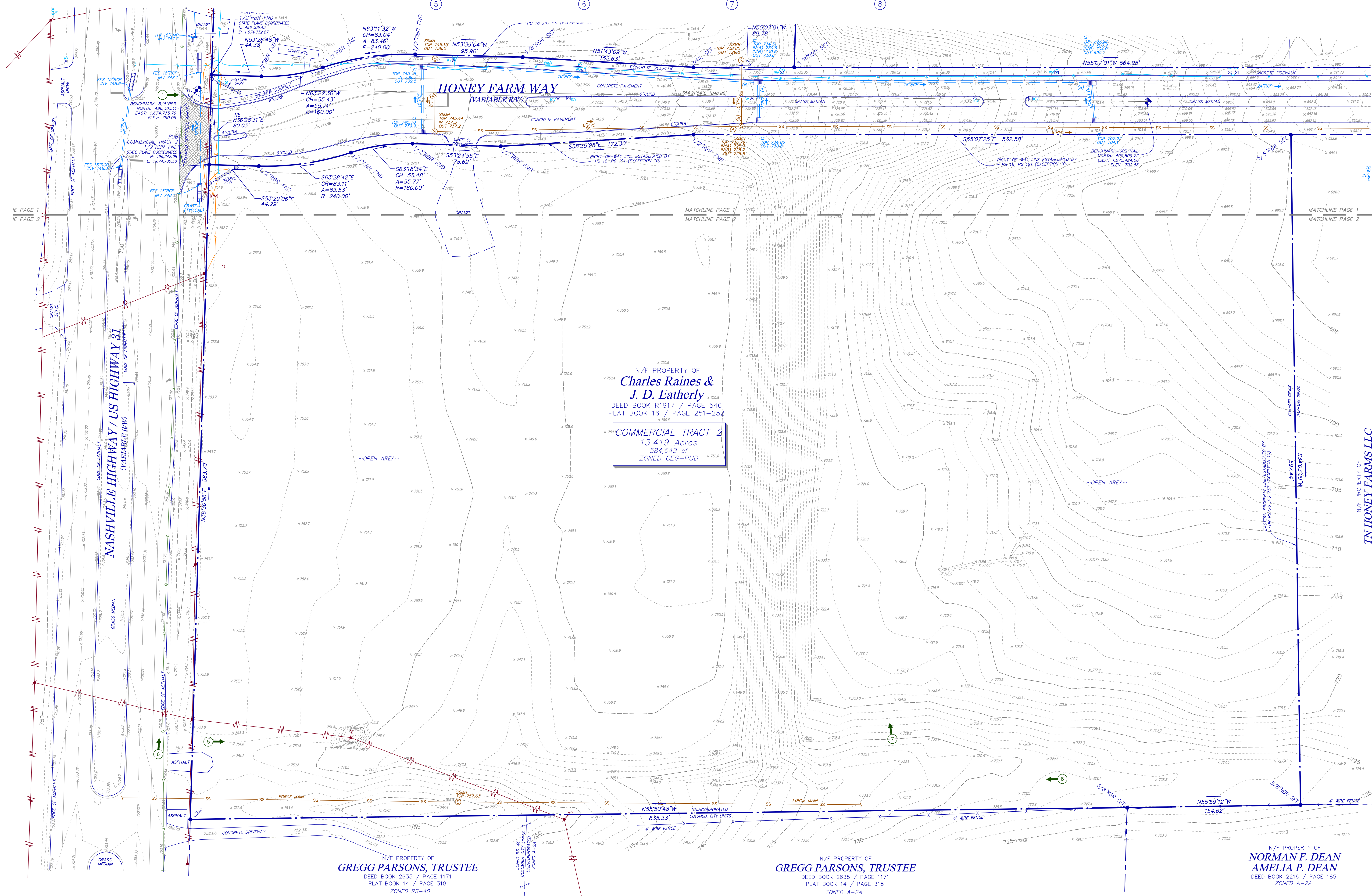
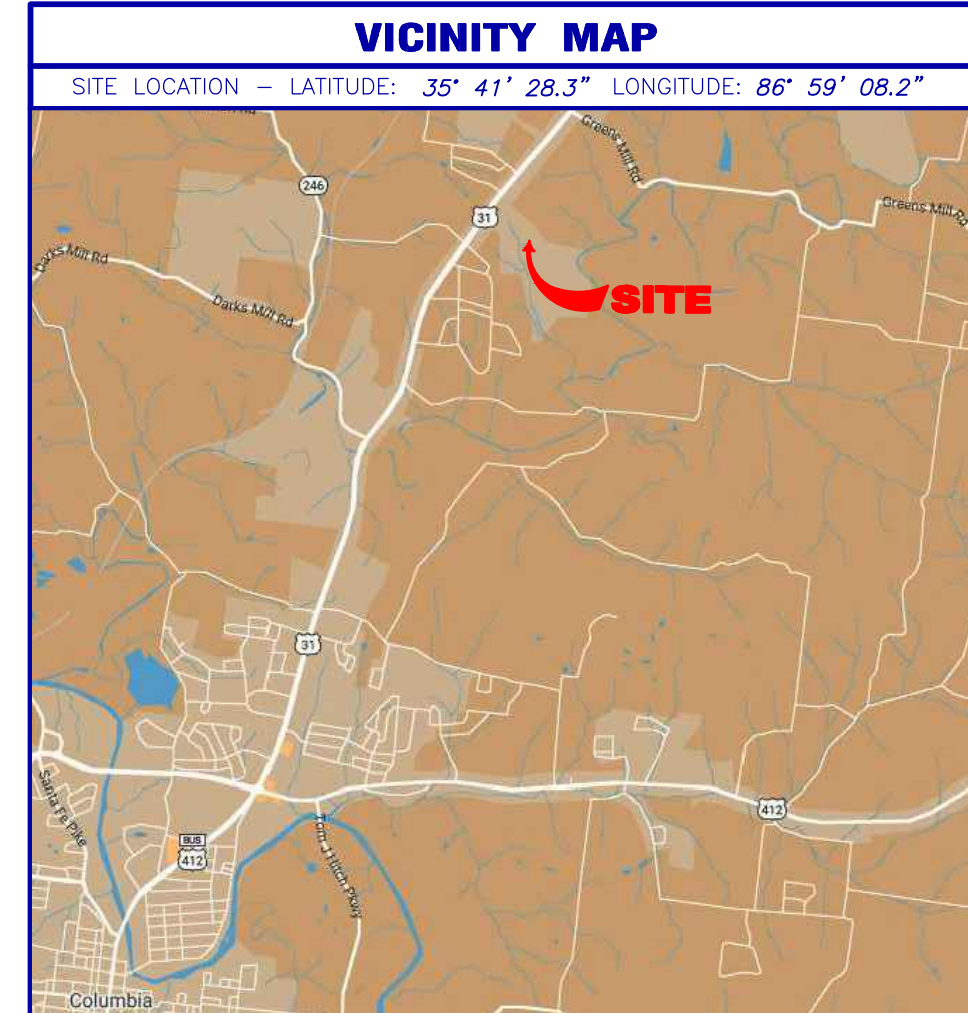
COLUMBIA, TN

REVISONS	DATE		No.						

11/21/2022 22132

L2.0
LANDSCAPE BUFFER
PLAN

SITE PHOTOGRAPHS



UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON LOCATION OF MARKINGS PROVIDED BY:

UTILITY MARKING, LLC
3042 GALA TRAIL
SNELLVILLE, GA 30036
(678) 357-1946

UTILITY MARKING, LLC UTILIZED SEVERAL TECHNIQUES INCLUDING, BUT NOT LIMITED TO, ELECTROMAGNETIC, MAGNETIC LOCATION FOR FERROUS METALS, ACUSTIC AND PASSIVE FREQUENCIES TO DESIGNATE AND MARK BURIED UTILITIES ON THE SURFACE WITH PAINT AND FLAG COVERING THE ENTIRE AREA OF THE PROJECT.

THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. UNDERGROUND UTILITIES NOT OBSERVED OR LOCATED UTILIZING THIS TECHNIQUE MAY EXIST ON THIS SITE BUT NOT BE SHOWN, AND MAY BE FOUND UPON EXCAVATION. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

INFORMATION REGARDING MATERIAL AND SIZE OF UTILITIES IS BASED ON RECORDS ACQUIRED FROM THE UTILITY OWNERS.

LEGEND

STANDARD ABBREVIATIONS

AC AIR CONDITIONER
BH BORE HOLE
BSL BOTTOM OF STRUCTURE
BSL BUILDING SETBACK LINE
CI CURB INLET
CMP CORRUGATED METAL PIPE
CMF CONCRETE MONUMENT FND
COP CONCRETE OUTLET
CPED COMMUNICATION PEDESTAL
CPT COMPACT TOP PIPE
DI DROP INLET
DW DOUBLE WING CATCH BASIN
DWC DWELLING
FNC FENCE
FND FOUND
GM GAS METER
INV INVERT
JMB JUNCTION BOX
MFL MANHOLE
OCS OUTLET CONTROL STRUCTURE
OTF OUTLET PIPE
PM POWER METER
PNS POINT OF BEGINNING
POC POINT OF COMMENCEMENT
RCP REINFORCED CONCRETE PIPE
RBR IRON REINFORCING BAR
RBS 5/8" BSR SET CAPTED LF 621
SBS SANITARY SEWER
SWBC SINGLE WING CATCH BASIN
TRANS ELECTRIC TRANSFORMER

STANDARD SYMBOLS

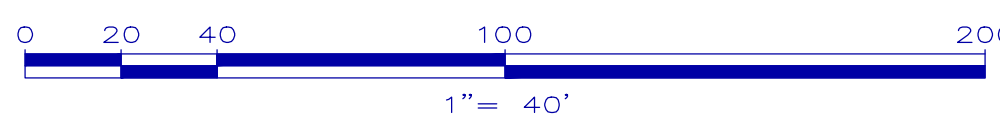
OVERHEAD TRAFFIC SIGNAL LIGHT
POWER POLE
BUY WIRE
POWER LINE
LIGHT POLE
ELECTRIC TRANSFORMER
WATER VAULT
GAS VALVE
GAS VALVE
WATER VALVE
WATER METER
FIRE HYDRANT
UNDERGROUND ELECTRIC LINE
UNDERGROUND GAS LINE
UNDERGROUND COMMUNICATION LINE
UNDERGROUND WATER LINE
PHOTO POSITION INDICATOR
REGULAR PARKING SPACE COUNT
HANDICAP PARKING SPACE
TREE POSITION INDICATOR
SIGN

PROPERTY DESCRIPTION

COMMERCIAL TRACT 2:
All that tract or parcel of land lying and being in the Third Civil District of Maury County, Tennessee, and being more particularly described as follows:

BEGINNING at a 1/2-inch rebar found at the intersection of the southeasterly right-of-way line of Nashville Highway (variable right-of-way) with the westerly right-of-way line of Honey Farm Way (variable right-of-way); Thence along said southeasterly right-of-way line of Honey Farm Way South 53 degrees 29 minutes 02 seconds East for a distance of 44.29 feet to a 1/2-inch rebar found; Thence along the arc of a curve to the left on an arc length of 83.53 feet, said curve having a radius of 240.00 feet and being subtended by a chord of 83.11 feet bearing South 63 degrees 28 minutes 42 seconds East to a 1/2-inch rebar found; Thence along the arc of a curve to the right on an arc length of 55.77 feet, said curve having a radius of 160.00 feet and being subtended by a chord of 55.48 feet bearing South 63 degrees 18 minutes 34 seconds East to a 1/2-inch rebar found; Thence South 53 degrees 24 minutes 55 seconds East for a distance of 78.62 feet to a 1/2-inch rebar found; Thence South 58 degrees 35 minutes 22 seconds East for a distance of 172.30 feet to a 1/2-inch rebar found; Thence South 55 degrees 07 minutes 25 seconds East for a distance of 532.58 feet to a 5/8-inch rebar set; Thence along said right-of-way line South 34 degrees 03 minutes 09 seconds West for a distance of 597.44 feet to a 5/8-inch rebar set; Thence North 55 degrees 59 minutes 12 seconds West for a distance of 154.62 feet to a 5/8-inch rebar set; Thence North 55 degrees 48 minutes 48 seconds West for a distance of 835.33 feet to a concrete monument found on the southeasterly right-of-way line of Nashville Highway; Thence with said right-of-way line North 36 degrees 30 minutes 56 seconds East for a distance of 583.70 feet to a 1/2-inch rebar found, said point being the TRUE POINT OF BEGINNING.

GRAPHIC SCALE



1 SHEET
OF
2

GeoSurvey

Land Surveying • 3D Laser Scanning

1660 Barnes Mill Road

Marietta, Georgia 30062

Phone: (770) 795-9900

Fax: (770) 795-8880

www.geosurvey.com

EMAIL: info@geosurvey.com

ALTA/NSPS LAND TITLE SURVEY

Honey Farm Commercial

FOR

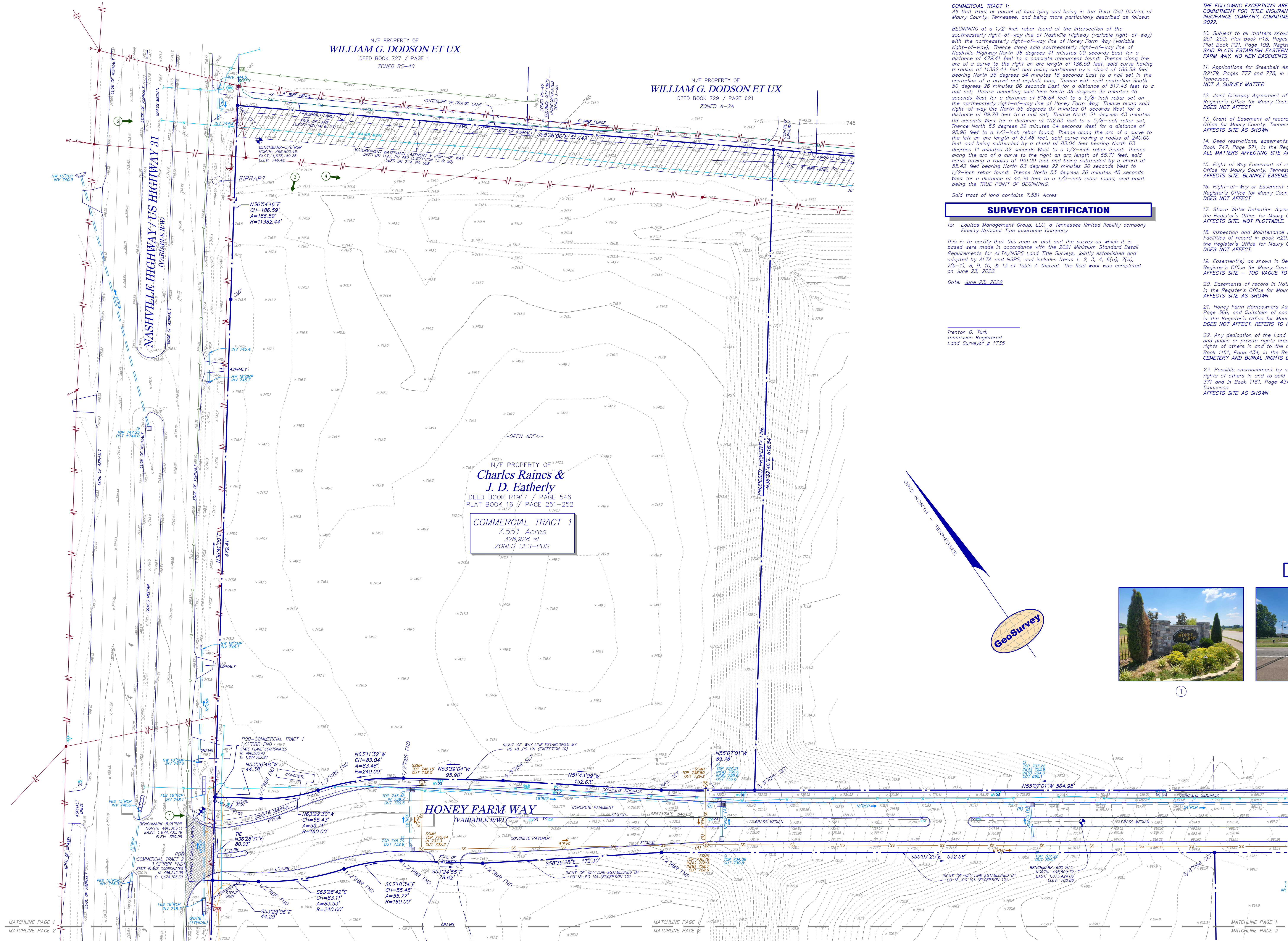
Equitas Management Group, LLC

Fidelity National Title Insurance Company

CS JOB NO:	20227361	DRAWING SCALE:	1"= 40'	SURVEY DATE:	6-23-2022
FIELD WORK:	ZM	CITY:	COLUMBIA	REVISIONS: (SEE GENERAL NOTES)	
PROJ MGR:	JEM	COUNTY:	MAURY	No. Date Description	
REVIEWED:	TDT	STATE:	TENNESSEE		
DWG FILE:	20227361-03.dwg	CIVIL DISTRICT:	3RD		



Know what's below.
Call before you dig.
Dial 811
Or Call 800-282-7411



CLOSURE STATEMENT

THE FIELD DATA UPON WHICH THIS PLAT IS BASED WAS COLLECTED USING A TRIMBLE "S" SERIES TOTAL STATION AND A TRIMBLE TSC SERIES DATA COLLECTOR. SAID TRAVERSE HAD A FIELD CLOSURE OF 1 FOOT IN 111,254.1. THE FIELD DATA WAS COLLECTED USING THE LEAST SQUARES METHOD. ADDITIONAL FIELD DATA WAS COLLECTED UTILIZING A CARLSON BRK-1 GPS ROVER AND BASE UNIT THAT WAS CALIBRATED AND ORIENTED TO THE FIELD TRAVERSE.

THIS PLAT HAS BEEN CALCULATED FOR CLOSURE AND WAS FOUND TO BE ACCURATE WITHIN ONE FOOT IN 216,161. FEET. JEM. INT.

IF YOU DIG

Know what's below.
Call before you dig.
Dial 811
Or call 800-282-7411

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON LOCATION OF MARKINGS PROVIDED BY:

UTILITY MARKING, LLC
3042 GALA TRAIL
SNELLVILLE, GA 30036
(678) 357-1946

UTILITY MARKING, LLC UTILIZED SEVERAL TECHNIQUES INCLUDING, BUT NOT LIMITED TO, ELECTROMAGNETIC, MAGNETIC LOCATION FOR FERROUS METALS, ACUSTIC AND PASSIVE FREQUENCIES TO DESIGNATE AND MARK BURIED UTILITIES ON THE SURFACE WITH PAINT AND FLAGS COVERING THE ENTIRE AREA OF THE PROJECT.

THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, OTHER IN-SERVICE OR ABANDONED, UNDERGROUND UTILITIES NOT OBSERVED OR LOCATED UTILIZING THIS TECHNIQUE MAY EXIST ON THIS SITE BUT NOT BE SHOWN, AND MAY BE FOUND UPON EXCAVATION. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR THEY CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

INFORMATION REGARDING MATERIAL AND SIZE OF UTILITIES IS BASED ON RECORDS ACQUIRED FROM THE UTILITY OWNERS.

LEGEND

STANDARD ABBREVIATIONS

- AC AIR CONDITIONER
- BH BORE HOLE
- BOL BOTTOM OF STRUCTURE
- BOL BUILDING SETBACK LINE
- CI CURB INLET
- CMF CORRUGATED METAL FND
- CPED CONCRETE MONUMENT FND
- OTF OPEN TOP PIPE
- DI DROP INLET
- DIP DUCTILE IRON PIPE
- DWBC DOUBLE WING CATCH BASIN
- FNC FENCE
- FND FOUND
- GM GAS METER
- INV INVERT
- JB JUNCTION BOX
- MANH MANHOLE
- OCS OUTLET CONTROL STRUCTURE
- OTF OPEN TOP PIPE
- PM POWER METER
- PNS POINT OF BEGINNING
- POB POINT OF BEGINNING
- POC POINT OF COMMENCEMENT
- RCP REINFORCED CONCRETE PIPE
- RBR IRON REINFORCING BAR
- RES 5/8" IRON SET CAPTED LSF 621
- SS SANITARY SEWER
- SWCB SINGLE WING CATCH BASIN
- TRANS ELECTRIC TRANSFORMER

STANDARD SYMBOLS

- OVERHEAD TRAFFIC SIGNAL LIGHT
- POWER POLE
- GUY WIRE
- POWER LINE
- LIGHT POLE
- ELECTRIC TRANSFORMER
- WATER VAULT
- GAS VALVE
- GAS METER
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND GAS LINE
- UNDERGROUND COMMUNICATION LINE
- UNDERGROUND WATER LINE
- PHOTO POSITION INDICATOR
- REGULAR PARKING SPACE COUNT
- HANDICAP PARKING SPACE
- TREE POSITION INDICATOR
- SIGN

PROPERTY DESCRIPTION

COMMERCIAL TRACT 1:
All that tract or parcel of land lying and being in the Third Civil District of Maury County, Tennessee, and being more particularly described as follows:

BEGINNING at a 1/2-inch rebar found at the intersection of the southeasterly right-of-way line of Nashville Highway (variable right-of-way) with the northeasterly right-of-way line of Honey Farm Way (variable right-of-way); Thence along said southeasterly right-of-way line of Nashville Highway North 36 degrees 41 minutes 00 seconds East for a distance of 479.41 feet to a concrete monument found; Thence along the arc of a curve to the right on an arc length of 186.59 feet, said curve having a radius of 11382.44 feet and being subtended by a chord of 186.59 feet bearing North 36 degrees 54 minutes 16 seconds East to a nail set in the centerline of a gravel and asphalt lane; Thence with said centerline South 50 degrees 26 minutes 06 seconds East for a distance of 517.43 feet to a nail set; Thence departing said lane South 36 degrees 32 minutes 46 seconds West for a distance of 616.84 feet to a 5/8-inch rebar set on the northeasterly right-of-way line of Honey Farm Way; Thence along said right-of-way line North 55 degrees 07 minutes 01 seconds West for a distance of 89.78 feet to a nail set; Thence North 51 degrees 43 minutes 09 seconds West for a distance of 152.63 feet to a 5/8-inch rebar set; Thence North 53 degrees 39 minutes 04 seconds West for a distance of 95.90 feet to a 1/2-inch rebar found; Thence along the arc of a curve to the left on an arc length of 83.46 feet, said curve having a radius of 240.00 feet and being subtended by a chord of 83.04 feet bearing North 63 degrees 11 minutes 32 seconds West to a 1/2-inch rebar found; Thence along the arc of a curve to the right on an arc length of 55.71 feet, said curve having a radius of 160.00 feet and being subtended by a chord of 55.43 feet bearing North 63 degrees 22 minutes 30 seconds West to a 1/2-inch rebar found; Thence North 53 degrees 26 minutes 48 seconds West for a distance of 44.18 feet to a 1/2-inch rebar found, said point being the TRUE POINT OF BEGINNING.

Said tract of land contains 7.551 Acres

SURVEYOR CERTIFICATION

To: Equitas Management Group, LLC, a Tennessee limited liability company
Fidelity National Title Insurance Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6(a), 7(a), 7(b)-1, 8, 9, 10, & 13 of Table A thereof. The field work was completed on June 23, 2022.

Date: June 23, 2022

Trenton D. Turk
Tennessee Registered
Land Surveyor # 1735

TITLE EXCEPTIONS

THE FOLLOWING EXCEPTIONS ARE LISTED IN SCHEDULE B, SECTION 2, OF A COMMITMENT FOR TITLE INSURANCE, AS PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 20220761CN, EFFECTIVE DATE APRIL 12, 2022.

10. Subject to all matters shown on the Plan of record in Plat Book P16, Page 251-252; Plat Book P18, Pages 191-192, Plat Book P20, Page 157-158 and Plat Book P21, Page 109, Register's Office for Maury County, Tennessee, SAID PLATS ESTABLISH EASTERN PROPERTY LINE AND RIGHT-OF-WAY OF HONEY FARM WAY. NO NEW EASEMENTS OR SETBACKS CREATED BY SAID PLATS.

11. Applications for Greenbelt Assessment - Agricultural of record in Book R2179, Pages 777 and 778, in the Register's Office for Maury County, Tennessee, NOT A SURVEY MATTER

12. Joint Driveway Agreement of record in Book 1370, Page 694, in the Register's Office for Maury County, Tennessee, AFFECTS SITE AS SHOWN

13. Grant of Easement of record in Book 1197, Page 481, in the Register's Office for Maury County, Tennessee, AFFECTS SITE AS SHOWN

14. Deed restrictions, easements and rights as set out in Deed of record in Book 747, Page 371, in the Register's Office for Maury County, Tennessee, ALL MATTERS AFFECTING SITE ARE DEPICTED ON SURVEY.

15. Right of Way Easement of record in Book 219, Page 536, in the Register's Office for Maury County, Tennessee, AFFECTS SITE, BLANKET EASEMENT

16. Right-of-Way or Easement of record in Book R2026, Page 1182, in the Register's Office for Maury County, Tennessee, DOES NOT AFFECT

17. Storm Water Detention Agreement of record in Book R2001, Page 247, in the Register's Office for Maury County, Tennessee, AFFECTS SITE, NOT PLOTTABLE

18. Inspection and Maintenance Agreements of Private Stormwater Management Facilities of record in Book R2033, Page 1413 and Book R2415, Page 1427, in the Register's Office for Maury County, Tennessee, DOES NOT AFFECT

19. Easement(s) as shown in Deed of record in Book 1161, Page 434, in the Register's Office for Maury County, Tennessee, AFFECTS SITE - 100' VAULT TO PLOT

20. Easements of record in Notice of Taking of record in Book 779, Page 508, in the Register's Office for Maury County, Tennessee, AFFECTS SITE AS SHOWN

21. Honey Farm Homeowners Association, Inc., Charter of record in Book 1, Page 366, and Outcrop of common areas of record in Book R2083, page 11, in the Register's Office for Maury County, Tennessee, DOES NOT AFFECT, REFERS TO HONEY FARM PHASE I

22. Any dedication of the Land or part thereof, for cemetery or burial purposes and public or private rights created thereby, including but not limited to the rights of others in and to the cemetery of record in Book 747, Page 371 and Book 1161, Page 434, in the Register's Office for Maury County, Tennessee, CEMETERY AND BURIAL RIGHTS DO NOT AFFECT

23. Possible encroachment by a "lane" of record in Book 747, Page 371; and rights of others in and to said "lane" as shown in aforesaid Book 747, Page 371 and in Book 1161, Page 434, in the Register's Office for Maury County, Tennessee, AFFECTS SITE AS SHOWN

VICINITY MAP

SITE LOCATION - LATITUDE: 35° 41' 28.1" LONGITUDE: 86° 59' 08.2"

GENERAL NOTES

THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF THE PERSON OR ENTITIES NAMED HEREON. NO EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE INFORMATION SHOWN HEREON IS TO BE EXTENDED TO ANY PERSONS OR ENTITIES OTHER THAN THOSE SHOWN HEREON.

THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA BASED ON THE FLOOD INSURANCE RATE MAP FOR THIS AREA. THE MAP NUMBER FOR THIS AREA IS 47190C0180C, AND THE DATE OF SAID MAP IS 4/16/2007. THIS DETERMINATION WAS MADE BY GRAPHICALLY DETERMINING THE POSITION OF THIS SITE ON SAID FIRM MAPS UNLESS OTHERWISE NOTED.

THE DATUM FOR THIS SITE WAS ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEMS, AND BASED ON POSITIONAL VALUES FOR THE VIRTUAL REFERENCE STATION NETWORK DEVELOPED BY eOPS SOLUTIONS. THE HORIZONTAL REFERENCE FRAME IS NORTH AMERICAN DATUM OF 1983(2011)-STATE PLANE COORDINATE SYSTEM OF TENNESSEE. THE VERTICAL REFERENCE FRAME IS NORTH AMERICAN VERTICAL DATUM OF 1988. ANY DIRECTIONS OR DIMENSIONS SHOWN ARE A RECTANGULAR, GROUND LEVEL PROJECTION OF THE STATE PLANE COORDINATE SYSTEM.

NO ZONING REPORT OR ZONING LETTER WAS PROVIDED TO THE SURVEYOR. THE SITE IS ZONED "RM1-PUD" & "CCO-PUD" (HIGH DENSITY RESIDENTIAL & COMMERCIAL PLANNED UNIT DEVELOPMENT DISTRICTS) AS SHOWN ON THE ZONING MAP OF CITY OF COLUMBIA.

ZONING AND SETBACKS SHOULD BE CONFIRMED AND VERIFIED BY PLANNING AND ZONING PRIOR TO DESIGN OR CONSTRUCTION ACTIVITIES.

RIGHT-OF-WAY LINES SHOWN ON THIS SURVEY THAT ARE NOT ACTUAL BOUNDARIES OF THE SUBJECT TRACT(S) ARE DEPICTED GRAPHICALLY AND ARE SHOWN APPROXIMATELY FOR INFORMATIONAL PURPOSES ONLY. SAID RIGHT-OF-WAY LINES SHOULD NOT BE UTILIZED FOR DESIGN PURPOSES.

A SUBDIVISION PLAT IS REQUIRED FOR THIS SITE.

SURVEY REFERENCES

1> PLAT OF SURVEY FOR FIRST FARMERS AND MERCHANTS NATIONAL BANK (TRUST DEPARTMENT) OF CLAY H. STEVENSON, ESTATE, PREPARED BY EVERETT E. CAMPBELL, RLS #1488, AND RECORDED IN PLAT BOOK 16, PAGE 251, MAURY COUNTY RECORDS, MAY 6, 2006.

2> HONEY FARM PHASE I, SECTION 1, PREPARED BY WEBB ENGINEERING, RLS #2671, AND RECORDED IN PLAT BOOK 18, PAGE 191, MAURY COUNTY RECORDS, NOVEMBER 25, 2008.

3> HONEY FARM PHASE I, SECTION 2, PREPARED BY O'LEARY & ASSOCIATES (LAND SURVEYING, RLS #1987, AND RECORDED IN PLAT BOOK 20, PAGE 152, MAURY COUNTY RECORDS, AUGUST 8, 2014.

4> HONEY FARM PHASE I, SECTION 3, PREPARED BY WEBB ENGINEERING, RLS #2671, AND RECORDED IN PLAT BOOK 21, PAGE 109, MAURY COUNTY RECORDS, SEPTEMBER 28, 2016.

SITE PHOTOGRAPHS

GRAPHIC SCALE

0 20 40 100 200
1" = 40'

SHEET 2 OF 2

GeoSurvey

Land Surveying • 3D Laser Scanning

1660 Barnes Mill Road
Marietta, Georgia 30062
Phone: (770) 795-9900
Fax: (770) 795-8880
www.geosurvey.com
EMAIL: info@geosurvey.com

ALTA/NSPS LAND TITLE SURVEY

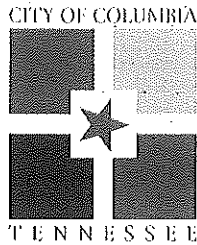
Honey Farm Commercial

FOR

Equitas Management Group, LLC

Fidelity National Title Insurance Company

CS JOB NO:	20227361	DRAWING SCALE:	1" = 40'	SURVEY DATE:	6-23-2022
FIELD WORK: <td>ZM</td> <td>CITY:<td>COLUMBIA<td>REVISIONS (SEE GENERAL NOTES)<td></td></td></td></td>	ZM	CITY: <td>COLUMBIA<td>REVISIONS (SEE GENERAL NOTES)<td></td></td></td>	COLUMBIA <td>REVISIONS (SEE GENERAL NOTES)<td></td></td>	REVISIONS (SEE GENERAL NOTES) <td></td>	
PROJ MGR: <td>JEM</td> <td>COUNTY:<td>MAURY<td>No. Date Description<td></td></td></td></td>	JEM	COUNTY: <td>MAURY<td>No. Date Description<td></td></td></td>	MAURY <td>No. Date Description<td></td></td>	No. Date Description <td></td>	
REVIEWED: <td>TDT</td> <td>STATE:<td>TENNESSEE<td></td><td></td></td></td>	TDT	STATE: <td>TENNESSEE<td></td><td></td></td>	TENNESSEE <td></td> <td></td>		
DWG FILE: <td>20227361-03.dwg</td> <td>CIVIL DISTRICT:<td>3RD</td><td></td><td></td></td>	20227361-03.dwg	CIVIL DISTRICT: <td>3RD</td> <td></td> <td></td>	3RD		



WASTEWATER DEPARTMENT

16 September 2022

Drew Smith
Equitas Management Group
5525 N MacArthur Blvd, Suite 400
Irving, TX 75038

RE: Honey Farms Parcel ID 051 058.00

Drew,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. Major or minor improvements to existing infrastructure may or may not be necessary to satisfactorily convey the additional sanitary sewer flow from the above-referenced proposed development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. No detailed design plan for an extension of the sewer has been proposed at this time.

A handwritten signature in black ink, appearing to read "Donnie Boshers".

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

Something Good Around Every Corner

1244 Treatment Plant Road Columbia, Tennessee 38401 Phone 931.560.1001



August 5, 2022

Ms. Bridgette Ganter

Bowman

950 North Point Pkwy Suite 200

Alpharetta, GA 30005

Sent via email: bganter@bowman.com

RE: Water Availability Letter
 Honey Farm StorPlace
 Nashville Hwy @ Honey Farm Way
 Tax Map 51, Parcel 58
 Columbia, Maury, TN

Dear Ms. Ganter:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of a 96,800 square-foot self-storage facility in three buildings, with 1,300 square-feet of office space in a fourth building. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,500 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connection will be made to the existing 12-inch water main located on Honey Farm Way.



All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide construction drawings for all public water infrastructure for the proposed development in both CAD and PDF format for CPWS review.
- When applicant has resolved all comments provided by CPWS for the construction drawings, CPWS will provide an approval letter and flow calculations to support TDEC approval of the construction drawings.
- Applicant then submits drawings to TDEC for approval. Upon approval by TDEC, applicant may schedule a pre-construction meeting with CPWS. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 615-934-7499 or jason.english@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

A handwritten signature in blue ink that reads "Jason English".

Jason English, P.E.

Inflo Design Group, LLC

on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-063



September 19, 2022

City of Columbia
70 North Garden Street
Columbia, TN 38401

**RE: Honey Farm
Master Plan PUD Amendment with Concurrent Variances
Existing Ordinances: 3652 & 4005**

Dear Mr. Keltner,

On behalf of Equitas Management Group, we are submitting the enclosed information in support of a Master Plan PUD Amendment with four concurrent variances and a request for consideration for shared parking for Honey Farm Ordinances 3652 & 4005.

The existing PUD encompasses the entirety of Parcel ID 051 058.00 (+/- 49.3 acres) and is located adjacent and west of Nashville Highway along Honey Farm Way.

The purpose of this Master Plan PUD Amendment is revision of the proposed commercial development area south of Honey Farm Way and adjacent to Nashville Highway. This +/- 13.4-acre tract (Tract 2) will be subdivided into four parcels. Two parcels (Parcel B and Parcel C, combined size: +/-3.06 acres) will be developed under this amendment. This amendment also includes construction on an internal access drive on Parcel A, which will provide connectivity to Honey Farm Way and Parcels A, B, and C, as well as construction of a stormwater pond on Parcel D.

Parcel A 4.08 acres Future Commercial with internal access drive

Parcel B 0.79 acres Office (one story; 1,300 SF)

Parcel C 2.27 acres Self-Storage (combined 98,774 SF)
Building 1 (3 story; 80, 000 SF)
Building 2 (1 story; 5,000 SF)
Building 3 (1 story; 11,975 SF)

Parcel D 6.29 acres Retained with stormwater pond

Concurrent Variances

Four concurrent variances are requested with this amendment. Two are related to loading zone requirements. Variance requests for a decrease in fencing and slight increase in rooftop parapet height are also included.

1. Reduction in Number of Loading Spaces

The City of Columbia Zoning Ordinance (August 2005) Section 8.3.4 (0) states limited use standards for self-storage. One loading zone space is required for every 10,000 SF of enclosed storage. The proposed self-storage facilities are 98,774 SF, therefore 10 loading spaces are required.

The applicant is seeking a variance to reduce the required number of loading spaces from 10 spaces to 9 spaces.

1. *That by reason of exceptional narrowness, shallowness, or shape of a particular piece of property at the time of enactment of this ordinance, or by reason of exceptional topographic conditions or other exceptional and extraordinary situation or condition of such piece of property, the strict application of any regulations contained within this ordinance would result in peculiar and exceptional practical difficulties to or exceptional or undue hardship upon the owner of such property*

The City of Columbia Zoning Ordinance (August 2005) Section 8.3.4 (0) (4) states a limited use standard for self-storage is requirement for 300 feet setback from any arterial highway. Since the site is bordered on the west by Nashville Highway, the self-storage site is set back 300 feet from the highway. The east side of the site is characterized by a steep drop in topography. There is an approximately 28 feet drop in elevation over 72 feet, resulting in a +/- 39% slope. The self-storage site is sandwiched between the required setback and a steep slope, creating a narrow buildable area. This dimensional restriction limits area for loading spaces.

Additionally, since the applicant is orienting all storage activities, drives, and parking towards the center of the site so that they are not visible to the public, this further reduces the area available for loading spaces.

2. *That the variance is the minimum variance that will relieve such difficulties or hardship and thereby make possible the reasonable use of the land, building, or structure.*

The applicant is proposing 9 loading zones spaces, which is more than adequate for the proposed use. Requiring an additional loading space would inhibit the use of one or more customer storage spaces.

3. *That the variance will not authorize activities in a zone district other than those permitted by this ordinance.*

This variance will not authorize any activities other than those permitted in a Commercial PUD.

4. *That financial returns alone shall not be considered as a basis or granting a variance.*

Financial returns are not the basis of this variance. The narrow shape of the self-storage site is dictated by setbacks and topography is the basis for this variance.

5. *That the granting of the variance will not be detrimental to the public welfare, injurious to other property or improvements in the area in which the subject property is located, or a substantial impairment to the intent and purpose of the general provision of this Zoning Ordinance.*

Since 9 loading spaces are provided and are more than adequate for optimum operation of a self-storage facility, there is no detriment to the public and no impairment to the intent and purpose of the Zoning Ordinance.

6. *That the purposed variance will not impair an adequate supply of light and air to the adjacent property, or substantially increase the congestion in the public streets, or increase the danger of fire, or endanger the public safety.*

Since 9 loading spaces are provided and are more than adequate for optimum operation of a self-storage facility, there is no light or air impairment to adjacent properties, no increase in congestion, or any increase of fire or any other danger to the public.

7. *That the alleged difficulty or hardship has not been knowingly and intentionally created by any person having an interest in the property after the effective date of this ordinance.*

The narrow shape of the self-storage site is dictated by setbacks and topography and was not intentionally created.

2. Reduction in Size of Loading Spaces

The City of Columbia Zoning Ordinance (August 2005) Section 10.3.3 (D) states dimensional requirements for loading space. Each space must be 12 feet wide and 55 feet long, with a vertical clearance of 15 feet.

The applicant is seeking a variance to reduce the length of 8 of the 9 provided loading spaces from 55 feet to 30 feet each.

1. *That by reason of exceptional narrowness, shallowness, or shape of a particular piece of property at the time of enactment of this ordinance, or by reason of exceptional topographic conditions or other exceptional and extraordinary situation or condition of such piece of property, the strict application of any regulations contained within this ordinance would result in peculiar and exceptional practical difficulties to or exceptional or undue hardship upon the owner of such property*

The City of Columbia Zoning Ordinance (August 2005) Section 8.3.4 (0) (4) states a limited use standard for self-storage is requirement for a 300 feet setback from any arterial highway. Since the site is bordered on the west by Nashville Highway, the self-storage site is set back 300 feet from the highway. The east side of the site is characterized by a steep drop in topography. There is an approximately 28 feet drop in elevation over 72 feet, resulting in a +/- 39% slope. The self-storage site is sandwiched between the required setback and a steep slope, creating a narrow buildable area. This restriction limits area for loading spaces.

Since the applicant is orienting all storage activities, drives, and parking towards the center of the site so that they are not visible to the public, this further reduces the area available for loading zone spaces.

The self-storage business rents small storage areas, generally not larger than a small garage, and is geared towards individual personal storage, rather than large-scale commercial storage or operations. It will be rare that a 55 feet length loading zone is required. The majority of customers will transport their goods via personal vehicle or small rental trucks. Therefore, there a reduction in the required length of loading zone from 55 feet to 30 feet is requested for eight of the loading zone spaces provided. One full 55 feet length space will also be provided.

2. *That the variance is the minimum variance that will relieve such difficulties or hardship and thereby make possible the reasonable use of the land, building, or structure.*

The applicant is proposing 9 loading zones spaces, which is more than adequate for the proposed use. Since large-scale commercial storage or operations are not associated with a self-storage facility, a reduction in the length of the eight of the loading spaces from 55 feet to 30 feet is appropriate for the customer vehicles that will be accessing the site. One full 55 feet length loading space is provided. Requiring full length loading spaces would inhibit the use of a large portion of the storage units.

3. *That the variance will not authorize activities in a zone district other than those permitted by this ordinance.*

This variance will not authorize any activities other than those permitted in a Commercial PUD.

4. *That financial returns alone shall not be considered as a basis or granting a variance.*

Financial returns are not the basis of this variance. The narrow shape of the self-storage site is dictated by setbacks and topography is the basis for this variance.

5. *That the granting of the variance will not be detrimental to the public welfare, injurious to other property or improvements in the area in which the subject property is located, or a substantial impairment to the intent and purpose of the general provision of this Zoning Ordinance.*

Since large-scale commercial storage or operations are not associated with a self-storage facility, a reduction in the length of the eight of the loading spaces from 55 feet to 30 feet is appropriate for the customer vehicles that will be accessing the site. One full 55 feet length loading space is provided. There is no detriment to the public and no impairment to the intent and purpose of the Zoning Ordinance.

6. *That the purposed variance will not impair an adequate supply of light and air to the adjacent property, or substantially increase the congestion in the public streets, or increase the danger of fire, or endanger the public safety.*

Since the length of loading space proposed (30 feet) is appropriate for the customer use, there is no impairment of light or air, any increase in congestion, or any fire or other danger to public safety.

7. *That the alleged difficulty or hardship has not been knowingly and intentionally created by any person having an interest in the property after the effective date of this ordinance.*

The narrow shape of the self-storage site is dictated by setbacks and topography and was not intentionally created.

3. Perimeter Fence for Self-Storage

The City of Columbia Zoning Ordinance (August 2005) Section 8.3.4 (0) states limited use standards for self-storage. Self-storage is required to be screened by a perimeter fence, no less than 4 feet and no higher than eight feet. The applicant is requesting to waive the perimeter fence at the outward-facing building elevations where no storage of vehicular traffic will be taking place.

1. *That by reason of exceptional narrowness, shallowness, or shape of a particular piece of property at the time of enactment of this ordinance, or by reason of exceptional topographic conditions or other exceptional and extraordinary situation or condition of such piece of property, the strict application of any regulations contained within this ordinance would result in peculiar and exceptional practical difficulties to or exceptional or undue hardship upon the owner of such property*

The City of Columbia Zoning Ordinance (August 2005) Section 8.3.4 (0) (4) states a limited use standard for self-storage is requirement for a 300 feet setback from any arterial highway. Since the site is bordered on the west by Nashville Highway, the self-storage site is set back 300 feet from the highway. The east side of the site is characterized by a steep drop in topography. There is an approximately 28 feet drop in elevation over 72 feet, resulting in a +/- 39% slope. The self-storage site is sandwiched between the required setback and a steep slope, creating a narrow buildable area.

Since the site is narrow, any perimeter fence would need to be located very close to the building. This will create a narrow area of difficult accessibility for grounds maintenance. Additionally, since the site is designed to shield all storage activities, parking, and drives as much as possible behind the buildings and all building access is from the center of the site, a perimeter fence is only needed between the buildings and at access drives. The applicant is providing fencing between the buildings and across all access drives.

2. *That the variance is the minimum variance that will relieve such difficulties or hardship and thereby make possible the reasonable use of the land, building, or structure.*

The applicant is creating a barrier between the public and the internal storage operations through use of the building facades, as well as fencing between the buildings and across the access drives. This is the minimum variance to relieve hardship due to the shape of the site.

3. *That the variance will not authorize activities in a zone district other than those permitted by this ordinance.*

This variance will not authorize any activities other than those permitted in a Commercial PUD.

4. *That financial returns alone shall not be considered as a basis for granting a variance.*

The applicant would be happy to provide a perimeter fence if it made sense for the shape and site layout, so financial returns are not a basis for this variance.

5. *That the granting of the variance will not be detrimental to the public welfare, injurious to other property or improvements in the area in which the subject property is located, or a substantial impairment to the intent and purpose of the general provision of this Zoning Ordinance.*

Since self-storage activities are oriented toward the center of the site and the buildings and provided fencing between buildings and across access drives provide a barrier to these activities, there is no detriment to the public welfare or substantial impairment to the intent and purpose of the Zoning Ordinance.

6. *That the proposed variance will not impair an adequate supply of light and air to the adjacent property, or substantially increase the congestion in the public streets, or increase the danger of fire, or endanger the public safety.*

Relief from requirement to provide redundant fencing will not impair air or light supply, increase congestion, or create a fire or other danger to public safety.

7. *That the alleged difficulty or hardship has not been knowingly and intentionally created by any person having an interest in the property after the effective date of this ordinance.*

The narrow shape of the self-storage site is dictated by setbacks and topography and was not intentionally created.

4. Parapet Height for Commercial Buildings

The City of Columbia Zoning Ordinance (August 2005) Section 6.2.3 (D) (2) (d) states that rooftop parapet walls shall be no higher than 4 feet in non-residential districts.

The applicant is requesting a variance to allow an increase of one foot for a proposed rooftop parapet wall of maximum height 5 feet to screen rooftop utilities.

1. *That by reason of exceptional narrowness, shallowness, or shape of a particular piece of property at the time of enactment of this ordinance, or by reason of exceptional topographic conditions or other exceptional and extraordinary situation or condition of such piece of property, the strict application of any regulations contained within this ordinance would result in peculiar and exceptional practical difficulties to or exceptional or undue hardship upon the owner of such property*

The proposed height of Building 1 is 35 feet. The City of Columbia Zoning Ordinance (August 2005) Section 8.3.4 (0) (4) states a limited use standard for self-storage is requirement for a 300 feet setback from any arterial highway. Since the site is bordered on the west by Nashville Highway, the self-storage site is set back 300 feet from the highway.

After review by the City of Columbia Architectural Review Board, it was determined that rooftop utilities may be visible from the highway since the self-storage site must be set back 300 feet from the highway and the maximum height of a parapet wall to hide the utilities is 4 feet. Upon recommendation by the Architectural Review Board, the applicant is requesting an increase of one foot for a maximum parapet wall of 5 feet to screen rooftop utilities.

2. *That the variance is the minimum variance that will relieve such difficulties or hardship and thereby make possible the reasonable use of the land, building, or structure.*

One foot is the minimum variance required to provide adequate screening of rooftop equipment from the highway.

3. *That the variance will not authorize activities in a zone district other than those permitted by this ordinance.*

This variance will not authorize any activities other than those permitted in a Commercial PUD.

4. *That financial returns alone shall not be considered as a basis or granting a variance.*

Increasing the height of the rooftop parapet wall will increase costs for the applicant. Financial returns are not a consideration for this variance request.

5. *That the granting of the variance will not be detrimental to the public welfare, injurious to other property or improvements in the area in which the subject property is located, or a substantial impairment to the intent and purpose of the general provision of this Zoning Ordinance.*

Granting of this variance will not affect public welfare or be injurious to other properties in the area and are not an impairment to the intent and purpose of the Zoning Code.

6. *That the purposed variance will not impair an adequate supply of light and air to the adjacent property, or substantially increase the congestion in the public streets, or increase the danger of fire, or endanger the public safety.*

The additional height gained by granting an additional one foot of rooftop parapet height represents a 2% increase in total height of building, including parapet. Additionally, this variance is requested for only one building and the building is located in the center of the site. It is unlikely to impair or impede light or air to the adjacent properties.

Granting of this variance will not increase congestion or danger of fire or other public Safety concern.

7. *7. That the alleged difficulty or hardship has not been knowingly and intentionally created by any person having an interest in the property after the effective date of this ordinance.*

The request for this variance originated in the Architectural Review process. The hardship was not intentionally created.

Shared Parking

The applicant will be pursuing a shared parking agreement between Parcel B Office and Parcel C Self-Storage, as described in City of Columbia Zoning Ordinance (August 2005) Section 10.2.10 Shared Parking.

The City of Columbia Zoning Ordinance (August 2005) Section 10.2.2 lists minimum parking requirements:

Parcel B	Office	1 space per 300 SF	5 spaces required
Parcel C	Self-Storage	1 space per 75 storage units	9 spaces required

The applicant is proposing that the 15 spaces provided on Parcel B are shared between Parcel B Office and Parcel C Self-Storage. It is expected that self-storage customers will primarily utilize the 9 loading spaces provided on Parcel C since the size of personal storage units precludes the need for loading spaces for commercial activities and operations.

The applicant will provide a Shared Parking Study and Agreement for Shared Parking as part of the City approval and permit process.

If you should have any questions or require additional information, please do not hesitate to contact me at our Atlanta office at (678) 606-5278. Thank you.

Sincerely,



Bridgette Ganter
bganter@bowmanconsulting.com
678-606-5278

Bowman

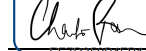
STATEMENT TO ACCOMPANY PUD APPLICATION

The undersigned, Charles Raines and the Estate of J.D. Eatherly ("**Owners**"), are the fee simple owners of certain property located at 2248 Nashville Highway, Columbia, Maury County, Tennessee, known as tax parcel no. 051 058.00 (the "**Property**"). By their signatures below, Owners concur with the application to amend the Planned Unit Development affecting the Property.

Owners have entered into a purchase agreement with Equitas Management Group, LLC ("**Purchaser**") regarding Property, and by its signature below, Purchaser also concurs with the application to amend the Planned Unit Development affecting the Property.

OWNERS:

DocuSigned by:



Charles Raines

DocuSigned by:

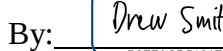


Sandra Cantrell, Executor of the Estate of
J.D. Eatherly

PURCHASER:

Equitas Management Group, LLC

DocuSigned by:



Drew Smith

Senior Vice President

**DEVELOPMENT SERVICES**

700 NORTH GARDEN STREET

COLUMBIA, TN 38401

PHONE: (931) 560-1560

FAX: (931) 560-1541

**PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION**

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*

Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	2248 Nashville Highway, Columbia, TN 38401		
	TAX MAP: 051	GROUP:	PARCEL: 051 05800 000
SUMMARY OF NATURE OF REQUEST AND WORK	PUD Plan for development of self-storage building with associated utilities, parking, drive aisles on approximately 3.05 acres at the southeast corner of Highway 31 and Honey Farm Way.		

DATE OF PRE-APPLICATION CONFERENCE	6/29/2022	<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	-----------	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☒ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☒ Requested Zone Listed ☒ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☒ Plans and/or Plats conforming to City standards with check list completed ☒ Columbia Water System Availability Letter
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) Honey Farm StorPlace ☒ Total Number of Lots 4 lots ☒ Total acreage Gross Acreage - 13.43 acres - Self-storage (2 lots) - 3.05 acres - Future Commercial (1 lot) - 4.08 acres - Retained (1 lot) - 6.3 acres

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Adam Crunk	PHONE	615-873-1795
ADDRESS	7112 Crossroads BLVD Suite 201 Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Charles Raines	PHONE	(615) 456-7098
ADDRESS	P.O. Box 1715, Springhill, TN 37174	EMAIL	raines.monica@icloud.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Adam Crunk

APPLICANT NAME

Sandra Cantrell, Executor of the Estate of J.D. Eatherly

PROPERTY OWNER NAME

Charles Raines

PROPERTY OWNER NAME

Adam Crunk

DocuSigned by:

APPLICANT SIGNATURE

Sandra Cantrell

DocuSigned by:

PROPERTY OWNER SIGNATURE

Charles Raines

DocuSigned by:

PROPERTY OWNER SIGNATURE

11-11-2022

DATE
11/16/2022

DATE
11/16/2022

DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			