MEMORANDUM

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

TO: Planning Commission Members
FROM: Planning Staff
DATE: June 20, 2024

The Robertson County Planning Commission will hold its monthly meeting on **Thursday June 27, 2024, at 7:00 P. M.** on the 2nd Floor, Judicial Complex, Robertson County Office Building. Chief Deputy Planner, 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 July 15, 2024.

4. Approval of Minutes: Approval of Minutes from May 23, 2024, meeting.

5. Old Business: None

6. New Business:

   A. **Eddie Smith:** Rezone Request for 2.51 acres of property located on Hwy 31W, Cottontown. Tax Map 096, Parcel 074.06 from RP-80 to C-1 (2nd Voting District). Represented by Josh Lyon, Klober Engineering Services.

   B. **Jorge Madrid:** Final Site Plan for Cumberland Welding Fabrication, LLC, located on Tom Austin Hwy, Springfield. Tax Map 113, Parcel 021.02 (10th Voting District). Represented by Josh Lyon, Klober Engineering Services.

   C. **Mac E Baggett, Sr.**: Preliminary Plat approval for Northwind Estates located on Hwy 41 N, Cedar Hill. Tax Map 055, Parcel 070 (7th Voting District). Represented by Steve Artz, Steve Artz & Associates, Inc.

7. Reports from Staff: Commissioner Gina Head-Hieber would like to address the PC.

8. Adjourn

The Robertson County Planning Commission met on May 23, 2024 at 7:00 p.m. in the Judicial Complex, Second Floor, Robertson County Office Building, Springfield, Tennessee.

Roll Call:

MEMBERS PRESENT:	MEMBERS ABSENT:	OTHERS PRESENT:
Bill Jones	Jeremiah Pierce	Hunter Mantooth
Daniel Borthick	Jeremy Stinson	Jordan Biggs
Charles "Gene" Federman	William B Henry	David Fauth - Planner
Keith Hoover		
Cheryl Elliott		
Allan Heard		

Meeting was called to order by Chairman, Bill Jones at 7:01 pm.

Roll Call was completed by Hunter Mantooth. All present but Jeremiah Pierce, William B Henry, and Jeremy Stinson.

Announcements: Chairman Bill Jones announced that the zoning from this agenda will be heard at the County Commission on June 17, 2024. Any citizens wishing to speak for or against any items on the agenda will need to sign in on the sheet provided. Two signed in to speak.

Motion to approve Minutes from previous meeting of April 25, 2024, made by Danny Borthick with a second by Cheryl Elliott.
Motion passed unanimously 6-0.

1. Old Business: None

2. New Business:

   A. **Robin and Brenda Daniels:** Rezone Request for 2.28 acres of property located at 6514 Ed Williams Rd., Greenbrier. Tax Map 125, Parcel 132.00 from AG-2 to R-40 (4th Voting District). Represented by Brandon Frank, Brandon Frank Construction, LLC.
   Brandon Frank was there to present, and a question was asked about the road frontage.

   Motion to recommend was made by Keith Hoover with a second from Gene Federman.
   Motion passed unanimously 6 - 0.

   B. **Brittney Graves:** Rezone Request for 5.16 acres of property located at 2030 Friendship Rd., Cross Plains. Tax Map 049, Parcel 098.00 from AG-2 to R-40 (1st Voting District). Represented by Steve Artz, Steven Artz & Associates, Inc.
   Steve Artz was there to represent, and a couple of questions were asked about property and if we knew why it was turned down at county commission in January.

   Motion to recommend was made by Allan Heard with a second from Danny Borthick.
   Motion passed unanimously 6 - 0.

C. **John Hallmark:** Rezone Request for 1.87 acres of the 6.53 acres of property located at 3943 Fykes Grove Rd., Cedar Hill. Tax Map 056, Part of Parcel 133.00 from AG-2 to RP-80 (7th Voting District). Represented by Steven Artz, Steve Artz & Associates, Inc.
Steve Artz was there to represent. Danny Odom has signed up to speak, however chose not to speak.

Motion to recommend was made by Gene Federman with a second from Cheryl Elliott. Motion passed unanimously 6 - 0.

D. **Joseph and Julie Russel:** Rezone Request for 1.84 acres of the 5.29 acres of property located at 3984 Carr Rd., Adams. Tax Map 077, Part of Parcel 002.00 from AG-2 to RP-80 (7th Voting District). Represented by Steve Artz, Steven Artz & Associates, Inc.
Steve Artz was there to represent, and a question was asked if they would be building on the left-over acreage and Steve advised they were adding the left-over acreage to the farm it adjoined and would eventually build across the street on the 50+ acres.

Motion to recommend was made by Danny Borthick with a second from Keith Hoover. Motion passed unanimously 6 - 0.

E. **David Sircy:** Rezone Request for 6.13 acres of property located at 2518 Union Rd., White House. Tax Map 117, Parcels 177.00 and 191.00 from AG-2 to RP-80 (2nd Voting District). Represented by Steve Artz, Steven Artz & Associates, Inc.
Steve Artz was there to represent, and a question was about where the driveway would be, and Steve informed them it would come off Union Rd. and they had already spoken to the highway dept. Mr. Sircy signed up to speak, but let Steve do the talking.

Motion to recommend was made by Keith Hoover with a second from Allan Heard. Motion passed 5 - 0. - Bill Jones abstained since he adjoins the property.

** Steve Artz asked to address the commission about the turn around time from application to meeting time to County Commission .... Bill Jones said they would discuss it **

Reports from Staff: None

A motion to adjourn made by Daniel Borthick with a second by Keith Hoover
Motion passed unanimously 6-0 and the meeting was adjourned at 7:17 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: Eddie Smith
Mailing Address (No P.O. Boxes, please): 1436 Latimer Ln., Hendersonville, TN 37075
Email: resinvest@yahoo.com
Telephone Number: (615) 504-2368

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

Property Information:
Address: ~~4833~~ Hwy 31W, Cottontown, TN 37048
Tax Map and Parcel Number: ~~Map 085, Parcel 074.00~~ (Lot 6) Map 096 Parcel 074.06
Current Zoning Designation: RP-80
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:
Rezone to C-1 to develop self-storage facility at property.

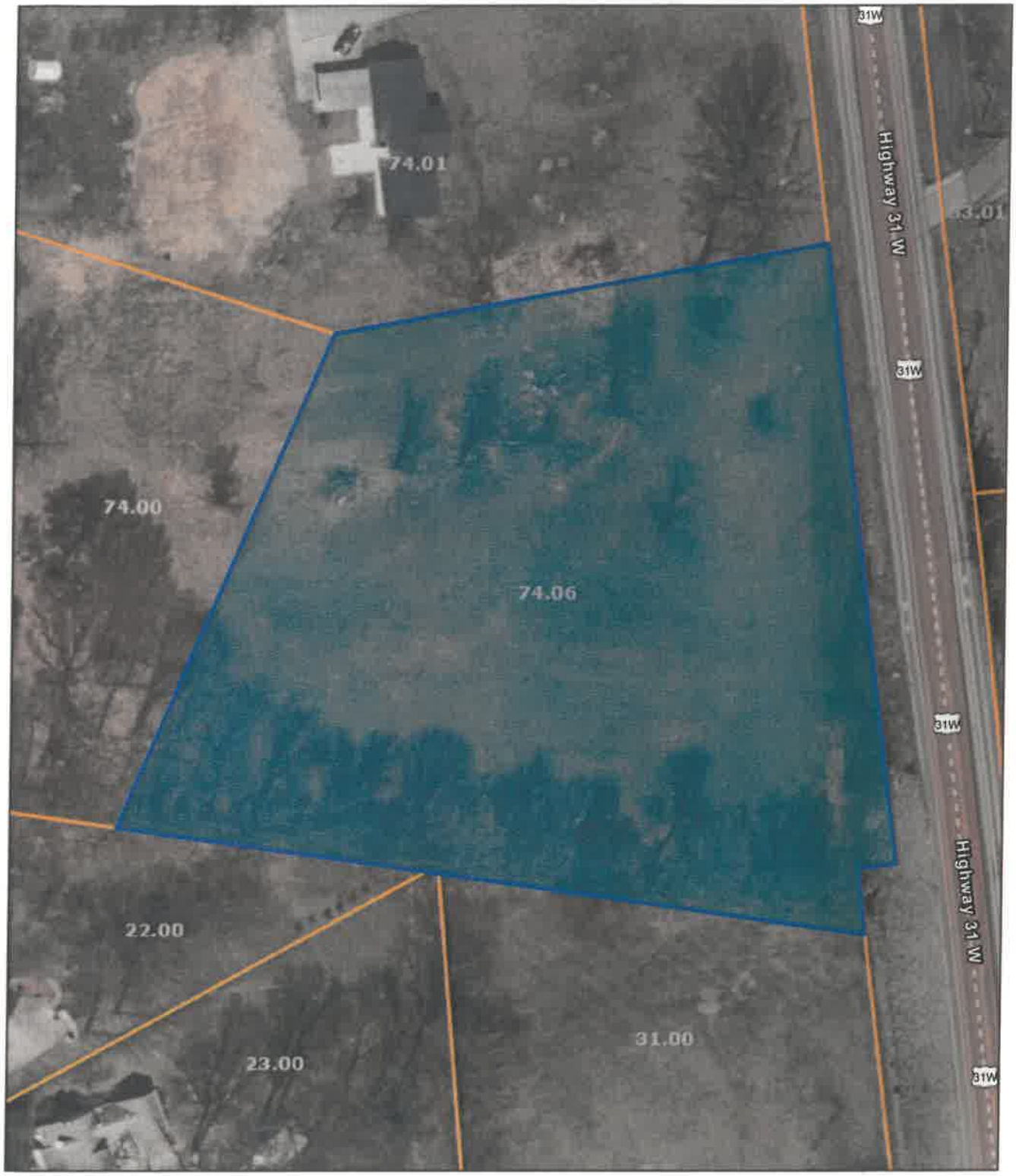
SUBMITTAL REVIEW PROCEDURE:

1. Deliver one (1) copies 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. Pay the review fee.
5. Email a .PDF of the application & supporting materials (items 1-3) to hmantooth@robcotn.org
6. 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.**

Roy E Smith 5/8/24
Owner of Record Signature & DATE

Roy E Smith 5/8/24
Applicant's Signature & DATE

Robertson County - Parcel: 096 074.06



Date: June 10, 2024

County: Robertson
Owner: SMITH ROY EDWARD
Address: HWY 31W
Parcel Number: 096 074.06
Deeded Acreage: 2.51
Calculated Acreage: 0
Date of TDOT Imagery: 2021
Date of Vexcel Imagery: 2023

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

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

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
Roy Edward Smith

11th CMI District
Robertson County, Tennessee

No. Y2002125
Date 9/14/23
By SEA
CAD File No. Y2002125
Coord File No. Y200212E

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

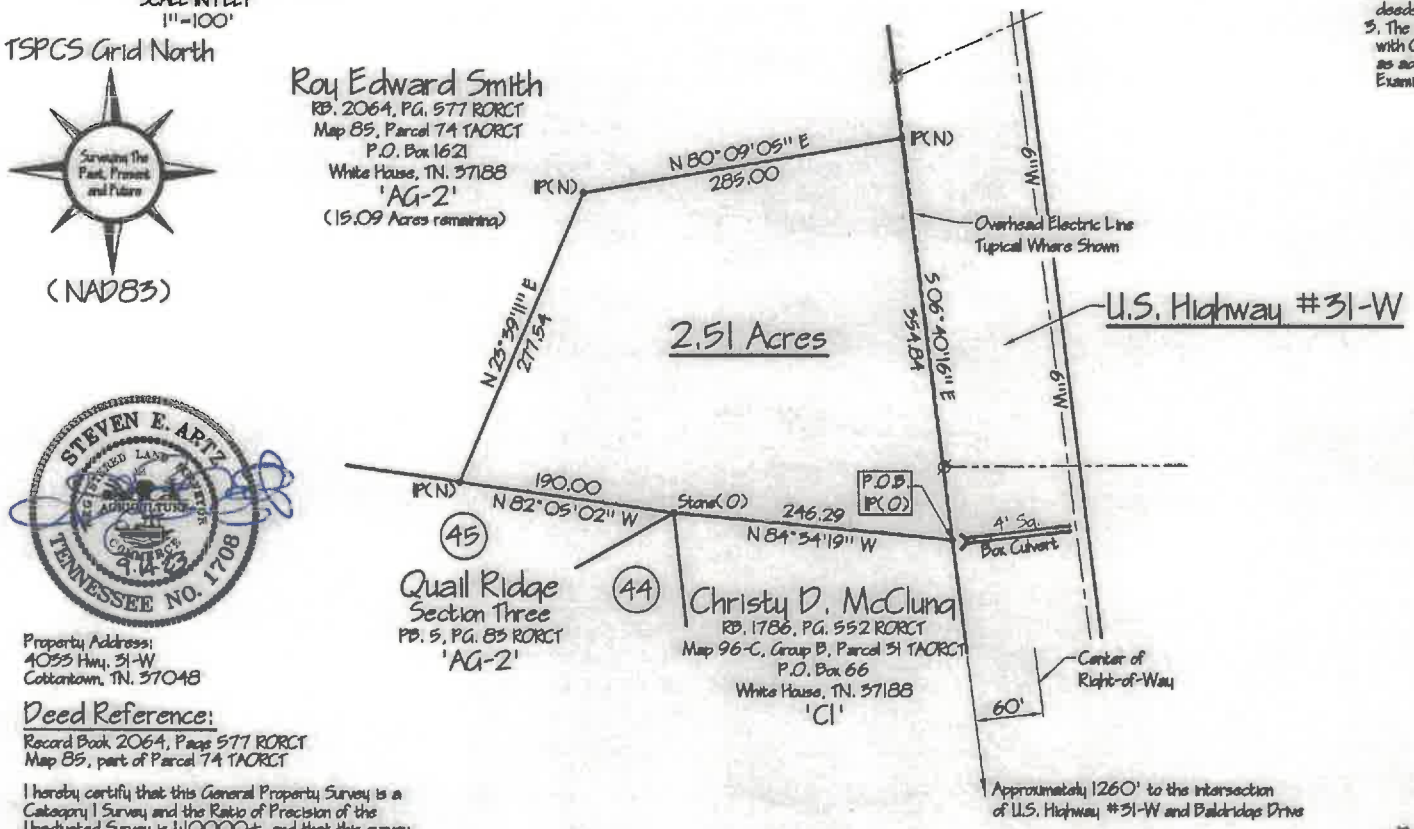
TSPCS Grid North

Surveying The Past, Present and Future

(NAD83)

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.

Legend
Legend
P.O.B. Point of Beginning
IP(N) Iron Pin (New)
IP(O) Iron Pin (Old)
ø Power Pole



STEVEN E. ARTZ
REGISTERED LAND SURVEYOR
TENNESSEE NO. 1708
9.14.23

Property Address:
4033 Hwy. 31-W
Cottontown, TN. 37048

Deed Reference:

Record Book 2064, Page 577 RORCT
Map 85, part of Parcel 74 TAORCT

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.

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

Roy Edward Smith
Owner
P.O. Box 1621
White House, TN. 37188
(615) 504-2568

Present Zoning Classification-'RP80'
Proposed Zoning Classification-'CI'



KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3666 TOM AUSTIN HWY. SUITE 1, SPRINGFIELD, TN 37172
PHONE: (615) 383-2000 FAX: (866) 373-4486
www.kloberemg.com

HIGHWAY 31-W MINI STORAGE

HIGHWAY 31-W
WHITE HOUSE, TENNESSEE
ROBERTSON COUNTY

CONCEPTUAL LAYOUT

OWNER/DEVELOPER:
ROY LEMMO SMITH
P.O. BOX 1621
WHITE HOUSE, TN. 37188

PARCEL DATA:
MAP: 85 PARCEL: 14 LOT & TRACT
BK. 2064 PG. 577 ROMCT

ZONING:
EXISTING ZONING – RP80
PROPOSED ZONING – C-1

LOT COVERAGE:
TOTAL SITE AREA = 808,344 S.F., 7.51 ACRES
NEW BUILDING AREA = 24,900 S.F.
BUILDING COVERAGE = 22.8%
MAX BUILDING HEIGHT: 35'-0"
PROPOSED ASPHALT SURFACE: 254,977 S.F.
IMPERVIOUS AREA: ±79,027 S.F. = 73.0%

REVISIONS			
NO	BY	DATE	DESCRIPTION

N
W E
S

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.

Robertson County Development Office
Agenda Review Sheet
Planning Commission Meeting
June 27, 2024

Applicant: Eddie Smith
Surveyor: Josh Lyon

Request: Rezone **2.51 *acres***
Tax Map 096, Parcel 074.06
from RP-80 – C-1



Figure 1: TN Property Viewer, Tax Map 096. Parcel 074.06 In entirety Is highlighted.

Property Information:

- Tax Map 096, Parcel 074.06
- Hwy 31W, Cottontown
- Total lot acreage: 2.51 (109,335.60 sq. ft.)
- **Rezone Request: 2.51 acres (109,335.60 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:

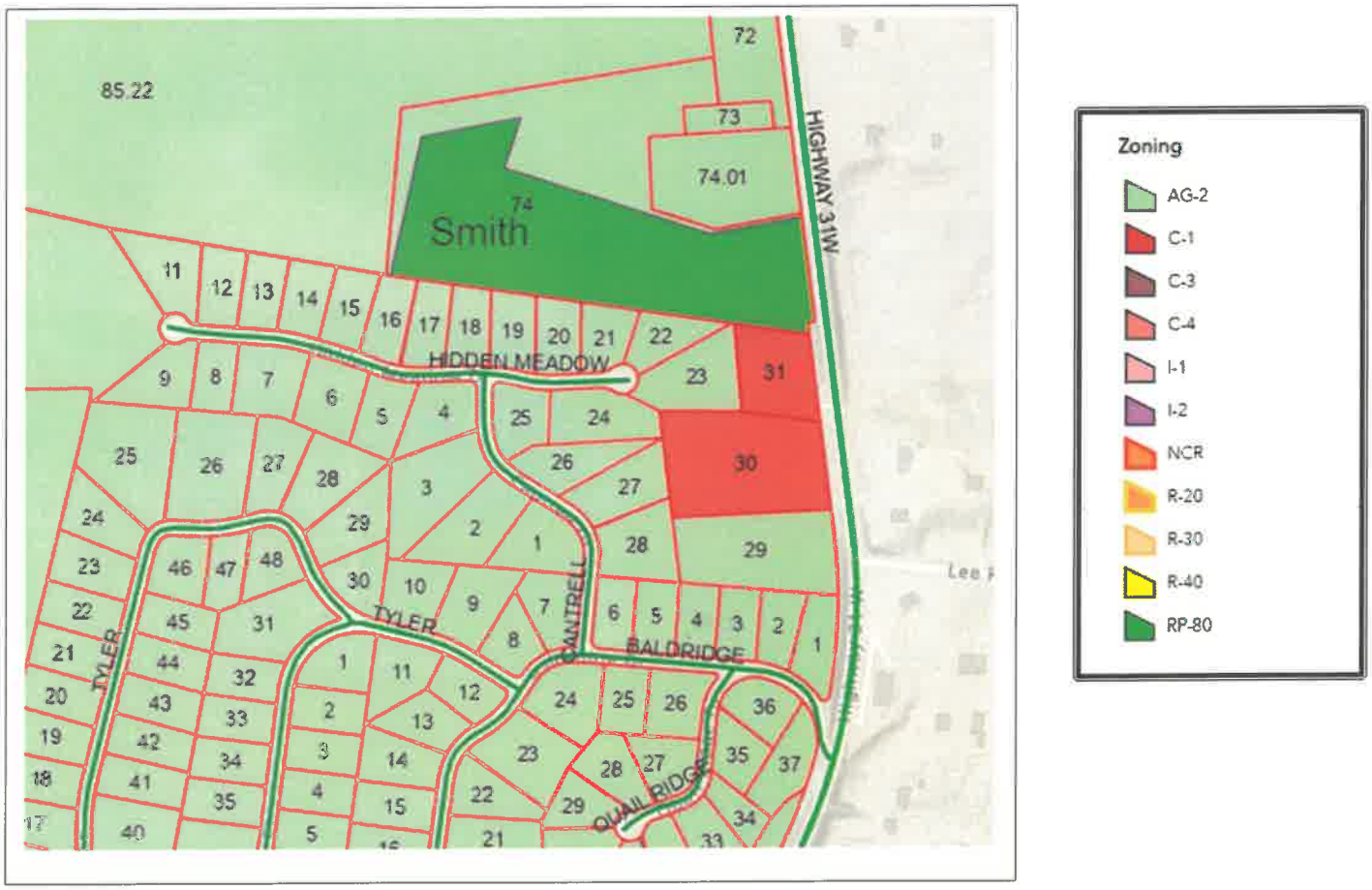
The applicant wishes to rezone 2.51 *acres*. The subject property is surrounded by AG-2 but has a couple of C-1 zones in the immediate vicinity with varying lot sizes.
Please see Exhibit 1 for zoning map exhibit.

The applicant's request to rezone C-1 appears to be dimensionally appropriate and follows the future land use map.

**** END COMMENTS ****

Exhibit 1

Austin Peay University Zoning Map



Smith Land Use Information



- Conservation
- Employment Center
- General Urban
- Rural
- Recreation/Open Space
- Sub-Urban

General Urban

The purpose of the General Urban land use category shall be to promote various types of non-residential land uses mixed with predominantly medium density residential.

• Location of General Urban. The following criteria shall be used for creating new areas or expansion of General Urban.

o The General Urban area is expected to capture intensive non-residential uses and shall, therefore, be served by major roadways.

o The character of the General Urban area is predominantly non-residential providing industrial job centers interspersed with higher intensity commercial uses and workforce housing as a whole.

o The General Urban areas shall be located where infrastructure includes potable water and sewer systems, stormwater management systems, and major paved public streets or highways.

o Designation of new General Urban areas should only be allowed if adjacent to other general urban areas, unless justification for a new area, at an appropriate scale, can be demonstrated.

• General Urban Uses. Non-residential land uses, such, as commercial, industrial, office, and institutional mixed with predominantly multifamily residential will be encouraged within this category. Large scale uses such as home improvement centers are also typical of this character area. The General Urban area contains uses serving the community as a whole.

New Business: B

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: 0 Tom Austin Hwy, Springfield, TN, 37172
3. Tax Map & Parcel Number: Map 113 Parcel 021.02
4. Size of Property (square feet or acres): 5.11 Acres

5. Owner of Record Information
   Name: Cumberland Welding Fabrication LLC - Jorge Madrid
   Mailing Address (No P.O. Boxes, please): 105 Elizabeth St, Ashland City, TN 37015
   Email: madrid@cumberlandweldingfabrication.com
   Telephone Number: 615-610-2689

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:
   25,000 SF Warehouse + Office

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.

5/10/24
Owner's Signature & DATE

5/15/24
Owner's Representative Signature & DATE

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

June 6, 2024

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

RE: Review of Revised Cumberland Welding & Fabrication Site Plan

Dear Traye:

I have reviewed the referenced revised site plan that I received on June 4, 2024 for the June 27, 2024 Planning Commission meeting. All of my comments have been addressed, assuming the use of a gravel surface for the laydown and equipment storage area behind the buildings is acceptable to the Planning Commission.

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

CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DATE: 5/24/2024

CUMBERLAND WELDING & FABRICATION

SHEET INDEX

NOTE	PROJECT NOTES
C1.01	DEMO AND INITIAL EPSC
C1.02	SITE PLAN
C1.03	GRADING PLAN
C1.04	INTERMEDIATE EPSC
C1.05	DRAINAGE PLAN
C1.06	FINAL STABILIZATION PLAN
C1.07	PHOTOMETRIC PLAN
C2.01	CONSTRUCTION DETAILS
C2.02	CONSTRUCTION DETAILS
C2.03	CONSTRUCTION DETAILS
C2.04	CONSTRUCTION DETAILS



KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3555 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 382-2000 FAX (888) 373-4486
www.kloberseng.com

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

PUBLIC UTILITY NOTE

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

NOT FOR CONSTRUCTION

APPLICANT/PROPERTY OWNER & DEVELOPER:

CUMBERLAND WELDING FABRICATION
105 ELIZABETH ST
ASHLAND CITY TN 37015

DEED REFERENCE:

MAP 113, PARCEL 021.02 TRACT
DB 300, PG 465 RORCT

PROPERTY INFORMATION:

ZONING: C-1, SUBURBAN COMMERCIAL DISTRICT
AREA: 222,476 S.F. = 5.11 ACRES

SITE USE

EXISTING USE: VACANT
PROPOSED USE: BUSINESS SERVICES/WAREHOUSING

PARKING INFORMATION:

REQUIRED PARKING:
1/300 S.F. (BUSINESS SERVICES) = 9,600/300 = 32 SPACES
1/2000 S.F. (WAREHOUSING) = 25,000/2000 = 13 SPACES
PROVIDED: 47 SPACES INCLUDING 4 ACCESSIBLE SPACE

LOT COVERAGE

EXISTING BUILDING AREA = 0 S.F.
NEW BUILDING AREA = 34,500 S.F.
BUILDING COVERAGE = 15.5%
MAX BUILDING HEIGHT: 35'-0"
PROPOSED CONCRETE SURFACE: ±1,860 S.F.
PROPOSED ASPHALT SURFACE: ±33,379 S.F.
IMPERVIOUS AREA: ±69,747 S.F. = 31.4%

TEMPORARY BENCHMARK:

IRON ROD AT PROPERTY CORNER
ELEVATION = 757.96'
N: 771128.82
E: 1704431.48
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: TENNESSEE DIVISION OF WATER RESOURCES
501 S. BROWN ST.
SPRINGFIELD, TENNESSEE 37172
TELEPHONE: (615) 384-0240

ELECTRIC: SPRINGFIELD ELECTRIC
1000 CENTRAL AVENUE WEST
SPRINGFIELD, TENNESSEE 37172
TELEPHONE: (615) 384-6770

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 & TOPOGRAPHIC SURVEY SHOWN HEREON WAS TAKEN FROM A SURVEY BY CHANDLER SURVEYING OF PLEASANT VIEW, TN, DATED 11/03/2023.
4. ACCORDING TO MAP 47147C0380C, DATED 04/16/2008, THIS SITE IS NOT IN A 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 3' 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. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, AND REPAIR CONTRACTOR CAUSED DAMAGE ACCORDING TO CURRENT LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY. RELOCATE IRRIGATION LINES AS NECESSARY FOR CONSTRUCTION.
3. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES. OBTAIN ALL PERMITS AND PAY ALL FEES PRIOR TO BEGINNING WORK.
4. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES PRIOR TO INSTALLATION OF PAVEMENT.
5. THE CONTRACTOR SHALL PROTECT ALL TREES TO REMAIN, IN ACCORDANCE WITH THE SPECIFICATIONS. DO NOT OPERATE OR STORE HEAVY EQUIPMENT, NOR HANDLE, NOR STORE MATERIALS WITHIN THE DRIPLINES OF TREES OR OUTSIDE THE LIMIT OF GRADING.
6. CONCRETE WALKS AND PADS SHALL HAVE A BROOM FINISH. ALL CONCRETE SHALL BE 3,500 P.S.I. UNLESS OTHERWISE NOTED. CURB RAMPS, SIDEWALK SLOPES, AND DRIVEWAY RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL CURRENT ADA & LOCAL REQUIREMENTS. IF APPLICABLE, THE CONTRACTOR SHALL REQUEST INSPECTION OF SIDEWALK AND RAMP FORMS PRIOR TO PLACEMENT OF CONCRETE.
7. ALL DAMAGE TO EXISTING ASPHALT PAVEMENT TO REMAIN WHICH RESULTS FROM NEW CONSTRUCTION SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE.
8. DIMENSIONS ARE TO THE FACE OF CURB, EDGE OF CONCRETE, OR TO THE FACE OF BUILDING, UNLESS OTHERWISE NOTED.
9. COORDINATES ARE FOR FACE OF BUILDINGS, CENTER LINES OF DRIVEWAYS, CENTER OF SANITARY SEWER MANHOLES, AND CENTER AT FACE OF CURB ON CURB INLETS, UNLESS OTHERWISE NOTED.
10. EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST IN A LEGAL MANNER.
11. MAINTAIN ONE SET OF APPROVED CONSTRUCTION DRAWINGS ON THE JOB SITE, WITH FIELD REVISIONS, FOR DISTRIBUTION TO THE ENGINEER UPON COMPLETION
12. PARKING STRIPES SHALL BE 4-INCH WHITE PAVEMENT PAINT.
13. CONTRACTION JOINTS SHALL BE CONSTRUCTED TO A DEPTH OF AT LEAST 1/4 THE CONCRETE THICKNESS, AND SHALL DIVIDE THE CONCRETE ROUGHLY INTO SQUARES WITH MAXIMUM 10' SEGMENTS.
14. REFER TO THE MOST CURRENT ARCHITECTURAL PLANS FOR BUILDING LAYOUT AND DIMENSIONS

GRADING AND DRAINAGE NOTES:

1. TOPSOIL SHALL BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM DEPTH OF 6 INCHES. MAKE STOCKPILES FREE DRAINING AND PROVIDE EROSION AND SEDIMENTATION CONTROLS AROUND STOCKPILES
2. ALL GRADED AREAS SHALL BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER GRADING IS COMPLETED.
3. CONSTRUCT TEMPORARY EROSION CONTROL AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
4. ALL DRAINAGE STRUCTURES, PIPES WITHIN THE LIMITS OF CONSTRUCTION, AND DETENTION PONDS SHALL HAVE SEDIMENT REMOVED PRIOR TO FINAL ACCEPTANCE.
5. THE GRATE ELEVATIONS FOR CURB INLETS ARE GIVEN TO THE CENTER OF THE INLETS AT THE FACE OF CURB. THE GRATES SHALL SLOPE LONGITUDINALLY WITH THE PAVEMENT GRADE. ADJUST THE CASTING TO FALL ALONG THE CURB LINE.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, PROTECT UTILITIES TO REMAIN, AND REPAIR CONTRACTOR-CAUSED DAMAGE ACCORDING TO LOCAL STANDARDS AT CONTRACTOR'S EXPENSE.
7. NOTIFY LOCAL UTILITY LOCATOR SERVICE OF INTENDED EXCAVATION/UTILITY TRENCHING OPERATIONS.
8. IN THE EVENT OF ANY DISCREPANCIES FOUND IN THE DRAWINGS OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
9. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES AND OBTAIN ALL PERMITS.
10. SPOT ELEVATIONS AND CONTOURS REPRESENT PROPOSED FINISHED GRADE AND TOP OF FINISHED PAVEMENT.
11. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND INVERTS PRIOR TO BEGINNING WORK.
12. EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST IN A LEGAL MANNER.
13. CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED ENGINEERING GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE. SHOULD THE CONTRACTOR HAVE ANY QUESTIONS OF THIS INTENT OR ANY PROBLEMS WITH THE CONTINUITY OF GRADES, THE ENGINEER SHALL BE CONTACTED PRIOR TO BEGINNING WORK.
14. EXISTING MANHOLE CASTINGS TO REMAIN SHALL BE RESET TO MATCH NEW GRADE.
15. ALL CURBS AND SIDEWALKS SHALL BE BACKFILLED WITH TOPSOIL, AND SEEDED AND MULCHED, UNLESS OTHERWISE NOTED.
16. ALL PIPES UNDER PAVED AREAS SHALL BE BACKFILLED WITH CRUSHED STONE. ALL PIPES UNDER LAWN AREAS SHALL BE BACKFILLED WITH SATISFACTORY MATERIAL COMPACTED TO 95% MAXIMUM PER ASTM D698.
17. ALL STORM DRAINAGE PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED. PIPE LENGTHS SHOWN ARE APPROXIMATE.
18. ALL CUT AND FILL SLOPES TO BE 3:1 MAXIMUM, UNLESS NOTED OTHERWISE.
19. SATISFACTORY TOPSOIL IS DEFINED AS SOIL BEING FREE OF SUBSOIL, CLAY LUMPS, STONES, OTHER OBJECTS OVER 1 INCH IN DIAMETER, OR CONTAMINANTS.
20. AFTER STRIPPING TOPSOIL, PROOFROLL SUBGRADE WITH A LOADED DUMP TRUCK WITH A MINIMUM WEIGHT OF 20 TONS. A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED WITH DURING PROOFROLLS.
21. FINISH GRADES TOLERANCES ARE 0.10 FOOT ABOVE OR BELOW DESIGN ELEVATIONS.
22. MAXIMUM SLOPES IN ALL DIRECTIONS OF HANDICAP PARKING SPACES/AISLES SHALL BE 2%.
23. EARTHWORK FILL SHALL INCLUDE STRIPPING TOPSOIL AND PLACING ENGINEERED FILL IN MAXIMUM 8" COMPACTED LIFTS WITH DENSITY OF 95% OF MAXIMUM PER ASTM D698. CONSULT WITH CURRENT GEOTECHNICAL REPORT.
24. AN AS-BUILT TOPOGRAPHIC SURVEY OF THE FINAL STORMWATER MANAGEMENT POND(S) AND OUTLET STRUCTURE(S) SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW FOR COMPLIANCE WITH THE ORIGINAL DESIGN. THE CONTRACTOR MAY SUBMIT A PRELIMINARY TOPOGRAPHIC SURVEY TO THE ENGINEER PRIOR TO FINAL TOPSOIL APPLICATION.
25. THE STORMWATER RUNOFF CALCULATIONS ON THIS SITE HAVE BEEN PERFORMED USING THE TR-55 METHOD AND RATIONAL METHOD. RAINFALL DATA WAS OBTAINED FROM NRCS USGS PROGRAM. THE DETENTION BASIN IS SIZED TO HANDLE A 2 THROUGH 100 YEAR STORM EVENTS WITHOUT OVERTOPPING THE POND. STORMWATER PIPES HAVE BEEN SIZED TO HANDLE A 25 YEAR STORM EVEN UNDER FREEFLOW CONDITIONS.
26. IF PRESENT THE WATER QUALITY FEATURES SHALL BE INSPECTED AND CLEANED PER THE APPROVED LONG TERM MAINTENANCE PLAN.
27. IF A STORMWATER QUALITY UNIT/SYSTEM IS REQUIRED ON A SITE PLAN/SUBDIVISION PLAT, THE ENGINEER OF RECORD WILL BE REQUIRED TO INSPECT AND CERTIFY TO THE CONSTRUCTION/INSTALLATION OF THE FACILITY PER THE PLANS APPROVED BY ROBERTSON COUNTY. WRITTEN CERTIFICATION SHALL INCLUDE AS-BUILT DRAWINGS, PICTURES OF INSTALLATION AND VARIOUS ANALYSES THAT MAY BE REQUIRED BY THE STORMWATER DEPARTMENT.
28. ALL TEMPORARY AND PERMANENT BMP'S, INCLUDING DETENTION, SHALL BE INSPECTED BY THE ENGINEER OF RECORD AND CERTIFIED TO BE IN ACCORDANCE WITH THE APPROVED CONSTRUCTION PLANS PRIOR TO THE COMMENCEMENT OF WORK AND THE ISSUANCE OF AN OCCUPANCY PERMIT.

EP&SC NOTES:

1. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE INDIVIDUAL RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS.
2. THE CONSTRUCTION ACTIVITY ANTICIPATED ON THIS PROJECT INCLUDES CLEARING, GRUBBING, GRADING, TOPSOILING, AND SEEDING.
3. THE PROJECT IS SUBJECT TO INSPECTION BY THE CITY AT ANY TIME AND ITEMS FOUND DEFICIENT SHALL BE IMMEDIATELY CORRECTED. THE CITY MAY STOP CONSTRUCTION OF PROPERTIES, OR ADMINISTER OTHER ENFORCEMENT ACTIONS AS DEFINED BY THE CITY.
4. INSPECTIONS SHALL BE CONDUCTED PER THE LATEST EDITION OF THE TDEC CONSTRUCTION GENERAL PERMIT. SEE SECTION 3.5.8.2.
5. THE APPROXIMATE TOTAL AREA OF THE SITE IS 5.11 ACRES. THE APPROXIMATE TOTAL AREA OF GRADING PROPOSED IS 5.49 ACRES.
6. THE INCREASE IN POST-CONSTRUCTION IMPERVIOUS AREA IS 1.90 ACRES.
7. THE ANTICIPATED FILL MATERIAL WILL CONSIST OF ON-SITE SOIL AND/OR OFF-SITE SOIL BORROW MATERIALS.
8. IF REQUIRED, THE OWNER AND THE CONTRACTOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER APPLICATION TO THE LOCAL TENNESSEE ENVIRONMENTAL ASSISTANCE CENTER AT LEAST 30 DAYS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR AND OWNER SHALL PROVIDE (WITH THE NOI FOR THIS PROJECT) EXISTING NPDES PERMIT TRACKING NUMBERS FOR SITE WHERE BORROW MATERIAL MAY BE OBTAINED AND WHERE SPOIL MATERIAL MAY BE PLACED. SHOULD PERMITS NOT EXIST FOR BORROW AND SPOIL SITES, SEPARATE NOI'S SHALL BE PROVIDED BY THE OWNER OR CONTRACTOR.
9. IF REQUIRED, THE NOTICE OF COVERAGE (NOC) OF THE PERMIT TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER SHALL BE POSTED NEAR THE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL HAVE A SET OF APPROVED EROSION CONTROL PLANS ON SITE DURING ALL CONSTRUCTION.
10. IF REQUIRED, AN EROSION PREVENTION SILTATION CONTROL PLAN (EP&SC) AND LAND DISTURBANCE PERMIT SHALL BE IN PLACE PRIOR TO ANY GRADING, CLEARING AND/OR ANY OTHER CONSTRUCTION ACTIVITY. EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD; GENERALLY CONSIDERED TO BE THROUGH THE COMPLETION OF RESTORATION. IF REQUIRED, THE EP&SC PLAN ALONG WITH AN INSPECTION CHECKLIST AND STORMWATER PERMIT MUST BE AT THE PROJECT SITE AT ALL TIMES. THE INSPECTION CHECKLIST SHALL HAVE A RECORD OF DATES EP&SC DEVICES ARE INSPECTED AND ANY CORRECTION ACTION TAKEN OR MAJOR OBSERVATIONS. BMP'S MUST BE INSPECTED BY A QUALIFIED PERSON WHO HAS TAKEN AN APPROVED EROSION AND SEDIMENTATION COURSE.
11. APPROVED INLET PROTECTIONS FOR NEARBY STORM SEWER CURB AND DROP INLETS MUST BE INSTALLED PRIOR TO GRADING COMMENCEMENT.
12. SILT FENCE, OR OTHER SEDIMENT BARRIERS ARE TO BE INSTALLED PROPERLY ALONG TOPOGRAPHICAL CONTOURS DOWN SLOPE OF THE AREA TO BE DISTURBED PRIOR TO ANY GRADING, CLEARING AND/OR ANY OTHER CONSTRUCTION ACTIVITY.
13. ALL EP&SC DEVICES ARE TO REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED AND A GOOD STAND OF GRASS HAS BEEN ESTABLISHED.
14. STABILIZATION MEASURES MUST BE PERFORMED WITHIN SEVEN (7) DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND WITHIN FOURTEEN (14) DAYS AFTER FINAL GRADING. ALL SLOPES 3:1 OR GREATER SHALL BE STABILIZED WITHIN SEVEN (7) DAYS.
15. REFER TO STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL REQUIREMENTS
16. PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE REMOVED MORE THAN 14 CALENDAR DAYS PRIOR TO GRADING. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED AND UNWORKED FOR MORE THAN 14 CALENDAR DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATS. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 14 CALENDAR DAYS OF FINAL GRADING.
17. EXCAVATED TOPSOIL TO BE REUSED MUST BE STOCKPILED AND ENCIRCLED WITH SILT FENCING.
18. THIS SITE SHALL CONTAIN A TEMPORARY STONE CONSTRUCTION ENTRANCE THAT CONFORMS TO REQUIRED SPECIFICATIONS PRIOR TO GRADING COMMENCEMENT. THE STONE SHALL BE 2 TO 3 INCH IN DIAMETER AND SHALL BE KEPT CLEAN BY ADDING STONE AS NEEDED. IT SHALL BE AT LEAST 8 INCHES DEEP UNDERLAIN WITH FILTER FABRIC AND 20 FEET WIDE.
19. VEGETATIVE BUFFERS OR OTHER PROTECTION MUST BE PROVIDED ALONG STREAMS, RIVERS, AND PONDS TO AVOID EROSION OF BANKS.
20. ALL TREES DESIGNATED TO REMAIN, MUST BE PROTECTED. HEAVY EQUIPMENT SHOULD NOT BE OPERATED OR STORED, NOR MATERIALS HANDLED OR STORED, WITHIN THE DRIP LINES OF TREES.
21. SEDIMENT MUST BE REMOVED FROM SEDIMENT BARRIERS, PONDS, AND OTHER SEDIMENT CONTROLS WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%
22. SEDIMENT THAT HAS ESCAPED THE CONSTRUCTION SITE AND HAS COLLECTED IN THE STREET OR DRAINAGE STRUCTURES MUST IMMEDIATELY BE PHYSICALLY REMOVED.
23. BUILDING AND WASTE MATERIALS, AND NON STORM WATER DISCHARGES, SUCH AS CONCRETE, PAINT WASH WATER, OR MACHINERY LEAKAGE, OR SPILLAGE MUST BE MANAGED TO PREVENT THEM FROM ENTERING THE STORM WATER SYSTEM, GROUND WATER, OR NEARBY WATER BODY.
24. ALL EPSCS HAVE BEEN DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 2 YEAR, 24 HOUR STORM EVENT.
25. TEMPORARY SEEDING FOR TENNESSEE PROJECTS INCLUDE THE FOLLOWING OPTIONS:

JAN 1 – MAY 1	ITALIAN RYE / KOREAN LESPEDEZA / SUMMER OATS
MAY 1 – JULY 15	SUDAN OR STARR MILLET
JULY 15 – JAN 1	BALBOA RYE / ITALIAN RYE

26. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT THE RATE OF 2 TONS/ACRE
27. UPON COMPLETION OF SITE STABILIZATION, THE OWNER AND CONTRACTOR SHALL PROVIDED A NOTICE OF TERMINATION (NOT) FOR THE PROJECT TO THE LOCAL ENVIRONMENTAL ASSISTANCE CENTER. A COPY OF THE NOT SHALL BE PROVIDED TO THE ENGINEER.
28. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION CONTROL INSPECTIONS AND REPAIRS FOR A MINIMUM OF 3 YEARS AFTER COMPLETION OF CONSTRUCTION.
29. TOPSOIL SHALL BE PLACED ON EXCAVATED AREAS WHICH REQUIRE NEW VEGETATION. GROUND COVER SHALL BE REESTABLISHED WITH KENTUCKY 31 FESCUE SEEDED AT A MINIMUM OF 250 LBS. PER ACRE WITHIN 72 HOURS OF FINAL GRADING. SLOPES 3:1 OR GREATER, AND AREAS INDICATED ON PLANS, SHALL BE LINED WITH NORTH AMERICAN GREEN S150 GRASS MATTING OR EQUAL. SOD MAY BE SUBSTITUTED FOR MATTING OR SEED & STRAW AREAS.
30. SILT FENCE SHALL BE INSTALLED IN ALL EROSION AREAS WHICH COULD ALLOW UNTREATED STORMWATER RUNOFF TO BE DISCHARGED FROM THE PROPERTY. ALL EROSION CONTROL MEASURES SHALL BE CONSISTENT WITH THE PROVISIONS DESCRIBED IN THE MOST CURRENT EDITION OF THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK.
31. SILT BARRIERS SHALL BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 1/3 FILLED.
32. ALL LOCATIONS OF TEMPORARY EROSION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER.
33. WHEN THE TEMPORARY EROSION CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE THEY SHALL BE REMOVED.
34. REPLACE DAMAGED AND WORN OUT SILT BARRIERS AS DIRECTED BY THE CITY/ENGINEER.
35. PROVIDE TEMPORARY SEEDING ON STOCKPILES AND ALL OTHER AREAS OF THE SITE THAT WILL REMAIN UNDISTURBED FOR 14 DAYS OR MORE.
36. I CERTIFY THAT THESE PLANS HAVE BEEN PREPARED BY ME AND/OR UNDER MY DIRECT SUPERVISION. THIS PROJECT IS PLANNED TO DISTURB MORE THAN ONE ACRE, IT THEREFORE FALLS UNDER THE TENNESSEE DIVISION OF WATER POLLUTION CONTROL'S GENERAL NPDES PERMIT TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY. KLOBER ENGINEERING SERVICES WILL ASSIST THE CONTRACTOR IN SUBMITTING THE 'NOTICE OF INTENT (NOI) TO CONSTRUCT' TO THE STATE AT LEAST 30 DAYS PRIOR TO BEGINNING LAND DISTURBANCE. THE TN GENERAL CONSTRUCTION PERMIT IS TNR____

JOSHUA M. LYON, P.E., PROJECT ENGINEER
DATE 6/24/24

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:

EXISTING SYMBOLS

EXISTING POWER POLE
EXISTING LIGHT POLE
EXISTING WALL PACK LIGHT
EXISTING SANITARY SEWER BOX
EXISTING SANITARY SEWER MANHOLE
EXISTING PRESSURE SEWER VALVE
EXISTING WATER METER
EXISTING FIRE HYDRANT
EXISTING WATER VALVE
EXISTING AIR RELEASE
EXISTING BLOW OFF
EXISTING HEADWALL
PROPOSED HANDICAP SYMBOL

PROPOSED SYMBOLS

PROPOSED POWER POLE
PROPOSED LIGHT POLE
PROPOSED WALL PACK LIGHT
PROPOSED SANITARY SEWER BOX
PROPOSED SANITARY SEWER MANHOLE
PROPOSED PRESSURE SEWER VALVE
PROPOSED WATER METER
PROPOSED FIRE HYDRANT
PROPOSED WATER VALVE
PROPOSED AIR RELEASE
PROPOSED BLOW OFF
PROPOSED HEADWALL
PROPOSED HANDICAP SYMBOL
PROPOSED WHEEL STOP
PROPOSED SIGN
PROPOSED FLOW ARROW / DOWNHILL SLOPE DIRECTION
PROPOSED SPOT ELEVATION
PROPOSED PIPE INVERT
TOP OF WALL ELEVATION
BOTTOM OF WALL ELEVATION @ FINISHED GRADE

PROPOSED CURB INLET
PROPOSED CATCH BASIN
PROPOSED TRAFFIC FLOW ARROWS
PROPOSED STABILIZATION

EXISTING LINE TYPES

DEMO LINE
EXISTING CONTOURS MINOR 1' INTERVAL
EXISTING CONTOURS MAJOR 5' INTERVAL
EXISTING COMMUNICATIONS OVERHEAD
EXISTING COMMUNICATIONS UNDERGROUND
EXISTING PLDE
EXISTING EASEMENTS WATER & SEWER
EXISTING ELECTRIC OVERHEAD
EXISTING ELECTRIC UNDERGROUND
EXISTING FIBER OPTIC
EXISTING FENCE
EXISTING GAS
EXISTING BUILDING
EXISTING CONCRETE
EXISTING GRAVEL/RIP RAP
EXISTING PROPERTY LINE
EXISTING PROPERTY LINE ADJACENT
EXISTING RAILROAD
EXISTING SEWER LINE
EXISTING FORCE MAIN
EXISTING SEWER SERVICE
EXISTING WATER LINE
EXISTING WATER SERVICE
EXISTING SETBACKS
EXISTING STORM SEWER

PROPOSED LINE TYPES

PROPOSED CONTOURS MINOR 1' INTERVAL
PROPOSED COMMUNICATIONS OVERHEAD
PROPOSED COMMUNICATIONS UNDERGROUND
PROPOSED PLDE
PROPOSED EASEMENTS WATER & SEWER
PROPOSED ELECTRIC OVERHEAD
PROPOSED ELECTRIC UNDERGROUND
PROPOSED FIBER OPTIC
PROPOSED FENCE
PROPOSED GAS
PROPOSED BUILDING
PROPOSED CONCRETE
PROPOSED GRAVEL/RIP RAP
PROPOSED PROPERTY LINE
PROPOSED EXTRUDED/POST CURB
PROPOSED CURB AND GUTTER
PROPOSED RETAINING WALL
PROPOSED SEWER LINE
PROPOSED FORCE MAIN
PROPOSED SEWER SERVICE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED SETBACKS
PROPOSED STORM SEWER
PROPOSED SILT FENCE
PROPOSED GUARD RAIL
PROPOSED LIMITS OF DISTURBANCE
PROPOSED REVISION CLOUD

LEGEND NOTES:

1. SCALES OF HATCHING WILL VARY FROM LEGEND DUE TO SCALE OF SHEETS
2. LINE THICKNESS WILL VARY FROM SHEET TO SHEET. THICKER LINE WEIGHT IS USE TO EMPHASIZE THE MOST RELEVANT INFORMATION ON EACH SHEET.

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 CITY 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 CITY. THE APPLICANT SHOULD ANTICIPATE THAT ADDITION ENGINEERING CALCULATIONS MAY BE REQUIRED BY THE CITY 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
Know what's below. Call before you dig.
CALL 811 NATIONWIDE

KLOBER ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3666 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 382-2000 FAX (888) 373-4485
www.kloereng.com

REVISIONS			
NO	BY	DATE	DESCRIPTION

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

NOT FOR CONSTRUCTION

CUMBERLAND WELDING & FABRICATION

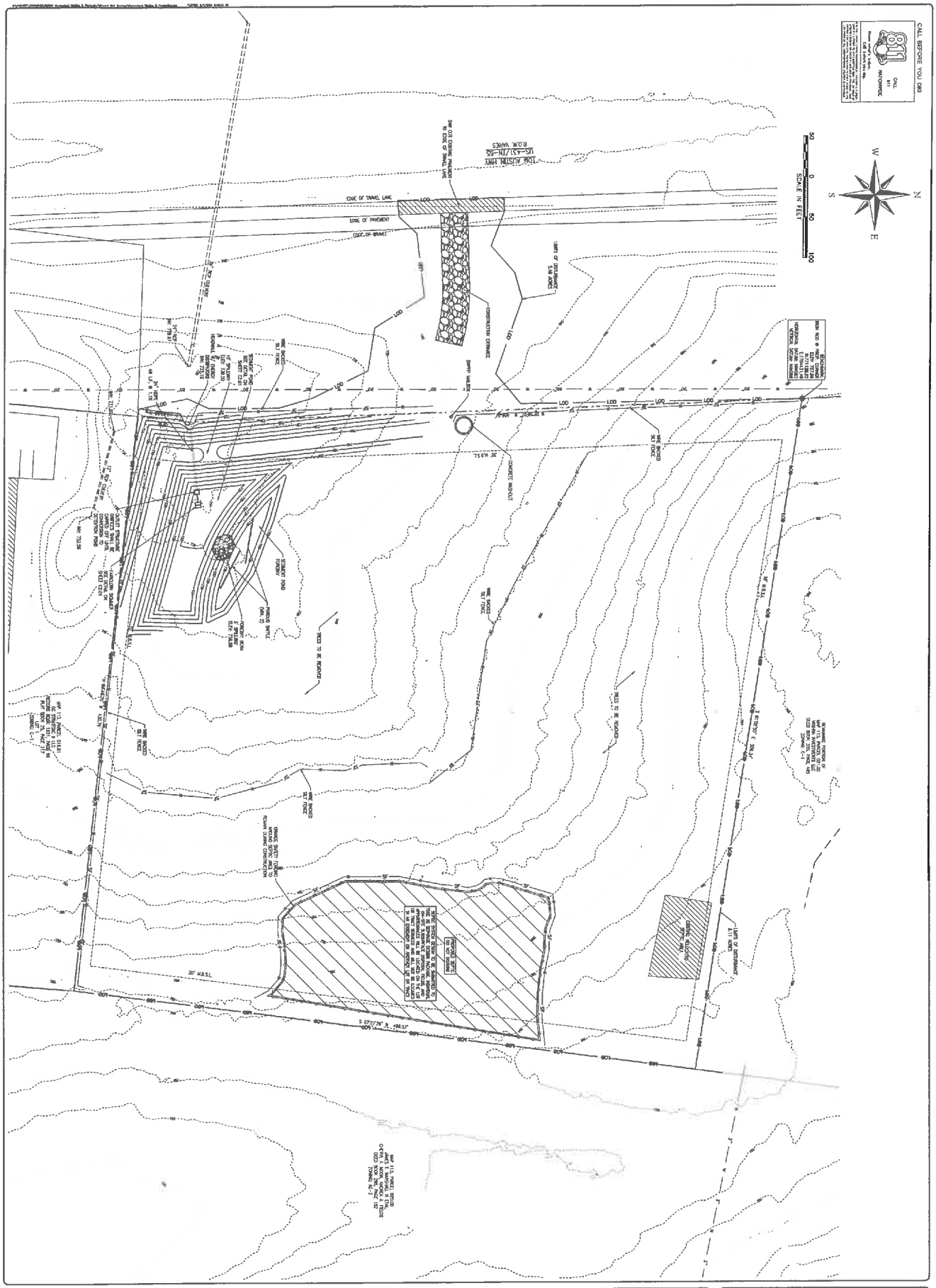
TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	CJN
CHECKED BY	IML
PROJECT NO	C03824

PROJECT NOTES

SHEET NUMBER
NOTE

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

NOT FOR CONSTRUCTION

JOSHUA M. LYON, P.E. TN#112351

REVISIONS			
NO	BY	DATE	DESCRIPTION

DEMO & INITIAL EPSC

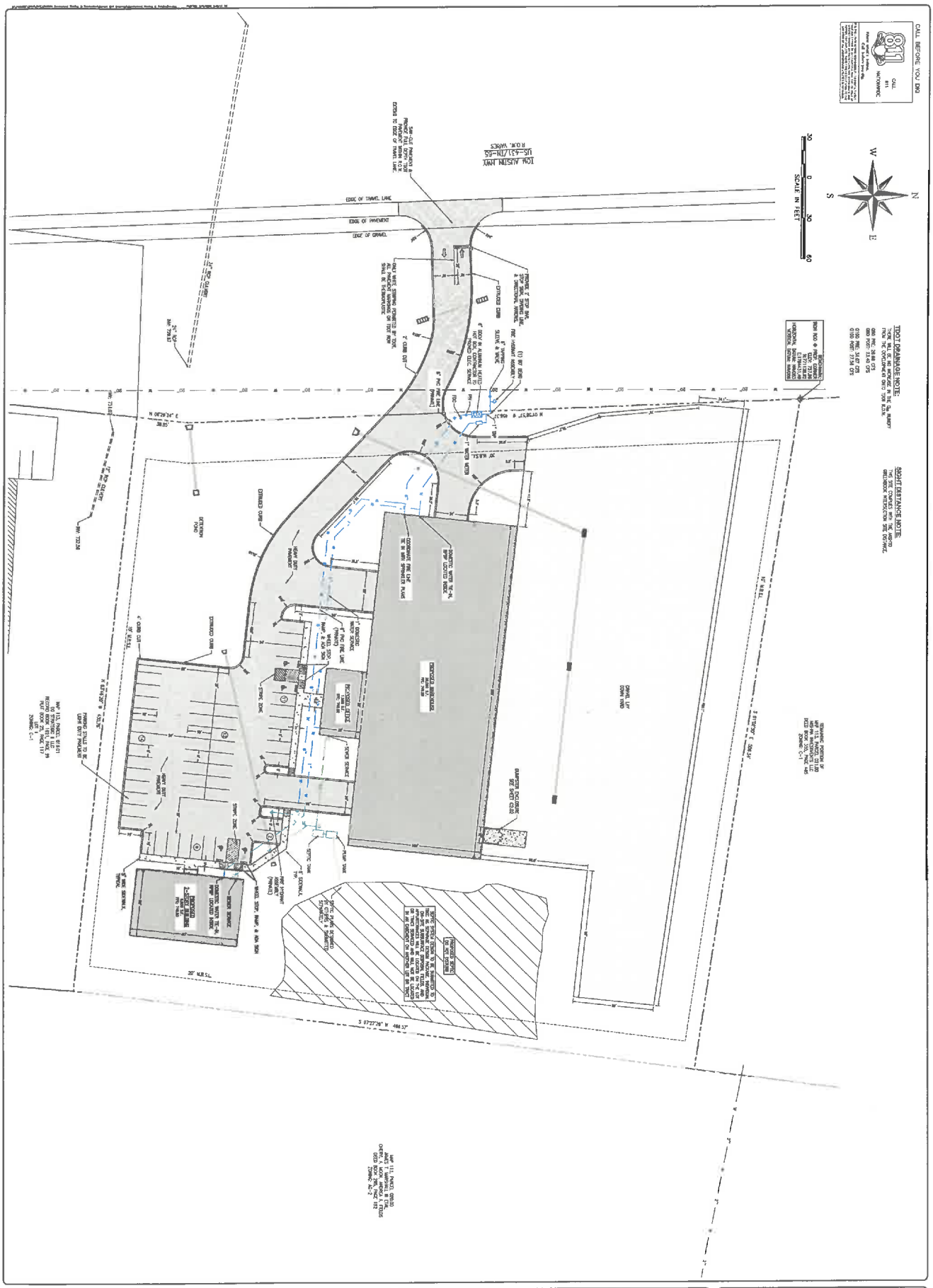
SHEET NUMBER
C1.01

DRAWN BY: CJR
CHECKED BY: JML
PROJECT NO.: 0208.21

KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3666 TOM AUSTIN HWY., SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 382-2002 FAX: (888) 373-4486
www.klobereng.com

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

NOT FOR CONSTRUCTION

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

REVISIONS			
NO	BY	DATE	DESCRIPTION

SHEET NUMBER C1.02

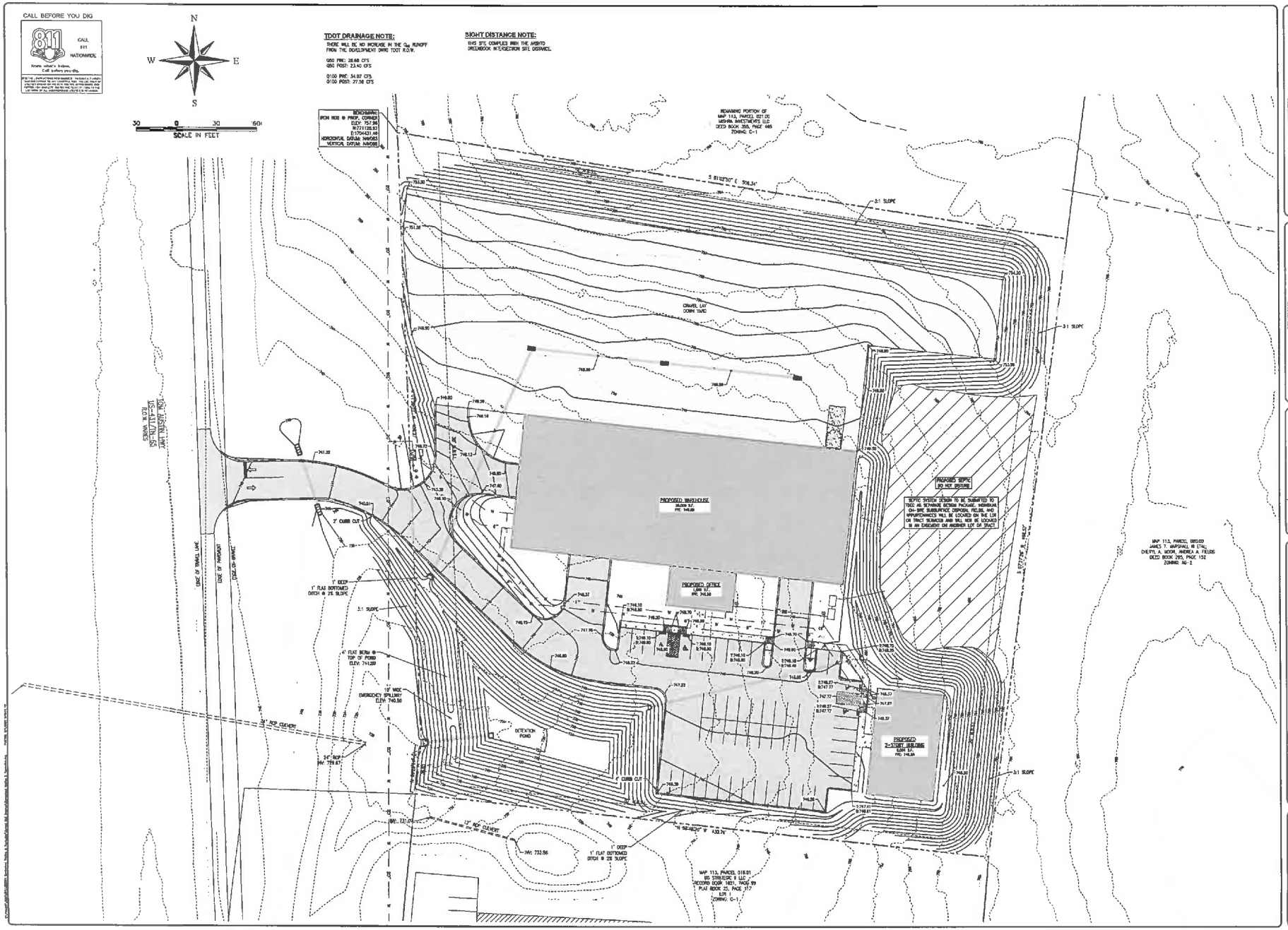
SITE LAYOUT

DRAWN BY: CJN
CHECKED BY: JML
PROJECT NO: 0924-21

KLOBER ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3668 TOM AUSTIN HWY., SUITE 3, SPRINGFIELD, TN 37172
PHONE: (615) 382-2000 FAX: (888) 373-4488
www.kloberenng.com

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3600 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 384-5495 FAX (615) 514-5445
www.klobereng.com

NO.	BY	DATE	DESCRIPTION
			REVISIONS

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

NOT FOR CONSTRUCTION

CUMBERLAND WELDING & FABRICATION
7244 AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	CJN
CHECKED BY	JML
PROJECT NO	C01824

GRADING PLAN

SHEET NUMBER
C1.03

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE

INTERMEDIATE EPSC

SHEET NUMBER: C1.04

DRAWN BY: CJN
CHECKED BY: JWL
PROJECT NO: 0924

CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

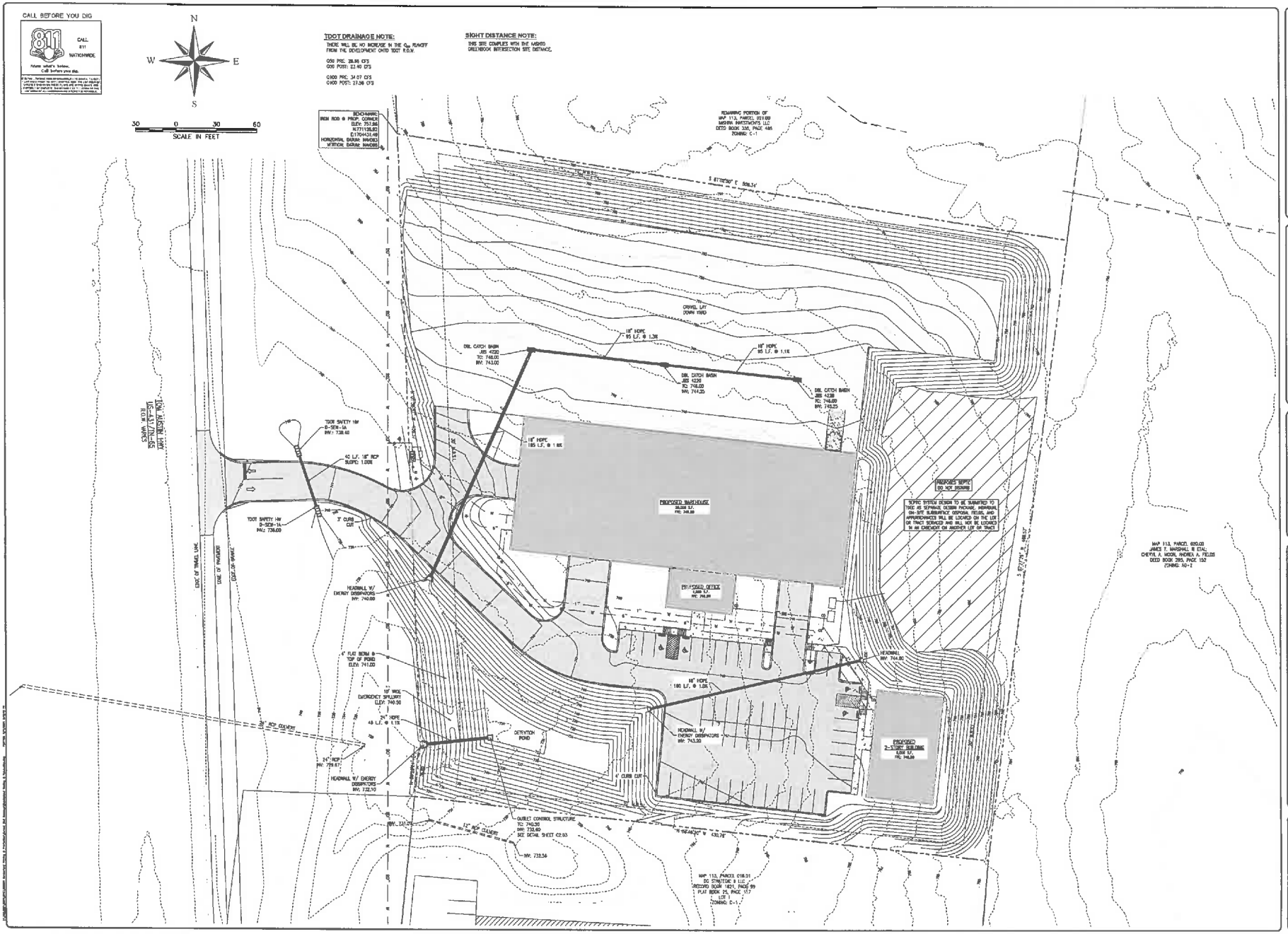
NOT FOR CONSTRUCTION

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

REVISIONS			
NO	BY	DATE	DESCRIPTION

KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3566 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 382-2500 FAX (888) 373-4466
www.klobereng.com

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SURVEYING
3868 FOW AUSTIN HWY., SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 384-3000 FAX (615) 313-4668
www.klobereng.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

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

NOT FOR CONSTRUCTION

CUMBERLAND WELDING & FABRICATION

TRACT ASSETS HIGHWAY
SPRINGFIELD, TENNESSEE
RUBERTSON COUNTY

DRAWN BY	CTN
CHECKED BY	JML
PROJECT NO	0191824

DRAINAGE PLAN

SHEET NUMBER
C1.05

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.

FINAL STABILIZATION

SHEET NUMBER
C1.06

DRAWN BY: CJD
CHECKED BY: JWL
PROJECT NO: 0929-21

CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

NOT FOR CONSTRUCTION

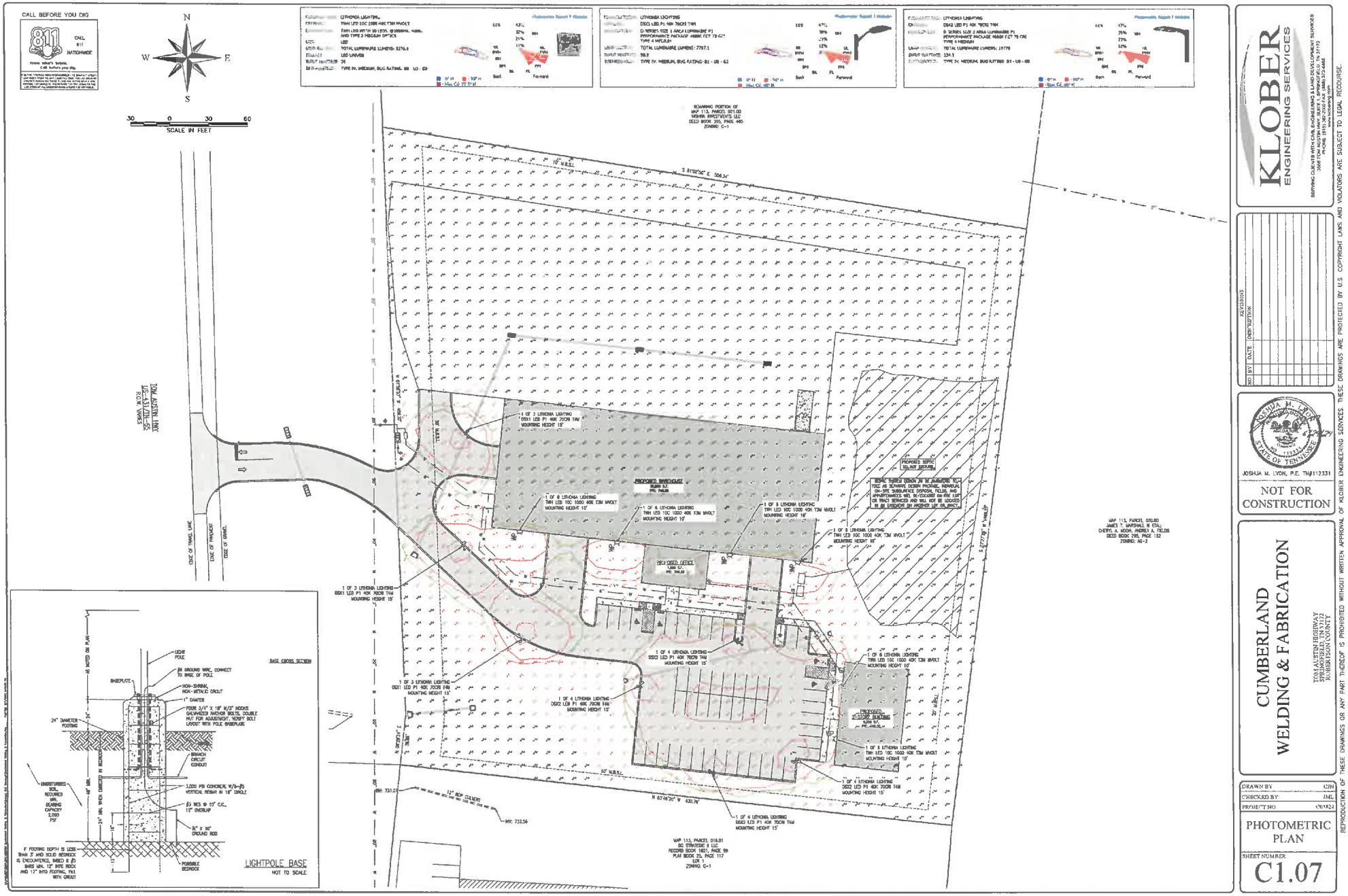
JOSHUA W. LYON, P.E. TN#112331

REVISIONS			
NO	BY	DATE	DESCRIPTION

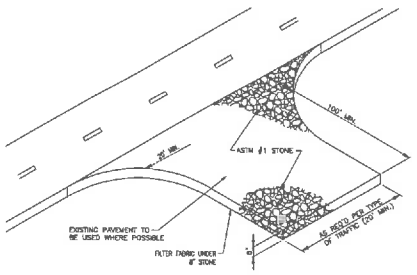
KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3668 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE (615)382-3600 FAX (888)373-4466
www.klobereng.com

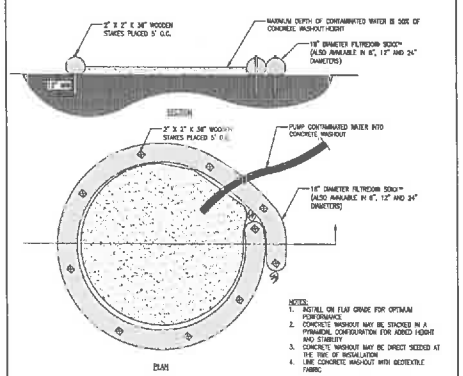
REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



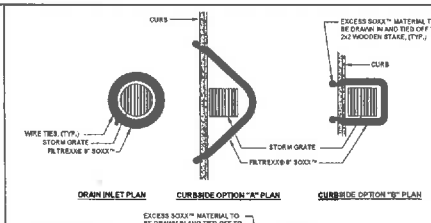
REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



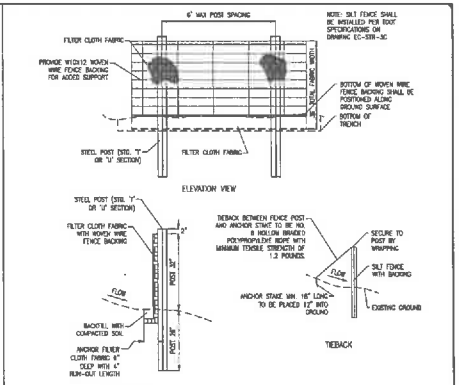
TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE METRO STORMWATER MANAGEMENT MANUAL TCP-03



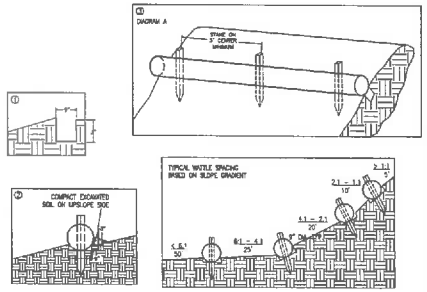
FILTREXX® CONCRETE WASHOUT
NOT TO SCALE



FILTREXX® INLET PROTECTION
NTS

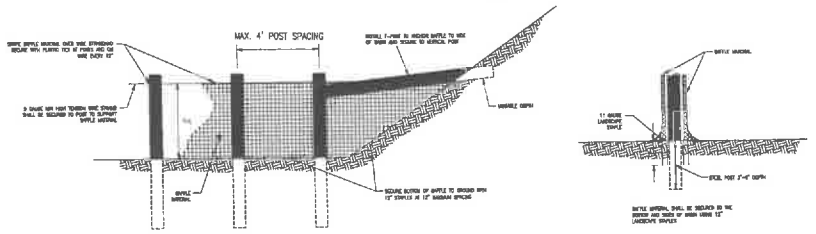


TEMPORARY SILT FENCE WITH BACKING
NOT TO SCALE

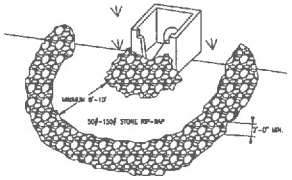


1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2–3" (5–7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TightLY ABUT.
3. SECURE THE WATTLE WITH 18–24" (45.7–61 CM) STAKES EVERY 3–4' (0.9 – 1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE, LEAVING AT LEAST 2–3" (5–7.5 CM) OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.

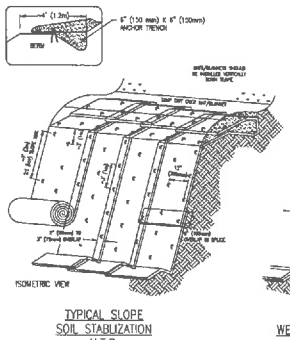
STRAW WATTLE ON SLOPE
NOT TO SCALE



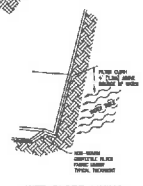
POROUS BAFFLE
NOT TO SCALE



FILTER RING
NOT TO SCALE



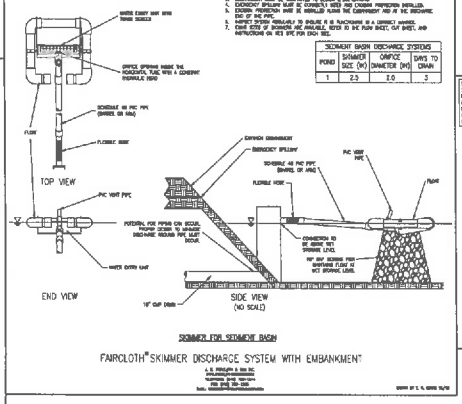
TYPICAL SLOPE SOIL STABILIZATION
N.T.S.



WET SLOPE LINING
N.T.S.

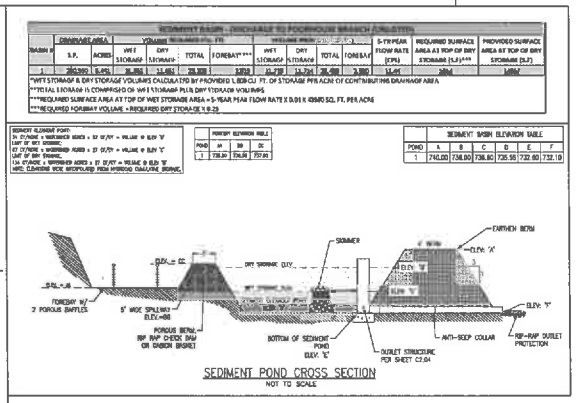
NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, SOIL CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE AS NECESSARY TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

GRASS MATTING PLACEMENT
METRO STORMWATER MANAGEMENT MANUAL PESC-02



SKIMMER FOR SEDIMENT BASIN

FAIRCLOTH® SKIMMER DISCHARGE SYSTEM WITH EMBANKMENT



SEDIMENT POND CROSS SECTION
NOT TO SCALE

KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3666 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 384-2323 FAX (615) 373-4460
www.klobereng.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

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

NOT FOR CONSTRUCTION

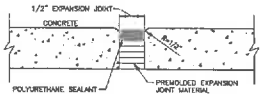
CUMBERLAND WELDING & FABRICATION
TN 64 (AUSTIN HIGHWAY)
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	CDN
CHECKED BY	JML
PROJECT NO	C01824

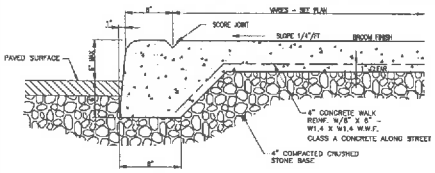
CONSTRUCTION DETAILS

SHEET NUMBER
C2.01

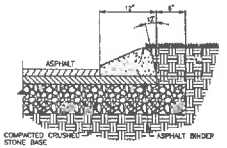
REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



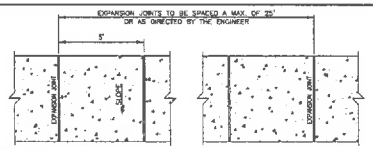
EXPANSION JOINT
NOT TO SCALE



CONCRETE SIDEWALK & HAUNCHED CURB
NOT TO SCALE

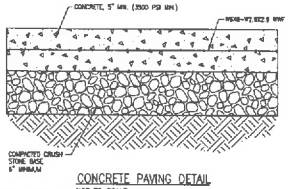


EXTRUDED CURB DETAIL
NOT TO SCALE

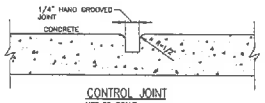


GENERAL NOTES:
1. SIDEWALKS SHALL BE A MIN. OF 4' IN WIDTHNESS AND MAINTAIN A MIN. OF 3' CLEARANCE THROUGH THE PATH
2. MAXIMUM CROSS SLOPE FOR SIDEWALKS SHALL BE 1.48 (VERTICAL:HORIZONTAL)

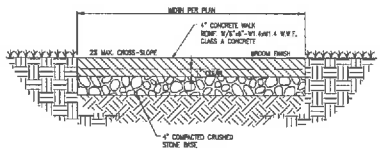
TYPICAL CONCRETE SIDEWALK
NOT TO SCALE



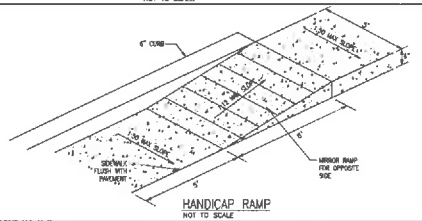
CONCRETE PAVING DETAIL
NOT TO SCALE



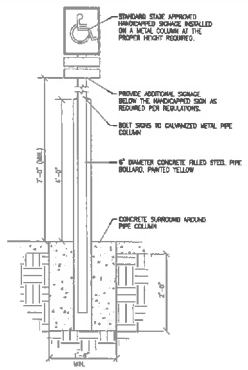
CONTROL JOINT
NOT TO SCALE



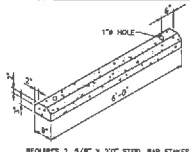
CONCRETE SIDEWALK CROSS SECTION
NOT TO SCALE



HANDICAP RAMP
NOT TO SCALE

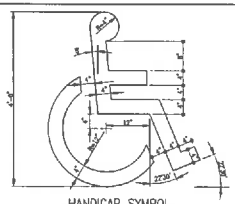


EXTERIOR HANDICAPPED SIGN
NOT TO SCALE

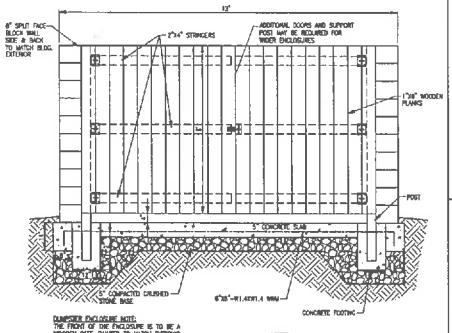


REQUIRES 2, 5/8" X 2'0" STEEL BAR STAKES FOR EACH CURB SECTION. CURB REINF. W/2 #5 BARS. LOCATE WHEEL STOP 2' FROM FACE OF SIDEWALK HEADER OR EDGE OF PAVEMENT.

TYPICAL PARKING CURB
NOT TO SCALE



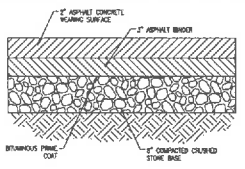
HANDICAP SYMBOL
NOT TO SCALE



DUMPSTER ENCLOSURE NOTE:
THE FRONT OF THE ENCLOSURE IS TO BE A WOODEN GATE, PAINTED TO MATCH EXTERIOR COLOR ON THE FRONT OF THE BUILDING. THE SIDES AND BACK OF THE ENCLOSURE ARE TO HAVE THE SAME APPEARANCE OF THE FACADE OF THE PRINCIPLE STRUCTURE

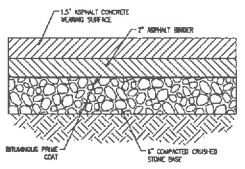
NOTES:
1. ALL LUMBER TO BE PRESSURE TREATED
2. CONCRETE PAD WITHIN ENCLOSURE TO BE CLASS "A" CONCRETE (3,500 PSI).

TRASH & RECYCLING BIN ENCLOSURE DETAIL
NOT TO SCALE



HEAVY DUTY ASPHALT PAVING DETAIL
NOT TO SCALE

VERIFY PAVEMENT AND STONE THICKNESS WITH ANY CURRENT GEOTECH REPORT



LIGHT DUTY ASPHALT PAVING DETAIL
NOT TO SCALE

VERIFY PAVEMENT AND STONE THICKNESS WITH ANY CURRENT GEOTECH REPORT

KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3368 TOM AUSTIN HWY. SUITE 1 - SPRINGFIELD, TN 37172
PHONE (615) 373-4458
www.kloberengr.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON
LICENSED PROFESSIONAL ENGINEER
STATE OF TENNESSEE
5/24/24
JOSHUA M. LYON, P.E. TN#112331

NOT FOR CONSTRUCTION

CUMBERLAND WELDING & FABRICATION

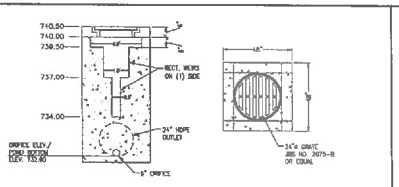
TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	CJN
CHECKED BY	KML
PROJECT NO	CWM24

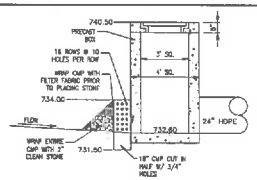
CONSTRUCTION DETAILS

SHEET NUMBER
C2.02

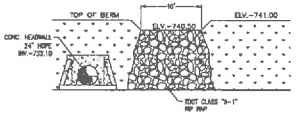
REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATIONS ARE SUBJECT TO LEGAL RECOURSE



POND DISCHARGE STRUCTURE
NOT TO SCALE



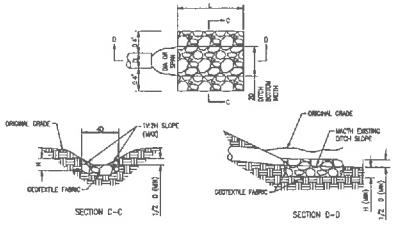
POND OUTLET PROTECTION
NOT TO SCALE



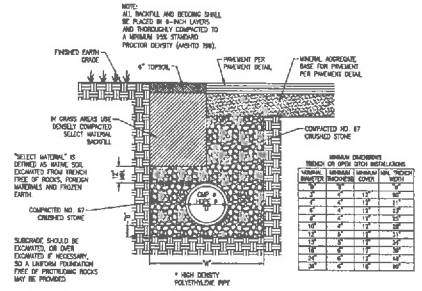
SPILLWAY DETAIL
NOT TO SCALE

OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

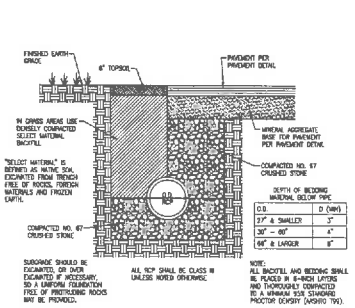
	(D) - CURVERT SIZE IN INCHES	RIPRAP CLASS	(L) LENGTH OF APRON IN FEET	(W) DEPTH OF APRON IN FEET	(CY) ESTIMATED RIPRAP QUANTITY	(SY) ESTIMATED GEOTEXTILE FAB.
WITH END SECTION	12	2	4.0	1.5	0.8	5
	18	2	6.0	1.5	2.0	8
	24	2	8.0	1.5	3.8	13
	30	3	12.3	2.0	9.3	24
	36	3	15.0	2.0	13.4	32
	42	4	21.0	2.5	27.3	53
	48	4	24.0	2.5	35.6	65



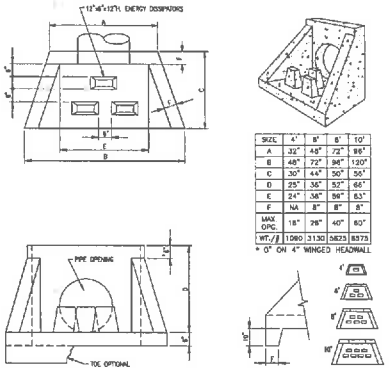
TYPICAL RIP-RAP APRON AT HEADWALL
NOT TO SCALE



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

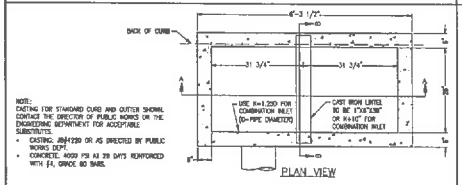


RCP BEDDING - CLASS B
NOT TO SCALE

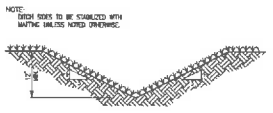


SIZE	4"	8"	8"	10"
A	33"	48"	72"	96"
B	48"	72"	96"	120"
C	30"	44"	50"	56"
D	25"	36"	52"	66"
E	24"	36"	96"	83"
F	NA	8"	8"	8"
MAX OPG.	18"	28"	40"	60"
WT./#	1080	3130	5623	8375

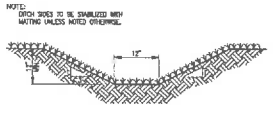
WINGED HEADWALL W/ENERGY DISSIPATORS
NOT TO SCALE — CLOUD SW-301 OR EQUAL



TYPICAL PRECAST DOUBLE INLET
NOT TO SCALE



TYPICAL DITCH DETAIL
NOT TO SCALE



TYPICAL FLAT BOTTOM DITCH DETAIL
NOT TO SCALE

KLOBER
ENGINEERING SERVICES
SURVEYING CLOSELY WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3468 TOM AUSTIN HWY., SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 384-3000 FAX (866) 373-4486

NO	BY	DATE	DESCRIPTION
			REVISIONS

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

NOT FOR CONSTRUCTION

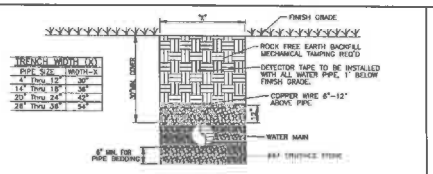
CUMBERLAND WELDING & FABRICATION
7761 AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	CDL
CHECKED BY	JML
PROJECT NO	C03824

CONSTRUCTION DETAILS

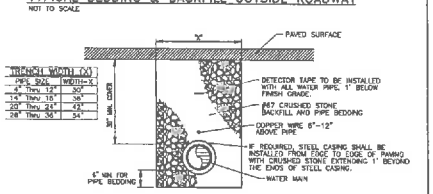
SHEET NUMBER
C2.03

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



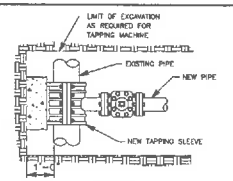
TYPICAL BEDDING & BACKFILL OUTSIDE ROADWAY

NOT TO SCALE



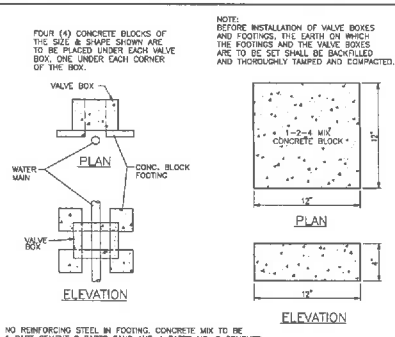
TYPICAL BEDDING & BACKFILL IN ROADWAY

NOT TO SCALE



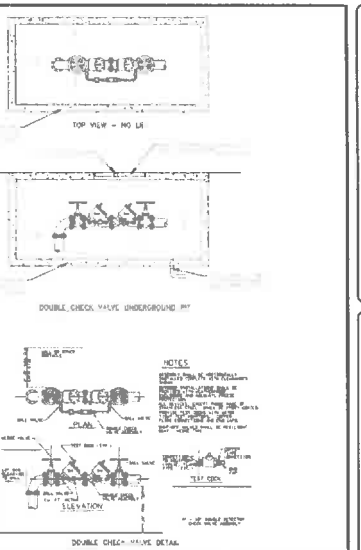
TAPPING SLEEVE AND VALVE

NOT TO SCALE



CONCRETE VALVE BOX FOOTING FOR

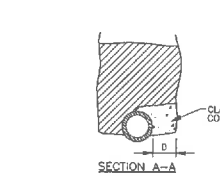
NOT TO SCALE JBS NO. B008 OR EQUAL

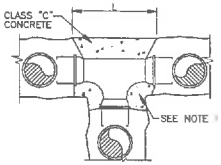


SPRINGFIELD WATER/WASTEWATER DEPARTMENT
824 Central Avenue - Springfield, Tennessee

DOUBLE CHECK ASSEMBLY

STANDARD DRAWING | JAN. 2021 | DWG. NO. W-14

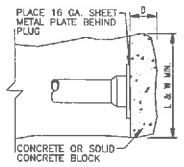




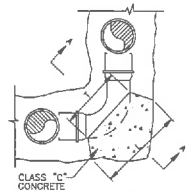
TEES

NOTE 1:
Restrained Joints Required: Concrete Thrust Blocks May Be Used In Addition To Restrained Joints, Per 3.3.1 And 3.3.2.

NOTE 2:
Felt Paper Or Plastic Sheet Shall Be Installed Around Tee Before Kicker Is Poured To Protect Hardware.



PLUGS



45° & 90° BENDS

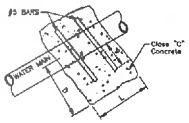
PLUGS & TEES							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	6"	6"	6"	6"
L&W	14"	16"	18"	20"	22"	24"	24"

(45°) EIGHTH BENDS							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	6"	6"	6"	8"
L	12"	14"	16"	18"	20"	22"	24"
T	10"	12"	14"	15"	16"	18"	18"

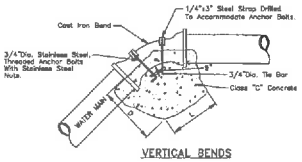
(90°) QUARTER BENDS							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	8"	10"	12"	12"
L	13"	18"	21"	24"	27"	30"	34"
T	10"	12"	14"	16"	18"	20"	22"

VERTICAL BEND & STRAIGHT PIPE							
SIZE	2"	3"	4"	6"	8"	10"	12"
"D"	10"	12"	12"	15"	15"	18"	18"
"L"	12"	18"	18"	24"	24"	30"	30"

NOTE: Anchors To Be Full Width Of Trench. Anchors Must Be Placed Against Undisturbed Earth.



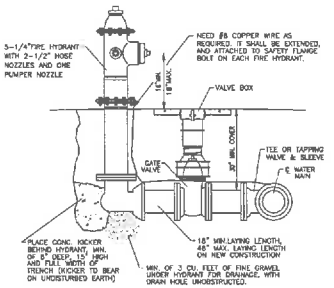
STRAIGHT PIPE



VERTICAL BENDS

TYPICAL CONCRETE ANCHOR BLOCK

NOT TO SCALE

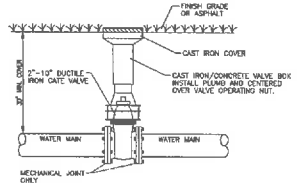


ONLY 5 ¼" M&H MODEL 129 OR MUELLER SUPER CENTURION WILL BE ACCEPTED BY THE SWWD.

TYPICAL FIRE HYDRANT

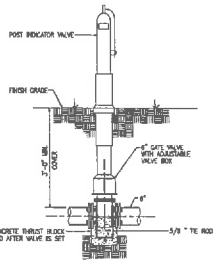
NOT TO SCALE

NOTE:
JBS NO. B004 VALVE BOXES SHALL BE USED OUTSIDE OF PAVEMENT AND JBS NO. B008 VALVE BOXES SHALL BE USED INSIDE OF PAVEMENT. EQUIVALENT VALVE BOXES MAY BE SUBSTITUTED UPON APPROVAL FROM THE CITY OF SPRINGFIELD WATER & WASTEWATER DEPT.



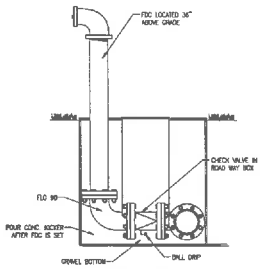
TYPICAL GATE VALVE DETAIL

NOT TO SCALE



POST INDICATOR VALVE

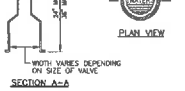
NOT TO SCALE



FDC AND CHECK VALVE

NOT TO SCALE

JOHN BOUCHARD & SONS CO.
NO. B004
FOR 4" THRU 12" VALVES
WEIGHT — 76 LBS.



WIDTH VARIES DEPENDING ON SIZE OF VALVE

SECTION A-A

FOUR USE OUTSIDE OF PAVEMENT

TYPICAL VALVE BOX

NOT TO SCALE

KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3068 FOM AUSTIN HWY., SUITE 7, SPRINGFIELD, TN 37172
PHONE (615) 373-4468
www.klobering.com

REVISIONS		
NO.	DATE	DESCRIPTION



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

NOT FOR CONSTRUCTION

CUMBERLAND
WELDING & FABRICATION

TULLAHOMA HIGHWAY
STRAWBERRY PLAINS
SPRINGFIELD
ROBERTSON COUNTY

DRAWN BY	CDN
CHECKED BY	JML
PROJECT NO	C091824

CONSTRUCTION DETAILS

SHEET NUMBER
C2.04

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.

STORMWATER DESIGN CALCULATIONS

FOR

Cumberland Welding & Fabrication

Tom Austin Hwy
Springfield, TN

May 15, 2024



Prepared By

KLOBER ENGINEERING SERVICES
3556 Tom Austin Hwy, Suite 1
Springfield, Tennessee 37172
(615) 382-2000

KLOBER
ENGINEERING SERVICES

Serving clients with Civil and Environmental Engineering Services

3556 Tom Austin Hwy, Suite 1
Springfield, Tennessee 37172
(615) 382-2000 Office
(888) 373-4485 Fax

STORM WATER CALCULATIONS

NOTE: Storm water runoff is calculated using the TR-55 Method. All flow calculations are based on methods established in the Nashville / Davidson County Stormwater Management Manual.

The following pages contain calculations for the storm water drainage system.

Stormwater Detention

As seen on DM-1, the current site conditions convey runoff to the southwest towards the existing site outfall. The existing outfall drains via unnamed tributaries towards Poorhouse Branch. The post developed site was analyzed by conveying a majority of the site runoff to a detention pond on the southwest side of the site and will be discharged at the existing outfall point. The detention pond will utilize a standard pond discharge box with multiple weirs.

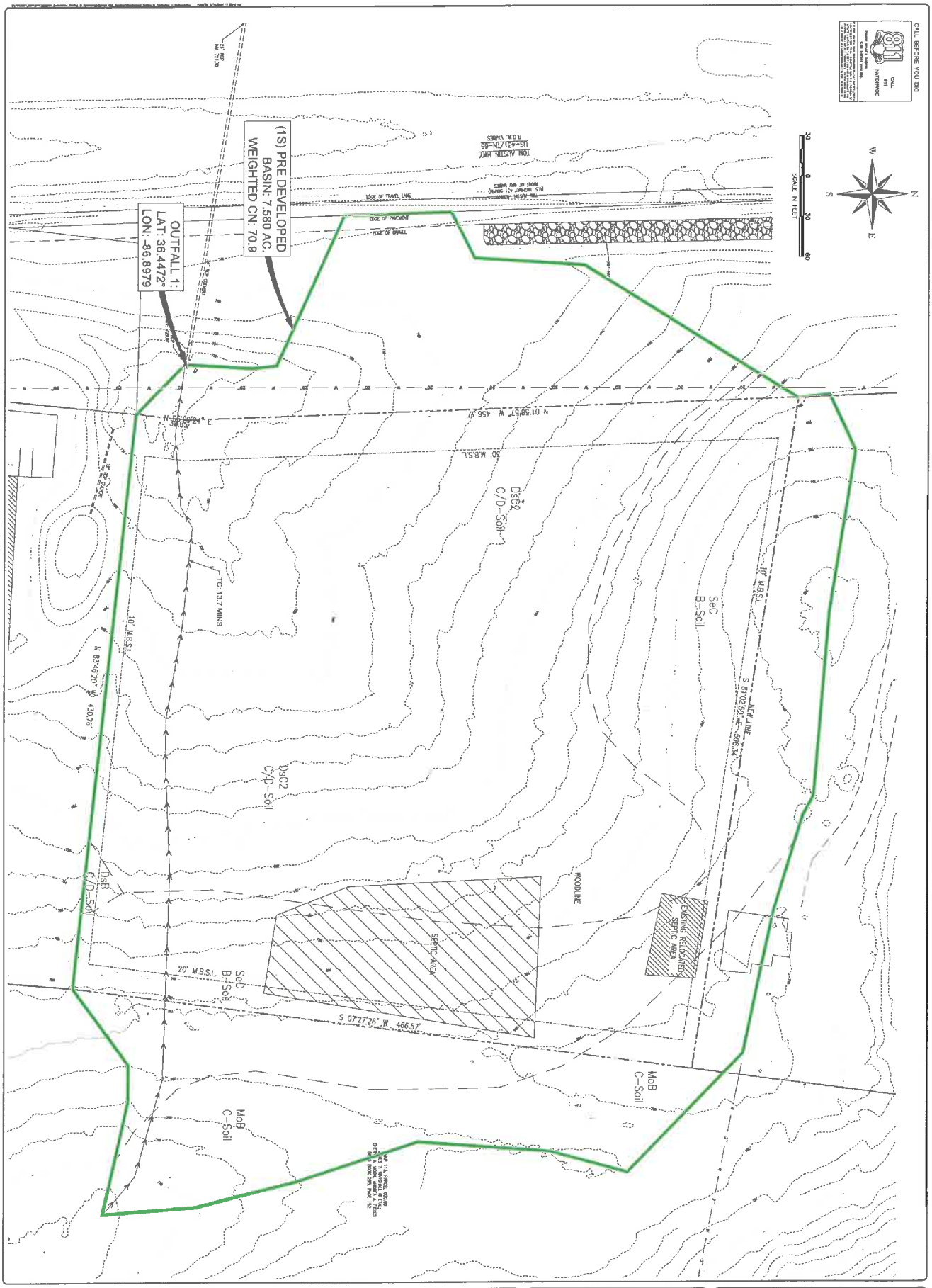
The following tables illustrate storm water runoff data for all drainage basins. The discharge from the pond and the portions that bypass the pond will be below predeveloped conditions.

Table 1

Storm Event	(1S): Pre-Dev. Runoff (cfs)	(2S): Post Dev. To Pond (cfs)	(1P): Post Dev. Pond Discharge (cfs)	(3S): Post Dev. Bypass (cfs)	Top of Pond Elev.: 741.00	(1R): Total Post- Dev. Discharge (cfs)
2 yr.	8.77	17.54	6.12	2.26	736.98	6.80
5 yr.	13.44	23.53	10.08	3.18	737.71	11.10
10 yr.	17.49	28.46	13.48	3.96	738.19	14.85
25 yr.	23.69	35.42	17.92	5.08	738.80	19.85
50 yr.	28.68	41.07	21.09	5.99	739.26	23.40
100yr.	34.07	46.94	25.00	6.96	739.70	27.56

Table 1: Total Drainage Basin Calculation Results

PRE-DEVELOPED



SHEET NUMBER	DM-1	DRAWN BY	CRK
SHEET TITLE	PRE DEVELOPED DRAINAGE MAP	CHECKED BY	JML
PROJECT NO.		CYMDI	

CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

NOT FOR CONSTRUCTION

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

REVISIONS			
NO	BY	DATE	DESCRIPTION

KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3068 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE: (615) 382-2000 FAX: (888) 373-4485
www.kloberseng.com

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.



Pre-Developed Basin

Subcat Reach Pond Link

Routing Diagram for Drainage
Prepared by Klober Engineering, Printed 5/15/2024
HydroCAD® 10.20-2g s/n 09895 © 2022 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Pre-Developed Basin

Runoff = 8.77 cfs @ 12.23 hrs, Volume= 0.632 af, Depth> 1.00"
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
0.031	98.0	Roofs, HSG B
0.557	69.0	50-75% Grass cover, Fair, HSG B
1.730	79.0	50-75% Grass cover, Fair, HSG C
1.899	60.0	Woods, Fair, HSG B
3.363	73.0	Woods, Fair, HSG C
7.580	70.9	Weighted Average
7.549		99.59% Pervious Area
0.031		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
7.0	540	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.7	650	Total			

Summary for Subcatchment 1S: Pre-Developed Basin

Runoff = 13.44 cfs @ 12.23 hrs, Volume= 0.949 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 5-Year Rainfall=4.35"

Area (ac)	CN	Description
0.031	98.0	Roofs, HSG B
0.557	69.0	50-75% Grass cover, Fair, HSG B
1.730	79.0	50-75% Grass cover, Fair, HSG C
1.899	60.0	Woods, Fair, HSG B
3.363	73.0	Woods, Fair, HSG C
7.580	70.9	Weighted Average
7.549		99.59% Pervious Area
0.031		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
7.0	540	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.7	650	Total			

Summary for Subcatchment 1S: Pre-Developed Basin

Runoff = 17.49 cfs @ 12.23 hrs, Volume= 1.227 af, Depth> 1.94"
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
0.031	98.0	Roofs, HSG B
0.557	69.0	50-75% Grass cover, Fair, HSG B
1.730	79.0	50-75% Grass cover, Fair, HSG C
1.899	60.0	Woods, Fair, HSG B
3.363	73.0	Woods, Fair, HSG C
7.580	70.9	Weighted Average
7.549		99.59% Pervious Area
0.031		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
7.0	540	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.7	650	Total			

Summary for Subcatchment 1S: Pre-Developed Basin

Runoff = 23.61 cfs @ 12.22 hrs, Volume= 1.644 af, Depth> 2.60"
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
0.031	98.0	Roofs, HSG B
0.557	69.0	50-75% Grass cover, Fair, HSG B
1.730	79.0	50-75% Grass cover, Fair, HSG C
1.899	60.0	Woods, Fair, HSG B
3.363	73.0	Woods, Fair, HSG C
7.580	70.9	Weighted Average
7.549		99.59% Pervious Area
0.031		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
7.0	540	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.7	650	Total			

Summary for Subcatchment 1S: Pre-Developed Basin

Runoff = 28.68 cfs @ 12.22 hrs, Volume= 1.999 af, Depth> 3.17"
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
0.031	98.0	Roofs, HSG B
0.557	69.0	50-75% Grass cover, Fair, HSG B
1.730	79.0	50-75% Grass cover, Fair, HSG C
1.899	60.0	Woods, Fair, HSG B
3.363	73.0	Woods, Fair, HSG C
7.580	70.9	Weighted Average
7.549		99.59% Pervious Area
0.031		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
7.0	540	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.7	650	Total			

Summary for Subcatchment 1S: Pre-Developed Basin

Runoff = 34.07 cfs @ 12.22 hrs, Volume= 2.381 af, Depth> 3.77"
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
0.031	98.0	Roofs, HSG B
0.557	69.0	50-75% Grass cover, Fair, HSG B
1.730	79.0	50-75% Grass cover, Fair, HSG C
1.899	60.0	Woods, Fair, HSG B
3.363	73.0	Woods, Fair, HSG C
7.580	70.9	Weighted Average
7.549		99.59% Pervious Area
0.031		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
7.0	540	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.7	650	Total			

POST-DEVELOPED

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.

KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL, SURVEY, AND LAND DEVELOPMENT SERVICES
3616 TOM AUSTIN HWY. SUITE 1 SPRINGFIELD, TN 37172
PHONE (615) 382-3000 FAX (888) 373-4468
www.klobereng.com

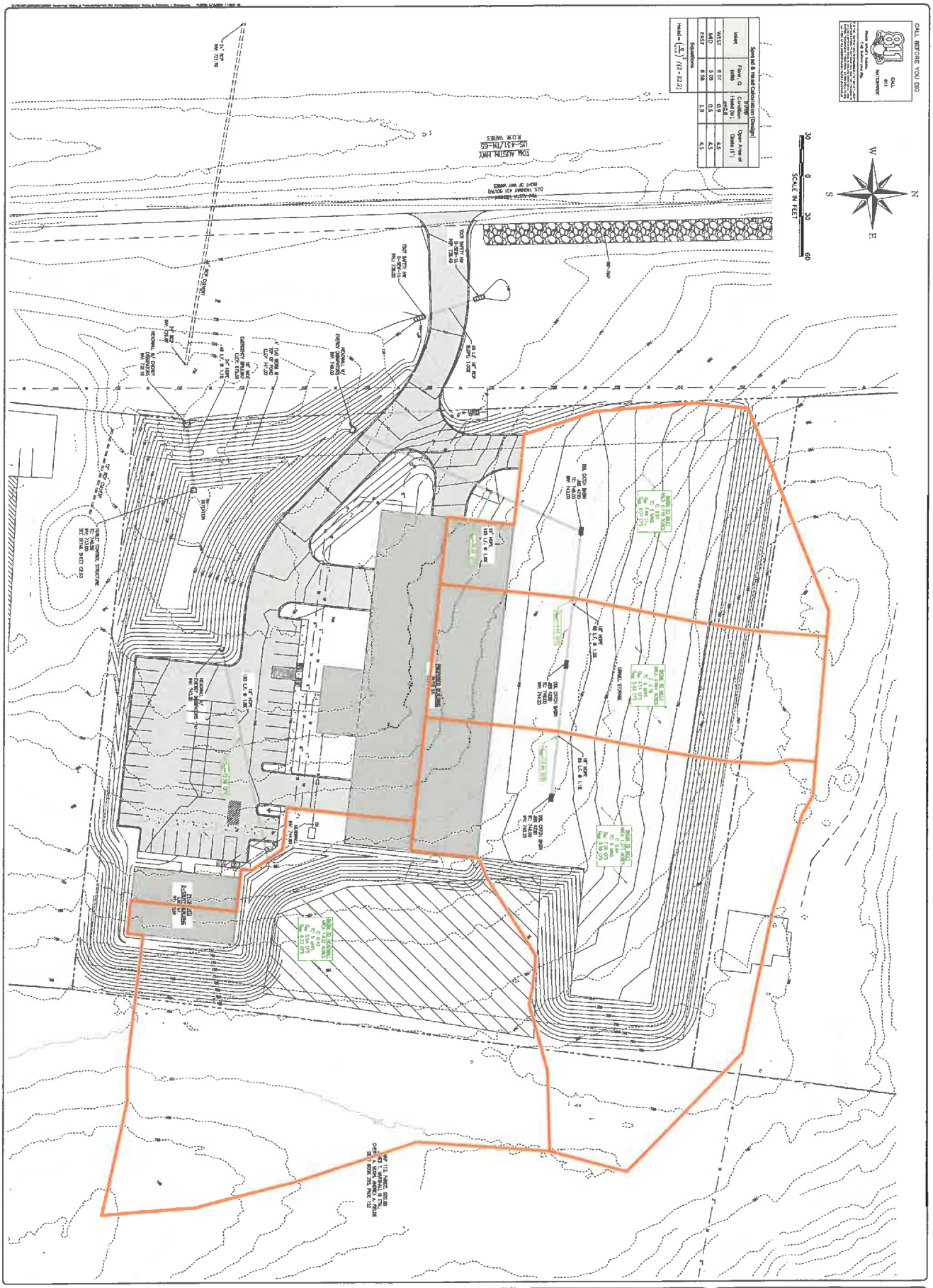
NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON, P.E. TN#112231
NOT FOR CONSTRUCTION

CUMBERLAND
WELDING & FABRICATION
TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	CJN
CHECKED BY	JML
PROJECT NO.	CW324

POST DEVELOPED DRAINAGE MAP
SHEET NUMBER DM-2



CUMBERLAND WELDING & FABRICATION

TOM AUSTIN HIGHWAY
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

NOT FOR CONSTRUCTION

JOSHUA M. KLOBER, P.E. No. 121331
STATE OF TENNESSEE

REVISIONS			
NO	BY	DATE	DESCRIPTION

SUBCATCHMENT MAP

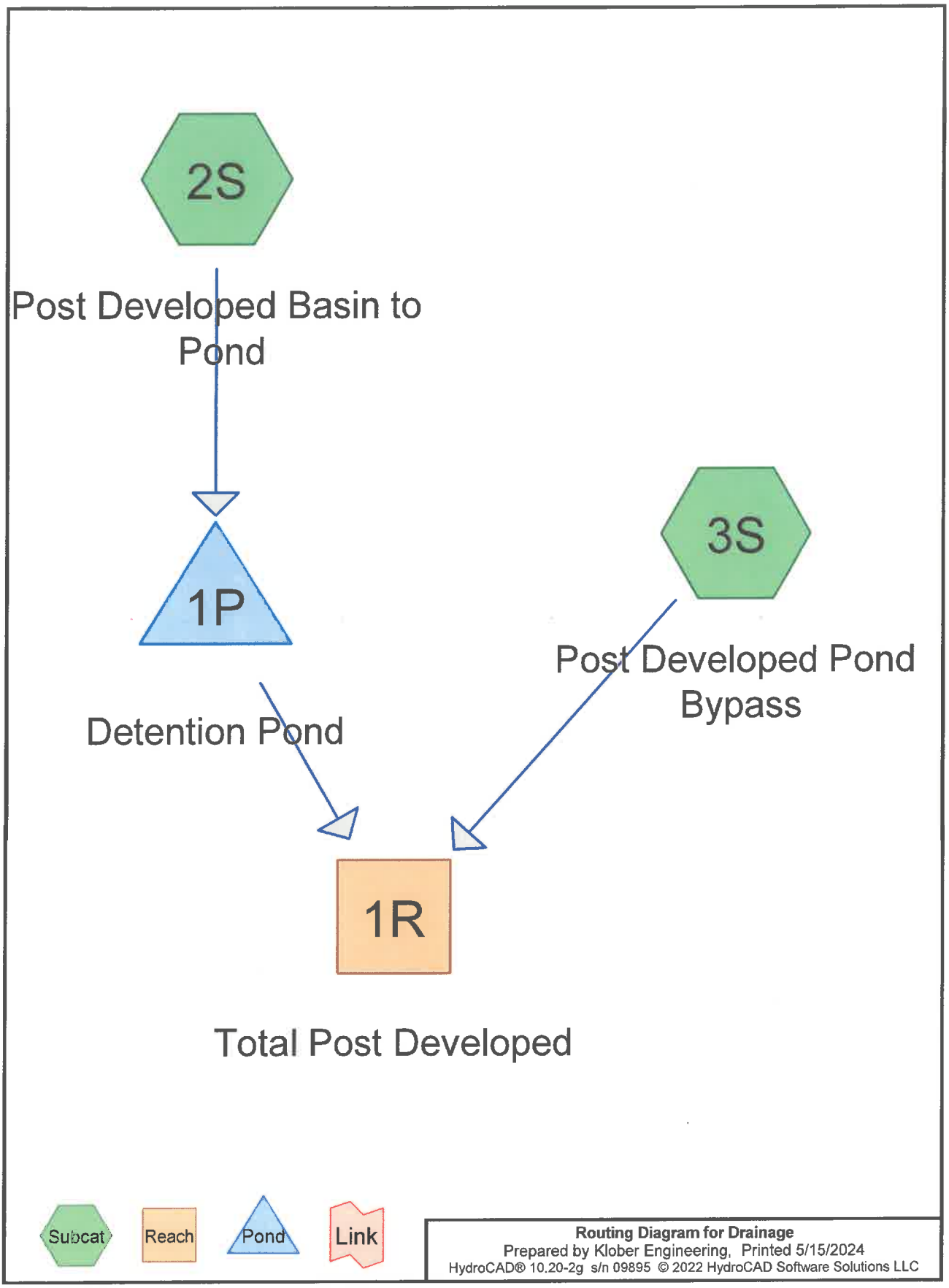
SHEET NUMBER: DM-3

DRAWN BY: CTD
CHECKED BY: JMK
PROJECT NO.: CW321

KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3598 TOM AUSTIN HWY. SUITE 1, SPRINGFIELD, TN 37172
PHONE (615) 382-2000 FAX (888) 373-4486
www.klobereng.com

REPRODUCTION OF THESE DRAWINGS OR ANY PART THEREOF IS PROHIBITED WITHOUT WRITTEN APPROVAL OF KLOBER ENGINEERING SERVICES. THESE DRAWINGS ARE PROTECTED BY U.S. COPYRIGHT LAWS AND VIOLATORS ARE SUBJECT TO LEGAL RECOURSE.


2S
Post Developed Basin to Pond
1P
3S
Post Developed Pond Bypass
Detention Pond
1R
Total Post Developed
Subcat
Reach
Pond
Link
Routing Diagram for Drainage
Prepared by Klober Engineering, Printed 5/15/2024
HydroCAD® 10.20-2g s/n 09895 © 2022 HydroCAD Software Solutions LLC

Summary for Subcatchment 2S: Post Developed Basin to Pond

Runoff = 17.54 cfs @ 12.15 hrs, Volume= 1.010 af, Depth> 1.84"
Routed to Pond 1P : 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
0.842	98.0	Paved parking, HSG B
0.731	98.0	Roofs, HSG B
1.322	96.0	Gravel surface, HSG B
1.270	69.0	50-75% Grass cover, Fair, HSG B
0.419	60.0	Woods, Fair, HSG B
1.877	79.0	50-75% Grass cover, Fair, HSG C
0.130	73.0	Woods, Fair, HSG C
6.591	83.7	Weighted Average
5.018		76.13% Pervious Area
1.573		23.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.9	110	0.0175	1.98		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	160	0.0100	6.44	11.38	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
8.0	380	Total			

Summary for Subcatchment 3S: Post Developed Pond Bypass

Runoff = 2.26 cfs @ 12.12 hrs, Volume= 0.118 af, Depth> 1.42"
Routed to Reach 1R : 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
0.870	79.0	50-75% Grass cover, Fair, HSG C
0.124	69.0	50-75% Grass cover, Fair, HSG B
0.994	77.8	Weighted Average
0.994		100.00% Pervious Area

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

Summary for Reach 1R: Total Post Developed

Inflow Area = 7.585 ac, 20.74% Impervious, Inflow Depth > 1.78" for 2-Year event
Inflow = 6.80 cfs @ 12.33 hrs, Volume= 1.126 af
Outflow = 6.80 cfs @ 12.33 hrs, Volume= 1.126 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 Pond 1P: Detention Pond

Inflow Area = 6.591 ac, 23.87% Impervious, Inflow Depth > 1.84" for 2-Year event
Inflow = 17.54 cfs @ 12.15 hrs, Volume= 1.010 af
Outflow = 6.12 cfs @ 12.37 hrs, Volume= 1.008 af, Atten= 65%, Lag= 13.3 min
Primary = 6.12 cfs @ 12.37 hrs, Volume= 1.008 af
Routed to Reach 1R : Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 736.98' @ 12.37 hrs Surf.Area= 5,504 sf Storage= 13,717 cf

Plug-Flow detention time= 30.4 min calculated for 1.005 af (99% of inflow)
Center-of-Mass det. time= 29.5 min (814.6 - 785.0)

Volume	Invert	Avail.Storage	Storage Description
#1	732.60'	47,563 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)
732.60	16	16.0	0	0	16
733.00	1,074	153.0	163	163	1,859
734.00	2,566	279.0	1,767	1,930	6,196
735.00	3,453	312.0	2,999	4,928	7,776
736.00	4,441	346.0	3,937	8,865	9,586
737.00	5,530	380.0	4,976	13,840	11,584
738.00	6,722	416.0	6,116	19,957	13,898
739.00	8,052	478.0	7,377	27,334	18,332
740.00	9,680	603.0	8,854	36,187	29,098
741.00	13,160	891.0	11,376	47,563	63,346

Device	Routing	Invert	Outlet Devices
#1	Primary	732.60'	**24.0" Round Culvert** L= 46.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 732.60' / 732.10' S= 0.0109 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	732.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	734.00'	**0.5' long x 3.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	737.00'	**1.5' long x 2.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	739.50'	**3.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.11 cfs @ 12.37 hrs HW=736.97' (Free Discharge)
└─**1=Culvert** (Passes 6.11 cfs of 24.51 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.92 cfs @ 9.78 fps)
  ├─**3=Sharp-Crested Rectangular Weir** (Weir Controls 4.19 cfs @ 5.64 fps)
  ├─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

Runoff = 23.53 cfs @ 12.15 hrs, Volume= 1.371 af, Depth> 2.50"
Routed to Pond 1P : 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
0.842	98.0	Paved parking, HSG B
0.731	98.0	Roofs, HSG B
1.322	96.0	Gravel surface, HSG B
1.270	69.0	50-75% Grass cover, Fair, HSG B
0.419	60.0	Woods, Fair, HSG B
1.877	79.0	50-75% Grass cover, Fair, HSG C
0.130	73.0	Woods, Fair, HSG C
6.591	83.7	Weighted Average
5.018		76.13% Pervious Area
1.573		23.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.9	110	0.0175	1.98		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	160	0.0100	6.44	11.38	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
8.0	380	Total			

Summary for Subcatchment 3S: Post Developed Pond Bypass

Runoff = 3.18 cfs @ 12.12 hrs, Volume= 0.167 af, Depth> 2.01"
Routed to Reach 1R : 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
0.870	79.0	50-75% Grass cover, Fair, HSG C
0.124	69.0	50-75% Grass cover, Fair, HSG B
0.994	77.8	Weighted Average
0.994		100.00% Pervious Area

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

Summary for Reach 1R: Total Post Developed

Inflow Area = 7.585 ac, 20.74% Impervious, Inflow Depth > 2.43" for 5-Year event
Inflow = 11.10 cfs @ 12.31 hrs, Volume= 1.534 af
Outflow = 11.10 cfs @ 12.31 hrs, Volume= 1.534 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 Pond 1P: Detention Pond

Inflow Area = 6.591 ac, 23.87% Impervious, Inflow Depth > 2.50" for 5-Year event
Inflow = 23.53 cfs @ 12.15 hrs, Volume= 1.371 af
Outflow = 10.08 cfs @ 12.32 hrs, Volume= 1.368 af, Atten= 57%, Lag= 10.2 min
Primary = 10.08 cfs @ 12.32 hrs, Volume= 1.368 af
Routed to Reach 1R : Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 737.71' @ 12.32 hrs Surf.Area= 6,362 sf Storage= 18,048 cf

Plug-Flow detention time= 30.2 min calculated for 1.368 af (100% of inflow)
Center-of-Mass det. time= 29.3 min (808.4 - 779.1)

Volume	Invert	Avail.Storage	Storage Description
#1	732.60'	47,563 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)
732.60	16	16.0	0	0	16
733.00	1,074	153.0	163	163	1,859
734.00	2,566	279.0	1,767	1,930	6,196
735.00	3,453	312.0	2,999	4,928	7,776
736.00	4,441	346.0	3,937	8,865	9,586
737.00	5,530	380.0	4,976	13,840	11,584
738.00	6,722	416.0	6,116	19,957	13,898
739.00	8,052	478.0	7,377	27,334	18,332
740.00	9,680	603.0	8,854	36,187	29,098
741.00	13,160	891.0	11,376	47,563	63,346

Device	Routing	Invert	Outlet Devices
#1	Primary	732.60'	**24.0" Round Culvert** L= 46.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 732.60' / 732.10' S= 0.0109 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	732.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	734.00'	**0.5' long x 3.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	737.00'	**1.5' long x 2.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	739.50'	**3.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.01 cfs @ 12.32 hrs HW=737.70' (Free Discharge)
└─**1=Culvert** (Passes 10.01 cfs of 27.02 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.08 cfs @ 10.60 fps)
  ├─**3=Sharp-Crested Rectangular Weir** (Orifice Controls 5.34 cfs @ 7.11 fps)
  ├─**4=Sharp-Crested Rectangular Weir** (Weir Controls 2.59 cfs @ 2.73 fps)
  └─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

Runoff = 28.46 cfs @ 12.15 hrs, Volume= 1.673 af, Depth> 3.05"
Routed to Pond 1P : 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
0.842	98.0	Paved parking, HSG B
0.731	98.0	Roofs, HSG B
1.322	96.0	Gravel surface, HSG B
1.270	69.0	50-75% Grass cover, Fair, HSG B
0.419	60.0	Woods, Fair, HSG B
1.877	79.0	50-75% Grass cover, Fair, HSG C
0.130	73.0	Woods, Fair, HSG C
6.591	83.7	Weighted Average
5.018		76.13% Pervious Area
1.573		23.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.9	110	0.0175	1.98		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	160	0.0100	6.44	11.38	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
8.0	380	Total			

Summary for Subcatchment 3S: Post Developed Pond Bypass

Runoff = 3.96 cfs @ 12.12 hrs, Volume= 0.208 af, Depth> 2.51"
Routed to Reach 1R : 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
0.870	79.0	50-75% Grass cover, Fair, HSG C
0.124	69.0	50-75% Grass cover, Fair, HSG B
0.994	77.8	Weighted Average
0.994		100.00% Pervious Area

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

Summary for Reach 1R: Total Post Developed

Inflow Area = 7.585 ac, 20.74% Impervious, Inflow Depth > 2.97" for 10-Year event
Inflow = 14.85 cfs @ 12.28 hrs, Volume= 1.877 af
Outflow = 14.85 cfs @ 12.28 hrs, Volume= 1.877 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 Pond 1P: Detention Pond

Inflow Area = 6.591 ac, 23.87% Impervious, Inflow Depth > 3.05" for 10-Year event
Inflow = 28.46 cfs @ 12.15 hrs, Volume= 1.673 af
Outflow = 13.48 cfs @ 12.30 hrs, Volume= 1.669 af, Atten= 53%, Lag= 9.1 min
Primary = 13.48 cfs @ 12.30 hrs, Volume= 1.669 af
Routed to Reach 1R : Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 738.19' @ 12.30 hrs Surf.Area= 6,964 sf Storage= 21,247 cf

Plug-Flow detention time= 29.6 min calculated for 1.663 af (99% of inflow)
Center-of-Mass det. time= 28.6 min (803.8 - 775.2)

Volume	Invert	Avail.Storage	Storage Description
#1	732.60'	47,563 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)
732.60	16	16.0	0	0	16
733.00	1,074	153.0	163	163	1,859
734.00	2,566	279.0	1,767	1,930	6,196
735.00	3,453	312.0	2,999	4,928	7,776
736.00	4,441	346.0	3,937	8,865	9,586
737.00	5,530	380.0	4,976	13,840	11,584
738.00	6,722	416.0	6,116	19,957	13,898
739.00	8,052	478.0	7,377	27,334	18,332
740.00	9,680	603.0	8,854	36,187	29,098
741.00	13,160	891.0	11,376	47,563	63,346

Device	Routing	Invert	Outlet Devices
#1	Primary	732.60'	**24.0" Round Culvert** L= 46.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 732.60' / 732.10' S= 0.0109 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	732.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	734.00'	**0.5' long x 3.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	737.00'	**1.5' long x 2.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	739.50'	**3.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.47 cfs @ 12.30 hrs HW=738.19' (Free Discharge)
↑—**1=Culvert** (Passes 13.47 cfs of 28.58 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 2.18 cfs @ 11.12 fps)
—**3=Sharp-Crested Rectangular Weir** (Orifice Controls 5.95 cfs @ 7.93 fps)
—**4=Sharp-Crested Rectangular Weir** (Weir Controls 5.34 cfs @ 3.56 fps)
—**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

Runoff = 35.42 cfs @ 12.15 hrs, Volume= 2.107 af, Depth> 3.84"
Routed to Pond 1P : 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
0.842	98.0	Paved parking, HSG B
0.731	98.0	Roofs, HSG B
1.322	96.0	Gravel surface, HSG B
1.270	69.0	50-75% Grass cover, Fair, HSG B
0.419	60.0	Woods, Fair, HSG B
1.877	79.0	50-75% Grass cover, Fair, HSG C
0.130	73.0	Woods, Fair, HSG C
6.591	83.7	Weighted Average
5.018		76.13% Pervious Area
1.573		23.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.9	110	0.0175	1.98		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	160	0.0100	6.44	11.38	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
8.0	380	Total			

Summary for Subcatchment 3S: Post Developed Pond Bypass

Runoff = 5.08 cfs @ 12.12 hrs, Volume= 0.269 af, Depth> 3.25"
Routed to Reach 1R : 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
0.870	79.0	50-75% Grass cover, Fair, HSG C
0.124	69.0	50-75% Grass cover, Fair, HSG B
0.994	77.8	Weighted Average
0.994		100.00% Pervious Area

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

Summary for Reach 1R: Total Post Developed

Inflow Area = 7.585 ac, 20.74% Impervious, Inflow Depth > 3.75" for 25-Year event
Inflow = 19.85 cfs @ 12.26 hrs, Volume= 2.371 af
Outflow = 19.85 cfs @ 12.26 hrs, Volume= 2.371 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 Pond 1P: Detention Pond

Inflow Area = 6.591 ac, 23.87% Impervious, Inflow Depth > 3.84" for 25-Year event
Inflow = 35.42 cfs @ 12.15 hrs, Volume= 2.107 af
Outflow = 17.92 cfs @ 12.29 hrs, Volume= 2.102 af, Atten= 49%, Lag= 8.2 min
Primary = 17.92 cfs @ 12.29 hrs, Volume= 2.102 af
Routed to Reach 1R : Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 738.80' @ 12.29 hrs Surf.Area= 7,773 sf Storage= 25,734 cf

Plug-Flow detention time= 28.9 min calculated for 2.095 af (99% of inflow)
Center-of-Mass det. time= 27.7 min (798.3 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1	732.60'	47,563 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)
732.60	16	16.0	0	0	16
733.00	1,074	153.0	163	163	1,859
734.00	2,566	279.0	1,767	1,930	6,196
735.00	3,453	312.0	2,999	4,928	7,776
736.00	4,441	346.0	3,937	8,865	9,586
737.00	5,530	380.0	4,976	13,840	11,584
738.00	6,722	416.0	6,116	19,957	13,898
739.00	8,052	478.0	7,377	27,334	18,332
740.00	9,680	603.0	8,854	36,187	29,098
741.00	13,160	891.0	11,376	47,563	63,346

Device	Routing	Invert	Outlet Devices
#1	Primary	732.60'	**24.0" Round Culvert** L= 46.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 732.60' / 732.10' S= 0.0109 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	732.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	734.00'	**0.5' long x 3.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	737.00'	**1.5' long x 2.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	739.50'	**3.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=17.85 cfs @ 12.29 hrs HW=738.79' (Free Discharge)
└─**1=Culvert** (Passes 17.85 cfs of 30.40 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.30 cfs @ 11.73 fps)
  ├─**3=Sharp-Crested Rectangular Weir** (Orifice Controls 6.61 cfs @ 8.81 fps)
  ├─**4=Sharp-Crested Rectangular Weir** (Weir Controls 8.93 cfs @ 4.37 fps)
  └─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

Runoff = 41.07 cfs @ 12.15 hrs, Volume= 2.466 af, Depth> 4.49"
Routed to Pond 1P : 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
0.842	98.0	Paved parking, HSG B
0.731	98.0	Roofs, HSG B
1.322	96.0	Gravel surface, HSG B
1.270	69.0	50-75% Grass cover, Fair, HSG B
0.419	60.0	Woods, Fair, HSG B
1.877	79.0	50-75% Grass cover, Fair, HSG C
0.130	73.0	Woods, Fair, HSG C
6.591	83.7	Weighted Average
5.018		76.13% Pervious Area
1.573		23.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.9	110	0.0175	1.98		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	160	0.0100	6.44	11.38	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
8.0	380	Total			

Summary for Subcatchment 3S: Post Developed Pond Bypass

Runoff = 5.99 cfs @ 12.12 hrs, Volume= 0.321 af, Depth> 3.87"
Routed to Reach 1R : 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
0.870	79.0	50-75% Grass cover, Fair, HSG C
0.124	69.0	50-75% Grass cover, Fair, HSG B
0.994	77.8	Weighted Average
0.994		100.00% Pervious Area

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

Summary for Reach 1R: Total Post Developed

Inflow Area = 7.585 ac, 20.74% Impervious, Inflow Depth > 4.40" for 50-Year event
Inflow = 23.40 cfs @ 12.25 hrs, Volume= 2.779 af
Outflow = 23.40 cfs @ 12.25 hrs, Volume= 2.779 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 Pond 1P: Detention Pond

Inflow Area = 6.591 ac, 23.87% Impervious, Inflow Depth > 4.49" for 50-Year event
Inflow = 41.07 cfs @ 12.15 hrs, Volume= 2.466 af
Outflow = 21.09 cfs @ 12.28 hrs, Volume= 2.458 af, Atten= 49%, Lag= 7.9 min
Primary = 21.09 cfs @ 12.28 hrs, Volume= 2.458 af
Routed to Reach 1R : Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 739.26' @ 12.28 hrs Surf.Area= 8,453 sf Storage= 29,439 cf

Plug-Flow detention time= 28.5 min calculated for 2.458 af (100% of inflow)
Center-of-Mass det. time= 27.2 min (794.6 - 767.4)

Volume	Invert	Avail.Storage	Storage Description
#1	732.60'	47,563 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)
732.60	16	16.0	0	0	16
733.00	1,074	153.0	163	163	1,859
734.00	2,566	279.0	1,767	1,930	6,196
735.00	3,453	312.0	2,999	4,928	7,776
736.00	4,441	346.0	3,937	8,865	9,586
737.00	5,530	380.0	4,976	13,840	11,584
738.00	6,722	416.0	6,116	19,957	13,898
739.00	8,052	478.0	7,377	27,334	18,332
740.00	9,680	603.0	8,854	36,187	29,098
741.00	13,160	891.0	11,376	47,563	63,346

Device	Routing	Invert	Outlet Devices
#1	Primary	732.60'	**24.0" Round Culvert** L= 46.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 732.60' / 732.10' S= 0.0109 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	732.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	734.00'	**0.5' long x 3.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	737.00'	**1.5' long x 2.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	739.50'	**3.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=21.01 cfs @ 12.28 hrs HW=739.24' (Free Discharge)
↑—**1=Culvert** (Passes 21.01 cfs of 31.71 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 2.39 cfs @ 12.17 fps)
—**3=Sharp-Crested Rectangular Weir** (Orifice Controls 7.07 cfs @ 9.42 fps)
—**4=Sharp-Crested Rectangular Weir** (Weir Controls 11.55 cfs @ 4.90 fps)
—**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

Runoff = 46.94 cfs @ 12.15 hrs, Volume= 2.844 af, Depth> 5.18"
Routed to Pond 1P : 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
0.842	98.0	Paved parking, HSG B
0.731	98.0	Roofs, HSG B
1.322	96.0	Gravel surface, HSG B
1.270	69.0	50-75% Grass cover, Fair, HSG B
0.419	60.0	Woods, Fair, HSG B
1.877	79.0	50-75% Grass cover, Fair, HSG C
0.130	73.0	Woods, Fair, HSG C
6.591	83.7	Weighted Average
5.018		76.13% Pervious Area
1.573		23.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	110	0.0545	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
0.9	110	0.0175	1.98		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	160	0.0100	6.44	11.38	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Corrugated PP, smooth interior
8.0	380	Total			

Summary for Subcatchment 3S: Post Developed Pond Bypass

Runoff = 6.96 cfs @ 12.11 hrs, Volume= 0.375 af, Depth> 4.53"
Routed to Reach 1R : 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
0.870	79.0	50-75% Grass cover, Fair, HSG C
0.124	69.0	50-75% Grass cover, Fair, HSG B
0.994	77.8	Weighted Average
0.994		100.00% Pervious Area

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

Summary for Reach 1R: Total Post Developed

Inflow Area = 7.585 ac, 20.74% Impervious, Inflow Depth > 5.08" for 100-Year event
Inflow = 27.56 cfs @ 12.26 hrs, Volume= 3.208 af
Outflow = 27.56 cfs @ 12.26 hrs, Volume= 3.208 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 Pond 1P: Detention Pond

Inflow Area = 6.591 ac, 23.87% Impervious, Inflow Depth > 5.18" for 100-Year event
Inflow = 46.94 cfs @ 12.15 hrs, Volume= 2.844 af
Outflow = 25.00 cfs @ 12.27 hrs, Volume= 2.833 af, Atten= 47%, Lag= 7.5 min
Primary = 25.00 cfs @ 12.27 hrs, Volume= 2.833 af
Routed to Reach 1R : Total Post Developed

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 739.70' @ 12.27 hrs Surf.Area= 9,176 sf Storage= 33,359 cf

Plug-Flow detention time= 28.3 min calculated for 2.833 af (100% of inflow)
Center-of-Mass det. time= 26.6 min (791.1 - 764.5)

Volume	Invert	Avail.Storage	Storage Description
#1	732.60'	47,563 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)
732.60	16	16.0	0	0	16
733.00	1,074	153.0	163	163	1,859
734.00	2,566	279.0	1,767	1,930	6,196
735.00	3,453	312.0	2,999	4,928	7,776
736.00	4,441	346.0	3,937	8,865	9,586
737.00	5,530	380.0	4,976	13,840	11,584
738.00	6,722	416.0	6,116	19,957	13,898
739.00	8,052	478.0	7,377	27,334	18,332
740.00	9,680	603.0	8,854	36,187	29,098
741.00	13,160	891.0	11,376	47,563	63,346

Device	Routing	Invert	Outlet Devices
#1	Primary	732.60'	**24.0" Round Culvert** L= 46.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 732.60' / 732.10' S= 0.0109 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	732.60'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	734.00'	**0.5' long x 3.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	737.00'	**1.5' long x 2.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	739.50'	**3.0' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=24.71 cfs @ 12.27 hrs HW=739.67' (Free Discharge)
↑—**1=Culvert** (Passes 24.71 cfs of 32.89 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 2.47 cfs @ 12.58 fps)
—**3=Sharp-Crested Rectangular Weir** (Orifice Controls 7.47 cfs @ 9.97 fps)
—**4=Sharp-Crested Rectangular Weir** (Orifice Controls 14.06 cfs @ 5.62 fps)
—**5=Sharp-Crested Rectangular Weir** (Weir Controls 0.70 cfs @ 1.36 fps)

Hydrologic Soil Group—Robertson County, Tennessee



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 21, Sep 12, 2023

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	0.2	1.8%
DsC2	Dickson silt loam, 5 to 12 percent slopes	C/D	5.9	61.0%
MoB	Mountview silt loam, 2 to 5 percent slopes	C	0.3	2.6%
NxC	Nixa cherty silt loam, 5 to 12 percent slopes	C	0.9	9.1%
SeC	Sengtown gravelly silt loam, 5 to 12 percent slopes	B	2.4	25.5%
Totals for Area of Interest			**9.6**	**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

New Business: C

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: R20
2. Physical Address of Property: HWY. 41 NORTH CEDAR HILL, TN. 37032
3. Tax Map & Parcel Number: MAP 55, PARCEL 70
4. Size of Property (square feet or acres): 22.20 AC.

5. **Owner of Record Information**
   Name: MAC E. BAGGETT SR.
   Mailing Address (No P.O. Boxes, please): 4781 HWY. 41 NORTH SPRINGFIELD, TN. 37172
   Email: _____
   Telephone Number: 615 - 382-9115

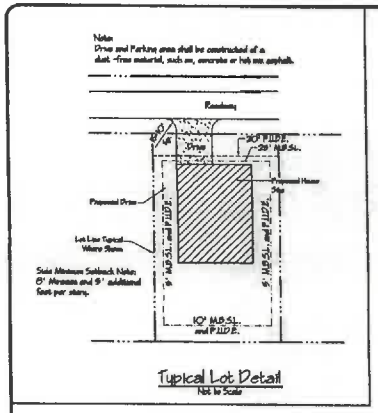
6. **Owner's Representative Information (Surveyor, Self, Engineer, etc.)**
   Name: STEVE ARTZ
   Name of Firm: STEVEN E. ARTZ & ASSOCIATES, INC.
   Mailing Address (No P.O. Boxes, please): 4800 HWY. 431 NORTH SPRINGFIELD, TN 37172
   Email: artz.steve@gmail.com
   Telephone Number: 615-382-0481

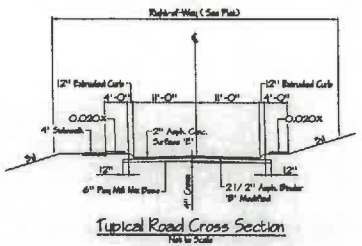
7. **Purpose of Plat:**
   CONCEPT PLAN OF CLUSTER DEVELOPMENT OF NORTHLAND ESTATES - SECTION TWO

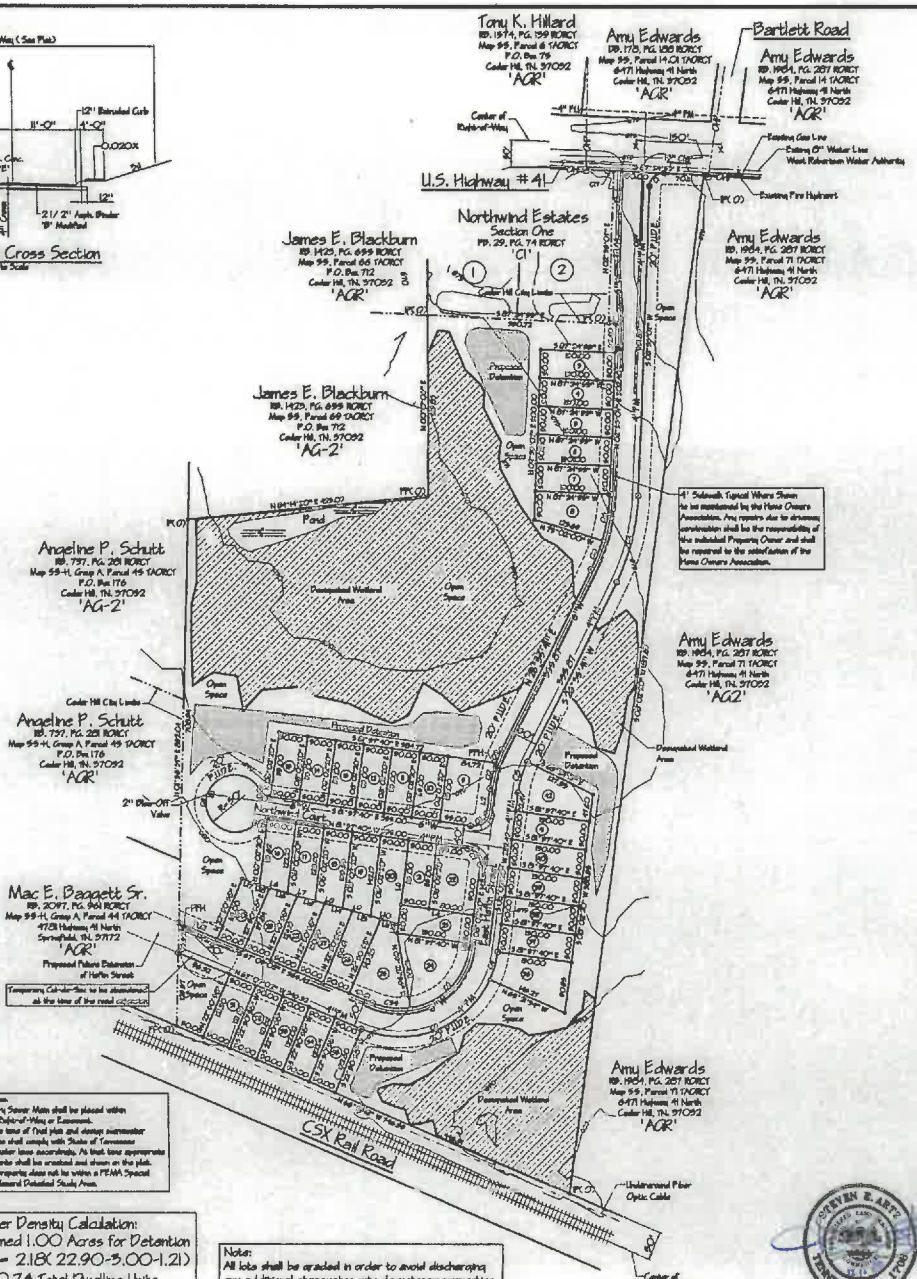
SUBMITTAL REVIEW PROCEDURE:

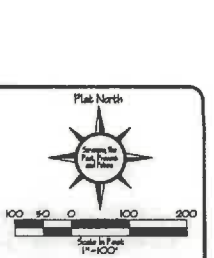
1. Submit 1 hard copy (no smaller than 17" x 22") of the plat, this completed application, and fee payment to the Robertson County Planning & Zoning Department. **Please ensure the application is signed.** ***Attach proof of ownership of property (copy of deed is typical). Pay the review fee.***
2. Email 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 **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 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.**

Owner's Signature & DATE Owner's Representative Signature & DATE









Surveyor's Notes:
1. No Title Report was furnished to the 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.

Topographic Notes:
1. Contour interval = 2 feet.
2. Vertical datum referenced to NAVD88.

Storm Drainage Note:
At the time of Final Design Proposed Detention Shown hereon are subject to change.

Utility Note:
Adequate Water and Sanitary Sewer Capacity is available for this development.

Note:
All Open Spaces shall be Public Utility and Drainage Easements.

DRIVEWAY NOTES:
1. A DRIVEWAY PERMIT SHALL BE OBTAIN FROM LOCAL ROAD AUTHORITY PRIOR TO ISSUANCE OF BUILDING PERMIT.
2. DRIVEWAY CULVERTS SHALL BE A MINIMUM DIAMETER OF 12" OR MATCH THE DIAMETER OF THE NEAREST UPSTREAM CULVERT, THE MINIMUM LENGTH SHALL BE 20' OR AS DIRECTED BY LOCAL ROAD AUTHORITY. NO CULVERT SHALL BE LESS THAN 15" IN DIAMETER.

Deed Reference:
Record Book 1052, Page 369 ROHCT
Map 99, Parcel 70 TAOHCT

Civil File No. 060CIVIL1-25
Coastal File No. 060COAST

Legend
IP(O) Iron Pin (Old)
○ Iron Pin (New)
⊕ Iron Rod Monument (New)
PK(O) Fence Post (Old)
⊙ Power Pole
—OHP— Overhead Power Line
—FM— Sanitary Sewer Force Main
FH Proposed Fire Hydrant
—W— Water Line
L1 Refer to Line Table Shown Hereon for Data
C1 Refer to Curve Table Shown Hereon for Data
M.B.S.L. Minimum Building Setback line
P.U.D.E. Public Utility and Drainage Easement

Mac E. Baggett Sr.
OWNER/ DEVELOPER
4731 Highway 41 North
Springfield, TN. 37072
(615) 382-9115
'Cluster Development'



VICINITY MAP

Steven E. Artz and Associates, Inc.
Land Surveyors
P.O. Box 929 Springfield, TN. 37172
email: artz.steve@gmail.com (615) 382-0418

Conceptual Plan of
Northwind Estates
Section Two
PLAN DATE 12/12/25

Total No. Lots 40
Total Acres 22.20
Total Acres Open Space 15.62
Minimum Lot Size 9,750 S.F.
Zoning Classification 'EDC'
City, Civil District, Robertson County, Tennessee
Scale 1"=100'
Acres New Road 5.00



I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON, AND THIS IS ACCURACY OF LAND SURVEY ASSIGNED IN RULE 62, CHAPTER 10, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS GREATER THAN OR EQUAL TO 1:10,000+.

Lot Summary

Lot Number	Square Feet	Acres
3	6900.0000	0.1492
4	6900.0000	0.1492
5	6900.0000	0.1492
6	6900.0000	0.1492
7	6900.0000	0.1492
8	8581.0794	0.1924
9	9737.5952	0.2086
10	9750.0000	0.1920
11	9750.0000	0.1920
12	9750.0000	0.1920
13	9750.0000	0.1920
14	9750.0000	0.1920
15	9750.0000	0.1920
16	5947.0624	0.1265
17	6219.1409	0.1148
18	6611.2595	0.1518
19	6945.3283	0.1994
20	7279.4082	0.1670
21	9750.0000	0.1920
22	9068.8759	0.2081
23	6500.0000	0.1492
24	11256.7108	0.2580
25	10911.0279	0.2567
26	7004.1997	0.1608
27	6606.3904	0.1935
28	6560.8231	0.1462
29	6080.0848	0.1359
30	5759.9295	0.1529
31	6071.3628	0.1394
32	6084.3580	0.1597
33	8097.9152	0.1400
34	8110.4884	0.1409
35	8123.4636	0.1406
36	9450.9255	0.2169
37	6500.0000	0.1492
38	6500.0000	0.1492
39	6900.0000	0.1492
40	6500.0000	0.1492
41	6900.0000	0.1492
42	8849.2979	0.2030

Line Table

NUMBER	DIRECTION	DISTANCE
L1	N 87°24'55" W	15.41
L2	N 08°02'20" E	44.18
L3	S 08°02'20" W	69.00
L4	S 81°57'40" E	150.00
L5	S 08°02'20" W	8.31
L6	S 74°25'40" E	90.44
L7	S 74°25'40" E	90.44
L8	S 74°25'40" E	90.44
L9	S 74°25'40" E	90.44
L10	S 74°25'40" E	90.44
L11	S 74°25'40" E	92.78
L12	S 08°02'20" W	16.17
L13	S 74°25'40" E	90.40
L14	S 74°25'40" E	90.40
L15	S 74°25'40" E	90.40
L16	S 74°25'40" E	90.40
L17	S 65°12'11" E	92.34
L18	S 74°25'40" E	17.81

Curve Table

NUMBER	DELTA ANGLE	RADIUS	TANGENT	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	90°00'00"	29.00	29.00	39.27	S 47°34'07" W	35.36
C2	24°00'54"	375.00	79.74	157.14	S 14°35'24" W	155.99
C3	18°39'21"	175.00	28.59	56.65	S 17°19'01" W	56.40
C4	16°36'06"	175.00	25.55	50.71	S 16°20'25" W	50.53
C5	88°12'52"	175.00	169.61	269.42	S 60°44'42" W	243.59
C6	74°17'36"	129.00	95.01	165.27	S 82°47'50" E	67.45
C7	73°31'02"	129.00	99.37	160.39	N 44°47'31" E	149.61
C8	90°00'00"	29.00	29.00	39.27	N 36°57'40" W	35.36
C9	89°07'49"	29.00	12.90	25.15	S 71°25'26" W	22.36
C10	206°15'37"	90.00	-57.50	241.84	N 08°02'20" E	80.00
C11	89°07'49"	29.00	12.90	25.15	S 89°29'46" E	22.36
C12	90°00'00"	29.00	29.00	39.27	N 35°02'20" E	35.36
C13	11°45'09"	229.00	23.15	46.19	N 19°54'55" E	46.06
C14	06°48'18"	229.00	13.56	26.72	N 25°11'32" E	26.71
C15	08°37'48"	529.00	27.37	54.61	N 21°46'51" E	54.55
C16	14°22'59"	929.00	41.00	81.56	N 09°46'59" E	81.56
C17	27°27'10"	29.00	6.11	11.98	N 75°41'51" W	11.86

Plat Notes:
1. Sanitary Sewer Main shall be placed within Public Right-of-Way or Easement.
2. At the time of final plan and design stormwater facilities shall comply with State of Tennessee Stormwater laws accordingly. At that time appropriate easements shall be created and shown on the plat.
3. The property does not lie within a FEMA Special Flood Hazard Detailed Study Area.

Cluster Density Calculation:
Assumed 1.00 Acres for Detention
TDU = 2.18(22.90-3.00-1.21)
= 40.74 Total Dwelling Units

Note:
All lots shall be graded in order to avoid discharging any additional stormwater onto downstream properties.

ROBERTSON COUNTY PLANNING COMMISSION

Form Number 3

PRELIMINARY PLAT CHECKLIST

NAME OF SUBDIVISION Northwind Estates

LOCATION Cedar Hill ZONING DISTRICT R-20

OWNER Mac Bagsett, Sr.

ENGINEER OR SURVEYOR Steve Artz

✓ 1. First submittal, six (6) full sized copies are required. Second submittal, fifteen (15) copies (five (5) full size copies and ten (10) reduced 11" X 17" copies) are required of anything pertaining to the request.

✓ 2. Location of property with respect to surrounding property and streets.

✓ 3. Names of all adjoining property owners, or names of adjoining developments.

✓ 4. Contours at not more than five (5) foot intervals.

✓ 5. Location and dimensions of all boundary lines of the property to the nearest one hundredth (1/100) of a foot.

✓ 6. Location and names of existing streets.

✓ 7. Location of existing easements and utilities.

✓ 8. Location of existing water bodies, streams, and other pertinent features, such as swamps, railroads, buildings, parks, cemeteries, drainage ditches, bridges, etc.

✓ 9. Locations, dimensions, and areas of all proposed or existing lots.

✓ 10. Location and dimensions of all property proposed to be set aside for park or playground use or other public or private reservation, with designation of the purpose thereof, and conditions, if any, of the dedication or reservation.

✓ 11. Date of Plat.

✓ 12. Appropriate true north point.

✓ 13. Scale of plat.

✓ 14. Plans of proposed utility layout.

✓ 15. Data from which the location, bearing, and length of all lines can be determined and reproduced on the ground.

✓ 16. Names, locations and dimensions of proposed streets and easements.

✓ 17. Indication of the use of any lot and all uses other than residential.

✓ 18. Lots numbered.

APPROVED: R.D. Tann 6-14-24
DATE

CONDITIONS:

DISAPPROVED: _____
DATE

FOLLOWING REASONS:

SIGNED: _____
SECRETARY OF PLANNING COMMISSION