MEMORANDUM

ROBERTSON COUNTY DEVELOPMENT OFFICE
527 SOUTH BROWN STREET, SPRINGFIELD, TN 37172
TEL. (615) 384-3666

TO: Planning Commission Members
FROM: Planning Staff
DATE: March 20, 2025

The Robertson County Planning Commission will hold its monthly meeting on **Thursday March 27, 2025, at 7:00 P. M.** on the 2nd Floor, Judicial Complex, Robertson County Office Building. Assistant Director, Hunter Mantooth, is available to answer questions at (615) 384-3666 or hmantooth@robcotn.org.

AGENDA

1. Roll Call:
2. Comments from Citizens: Persons wishing to speak for or against any item must sign the log sheet prior to the meeting.
3. Announcements: Rezonings from this agenda will be heard at the next County Commission meeting on April 21, 2025.
4. Approval of Minutes: Approval of Minutes of February 27, 2025, meeting.
5. Old Business:
   A. **Kitty Waggoner, Executor:** Rezone Request for 19.92 acres of property located at 6841 Hwy 41 N., Cedar Hill. Tax Map 054, Parcel 013.00 from AG-2 to R-20 (7th Voting District). Represented by Nettie Boyle, PE, CSR Engineering. WITHDRAWN 3.10.25
6. New Business:
   A. **Brandon Frank on behalf of RKMB, LLC:** Rezone request for 151.35 acres of property located on Hwy 161, Springfield. Tax Map 044, Parcels 010.00 and 011.00 from AG-2 to R-40 (8th Voting District). Represented by Applicant.
   B. **Melvin Norfleet, Jr.:** Rezone Request for 1.87 acres of the 19.12 surveyed acres of property located at 4938 Starks Rd., Cross Plains. Tax Map 050, Part of Parcel 121.00 from AG-2 to RP-80 (1st Voting District). Represented by Steve Artz, Steven E Artz and Associates.

C. **R3 Properties:** Rezone Request for 2.00 acres of the 14.407 surveyed acres of property located at 2746 Kinneys Rd., Cedar Hill. Tax Map 054, Part of Parcel 088.00 from AG-2 to RP-80 (7th Voting District). Represented by Clint Head, Young, Hobbs & Associates.

D. **Rashmee Sarvaria**: Rezone Request for 4.97 acres (TN portion) of the 6.04 acres of property located at 6247 Lake Springs Rd., Portland. Tax Map 012, Part of Parcel 046.00 from AG-2 to C-1 (3rd Voting District). Represented by Josh Lyon, P.E., Klober Engineering Services.

E. **Brandon Frank on behalf of Michael and Diane Selfridge and Brian Linderman:** Preliminary Plat approval for Kristy Meadows located on Gideon Rd., Greenbrier. Tax Map 104, Parcel 068.02 (3rd Voting District). Represented by applicant.

F. **Blackpatch Properties, LLC:** Final Site Plan for Beristain Construction Office, located at Hwy 41 N., Springfield. Tax Map 069, Parcel 002.03 (11th Voting District). Represented by Josh Lyon, P.E., Klober Engineering Services.

G. Reports from Staff: None

H. Adjourn

The Robertson County Planning Commission met on February 27, 2025 at 7:00 p.m. in the Judicial Complex, Second Floor, Robertson County Office Building, Springfield, Tennessee.

Roll Call:

MEMBERS PRESENT:
Eric Thompson
Jeremiah Pierce
Charles "Gene" Federman
Cheryl Elliott
Jeremy Stinson
William B Henry
Robert Buck
Matt Crabtree

MEMBERS ABSENT:

OTHERS PRESENT:
Hunter Mantooth
Pam Groves

The meeting was called to order by Secretary Gene Federman at 7:00 pm.

Roll Call was completed by Hunter Mantooth. Eight were present.

Announcements: Secretary Gene Federman announced that the zoning from this agenda will be heard at the County Commission on March 24, 2025. Any citizens wishing to speak for or against any items on the agenda will need to sign in on the sheet provided. Seven citizens signed up to speak.

Election of officers for the next year was completed:

A. Cheryl Elliott was nominated for Chairman by William Henry with a second by Eric Thompson. No other nominations. Cheryl Elliott was elected Chairman by a vote of 7-0.

Chairman Cheryl Elliott presided over the meeting from this point on

B. Jeremiah Pierce was nominated for Vice Chairman by William Henry with a second by Matt Crabtree. No other nominations. Jeremiah Pierce was elected Vice Chairman by a vote of 7-0.
C. Gene Federman was nominated for Secretary by Eric Thompson with a second by Matt Crabtree. No other nominations. Gene Federman was elected Secretary by a vote of 7-0.

Motion to approve Minutes from previous meeting of January 23, 2025, made by Jeremiah Pierce with a second by Eric Thompson.
Motion passed 7 – 0.

1. Old Business: None

2. New Business:

A. **Opal Carlisle:** Rezone Request for 2.00 acres of the 12.59 surveyed acres of property located at 3909 Edd Ross Rd., Cedar Hill. Tax Map 076, Part of Parcel 039.00 from AG-2 to R-40 (7th Voting District). Represented by Steve Artz, Steven E Artz and Associates.

Steve Artz was there to present and answer questions. No one signed up to speak on this matter and no questions from the commission.
Motion to recommend was made by Gene Federman with a second from Matt Crabtree.
Motion passed 7 – 0.

B. **Kwanna Gregory:** Rezone Request for 2.03 acres of the 3.41 surveyed acres of property located at 4815 Hwy 31 W., Cottontown. Tax Map 062, Part of Parcel 111.00 from AG-2 to R-40 (1st Voting District). Represented by Steve Artz, Steven E Artz and Associates.
Steve Artz was there to present and answer questions. No one signed up to speak on this matter. The commission asked one question, and it was answered.
Motion to recommend was made by Eric Thompson with a second from Gene Federman.
Motion passed 7 – 0.

C. **Kwanna Gregory**: Rezone Request for 1.38 acres of the 3.41 surveyed acres of property located at 4815 Hwy 31 W., Cottontown. Tax Map 062, Part of Parcel 111.00 from AG-2 to C-1 (1st Voting District). Represented by Steve Artz, Steven E Artz and Associates.
Steve Artz was there to present and answer questions. No one signed up to speak on this matter. Several questions from the commission and Steve answered those questions.
Motion to recommend was made by Gene Federman with a second from William Henry.
Motion passed 6 – 1. Jeremiah Pierce voted no.

D. **Kitty Waggoner, Executor:** Rezone Request for 19.92 acres of property located at 6841 Hwy 41 N., Cedar Hill. Tax Map 054, Parcel 013.00 from AG-2 to R-20 (7th Voting District). Represented by Nettie Boyle, PE, CSR Engineering.
Nettie Boyle was there to present and answer questions. Seven citizens signed up to speak. Several questions and concerns from the commission.
Motion to table was made by Jeremiah Pierce with a second by Jeremy Stinson.
Motion passed 7 – 0.
** since the motion was tabled none of the citizens spoke **

Reports from Staff: Nothing from the planning staff. Jeremiah took this time to address the commission pertaining to some of his concerns with stormwater, road sizes and sub regs. There was discussion among the commissioners and planning staff. Commissioners were asked to email us their concerns to the planning staff, and we would look into them and get with the planner.

A motion to adjourn made by Gene Federman with a second by Eric Thompson.
Motion passed 7-0 and the meeting was adjourned at 7:31 pm.

Respectfully submitted,

Gene Federman

Gene Federman, Secretary

New Business: A

ROBERTSON COUNTY DEVELOPMENT OFFICE
ROBERTSON COUNTY OFFICE BUILDING
527 SOUTH BROWN STREET, SPRINGFIELD, TENNESSEE 37172
615-384-3666

Application for Rezoning

Applicant Information:

Name: Brandon Frank
Mailing Address: 2550 Highway 41 S. Greenbrier, TN 37073
Email: Brandon@bfrankconstruction.com
Telephone Number: (615) 335-1341

Applicant's Representative Information:

Name: Brandon Frank
Name of Firm: Brandon Frank Construction
Mailing Address: 2550 Highway 41 S. Greenbrier, TN 37073
Email: brandon@bfrankconstruction.com
Telephone Number: (615) 335-1341

Property Information:

Owner (if not applicant provide letter giving applicate permission): RKMBLLC Mac Baggett Jr.
Physical Address: Hwy 161
Tax Map and Parcel Number: 044 011.00 and 044 010.00
Current Zoning Designation: A1-Agricultural
Requested Zoning Designation: R40

Will this property be subdivided (or combined) in some way within the next year? (Yes) No

Purpose of rezoning request:

Rezone from AG2 to R40 for future development

SUBMITTAL REVIEW PROCEDURE:

1. Deliver one (1) copy of this application & any supporting materials to the Development Office before or by the final due date (Please see attached schedule- the "Corrections Due" does not apply to this type of application)
2. Provide copy of deed to prove ownership.
3. Provide aerial photograph of the property from TN Property Viewer
4. Provide Legal description **AND** Survey of the areas to be rezoned including map and parcel number
5. Provide water letter from utility company stating location and size of current water line, adequate pressure for domestic use and if/where fire hydrants are required
6. Pay the review fee.
7. Email a .PDF of the application & supporting materials to [redacted]
8. Attend the Planning Commission meeting. Be ready to present and answer questions. Failure to appear at the Planning Commission meeting may result in the denial of the application.

Owner of Record Signature & DATE

Applicant's Signature & DATE

February 13, 2025

Mac Baggett Jr.
Beth Baggett
5432 Hwy 76 East
Springfield, TN 37172

RE: Map/Parcel 044 011.00

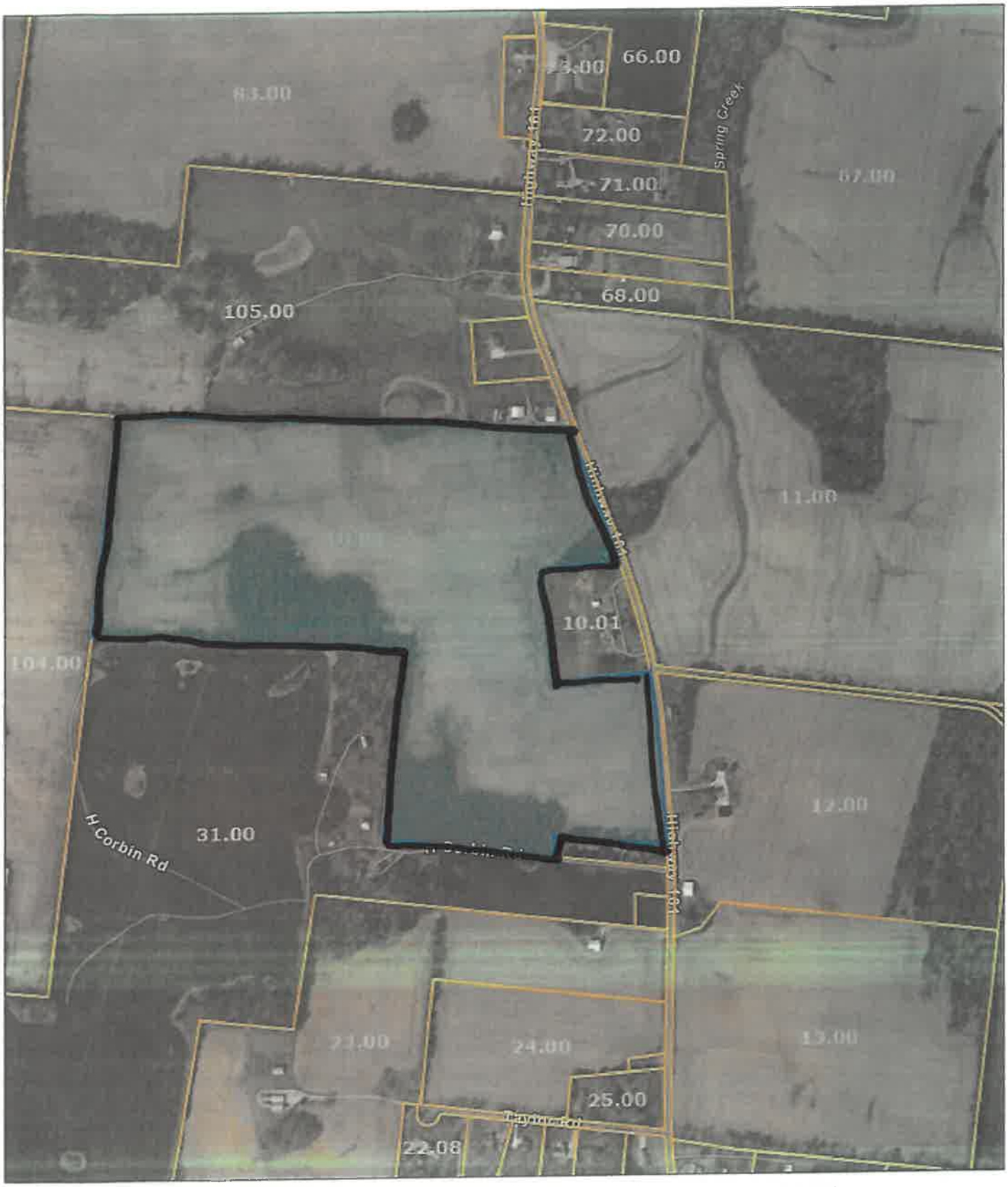
To Whom It May Concern:

Brandon Frank, Brandon Frank Construction LLC, is under contract with me, Mr. Mac Baggett Jr. and my wife, Beth Baggett, for the purchase of the property located at Map/Parcel 044 011.00 with the contingency of rezoning. This letter is to give Brandon Frank permission to represent this property located at Map/Parcel 044 011.00 through the rezoning process.



Mac Baggett Jr. / Beth Baggett

Robertson County - Parcel: 044 010.00



Date: March 5, 2025

County: ROBERTSON
Owner: RKMB LLC MAC BAGGETT JR
Address: HWY 161 5452
Parcel ID: 044 010.00
Deeded Acreage: 72.1
Calculated Acreage: 0

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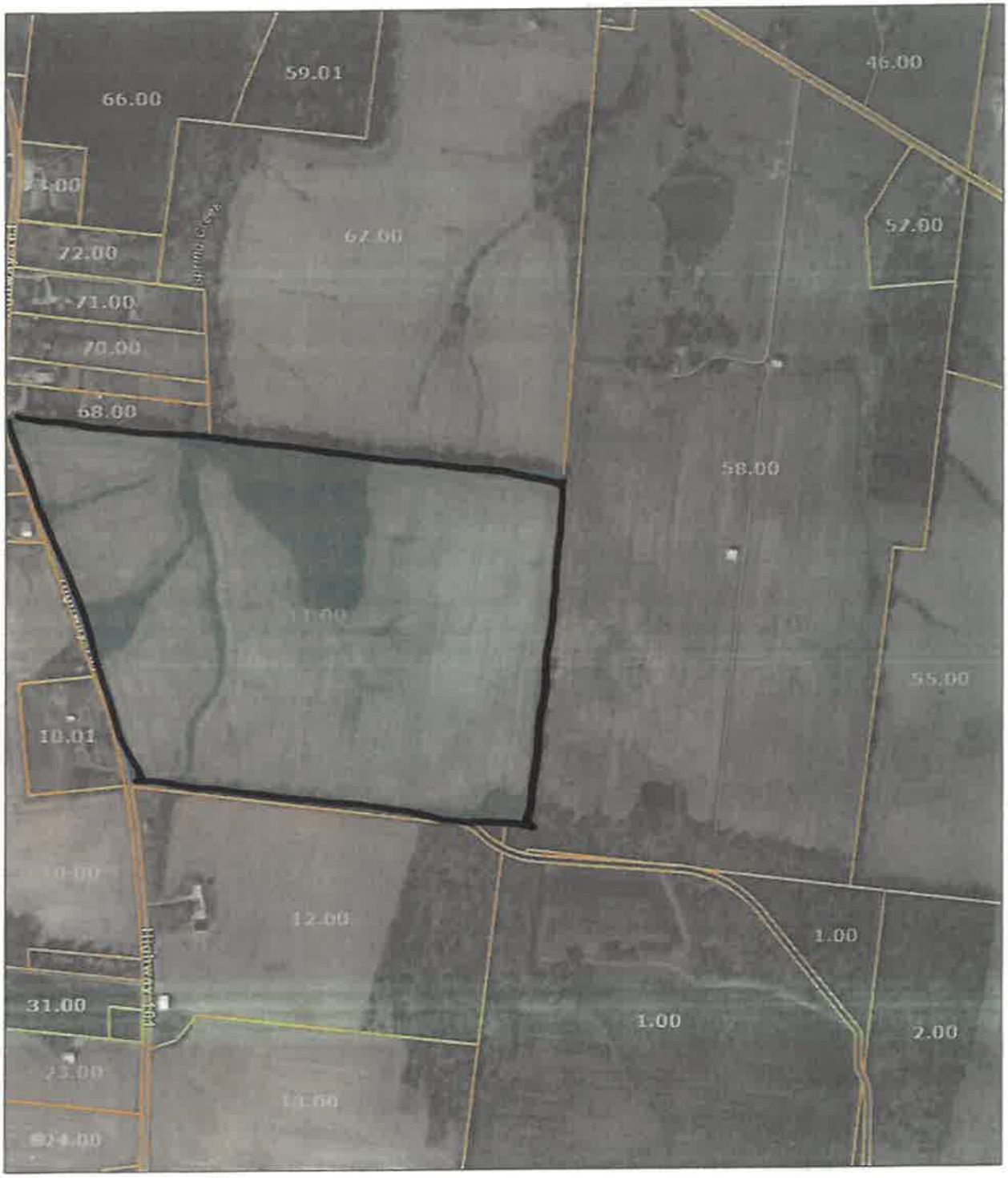
0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

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The property lines are compiled from information maintained by your local

Robertson County - Parcel: 044 011.00



Date: February 12, 2025

County: ROBERTSON
Owner: RKMB LLC MAC BAGGETT JR
Address: HWY 161
Parcel ID: 044 011.00
Deeded Acreage: 79.25
Calculated Acreage: 79.2
Vexcel Imagery Date: 2023

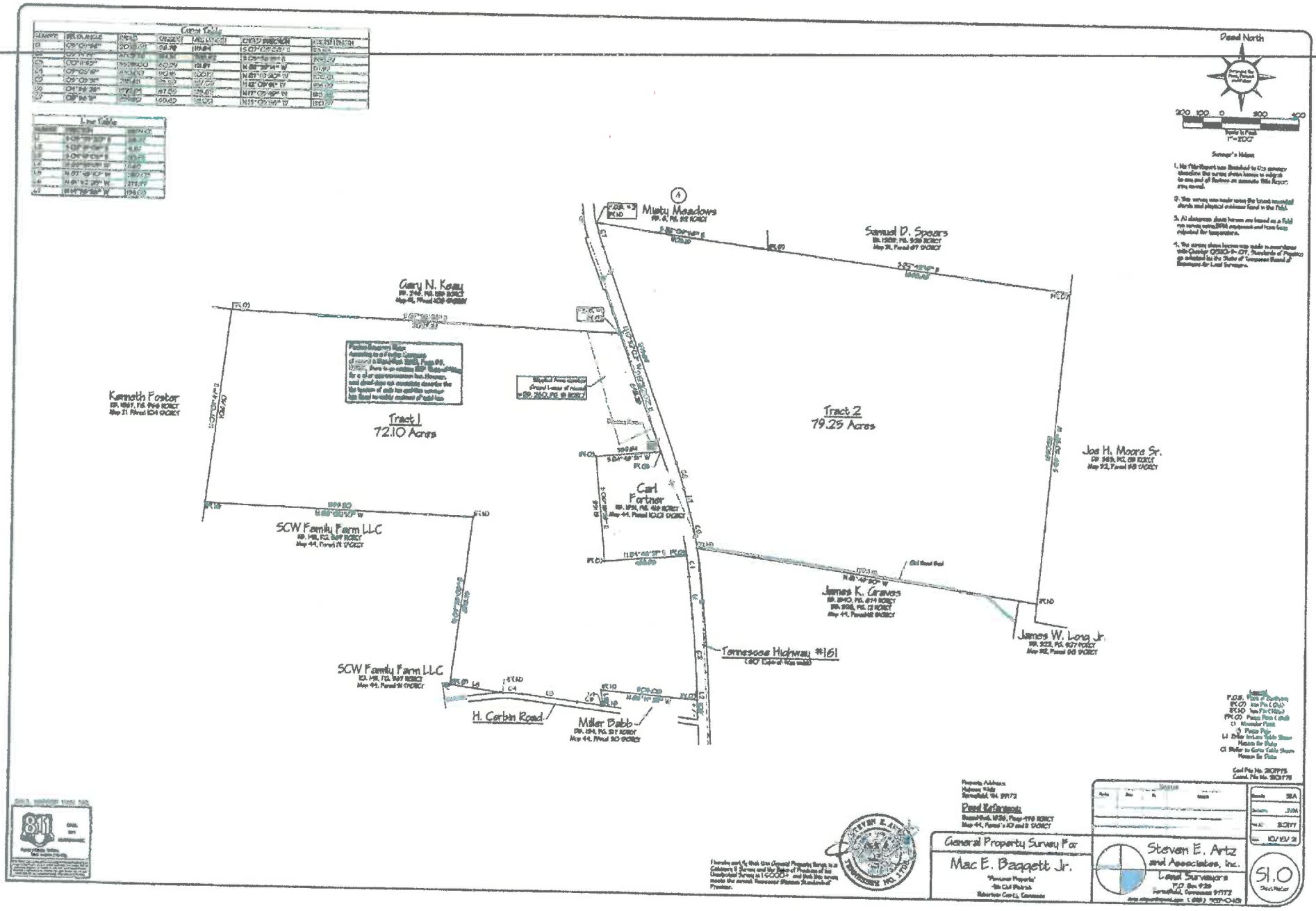
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0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

State of Tennessee, Comptroller of the Treasury, Division of Property Assessments (DPA), Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

The property lines are compiled from information maintained by your local county Assessor's office but are not conclusive evidence of property ownership in any court of law.


Curve Table
Line Table
Read North
Scale in Feet
1"=200'
Surveyor's Notes:
1. No Title Report was furnished to this surveyor therefore this survey shows items in relation to any and all features on accessible Title Report may exist.
2. This survey was made using the Lands recorded deeds and physical evidence found in the Field.
3. All distances shown hereon are based on a field run survey using GPS equipment and have been adjusted for temperature.
4. The survey shown hereon was made in accordance with Chapter 0820-3-.07, Standards of Practice as adopted by the State of Tennessee Board of Examiners for Land Surveyors.
Misty Meadows
Samuel D. Spears
Gary N. Keay
Kenneth Foster
Tract 1
72.10 Acres
Tract 2
79.25 Acres
Joe H. Moore Sr.
Carl Fortner
SCW Family Farm LLC
James K. Graves
James W. Long Jr.
Tennessee Highway #161
H. Corbin Road
Miller Babb
Legend
Property Address:
Deed References:
General Property Survey For
Mac E. Baggett Jr.
Steven E. Artz and Associates, Inc.
Land Surveyors
SI.0

CITY OF SPRINGFIELD
Water/Wastewater Department

924 Central Avenue • Springfield, Tennessee 37172 • (615) 382-1600 • FAX (615) 384-6951
www.springfieldtn.gov

March 5, 2025

TO WHO IT MAY CONCERN:

There was a previous request by Mr. Mac Baggett Jr. for development on a property located off Hwy 161 in Robertson County. The property is identified by Map 44 Parcels 10.00 and 11.00. The request was for 26 taps. After flow tests were performed by the Springfield Water and Wastewater Department it has been determined that there is sufficient flow for both domestic and fire flow to support these additions to the City of Springfield's water system with some off-site improvements. However, Lots 1 – 5 have been allowed to be serviced by Springfield before the off-site improvements This was due to there being capacity for these services. The taps for Lots 1 - 5 have been installed.

If you need further information or have questions, please contact me at 615-382-1600.

Thank you,

Terry Beers, P.E.
Director
Springfield Water and Wastewater Department

Robertson County Development Office
Agenda Review Sheet
Planning Commission Meeting
March 27, 2025
Amanda Harrington, Planning Advisor

Applicant: Brandon Frank on behalf of RKMB, LLC
Representative: Brandon Frank

Figure 1Figure 1: TN Property Viewer: Tax Map 044, Parcel 011.00



Request: Rezone 151.35 ***acres***
Tax Map 044, Parcel 010.00 and 011.00
from AG-2 to R-40

Property Information:

- Tax Map 044, Parcel 010.00 and 011.00
- Hwy 161, Springfield
- Total lot acreage: 151.35 acres (6,592,806 sq. ft.)
- **Rezone Request: 151.35 acres (6,592,806 sq. ft.)**



Figure 2Tax Map 044, Parcel 010.00; in its entirety is highlighted

Discussion & Observations:
The applicant wishes to rezone 151.35 acres for the purpose of future development. The subject property has AG-2, several R-40 and a few RP-80 zones in the immediate vicinity with varying lot sizes. Several of the surrounding AG-2 lots are nonconforming that would be considered R-40 by today's zoning regulations. *Please see Exhibit 1 for zoning map exhibit.* The applicant's request to rezone to R-40 appears to be dimensionally appropriate.

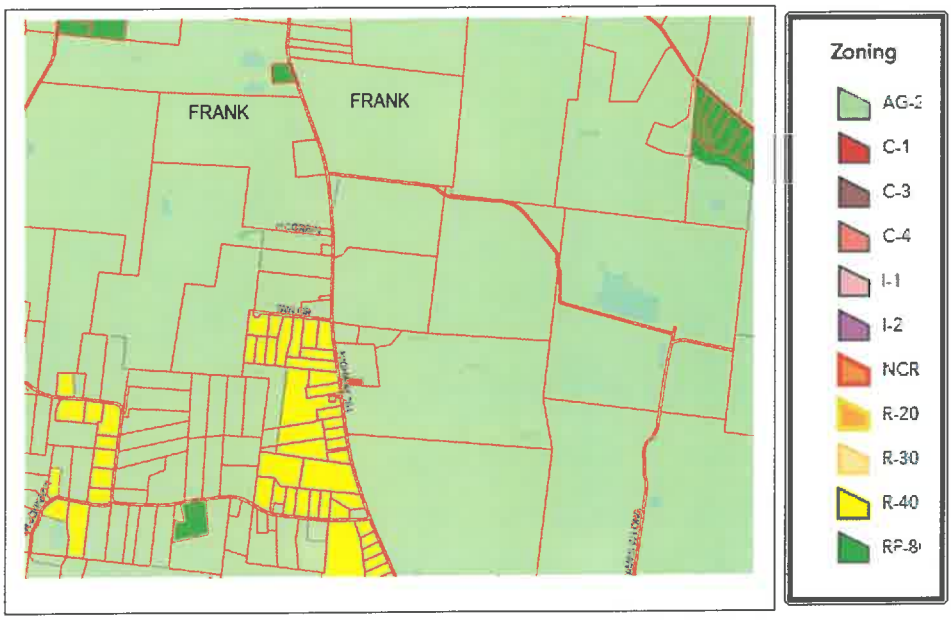
However, the 2040 Land Use Plan calls for this area to remain Rural, with uses in rural areas ranging from open space to agriculture, homesteads associated with agricultural uses and agriculture service businesses are encouraged within this category. Per the Robertson County Zoning Resolution, the R-40 zoning designation is not consistent with the adopted 2040 Land Use Plan. Staff does not recommend approval.

**** END COMMENTS ****

Brandon Frank on behalf of RKMB, LLC Rezoning Request
For Tax Map 044, Parcels 010.00 & 011.00, from AG-2 to R-40

Exhibit 1

Austin Peay University Zoning Map





New Business: B

ROBERTSON COUNTY DEVELOPMENT OFFICE
ROBERTSON COUNTY OFFICE BUILDING
527 SOUTH BROWN STREET, SPRINGFIELD, TENNESSEE 37172
615-384-3666

Application for Rezoning

Applicant Information:

Name: Melvin E. Norfleet Jr.
Mailing Address: 4885 Starks Road Cross Plains, TN. 37049
Email: norfleet827@gmail.com
Telephone Number: (615) 812-2455

Applicant's Representative Information:

Name: Steve Artz
Name of Firm: Steven E. Artz and Associates, Inc.
Mailing Address: 4800 Hwy. 431 N Springfield, TN. 37172
Email: artz.steve@gmail.com
Telephone Number: (615) 382-0481

Property Information:

Owner (if not applicant provide letter giving applicate permission):
Physical Address: 4938 Starks Road Cross Plains, TN. 37049
Tax Map and Parcel Number: Map 50, part of Parcel 121
Current Zoning Designation: AG-2
Requested Zoning Designation: R80

Will this property be subdivided (or combined) in some way within the next year? *Yes* *No*

Purpose of rezoning request:

The purpose of this rezoning is for the creation of a smaller lot for the existing house and leaving the remaining 17.25 acres as farm land.

SUBMITTAL REVIEW PROCEDURE:

1. Deliver one (1) copy of this application & any supporting materials to the Development Office before or by the final due date (Please see attached schedule- the "Corrections Due" does not apply to this type of application)
2. ✓ Provide copy of deed to prove ownership.
3. ✓ Provide aerial photograph of the property from TN Property Viewer
4. ✓ Provide Legal description **AND** Survey of the areas to be rezoned including map and parcel number
5. ✓ Provide water letter from utility company stating location and size of current water line, adequate pressure for domestic use and if/where fire hydrants are required

N/A

6. Pay the review fee.
7. Email a .PDF of the application & supporting materials to hmantooth@robcotn.org
8. Attend the Planning Commission meeting. Be ready to present and answer questions. Failure to appear at the Planning Commission meeting may result in the denial of the application.

Owner of Record Signature & DATE

Applicant's Signature & DATE

Robertson County - Parcel: 050 121.00



Date: February 6, 2025

County: ROBERTSON
Owner: NORFLEET MELVIN E JR ETUX NORFLEET JULIE A
Address: STARKS RD
Parcel ID: 050 121.00
Deeded Acreage: 0
Calculated Acreage: 15.1
Vexcel Imagery Date: 2023

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

State of Tennessee, Comptroller of the Treasury, Division of Property Assessments (DPA), Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

The property lines are compiled from information maintained by your local county Assessor's office but are not conclusive evidence of property ownership in any court of law.

Steven E. Artz
and Associates, Inc.
Land Surveyors
P.O. Box 925 Springfield, TN. 37172
email: artz.steve@gmail.com (615) 382-0481

Rezoning Request For
Melvin E. Norfleet Jr.

15th Civil District
Robertson County, Tennessee

No. 250024
Date 2/5/25
By SEA
CAD File No. 250024SCA
Coord File No. 250024CA

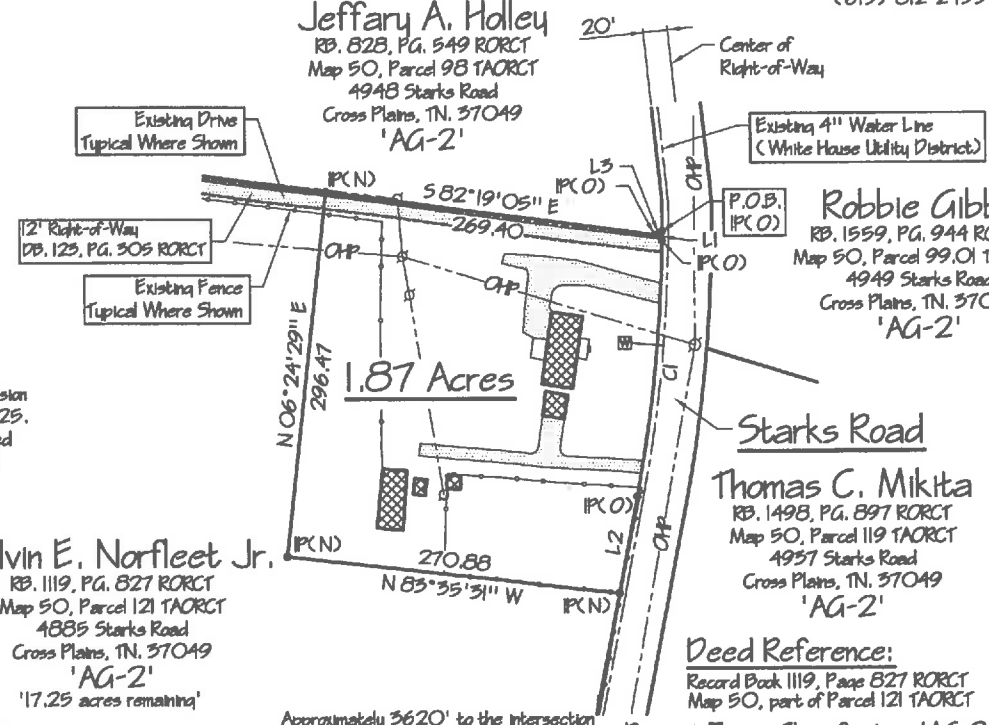
Surveyor's Notes:
1. No Title Report was furnished to this surveyor at the time of this survey, therefore, the survey shown hereon is subject to any and all findings an accurate Title Report may reveal.
2. This survey was made using the latest recorded deeds and physical evidence found in the field.
3. The survey shown hereon was made in accordance with Chapter 0820-3-.07, Standards of Practice as adopted by the State of Tennessee Board of Examiners for Land Surveyors.

100 50 0 100 200
SCALE IN FEET
1"=100'

TSPCS Grid North (NAD83)

Surveying The Past, Present and Future

Bearing Basis Note:
Bearings shown hereon are based on the Tennessee State Plane Coordinate System of 1983. Two (2) control points were established using a Spectra Precision SP100 Dual Frequency Receiver on February 3, 2025. The grid coordinates of the control points were derived using the TDOT Real-Time Kinematic Network, Virtual Reference Station, (VRS) Northing: 751385.94, Easting: 1849162.94 - Referenced to NAD83 (2011) (EPOCH 2010), GEOID 12B.



Approximately 3620' to the intersection of Starks Road and Cedar Grove Road

Melvin E. Norfleet Jr.
Owner
4885 Starks Road
Cross Plains, TN. 37049
(615) 812-2455

Legend
P.O.B. Point of Beginning
IP(O) Iron Pin (Old)
IP(N) Iron Pin (New)
Power Pole
—OHP— Overhead Power Line
L1 Refer to Line Table Shown Hereon for Data
C1 Refer to Curve table Shown Hereon for Data
Existing Structure
Existing Water Meter

CALL BEFORE YOU DIG
811 CALL 811 NATIONWIDE
Know what's below. Call before you dig.
IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE DEMONSTRATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS NECESSARY.

Deed Reference:
Record Book 1119, Page 827 RORCT
Map 50, part of Parcel 121 TAORCT

Present Zoning Classification-'AG-2'
Proposed Zoning Classification-'RSO'

Line Table		
Line	Bearing	Distance
L1	S 00°52'19" W	7.70
L2	S 11°04'56" W	79.68
L3	N 63°59'19" E	6.80

Curve Table						
Curve	Delta Angle	Radius	Tangent	Arc Length	Chord Bearing	Chord Length
C1	10°12'37"	1163.43	103.94	207.35	S 05°58'37" W	207.05

STEVEN E. ARTZ REGISTERED LAND SURVEYOR DEPARTMENT OF AGRICULTURE COMMERCE & INSURANCE 1955 TENNESSEE NO. 1708

Property Address:
4958 Starks Road
Cross Plains, TN. 37049

I hereby certify that this General Property Survey is a Category I Survey and the Ratio of Precision of the Unadjusted Survey is 1:10000+ and that this survey meets the current Tennessee Minimum Standards of Practice.

Steven E. Artz and Associates, Inc.

Surveyor's Description
February 5, 2025

The following paragraph describes a tract of land in the 15th Civil District of Robertson County, Tennessee, said tract being that property which was conveyed to Melvin e. Norfleet, jr., et ux, by the Estate of Ruth Elizabeth Gregory Luster, in a Special warranty Deed of record which is recorded in Record Book 1119, Page 827, Register's Office for Robertson County, Tennessee, RORCT.

Beginning at an iron pin (old), in the westerly margin of Starks Road, the southeast corner of a tract of land which belongs to Jeffary A. Holley, having a deed reference in Record Book 828, Page 549, RORCT, the northeast corner of this tract and continuing with the westerly margin of said road, as follows:
S 00°52'19" W, 7.70 feet to an iron pin (old);
thence with a curve to the right, having a radius of 1163.43 feet, an arc distance of 207.33 feet, and a chord bearing and distance of S 05°58'37" W, 207.05 feet to an iron pin (old);
thence, S 11°04'56" W, 79.68 feet to an iron pin (new), in the westerly margin of Starks Road;
thence with a new line, as follows:
N 83°35'31" W, 270.88 feet to an iron pin (new);
thence, N 06°24'29" E, 296.47 feet to an iron pin (new), in the southerly boundary of said tract of land which belongs to Jeffary A. Holley;
thence with the boundary of said tract of land which belongs to Jeffary A. Holley, as follows:
S 82°19'05" E, 269.40 feet to an iron pin (old);
thence, N 63°59'19" E, 6.80 feet, to the point of beginning, containing **1.87 acres,** as surveyed by Steven E. Artz, Tennessee License No. 1708, d/b/a, Steven E. Artz and Associates, Inc., 4800 Highway 431 North, Springfield, Tennessee, 37172, dated February 5, 2025.

The above described tract of land may be found on Tax Map 50, part of Parcel 121, in the Tax Assessor's Office for Robertson County, Tennessee.

File:Steve\250024L

Land Surveyors-Tennessee and Kentucky
Phone: (615) 382-0481 **Fax: (615) 382-0262**
4800 Highway 431 North **Springfield, Tennessee 37172**

Robertson County Development Office
Agenda Review Sheet
Planning Commission Meeting
March 27, 2025
Amanda Harrington, Planning Advisor

Applicant: Melvin Norfleet, Jr.
Representative: Steve Artz

Request: Rezone **1.87 *acres*** of the 19.12 surveyed acres Tax Map 050, Part of Parcel 121.00 from AG-2 to RP-80



Figure 1: TN Property Viewer: Tax Map 050, Part of Parcel 121.00 in its entirety is highlighted

Property Information:
- Tax Map 050, Part of Parcel 121.00
- 4938 Starks Road, Cross Plains
- Total lot acreage: 19.12 surveyed acres (832,867.20 sq. ft.)
- **Rezone Request: 1.87 surveyed acres. (81,457.20 sq. ft.)**

Project Narrative:
RP-80 Minimum Requirements
Minimum Lot Size: 80,000 sq. ft.
Front: 60'
Side: 25'
Rear: 25'
Min. Lot Width @ Front Bldg. Setback Line: 175'
Min Road Frontage: 50'
Maximum Height: 35'
Max Bldg. Coverage: 30%.

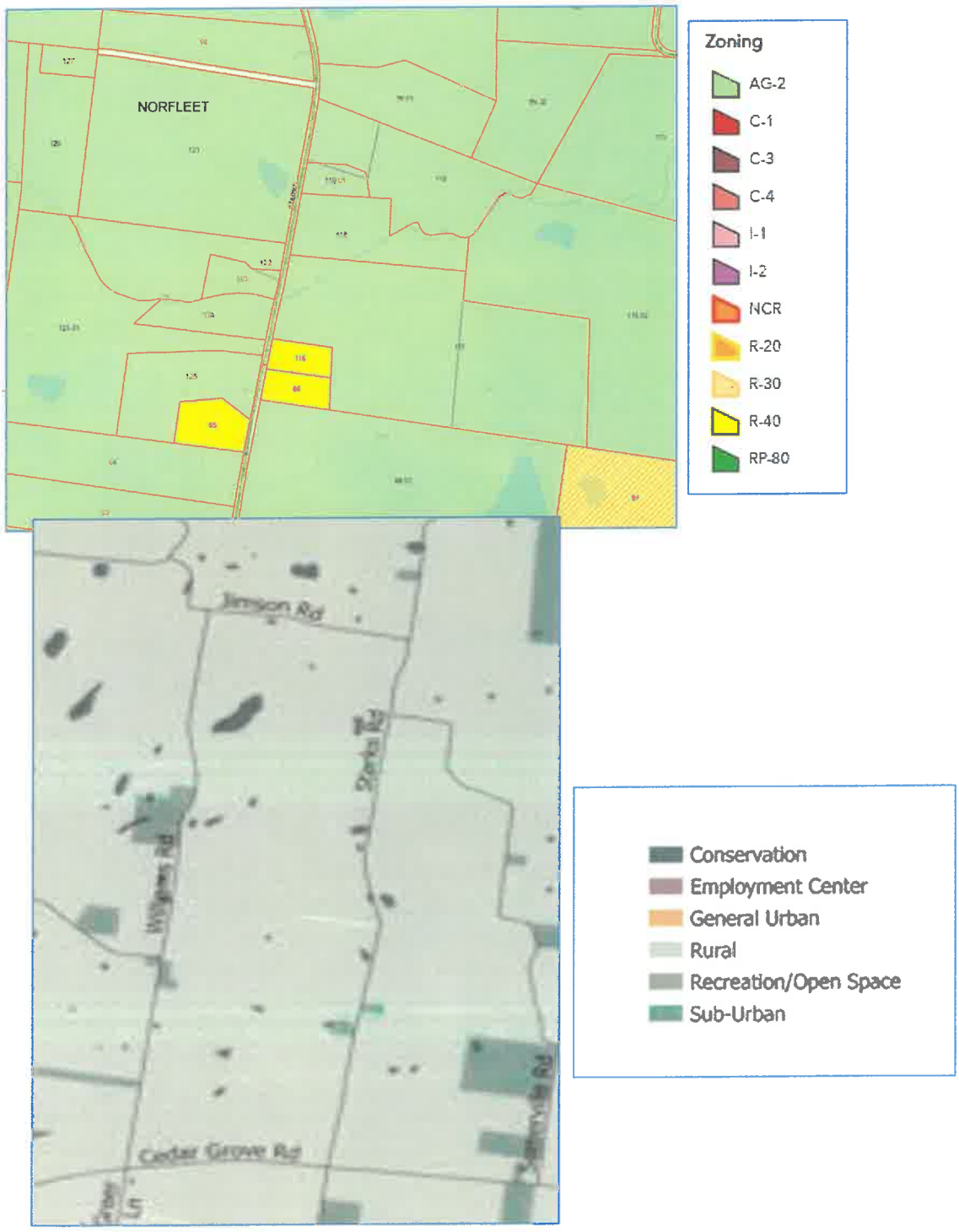
Discussion & Observations:
The applicant wishes to rezone 1.87 acres of the 19.12 surveyed acres. The subject property is mainly surrounded by AG-2 zones in the immediate vicinity with varying lot sizes with a few R-40 zones. Several of the surrounding AG-2 zoned lots are nonconforming that would be considered RP-80, R-40 and R-30 by today's zoning regulations. *Please see Exhibit 1 for zoning map exhibit.* The applicant's request to rezone RP-80 appears to be dimensionally appropriate. The Robertson County 2040 Land Use Plan calls for this area to remain Rural, with uses ranging from open space to agriculture, homesteads associated with agricultural uses and agriculture service businesses are encouraged

within this category. The Zoning Resolution identifies RP-80 as an appropriate zone for the Rural designation of the Land Use Plan. Staff recommends approval.

**** END COMMENTS ****

Exhibit 1

Austin Peay University Zoning Map



New Business: C

ROBERTSON COUNTY DEVELOPMENT OFFICE
ROBERTSON COUNTY OFFICE BUILDING
527 SOUTH BROWN STREET, SPRINGFIELD, TENNESSEE 37172
615-384-3666

Application for Rezoning

Applicant Information:

Name: R3 Properties
Mailing Address: 6534 Tolleson Rd, Adams, TN 37010
Email: armsdrywall@yahoo.com
Telephone Number: 615-828-5779

Applicant's Representative Information:

Name: Clint Head
Name of Firm: Young Hobbs + Assoc.
Mailing Address: 1202 Crossland Ave, Clarksville, TN 37040
Email: clint@younghobbs.com
Telephone Number: 931-645-2524

Property Information:

Owner (if not applicant provide letter giving applicate permission): R3 Properties
Physical Address: 2746 Kinneys Rd, Cedar Hill, TN 37032
Tax Map and Parcel Number: 054 088.00
Current Zoning Designation: AG 2
Requested Zoning Designation: RP-80

Will this property be subdivided (or combined) in some way within the next year? *Yes* (No)

Purpose of rezoning request:

To seperate the existing house and 2.0 acres from the remaining 12.5 acres

SUBMITTAL REVIEW PROCEDURE:

1. Deliver one (1) copy of this application & any supporting materials to the Development Office before or by the final due date (Please see attached schedule- the "Corrections Due" does not apply to this type of application)
2. Provide copy of deed to prove ownership.
3. Provide aerial photograph of the property from TN Property Viewer
4. Provide Legal description **AND** Survey of the areas to be rezoned including map and parcel number
5. Provide water letter from utility company stating location and size of current water line, adequate pressure for domestic use and if/where fire hydrants are required
6. Pay the review fee.
7. Email a .PDF of the application & supporting materials to hmantooth@robcotn.org
8. Attend the Planning Commission meeting. Be ready to present and answer questions. Failure to appear at the Planning Commission meeting may result in the denial of the application.

2-13-25
Owner of Record Signature & DATE

2-13-25
Applicant's Signature & DATE

Robertson County - Parcel: 054 088.00



Date: February 13, 2025

County: ROBERTSON
Owner: PITT LYNN W ETUX PITT TAMARA H
Address: KINNEYS RD 2746
Parcel ID: 054 088.00
Deeded Acreage: 0
Calculated Acreage: 15.8
Vexcel Imagery Date: 2023

1:4,514

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.2 km

State of Tennessee, Comptroller of the Treasury, Division of Property Assessments (DPA), Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

The property lines are compiled from information maintained by your local county Assessor's office but are not conclusive evidence of property ownership in any court of law.

NOTES:

(1) I HEREBY CERTIFY THAT THIS SURVEY HAS BEEN MADE USING THE RECORDED INFORMATION SHOWN, AND THAT THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

(2) THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH CHAPTER 0820-3, STANDARDS OF PRACTICE AS ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS.

(3) CONTACT PROPER AUTHORITIES BEFORE BUILDING NEAR UTILITY LINES, FOR EASEMENT WIDTH AND RESTRICTIONS. UTILITIES ARE APPROXIMATE AND SHOULD BE VERIFIED PRIOR TO ANY CONSTRUCTION.

(4) THIS PROPERTY IS LOCATED WITHIN AN AREA HAVING ZONE DESIGNATIONS OF "X" BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 47147C0195C, WITH AN MAP REVISED DATE OF 4/16/2008, IN THE COUNTY OF ROBERTSON, STATE OF TENNESSEE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED."

(5) THIS PROPERTY IS SUBJECT TO ALL EASEMENTS, RIGHT-OF-WAY, RESTRICTIONS AND CONVEYANCES OF RECORD OR IN EXISTENCE AND AN UPDATED TITLE SEARCH.

(6) UNLESS STATED OTHERWISE, ANY MONUMENT REFERRED TO HEREIN AS AN "IRON PIN SET" IS A SET 1/2" DIAMETER REBAR, 18" IN LENGTH, WITH A YELLOW PLASTIC CAP STAMPED "YOUNG HOBBS".

(7) THIS PLAT DOES NOT REQUIRE THE DEDICATION OF ANY LAND TO THE PUBLIC OR INSTALLATION OF ANY PUBLIC IMPROVEMENTS.

(8) RIGHT OF WAY INFORMATION SHOWN HEREON WAS OBTAINED FROM THE ROBERTSON COUNTY HIGHWAY DEPARTMENT.

(9) DRIVE CULVERTS SHALL BE 18" CMP OR AS REQUIRED BY THE ROBERTSON COUNTY HIGHWAY DEPARTMENT.

(10) I HEREBY CERTIFY THAT THIS SURVEY HAS BEEN MADE USING THE RECORDED INFORMATION SHOWN, AND THAT THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND I HEREBY CERTIFY THAT THIS IS A CATEGORY 4 SURVEY, FOR BOUNDARY ASPECTS OF THIS SURVEY, RTK GPS POSITIONAL DATA WAS OBSERVED ON/BETWEEN THE DATES OF 12/26/24 UTILIZING A CARLSON BRX7 DUAL FREQUENCY BASE AND RECEIVER WITH THE FOLLOWING INFORMATION

A) TYPE OF SURVEY: REAL TIME KINEMATIC
B) POSITIONAL ACCURACY
OPUS-S SOLUTION
DURATION-2 30
OBS USED-91%
OVERALL RMS-0.016 m
C) DATE OF SURVEY: DECEMBER 29, 2024
D) DATUM/EPOCH: NAD83 (2011) EPOCH 2010.00
E) PUBLISHED/FIXED CONTROL USED
OPUS-S SOLUTION
F) GEOID MODEL: GEOID 18
G) COMBINED GRID FACTOR: 0.99999706

CERTIFICATE OF ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE PLAN SHOWN AND DESCRIBED HEREON IS A TRUE AND CORRECT SURVEY TO THE ACCURACY REQUIRED BY THE ROBERTSON COUNTY PLANNING COMMISSION AND THAT THE MONUMENTS HAVE BEEN OR WILL BE PLACED, AS SHOWN HEREON, TO THE SPECIFICATIONS IN THESE REGULATIONS.

CLINTON T. HEAD
REGISTERED LAND SURVEYOR
AGRICULTURE
TENNESSEE NO. 2731

2/11/25
DATE

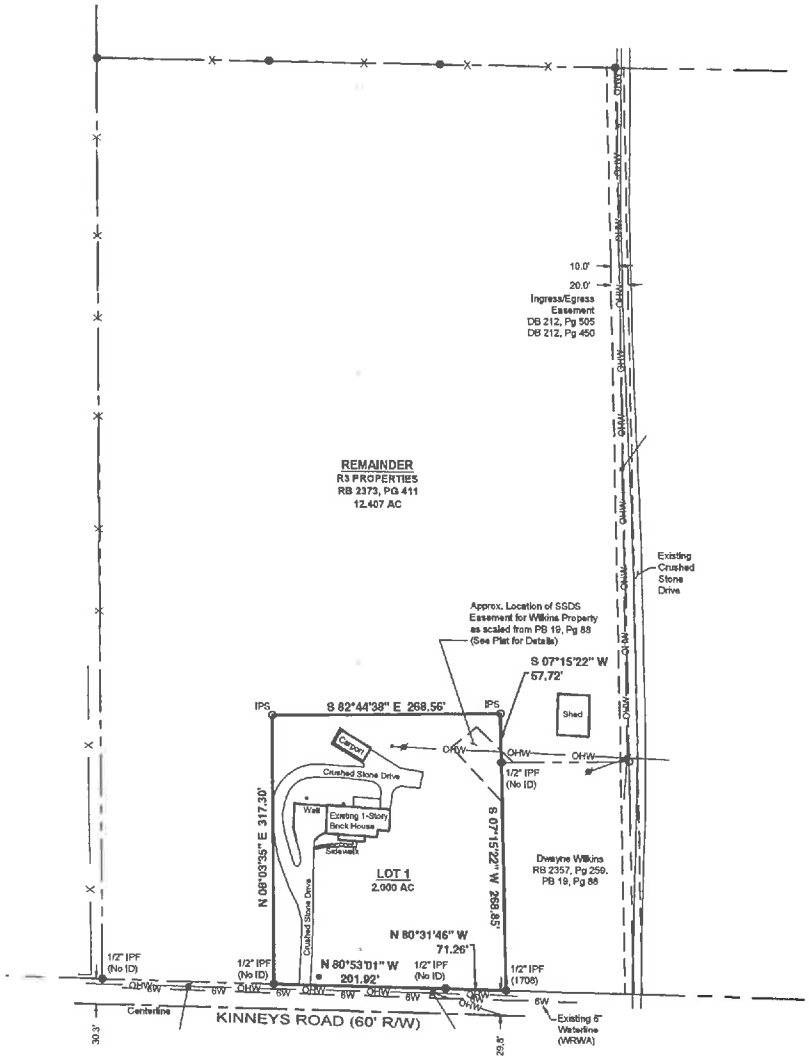
REGISTERED SURVEYOR
CLINTON HEAD RLS 2731

TDEC NOTES

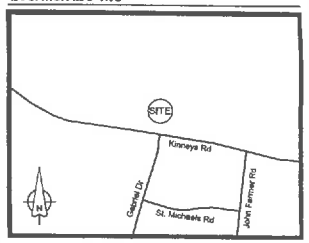
(1) GENERAL APPROVAL IS HEREBY GRANTED FOR LOT 1 DEFINED AS FINAL PLAT LOT 1, R3 PROPERTIES, KINNEYS ROAD, ROBERTSON COUNTY, TENNESSEE, AS BEING SUITABLE FOR SUBSURFACE SEWAGE DISPOSAL WITH THE LISTED OR ATTACHED RESTRICTIONS, PRIOR TO ANY CONSTRUCTION OF A STRUCTURE, MOBILE OR PERMANENT, TO BE SERVED BY A SUBSURFACE SEWAGE DISPOSAL SYSTEM (SSDS) EACH LOT MUST OBTAIN A SSDS CONSTRUCTION PERMIT TO BE ISSUED BY THE DIVISION OF GROUND WATER PROTECTION. THE SIZE, TYPE AND LOCATION OF THE SSDS WILL BE DETERMINED AT THE TIME OF PERMIT ISSUANCE. ANY CUTTING, FILLING, OR ALTERATIONS OF THE SOIL CONDITIONS MAY VOID THIS APPROVAL.

(2) LOT 1 HAS ADEQUATE SUITABLE SOIL TO DUPLICATE A ____ BEDROOM CONVENTIONAL SUBSURFACE SEWAGE DISPOSAL SYSTEM.

(14) SHADED AREAS ARE RESERVED FOR THE SUBSURFACE SEWAGE DISPOSAL SYSTEM, ANY CONSTRUCTION, CUTTING, FILLING, OR ALTERATION OF THE SOILS WITHIN THE SHADED AREAS MAY VOID THE GENERAL APPROVAL OF THIS LOT.



LOCATION MAP NTS



LEGEND:

- Iron Pin Set (IPS)
- Iron Pin Found (IPF)
- Utility Pole
- Boundary Line
- Adjacent Property Line
- Centerline of Road
- Overhead Wire
- Fence Line

N
W E
S

BASIS OF BEARINGS
TENNESSEE STATE PLANE COORDINATE SYSTEM
(NAD 83, NAVD88)

YOUNG, HOBBS & ASSOCIATES

1202 CROSSLAND AVE. * CLARKSVILLE, TN 37040
PHONE 931-645-2524 * FAX 931-645-2768

FINAL PLAT
LOT 1
R3 PROPERTIES, KINNEYS ROAD

TOTAL ACRES 2.00 | TOTAL LOTS 1
ACRES NEW ROAD 0 | MILES NEW ROAD 0
CIVIL DISTRICT 6

Date: 12-28-2024 (Field) Zoning: RP-80
Date: 12-29-2024 (Office) Job No.: Plt
Tax Map 054, Parcels 068.00
Source of Title: DB 2373, Pg 411

OWNER:
R3 Properties
6534 Tolleson Road
Adams, TN 37010

0' 100' 200' 300'
GRAPHIC SCALE 1"=100'

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 BOOK NUMBERS RB 2373, Pg 411, ROBERTSON COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC ROADS, UTILITIES, AND OTHER FACILITIES HAVE BEEN FILED, AS REQUIRED BY THE ROBERTSON COUNTY REGIONAL SUBDIVISION REGULATIONS.

DATE OWNER(S)

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER SYSTEM(S) OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED HAS/HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SURETY INSTRUMENT HAS BEEN FILED TO GUARANTEE SAID INSTALLATION OF SUCH SYSTEM(S).

DATE AUTHORIZED APPROVING AGENT

CERTIFICATE OF APPROVAL ON-SITE SEWAGE DISPOSAL SYSTEM

APPROVAL IS HEREBY GRANTED FOR LOTS PROPOSED HEREON AS BEING SUITABLE FOR SUBSURFACE SEWAGE DISPOSAL (SSD) WITH THE LISTED OR ATTACHED RESTRICTIONS, BEFORE THE INITIATION OF CONSTRUCTION, THE LOCATION OF THE HOUSE OR OTHER STRUCTURES AND PLANS FOR THE SUBSURFACE SEWAGE DISPOSAL SYSTEM SHALL BE APPROVED BY THE LOCAL HEATH AUTHORITY.

DATE AUTHORIZED APPROVING AGENT

CERTIFICATE OF ROADS DEPARTMENT

I HEREBY CERTIFY (1) THAT ALL STREETS AND DRAINAGE FACILITIES DESIGNATED ON THIS FINAL SUBDIVISION PLAT HAVE BEEN INSTALLED IN AN ACCEPTABLE MANNER AND ACCORDING TO CITY/COUNTY REGULATIONS, OR (2) THAT A SURETY BOND HAS BEEN POSTED WITH THE PLANNING COMMISSION TO ASSURE THE COMPLETION OF ALL REQUIRED IMPROVEMENTS IN CASE OF DEFAULT.

DATE APPROPRIATE GOVERNMENTAL REPRESENTATIVE

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE ROBERTSON COUNTY SUBDIVISION REGULATIONS, WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE ROBERTSON COUNTY PLANNING COMMISSION, AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE ROBERTSON COUNTY REGISTER OF DEEDS.

DATE SECRETARY, PLANNING COMMISSION

LEGAL DESCRIPTION (PROPERTY TO BE REZONED)

LAND LYING IN THE 8TH DISTRICT, COUNTY OF ROBERTSON, STATE OF TENNESSEE, BEING A PART OF THE R3 PROPERTIES PROPERTY (PARENT TRACT) OF RECORD IN RECORD BOOK 2373, PAGE 411 OF THE REGISTER'S OFFICE OF ROBERTSON COUNTY, TENNESSEE, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 1/2" IRON PIN FOUND (1708) IN THE NORTH RIGHT OF WAY LINE OF KINNEYS ROAD (60' R/W), SAID PIN BEING THE SOUTHWEST CORNER OF THE DWAYNE WILKINS PROPERTY (RB 2357, PG 259);

THENCE WITH SAID NORTH RIGHT OF WAY LINE OF KINNEYS ROAD AS FOLLOWS: N 80°31'46" W A DISTANCE OF 71.26 FEET TO AN IRON PIN FOUND (NO ID); THENCE N 80°53'01" W A DISTANCE OF 201.92 FEET TO AN IRON PIN FOUND (NO ID);

THENCE LEAVING SAID NORTH RIGHT OF WAY LINE ACROSS SAID PARENT TRACT AS FOLLOWS: N 08°03'35" E A DISTANCE OF 317.30 FEET TO AN IRON PIN SET; THENCE S 82°44'38" E A DISTANCE OF 268.56 FEET TO AN IRON PIN SET; THENCE S 07°15'22" W A DISTANCE OF 57.72 FEET TO A 1/2" IRON PIN FOUND (NO ID), SAID PIN BEING THE NORTHWEST CORNER OF SAID WILKINS PROPERTY;

THENCE WITH THE WEST LINE OF SAID WILKINS PROPERTY S 07°15'22" W A DISTANCE OF 268.85 FEET TO THE POINT OF BEGINNING,

CONTAINING AN AREA OF 87,139 SQUARE FEET OR 2.000 ACRES, ACCORDING TO A SURVEY BY CLINTON T HEAD OF YOUNG HOBBS AND ASSOCIATES, 1202 CROSSLAND AVE, CLARKSVILLE, TN.

THIS DESCRIPTION AND PROPERTY IS SUBJECT TO VALID AND ENFORCEABLE EASEMENTS, RESTRICTIONS, AND COVENANTS OF RECORD OR IN EXISTENCE.

Robertson County Development Office
Agenda Review Sheet
Planning Commission Meeting
March 27, 2025
Amanda Harrington, Planning Advisor

Applicant: R3 Properties
Representative: Clint Head

Request: Rezone **2.00 *acres*** of the 14.407 surveyed acres Tax Map 054, Part of Parcel 088.00 from AG-2 to RP-80



Figure 1: Tax Map 054, Portion of Parcel 088 is highlighted.

Property Information:
- Tax Map 054, Part of Parcel 088.00
- 2746 Kinneys Road, Cedar Hill
- Total lot acreage: 14.407 surveyed acres (627,568.92 sq. ft.)
- **Rezone Request: 2.00 surveyed acres (87,120 sq. ft.)**

Project Narrative:
RP-80 Minimum Requirements
Minimum Lot Size: 80,000 sq. ft.
Front: 60'
Side: 25'
Rear: 25'
Min. Lot Width @ Front Bldg. Setback Line: 175'
Min Road Frontage: 50'
Maximum Height: 35'
Max Bldg. Coverage: 30%.

Discussion & Observations:
The applicant wishes to rezone 2.00 acres of the 14.407 surveyed acres. The subject property is mainly surrounded by AG-2 and R-40 zones in the immediate vicinity with varying lot sizes. *Please see Exhibit 1 for zoning map exhibit.* The applicant's request to rezone RP-80 appears to be dimensionally appropriate. Furthermore, the 2040 Land Use Plan calls for this area to remain Rural, with uses in rural areas ranging from open space to agriculture, homesteads associated with agricultural uses and agriculture service businesses are encouraged within this category. Per the Robertson County Zoning Resolution, the RP-80 zoning designation is consistent with the adopted 2040 Land Use Plan. Staff does recommends approval.

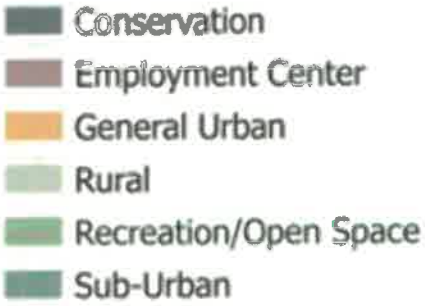
**** END COMMENTS ****

Exhibit 1

Austin Peay University Zoning Map







New Business: D

ROBERTSON COUNTY DEVELOPMENT OFFICE
ROBERTSON COUNTY OFFICE BUILDING
527 SOUTH BROWN STREET, SPRINGFIELD, TENNESSEE 37172
615-384-3666

Application for Rezoning

Applicant Information:

Name: RASHMEE SARVARIA.
Mailing Address: 105 WOODMONT CIR Franklin, KY, 42134
Email: SARVARIAA@YAHOO.COM
Telephone Number: 6159488781

Applicant's Representative Information:

Name: Josh Lyon
Name of Firm: Kleber Engineering Services
Mailing Address: 3556 Tom Austin Hwy Ste 1 Springfield TN 37172
Email: josh@kleberceg.com
Telephone Number: 615-382-2000 Ext 1000

Property Information:

Owner (if not applicant provide letter giving applicate permission): Rashmee Sarvaria
Physical Address: 6247 Lake Springs Rd, Portland TN 37148
Tax Map and Parcel Number: 012 046.00
Current Zoning Designation: AG-2
Requested Zoning Designation: C-1

Will this property be subdivided (or combined) in some way within the next year? Yes (No)

Purpose of rezoning request:

Create a commercial lot to render services to employees within the Vaughn Parkway Industrial Park.

SUBMITTAL REVIEW PROCEDURE:

1. Deliver one (1) copy of this application & any supporting materials to the Development Office before or by the final due date (Please see attached schedule- the "Corrections Due" does not apply to this type of application)
2. Provide copy of deed to prove ownership.
3. Provide aerial photograph of the property from TN Property Viewer
4. Provide Legal description **AND** Survey of the areas to be rezoned including map and parcel number
5. Provide water letter from utility company stating location and size of current water line, adequate pressure for domestic use and if/where fire hydrants are required
6. Pay the review fee.
7. Email a .PDF of the application & supporting materials to hmantooth@robcotn.org
8. Attend the Planning Commission meeting. Be ready to present and answer questions. Failure to appear at the Planning Commission meeting may result in the denial of the application.

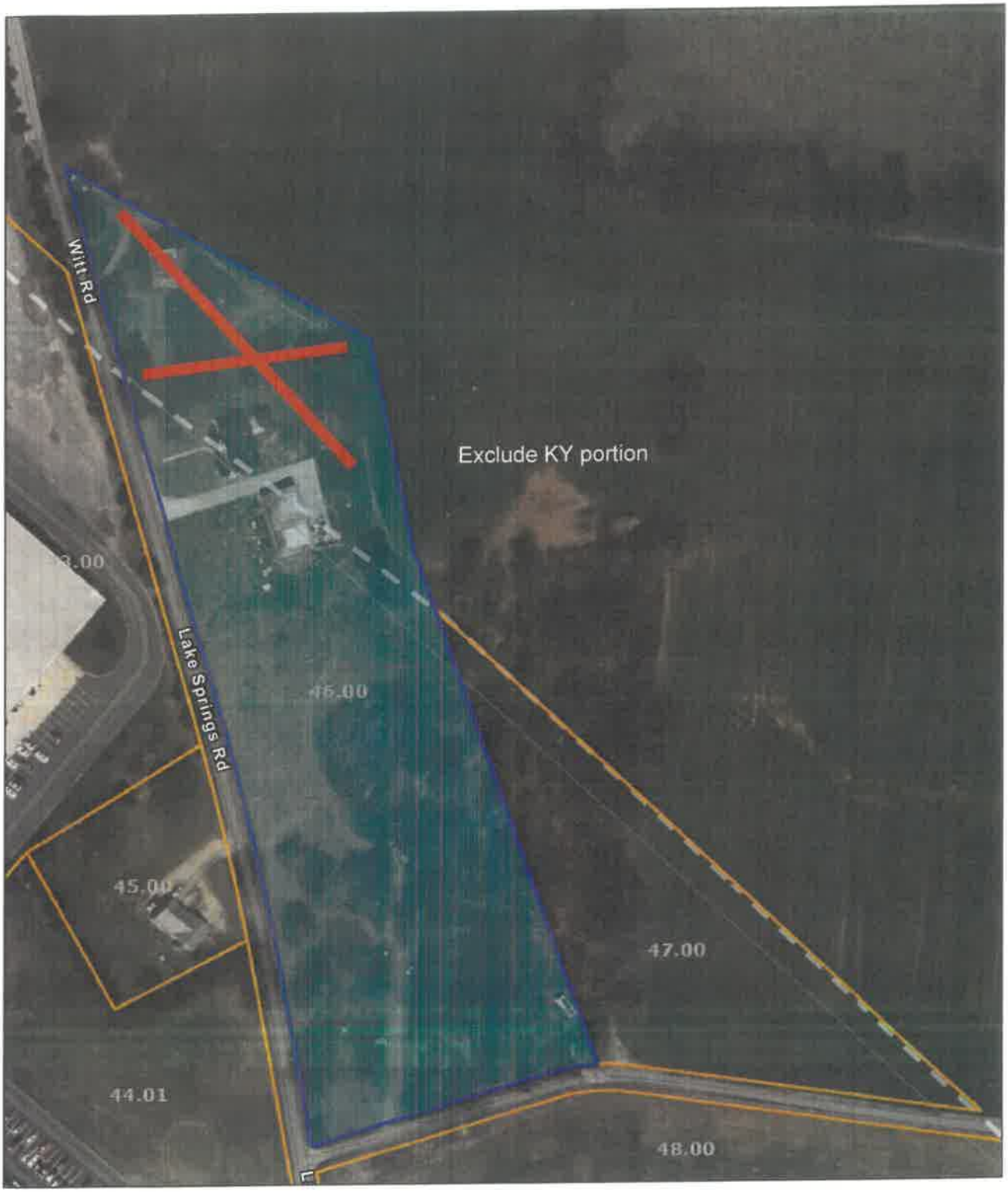
Rashmee Sarvaiya 02/10/25

Owner of Record Signature & DATE

2/12/25

Applicant's Signature & DATE

Robertson County - Parcel: 012 046.00



Date: February 12, 2025

County: ROBERTSON
Owner: SARVARIA RASHMEE
Address: LAKE SPRINGS RD 6247
Parcel ID: 012 046.00
Deeded Acreage: [redacted] 4.97 in TN
Calculated Acreage: 0
Vexcel Imagery Date: 2023

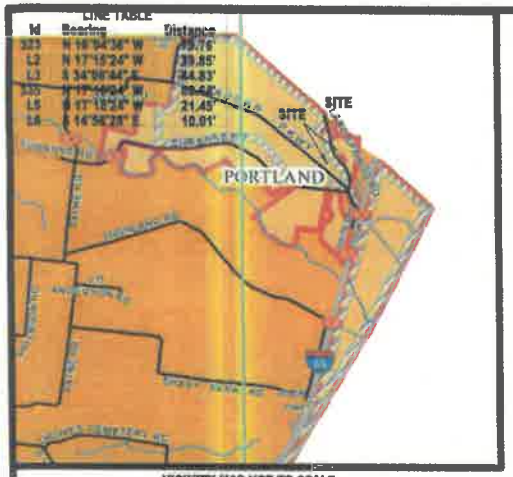
1:2,257

0 0.01 0.03 0.06 mi

0 0.02 0.04 0.09 km

State of Tennessee, Comptroller of the Treasury, Division of Property Assessments (DPA), Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

The property lines are compiled from information maintained by your local county Assessor's office but are not conclusive evidence of property ownership in any court of law.



VICINITY MAP NOT TO SCALE

GRAPHIC SCALE: 1" = 80'

0 80 180 240 320 400

NOTES:

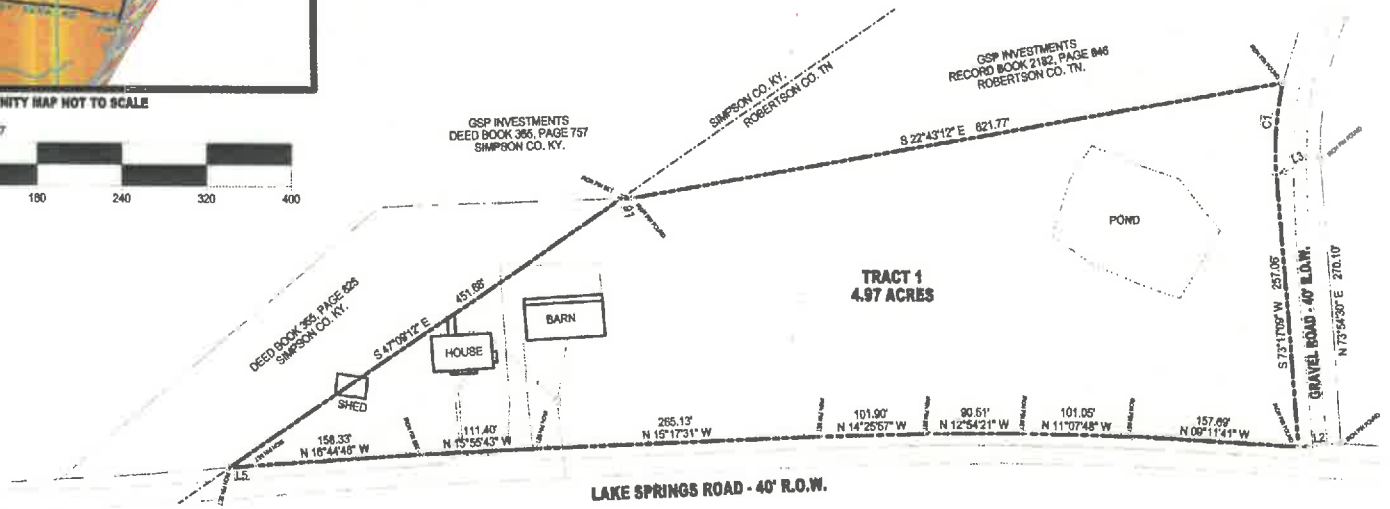
1. SOURCE OF TITLE: RECORD BOOK 2026, PAGE 295, ROBERTSON CO. TN DEED BOOK 356, PAGE 525, SIMPSON CO TN.
2. THIS SURVEY IS SUBJECT TO ANY AND ALL FACTS THAT MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
3. THIS PLAT OF SURVEY IS NOT INTENDED IN ANY WAY WHATSOEVER TO INDICATE THE NON-EXISTENCE OF ANY EASEMENTS.
4. ALL BEARINGS ARE BASED ON GEODETIC NORTH, AS OBTAINED BY GPS OBSERVATIONS DATED 10-28-2022.
5. ALL SET IRON PINS ARE 5/8" REBAR WITH PLASTIC CAP STAMPED K. CROWE KY3375/TN1979.
6. ANY EASEMENTS, CONDITIONS, OR RESTRICTIONS, WRITTEN OR UNWRITTEN THAT PREVIOUSLY APPLIES TO THIS PROPERTY SHALL REMAIN IN EFFECT AND APPLY TO THIS PLAT AS WELL.
7. 100% OF THIS PROPERTY WAS SURVEYED BY RTK GPS, SP-80 SPECTRA PRECISION DUAL FREQUENCY.
8. ALL DATA IS REFERENCED TO NAD 83 TN ZONE.
9. ALL SURVEY DATA HAS A RELATIVE POSITIONAL ACCURACY OF +/-0.05' + 100 PPM.

CURVE TABLE

Id	Delta	Radius	Arc Length	Chord	Ch Bear
C1	16°39'57"	296.81'	86.07'	85.77'	S 81°41'01" W

LINE TABLE

Id	Bearing	Distance
L2	N 17°15'24" W	39.85'
L3	S 34°06'44" E	44.83'
L5	N 17°15'24" W	21.45'
L6	S 14°56'28" E	10.01'



POINT LEGEND

TOPO SHOT	POWER POLE
TRAVERSE POINT	FIRE HYDRANT
ROW MONUMENT	TREE
ROW POINT	TREE
GBE SHOT	PHONE PEDESTAL
INTERSECTION POINT	MANHOLE
IRON PIN FOUND	AERIAL TARGET
IRON PIN SET	ROW MONUMENT
FENCE POST	CONTROL POINT
TRAFFIC SIGN	BENCHMARK
TRAVERSE POINT	WATER VALVE
SIGNAL BOX	BUSH
GAS VALVE	TREE
WATER METER	POWER

LAND SURVEYORS CERTIFICATE

I hereby certify that this map or plat was prepared in compliance with current Tennessee Minimum Standards of Practice. All survey data has a relative positional accuracy of +/-0.05' + 100PPM using RTK GPS, SP-80 Spectra Precision Dual Frequency and has a ratio or precision of unadjusted survey to satisfy standards for a Category IV survey.

Kevin David Crowe
Registration No. 1979
In the State of Tennessee

KEVIN DAVID CROWE
REGISTERED LAND SURVEYOR
AGRICULTURE
SURVEYOR
TENNESSEE NO. 1979

BOUNDARY SURVEY

OF THE

JAMES L VAUGHN IRREVOCABLE TRUST
AS RECORDED IN
RECORD BOOK 2026, PAGE 295 ROBERTSON CO. TN

PREPARED BY:
CROWE-WHEELER & ASSOCIATES
2965 HALFWAY-HALIFAX ROAD
SCOTTSVILLE, KY. 42164
270-383-9590, WWW.CROWEWHEELER.COM

DRAWN BY: KDC	SCALE: 1" = 80'
SURVEY DATE: 07-11-2023	FILE:23-161.PCS
PLAT DATE: 07-25-2023	

Legal Description – Tract 1 – Tennessee 4.97.34 Acres

A certain parcel of land in the 1st Civil District of Robertson County Tennessee more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an iron pin set is a 5/8" rebar 18" in length with plastic cap stamped "KCROWE#1979." All bearings and coordinates are based on geodetic north by G.P.S observations, dated 10-28-2022.

BEGINNING at an iron pin found on the east right of way of Lake Springs Road and the north right of way of a Gravel Public road said pin lies 20' east of the centerline of Lake Springs Road and lies 20' north of the centerline of the public gravel road also being the southwest most corner of the herein described parcel, Thence, with the east right of way of lake Springs road the following (8) calls: North09°11'41"West, a distance of 157.69'to an iron pin set.

Thence, North11°07'48"West, a distance of 101.05' to an iron pin set.

Thence, North12°54'21"West, a distance of 90.51' to an iron pin set.

Thence, North14°25'57"West, a distance of 101.90' to an iron pin set.

Thence, North15°17'31"West, a distance of 265.13' to an iron pin set.

Thence, North15°55'43"West, a distance of 111.40' to an iron pin set.

Thence, North16°44'48"West, a distance of 158.33' to an iron pin set.

Thence, North17°18'24"West, a distance of 21.45' to an iron pin set.

Thence, leaving said right of way and with the Kentucky-Tennessee State line South47°09'12"East, a distance of 451.68' to an iron pin set.

Thence, with the west line of GSP Investments as recorded in record book 2182, page 946 Robertson County Tennessee the following (2) calls: South14°56'28"East, a distance of 10.01' to an iron pin found.

Thence, South22°43'12"East, a distance of 621.77' to an iron pin found at the north right of way of a Public Gravel Road said pin lies 20' north of centerline said pin also being the point of curvature of a non-tangent curve, concave to the south, having a radius of 295.91' a central angle of 16°39'57", and a chord of 85.77' bearing South81°41'01"West; thence West along said curve and gravel right of way, a distance of 86.07'

Thence, continuing with said right of way South73°17'09"West, a distance of 257.06' to the POINT OF BEGINNING; said described tract containing 4.97 Acres, more or less according to a survey performed under the direct supervision of Kevin David Crowe, RPLS #1979 on 07-11-2023.

Robertson County Development Office
Agenda Review Sheet
Planning Commission Meeting
March 27, 2025

Applicant: Rashmee Sarvaria
Representative: Josh Lyon

Request: Rezone ***4.97 acres*** (TN Portion) of the 6.04 surveyed acres
Tax Map 012, Part of Parcel 046.00
from AG-2 to C-1



Figure 1Tax Map 012, Part of Parcel 046.00

Property Information:

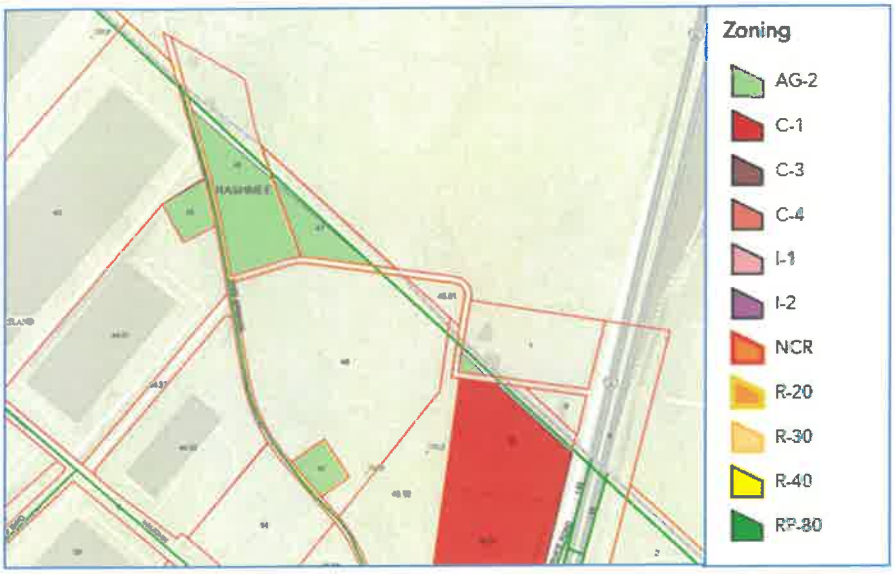
- Tax Map 012, Part of Parcel 046.00
- 6247 Lake Springs Rd., Portland
- Total lot acreage: 6.04 surveyed acres (263,102.40 sq. ft.)
- **Rezone Request: 4.97 acres (216,493.20 sq. ft.)**

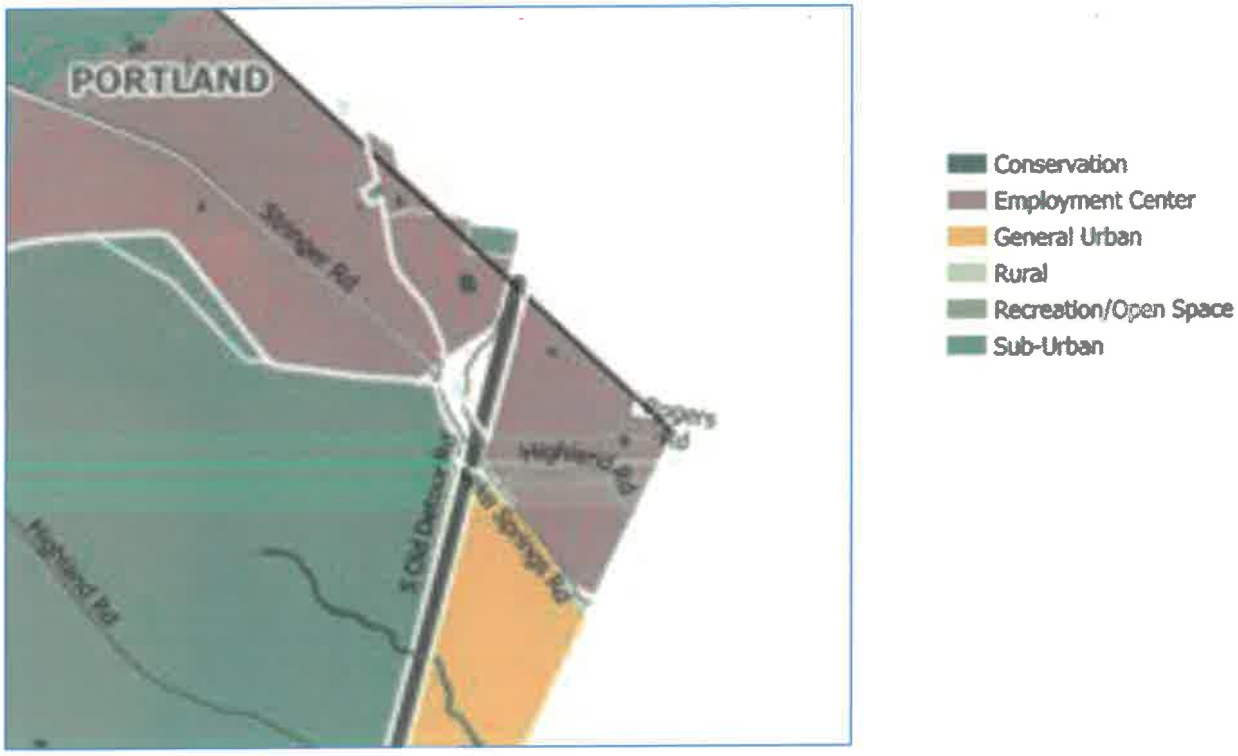
Project Narrative:
C-1 Minimum Requirements
***Minimum Lot Size**: 25,000 sq. ft.*
***Front**: 30'*
***Side**: 10'*
Rear: 20'
Min. Lot Width @ Front Bldg. Setback Line: 100'
Min Road Frontage: 50'
Maximum Height: 35'
Max Bldg. Coverage: 60%.

Discussion & Observations:
The applicant wishes to rezone 4.97 *acres (TN Portion)* of the 6.04 surveyed acres to C-1. The subject property has a few C-1 and AG-2 zones in the immediate vicinity with varying lot sizes. The City of Portland properties that surround the property are zoned General Industrial. *Please see Exhibit 1 for zoning map exhibit.* The applicant's request to rezone C-1 appears to be dimensionally appropriate. The Robertson County Future Land Use Map calls for this area to remain as an Employment Center. Uses allowed within this category include multiple types of land uses, such as commercial, office, institutional, multi-family, duplexes, attached single family, etc. Industrial uses will also be allowed in this category if they are large enough in size and scope to be properly buffered and designed to minimize impacts and maximize compatibility. Single-family uses are permitted; however, multi-family and workforce housing are encouraged as they can directly benefit from nearby economic opportunities. Staff recommends approval. ** **END COMMENTS** **

Exhibit 1

Austin Peay University Zoning Map





New Business: E

ROBERTSON COUNTY DEVELOPMENT OFFICE
ROBERTSON COUNTY OFFICE BUILDING,
527 SOUTH BROWN STREET, SPRINGFIELD, TENNESSEE 37172
(615- 384-3666

Application for Plat Approval

Type of Plat (Please Circle One): *Sketch Plat* *(Preliminary Plat)* *Final Plat*

Property Information:

1. Current Zoning of Property: RP 80
2. Physical Address of Property: 0 Gideon Road, Greenbrier, TN 37073
3. Tax Map & Parcel Number: 104 068.02
4. Size of Property (square feet or acres): 20.37

5. **Owner of Record Information**
   Name: Michael and Diane Selfridge, Brian Linderman
   Mailing Address (No P.O. Boxes, please): 3026 Gideon Road, Greenbrier, TN 37073
   Email:
   Telephone Number:

6. **Owner's Representative Information (Surveyor, Self, Engineer, etc.)**
   Name: Brandon Frank
   Name of Firm: Brandon Frank Construction LLC
   Mailing Address (No P.O. Boxes, please): 2550 Highway 41 S, Greenbrier, TN 37073
   Email: brandon@bfrankconstruction.com / kristy@bfrankconstruction.com
   Telephone Number: (615) 557-8861 (Mobile) / (615) 335-1341 (Office)

7. **Purpose of Plat:**
   20.37 Acres to be subdivided into 9 Tracts

SUBMITTAL REVIEW PROCEDURE:

1. Submit 1 hard copy (no smaller than 17" x 22") of the plat, this completed application, and fee payment to the Robertson County Planning & Zoning Department. **Please ensure the application is signed.** ***Attach proof of ownership of property (copy of deed is typical). Pay the review fee.***
2. Email a .PDF of the submitted plat to hmantooth@robcotn.org (Hunter Mantooth).
3. Application and plat will be reviewed, and corrective comments provided, by date listed on calendar (see attached).
4. Submit corrections by date listed on Planning Commission Submittal & Meeting Calendar
5. FINAL SUBMITTAL: Deliver three (3) folded hard copies of the corrected plat, no smaller than 17" x 22", and any supporting documentation to the Development Office before or by the final due date.
6. Email a .PDF of the corrected plat to hmantooth@robcotn.org
7. Attend the Planning Commission meeting. Be ready to ~~present and~~ answer questions. **Failure to appear at the Planning Commission meeting may result in the denial of the application.**

See attached Letter of Representation
Owner's Signature & DATE

Owner's Representative Signature & DATE

Authentisign ID: 85915398-B990-EF11-8473-002248299057

To Whom it May Concern:

Brandon Frank is under contract with Michael Selfridge, Diane Selfridge, and Brian Linderman for the purchase of the property located at 0 Gideon Road, Greenbrier, TN 37073, Map/Parcel 104 068.02. This letter is to give Brandon Frank permission to represent this property located at 0 Gideon Road, Greenbrier, TN 37073 as needed through the rezoning process with local municipalities.

Sincerely,

Authentisign
Michael L. Selfridge 10/22/24

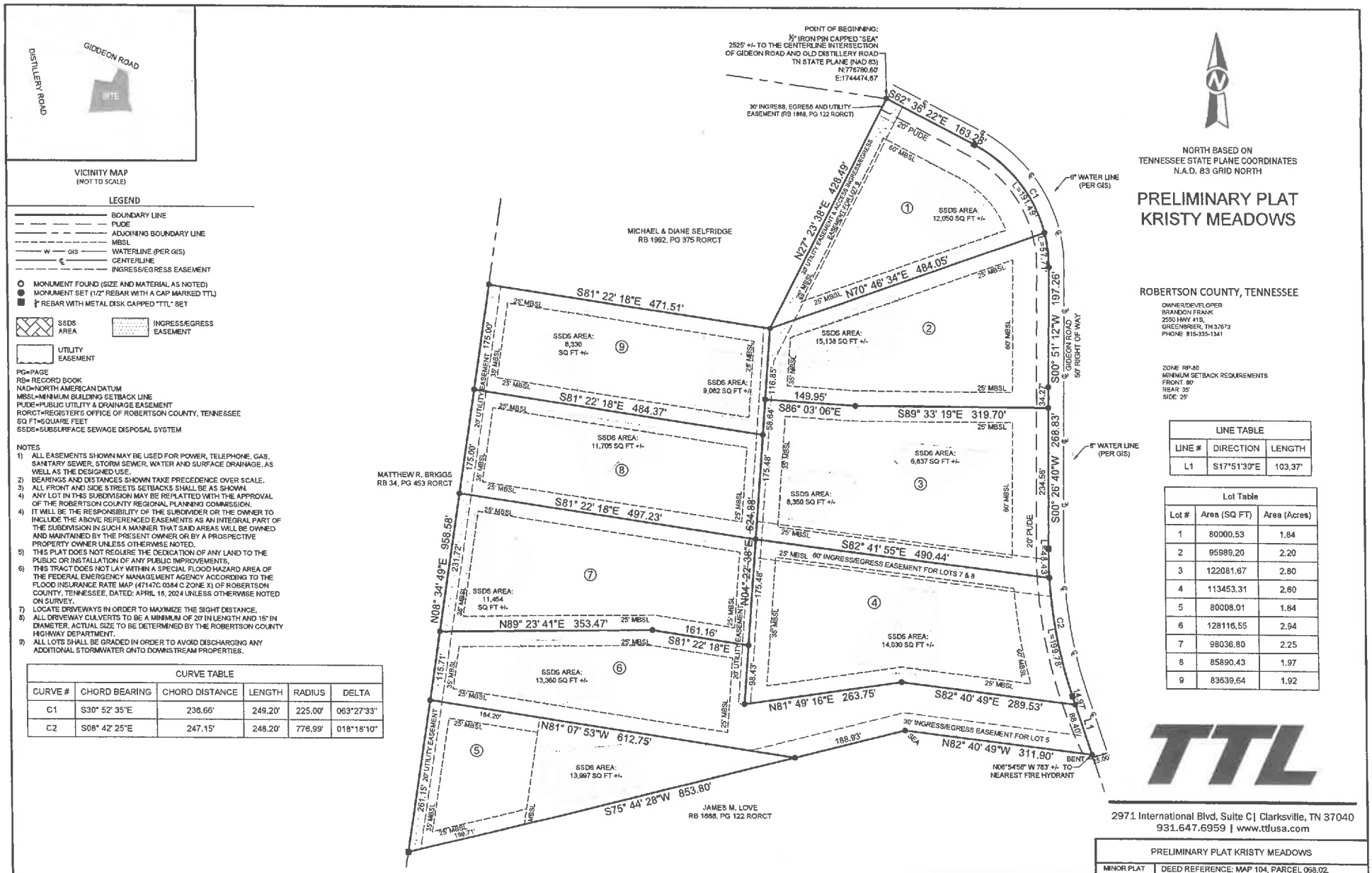
Michael Selfridge, Seller

Authentisign
Diane L. Selfridge 10/22/24

Diane Selfridge, Seller

Authentisign
Brian K. Linderman 10/22/24

Brian Linderman



LEGEND

- BOUNDARY LINE
- PUDE
- ADJOINING BOUNDARY LINE
- MBSL
- W GIS WATERLINE (PER GIS)
- CENTERLINE
- INGRESS/EGRESS EASEMENT
- MONUMENT FOUND (SIZE AND MATERIAL AS NOTED)
- MONUMENT SET (1/2" REBAR WITH A CAP MARKED TTL)
- ½" REBAR WITH METAL DISK CAPPED "TTL" SET
- SSDS AREA
- INGRESS/EGRESS EASEMENT
- UTILITY EASEMENT

PG=PAGE
RB= RECORD BOOK
NAD=NORTH AMERICAN DATUM
MBSL=MINIMUM BUILDING SETBACK LINE
PUDE=PUBLIC UTILITY & DRAINAGE EASEMENT
RORCT=REGISTER'S OFFICE OF ROBERTSON COUNTY, TENNESSEE
SQ FT=SQUARE FEET
SSDS=SUBSURFACE SEWAGE DISPOSAL SYSTEM

NOTES

1) ALL EASEMENTS SHOWN MAY BE USED FOR POWER, TELEPHONE, GAS, SANITARY SEWER, STORM SEWER, WATER AND SURFACE DRAINAGE, AS WELL AS THE DESIGNED USE.
2) BEARINGS AND DISTANCES SHOWN TAKE PRECEDENCE OVER SCALE.
3) ALL FRONT AND SIDE STREETS SETBACKS SHALL BE AS SHOWN.
4) ANY LOT IN THIS SUBDIVISION MAY BE REPLATTED WITH THE APPROVAL OF THE ROBERTSON COUNTY REGIONAL PLANNING COMMISSION.
4) IT WILL BE THE RESPONSIBILITY OF THE SUBDIVIDER OR THE OWNER TO INCLUDE THE ABOVE REFERENCED EASEMENTS AS AN INTEGRAL PART OF THE SUBDIVISION IN SUCH A MANNER THAT SAID AREAS WILL BE OWNED AND MAINTAINED BY THE PRESENT OWNER OR BY A PROSPECTIVE PROPERTY OWNER UNLESS OTHERWISE NOTED.
5) THIS PLAT DOES NOT REQUIRE THE DEDICATION OF ANY LAND TO THE PUBLIC OR INSTALLATION OF ANY PUBLIC IMPROVEMENTS.
6) THIS TRACT DOES NOT LAY WITHIN A SPECIAL FLOOD HAZARD AREA OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY ACCORDING TO THE FLOOD INSURANCE RATE MAP (47147C 0384 C ZONE X) OF ROBERTSON COUNTY, TENNESSEE, DATED: APRIL 16, 2024 UNLESS OTHERWISE NOTED ON SURVEY.
7) LOCATE DRIVEWAYS IN ORDER TO MAXIMIZE THE SIGHT DISTANCE.
8) ALL DRIVEWAY CULVERTS TO BE A MINIMUM OF 20' IN LENGTH AND 15" IN DIAMETER, ACTUAL SIZE TO BE DETERMINED BY THE ROBERTSON COUNTY HIGHWAY DEPARTMENT.
9) ALL LOTS SHALL BE GRADED IN ORDER TO AVOID DISCHARGING ANY ADDITIONAL STORMWATER ONTO DOWNSTREAM PROPERTIES.

CURVE TABLE					
CURVE #	CHORD BEARING	CHORD DISTANCE	LENGTH	RADIUS	DELTA
C1	S30° 52' 35"E	238.66'	249.20'	225.00'	063°27'33"
C2	S08° 42' 25"E	247.15'	248.20'	776.99'	018°18'10"

LINE TABLE		
LINE #	DIRECTION	LENGTH
L1	S17°51'30"E	103.37'

Lot Table		
Lot #	Area (SQ FT)	Area (Acres)
1	80000.53	1.84
2	95989.20	2.20
3	122081.67	2.80
4	113453.31	2.60
5	80008.01	1.84
6	128116.55	2.94
7	98036.80	2.25
8	85890.43	1.97
9	83639.64	1.92

TTL

2971 International Blvd, Suite C| Clarksville, TN 37040
931.647.6959 | www.ttlusa.com

CERTIFICATE OF APPROVAL FOR RECORDING

APPROVED BY THE ROBERTSON COUNTY REGIONAL PLANNING COMMISSION, WITH SUCH EXCEPTIONS OR CONDITIONS AS ARE INDICATED IN THE MINUTES OF THE COMMISSION ON _____.

SECRETARY, PLANNING COMMISSION _____ DATE _____

PRELIMINARY PLAT KRISTY MEADOWS

MINOR PLAT 10-17-24 DATE	DEED REFERENCE: MAP 104, PARCEL 068.02, RB. 2136, PAGE 177, RORCT
TOTAL ACRES 20.37	TOTAL LOTS 9
ACRES NEW ROAD 0.0	MILES NEW ROAD 0.0
OWNER BRANDON FRANK	CIVIL DISTRICT 12TH
CURRENTLY ZONED RP-80	

0 100 200 300
SCALE: 1" = 100'

X:\2024\12\24-12-01332 GIDEON ROAD ESTATES\SURVEY\CAD\GIDEON ESTATES FINAL PLAT 02-11-25.DWG
PLOTTED: 2/12/2025 8:57 AM

Staff Comments
March 27, 2025
Amanda Harrington, Planning Advisor

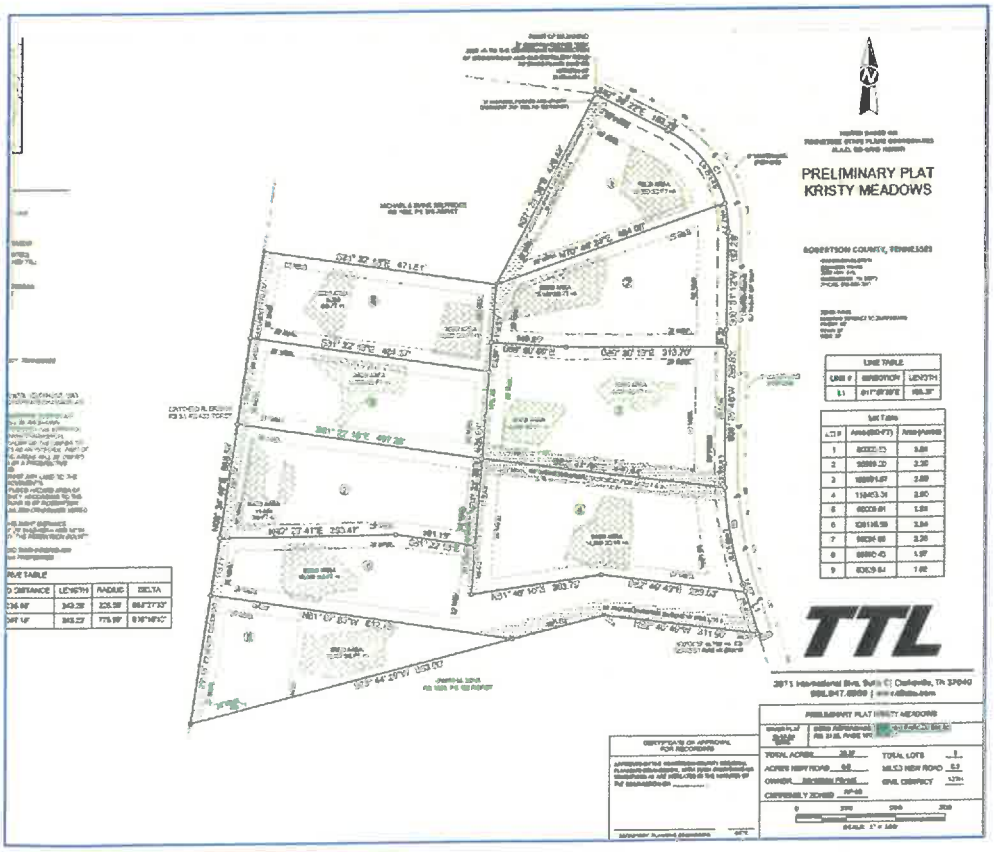
Request: Creation of 9-lot Subdivision
Property: Tax Map 104, Parcel 068.02
Address: Gideon Road
Zoning: RP-80
New Lots of Record: 9



The final plat was reviewed against the Robertson County Subdivision Regulations and meets the minimum stated requirements.

Staff recommends approval.

** END COMMENTS **



EARL R. MAYO **CONSULTING ENGINEER AND SURVEYOR**
119 SUESAND COURT PLEASANT VIEW, TN 37146 (615)522-4704

February 14, 2025

Traye Fann
County Engineer
Robertson County Planning and Zoning
527 South Brown Street
Springfield, Tennessee 37172

RE: Review of Revised Kristy Meadows Preliminary Plat

Dear Traye:

I have reviewed the referenced revised preliminary plat that I received on February 14, 2025 for the March 27, 2025 Planning Commission meeting. All of my previous comments have been addressed.

Only a very cursory review has been performed of these documents in order to get an overall sense of general compliance with the surveying and engineering requirements contained in the Robertson County Subdivision Regulations. No planning related review was performed. This review is not intended as a check of accuracy of the documents or compliance with other state or federal laws and regulations, including Erosion Protection and Sediment Control or water quality design that was not reviewed by me but is to be reviewed by TDEC. No liability for the correctness or completeness of design or surveying performed by others is assumed by me or Robertson County by my review of these documents.

Please contact me if you have any questions or comments. Thank you for the opportunity to serve you.

Sincerely,

Rick Mayo, PE, RLS

New Business: F

ROBERTSON COUNTY DEVELOPMENT OFFICE
ROBERTSON COUNTY OFFICE BUILDING
527 SOUTH BROWN STREET, SPRINGFIELD, TENNESSEE 37172
615- 384-3666

Application for Site Plan Approval

Type of Site Plan (Please Circle One): *Sketch Site Plan* *Preliminary Site Plan* (*Final Site Plan*)

Property Information:

1. Current Zoning of Property: C-1 Suburban Commercial District
2. Physical Address of Property: Hwy 41 North, Springfield, TN, 37172
3. Tax Map & Parcel Number: Map 069, Parcel 002.03
4. Size of Property (square feet or acres): 3.21 Acres

5. Owner of Record Information
   Name: Blackpatch Properties LLC
   Mailing Address (No P.O. Boxes, please): 1019 Bradley Drive, Suite 2, Springfield, TN 37172
   Email:
   Telephone Number:

6. Owner's Representative Information (Surveyor, Self, Engineer, etc.)
   Name: Josh Lyon, P.E.
   Name of Firm: Klober Engineering Services
   Mailing Address (No P.O. Boxes, please): 3556 Tom Austin Hwy, Ste 1, Springfield, TN 37172
   Email: josh@klobereng.com
   Telephone Number: 615-382-2000

7. Purpose of Site Plan:
   Commercial Development with (2) buildings

SUBMITTAL REVIEW PROCEDURE:

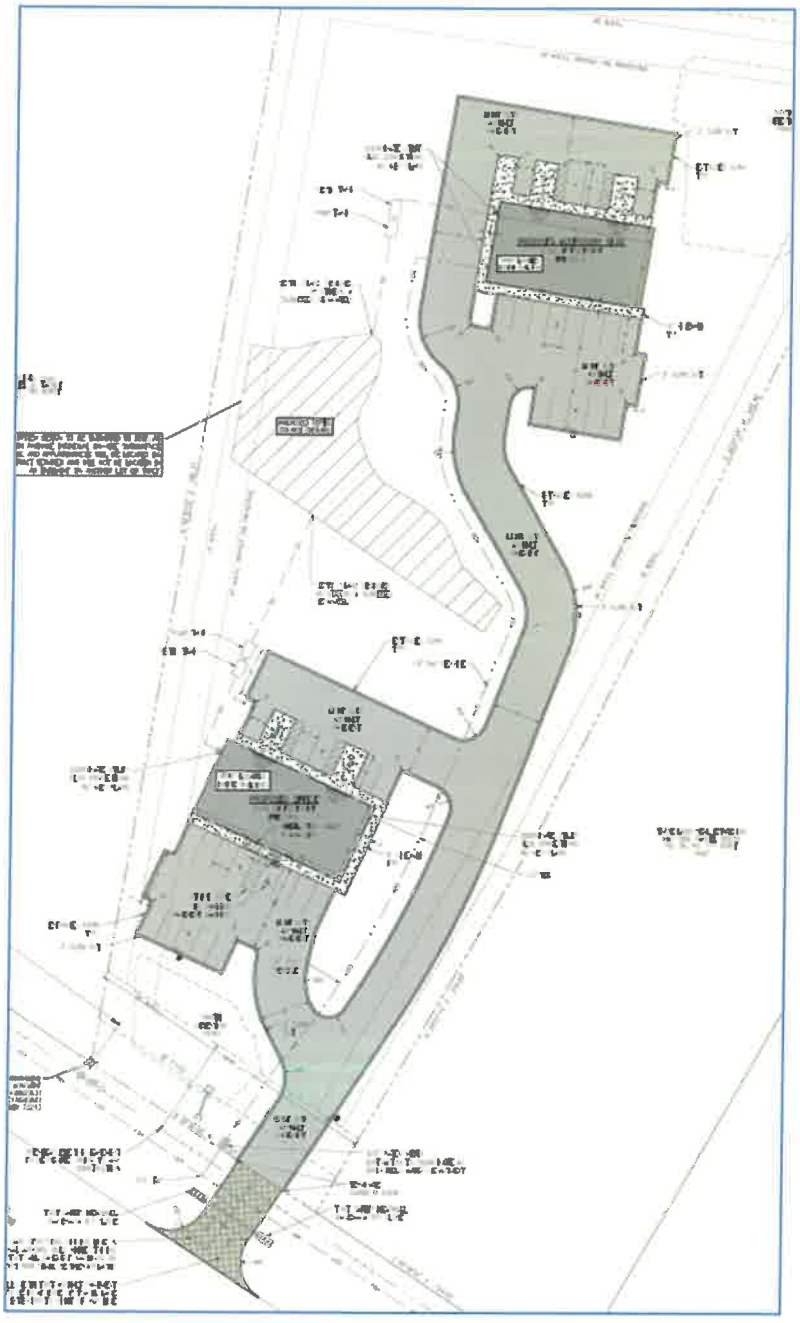
1. Submit 1 hard copy (no smaller than 17" x 22") of the site plan, this completed application, and fee payment to the Robertson County Development Office. Please ensure the application is signed. *Attach proof of ownership of property (copy of deed is typical). Pay the review fee.*
2. Email a .PDF of the submitted site plan to hmantooth@robcotn.org (Hunter Mantooth).
3. Application and site plan will be reviewed, and corrective comments provided, by date listed on calendar (see attached).
4. Submit corrections by date listed on Planning Commission Submittal & Meeting Calendar
5. FINAL SUBMITTAL: Deliver one (1) folded hard copies of the corrected plat, no smaller than 17" x 22", and any supporting documentation to the Development Office before or by the final due date.
6. Email a .PDF of the corrected site plan to hmantooth@robcotn.org
7. Attend the Planning Commission meeting. Be ready to present and answer questions. Failure to appear at the Planning Commission meeting may result in the denial of the application.

Daniel Beristain 02/12/2025
Owner's Signature & DATE

Josh Lyon
Owner's Representative Signature & DATE

Staff Comments
March 27, 2025
Amanda Harrington, Planning Advisor

Request: Site Plan Approval for Construction office with 2 buildings
Property: Tax Map 069, Parcel 002.03
Address: US Hwy 41 N.
Zoning: C-1, Suburban Commercial



The site was reviewed against the Robertson County Zoning Resolution.

Staff understands, from a round of corrections and dialogue with the applicant, that the "accessory building" labeled on the site plan is to be used for storage/additional workshop, while the front building (primary) is to be used for a workshop and contractor offices.

The definition of "Building, Accessory" in Article II of the Robertson County Zoning Resolution – it is to be subordinate in both use and size, serving a principal structure or use. The principal is a proposed office and workshop of the same size.

Article III, Section 3-2 states that only one principal building and its accessory structures shall be allowed on any zone lot.

Staff does not recommend approval on the basis that the second building is neither subordinate in size nor intent of use of the principal building, contradicting Article III, Section 3-2 of the County Zoning Resolution.

** END COMMENTS **

EARL R. MAYO **CONSULTING ENGINEER AND SURVEYOR**
119 SUESAND COURT PLEASANT VIEW, TN 37146 (615)522-4704

March 7, 2025

Traye Fann
County Engineer
Robertson County Planning and Zoning
527 South Brown Street
Springfield, Tennessee 37172

RE: Review of Revised Beristain Construction Office Site Plan

Dear Traye:

I have reviewed the referenced revised site plan that I received on March 6, 2025 for the March 27, 2025 Planning Commission meeting. All of my previous comments have been addressed.

Only a very cursory review has been performed of these documents in order to get an overall sense of general compliance with the surveying and engineering requirements contained in the Robertson County Subdivision Regulations. No planning related review was performed. This review is not intended as a check of accuracy of the documents or compliance with other state or federal laws and regulations, including Erosion Protection and Sediment Control or water quality design that was not reviewed by me but is to be reviewed by TDEC. No liability for the correctness or completeness of design or surveying performed by others is assumed by me or Robertson County by my review of these documents.

Please contact me if you have any questions or comments. Thank you for the opportunity to serve you.

Sincerely,

Rick Mayo, PE, RLS

SITE PLAN FOR

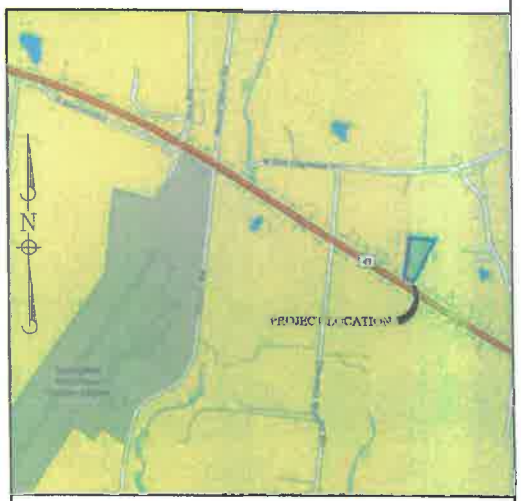
BERISTAIN CONSTRUCTION OFFICE

U.S. HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DATE: 03/06/2025 BERISTAIN CONSTRUCTION OFFICE

SHEET INDEX

NOTE	PROJECT NOTES
C1.01	DEMO AND INITIAL EPSC
C1.02	SITE PLAN
C1.03	GRADING & DRAINAGE PLAN
C1.04	INTERMEDIATE EPSC
C1.05	FINAL STABILIZATION
C1.06	PHOTOMETRIC PLAN
C2.01	CONSTRUCTION DETAILS
C2.02	CONSTRUCTION DETAILS
C2.03	CONSTRUCTION DETAILS



Vicinity Map
Not to Scale

KLOBER
ENGINEERING SERVICES

JOSHUA M. LYON, P.E. TN#112331

PUBLIC UTILITY NOTE
SEPARATE SUBMITTALS TO UTILITY AGENCIES REFER TO TENNESSEE DEPARTMENT OF ENVIRONMENT & CONSERVATION (TDEC) STAMPED APPROVED PLANS FOR ALL PUBLIC UTILITY CONSTRUCTION DOCUMENTS

NOT FOR CONSTRUCTION

PROPERTY OWNER/DEVELOPER:
BLACKPATCH PROPERTIES LLC
1015 BRADLEY DRIVE, STE 10
SPRINGFIELD, TN 37172

DEED REFERENCE:
MAP 80, PARCEL 007.03 TAORCT
PB 36, PG 117 RORCT

PROPERTY INFORMATION:
ZONING: C-1, SUBURBAN COMMERCIAL DISTRICT
AREA: 139,734 S.F. = 3.21 ACRES

SITE USE
EXISTING USE: VACANT
PROPOSED USE: BUSINESS SERVICES

PARKING INFORMATION:
REQUIRED PARKING:
1/400 S.F. (BUSINESS SERVICES) = 6,400SF/400SF
= 16 SPACES + 8 EMPLOYEES = 24 SPACES
24 TOTAL SPACES REQUIRED
PROVIDED: 41 STANDARD STALLS + 2 ACCESSIBLE SPACE = 43 TOTAL PARKING SPACES

LOT COVERAGE
EXISTING BUILDING AREA = 0 S.F.
NEW BUILDING AREA = 8,320 S.F.
BUILDING COVERAGE = 1.52%
MAX BUILDING HEIGHT: 35'-0"
PROPOSED CONCRETE SURFACE: ±2,611 S.F.
PROPOSED ASPHALT SURFACE: ±32,755 S.F.
IMPERVIOUS AREA: ±41,686 S.F. = 29.8%

TEMPORARY BENCHMARK:
SURVEY MARKER AT THE SOUTHWEST PROPERTY CORNER.
N:805238.31
E:1702639.01
ELEVATION = 722.83'
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NAVD88

SIGN NOTE:
ALL SIGNS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE JURISDICTIONAL ZONING ORDINANCE. SEPARATE SIGN PERMIT MAY BE REQUIRED.

LANDSCAPE NOTE:
ALL LANDSCAPING SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE JURISDICTIONAL DESIGN STANDARDS AND ZONING REGULATIONS. PLANT TYPES SHOWN MAY BE SUBSTITUTED WITH SIMILAR TYPES AND SIZES THAT ARE NATIVE TO THE AREA AND APPROVED BY THE GOVERNING JURISDICTION.

UTILITIES NOTE:
COORDINATE LOCATION AND INSTALLATION OF UTILITIES WITH MECHANICAL, ELECTRICAL AND PLUMBING PLANS, SPRINGFIELD WATER DEPARTMENT AND TENNESSEE WATER RESOURCES

WATER:	SPRINGFIELD WATER & WASTEWATER CONTACT: TERRY BEERS 824 CENTRAL AVENUE SPRINGFIELD, TENNESSEE 37172 TELEPHONE: (615) 382-1600
SEWER:	TDEC PRIVATE SEWER
ELECTRIC:	C.E.M.C. 1201 5TH AVE. W SPRINGFIELD, TENNESSEE 37172 TELEPHONE: (800) 987-2362
GAS:	SPRINGFIELD GAS 1311 NW CORDON SPRINGFIELD, TENNESSEE 37172 TELEPHONE: (615) 382-1621

GENERAL NOTES:

1. PRIOR TO BEGINNING CONSTRUCTION ON THIS SITE THE LOCATION OF UTILITIES MUST BE IDENTIFIED BY CALLING THE TOLL-FREE TENNESSEE ONE CALL REFERENCE NUMBER 1-800-351-1111.
2. ALL CONSTRUCTION ON THIS SITE SHALL COMPLY WITH APPLICABLE REGULATIONS AS SPECIFIED BY ROBERTSON COUNTY AND THE STATE OF TENNESSEE
3. THE BOUNDARY SURVEY SHOWN HEREON WAS TAKEN FROM A SURVEY BY STEVEN E. ANTZ OF SPRINGFIELD, TN, DATED 7/27/2021.
4. ACCORDING TO MAP 47147C0220C, DATED 4/18/2006, THIS SITE IS NOT IN A SPECIAL FLOOD HAZARD AREA.
5. SITE CONSTRUCTION WILL BEGIN FOLLOWING PLAN APPROVAL BY ROBERTSON COUNTY.

GENERAL UTILITY NOTES:

1. WATER AND SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL CODES AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL PAY ALL FEES AND OBTAIN ALL PERMITS.
3. ALL EXISTING UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE AND ARE BASED ON TOPOGRAPHIC SURVEYS AND RECORD DRAWINGS FROM THE FACILITY. ADDITIONAL UTILITIES MAY BE PRESENT. SHOULD UNCHARTED UTILITIES BE ENCOUNTERED DURING EXCAVATION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE FOR INSTRUCTIONS.
4. THE CONTRACTOR SHALL NOTIFY THE TENNESSEE ONE-CALL SYSTEM, INC. (TOCS) AT 1-800-351-1111 OR 811 AND ANY NON-TOCS MEMBER UTILITY INDIVIDUALLY, AT LEAST 3 WORKING DAYS PRIOR TO ANY EXCAVATION AND/OR DEMOLITION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE LOCAL UTILITY COMPANY NO LESS THAN 72 HOURS PRIOR TO COMMENCING WORK.
5. MAINTAIN 10-FOOT HORIZONTAL AND 18-INCH VERTICAL SEPARATION BETWEEN SANITARY SEWER AND WATER SUPPLY LINES UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES INCLUDING IRRIGATION. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR DAMAGE ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY. RELOCATE IRRIGATION LINES AS NECESSARY FOR CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SEQUENCING OF CONSTRUCTION FOR ALL UTILITY LINES SO THAT WATER LINES AND UNDERGROUND ELECTRIC DO NOT CONFLICT WITH SANITARY SEWERS OR STORM SEWERS. INSTALL UTILITIES PRIOR TO FINAL PAVEMENT CONSTRUCTION.
8. BACKFILL UTILITY TRENCHES UNDER PAVEMENT AREAS WITH CRUSHED STONE OR GRAVEL. BACKFILL UTILITY TRENCHES IN LAWN AREAS WITH SATISFACTORY FILL MATERIAL COMPACTED TO AT LEAST 95% OF MAXIMUM PER ASTM D698.
9. ADJUST ALL EXISTING CASTINGS TO MATCH PROPOSED FINISH GRADE.
10. THRUST BLOCK ALL WATERLINE FITTINGS WITH CONCRETE (4,000 P.S.I. MINIMUM) POURED AGAINST UNDISTURBED EARTH TO SUSTAIN TEST PRESSURE SPECIFIED. FORM THRUST BLOCKING SO AS TO NOT EMBED JOINTS, BOLTS, VALVE BOXES, OR OPERATING NUTS.
11. PROVIDE VENTS AT HIGH POINTS IN WATERLINE AS NECESSARY FOR EXPELLING AIR DURING FILLING OF WATERLINE. PROVIDE BRONZE CORPORATION STOP FOR CLOSING VENT DURING TESTING AND SERVICE. LEAVE VENT COMPONENTS PLUGGED AND ATTACHED TO PIPE AFTER SUCCESSFUL TEST.
12. EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST IN A LEGAL MANNER.
13. ALL SANITARY SEWER PIPE SHALL BE CLASS SDR 35 PVC UNLESS NOTED OTHERWISE.
14. ALL WATER MAINS SHALL BE PRESSURE C900 PVC UNLESS NOTED OTHERWISE.
15. ALL FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED BETWEEN 5' AND 7' FROM PAVED SURFACE.
16. PROVIDE AS-BUILT DRAWINGS WHICH INCLUDE AT LEAST TWO DIMENSIONS TO EACH VALVE AND MANHOLE FROM KNOWN SITE FEATURES. DRAWINGS SHALL INCLUDE VERTICAL AND HORIZONTAL INFORMATION ON ALL NEW UTILITIES AS WELL AS EXISTING UTILITIES ENCOUNTERED.

LAYOUT AND PAVING NOTES:

1. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO BEGINNING WORK.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, INCLUDING IRRIGATION LINES,

GRADING AND DRAINAGE NOTES:

EPSC NOTES:

… BEGINNING LAND DISTURBANCE. THE TN GENERAL CONSTRUCTION PERMIT IS TNR248114

JOSHUA M. LYON, P.E., PROJECT ENGINEER — 03/04/25
DATE

LANDSCAPE NOTES:

1. PLANT TYPES FOR ALL AREAS OTHER THAN THE BIORETENTION ARE AT THE DISCRETION OF THE OWNER. SEVERAL NATIVE VARIETY SHALL BE USED.
2. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND TAKE PRECAUTIONS TO PREVENT DAMAGE TO THESE UTILITIES.
3. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE TO UTILITIES.
4. ALL PLANTING BEDS OR MULCH BEDS SHALL BE SPRAYED WITH WEED-KILLER/HERBICIDE OR HAND WEEDED (CONTRACTOR'S OPTION) PRIOR TO THE INSTALLATION OF MULCH OR STONE COVER.
5. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINE GRADING OF ALL PLANTING AREAS. INSURE POSITIVE DRAINAGE OF LANDSCAPE BERMS.
6. ALL PLANTING AREAS SHALL BE FERTILIZED WITH 12 lbs./1000 S.F. OF 10-10-10 FERTILIZER.
7. ALL PLANTING BEDS SHALL HAVE A MINIMUM OF 3" DEPTH OF PINE BARK MULCH OR STONE AS SPECIFIED BY OWNER.
8. THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL MATERIAL TYPES AND QUANTITIES WITH THE OWNER.
9. THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH WRITTEN INSTRUCTIONS ON THE PROPER CARE OF ALL SPECIFIED PLANT MATERIALS PRIOR TO FINAL PAYMENT
10. ALL DISTURBED AREAS NOT SODDED SHALL BE SEEDED AND STRAWED.
11. INSTALL EROSION CONTROL MATTING ON ALL SLOPES GREATER THAN 3:1, DITCH LINE AND WHERE SHOWN ON THE STABILIZATION PLAN.
12. GROUND COVER, WHEN USED, SHOULD EXTEND UNDER SHRUBS AND TREES.
13. NO TREES SHALL BE PLANTED WITHIN THE 40 FT. SIGHT TRIANGLE AT THE ENTRANCE. ALL SHRUBS MUST BE MAINTAINED AT A MAXIMUM HEIGHT OF 2 1/2'.
14. SPREADING SHRUB SPECIES SHALL BE 18 INCH MINIMUM SPREAD & 3 GAL TRUNK.
15. STREET TREE CALIPERS SHALL BE 2 INCH MINIMUM.
16. ONLY GRADE "A" PLANT MATERIAL WILL BE ACCEPTED. INFERIOR/DAMAGED PLANT MATERIAL WILL BE REJECTED. ALL PLANT MATERIAL MUST COMPLY WITH CURRENT ANSI NURSERY STOCK STANDARDS.
17. VOID AREAS BETWEEN TREES AND SHRUBS MAY BE INTERSPERSED WITH PERENNIALS SUCH AS MARSH MILKWEED, SLENDER MOUNTAIN MINT, LYRE-LEAF SAGE, OR GRAY GOLDENROD.

LEGEND:

RECORD SURVEY REQUIRED OF STORMWATER POND:
A RECORD SURVEY OF THE STORMWATER DETENTION POND AND FACILITIES PERFORMED BY A LICENSED TN SURVEYOR, IS REQUIRED PRIOR TO THE COUNTY ISSUING A CERTIFICATE OF OCCUPANCY. THE CERTIFICATE OF OCCUPANCY WILL BE WITHHELD UNTIL THE STORMWATER DETENTION POND AND FACILITIES ARE SUBSTANTIALLY CONSTRUCTED IN ACCORDANCE WITH THE DESIGN. THE DETERMINATION OF SUBSTANTIAL COMPLETION SHALL BE MADE BY THE COUNTY. THE APPLICANT SHOULD ANTICIPATE THAT ADDITION ENGINEERING CALCULATIONS MAY BE REQUIRED BY THE COUNTY AS PART OF THEIR DETERMINATION

STORMWATER POND MAINTENANCE REQUIREMENT:
THE PROPERTY OWNER SHALL BE REQUIRED TO MAINTAIN THE STORMWATER DETENTION POND AND FACILITIES IN PERPETUITY. THIS INCLUDES MAINTAINING THE ORIFICES, WEIRS AND DISCHARGE AREAS IN A WORKING AND NON-PLUGGED STATE. THIS ALSO INCLUDES, BUT IS NOT LIMITED TO, MAINTAINING VEGETATION AND CLEANING DEBRIS, SILT, TRASH ETC FROM THE STORMWATER POND.

CALL BEFORE YOU DIG
811
CALL 811 NATIONWIDE
Know what's below. Call before you dig.

KLOBER ENGINEERING SERVICES

REVISIONS
NO	BY	DATE	DESCRIPTION

JOSHUA M. LYON, P.E. TN#112331

NOT FOR CONSTRUCTION

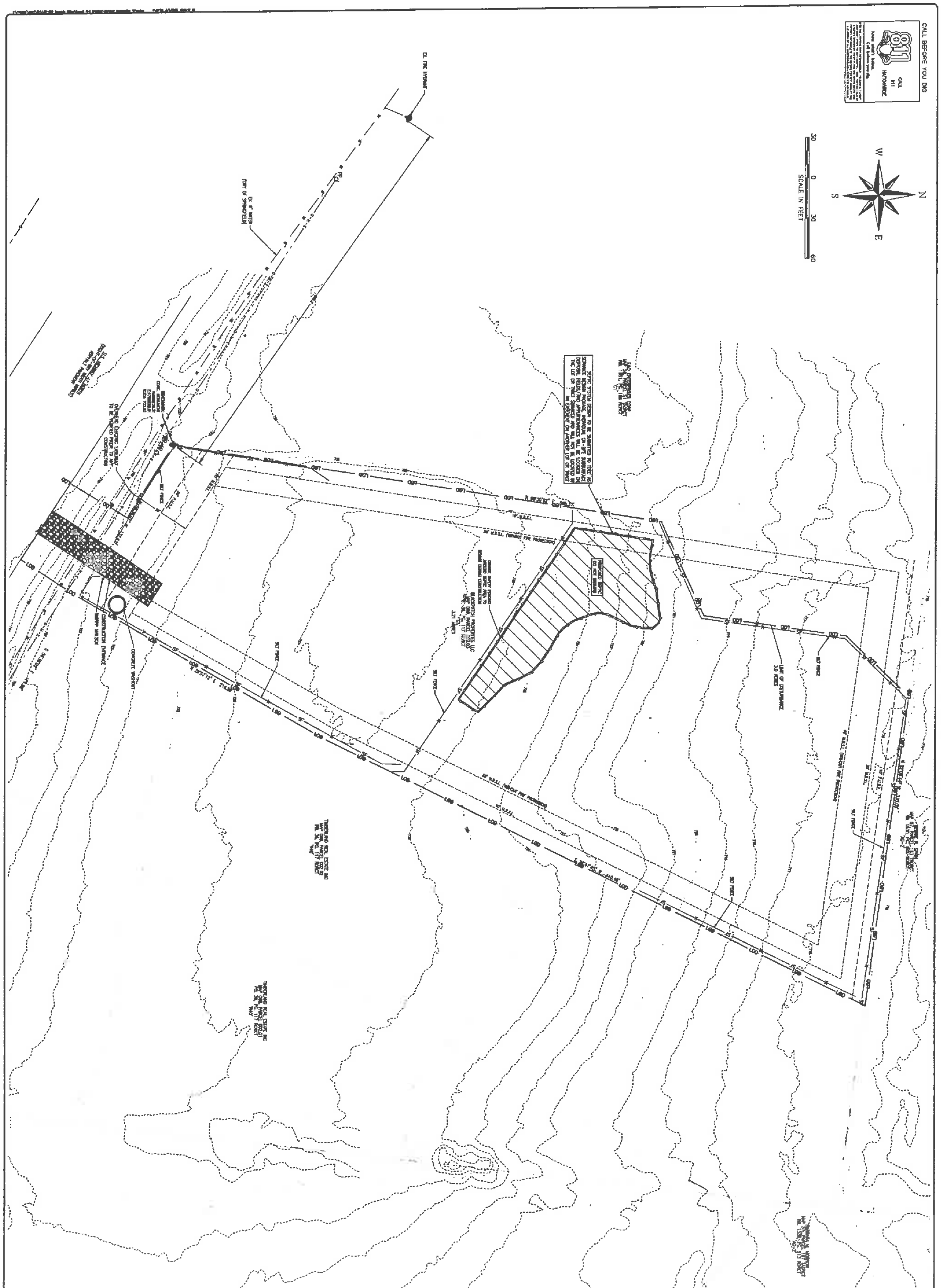
BERISTAIN CONSTRUCTION OFFICE
U.S. HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	JML
PROJECT NO.	C01524

PROJECT NOTES

SHEET NUMBER
NOTE

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U S HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
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PROJECT NO.	C01524

DEMO & INITIAL EPSC

SHEET NUMBER
C1.01

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JOSHUA M. LYON, P.E. TN#112331

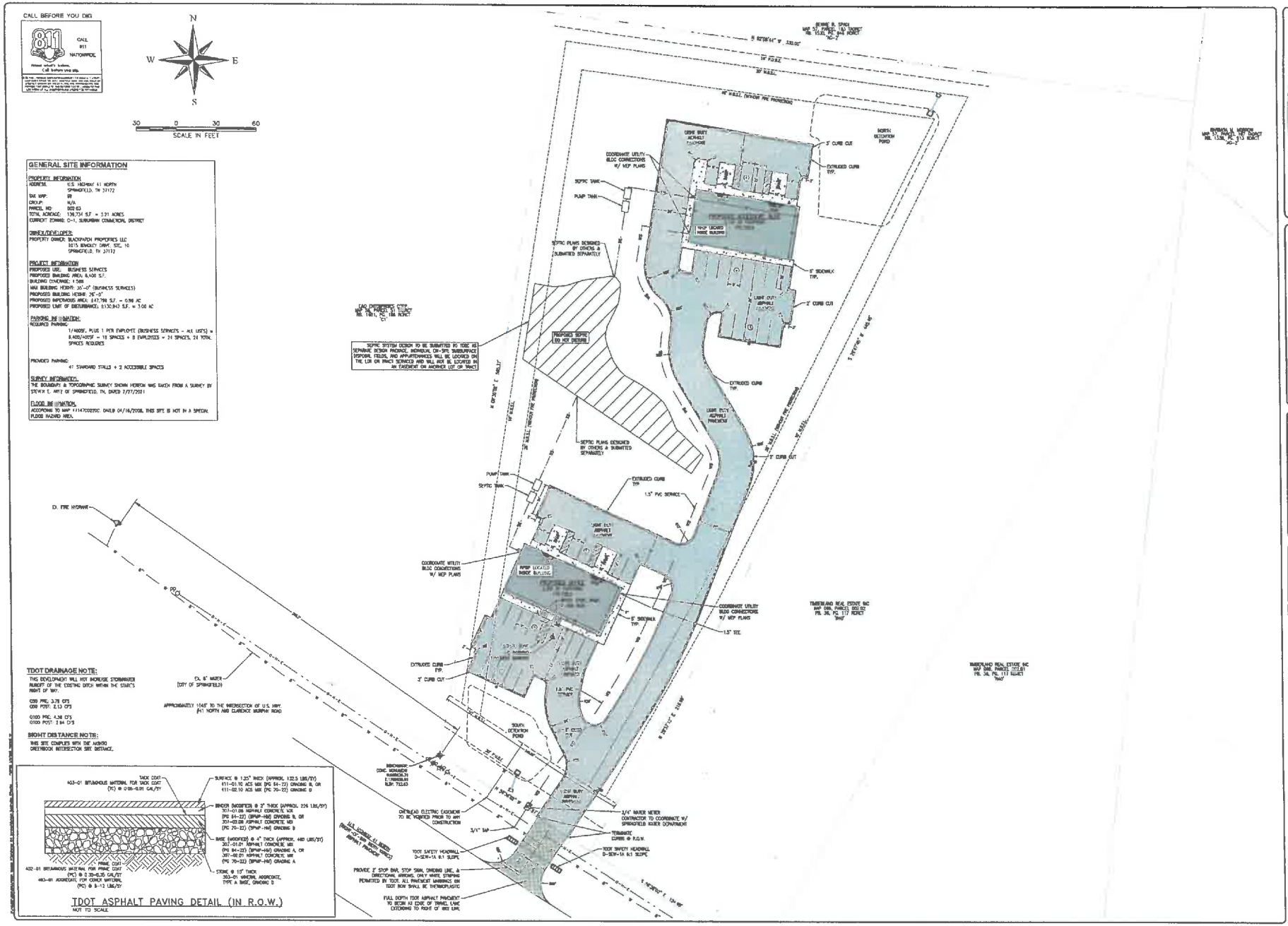
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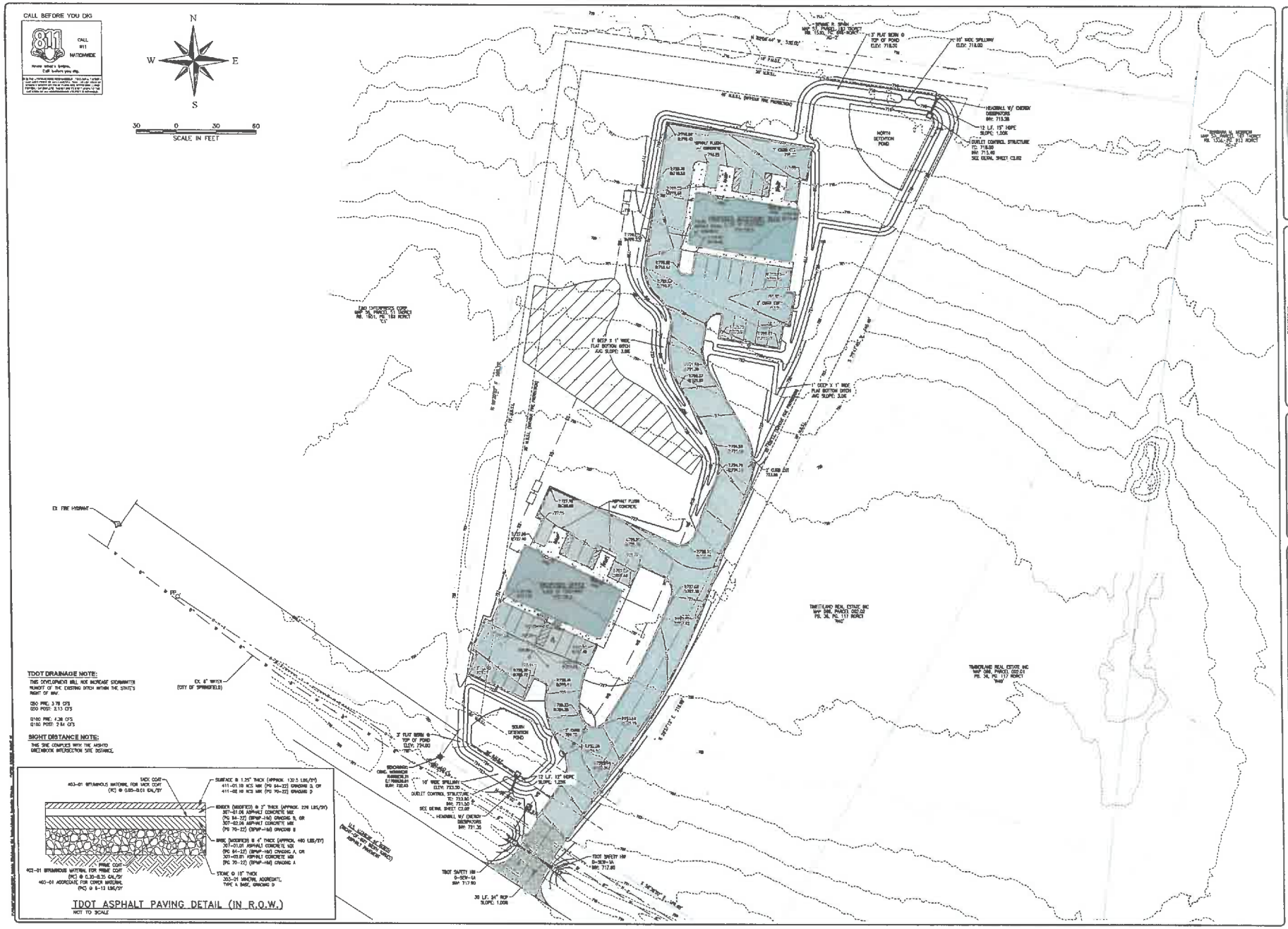
NO	BY	DATE	DESCRIPTION

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811 CALL 811 NATIONWIDE
N
W
E
S
30 0 30 60
SCALE IN FEET
GENERAL SITE INFORMATION
PROPERTY INFORMATION
ADDRESS: U.S. HIGHWAY 41 NORTH SPRINGFIELD, TN 37172
TAX MAP: 99
GROUP: N/A
PARCEL NO: 002.03
TOTAL ACREAGE: 136,734 S.F. = 3.21 ACRES
CURRENT ZONING: O-1, SUBURBAN COMMERCIAL DISTRICT
OWNER/DEVELOPER:
PROPERTY OWNER: BLACKPATCH PROPERTIES LLC
1615 BENDLEY DRIVE, STE. 10
SPRINGFIELD, TN 37172
PROJECT INFORMATION
PROPOSED USE: BUSINESS SERVICES
PROPOSED BUILDING AREA: 8,400 S.F.
BUILDING COVERAGE: 1.58%
MAX BUILDING HEIGHT: 35'-0" (BUSINESS SERVICES)
PROPOSED BUILDING HEIGHT: 26'-0"
PROPOSED IMPERVIOUS AREA: 147,798 S.F. = 0.98 AC
PROPOSED LIMIT OF DISTURBANCE: 130,942 S.F. = 3.00 AC
PARKING INFORMATION:
REQUIRED PARKING:
1/400SF, PLUS 1 PER EMPLOYEE (BUSINESS SERVICES - ALL USES) = 8,400/400SF = 18 SPACES + 8 EMPLOYEES = 24 SPACES, 24 TOTAL SPACES REQUIRED
PROVIDED PARKING:
47 STANDARD STALLS + 2 ACCESSIBLE SPACES
SURVEY INFORMATION:
THE BOUNDARY & TOPOGRAPHIC SURVEY SHOWN HEREON WAS TAKEN FROM A SURVEY BY STEVEN E. ARTZ OF SPRINGFIELD, TN, DATED 7/27/2021
FLOOD INFORMATION:
ACCORDING TO MAP #11147C0207C, DATED 04/16/2008, THIS SITE IS NOT IN A SPECIAL FLOOD HAZARD AREA.
SEPTIC SYSTEM DESIGN TO BE SUBMITTED TO TDEC AS SEPARATE DESIGN PACKAGE. INDIVIDUAL ON-SITE SUBSURFACE DISPOSAL FIELDS, AND APPURTENANCES WILL BE LOCATED ON THE LOT OR TRACT SERVICED AND WILL NOT BE LOCATED IN AN EASEMENT ON ANOTHER LOT OR TRACT
PROPOSED SEPTIC DO NOT DISTURB
SEPTIC PLANS DESIGNED BY OTHERS & SUBMITTED SEPARATELY
PUMP TANK
SEPTIC TANK
EXTRUDED CURB TYP.
3" CURB CUT
5' SIDEWALK TYP.
1.5" PVC SERVICE
COORDINATE UTILITY BLDG CONNECTIONS W/ MEP PLANS
NORTH DETENTION POND
SOUTH DETENTION POND
OVERHEAD ELECTRIC EASEMENT TO BE SIGNED PRIOR TO ANY CONSTRUCTION
3/4" TAP
3/4" WATER METER CONTRACTOR TO COORDINATE W/ SPRINGFIELD WATER DEPARTMENT
TERMINATE CURBS @ R.O.W.
TDOT SAFETY HEADWALL D-SEW-1A 6:1 SLOPE
PROVIDE 3' STOP BAR, STOP SIGN, GROUND LINE, & DIRECTIONAL ARROWS. ONLY WHITE STRIPING PERMITTED BY TDOT. ALL PAVEMENT MARKINGS ON TDOT ROW SHALL BE THERMOPLASTIC
FULL DEPTH TDOT ASPHALT PAVEMENT TO BEGIN AT EDGE OF TRAVEL LANE EXTENDING TO RIGHT OF WAY LINE
TIMBERLAND REAL ESTATE INC MAP 099, PARCEL 002.02 PB. 36, PG. 177 REMET
TDOT DRAINAGE NOTE:
THIS DEVELOPMENT WILL NOT INCREASE STORMWATER RUNOFF OF THE EXISTING DITCH WITHIN THE STATE'S RIGHT OF WAY.
Q25 PRE: 3.78 CFS
Q25 POST: 2.13 CFS
Q100 PRE: 4.36 CFS
Q100 POST: 2.84 CFS
SIGHT DISTANCE NOTE:
THIS SITE COMPLIES WITH THE ASSHTO GREENBOOK INTERSECTION SITE DISTANCE.
EX. 8" WATER (CITY OF SPRINGFIELD)
APPROXIMATELY 1045' TO THE INTERSECTION OF U.S. HWY. #41 NORTH AND CLARENCE MURPHY ROAD
TDOT ASPHALT PAVING DETAIL (IN R.O.W.)
NOT TO SCALE
KLOBER ENGINEERING SERVICES
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3644 TIMBERLAND DRIVE, SPRINGFIELD, TN 37172
PHONE (615) 382-2000 FAX (866) 273-4466
www.KLOBERENG.com
NO. BY DATE DESCRIPTION
REVISIONS
JOSHUA M. LYON
REGISTERED ENGINEER
No. 112331
STATE OF TENNESSEE
JOSHUA M. LYON, P.E. TN#112331
NOT FOR CONSTRUCTION
BERISTAIN CONSTRUCTION OFFICE
U.S. HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY
DRAWN BY RWS
CHECKED BY JML
PROJECT NO. 091524
SITE LAYOUT
SHEET NUMBER C1.02
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US HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO	120324

GRADING & DRAINAGE PLAN

SHEET NUMBER
C1.03

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REVISIONS		
NO	BY	DATE
		DESCRIPTION

JOSHUA M. LYON, P.E. TN#123331
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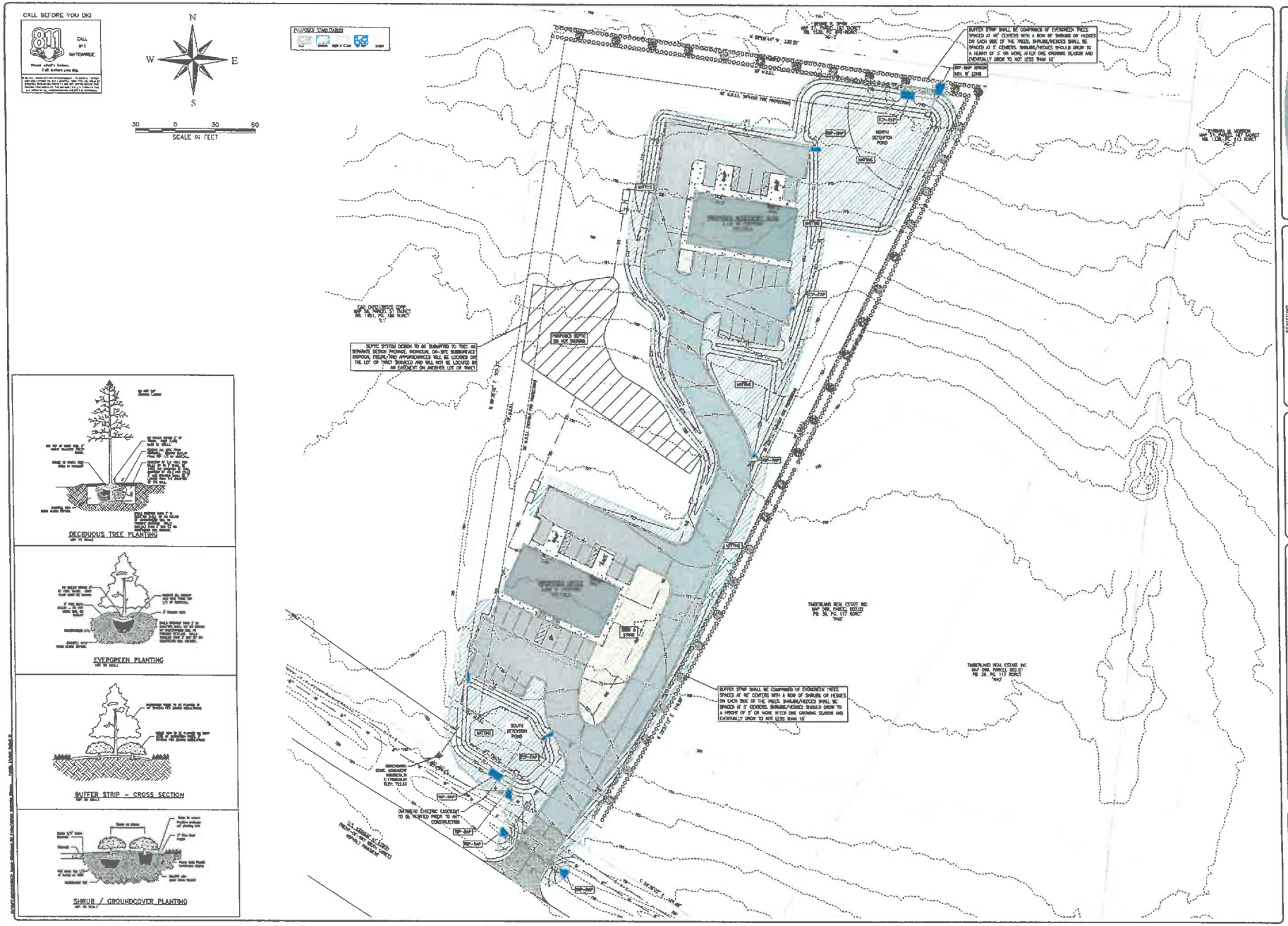
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U.S. HIGHWAY 41 NORTH
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ROBERTSON COUNTY

DRAWN BY	RWB
CHECKED BY	JML
PROJECT NO	CN1124

INTERMEDIATE EPSC

SHEET NUMBER
C1.04



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3688 Nolensville Pike, Suite 110, Nashville, TN 37211
PHONE (615) 383-3000 FAX (866) 373-4448
www.klobereng.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON
LICENSED PROFESSIONAL ENGINEER
No. 112331
STATE OF TENNESSEE

JOSHUA M. LYON, P.E. TN#112331

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BERISTAIN CONSTRUCTION OFFICE

US HIGHWAY 41A NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO	C01521

FINAL STABILIZATION

SHEET NUMBER
C1.05

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811 CALL 811 NATIONWIDE

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N

W E

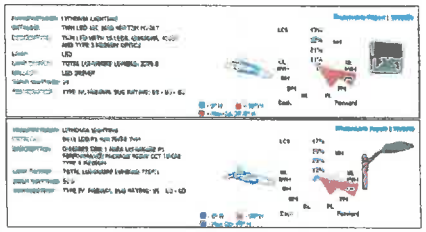
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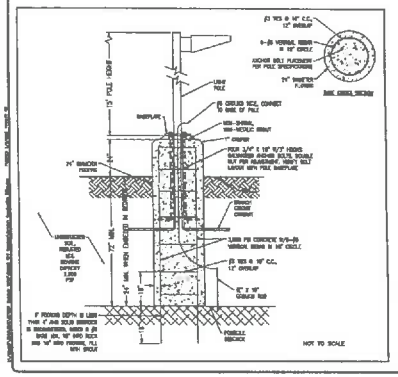
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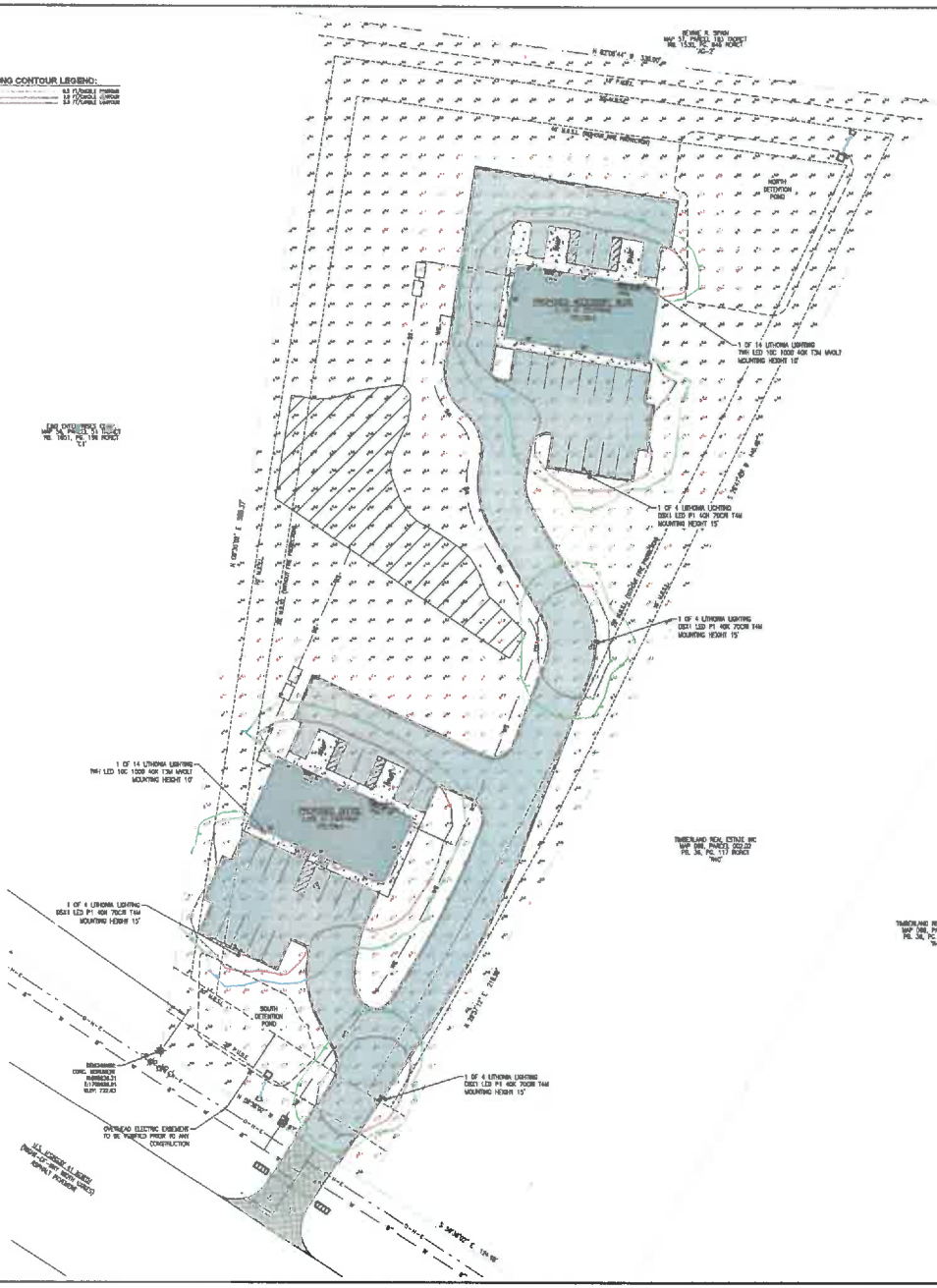
LIGHTING CONTOUR LEGEND:

0.3 FC/SQ.FT. MINIMUM
1.0 FC/SQ.FT. AVERAGE
3.7 FC/SQ.FT. MAXIMUM





NOT TO SCALE



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Phone: (615) 241-2000 FAX: (866) 375-4468
www.klobereng.com

NO	BY	DATE	DESCRIPTION

JOSHUA M. LYON
REGISTERED PROFESSIONAL ENGINEER
No. 112331
STATE OF TENNESSEE

JOSHUA M. LYON, P.E. TN#112331

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BERISTAIN CONSTRUCTION OFFICE

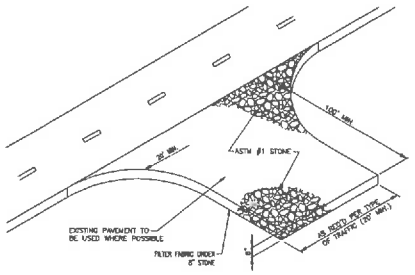
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SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO	C01524

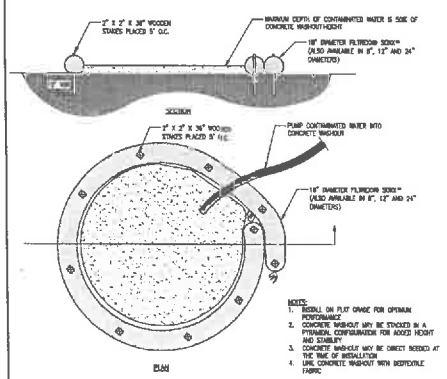
PHOTOMETRIC PLAN

SHEET NUMBER
C1.06

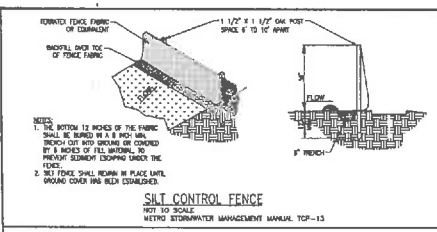
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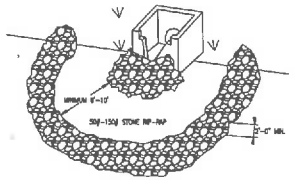
TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE METRO STORMWATER MANAGEMENT MANUAL TCP-03



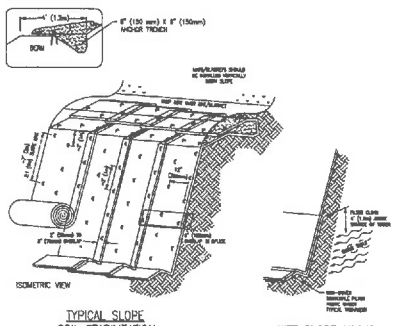
FILTREXX® CONCRETE WASHOUT
NOT TO SCALE



SILT CONTROL FENCE
NOT TO SCALE
METRO STORMWATER MANAGEMENT MANUAL TCP-13



FILTER RING
NOT TO SCALE

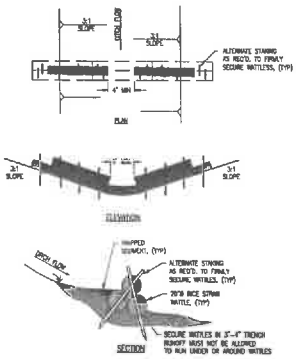


TYPICAL SLOPE SOIL STABILIZATION
N.T.S.

WET SLOPE LINING
N.T.S.

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF WOODS, SOIL CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

GRASS MATTING PLACEMENT
METRO STORMWATER MANAGEMENT MANUAL PESC-02



STRAW FILTER CHECK DAM
NOT TO SCALE

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www.kloberserv.com

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			REVISIONS

JOSHUA M. LYON, P.E., TN#112331

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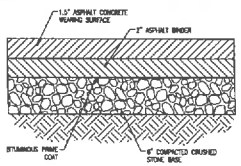
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SPRINGFIELD TN 37172
ROBERTSON COUNTY

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CHECKED BY	JML
PROJECT NO	C01521

CONSTRUCTION DETAILS

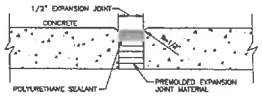
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C2.01

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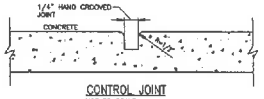


LIGHT DUTY ASPHALT PAVING DETAIL
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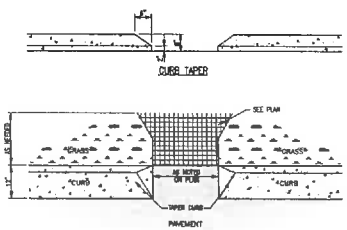
VERIFY PAVEMENT AND STONE THICKNESS WITH APPROVED GEOTECH REPORT



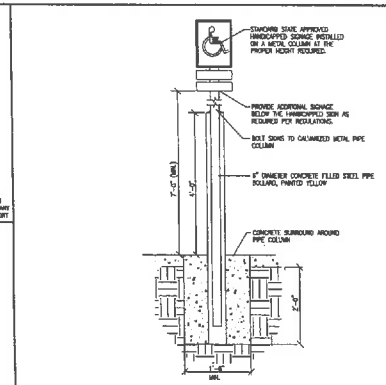
EXPANSION JOINT
NOT TO SCALE



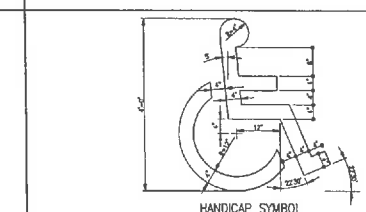
CONTROL JOINT
NOT TO SCALE



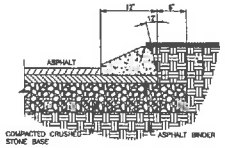
TYPICAL CURB CUT
NOT TO SCALE



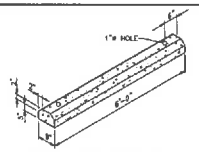
EXTERIOR HANDICAPPED SIGN
NOT TO SCALE



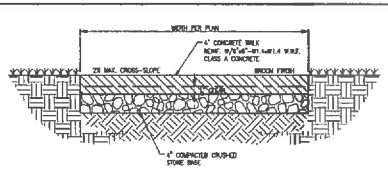
HANDICAP SYMBOL
NOT TO SCALE



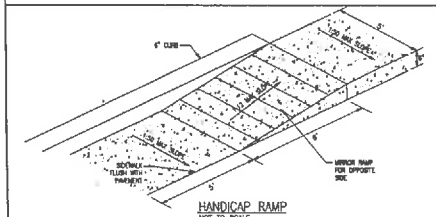
EXTRUDED CURB DETAIL
NOT TO SCALE



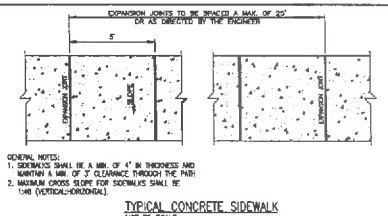
TYPICAL PARKING CURB
NOT TO SCALE



CONCRETE SIDEWALK CROSS SECTION
NOT TO SCALE

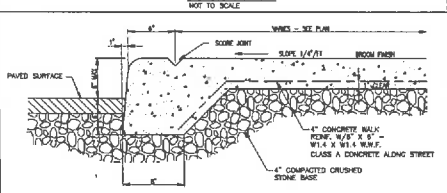


HANDICAP RAMP
NOT TO SCALE



GENERAL NOTES:
1. SIDEWALKS SHALL BE A MIN. OF 4" IN THICKNESS AND MAINTAIN A MIN. OF 3' CLEARANCE THROUGH THE PATH
2. MAXIMUM CROSS SLOPE FOR SIDEWALKS SHALL BE 1:48 (VERTICAL:HORIZONTAL).

TYPICAL CONCRETE SIDEWALK
NOT TO SCALE



CONCRETE SIDEWALK & HAUNCHED CURB
NOT TO SCALE

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3644 Kinsey Drive, Suite 101, Nashville, TN 37212
PHONE (615) 383-2500 FAX (866) 373-4466
www.klobereng.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON, P.E. TN#112331

NOT FOR CONSTRUCTION

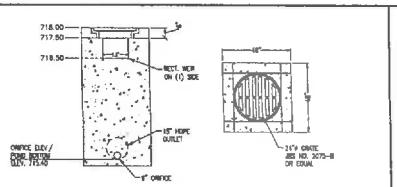
BERISTAIN CONSTRUCTION OFFICE
US HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO	C01324

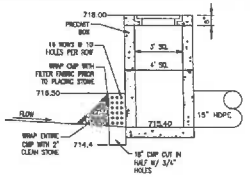
CONSTRUCTION DETAILS

SHEET NUMBER
C2.02

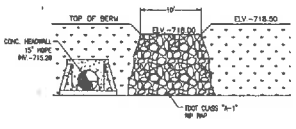
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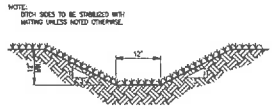
NORTH POND DISCHARGE STRUCTURE
NOT TO SCALE



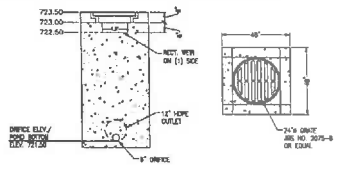
NORTH POND OUTLET PROTECTION
NOT TO SCALE



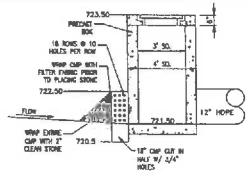
NORTH SPILLWAY DETAIL
NOT TO SCALE



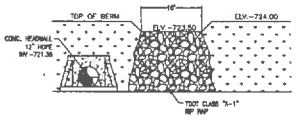
TYPICAL FLAT BOTTOM DITCH DETAIL
NOT TO SCALE



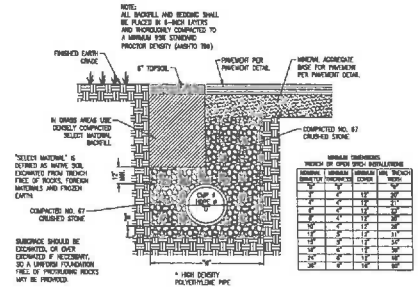
SOUTH POND DISCHARGE STRUCTURE
NOT TO SCALE



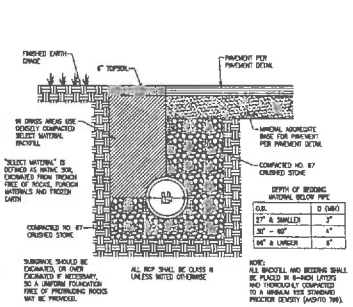
SOUTH POND OUTLET PROTECTION
NOT TO SCALE



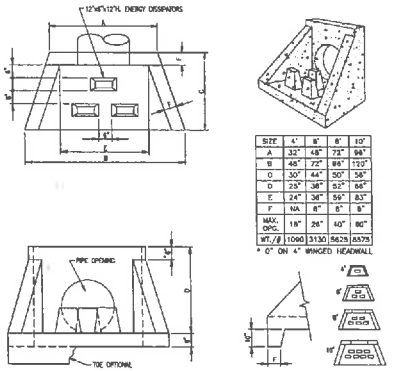
SOUTH SPILLWAY DETAIL
NOT TO SCALE



CMP OR HDPE* BEDDING (NON-PERFORATED)
NOT TO SCALE



RCP BEDDING - CLASS B
NOT TO SCALE



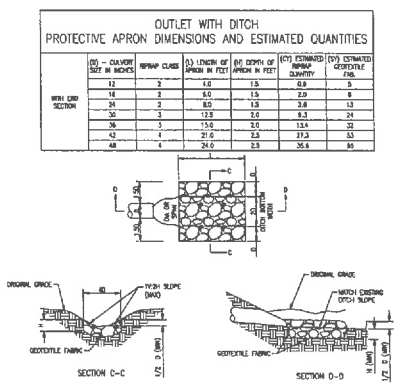
SIZE	4'	6'	8'	10'
A	32"	48"	72"	96"
B	48"	72"	96"	120"
C	30"	44"	50"	58"
D	25"	38"	52"	66"
E	24"	36"	56"	83"
F	NA	8"	8"	8"
WAV. OPC.	18"	26"	40"	80"
WT./#	1090	3130	5625	8575

* 0° ON 4' WINGED HEADWALL

WINGED HEADWALL W/ENERGY DISSIPATORS
NOT TO SCALE CLOUD SW-301 OR EQUAL

OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

	(W) - CULVERT SIZE IN INCHES	RIPRAP CLASS	(L) LENGTH OF APRON IN FEET	(W) DEPTH OF APRON IN FEET	(CY) ESTIMATED RIPRAP QUANTITY	(SY) ESTIMATED GEOTEXTILE FAB.
WITH END SECTION	12	2	4.0	1.5	0.8	5
	18	2	5.0	1.5	2.0	8
	24	2	8.0	1.5	3.6	13
	30	3	12.5	2.0	8.3	24
	36	3	15.0	2.0	13.4	32
	42	4	21.0	2.5	27.3	53
	48	4	24.0	2.5	35.6	86



TYPICAL RIP-RAP APRON AT HEADWALL
NOT TO SCALE

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NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON
REGISTERED PROFESSIONAL ENGINEER
AGRICULTURE
No. 112331
STATE OF TENNESSEE
JOSHUA M. LYON, P.E. TN#112331

NOT FOR CONSTRUCTION

BERISTAIN CONSTRUCTION OFFICE
U.S. HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	JML
PROJECT NO.	C01524

CONSTRUCTION DETAILS

SHEET NUMBER
C2.03

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STORMWATER DESIGN CALCULATIONS

FOR

Beristain Construction Offices

US Hwy 41 North
Springfield, TN 37172

March 6, 2025



Prepared By

KLOBER ENGINEERING SERVICES
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(615) 382-2000

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STORM WATER CALCULATIONS

Stormwater Detention

As seen on DM-1, the current site conditions convey runoff to two existing outfalls, one towards the north and another to the south. The project consists of constructing (2) 3,200 sf office buildings with associated parking. The post developed site was analyzed by conveying a majority of the site runoff to two detention ponds, one located near the south side of the development and another at the north side. The detention ponds will utilize standard pond discharge boxes with multiple weirs.

The following tables illustrate storm water runoff data for all drainage basins. The discharge from the pond and the portions that bypass the pond will be below predeveloped conditions.

Table 1

Storm Event	(2S): Pre Runoff (cfs)	(5S): Post To Pond (cfs)	(2P): Post Pond Discharge (cfs)	(6S): Post Bypass (cfs)	Top of Pond Elev.: 718.50	(2R): Total Post-Discharge (cfs)
2 yr.	4.09	4.91	1.74	1.71	716.61	3.38
5 yr.	5.71	6.40	2.49	2.40	716.80	4.81
10 yr.	7.08	7.61	3.13	2.97	716.93	6.02
25 yr.	9.03	9.31	4.03	3.79	717.09	7.74
50 yr.	10.63	10.68	4.77	4.46	717.22	9.16
100yr.	12.31	12.11	5.55	5.16	717.35	10.65

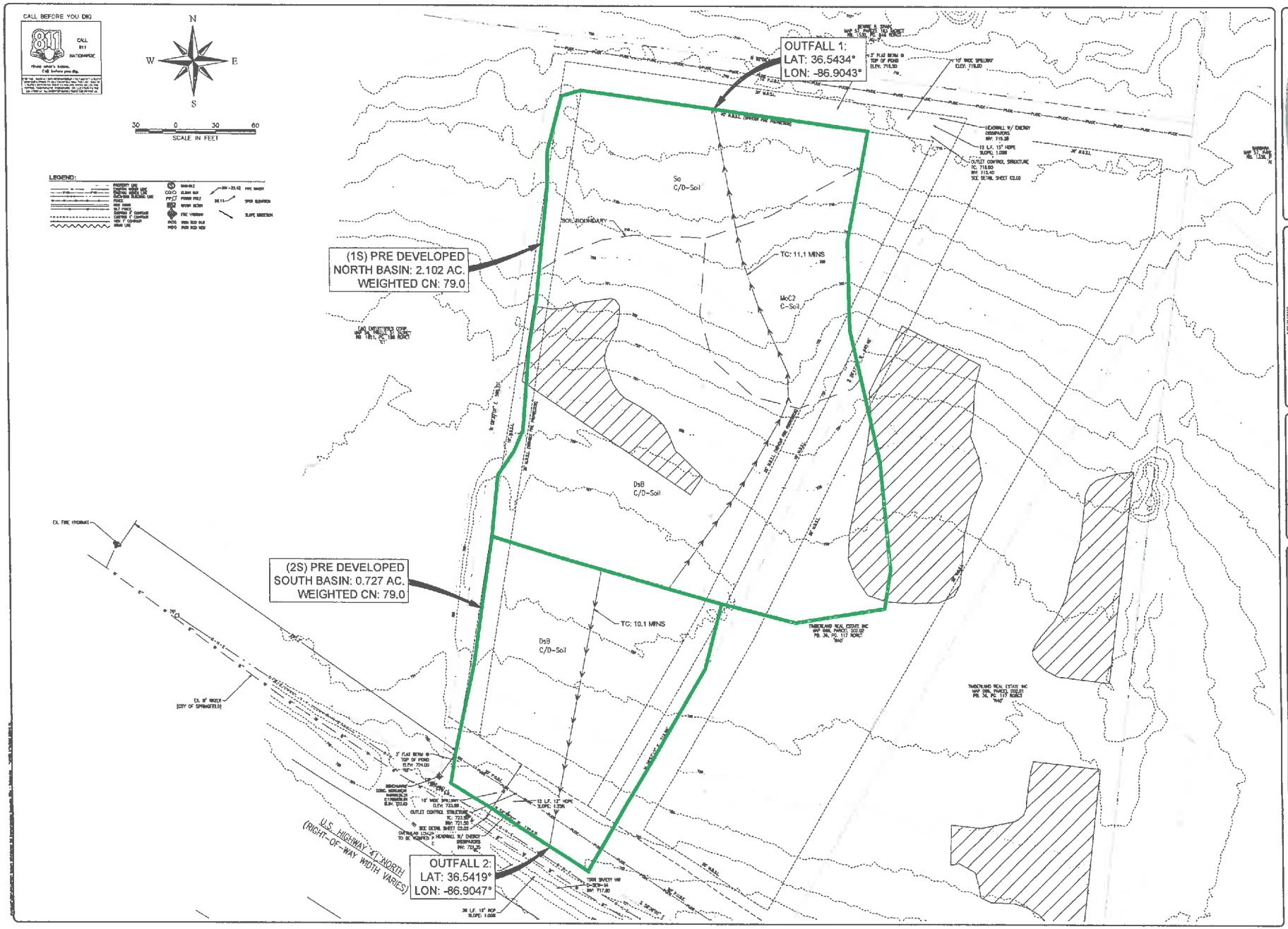
Table 1: Total North Drainage Basin Calculation Results

Table 2

Storm Event	(2S): Pre Runoff (cfs)	(5S): Post To Pond (cfs)	(2P): Post Pond Discharge (cfs)	(6S): Post Bypass (cfs)	Top of Pond Elev.: 724.00	(2R): Total Post-Discharge (cfs)
2 yr.	1.46	1.61	0.65	0.43	722.22	1.01
5 yr.	2.04	2.05	0.75	0.57	722.38	1.24
10 yr.	2.52	2.41	0.83	0.69	722.51	1.41
25 yr.	3.22	2.91	1.17	0.86	722.65	1.68
50 yr.	3.79	3.32	1.50	0.99	722.74	2.13
100yr.	4.39	3.74	1.89	1.13	722.84	2.64

Table 1: Total South Drainage Basin Calculation Results

PRE-DEVELOPED



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NO	BY	DATE	DESCRIPTION

JOSHUA M. LYON
STATE OF TENNESSEE
JOSHUA M. LYON, P.E. TN#112331

NOT FOR CONSTRUCTION

BERISTAIN CONSTRUCTION OFFICES
US HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	KML
PROJECT NO	C01524

PREDEVELOPED DRAINAGE MAP

SHEET NUMBER
DM-1

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Pre-Developed North Basin



Pre-Developed South Basin

Subcat Reach Pond Link

Routing Diagram for Drainage
Prepared by Klober Engineering, Printed 2/11/2025
HydroCAD® 10.20-2h s/n 09895 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Pre-Developed North Basin

Runoff = 4.09 cfs @ 12.19 hrs, Volume= 0.262 af, Depth> 1.50"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
2.102	79.0	50-75% Grass cover, Fair, HSG C
2.102		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	110	0.0230	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.7	280	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.1	390	Total			

Summary for Subcatchment 2S: Pre-Developed South Basin

Runoff = 1.46 cfs @ 12.18 hrs, Volume= 0.091 af, Depth> 1.50"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
0.727	79.0	50-75% Grass cover, Fair, HSG C
0.727		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	120	0.0267	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.6	95	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.1	215	Total			

Summary for Subcatchment 1S: Pre-Developed North Basin

Runoff = 5.71 cfs @ 12.19 hrs, Volume= 0.368 af, Depth> 2.10"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
2.102	79.0	50-75% Grass cover, Fair, HSG C
2.102		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	110	0.0230	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.7	280	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.1	390	Total			

Summary for Subcatchment 2S: Pre-Developed South Basin

Runoff = 2.04 cfs @ 12.18 hrs, Volume= 0.127 af, Depth> 2.10"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
0.727	79.0	50-75% Grass cover, Fair, HSG C
0.727		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	120	0.0267	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.6	95	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.1	215	Total			

Summary for Subcatchment 1S: Pre-Developed North Basin

Runoff = 7.08 cfs @ 12.19 hrs, Volume= 0.458 af, Depth> 2.61"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
2.102	79.0	50-75% Grass cover, Fair, HSG C
2.102		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	110	0.0230	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.7	280	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.1	390	Total			

Summary for Subcatchment 2S: Pre-Developed South Basin

Runoff = 2.52 cfs @ 12.18 hrs, Volume= 0.158 af, Depth> 2.62"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
0.727	79.0	50-75% Grass cover, Fair, HSG C
0.727		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	120	0.0267	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.6	95	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.1	215	Total			

Summary for Subcatchment 1S: Pre-Developed North Basin

Runoff = 9.03 cfs @ 12.19 hrs, Volume= 0.589 af, Depth> 3.36"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
2.102	79.0	50-75% Grass cover, Fair, HSG C
2.102		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	110	0.0230	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.7	280	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.1	390	Total			

Summary for Subcatchment 2S: Pre-Developed South Basin

Runoff = 3.22 cfs @ 12.18 hrs, Volume= 0.204 af, Depth> 3.36"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
0.727	79.0	50-75% Grass cover, Fair, HSG C
0.727		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	120	0.0267	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.6	95	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.1	215	Total			

Summary for Subcatchment 1S: Pre-Developed North Basin

Runoff = 10.63 cfs @ 12.19 hrs, Volume= 0.699 af, Depth> 3.99"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
2.102	79.0	50-75% Grass cover, Fair, HSG C
2.102		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	110	0.0230	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.7	280	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.1	390	Total			

Summary for Subcatchment 2S: Pre-Developed South Basin

Runoff = 3.79 cfs @ 12.18 hrs, Volume= 0.242 af, Depth> 3.99"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
0.727	79.0	50-75% Grass cover, Fair, HSG C
0.727		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	120	0.0267	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.6	95	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.1	215	Total			

Summary for Subcatchment 1S: Pre-Developed North Basin

Runoff = 12.31 cfs @ 12.19 hrs, Volume= 0.815 af, Depth> 4.65"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
2.102	79.0	50-75% Grass cover, Fair, HSG C
2.102		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	110	0.0230	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.7	280	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.1	390	Total			

Summary for Subcatchment 2S: Pre-Developed South Basin

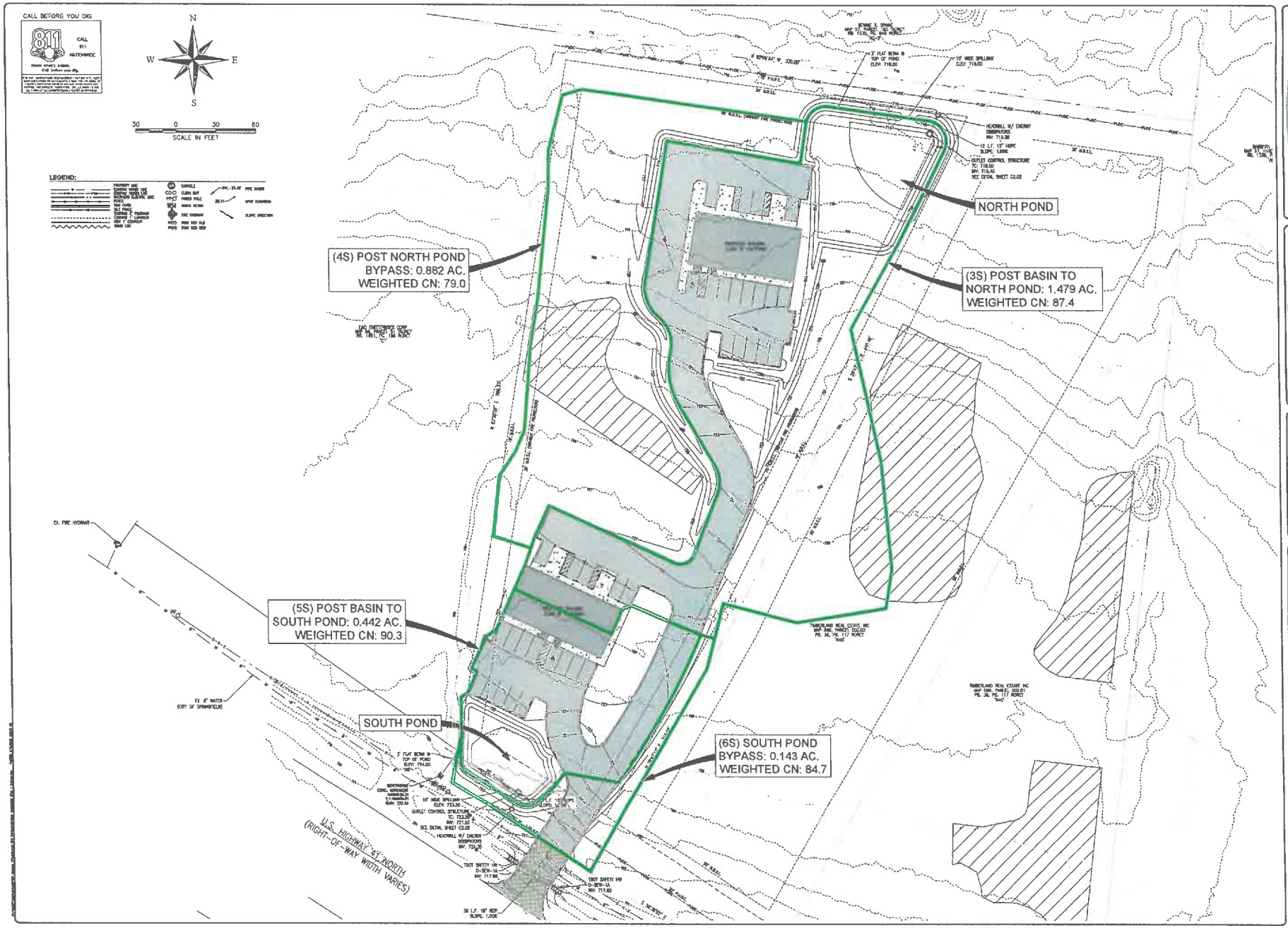
Runoff = 4.39 cfs @ 12.17 hrs, Volume= 0.282 af, Depth> 4.65"
Routed to nonexistent node 11R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
0.727	79.0	50-75% Grass cover, Fair, HSG C
0.727		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	120	0.0267	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.6	95	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.1	215	Total			

POST-DEVELOPED



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www.kloberinc.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON, P.E. TN#112331

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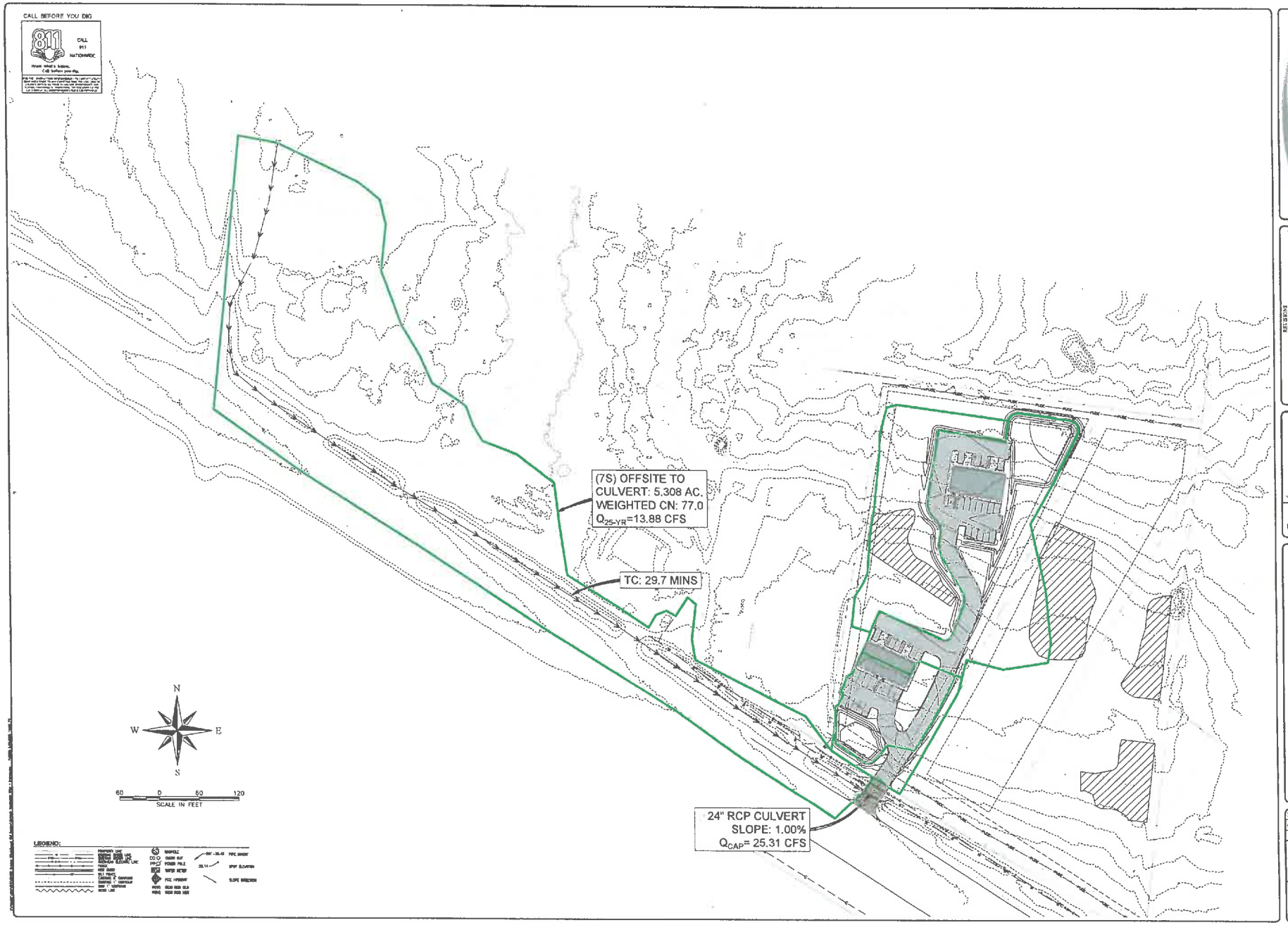
US HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO	C01524

POST DEVELOPED DRAINAGE MAP

SHEET NUMBER
DM-2

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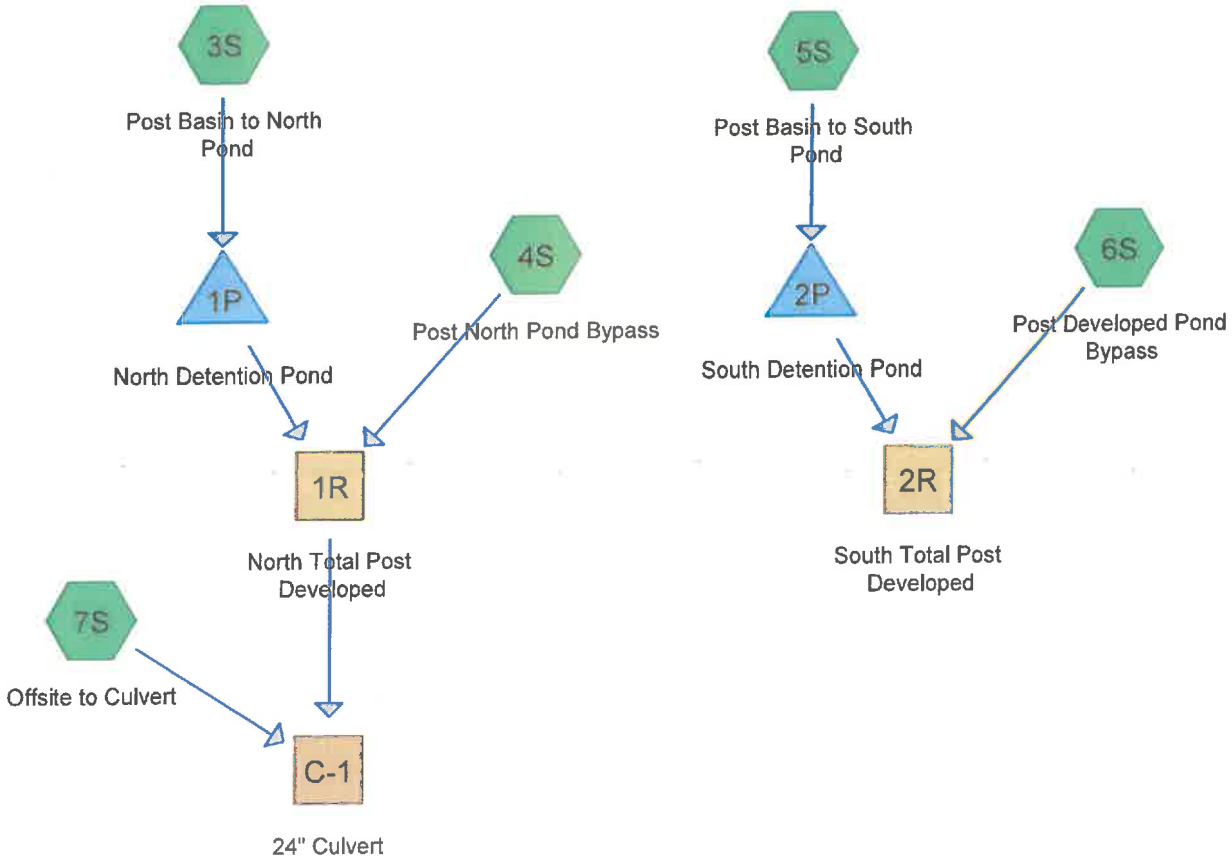
115 HIGHWAY 41 NORTH
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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OFFSITE DRAINAGE MAP

SHEET NUMBER
DM-3

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Subcat Reach Pond Link

Routing Diagram for Drainage
Prepared by Klober Engineering, Printed 2/25/2025
HydroCAD® 10.20-2h s/n 09895 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 3S: Post Basin to North Pond

Runoff = 4.91 cfs @ 12.12 hrs, Volume= 0.264 af, Depth> 2.14"
Routed to Pond 1P : North Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
0.578	98.0	Paved parking, HSG B
0.073	98.0	Roofs, HSG B
0.828	79.0	50-75% Grass cover, Fair, HSG C
1.479	87.4	Weighted Average
0.828		55.98% Pervious Area
0.651		44.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Post North Pond Bypass

Runoff = 1.71 cfs @ 12.19 hrs, Volume= 0.110 af, Depth> 1.50"
Routed to Reach 1R : North Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
0.882	79.0	50-75% Grass cover, Fair, HSG C
0.882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1					**Direct Entry,**

Summary for Subcatchment 5S: Post Basin to South Pond

Runoff = 1.61 cfs @ 12.11 hrs, Volume= 0.088 af, Depth> 2.40"
Routed to Pond 2P : South Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
0.226	98.0	Paved parking, HSG B
0.037	98.0	Roofs, HSG B
0.179	79.0	50-75% Grass cover, Fair, HSG C
0.442	90.3	Weighted Average
0.179		40.50% Pervious Area
0.263		59.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 6S: Post Developed Pond Bypass

Runoff = 0.43 cfs @ 12.12 hrs, Volume= 0.023 af, Depth> 1.92"
Routed to Reach 2R : South Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
0.043	98.0	Paved parking, HSG C
0.100	79.0	50-75% Grass cover, Fair, HSG C
0.143	84.7	Weighted Average
0.100		69.93% Pervious Area
0.043		30.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 7S: Offsite to Culvert

Runoff = 6.23 cfs @ 12.44 hrs, Volume= 0.628 af, Depth> 1.36"
Routed to Reach C-1 : 24" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.56"

Area (ac)	CN	Description
5.563	77.0	2 acre lots, 12% imp, HSG C
4.895		88.00% Pervious Area
0.668		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	175	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
15.2	1,300	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
29.7	1,475	Total			

Summary for Reach 1R: North Total Post Developed

Inflow Area = 2.361 ac, 27.57% Impervious, Inflow Depth > 1.90" for 2-Year event
Inflow = 3.38 cfs @ 12.21 hrs, Volume= 0.374 af
Outflow = 3.38 cfs @ 12.21 hrs, Volume= 0.374 af, Atten= 0%, Lag= 0.0 min
Routed to Reach C-1 : 24" Culvert

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: South Total Post Developed

Inflow Area = 0.585 ac, 52.31% Impervious, Inflow Depth > 2.28" for 2-Year event
Inflow = 1.01 cfs @ 12.14 hrs, Volume= 0.111 af
Outflow = 1.01 cfs @ 12.14 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach C-1: 24" Culvert

Inflow Area = 7.924 ac, 16.64% Impervious, Inflow Depth > 1.52" for 2-Year event
Inflow = 8.59 cfs @ 12.40 hrs, Volume= 1.002 af
Outflow = 8.58 cfs @ 12.41 hrs, Volume= 1.002 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.11 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.93 fps, Avg. Travel Time= 0.2 min

Peak Storage= 36 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.82' , Surface Width= 1.97'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 717.90', Outlet Invert= 717.60'



Summary for Pond 1P: North Detention Pond

Inflow Area = 1.479 ac, 44.02% Impervious, Inflow Depth > 2.14" for 2-Year event
Inflow = 4.91 cfs @ 12.12 hrs, Volume= 0.264 af
Outflow = 1.74 cfs @ 12.28 hrs, Volume= 0.264 af, Atten= 65%, Lag= 10.0 min
Primary = 1.74 cfs @ 12.28 hrs, Volume= 0.264 af
Routed to Reach 1R : North Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 716.61' @ 12.28 hrs Surf.Area= 4,929 sf Storage= 2,821 cf

Plug-Flow detention time= 14.7 min calculated for 0.264 af (100% of inflow)
Center-of-Mass det. time= 14.3 min (788.1 - 773.9)

Volume	Invert	Avail.Storage	Storage Description
#1	715.40'	16,571 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
715.40	16	16.0	0	0	16
716.00	2,620	209.0	568	568	3,472
717.00	6,815	331.0	4,554	5,122	8,722
718.00	7,900	393.0	7,351	12,472	12,312
718.50	8,496	403.0	4,098	16,571	12,976

Device	Routing	Invert	Outlet Devices
#1	Primary	715.40'	**15.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 715.40' / 715.28' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	715.40'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	716.50'	**1.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.73 cfs @ 12.28 hrs HW=716.61' (Free Discharge)
↑**1=Culvert** (Passes 1.73 cfs of 3.60 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 1.57 cfs @ 4.50 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.16 cfs @ 1.06 fps)

Summary for Pond 2P: South Detention Pond

Inflow Area = 0.442 ac, 59.50% Impervious, Inflow Depth > 2.40" for 2-Year event
Inflow = 1.61 cfs @ 12.11 hrs, Volume= 0.088 af
Outflow = 0.65 cfs @ 12.25 hrs, Volume= 0.088 af, Atten= 59%, Lag= 8.5 min
Primary = 0.65 cfs @ 12.25 hrs, Volume= 0.088 af
Routed to Reach 2R : South Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 722.22' @ 12.25 hrs Surf.Area= 2,102 sf Storage= 803 cf

Plug-Flow detention time= 10.4 min calculated for 0.088 af (100% of inflow)

Center-of-Mass det. time= 10.0 min (775.6 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1	721.50'	5,841 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
721.50	16	16.0	0	0	16
722.00	1,920	167.0	352	352	2,215
723.00	2,795	225.3	2,344	2,696	4,046
724.00	3,509	254.0	3,145	5,841	5,167

Device	Routing	Invert	Outlet Devices
#1	Primary	721.50'	**12.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 721.50' / 721.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	721.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	722.50'	**1.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.65 cfs @ 12.25 hrs HW=722.22' (Free Discharge)
↑└─**1=Culvert** (Passes 0.65 cfs of 1.42 cfs potential flow)
  ↑├─**2=Orifice/Grate** (Orifice Controls 0.65 cfs @ 3.31 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 3S: Post Basin to North Pond

Runoff = 6.40 cfs @ 12.11 hrs, Volume= 0.349 af, Depth> 2.83"
Routed to Pond 1P : North Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
0.578	98.0	Paved parking, HSG B
0.073	98.0	Roofs, HSG B
0.828	79.0	50-75% Grass cover, Fair, HSG C
1.479	87.4	Weighted Average
0.828		55.98% Pervious Area
0.651		44.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Post North Pond Bypass

Runoff = 2.40 cfs @ 12.19 hrs, Volume= 0.154 af, Depth> 2.10"
Routed to Reach 1R : North Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
0.882	79.0	50-75% Grass cover, Fair, HSG C
0.882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1					**Direct Entry,**

Summary for Subcatchment 5S: Post Basin to South Pond

Runoff = 2.05 cfs @ 12.11 hrs, Volume= 0.115 af, Depth> 3.11"
Routed to Pond 2P : South Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
0.226	98.0	Paved parking, HSG B
0.037	98.0	Roofs, HSG B
0.179	79.0	50-75% Grass cover, Fair, HSG C
0.442	90.3	Weighted Average
0.179		40.50% Pervious Area
0.263		59.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 6S: Post Developed Pond Bypass

Runoff = 0.57 cfs @ 12.12 hrs, Volume= 0.031 af, Depth> 2.59"
Routed to Reach 2R : South Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
0.043	98.0	Paved parking, HSG C
0.100	79.0	50-75% Grass cover, Fair, HSG C
0.143	84.7	Weighted Average
0.100		69.93% Pervious Area
0.043		30.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 7S: Offsite to Culvert

Runoff = 8.93 cfs @ 12.43 hrs, Volume= 0.896 af, Depth> 1.93"
Routed to Reach C-1 : 24" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.35"

Area (ac)	CN	Description
5.563	77.0	2 acre lots, 12% imp, HSG C
4.895		88.00% Pervious Area
0.668		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	175	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
15.2	1,300	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
29.7	1,475	Total			

Summary for Reach 1R: North Total Post Developed

Inflow Area = 2.361 ac, 27.57% Impervious, Inflow Depth > 2.56" for 5-Year event
Inflow = 4.81 cfs @ 12.21 hrs, Volume= 0.503 af
Outflow = 4.81 cfs @ 12.21 hrs, Volume= 0.503 af, Atten= 0%, Lag= 0.0 min
Routed to Reach C-1 : 24" Culvert

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: South Total Post Developed

Inflow Area = 0.585 ac, 52.31% Impervious, Inflow Depth > 2.98" for 5-Year event
Inflow = 1.24 cfs @ 12.13 hrs, Volume= 0.145 af
Outflow = 1.24 cfs @ 12.13 hrs, Volume= 0.145 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach C-1: 24" Culvert

Inflow Area = 7.924 ac, 16.64% Impervious, Inflow Depth > 2.12" for 5-Year event
Inflow = 12.21 cfs @ 12.39 hrs, Volume= 1.399 af
Outflow = 12.21 cfs @ 12.39 hrs, Volume= 1.399 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.79 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.11 fps, Avg. Travel Time= 0.2 min

Peak Storage= 47 cf @ 12.39 hrs
Average Depth at Peak Storage= 1.00' , Surface Width= 2.00'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 717.90', Outlet Invert= 717.60'



Summary for Pond 1P: North Detention Pond

Inflow Area = 1.479 ac, 44.02% Impervious, Inflow Depth > 2.83" for 5-Year event
Inflow = 6.40 cfs @ 12.11 hrs, Volume= 0.349 af
Outflow = 2.49 cfs @ 12.26 hrs, Volume= 0.349 af, Atten= 61%, Lag= 8.9 min
Primary = 2.49 cfs @ 12.26 hrs, Volume= 0.349 af
Routed to Reach 1R : North Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 716.80' @ 12.26 hrs Surf.Area= 5,802 sf Storage= 3,839 cf

Plug-Flow detention time= 16.2 min calculated for 0.348 af (100% of inflow)
Center-of-Mass det. time= 15.7 min (783.9 - 768.2)

Volume	Invert	Avail.Storage	Storage Description
#1	715.40'	16,571 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
715.40	16	16.0	0	0	16
716.00	2,620	209.0	568	568	3,472
717.00	6,815	331.0	4,554	5,122	8,722
718.00	7,900	393.0	7,351	12,472	12,312
718.50	8,496	403.0	4,098	16,571	12,976

Device	Routing	Invert	Outlet Devices
#1	Primary	715.40'	**15.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 715.40' / 715.28' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	715.40'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	716.50'	**1.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.48 cfs @ 12.26 hrs HW=716.79' (Free Discharge)
↑—**1=Culvert** (Passes 2.48 cfs of 4.39 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 1.73 cfs @ 4.96 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.75 cfs @ 1.77 fps)

Summary for Pond 2P: South Detention Pond

Inflow Area = 0.442 ac, 59.50% Impervious, Inflow Depth > 3.11" for 5-Year event
Inflow = 2.05 cfs @ 12.11 hrs, Volume= 0.115 af
Outflow = 0.75 cfs @ 12.27 hrs, Volume= 0.115 af, Atten= 63%, Lag= 9.4 min
Primary = 0.75 cfs @ 12.27 hrs, Volume= 0.115 af
Routed to Reach 2R : South Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 722.38' @ 12.27 hrs Surf.Area= 2,233 sf Storage= 1,139 cf

Plug-Flow detention time= 12.7 min calculated for 0.114 af (100% of inflow)

Center-of-Mass det. time= 12.2 min (772.5 - 760.2)

Volume	Invert	Avail.Storage	Storage Description
#1	721.50'	5,841 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
721.50	16	16.0	0	0	16
722.00	1,920	167.0	352	352	2,215
723.00	2,795	225.3	2,344	2,696	4,046
724.00	3,509	254.0	3,145	5,841	5,167

Device	Routing	Invert	Outlet Devices
#1	Primary	721.50'	**12.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 721.50' / 721.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	721.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	722.50'	**1.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.75 cfs @ 12.27 hrs HW=722.38' (Free Discharge)
└─**1=Culvert** (Passes 0.75 cfs of 1.91 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.75 cfs @ 3.81 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 3S: Post Basin to North Pond

Runoff = 7.61 cfs @ 12.11 hrs, Volume= 0.420 af, Depth> 3.41"
Routed to Pond 1P : North Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
0.578	98.0	Paved parking, HSG B
0.073	98.0	Roofs, HSG B
0.828	79.0	50-75% Grass cover, Fair, HSG C
1.479	87.4	Weighted Average
0.828		55.98% Pervious Area
0.651		44.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Post North Pond Bypass

Runoff = 2.97 cfs @ 12.19 hrs, Volume= 0.192 af, Depth> 2.61"
Routed to Reach 1R : North Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
0.882	79.0	50-75% Grass cover, Fair, HSG C
0.882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1					**Direct Entry,**

Summary for Subcatchment 5S: Post Basin to South Pond

Runoff = 2.41 cfs @ 12.11 hrs, Volume= 0.136 af, Depth> 3.70"
Routed to Pond 2P : South Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
0.226	98.0	Paved parking, HSG B
0.037	98.0	Roofs, HSG B
0.179	79.0	50-75% Grass cover, Fair, HSG C
0.442	90.3	Weighted Average
0.179		40.50% Pervious Area
0.263		59.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 6S: Post Developed Pond Bypass

Runoff = 0.69 cfs @ 12.11 hrs, Volume= 0.037 af, Depth> 3.14"
Routed to Reach 2R : South Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
0.043	98.0	Paved parking, HSG C
0.100	79.0	50-75% Grass cover, Fair, HSG C
0.143	84.7	Weighted Average
0.100		69.93% Pervious Area
0.043		30.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 7S: Offsite to Culvert

Runoff = 11.22 cfs @ 12.43 hrs, Volume= 1.125 af, Depth> 2.43"
Routed to Reach C-1 : 24" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=4.99"

Area (ac)	CN	Description
5.563	77.0	2 acre lots, 12% imp, HSG C
4.895		88.00% Pervious Area
0.668		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	175	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
15.2	1,300	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
29.7	1,475	Total			

Summary for Reach 1R: North Total Post Developed

Inflow Area = 2.361 ac, 27.57% Impervious, Inflow Depth > 3.11" for 10-Year event
Inflow = 6.02 cfs @ 12.21 hrs, Volume= 0.612 af
Outflow = 6.02 cfs @ 12.21 hrs, Volume= 0.612 af, Atten= 0%, Lag= 0.0 min
Routed to Reach C-1 : 24" Culvert

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: South Total Post Developed

Inflow Area = 0.585 ac, 52.31% Impervious, Inflow Depth > 3.56" for 10-Year event
Inflow = 1.41 cfs @ 12.13 hrs, Volume= 0.174 af
Outflow = 1.41 cfs @ 12.13 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach C-1: 24" Culvert

Inflow Area = 7.924 ac, 16.64% Impervious, Inflow Depth > 2.63" for 10-Year event
Inflow = 15.28 cfs @ 12.39 hrs, Volume= 1.737 af
Outflow = 15.28 cfs @ 12.39 hrs, Volume= 1.737 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.22 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.24 fps, Avg. Travel Time= 0.2 min

Peak Storage= 56 cf @ 12.39 hrs
Average Depth at Peak Storage= 1.14' , Surface Width= 1.98'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 717.90', Outlet Invert= 717.60'



Summary for Pond 1P: North Detention Pond

Inflow Area = 1.479 ac, 44.02% Impervious, Inflow Depth > 3.41" for 10-Year event
Inflow = 7.61 cfs @ 12.11 hrs, Volume= 0.420 af
Outflow = 3.13 cfs @ 12.25 hrs, Volume= 0.419 af, Atten= 59%, Lag= 8.4 min
Primary = 3.13 cfs @ 12.25 hrs, Volume= 0.419 af
Routed to Reach 1R : North Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 716.93' @ 12.25 hrs Surf.Area= 6,444 sf Storage= 4,641 cf

Plug-Flow detention time= 16.7 min calculated for 0.418 af (100% of inflow)
Center-of-Mass det. time= 16.3 min (780.7 - 764.5)

Volume	Invert	Avail.Storage	Storage Description
#1	715.40'	16,571 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
715.40	16	16.0	0	0	16
716.00	2,620	209.0	568	568	3,472
717.00	6,815	331.0	4,554	5,122	8,722
718.00	7,900	393.0	7,351	12,472	12,312
718.50	8,496	403.0	4,098	16,571	12,976

Device	Routing	Invert	Outlet Devices
#1	Primary	715.40'	**15.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 715.40' / 715.28' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	715.40'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	716.50'	**1.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.13 cfs @ 12.25 hrs HW=716.93' (Free Discharge)
└─**1=Culvert** (Passes 3.13 cfs of 4.87 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.84 cfs @ 5.26 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.29 cfs @ 2.14 fps)

Summary for Pond 2P: South Detention Pond

Inflow Area = 0.442 ac, 59.50% Impervious, Inflow Depth > 3.70" for 10-Year event
Inflow = 2.41 cfs @ 12.11 hrs, Volume= 0.136 af
Outflow = 0.83 cfs @ 12.28 hrs, Volume= 0.136 af, Atten= 66%, Lag= 10.3 min
Primary = 0.83 cfs @ 12.28 hrs, Volume= 0.136 af
Routed to Reach 2R : South Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 722.51' @ 12.28 hrs Surf.Area= 2,342 sf Storage= 1,427 cf

Plug-Flow detention time= 14.5 min calculated for 0.136 af (100% of inflow)

Center-of-Mass det. time= 14.0 min (770.8 - 756.8)

Volume	Invert	Avail.Storage	Storage Description
#1	721.50'	5,841 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
721.50	16	16.0	0	0	16
722.00	1,920	167.0	352	352	2,215
723.00	2,795	225.3	2,344	2,696	4,046
724.00	3,509	254.0	3,145	5,841	5,167

Device	Routing	Invert	Outlet Devices
#1	Primary	721.50'	**12.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 721.50' / 721.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	721.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	722.50'	**1.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.82 cfs @ 12.28 hrs HW=722.50' (Free Discharge)
└─**1=Culvert** (Passes 0.82 cfs of 2.31 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.82 cfs @ 4.18 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.20 fps)

Summary for Subcatchment 3S: Post Basin to North Pond

Runoff = 9.31 cfs @ 12.11 hrs, Volume= 0.521 af, Depth> 4.23"
Routed to Pond 1P : North Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
0.578	98.0	Paved parking, HSG B
0.073	98.0	Roofs, HSG B
0.828	79.0	50-75% Grass cover, Fair, HSG C
1.479	87.4	Weighted Average
0.828		55.98% Pervious Area
0.651		44.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Post North Pond Bypass

Runoff = 3.79 cfs @ 12.19 hrs, Volume= 0.247 af, Depth> 3.36"
Routed to Reach 1R : North Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
0.882	79.0	50-75% Grass cover, Fair, HSG C
0.882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1					**Direct Entry,**

Summary for Subcatchment 5S: Post Basin to South Pond

Runoff = 2.91 cfs @ 12.11 hrs, Volume= 0.167 af, Depth> 4.53"
Routed to Pond 2P : South Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
0.226	98.0	Paved parking, HSG B
0.037	98.0	Roofs, HSG B
0.179	79.0	50-75% Grass cover, Fair, HSG C
0.442	90.3	Weighted Average
0.179		40.50% Pervious Area
0.263		59.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 6S: Post Developed Pond Bypass

Runoff = 0.86 cfs @ 12.11 hrs, Volume= 0.047 af, Depth> 3.94"
Routed to Reach 2R : South Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
0.043	98.0	Paved parking, HSG C
0.100	79.0	50-75% Grass cover, Fair, HSG C
0.143	84.7	Weighted Average
0.100		69.93% Pervious Area
0.043		30.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 7S: Offsite to Culvert

Runoff = 14.55 cfs @ 12.42 hrs, Volume= 1.461 af, Depth> 3.15"
Routed to Reach C-1 : 24" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.89"

Area (ac)	CN	Description
5.563	77.0	2 acre lots, 12% imp, HSG C
4.895		88.00% Pervious Area
0.668		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	175	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
15.2	1,300	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
29.7	1,475	Total			

Summary for Reach 1R: North Total Post Developed

Inflow Area = 2.361 ac, 27.57% Impervious, Inflow Depth > 3.90" for 25-Year event
Inflow = 7.74 cfs @ 12.20 hrs, Volume= 0.768 af
Outflow = 7.74 cfs @ 12.20 hrs, Volume= 0.768 af, Atten= 0%, Lag= 0.0 min
Routed to Reach C-1 : 24" Culvert

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: South Total Post Developed

Inflow Area = 0.585 ac, 52.31% Impervious, Inflow Depth > 4.38" for 25-Year event
Inflow = 1.68 cfs @ 12.15 hrs, Volume= 0.214 af
Outflow = 1.68 cfs @ 12.15 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach C-1: 24" Culvert

Inflow Area = 7.924 ac, 16.64% Impervious, Inflow Depth > 3.38" for 25-Year event
Inflow = 19.70 cfs @ 12.38 hrs, Volume= 2.229 af
Outflow = 19.70 cfs @ 12.38 hrs, Volume= 2.229 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.45 fps, Avg. Travel Time= 0.1 min

Peak Storage= 68 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.36' , Surface Width= 1.87'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 717.90', Outlet Invert= 717.60'



Summary for Pond 1P: North Detention Pond

Inflow Area = 1.479 ac, 44.02% Impervious, Inflow Depth > 4.23" for 25-Year event
Inflow = 9.31 cfs @ 12.11 hrs, Volume= 0.521 af
Outflow = 4.03 cfs @ 12.24 hrs, Volume= 0.520 af, Atten= 57%, Lag= 7.8 min
Primary = 4.03 cfs @ 12.24 hrs, Volume= 0.520 af
Routed to Reach 1R : North Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 717.09' @ 12.24 hrs Surf.Area= 6,913 sf Storage= 5,763 cf

Plug-Flow detention time= 17.2 min calculated for 0.520 af (100% of inflow)
Center-of-Mass det. time= 16.8 min (776.8 - 760.0)

Volume	Invert	Avail.Storage	Storage Description
#1	715.40'	16,571 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
715.40	16	16.0	0	0	16
716.00	2,620	209.0	568	568	3,472
717.00	6,815	331.0	4,554	5,122	8,722
718.00	7,900	393.0	7,351	12,472	12,312
718.50	8,496	403.0	4,098	16,571	12,976

Device	Routing	Invert	Outlet Devices
#1	Primary	715.40'	**15.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 715.40' / 715.28' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	715.40'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	716.50'	**1.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.02 cfs @ 12.24 hrs HW=717.09' (Free Discharge)
↑└**1=Culvert** (Passes 4.02 cfs of 5.30 cfs potential flow)
↑ ├**2=Orifice/Grate** (Orifice Controls 1.96 cfs @ 5.61 fps)
 └**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.06 cfs @ 2.52 fps)

Summary for Pond 2P: South Detention Pond

Inflow Area = 0.442 ac, 59.50% Impervious, Inflow Depth > 4.53" for 25-Year event
Inflow = 2.91 cfs @ 12.11 hrs, Volume= 0.167 af
Outflow = 1.17 cfs @ 12.26 hrs, Volume= 0.167 af, Atten= 60%, Lag= 8.6 min
Primary = 1.17 cfs @ 12.26 hrs, Volume= 0.167 af
Routed to Reach 2R : South Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 722.65' @ 12.26 hrs Surf.Area= 2,468 sf Storage= 1,769 cf

Plug-Flow detention time= 15.5 min calculated for 0.166 af (100% of inflow)

Center-of-Mass det. time= 15.0 min (768.0 - 753.0)

Volume	Invert	Avail.Storage	Storage Description
#1	721.50'	5,841 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
721.50	16	16.0	0	0	16
722.00	1,920	167.0	352	352	2,215
723.00	2,795	225.3	2,344	2,696	4,046
724.00	3,509	254.0	3,145	5,841	5,167

Device	Routing	Invert	Outlet Devices
#1	Primary	721.50'	**12.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 721.50' / 721.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	721.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	722.50'	**1.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.16 cfs @ 12.26 hrs HW=722.65' (Free Discharge)
↑—**1=Culvert** (Passes 1.16 cfs of 2.68 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 0.90 cfs @ 4.56 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.27 cfs @ 1.25 fps)

Summary for Subcatchment 3S: Post Basin to North Pond

Runoff = 10.68 cfs @ 12.11 hrs, Volume= 0.603 af, Depth> 4.90"
Routed to Pond 1P : North Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
0.578	98.0	Paved parking, HSG B
0.073	98.0	Roofs, HSG B
0.828	79.0	50-75% Grass cover, Fair, HSG C
1.479	87.4	Weighted Average
0.828		55.98% Pervious Area
0.651		44.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Post North Pond Bypass

Runoff = 4.46 cfs @ 12.19 hrs, Volume= 0.293 af, Depth> 3.99"
Routed to Reach 1R : North Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
0.882	79.0	50-75% Grass cover, Fair, HSG C
0.882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1					**Direct Entry,**

Summary for Subcatchment 5S: Post Basin to South Pond

Runoff = 3.32 cfs @ 12.11 hrs, Volume= 0.192 af, Depth> 5.21"
Routed to Pond 2P : South Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
0.226	98.0	Paved parking, HSG B
0.037	98.0	Roofs, HSG B
0.179	79.0	50-75% Grass cover, Fair, HSG C
0.442	90.3	Weighted Average
0.179		40.50% Pervious Area
0.263		59.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 6S: Post Developed Pond Bypass

Runoff = 0.99 cfs @ 12.11 hrs, Volume= 0.055 af, Depth> 4.60"
Routed to Reach 2R : South Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
0.043	98.0	Paved parking, HSG C
0.100	79.0	50-75% Grass cover, Fair, HSG C
0.143	84.7	Weighted Average
0.100		69.93% Pervious Area
0.043		30.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 7S: Offsite to Culvert

Runoff = 17.29 cfs @ 12.42 hrs, Volume= 1.743 af, Depth> 3.76"
Routed to Reach C-1 : 24" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.62"

Area (ac)	CN	Description
5.563	77.0	2 acre lots, 12% imp, HSG C
4.895		88.00% Pervious Area
0.668		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	175	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
15.2	1,300	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
29.7	1,475	Total			

Summary for Reach 1R: North Total Post Developed

Inflow Area = 2.361 ac, 27.57% Impervious, Inflow Depth > 4.55" for 50-Year event
Inflow = 9.16 cfs @ 12.20 hrs, Volume= 0.896 af
Outflow = 9.16 cfs @ 12.20 hrs, Volume= 0.896 af, Atten= 0%, Lag= 0.0 min
Routed to Reach C-1 : 24" Culvert

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: South Total Post Developed

Inflow Area = 0.585 ac, 52.31% Impervious, Inflow Depth > 5.06" for 50-Year event
Inflow = 2.13 cfs @ 12.16 hrs, Volume= 0.247 af
Outflow = 2.13 cfs @ 12.16 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach C-1: 24" Culvert

Inflow Area = 7.924 ac, 16.64% Impervious, Inflow Depth > 4.00" for 50-Year event
Inflow = 23.35 cfs @ 12.38 hrs, Volume= 2.639 af
Outflow = 23.34 cfs @ 12.38 hrs, Volume= 2.639 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.88 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.66 fps, Avg. Travel Time= 0.1 min

Peak Storage= 79 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.56' , Surface Width= 1.66'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 717.90', Outlet Invert= 717.60'



Summary for Pond 1P: North Detention Pond

Inflow Area = 1.479 ac, 44.02% Impervious, Inflow Depth > 4.90" for 50-Year event
Inflow = 10.68 cfs @ 12.11 hrs, Volume= 0.603 af
Outflow = 4.77 cfs @ 12.24 hrs, Volume= 0.603 af, Atten= 55%, Lag= 7.4 min
Primary = 4.77 cfs @ 12.24 hrs, Volume= 0.603 af
Routed to Reach 1R : North Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 717.22' @ 12.24 hrs Surf.Area= 7,049 sf Storage= 6,660 cf

Plug-Flow detention time= 17.5 min calculated for 0.603 af (100% of inflow)
Center-of-Mass det. time= 17.0 min (774.1 - 757.1)

Volume	Invert	Avail.Storage	Storage Description
#1	715.40'	16,571 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
715.40	16	16.0	0	0	16
716.00	2,620	209.0	568	568	3,472
717.00	6,815	331.0	4,554	5,122	8,722
718.00	7,900	393.0	7,351	12,472	12,312
718.50	8,496	403.0	4,098	16,571	12,976

Device	Routing	Invert	Outlet Devices
#1	Primary	715.40'	**15.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 715.40' / 715.28' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	715.40'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	716.50'	**1.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.75 cfs @ 12.24 hrs HW=717.22' (Free Discharge)
↑—**1=Culvert** (Passes 4.75 cfs of 5.70 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 2.05 cfs @ 5.87 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.70 cfs @ 2.77 fps)

Summary for Pond 2P: South Detention Pond

Inflow Area = 0.442 ac, 59.50% Impervious, Inflow Depth > 5.21" for 50-Year event
Inflow = 3.32 cfs @ 12.11 hrs, Volume= 0.192 af
Outflow = 1.50 cfs @ 12.23 hrs, Volume= 0.192 af, Atten= 55%, Lag= 7.2 min
Primary = 1.50 cfs @ 12.23 hrs, Volume= 0.192 af
Routed to Reach 2R : South Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 722.74' @ 12.23 hrs Surf.Area= 2,553 sf Storage= 2,004 cf

Plug-Flow detention time= 15.6 min calculated for 0.192 af (100% of inflow)

Center-of-Mass det. time= 15.1 min (765.7 - 750.6)

Volume	Invert	Avail.Storage	Storage Description
#1	721.50'	5,841 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
721.50	16	16.0	0	0	16
722.00	1,920	167.0	352	352	2,215
723.00	2,795	225.3	2,344	2,696	4,046
724.00	3,509	254.0	3,145	5,841	5,167

Device	Routing	Invert	Outlet Devices
#1	Primary	721.50'	**12.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 721.50' / 721.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	721.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	722.50'	**1.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.49 cfs @ 12.23 hrs HW=722.74' (Free Discharge)
└─**1=Culvert** (Passes 1.49 cfs of 2.87 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.94 cfs @ 4.79 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.55 cfs @ 1.60 fps)

Summary for Subcatchment 3S: Post Basin to North Pond

Runoff = 12.11 cfs @ 12.11 hrs, Volume= 0.690 af, Depth> 5.60"
Routed to Pond 1P : North Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
0.578	98.0	Paved parking, HSG B
0.073	98.0	Roofs, HSG B
0.828	79.0	50-75% Grass cover, Fair, HSG C
1.479	87.4	Weighted Average
0.828		55.98% Pervious Area
0.651		44.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: Post North Pond Bypass

Runoff = 5.16 cfs @ 12.19 hrs, Volume= 0.342 af, Depth> 4.65"
Routed to Reach 1R : North Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
0.882	79.0	50-75% Grass cover, Fair, HSG C
0.882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1					**Direct Entry,**

Summary for Subcatchment 5S: Post Basin to South Pond

Runoff = 3.74 cfs @ 12.11 hrs, Volume= 0.218 af, Depth> 5.91"
Routed to Pond 2P : South Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
0.226	98.0	Paved parking, HSG B
0.037	98.0	Roofs, HSG B
0.179	79.0	50-75% Grass cover, Fair, HSG C
0.442	90.3	Weighted Average
0.179		40.50% Pervious Area
0.263		59.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 6S: Post Developed Pond Bypass

Runoff = 1.13 cfs @ 12.11 hrs, Volume= 0.063 af, Depth> 5.29"
Routed to Reach 2R : South Total Post Developed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
0.043	98.0	Paved parking, HSG C
0.100	79.0	50-75% Grass cover, Fair, HSG C
0.143	84.7	Weighted Average
0.100		69.93% Pervious Area
0.043		30.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 7S: Offsite to Culvert

Runoff = 20.18 cfs @ 12.42 hrs, Volume= 2.043 af, Depth> 4.41"
Routed to Reach C-1 : 24" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.38"

Area (ac)	CN	Description
5.563	77.0	2 acre lots, 12% imp, HSG C
4.895		88.00% Pervious Area
0.668		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	175	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
15.2	1,300	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
29.7	1,475	Total			

Summary for Reach 1R: North Total Post Developed

Inflow Area = 2.361 ac, 27.57% Impervious, Inflow Depth > 5.24" for 100-Year event
Inflow = 10.65 cfs @ 12.20 hrs, Volume= 1.031 af
Outflow = 10.65 cfs @ 12.20 hrs, Volume= 1.031 af, Atten= 0%, Lag= 0.0 min
Routed to Reach C-1 : 24" Culvert

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: South Total Post Developed

Inflow Area = 0.585 ac, 52.31% Impervious, Inflow Depth > 5.76" for 100-Year event
Inflow = 2.64 cfs @ 12.16 hrs, Volume= 0.281 af
Outflow = 2.64 cfs @ 12.16 hrs, Volume= 0.281 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach C-1: 24" Culvert

Inflow Area = 7.924 ac, 16.64% Impervious, Inflow Depth > 4.66" for 100-Year event
Inflow = 27.18 cfs @ 12.37 hrs, Volume= 3.074 af
Outflow = 26.27 cfs @ 12.30 hrs, Volume= 3.074 af, Atten= 3%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.88 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.84 fps, Avg. Travel Time= 0.1 min

Peak Storage= 94 cf @ 12.35 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.51 cfs

24.0" Round Pipe
n= 0.012
Length= 30.0' Slope= 0.0100 '/'
Inlet Invert= 717.90', Outlet Invert= 717.60'



Summary for Pond 1P: North Detention Pond

Inflow Area = 1.479 ac, 44.02% Impervious, Inflow Depth > 5.60" for 100-Year event
Inflow = 12.11 cfs @ 12.11 hrs, Volume= 0.690 af
Outflow = 5.55 cfs @ 12.23 hrs, Volume= 0.689 af, Atten= 54%, Lag= 7.0 min
Primary = 5.55 cfs @ 12.23 hrs, Volume= 0.689 af
Routed to Reach 1R : North Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 717.35' @ 12.23 hrs Surf.Area= 7,187 sf Storage= 7,581 cf

Plug-Flow detention time= 17.7 min calculated for 0.689 af (100% of inflow)
Center-of-Mass det. time= 17.2 min (771.8 - 754.5)

Volume	Invert	Avail.Storage	Storage Description
#1	715.40'	16,571 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
715.40	16	16.0	0	0	16
716.00	2,620	209.0	568	568	3,472
717.00	6,815	331.0	4,554	5,122	8,722
718.00	7,900	393.0	7,351	12,472	12,312
718.50	8,496	403.0	4,098	16,571	12,976

Device	Routing	Invert	Outlet Devices
#1	Primary	715.40'	**15.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 715.40' / 715.28' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	715.40'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	716.50'	**1.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.53 cfs @ 12.23 hrs HW=717.35' (Free Discharge)
↑**1=Culvert** (Passes 5.53 cfs of 6.00 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 2.14 cfs @ 6.12 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 3.39 cfs @ 3.01 fps)

Summary for Pond 2P: South Detention Pond

Inflow Area = 0.442 ac, 59.50% Impervious, Inflow Depth > 5.91" for 100-Year event
Inflow = 3.74 cfs @ 12.11 hrs, Volume= 0.218 af
Outflow = 1.89 cfs @ 12.22 hrs, Volume= 0.218 af, Atten= 49%, Lag= 6.5 min
Primary = 1.89 cfs @ 12.22 hrs, Volume= 0.218 af
Routed to Reach 2R : South Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 722.84' @ 12.22 hrs Surf.Area= 2,639 sf Storage= 2,248 cf

Plug-Flow detention time= 15.6 min calculated for 0.217 af (100% of inflow)

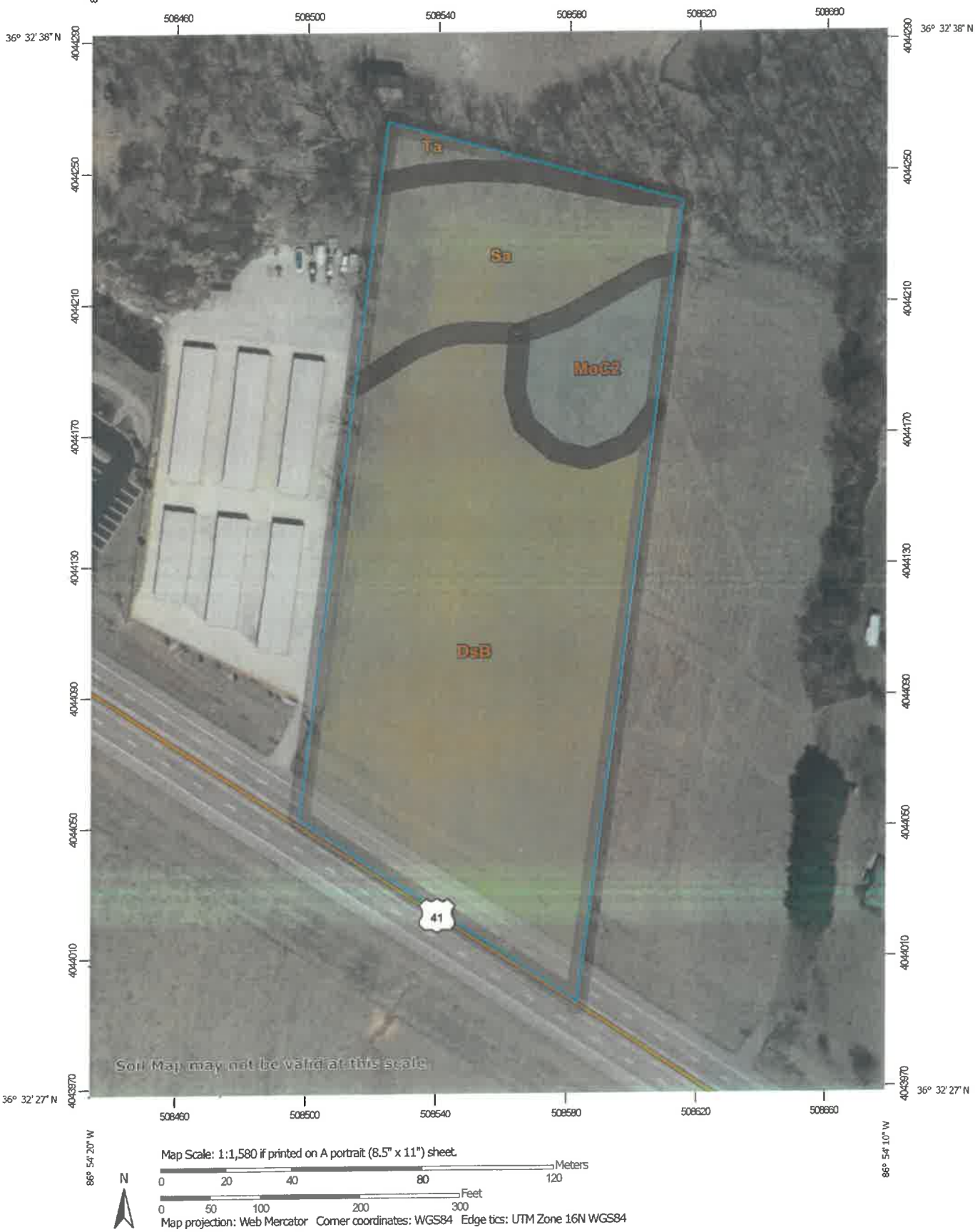
Center-of-Mass det. time= 15.1 min (763.6 - 748.5)

Volume	Invert	Avail.Storage	Storage Description
#1	721.50'	5,841 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
721.50	16	16.0	0	0	16
722.00	1,920	167.0	352	352	2,215
723.00	2,795	225.3	2,344	2,696	4,046
724.00	3,509	254.0	3,145	5,841	5,167

Device	Routing	Invert	Outlet Devices
#1	Primary	721.50'	**12.0" Round Culvert** L= 12.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 721.50' / 721.35' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	721.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	722.50'	**1.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.85 cfs @ 12.22 hrs HW=722.83' (Free Discharge)
└─**1=Culvert** (Passes 1.85 cfs of 3.03 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.98 cfs @ 5.00 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.87 cfs @ 1.87 fps)



Map Scale: 1:1,580 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Robertson County, Tennessee
Survey Area Data: Version 22, Sep 12, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 21, 2021—Mar 30, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DsB	Dickson silt loam, 2 to 5 percent slopes	C/D	3.7	69.2%
MoC2	Mountview silt loam, 5 to 12 percent slopes	C	0.5	9.1%
Sa	Sango silt loam, 0 to 2 percent slopes	C/D	1.0	19.0%
Ta	Taft silt loam, 0 to 2 percent slopes	C/D	0.1	2.7%
Totals for Area of Interest			**5.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher