MEMORANDUM

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

TO: Planning Commission Members
FROM: Planning Staff
DATE: October 17, 2024

The Robertson County Planning Commission will hold its monthly meeting on **Thursday October 24, 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 November 18, 2024.
4. Approval of Minutes: Approval of Minutes from September 26, 2023, meeting.
5. Old Business: None
6. New Business:
   A. **Sarah Teague, CFO (Ed Fletcher):** Final Site Plan for Fletchline Inc., located at 5480 Lakeview Rd., Springfield. Tax Map 045, Parcel 020.00 (8th Voting District). Represented by Kyle Schneider, Klober Engineering.
7. Reports from Staff: None
8. Adjourn

The Robertson County Planning Commission met on September 26, 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	Daniel Borthick	Hunter Mantooth
Allan Heard		Pam Groves
Charles "Gene" Federman		David Fauth - Planner
Jeremiah Pierce		
Cheryl Elliott		
William B Henry		
Jeremy Stinson		

Meeting was called to order by Chairman, Bill Jones at 7:00 pm.

Roll Call was completed by Hunter Mantooth. All the members were present, but Daniel Borthick. Keith Hoover resigned via email to Mayor Billy Vogle on 8/22/24.

Announcements: Chairman Bill Jones announced that the zoning from this agenda will be heard at the County Commission on October 21, 2024. Any citizens wishing to speak for or against any items on the agenda will need to sign in on the sheet provided. Ten signed in to speak.

Motion to approve Minutes from previous meeting of August 22, 2024, made by Cheryl Elliott with a second by Allan Heard.
Motion passed unanimously 7-0.

1. Old Business: None

2. New Business:

   A. **Paul B Cook:** Rezone Request for 1.85 acres of the 50.60 acres of property located at 6682 Lovel Cook Rd., Springfield. Tax Map 072, Part of Parcel 003.00 from AG-2 to RP-80 (8th Voting District). Represented by Steve Artz, Steve Artz & Associates, Inc.
   Steve Artz was there to present and answer questions.
   Noone signed up to speak on this matter

   Motion to recommend was made by Allan Heard with a second from Jeremiah Pierce.
   Motion passed unanimously 7 - 0.

   B. **Belinda Kelly:** Rezone Request for 5.01 acres of property located at 2544 S. Mt. Pleasant Rd., Greenbrier. Tax Map 116, Parcel 225.00 from AG-2 to RP-80 (4th Voting District). Represented by Todd Bollinger, Todd Bollinger & Associates.
   Todd Bollinger was there to present and answer questions.
   Noone signed up to speak on this matter.

   Motion to recommend was made by Gene Federman with a second from William B Henry.
   Motion passed unanimously 7 - 0.

C. **Josh Lyon, PE on behalf of Ed Fletcher:** Concept Plan for Horseshoe Estates located at 3769 Calista Rd and Hale Rd., Cross Plains. Tax Map 058, Parcels 016.00 & 010.00 (1st Voting District). Represented by Josh Lyon, PE, Klober Engineering.
Agenda item was deferred per email on received from developer on 9/23/24

D. **Jessica Mormando:** Address the Commission pertaining to Solar Zoning Amendments. Jessica stated her thoughts and concerns. Four citizens signed up to speak on this agenda item. There were given a chance to voice their concerns and opinions. Three of those that spoke were with solar companies and gave information and reports on solar farms.
Jeremiah Pierce made a motion to have the planner and planning department look into the decommissioning bond pertaining to CPI and inflation. Cheryl Elliott with a second. Motion passed 7 - 0.

Reports from Staff: None

A motion to adjourn made by Jeremy Stinson with a second by Gene Federman. Motion passed unanimously 7-0 and the meeting was adjourned at 7:50 pm.

Respectfully submitted,

Gene Federman

Gene Federman, Secretary

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

October 9, 2024

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

RE: Review of Fletchline, Inc. Revised Site Plan

Dear Traye:

I have reviewed the revised referenced site plan that I received on October 8, 2024 for the October 24, 2024 Planning Commission meeting. All of my comments have been addressed.

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

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

Sincerely,

Rick Mayo, PE, RLS

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: I-1, Industrial Restrictive
2. Physical Address of Property: 5480 Lakeview Road, Springfield, TN 37172
3. Tax Map & Parcel Number: Map 45 Parcel 020.00
4. Size of Property (square feet or acres): 12.62 Acres

5. **Owner of Record Information** (CFO for Ed Fletcher)
   Name: Sarah Sanders Teague
   Mailing Address (No P.O. Boxes, please): 5480 Lakeview Road, Springfield, TN 37172
   Email: sarahteague@fletchline.com
   Telephone Number: 615-212-4414

6. **Owner's Representative Information (Surveyor, Self, Engineer, etc.)**
   Name:
   Name of Firm:
   Mailing Address (No P.O. Boxes, please):
   Email:
   Telephone Number:

7. **Purpose of Site Plan:** Storage Buildings

SUBMITTAL REVIEW PROCEDURE:

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

Sarah Sanders Teague 9/26/24

Owner's Signature & DATE

Owner's Representative Signature & DATE

CFO on behalf of Ed Fletcher

SITE PLAN FOR

FLETCHLINE INC.

5480 LAKEVIEW ROAD
(TN HWY-25)
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DATE: 10/08/2024 FLETCHLINE INC.

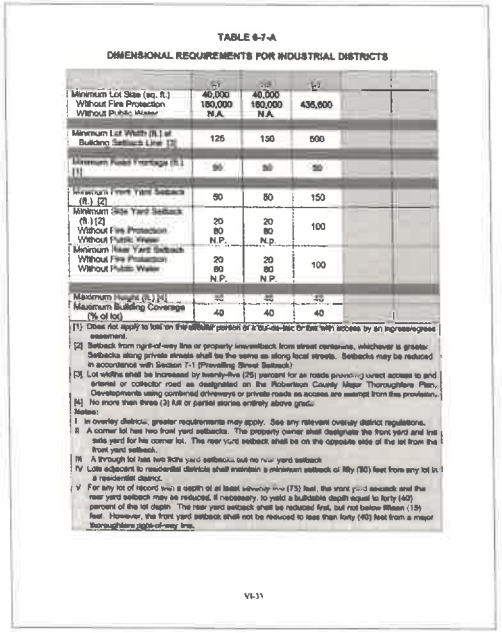


TABLE 6-7-A

DIMENSIONAL REQUIREMENTS FOR INDUSTRIAL DISTRICTS

	IL	IG	IP
Minimum Lot Size (sq. ft.) Without Fire Protection Without Public Water	40,000 180,000 N.A.	40,000 180,000 N.A.	435,600
Minimum Lot Width (ft.) at Building Setback Line [3]	125	150	500
Minimum Road Frontage (ft.) [1]	50	50	50
Minimum Front Yard Setback (ft.) [2]	50	50	150
Minimum Side Yard Setback (ft.) [2] Without Fire Protection Without Public Water	20 80 N.P.	20 80 N.P.	100
Minimum Rear Yard Setback Without Fire Protection Without Public Water	20 80 N.P.	20 80 N.P.	100
Maximum Height (ft.) [4]	45	45	45
Maximum Building Coverage (% of lot)	40	40	40

[1] Does not apply to lots on the cul-de-sac or bulb with access by an ingress/egress easement.

[2] Setback from right-of-way line or property line/setback from street centerline, whichever is greater. Setbacks along private streets shall be the same as along local streets. Setbacks may be reduced in accordance with Section 7-1 (Prevailing Street Setback).

[3] Lot widths shall be increased by twenty-five (25) percent for all roads providing direct access to and entered or collector road as designated on the Robertson County Major Thoroughfare Plan. Developments using combined driveways or private roads as access are exempt from this provision.

[4] No more than three (3) full or partial stories entirely above grade.

Notes:

I In overlay districts, greater requirements may apply. See any relevant overlay district regulations.

II A corner lot has two front yard setbacks. The property owner shall designate the front yard and the side yard for his corner lot. The rear yard setback shall be on the opposite side of the lot from the front yard setback.

III A through lot has two front yard setbacks but no rear yard setback.

IV Lots adjacent to residential districts shall maintain a minimum setback of fifty (50) feet from any lot in a residential district.

V For any lot of record with a depth of at least seventy-five (75) feet, the front yard setback and the rear yard setback may be reduced, if necessary, to yield a buildable depth equal to forty (40) percent of the lot depth. The rear yard setback shall be reduced first, but not below fifteen (15) feet. However, the front yard setback shall not be reduced to less than forty (40) feet from a major thoroughfare right-of-way line.

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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	———	UTILITY LAYOUT
C1.07	———	FINAL STABILIZATION
C1.08	———	PHOTOMETRIC PLAN
C1.09	———	FIRE TRUCK ROUTING PLAN
C2.01	———	CONSTRUCTION DETAILS
C2.02	———	CONSTRUCTION DETAILS
C2.03	———	CONSTRUCTION DETAILS



Vicinity Map
Not to Scale

KLOBER
ENGINEERING SERVICES

SERVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3998 TOM AUSTIN HWY, SUITE 1 SPRINGFIELD TN 37172
PHONE: (615) 302-2000 FAX: (866) 373-4485
www.klobereng.com

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

NOT FOR CONSTRUCTION

PROPERTY OWNER/DEVELOPER:
PLATINUM INVESTMENT GROUP, LLC
5480 LAKEVIEW ROAD
SPRINGFIELD, TN 37172

DEED REFERENCE:
MAP 45, PARCEL 20 TADACT
RB 1602, PG 813 ROACT

PROPERTY INFORMATION:
ZONING: I-1, INDUSTRIAL RESTRICTIVE
AREA: 549,727 S.F. = 12.62 ACRES

SITE USE
EXISTING USE: INDUSTRIAL
PROPOSED USE: INDUSTRIAL AND STORAGE UNITS

PARKING INFORMATION:
REQUIRED PARKING:
1/2,000 S.F. (TRANSPORT & WAREHOUSING) = 23,577/2,000 = 12 SPACES

PROVIDED: 23 STANDARD STALLS INCLUDING 17 COVERED SPACES = 40 TOTAL PARKING SPACES

LOT COVERAGE
EXISTING BUILDING AREA = 23,798 S.F.
NEW BUILDING AREA = 33,087 S.F.
BUILDING COVERAGE = 2? 3%
MAX BUILDING HEIGHT: 40'-0"
EXISTING CONCRETE: ±30,436 S.F.
EXISTING GRAVEL: ±15,881 S.F.

PROPOSED CONCRETE SURFACE: ±7,471 S.F.
PROPOSED ASPHALT SURFACE: ±98,994 S.F.
PROPOSED GRAVEL SURFACE: ±12,330 S.F.
PROPOSED IMPERVIOUS AREA: ±206,830 S.F.
TOTAL IMPERVIOUS AREA: ±276,945 S.F. = 50.4%

TEMPORARY BENCHMARK:
SPIKE IN POWER POLE, SOUTHERLY SIDE OF SITE
ELEVATION = 675.46
N: 815184.76
E: 1716272.12
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NAVD88

SIGN NOTE:
ALL SIGNS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE JURISDICTIONAL ZONING ORDINANCE. SIGNAGE 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: TAMMY BEERS 824 CENTRAL AVENUE SPRINGFIELD, TENNESSEE 37172 TELEPHONE (615) 382-1800
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) 384-4770

GENERAL NOTES:

1. PRIOR TO BEGINNING CONSTRUCTION ON THIS SITE THE LOCATION OF UTILITIES MUST BE IDENTIFIED BY CALLING THE TOLL-FREE TENNESSEE ONE CALL REFERENCE NUMBER 1-800-351-1111.
2. ALL CONSTRUCTION ON THIS SITE SHALL COMPLY WITH APPLICABLE REGULATIONS AS SPECIFIED BY ROBERTSON COUNTY AND THE STATE OF TENNESSEE.
3. THE BOUNDARY SURVEY SHOWN HEREON WAS TAKEN FROM A SURVEY BY STEVEN E. ARTZ SURVEYING OF SPRINGFIELD, TN, DATED 01/16/2018.
4. ACCORDING TO MAP 47147C0230C, DATED 04/18/2008, 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 98% 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 COUNTY AT ANY TIME AND ITEMS FOUND DEFICIENT SHALL BE IMMEDIATELY CORRECTED. THE COUNTY MAY STOP CONSTRUCTION OF PROPERTIES, OR ADMINISTER OTHER ENFORCEMENT ACTIONS AS DEFINED BY THE COUNTY.
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 12.82 ACRES. THE APPROXIMATE TOTAL AREA OF GRADING PROPOSED IS 8.88 ACRES.
6. THE INCREASE IN POST-CONSTRUCTION IMPERVIOUS AREA IS 4.74 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 COUNTY/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

10/08/24
DATE

LANDSCAPE NOTES:

1. PLANT TYPES FOR ALL AREAS OTHER THAN THE BIORETENTION ARE AT THE DISCRETION OF THE OWNER. SEVERAL NATIVE VARIETY SHALL BE USED.
2. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND TAKE PRECAUTIONS TO PREVENT DAMAGE TO THESE UTILITIES.
3. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE TO UTILITIES.
4. ALL PLANTING BEDS OR MULCH BEDS SHALL BE SPRAYED WITH WEED-KILLER/HERBICIDE OR HAND WEEDED (CONTRACTOR'S OPTION) PRIOR TO THE INSTALLATION OF MULCH OR STONE COVER.
5. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINE GRADING OF ALL PLANTING AREAS. INSURE POSITIVE DRAINAGE OF LANDSCAPE BERMS.
6. ALL PLANTING AREAS SHALL BE FERTILIZED WITH 12 lbs./1000 S.F. OF 10-10-10 FERTILIZER.
7. ALL PLANTING BEDS SHALL HAVE A MINIMUM OF 3" DEPTH OF PINE BARK MULCH OR STONE AS SPECIFIED BY OWNER.
8. THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL MATERIAL TYPES AND QUANTITIES WITH THE OWNER.
9. THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH WRITTEN INSTRUCTIONS ON THE PROPER CARE OF ALL SPECIFIED PLANT MATERIALS PRIOR TO FINAL PAYMENT.
10. ALL DISTURBED AREAS NOT SODDED SHALL BE SEEDED AND STRAWED.
11. INSTALL EROSION CONTROL MATTING ON ALL SLOPES GREATER THAN 3:1, DITCH LINE AND WHERE SHOWN ON THE STABILIZATION PLAN.
12. GROUND COVER, WHEN USED, SHOULD EXTEND UNDER SHRUBS AND TREES.
13. NO TREES SHALL BE PLANTED WITHIN THE 40 FT. SIGHT TRIANGLE AT THE ENTRANCE. ALL SHRUBS MUST BE MAINTAINED AT A MAXIMUM HEIGHT OF 2 1/2'.
14. SPREADING SHRUB SPECIES SHALL BE 18 INCH MINIMUM SPREAD & 3 CAL 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
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- 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
- ROAD LINE
- EXISTING CONTOURS MINOR 1' INTERVAL
- EXISTING CONTOURS MAJOR 5' INTERVAL
- EXISTING COMMUNICATIONS OVERHEAD
- EXISTING COMMUNICATIONS UNDERGROUND
- EXISTING PLUG
- 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
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- 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 RLS SURVEYOR, IS REQUIRED PRIOR TO THE COUNTY ISSUING A CERTIFICATE OF OCCUPANCY. THE CERTIFICATE OF OCCUPANCY WILL BE WITHHELD UNTIL THE STORMWATER DETENTION POND AND FACILITIES ARE SUBSTANTIALLY CONSTRUCTED IN ACCORDANCE WITH THE DESIGN. THE DETERMINATION OF SUBSTANTIAL COMPLETION SHALL BE MADE BY THE COUNTY. THE APPLICANT SHOULD ANTICIPATE THAT ADDITION ENGINEERING CALCULATIONS MAY BE REQUIRED BY THE COUNTY AS PART OF THEIR DETERMINATION.

STORMWATER POND MAINTENANCE REQUIREMENT:

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

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REVISIONS			
NO	BY	DATE	DESCRIPTION

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

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FLETCHLINE INC.

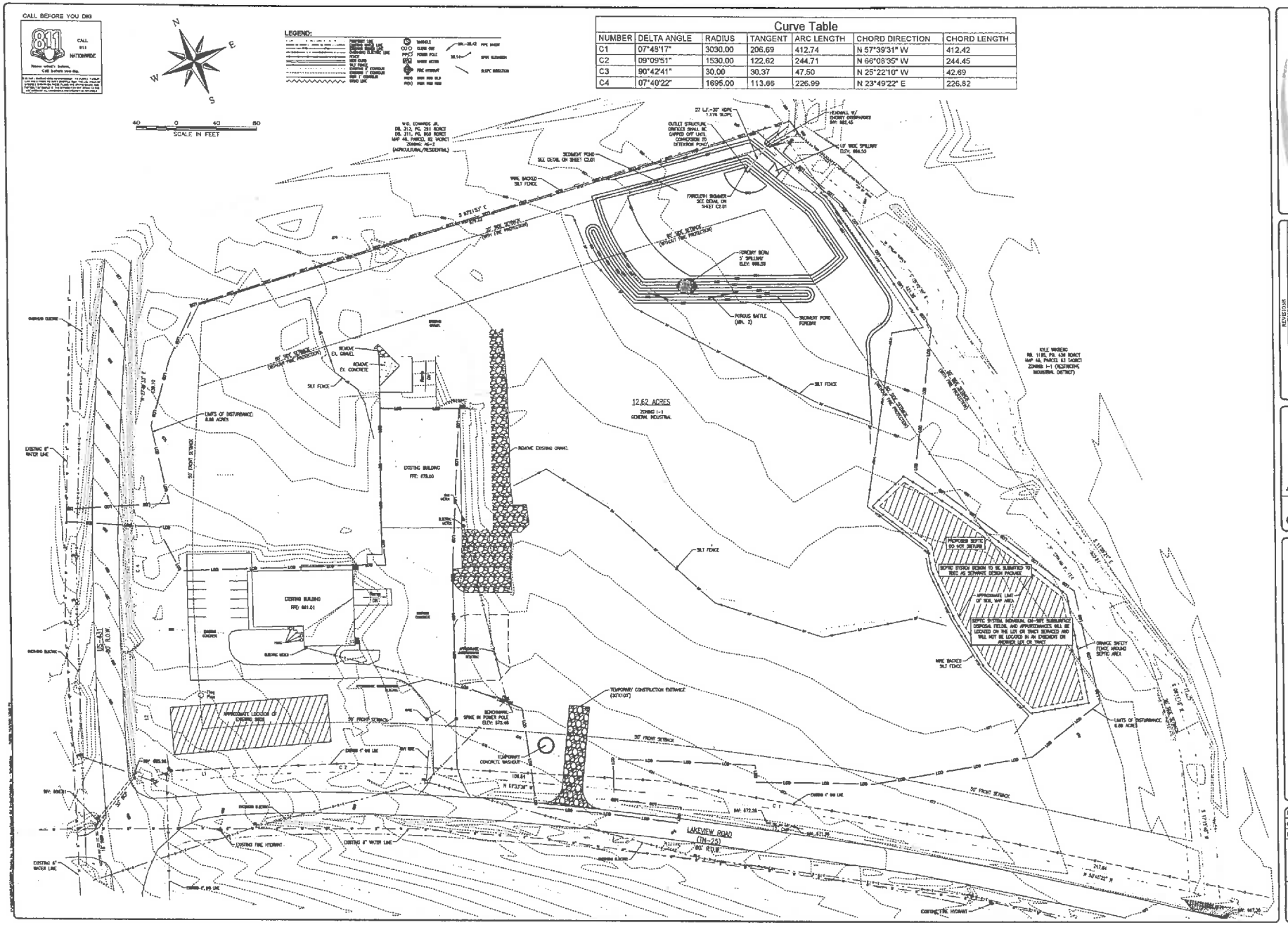
5480 LAKEVIEW ROAD
(TN HWY-25)
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	JML
PROJECT NO.	C00234

PROJECT NOTES

SHEET NUMBER
NOTE

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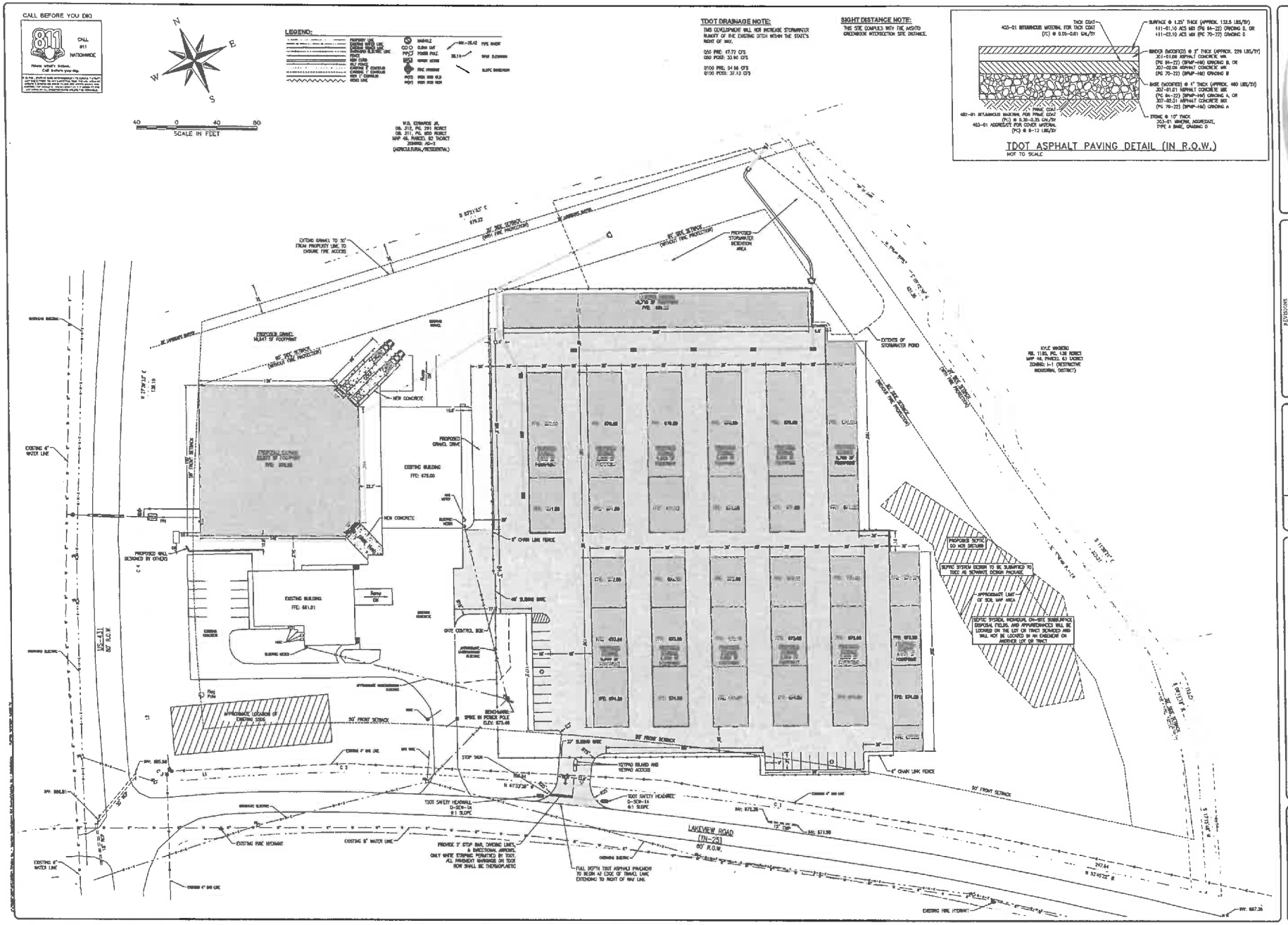
5180 LAKEVIEW ROAD
OTHELLO (75)-757-3172
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO.	C00224

DEMO & INITIAL EPSC

SHEET NUMBER
C1.01

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TDOT DRAINAGE NOTE:

THIS DEVELOPMENT WILL NOT INCREASE STORMWATER RUNOFF OF THE EXISTING DITCH WITHIN THE STATE'S RIGHT OF WAY.

Q50 PRE: 47.72 CFS
Q50 POST: 33.90 CFS

Q100 PRE: 54.96 CFS
Q100 POST: 37.43 CFS

SIGHT DISTANCE NOTE:

THIS SITE COMPLIES WITH THE AASHTO GREENBOOK INTERSECTION SITE DISTANCE.

TDOT ASPHALT PAVING DETAIL (IN R.O.W.)
NOT TO SCALE

TACK COAT
403-01 BITUMINOUS MATERIAL FOR TACK COAT
(TC) @ 0.05-0.01 GAL/SY

SURFACE @ 1.25" THICK (APPROX. 123.8 LBS/SY)
411-01.16 ACS MIX (PG 64-22) GRADING D, OR
411-03.16 ACS MIX (PG 70-22) GRADING D

BINDER (MODIFIED) @ 3" THICK (APPROX. 229 LBS/SY)
307-01.08 ASPHALT CONCRETE MIX
(PG 64-22) (BPMP-HM) GRADING BK OR
307-02.08 ASPHALT CONCRETE MIX
(PG 70-22) (BPMP-HM) GRADING B

BASE (MODIFIED) @ 4" THICK (APPROX. 440 LBS/SY)
307-01.01 ASPHALT CONCRETE MIX
(PG 64-22) (BPMP-HM) GRADING A, OR
307-02.01 ASPHALT CONCRETE MIX
(PG 70-22) (BPMP-HM) GRADING A

PRIME COAT
402-01 BITUMINOUS MATERIAL FOR PRIME COAT
(PC) @ 0.30-0.35 GAL/SY
403-01 AGGREGATE FOR COVER MATERIAL
(PC) @ 8-12 LBS/SY

STONE @ 10" THICK
303-01 MINERAL AGGREGATE, TYPE A BASE, GRADING D

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www.kloberinc.com

NO	BY	DATE	DESCRIPTION

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

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FLETCHLINE INC.

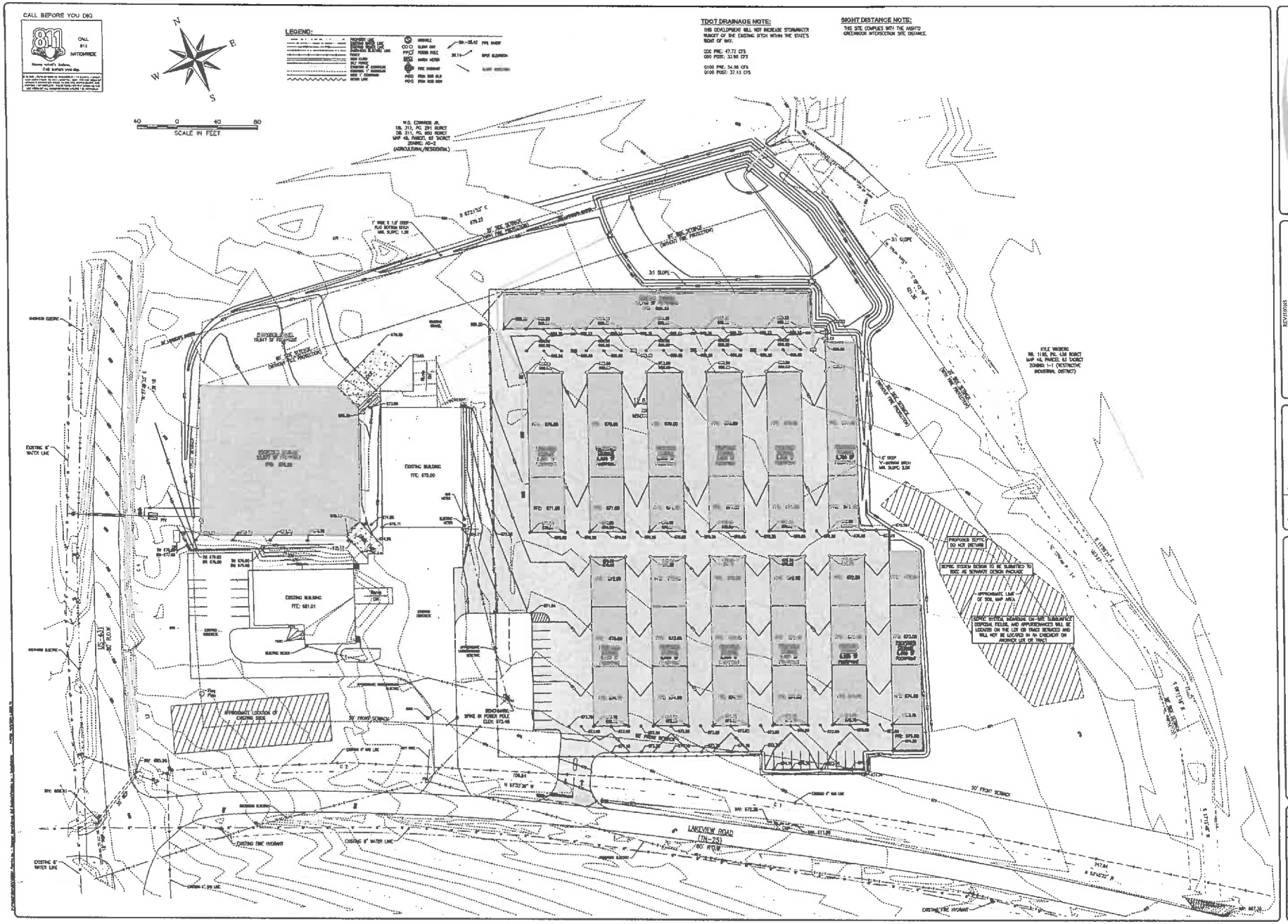
5440 LAKEVIEW ROAD
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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PROJECT NO.	C00234

SITE LAYOUT

SHEET NUMBER
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NO	BY	DATE	REVISIONS

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

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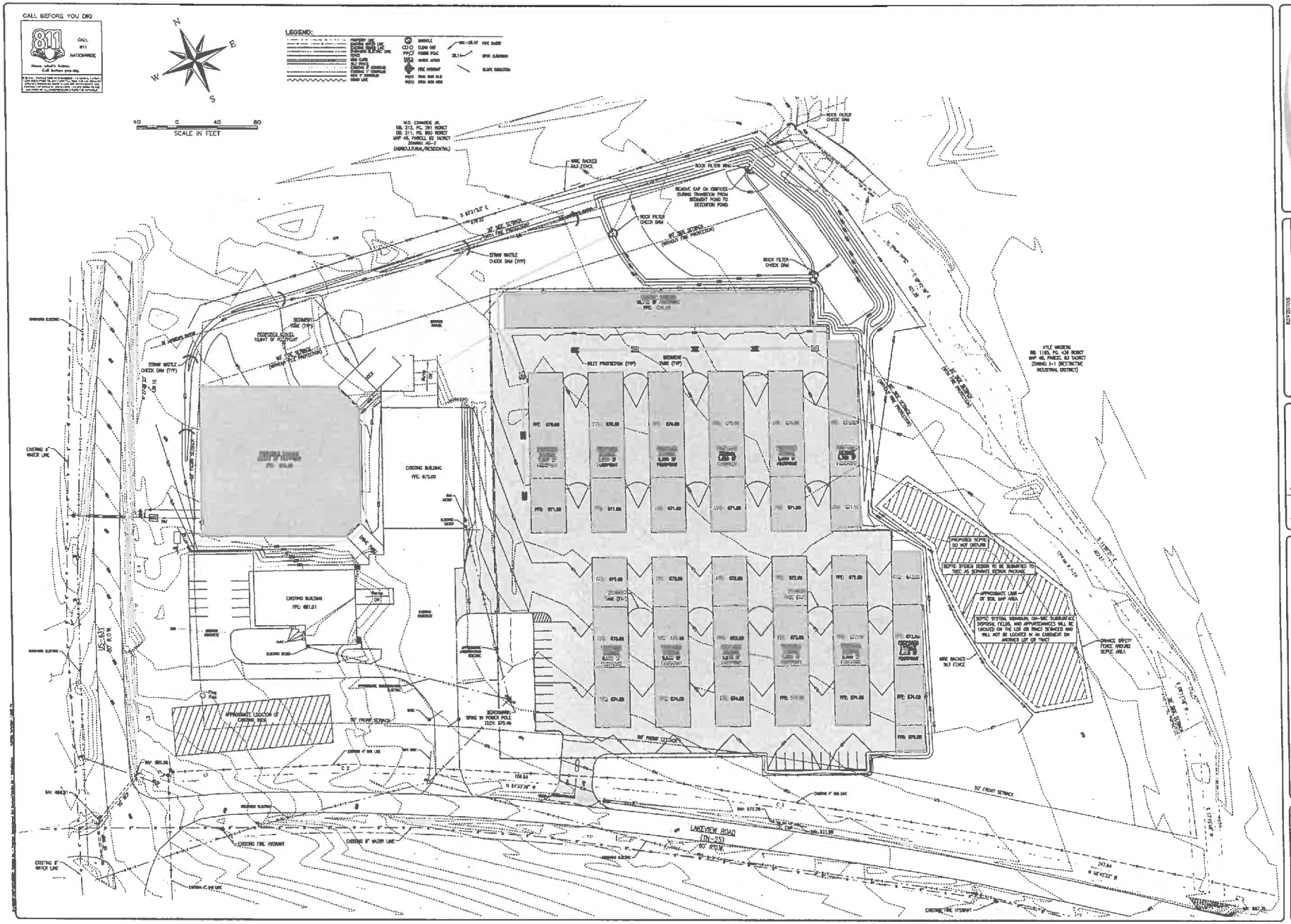
5481 LAKEVIEW ROAD
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GRADING PLAN

SHEET NUMBER
C1.03

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MORRISTOWN, TN 37814 FAX: (865) 573-3440
www.klobereng.com

NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON
REGISTERED ENGINEER
NO. 112331
STATE OF TENNESSEE

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

NOT FOR CONSTRUCTION

FLETCHLINE INC.

5181 LAKEVIEW ROAD
(TN HWY-251)
SPRINGDALE
ROBERTSON COUNTY

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PROJECT NO	L090221

INTERMEDIATE EPSC

SHEET NUMBER
C1.04

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C1.05	RTB3	JML	100321

DRAINAGE PLAN

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(TN HWY-255)
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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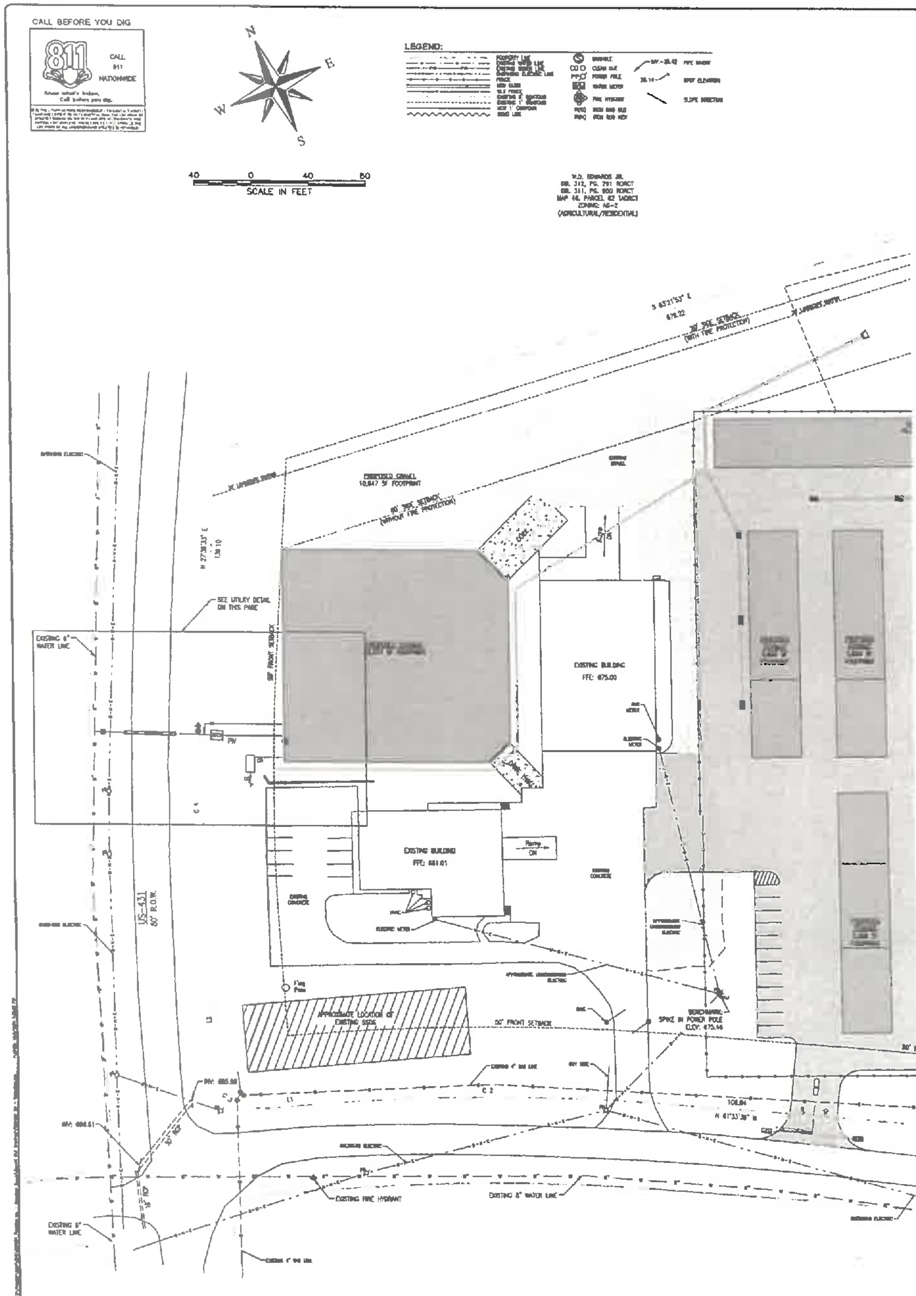
JOSHUA M. LYON, P.E. 119111231
STATE OF TENNESSEE

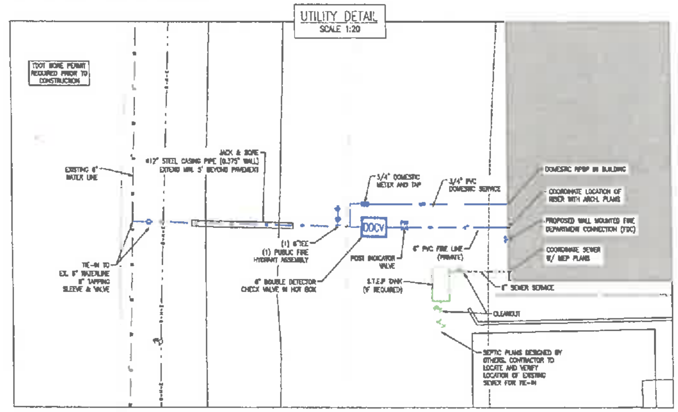
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PUBLIC UTILITY NOTE

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

SWWD WATER AND SEWER LINE NOTES:

1. PROPOSED WATER METERS SHALL NOT BE LOCATED WITHIN DRIVEWAYS.
2. WATER AND SEWER SERVICE WILL WILL BE INSTALLED WHEN LOTS ARE DEVELOPED.
3. SANITARY SEWER CLEANOUTS SHALL BE LOCATED BEHIND CURBS AT RIGHT OF WAY LINE WITHIN A GRASS AREA. CLEANOUTS SHALL NOT BE LOCATED WITHIN DRIVEWAYS.
4. THE PROPOSED WATER MAIN SHALL BE PVC C-900, AWWA C151, WITH STANDARD THICKNESS AS DESIGNATED IN AWWA C150, UNLESS OTHERWISE NOTED.
5. THE PROPOSED 8-INCH SANITARY SEWER SHALL BE PVC (SDR 36), UNLESS OTHERWISE NOTED.
6. ALL WATER MAIN FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON PER CITY OF SPRINGFIELD'S STANDARD SPECIFICATIONS.
7. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE "CITY OF SPRINGFIELD WATER AND SEWERAGE DESIGN AND CONSTRUCTION STANDARDS MANUAL".
8. ALL SANITARY SEWER SERVICE LATERALS SHALL BE 6-INCH IN DIAMETER AND LOCATED APPROXIMATELY 10 L.F. FROM DOWNSTREAM PROPERTY LINE, UNLESS OTHERWISE NOTED.
9. ALL WATER AND SANITARY SEWER LINE CONSTRUCTION SHALL BE COORDINATED WITH THE SWWD.
10. CONTRACTOR SHALL COORDINATE CONNECTIONS TO THE EXISTING 8-INCH WATER LINE AND EXISTING MANHOLES WITH THE SWWD.
11. ALL WATER PIPE AND SANITARY SEWER PIPE SHALL BE COVERED WITH A MINIMUM OF THIRTY-SIX (36) INCHES OF BACKFILL MATERIAL. MEASURED FROM THE TOP OF THE PIPE TO THE PROPOSED FINAL GROUND LEVEL. THIS STANDARD INCLUDES ALL FIRE HYDRANT BRANCHES WHERE CROSSING DRAINAGE DITCHES.
12. AT WATER MAIN CONNECTION POINTS TO EXISTING LINES, NEW LINES SHALL BE CAPPED FOR TESTING. FOLLOWING COMPLETION AND APPROVAL OF TESTING, CONNECTIONS TO EXISTING LINES SHALL BE MADE WITH SOLID SLEEVES.
13. AT ALL LOCATIONS WHERE DUCTILE IRON PIPE IS USED AT CROSSINGS, THE DUCTILE IRON PIPE SHALL BE CENTERED OVER THE CROSSINGS. SO JOINTS WILL BE AS FAR FROM EACH OTHER AS POSSIBLE.
14. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF FOURTEEN (14) CALENDAR DAYS PRIOR TO THE START OF CONSTRUCTION IN ORDER THAT THE REQUIRED NOTICES CAN BE SUBMITTED TO THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION AND TO THE SWWD.
15. PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING SHALL BE HELD. ATTENDEES AT THE MEETING SHALL BE THE ENGINEER, DEVELOPER, UTILITY CONTRACTOR AND REPRESENTATIVES FROM THE SWWD.
16. CONTRACTOR SHALL VERIFY FINISHED GRADE ELEVATIONS AND LOCATE FIRE HYDRANTS SO THE BASE FLANGES ARE THREE (3) INCHES ABOVE FINISHED GRADE. ADJUSTMENT OF FLANGE ELEVATIONS SHOWN HEREON MAY BE REQUIRED.
17. THE OWNER/DEVELOPER SHALL EMPLOY THE ENGINEER FOR THE FOLLOWING: (1) TO PROVIDE FULL-TIME RESIDENT INSPECTION DURING CONSTRUCTION TO ASSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH APPROVED PLAN DOCUMENTS (TDEC RULE 1200-5-1.08(6)). (2) TO CERTIFY TO THE SWWD THAT THE FACILITIES WERE CONSTRUCTED WITH THE APPROVED PLANS AND THE SPECIFICATIONS CONTAINED OR REFERRED TO HEREIN. (3) TO PROVIDE A COMPLETE SET OF "RECORD DRAWINGS" TO THE SWWD ON REPRODUCIBLE MEDIA.
18. VALVES SHOWN ON PLAN VIEW HAVE BEEN ENLARGED FOR GRAPHICAL REPRESENTATION PURPOSES. VALVES SHALL NOT BE LOCATED WITHIN PAVED AREAS.
19. WATER-TIGHT MANHOLE CASTINGS SHALL BE USED IN LOCATIONS AS DIRECTED BY THE DIRECTOR OF THE SWWD. NO DRAINAGE INFLOW SHALL BE ALLOWED IN THE SANITARY SEWER SYSTEM.
20. ALL BENDS, TEES, CROSSES, PLUGS, PRESSURE CONNECTIONS, ETC. SHALL BE BACKED UP AND ANCHORED WITH CONCRETE BLOCKING PER SWWD REQUIREMENTS.
21. FIRE HYDRANTS SHALL BE MUELLER COMPANY MODEL SUPER CENTURION, M & H MODEL 129 OR AMERICAN DARLING MODEL B-84-B.
22. NO SANITARY SEWER SERVICE CONNECTIONS SHALL BE ALLOWED INTO MANHOLES.
23. SEWER CLEANOUTS SHOULD BE LOCATED A MINIMUM 5' FROM WATER SERVICES.

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PHONE (615) 382-2000 FAX (888) 373-4488
www.kloberengineering.com

REVISIONS			
NO	BY	DATE	DESCRIPTION

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

NOT FOR CONSTRUCTION

FLETCHLINE INC.

5480 LAKEVIEW ROAD
(TN HWY-25)
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	JML
PROJECT NO.	100224

UTILITY LAYOUT

SHEET NUMBER

C1.06

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DRAWN BY		
CHECKED BY		
PROJECT NO.		

FINAL STABILIZATION

SHEET NUMBER
C1.07

FLETCHLINE INC.

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(TN HWY-25)
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

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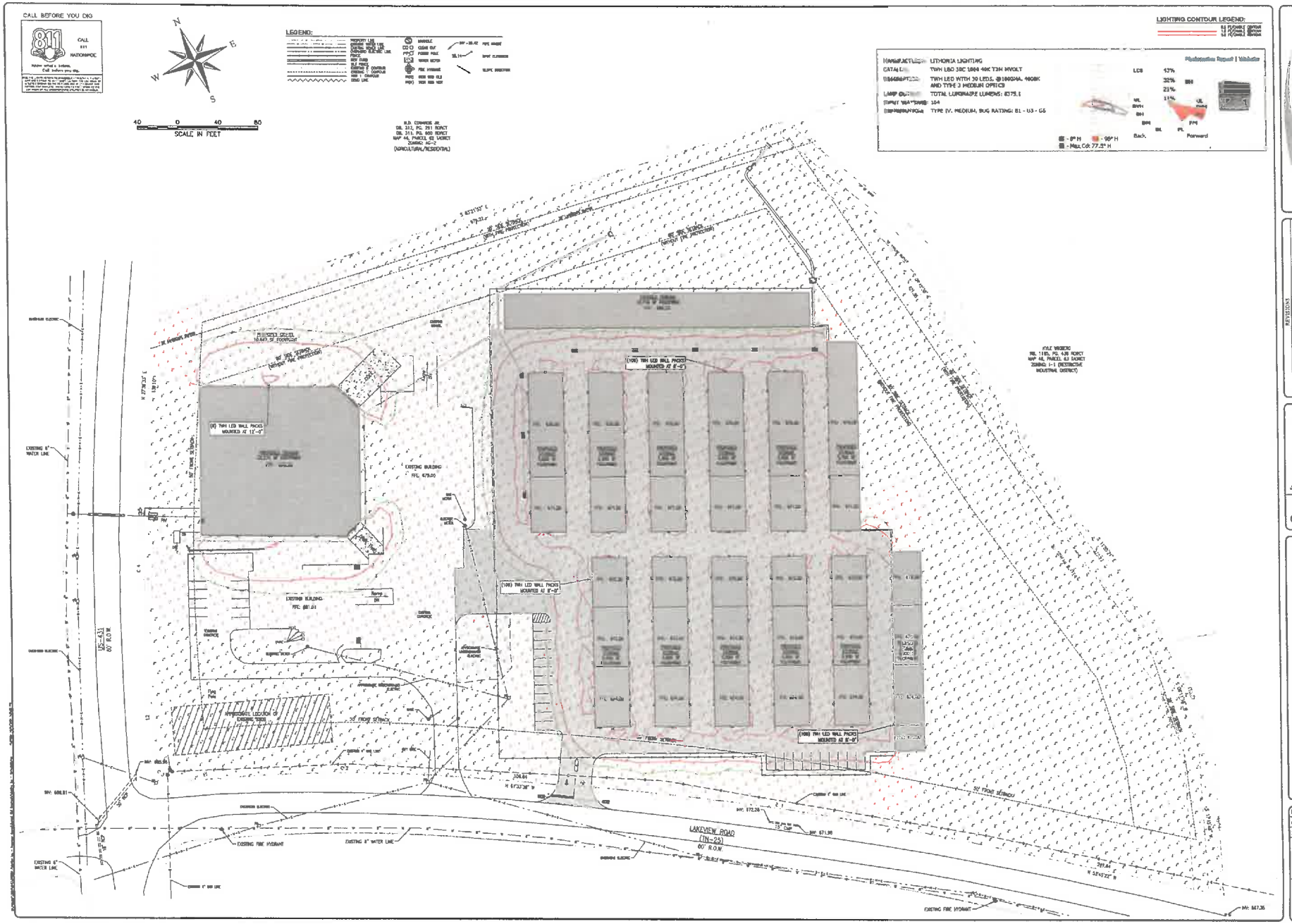
JOSHUA M. LYON, P.E. 119331
STATE OF TENNESSEE

REVISIONS			
NO	BY	DATE	DESCRIPTION

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NO	DATE	DESCRIPTION

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

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FLETCHLINE INC.

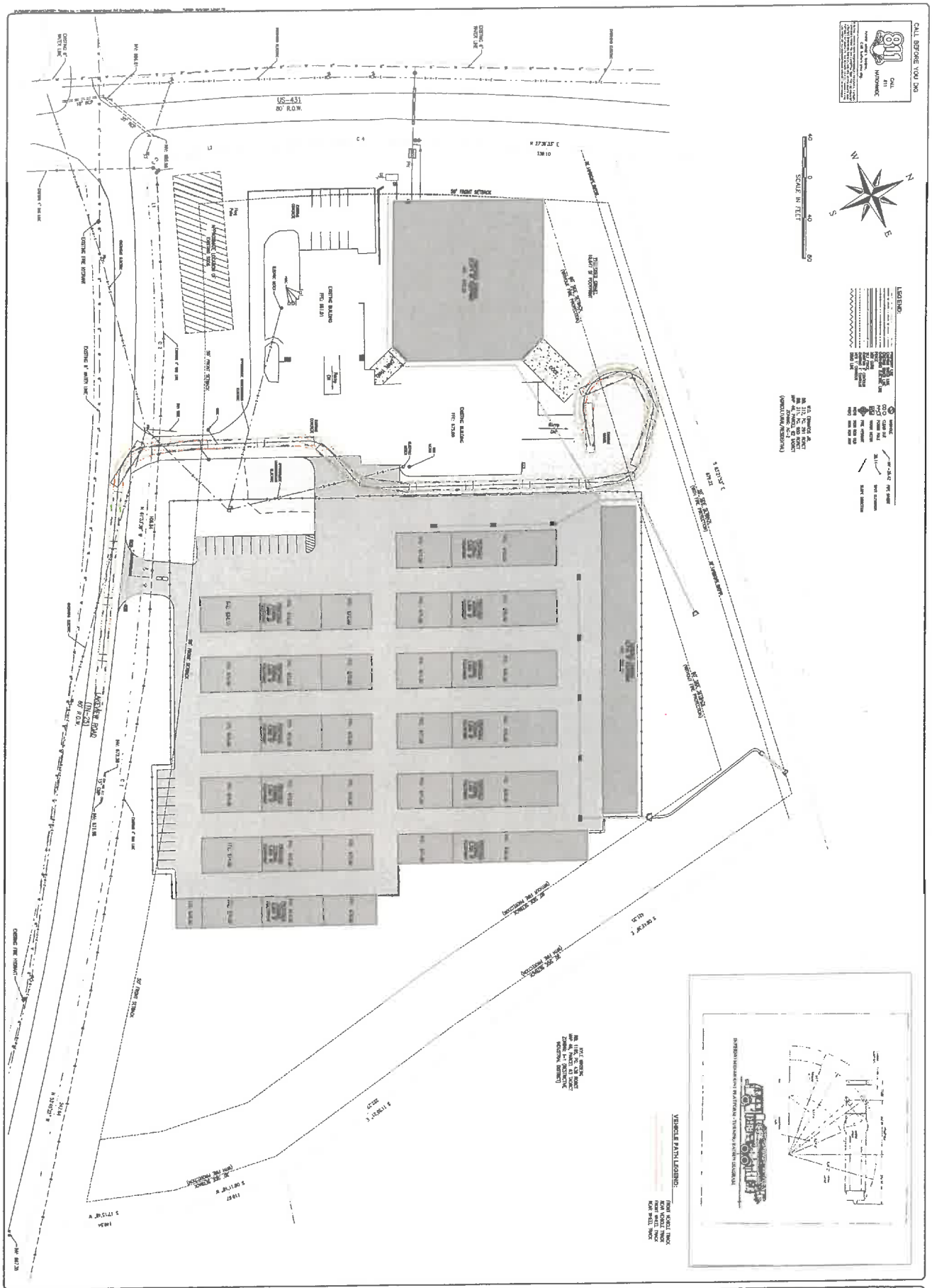
5491 LAKEVIEW ROAD
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	JML
PROJECT NO	C00221

PHOTOMETRIC PLAN

SHEET NUMBER
C1.08

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CALL BEFORE YOU DIG
811
DIAL 811 NATIONWIDE

SHEET NUMBER	C1.09
	FIRE TRUCK ROUTING PLAN
DRAWN BY	KWH
CHECKED BY	TWL
PROJECT NO.	1902321

FLETCHLINE INC.

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(TN SWY-25)
SPRINGFIELD, TN 37172
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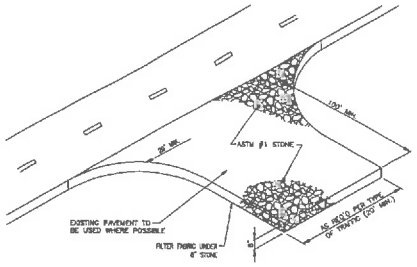
JOSHUA M. LYON, PE
STATE OF TENNESSEE
No. 119331

REVISIONS			
NO	BY	DATE	DESCRIPTION

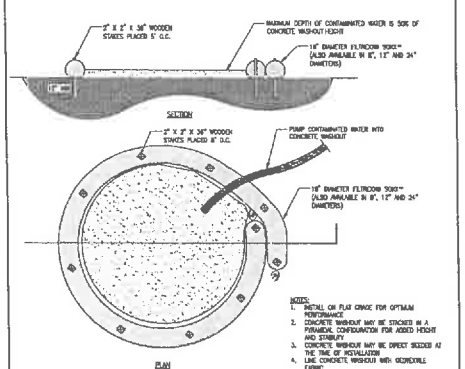
KLOBER
ENGINEERING SERVICES

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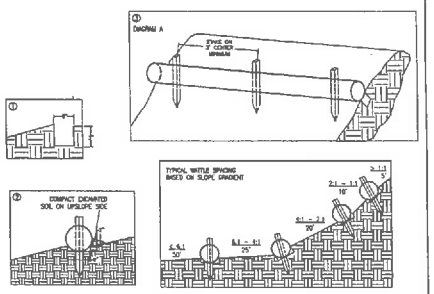


TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



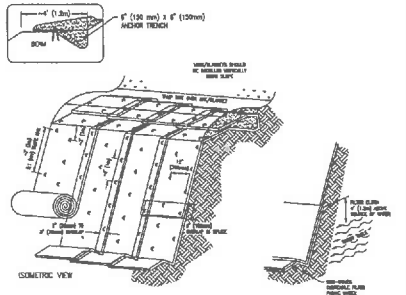
NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. CONCRETE WASHOUT MAY BE STACKED IN A PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT AND STABILITY
3. CONCRETE WASHOUT MAY BE DIRECT SEEDED AT THE TIME OF INSTALLATION
4. LINE CONCRETE WASHOUT WITH GEOMEMBRANE FABRIC

FILTREXX® CONCRETE WASHOUT
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" (22.5 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 CONFORMS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD SNUGLY 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

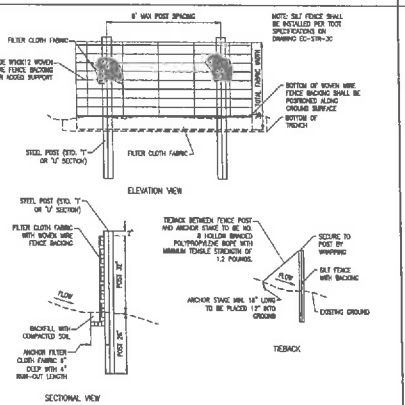


TYPICAL SLOPE SOIL STABILIZATION
N.T.S.

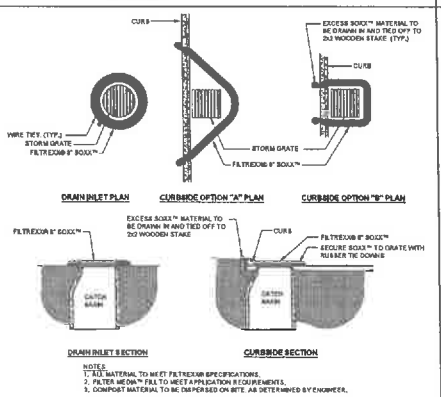
WET SLOPE LINING
N.T.S.

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 TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

GRASS MATTING PLACEMENT

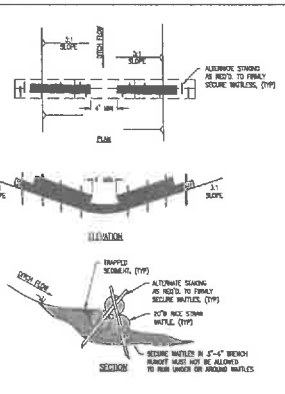


TEMPORARY SILT FENCE WITH BACKING
NOT TO SCALE

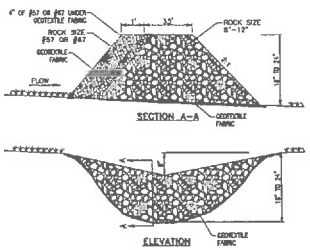


NOTES
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE AS DETERMINED BY ENGINEER.

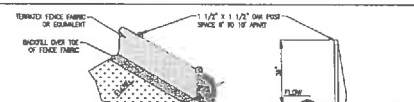
FILTREXX® INLET PROTECTION
NTS



STRAW FILTER CHECK DAM
NOT TO SCALE



ROCK FILTER-CHECK DAM
NOT TO SCALE

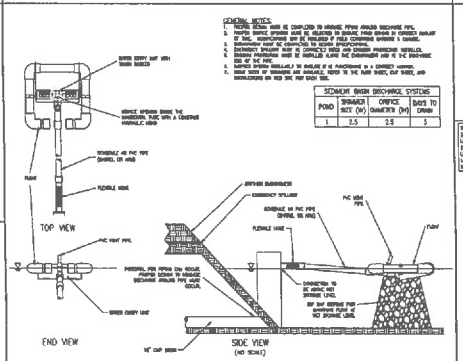


NOTES:
1. THE BOTTOM 12 INCHES OF THE FABRIC SHALL BE BURIED IN A 6 INCH WIDE TRENCH CUT INTO GROUND OR COMPED IN 6 INCHES OF FILL MATERIAL, TO PREVENT SEDIMENT CREEPING UNDER THE FENCE.
2. SILT FENCE SHALL REMAIN IN PLACE UNTIL GROUND COVER HAS BEEN ESTABLISHED.

SILT CONTROL FENCE
NOT TO SCALE



MULCH DIVERSION BERM
NOT TO SCALE

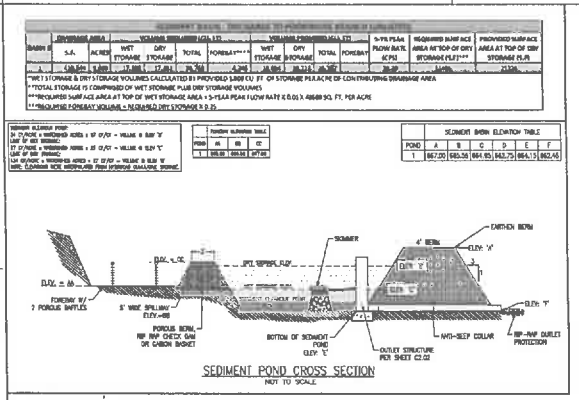


GENERAL NOTES:
1. FLEXIBLE FLOATING HOSE BE CONFIGURED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. FLOATING SKIMMER SYSTEMS MUST BE ADJUSTED TO ENSURE PROPER FLOW DEPTHS TO CORRECT ORIFICE OF FULL DISCHARGE. SKIMMER MUST BE TESTED AT FIELD CONDITIONS BEFORE IT IS ENGAGED.
3. SKIMMER SHALL BE ANCHORED TO PREVENT MOVEMENT OF SKIMMER DURING OPERATION.
4. EMERGENCY SPILLWAY MUST BE CONSTRUCT PRIOR AND DURING PERIMETER INSTALLS.
5. DRAINING PERFORATIONS MUST BE INSTALLED ALONG THE DISCHARGE AND IN THE DISCHARGE END OF PVC PIPE.
6. SKIMMER SYSTEMS INSTALLED TO ENSURE IT IS ANCHORED IN A CORRECT MANNER.
7. HOSE TIES OR BRACKETS ARE NOT SHOWN, REFER TO THE MAIN SHEET, PLAN SHEET, AND MANUFACTURERS FOR HOSE TIES AND BRACKETS.

SEDIMENT BASIN DISCHARGE SYSTEMS			
POND	SKIMMER NOT (W)	ORIFICE DIAMETER (IN)	DAYS TO DRAIN
1	2.5	2.5	5

FAIRCLOTH® SKIMMER DISCHARGE SYSTEM WITH EMBANKMENT

SKIMMER FOR SEDIMENT BASIN



SEDIMENT POND CROSS SECTION
NOT TO SCALE

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SERVING CLIENTS WITH CIVIL AND ENVIRONMENTAL ENGINEERING SERVICES
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NO	BY	DATE	DESCRIPTION
			REVISIONS

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

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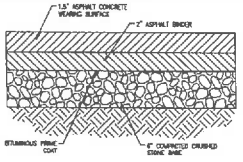
FLETCHLINE INC.
5489 LAKEVIEW ROAD
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY	RWS
CHECKED BY	EML
PROJECT NO	C00221

CONSTRUCTION DETAILS

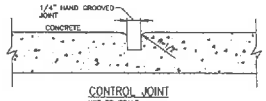
SHEET NUMBER
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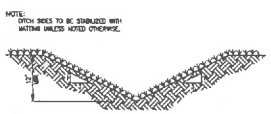


LIGHT DUTY ASPHALT PAVING DETAIL
NOT TO SCALE

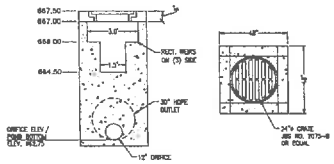
VERIFY PAVEMENT AND STONE THICKNESS WITH ANY CURRENT GEOTECH REPORT



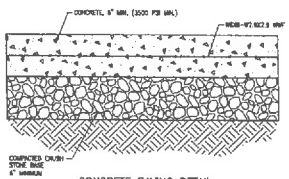
CONTROL JOINT
NOT TO SCALE



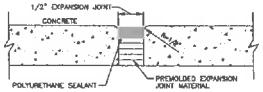
TYPICAL DITCH DETAIL
NOT TO SCALE



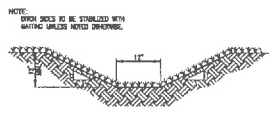
POND DISCHARGE STRUCTURE
NOT TO SCALE



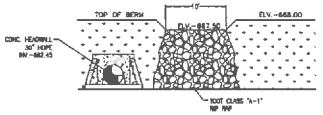
CONCRETE PAVING DETAIL
NOT TO SCALE



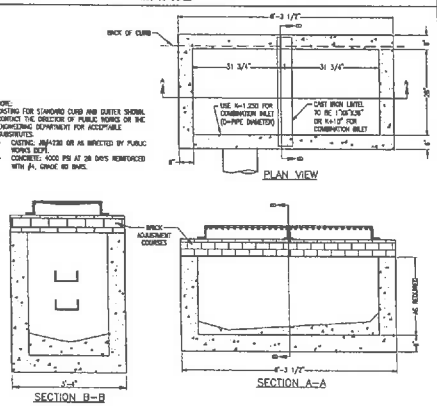
EXPANSION JOINT
NOT TO SCALE



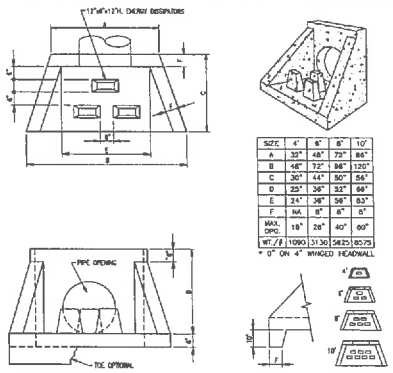
TYPICAL FLAT BOTTOM DITCH DETAIL
NOT TO SCALE



SPILLWAY DETAIL
NOT TO SCALE



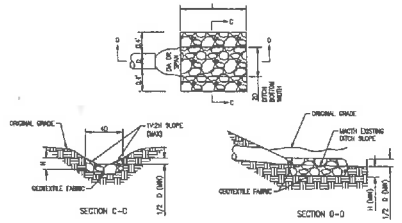
TYPICAL PRECAST DOUBLE INLET
NOT TO SCALE



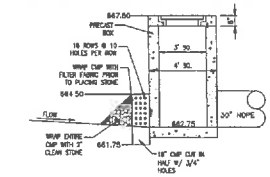
WINGED HEADWALL W/ENERGY DISSIPATORS
NOT TO SCALE
CLOUD SW-301 OR EQUAL

OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

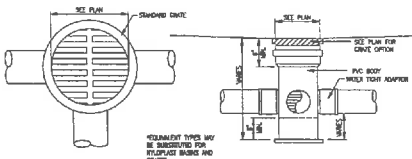
	(D) - CULVERT SIZE IN INCHES	RIPRAP CLASS	(L) LENGTH OF APRON IN FEET	(W) DEPTH OF APRON IN FEET	(CY) ESTIMATED RIPRAP QUANTITY	(SY) ESTIMATED GEOTEXTILE FAB.
WITH END SECTION	12	2	4.0	1.5	0.8	5
	18	2	6.0	1.5	2.0	8
	24	2	8.0	1.5	3.6	13
	30	3	12.5	2.0	8.3	34
	36	3	15.0	2.0	12.4	52
	42	4	21.0	2.5	27.0	83
	48	4	24.0	2.5	35.8	88



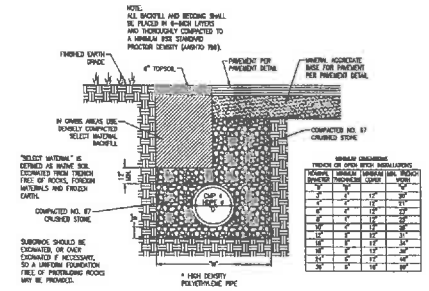
TYPICAL RIP-RAP APRON AT HEADWALL
NOT TO SCALE



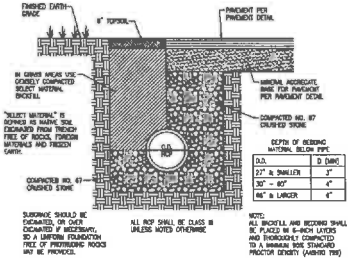
POND OUTLET PROTECTION
NOT TO SCALE



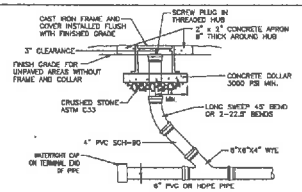
NYLOPLAST DRAIN BASIN
NOT TO SCALE



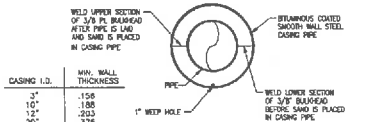
CMP OR HDPE* BEDDING (NON-PERFORATED)
NOT TO SCALE

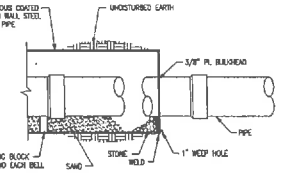


RCP BEDDING - CLASS B
NOT TO SCALE



CLEAN OUT DETAIL
NOT TO SCALE





BORED CASING PIPE DETAIL
NOT TO SCALE

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BEHRING CLOSE WITH CIVIL AND ENVIRONMENTAL ENGINEERING SERVICES
8468 BEHRING CLOSE, SUITE F, BARTLETT, TENNESSEE 38133
PHONE (615) 367-2000 FAX: (866) 373-4488

NO	BY	DATE	DESCRIPTION

JOSHUA M. LYDIA
REGISTERED ENGINEER
NO. 112331
STATE OF TENNESSEE
JOSHUA M. LYDIA, P.E. TN#112331

NOT FOR CONSTRUCTION

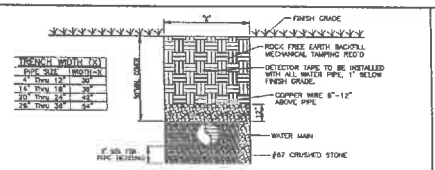
FLETCHLINE INC.
5480 LAKELAND BLVD
SUITE 100
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY: RWB
CHECKED BY: JML
PROJECT NO: L090224

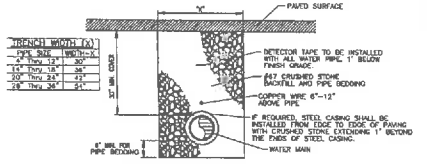
CONSTRUCTION DETAILS

SHEET NUMBER
C2.02

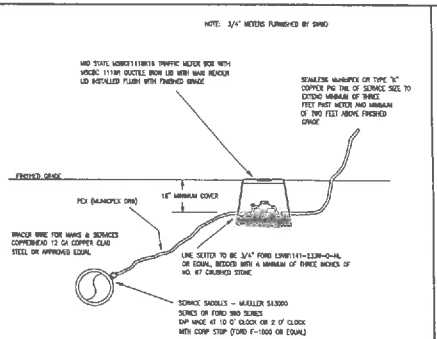
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TYPICAL BEDDING & BACKFILL OUTSIDE ROADWAY
NOT TO SCALE

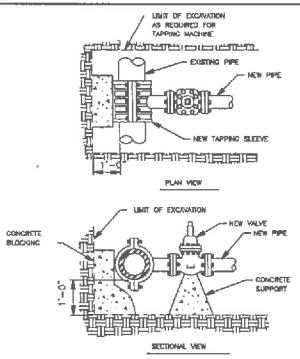


TYPICAL BEDDING & BACKFILL IN ROADWAY
NOT TO SCALE

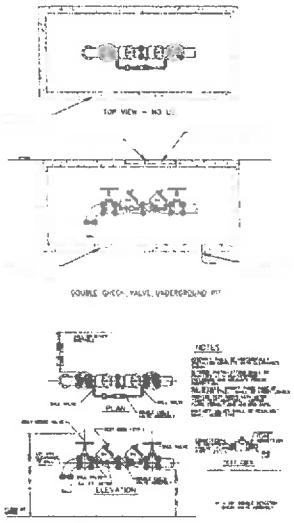


3/4" SHORT TAP ASSEMBLIES
NOT TO SCALE

DATE : JAN 2020
STD-W-01

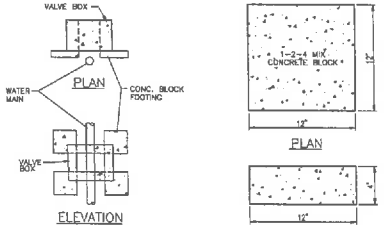


TAPPING SLEEVE AND VALVE
NOT TO SCALE



FOUR (4) CONCRETE BLOCKS OF THE SIZE & SHAPE SHOWN ARE TO BE PLACED UNDER EACH VALVE BOX, ONE UNDER EACH CORNER OF THE BOX.

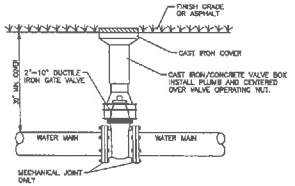
NOTE:
BEFORE INSTALLATION OF VALVE BOXES AND FOOTINGS, THE EARTH ON WHICH THE FOOTINGS AND THE VALVE BOXES ARE TO BE SET SHALL BE BACKFILLED AND THOROUGHLY TAMPED AND COMPACTED.



NO REINFORCING STEEL IN FOOTING. CONCRETE MIX TO BE 1 PART CEMENT 2 PARTS SAND AND 4 PARTS NO. 2 CRUSHED STONE OR GRAVEL. VOLUME FOR ONE BLOCK – 0.333 CU. FT. FOR ALL BLOCKS VOLUME – 1.333 CU. FT. WEIGHT OF ONE BLOCK – APPROX. 50 LBS. FOR ALL BLOCKS, WEIGHT – 200 LBS. BEARING AREA ON SOIL – 576 SQ. IN.

CONCRETE VALVE BOX FOOTING FOR
NOT TO SCALE
JBS NO. 8006 OR EQUAL

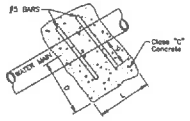
NOTE:
JBS NO. 8004 VALVE BOXES SHALL BE USED OUTSIDE OF PAVEMENT AND JBS NO. 8008 VALVE BOXES SHALL BE USED INSIDE OF PAVEMENT. EQUIVALENT VALVE BOXES MAY BE SUBSTITUTED UPON APPROVAL FROM THE CITY OF SPRINGFIELD WATER & WASTEWATER DEPT.



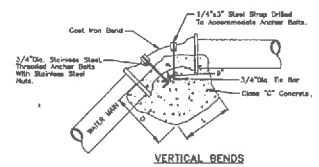
TYPICAL GATE VALVE DETAIL
NOT TO SCALE

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.

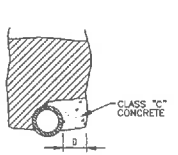


STRAIGHT PIPE

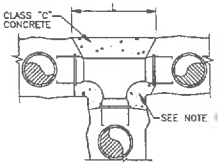


VERTICAL BENDS

TYPICAL CONCRETE ANCHOR BLOCK
NOT TO SCALE



SECTION A–A



TEES

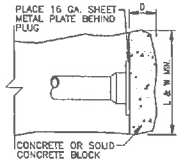
NOTE 1:
Restrained Joints Required: Concrete Thrust Blocks May Be Used In Addition To Restrained Joints, Per 3.3.1 And 3.3.2.

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

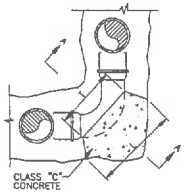
PLUGS & TEES							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	6"	6"	6"	6"
L&W	14"	16"	18"	20"	22"	24"	24"

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

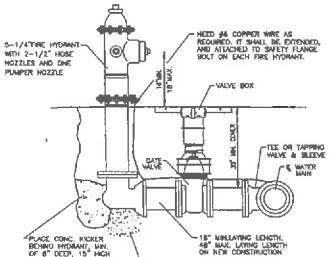
(90°) QUARTER BENDS								
SIZE	2"	3"	4"	6"	8"	10"	12"	
D	6"	6"	6"	8"	10"	12"	12"	
L	15"	18"	21"	24"	27"	30"	34"	
T	10"	12"	14"	18"	18"	20"	22"	



PLUGS

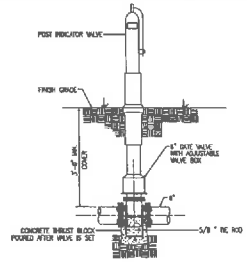


45° & 90° BENDS

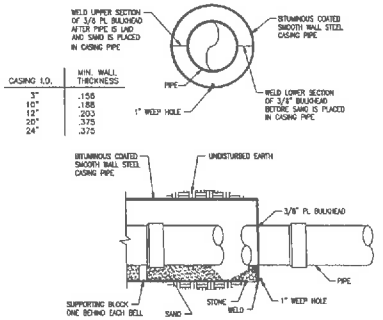


ONLY 5 ¼" M&H MODEL 129 OR MUELLER SUPER CENTURION WILL BE ACCEPTED BY THE SWWD.

TYPICAL FIRE HYDRANT
NOT TO SCALE



POST INDICATOR VALVE
NOT TO SCALE



BORED CASING PIPE DETAIL
NOT TO SCALE

SPRINGFIELD WATER/WASTEWATER DEPARTMENT
824 Central Avenue – Springfield, Tennessee
DOUBLE CHECK ASSEMBLY
STANDARD DRAWING
JAN. 2020
DWG. NO. W-14

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NO	BY	DATE	DESCRIPTION
			REVISIONS

JOSHUA M. LYON, P.E. 112331
STATE OF TENNESSEE
10/6/21

NOT FOR CONSTRUCTION

FLETCHLINE INC.
5446 LAKEVIEW ROAD
SPRINGFIELD, TN 37172
ROBERTSON COUNTY

DRAWN BY: RWB
CHECKED BY: JML
PROJECT NO: C00224

CONSTRUCTION DETAILS

SHEET NUMBER
C2.03

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STORMWATER DESIGN CALCULATIONS

FOR

Fletchline Inc.
5480 Lakeview Road
Springfield, TN 37172

October 08, 2024



Prepared By

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

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ENGINEERING SERVICES

Serving clients with Civil and Environmental Engineering Services

3556 Tom Austin Hwy, Suite 1
Springfield, Tennessee 37172
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(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 toward the northeast corner of the property. The existing outfall drains via unnamed tributaries towards Valley Branch. The post developed site was analyzed by conveying a majority of the site runoff to a detention pond on the northeast 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.

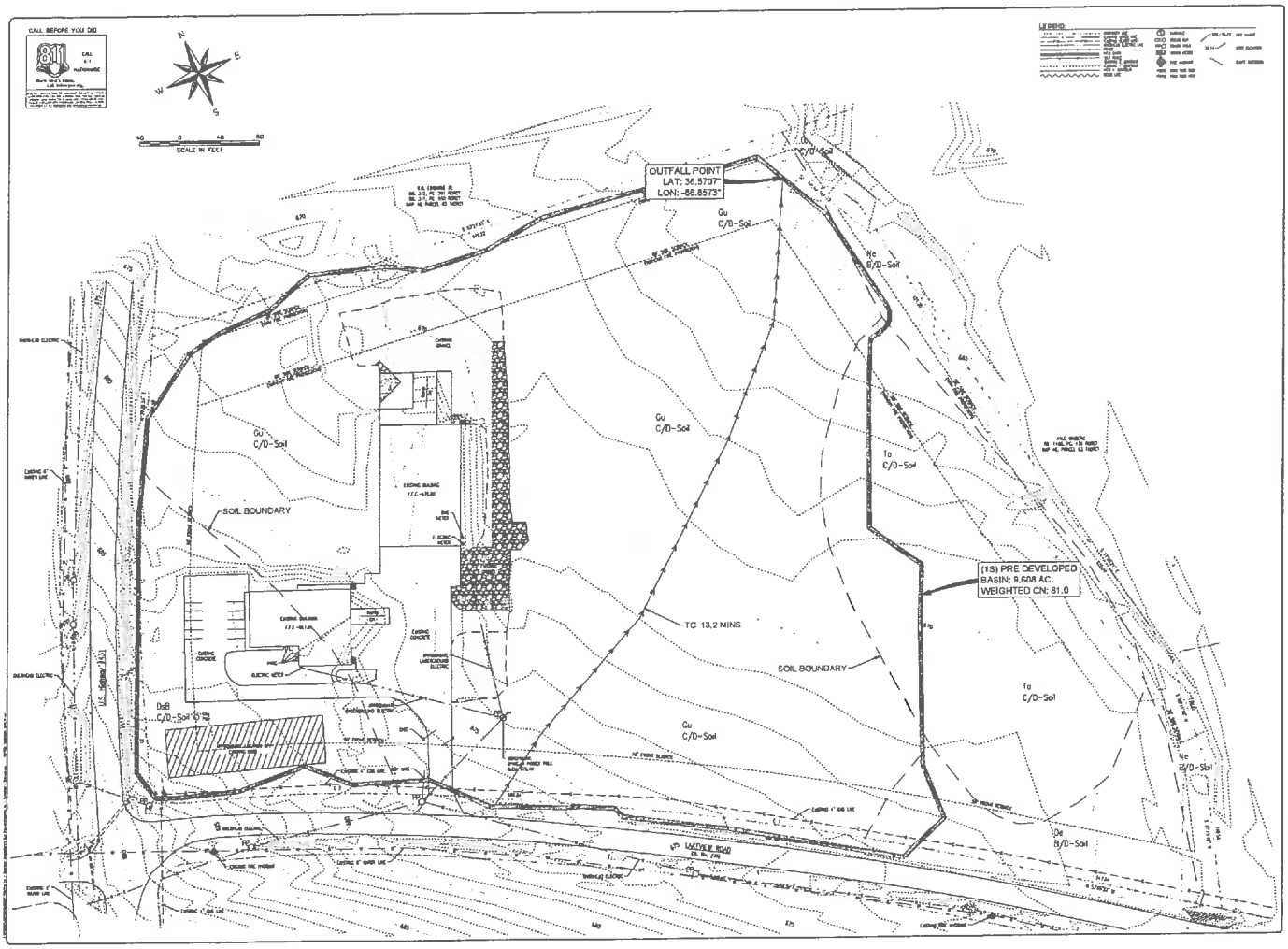
The following tables illustrate storm water runoff data for all drainage basins. The discharge from the pond and the portions that bypass the pond will be below predeveloped conditions.

Table 1

Storm Event	(1S): Pre-Dev. Runoff (cfs)	(2S): Post Dev. To Pond (cfs)	(1P): Post Dev. Pond Discharge (cfs)	Top of Pond Elev.: 668.00
2 yr.	19.11	35.69	11.41	665.10
5 yr.	26.30	45.39	16.92	665.42
10 yr.	32.26	53.20	21.42	665.66
25 yr.	40.77	64.13	27.59	665.98
50 yr.	47.72	72.95	33.90	666.22
100yr.	54.98	82.09	37.13	666.47

Table 1: Total Drainage Basin Calculation Results

PRE-DEVELOPED



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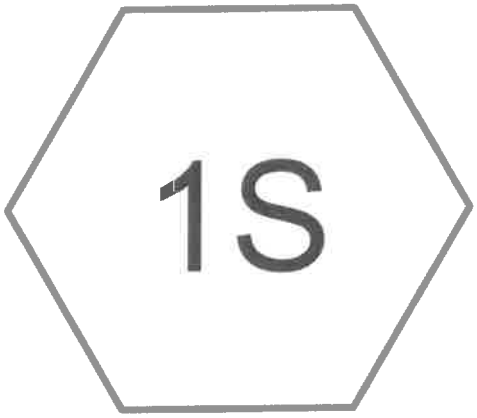
FLETCHLINE INC.

DRAWN BY: BWK
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PROJECT NO: CW0224

PRE DEVELOPED DRAINAGE MAP

SHEET NUMBER
DM-1

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Pre Developed Basin

Subcat Reach Pond Link

Routing Diagram for Fletchline Springfield - Drainage
Prepared by Klober Engineering, Printed 10/8/2024
HydroCAD® 10.20-2g s/n 10451 © 2022 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Pre Developed Basin

Runoff = 19.11 cfs @ 12.22 hrs, Volume= 1.310 af, Depth> 1.64"

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
0.055	98	Roofs, HSG C
0.592	96	Gravel surface, HSG C
0.683	98	Paved parking, HSG C
8.267	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.608	81	Weighted Average
8.870		92.32% Pervious Area
0.738		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0335	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.7	600	0.0139	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	700	Total			

Summary for Subcatchment 1S: Pre Developed Basin

Runoff = 26.30 cfs @ 12.21 hrs, Volume= 1.811 af, Depth> 2.26"

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
0.055	98	Roofs, HSG C
0.592	96	Gravel surface, HSG C
0.683	98	Paved parking, HSG C
8.267	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.608	81	Weighted Average
8.870		92.32% Pervious Area
0.738		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0335	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.7	600	0.0139	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	700	Total			

Summary for Subcatchment 1S: Pre Developed Basin

Runoff = 32.26 cfs @ 12.21 hrs, Volume= 2.235 af, Depth> 2.79"

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
0.055	98	Roofs, HSG C
0.592	96	Gravel surface, HSG C
0.683	98	Paved parking, HSG C
8.267	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.608	81	Weighted Average
8.870		92.32% Pervious Area
0.738		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0335	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.7	600	0.0139	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	700	Total			

Summary for Subcatchment 1S: Pre Developed Basin

Runoff = 40.77 cfs @ 12.21 hrs, Volume= 2.849 af, Depth> 3.56"

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
0.055	98	Roofs, HSG C
0.592	96	Gravel surface, HSG C
0.683	98	Paved parking, HSG C
8.267	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.608	81	Weighted Average
8.870		92.32% Pervious Area
0.738		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0335	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.7	600	0.0139	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	700	Total			

Summary for Subcatchment 1S: Pre Developed Basin

Runoff = 47.72 cfs @ 12.21 hrs, Volume= 3.359 af, Depth> 4.20"

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
0.055	98	Roofs, HSG C
0.592	96	Gravel surface, HSG C
0.683	98	Paved parking, HSG C
8.267	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.608	81	Weighted Average
8.870		92.32% Pervious Area
0.738		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0335	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.7	600	0.0139	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	700	Total			

Summary for Subcatchment 1S: Pre Developed Basin

Runoff = 54.98 cfs @ 12.21 hrs, Volume= 3.898 af, Depth> 4.87"

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
0.055	98	Roofs, HSG C
0.592	96	Gravel surface, HSG C
0.683	98	Paved parking, HSG C
8.267	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.608	81	Weighted Average
8.870		92.32% Pervious Area
0.738		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0335	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.7	600	0.0139	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
13.2	700	Total			

POST-DEVELOPED

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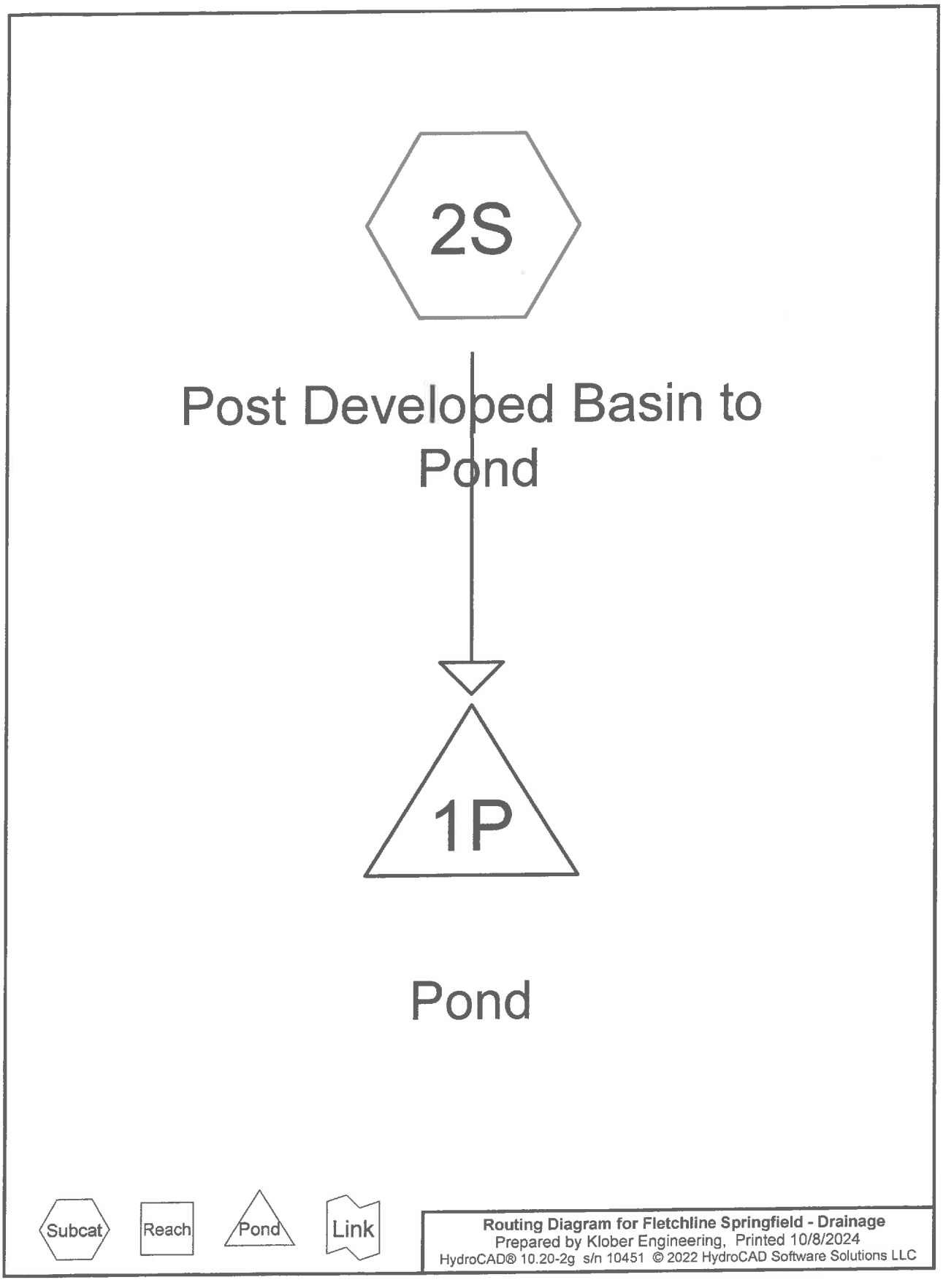
FLETCHLINE INC.

DRAWN BY
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PROJECT NO.

POST DEVELOPED DRAINAGE MAP

SHEET NUMBER
DM-2

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2S
Post Developed Basin to Pond
1P
Pond
Subcat
Reach
Pond
Link
Routing Diagram for Fletchline Springfield - Drainage
Prepared by Klober Engineering, Printed 10/8/2024
HydroCAD® 10.20-2g s/n 10451 © 2022 HydroCAD Software Solutions LLC

Summary for Subcatchment 2S: Post Developed Basin to Pond

[49] Hint: Tc<2dt may require smaller dt

Runoff = 35.69 cfs @ 12.11 hrs, Volume= 1.975 af, Depth> 2.46"
Routed to Pond 1P : 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
2.275	98	Paved parking, HSG C
2.436	98	Roofs, HSG C
0.682	96	Gravel surface, HSG C
0.735	98	Paved parking, HSG C
3.491	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.630	91	Weighted Average
4.184		43.45% Pervious Area
5.446		56.55% Impervious Area

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

Summary for Pond 1P: Pond

Inflow Area = 9.630 ac, 56.55% Impervious, Inflow Depth > 2.46" for 2-Year event
Inflow = 35.69 cfs @ 12.11 hrs, Volume= 1.975 af
Outflow = 11.41 cfs @ 12.30 hrs, Volume= 1.972 af, Atten= 68%, Lag= 11.3 min
Primary = 11.41 cfs @ 12.30 hrs, Volume= 1.972 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 665.10' @ 12.30 hrs Surf.Area= 22,804 sf Storage= 28,235 cf

Plug-Flow detention time= 36.0 min calculated for 1.966 af (100% of inflow)
Center-of-Mass det. time= 35.3 min (798.7 - 763.4)

Volume	Invert	Avail.Storage	Storage Description
#1	662.75'	104,229 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)
662.75	16	16.0	0	0	16
663.00	693	109.0	68	68	941
664.00	16,066	513.0	6,699	6,766	20,941
665.00	22,590	723.0	19,236	26,002	41,605
666.00	24,813	753.0	23,693	49,695	45,205
667.00	27,584	994.0	26,186	75,881	78,721
668.00	29,118	1,051.0	28,348	104,229	88,053

Device	Routing	Invert	Outlet Devices
#1	Primary	662.75'	**30.0" Round Culvert** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.75' / 662.45' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	662.75'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.50'	**1.5' long x 1.50' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)
#4	Device 1	666.00'	**3.0' long x 1.00' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)

Primary OutFlow Max=11.40 cfs @ 12.30 hrs HW=665.10' (Free Discharge)
↑**1=Culvert** (Passes 11.40 cfs of 21.61 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 5.14 cfs @ 6.55 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 6.26 cfs @ 2.53 fps)
4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

[49] Hint: Tc<2dt may require smaller dt

Runoff = 45.39 cfs @ 12.11 hrs, Volume= 2.554 af, Depth> 3.18"
Routed to Pond 1P : 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
2.275	98	Paved parking, HSG C
2.436	98	Roofs, HSG C
0.682	96	Gravel surface, HSG C
0.735	98	Paved parking, HSG C
3.491	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.630	91	Weighted Average
4.184		43.45% Pervious Area
5.446		56.55% Impervious Area

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

Summary for Pond 1P: Pond

Inflow Area = 9.630 ac, 56.55% Impervious, Inflow Depth > 3.18" for 5-Year event
Inflow = 45.39 cfs @ 12.11 hrs, Volume= 2.554 af
Outflow = 16.92 cfs @ 12.27 hrs, Volume= 2.550 af, Atten= 63%, Lag= 9.2 min
Primary = 16.92 cfs @ 12.27 hrs, Volume= 2.550 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 665.42' @ 12.27 hrs Surf.Area= 23,506 sf Storage= 35,629 cf

Plug-Flow detention time= 34.9 min calculated for 2.550 af (100% of inflow)
Center-of-Mass det. time= 34.3 min (792.4 - 758.1)

Volume	Invert	Avail.Storage	Storage Description
#1	662.75'	104,229 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)
662.75	16	16.0	0	0	16
663.00	693	109.0	68	68	941
664.00	16,066	513.0	6,699	6,766	20,941
665.00	22,590	723.0	19,236	26,002	41,605
666.00	24,813	753.0	23,693	49,695	45,205
667.00	27,584	994.0	26,186	75,881	78,721
668.00	29,118	1,051.0	28,348	104,229	88,053

Device	Routing	Invert	Outlet Devices
#1	Primary	662.75'	**30.0" Round Culvert** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.75' / 662.45' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	662.75'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.50'	**1.5' long x 1.50' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)
#4	Device 1	666.00'	**3.0' long x 1.00' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)

Primary OutFlow Max=16.83 cfs @ 12.27 hrs HW=665.41' (Free Discharge)
└**1=Culvert** (Passes 16.83 cfs of 25.70 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 5.56 cfs @ 7.08 fps)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 11.27 cfs @ 3.12 fps)
  └**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

[49] Hint: Tc<2dt may require smaller dt

Runoff = 53.20 cfs @ 12.11 hrs, Volume= 3.027 af, Depth> 3.77"
Routed to Pond 1P : 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
2.275	98	Paved parking, HSG C
2.436	98	Roofs, HSG C
0.682	96	Gravel surface, HSG C
0.735	98	Paved parking, HSG C
3.491	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.630	91	Weighted Average
4.184		43.45% Pervious Area
5.446		56.55% Impervious Area

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

Summary for Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.630 ac, 56.55% Impervious, Inflow Depth > 3.77" for 10-Year event
Inflow = 53.20 cfs @ 12.11 hrs, Volume= 3.027 af
Outflow = 21.42 cfs @ 12.25 hrs, Volume= 3.023 af, Atten= 60%, Lag= 8.5 min
Primary = 21.42 cfs @ 12.25 hrs, Volume= 3.023 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 665.66' @ 12.25 hrs Surf.Area= 24,047 sf Storage= 41,401 cf

Plug-Flow detention time= 34.4 min calculated for 3.013 af (100% of inflow)
Center-of-Mass det. time= 33.5 min (788.4 - 754.9)

Volume	Invert	Avail.Storage	Storage Description
#1	662.75'	104,229 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)
662.75	16	16.0	0	0	16
663.00	693	109.0	68	68	941
664.00	16,066	513.0	6,699	6,766	20,941
665.00	22,590	723.0	19,236	26,002	41,605
666.00	24,813	753.0	23,693	49,695	45,205
667.00	27,584	994.0	26,186	75,881	78,721
668.00	29,118	1,051.0	28,348	104,229	88,053

Device	Routing	Invert	Outlet Devices
#1	Primary	662.75'	**30.0" Round Culvert** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.75' / 662.45' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	662.75'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.50'	**1.5' long x 1.50' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)
#4	Device 1	666.00'	**3.0' long x 1.00' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)

Primary OutFlow Max=21.39 cfs @ 12.25 hrs HW=665.66' (Free Discharge)
↑**1=Culvert** (Passes 21.39 cfs of 28.64 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 5.87 cfs @ 7.47 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 15.52 cfs @ 3.52 fps)
4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

[49] Hint: Tc<2dt may require smaller dt

Runoff = 64.13 cfs @ 12.11 hrs, Volume= 3.696 af, Depth> 4.61"
Routed to Pond 1P : 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
2.275	98	Paved parking, HSG C
2.436	98	Roofs, HSG C
0.682	96	Gravel surface, HSG C
0.735	98	Paved parking, HSG C
3.491	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.630	91	Weighted Average
4.184		43.45% Pervious Area
5.446		56.55% Impervious Area

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

Summary for Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.630 ac, 56.55% Impervious, Inflow Depth > 4.61" for 25-Year event
Inflow = 64.13 cfs @ 12.11 hrs, Volume= 3.696 af
Outflow = 27.59 cfs @ 12.24 hrs, Volume= 3.690 af, Atten= 57%, Lag= 7.8 min
Primary = 27.59 cfs @ 12.24 hrs, Volume= 3.690 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 665.98' @ 12.24 hrs Surf.Area= 24,776 sf Storage= 49,296 cf

Plug-Flow detention time= 33.6 min calculated for 3.678 af (99% of inflow)
Center-of-Mass det. time= 32.8 min (784.1 - 751.3)

Volume	Invert	Avail.Storage	Storage Description
#1	662.75'	104,229 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)
662.75	16	16.0	0	0	16
663.00	693	109.0	68	68	941
664.00	16,066	513.0	6,699	6,766	20,941
665.00	22,590	723.0	19,236	26,002	41,605
666.00	24,813	753.0	23,693	49,695	45,205
667.00	27,584	994.0	26,186	75,881	78,721
668.00	29,118	1,051.0	28,348	104,229	88,053

Device	Routing	Invert	Outlet Devices
#1	Primary	662.75'	**30.0" Round Culvert** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.75' / 662.45' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	662.75'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.50'	**1.5' long x 1.50' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)
#4	Device 1	666.00'	**3.0' long x 1.00' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)

Primary OutFlow Max=27.52 cfs @ 12.24 hrs HW=665.98' (Free Discharge)
↑**1=Culvert** (Passes 27.52 cfs of 31.65 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 6.25 cfs @ 7.96 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 21.27 cfs @ 3.98 fps)
4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 2S: Post Developed Basin to Pond

[49] Hint: Tc<2dt may require smaller dt

Runoff = 72.95 cfs @ 12.11 hrs, Volume= 4.240 af, Depth> 5.28"
Routed to Pond 1P : 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
2.275	98	Paved parking, HSG C
2.436	98	Roofs, HSG C
0.682	96	Gravel surface, HSG C
0.735	98	Paved parking, HSG C
3.491	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.630	91	Weighted Average
4.184		43.45% Pervious Area
5.446		56.55% Impervious Area

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

Summary for Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.630 ac, 56.55% Impervious, Inflow Depth > 5.28" for 50-Year event
Inflow = 72.95 cfs @ 12.11 hrs, Volume= 4.240 af
Outflow = 33.90 cfs @ 12.23 hrs, Volume= 4.232 af, Atten= 54%, Lag= 6.8 min
Primary = 33.90 cfs @ 12.23 hrs, Volume= 4.232 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 666.22' @ 12.23 hrs Surf.Area= 25,401 sf Storage= 55,138 cf

Plug-Flow detention time= 33.0 min calculated for 4.232 af (100% of inflow)
Center-of-Mass det. time= 32.2 min (781.2 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	662.75'	104,229 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)
662.75	16	16.0	0	0	16
663.00	693	109.0	68	68	941
664.00	16,066	513.0	6,699	6,766	20,941
665.00	22,590	723.0	19,236	26,002	41,605
666.00	24,813	753.0	23,693	49,695	45,205
667.00	27,584	994.0	26,186	75,881	78,721
668.00	29,118	1,051.0	28,348	104,229	88,053

Device	Routing	Invert	Outlet Devices
#1	Primary	662.75'	**30.0" Round Culvert** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.75' / 662.45' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	662.75'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.50'	**1.5' long x 1.50' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)
#4	Device 1	666.00'	**3.0' long x 1.00' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)

Primary OutFlow Max=33.78 cfs @ 12.23 hrs HW=666.21' (Free Discharge)
↑**1=Culvert** (Barrel Controls 33.78 cfs @ 6.88 fps)
↑**2=Orifice/Grate** (Passes < 6.51 cfs potential flow)
3=Sharp-Crested Rectangular Weir (Passes < 25.19 cfs potential flow)
4=Sharp-Crested Rectangular Weir (Passes < 2.79 cfs potential flow)

Summary for Subcatchment 2S: Post Developed Basin to Pond

[49] Hint: Tc<2dt may require smaller dt

Runoff = 82.09 cfs @ 12.11 hrs, Volume= 4.807 af, Depth> 5.99"
Routed to Pond 1P : 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
2.275	98	Paved parking, HSG C
2.436	98	Roofs, HSG C
0.682	96	Gravel surface, HSG C
0.735	98	Paved parking, HSG C
3.491	79	50-75% Grass cover, Fair, HSG C
0.011	69	50-75% Grass cover, Fair, HSG B
9.630	91	Weighted Average
4.184		43.45% Pervious Area
5.446		56.55% Impervious Area

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

Summary for Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 9.630 ac, 56.55% Impervious, Inflow Depth > 5.99" for 100-Year event
Inflow = 82.09 cfs @ 12.11 hrs, Volume= 4.807 af
Outflow = 37.13 cfs @ 12.23 hrs, Volume= 4.798 af, Atten= 55%, Lag= 7.1 min
Primary = 37.13 cfs @ 12.23 hrs, Volume= 4.798 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 666.47' @ 12.23 hrs Surf.Area= 26,101 sf Storage= 61,696 cf

Plug-Flow detention time= 32.8 min calculated for 4.782 af (99% of inflow)
Center-of-Mass det. time= 31.8 min (778.9 - 747.0)

Volume	Invert	Avail.Storage	Storage Description
#1	662.75'	104,229 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

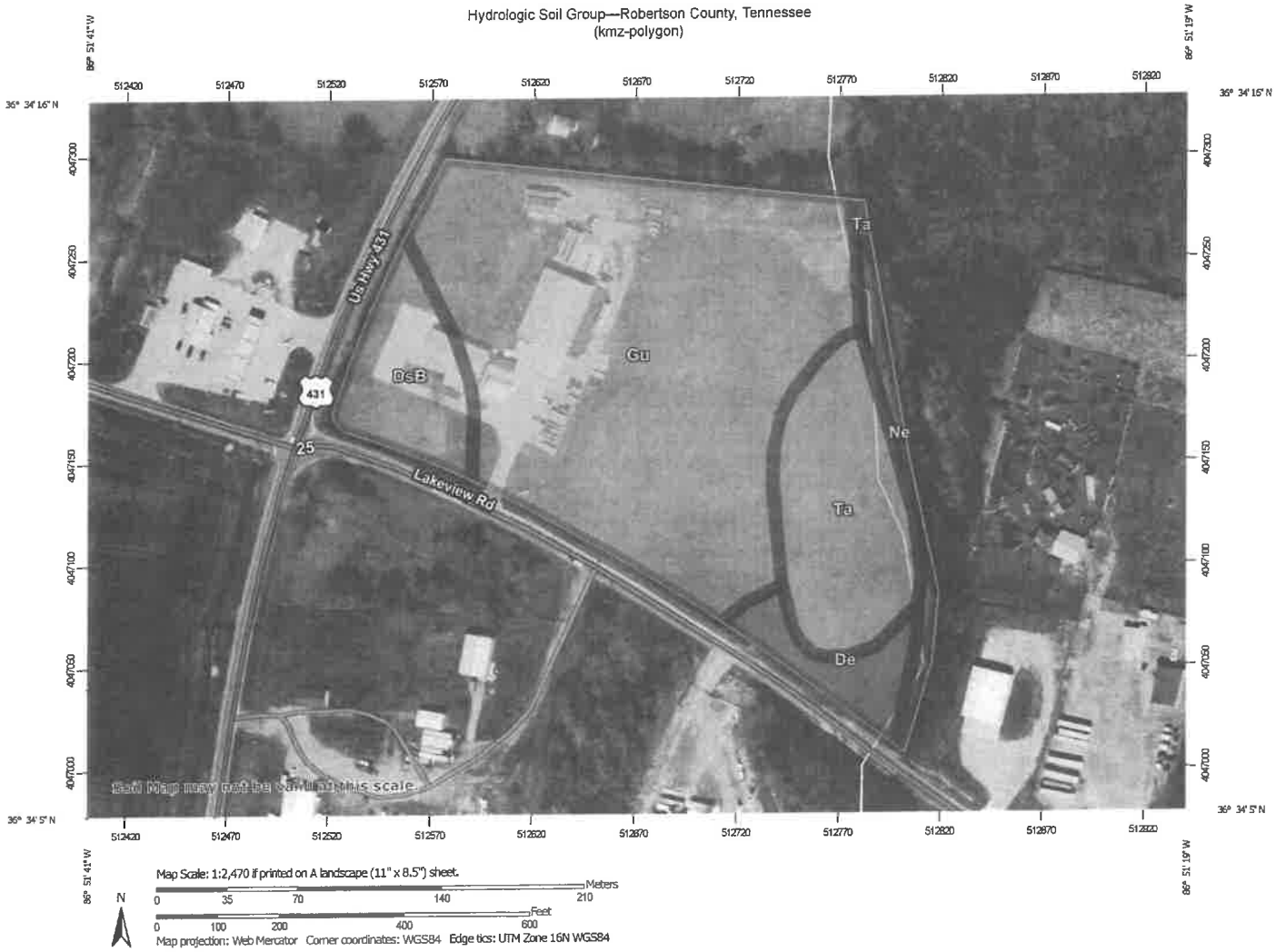
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
662.75	16	16.0	0	0	16
663.00	693	109.0	68	68	941
664.00	16,066	513.0	6,699	6,766	20,941
665.00	22,590	723.0	19,236	26,002	41,605
666.00	24,813	753.0	23,693	49,695	45,205
667.00	27,584	994.0	26,186	75,881	78,721
668.00	29,118	1,051.0	28,348	104,229	88,053

Device	Routing	Invert	Outlet Devices
#1	Primary	662.75'	**30.0" Round Culvert** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.75' / 662.45' S= 0.0111 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	662.75'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.50'	**1.5' long x 1.50' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)
#4	Device 1	666.00'	**3.0' long x 1.00' rise Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s)

Primary OutFlow Max=37.03 cfs @ 12.23 hrs HW=666.46' (Free Discharge)
↑**1=Culvert** (Barrel Controls 37.03 cfs @ 7.54 fps)
↑**2=Orifice/Grate** (Passes < 6.78 cfs potential flow)
3=Sharp-Crested Rectangular Weir (Passes < 28.68 cfs potential flow)
4=Sharp-Crested Rectangular Weir (Passes < 9.00 cfs potential flow)

SUPPLEMENTAL INFORMATION

Hydrologic Soil Group—Robertson County, Tennessee
(kmz-polygon)



Map Scale: 1:2,470 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 35, 70, 140, 210

Feet: 0, 100, 200, 400, 600

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

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

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
De	Dekoven silt loam	B/D	0.6	5.1%
DsB	Dickson silt loam, 2 to 5 percent slopes	C/D	1.2	9.2%
Gu	Guthrie silt loam, 0 to 2 percent slopes, frequently ponded	C/D	8.2	64.9%
Ne	Newark silt loam	B/D	0.5	4.0%
Ta	Taft silt loam, 0 to 2 percent slopes	C/D	2.1	16.8%
Totals for Area of Interest			**12.6**	**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.

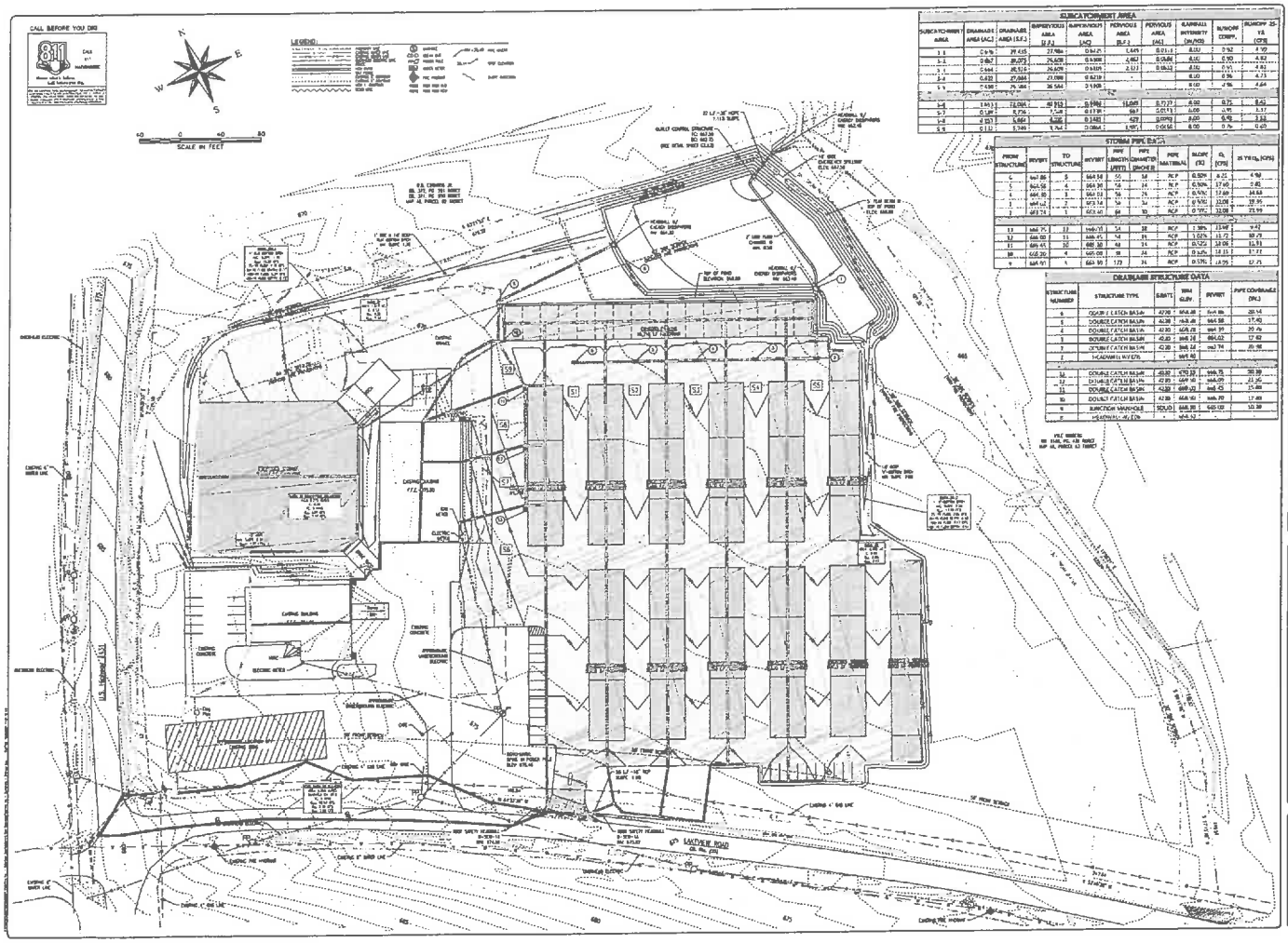
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



SUBCATCHMENT AREA

SUBCATCHMENT AREA	DRAINAGE AREA (AC)	DRAINAGE AREA (S.F.)	IMPERVIOUS AREA (S.F.)	IMPERVIOUS AREA (AC)	PERVIOUS AREA (S.F.)	PERVIOUS AREA (AC)	RAINFALL INTENSITY (IN/HR)	RUNOFF COEFF.	RUNOFF 25-YR (CFS)
S-1	0.96	39,435	27,984	0.642	11,449	0.263	8.00	0.92	4.90
S-2	0.80	35,073	25,609	0.588	9,464	0.217	8.00	0.90	4.62
S-3	0.64	28,126	20,629	0.474	7,497	0.172	8.00	0.91	4.10
S-4	0.63	27,664	21,098	0.484	-	-	8.00	0.96	4.73
S-5	0.88	38,564	34,708	0.797	-	-	8.00	0.96	6.64
S-6	1.80	78,094	69,913	1.605	8,181	0.188	8.00	0.95	14.62
S-7	0.18	8,236	7,218	0.166	818	0.019	8.00	0.90	1.33
S-8	0.18	8,061	6,888	0.158	429	0.010	8.00	0.88	1.26
S-9	0.12	5,349	4,764	0.094	1,587	0.036	8.00	0.96	0.90

STORM PIPE DATA

FROM STRUCTURE	INVERT	TO STRUCTURE	INVERT	PIPE LENGTH (LIN FT)	PIPE DIAMETER (INCHES)	PIPE MATERIAL	SLOPE (%)	Q, [CFS]	25 YR Q, [CFS]
C	667.86	5	664.58	55	18	RCP	0.60%	4.73	4.90
C	667.86	6	664.38	56	24	RCP	0.36%	17.60	0.85
6	664.38	5	664.03	56	24	RCP	0.63%	17.60	34.68
1	664.46	2	663.14	54	24	RCP	0.63%	33.06	35.95
2	663.14	3	662.80	54	24	RCP	0.63%	33.06	73.99
3	662.71	1	662.60	68	30	RCP	0.15%	33.06	-
13	666.75	12	666.18	54	18	RCP	1.38%	13.48	9.42
12	666.18	11	665.45	54	18	RCP	1.06%	11.72	68.79
11	665.45	10	665.30	46	24	RCP	0.32%	34.06	33.91
10	665.30	4	665.08	18	24	RCP	0.12%	18.15	37.71
9	665.97	4	665.90	173	24	RCP	0.13%	18.15	37.71

DRAINAGE STRUCTURE DATA

STRUCTURE NUMBER	STRUCTURE TYPE	SUMP	RIM ELEV.	INVERT	PIPE DIAMETER (IN.)
6	10'x3'W CATCH BASIN	4.75'	668.68	664.38	24-18
5	DOUBLE CATCH BASIN	4.38'	668.38	664.58	24-18
4	DOUBLE CATCH BASIN	4.38'	668.08	665.30	24
3	DOUBLE CATCH BASIN	4.38'	668.18	663.80	24
7	10'x3'W CATCH BASIN	4.38'	668.24	662.94	24
1	HEADWALL W/ETB	-	-	662.60	30
12	DOUBLE CATCH BASIN	4.88'	670.33	666.75	24-18
11	DOUBLE CATCH BASIN	4.88'	669.95	666.09	24-24
10	DOUBLE CATCH BASIN	4.88'	669.93	665.45	24-24
10	DOUBLE CATCH BASIN	4.88'	668.93	666.30	24-24
9	JUNCTION MANHOLE	SOLID	668.88	665.08	24
9	HEADWALL W/ETB	-	-	664.52	-

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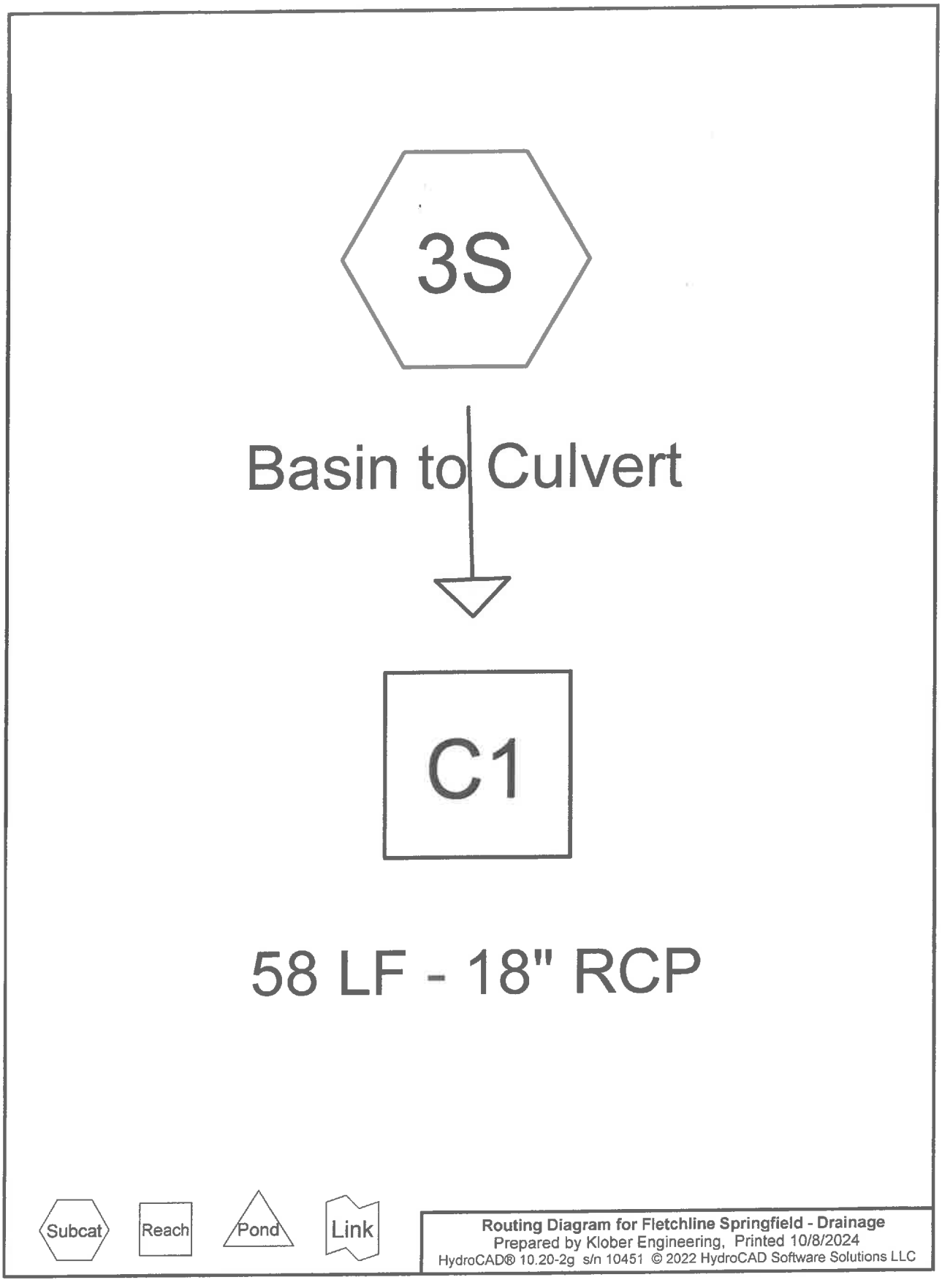
1981 LAKEVIEW ROAD
CORINTH, MS 38834
PONTOTOC COUNTY

DRAWN BY: BOWS
CHECKED BY: JML
PROJECT NO: 4791224

SUBCATCHMENT MAP

SHEET NUMBER
DM-3

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3S
Basin to Culvert
C1
58 LF - 18" RCP
Subcat
Reach
Pond
Link
Routing Diagram for Fletchline Springfield - Drainage
Prepared by Klober Engineering, Printed 10/8/2024
HydroCAD® 10.20-2g s/n 10451 © 2022 HydroCAD Software Solutions LLC

Summary for Subcatchment 3S: Basin to Culvert

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.98 cfs @ 12.11 hrs, Volume= 0.169 af, Depth> 5.55"
Routed to Reach C1 : 58 LF - 18" RCP

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
0.122	98	Paved parking, HSG C
0.221	79	50-75% Grass cover, Fair, HSG C
0.023	98	Paved parking, HSG C
0.366	87	Weighted Average
0.221		60.38% Pervious Area
0.145		39.62% Impervious Area

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

Summary for Reach C1: 58 LF - 18" RCP

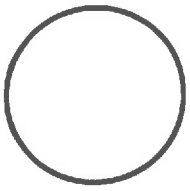
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

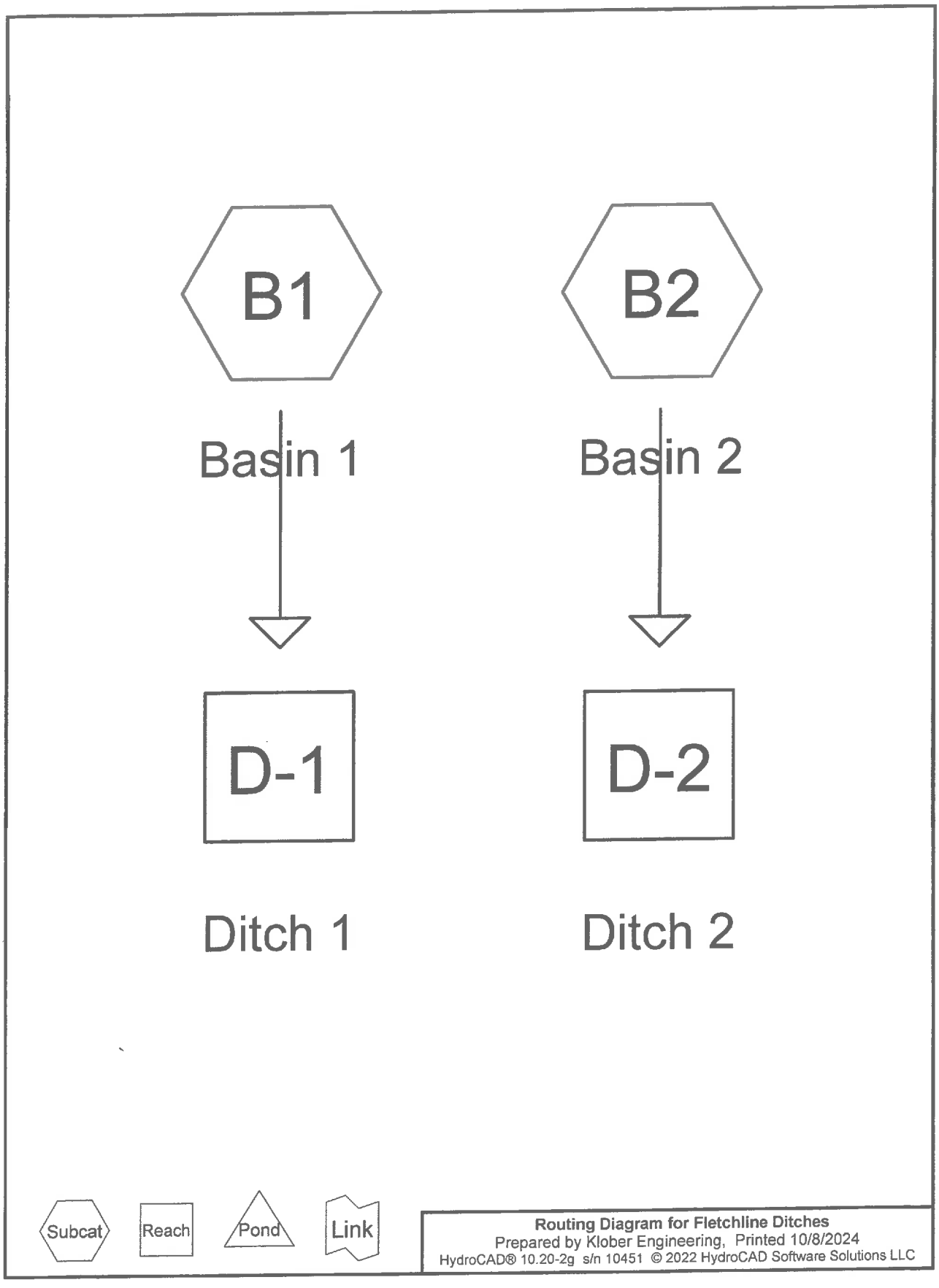
Inflow Area = 0.366 ac, 39.62% Impervious, Inflow Depth > 5.55" for 100-Year event
Inflow = 2.98 cfs @ 12.11 hrs, Volume= 0.169 af
Outflow = 2.92 cfs @ 12.12 hrs, Volume= 0.169 af, Atten= 2%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.08 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.67 fps, Avg. Travel Time= 0.6 min

Peak Storage= 34 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.54' , Surface Width= 1.44'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.50 cfs

18.0" Round Pipe
n= 0.013
Length= 58.0' Slope= 0.0100 '/'
Inlet Invert= 674.50', Outlet Invert= 673.92'




B1
B2
Basin 1
Basin 2
D-1
D-2
Ditch 1
Ditch 2
Subcat
Reach
Pond
Link
Routing Diagram for Fletchline Ditches
Prepared by Klober Engineering, Printed 10/8/2024
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Summary for Subcatchment B1: Basin 1

Runoff = 5.34 cfs @ 0.00 hrs, Volume= 0.044 af, Depth= 0.51"
Routed to Reach D-1 : Ditch 1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-2.00 hrs, dt= 0.10 hrs
METRO-NASHVILLE 100-Year Duration=5 min, Inten=9.72 in/hr

Area (ac)	C	Description
1.047	0.52	
1.047		100.00% Pervious Area

Summary for Subcatchment B2: Basin 2

Runoff = 3.47 cfs @ 0.00 hrs, Volume= 0.029 af, Depth= 0.86"
Routed to Reach D-2 : Ditch 2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-2.00 hrs, dt= 0.10 hrs
METRO-NASHVILLE 100-Year Duration=5 min, Inten=9.72 in/hr

Area (ac)	C	Description
0.402	0.88	
0.402		100.00% Pervious Area

Summary for Reach D-1: Ditch 1

Inflow Area = 1.047 ac, 0.00% Impervious, Inflow Depth = 0.51" for 100-Year event
Inflow = 5.34 cfs @ 0.00 hrs, Volume= 0.044 af
Outflow = 1.67 cfs @ 0.19 hrs, Volume= 0.022 af, Atten= 69%, Lag= 11.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-2.00 hrs, dt= 0.10 hrs
Max. Velocity= 2.31 fps, Min. Travel Time= 4.4 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 19.5 min

Peak Storage= 570 cf @ 0.10 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 3.50'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 15.20 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 607.0' Slope= 0.0132 '/'
Inlet Invert= 674.00', Outlet Invert= 666.00'



Summary for Reach D-2: Ditch 2

Inflow Area = 0.402 ac, 0.00% Impervious, Inflow Depth = 0.86" for 100-Year event
Inflow = 3.47 cfs @ 0.00 hrs, Volume= 0.029 af
Outflow = 2.02 cfs @ 0.10 hrs, Volume= 0.021 af, Atten= 42%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-2.00 hrs, dt= 0.10 hrs
Max. Velocity= 2.85 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.85 fps, Avg. Travel Time= 1.2 min

Peak Storage= 173 cf @ 0.10 hrs
Average Depth at Peak Storage= 0.54' , Surface Width= 3.25'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 12.88 cfs

0.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 6.00'
Length= 197.0' Slope= 0.0203 '/'
Inlet Invert= 670.00', Outlet Invert= 666.00'

