SITE DEVELOPMENT PLANS

FOR

CHICK-FIL-A, INC.

62 INDOOR SEATS PROVIDED
2187 GREENLAND WAY,
KNOXVILLE, TN 37932

9-B-23-TOB / 9-C-23-DP

Revision 8-30-2023

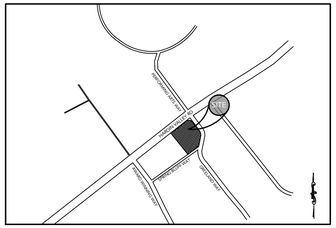
AUGUST 28, 2023

INDEX TO DRAWINGS

ACTIVITY SCHEDULE

TASK DESCRIPTION:	MONTHS: (2019) Start Date: June 1, 2019								
	JUNE	JULY	AUGUST	SEPTEMBER					
	1	2	3	4					
CONSTRUCTION EXIT AND PERIMETER SILT FENCE	X								
TEMPORARY SEDIMENT STORAGE FACILITIES	X								
CLEARING & GRUBBING	X								
ROUGH GRADING	X								
TEMPORARY STABILIZATION (GRASSING)		X							
CURB AND GUTTER		X	X						
GRAVEL SUBBASE FOR ROADS AND PARKING AREAS			X						
BUILDING CONSTRUCTION		X	X	X					
FINAL GRADING				X					
PAVING				X					

CONSTRUCTION NOTES:
ANTICIPATED START PROJECT DATE XXXX
ANTICIPATED COMPLETE PROJECT DATE XXX
1. INSTALL EROSION CONTROL FENCE
2. DEMOLITION
3. CONSTRUCT STORM SYSTEM
4. CONSTRUCT WATER AND SEWER SYSTEM
5. FINE GRADE SITE
6. INSTALL GRASSING AND MULCH (TEMPORARY VEGETATION)
7. CONSTRUCT BUILDING
8. INSTALL CURB AND GUTTER
9. PAVE SITE
10. FINAL STABILIZATION (PERMANENT VEGETATION), CLEAN STORM DRAIN SYSTEM
11. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES



LOCATION MAP
SCALE: N.T.S.

DESIGN BY:

CIVIL ENGINEER
CARTER ENGINEERING CONSULTANTS, INC.
3651 MARS HILL RD. STE. 3600
WATKINSVILLE, GA 30677
CONTACT: 770.725.1200
MARK CAMPBELL, P.E.
MARK@CARTERENGINEERING.COM

CAUTION
THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE SOLO RESPONSIBILITY OF THE CONTRACTOR.

GENERAL PLAN SET NOTES

1. THE ENGINEER IS NOT RESPONSIBLE FOR COST CHANGES DURING CONCEPTUAL, PRELIMINARY, OR DESIGN PHASE.
2. BIDS & QUOTES SHALL BE BASED ON PLAN SETS LABELED "ISSUE FOR BID" ON THE REVISION BLOCK.
3. BIDS & QUOTES SHALL BE REVISED BASED ON PLANS LABELED "ISSUE FOR CONSTRUCTION" ON THE REVISION BLOCK.
4. IF DISCREPANCIES ARE ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE DEVIATION FROM THIS PLAN SET, THE ENGINEER SHOULD BE NOTIFIED FOR UPDATED PLANS AND/ OR FIELD CHANGES.
5. THE ENGINEER IS NOT RESPONSIBLE FOR DESIGN OR CONSTRUCTION COST ASSOCIATED WITH FIELD CHANGES OR DEVIATION FROM THIS PLAN SET DUE TO UNFORESEEN SITE CONDITIONS, CLIENT MODIFICATION REQUEST AND/ OR CONTRACTOR CHANGES.
6. THE ENGINEER IS NOT RESPONSIBLE FOR THE EFFICACY OF FIELD CHANGES OR DEVIATION FROM THIS PLAN SET IN ANYWAY, UNLESS CHANGES ARE DIRECTED BY THE ENGINEER.

DEVELOPMENT DATA:

-OWNER: CHICK-FIL-A, INC.
-OWNER ADDRESS: 5200 BUFFINGTON RD., ATLANTA GA 30349
-DEVELOPER: CHICK-FIL-A, INC.
-DEVELOPER ADDRESS: 5200 BUFFINGTON RD, ATLANTA GA 30349
-SITE ADDRESS: 2187 GREENLAND WAY, KNOXVILLE, TN 37932
-ALL IMPROVEMENTS TO CONFORM WITH THE CITY OF CHARLOTTE, NC AND THE MECKLENBURG COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS, LATEST EDITION.
-ENGINEER: CARTER ENGINEERING CONSULTANTS, Inc.
-ZONING: PC
-SITE ACREAGE: 1.75 - DISTURBED AREA: 1.75

5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE
COVER

REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet
C-1.0

CONSTRUCTION NOTES

1. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COVER A COMPLETE PROJECT, READY TO USE, AND ALL ITEMS NECESSARY FOR A COMPLETE AND WORKABLE JOB SHALL BE FURNISHED AND INSTALLED. ANY DISCREPANCY SHALL BE IMMEDIATELY REPORTED TO THE OWNER OR HIS REPRESENTATIVE.
2. NOTIFY THE INSPECTOR OF THE LOCAL GOVERNING AUTHORITY 24 HOURS BEFORE EVERY PHASE OF CONSTRUCTION.
3. ALL WORK SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES. ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR, AT HIS EXPENSE, UNLESS ALREADY OBTAINED BY THE OWNER.
4. THE CONTRACTOR SHALL COORDINATE LOCATION AND INSTALLATION OF ALL UNDERGROUND UTILITIES AND APPURTENANCES TO MINIMIZE DISTURBING CURBING, PAVING, AND ALL OTHER UTILITIES.
5. THE EXISTING UTILITIES SHOWN ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE DRAWINGS. THE UTILITIES SHOWN ARE THOSE LOCATED BY THE SURVEYOR OF RECORD. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATION OF THE UTILITIES SHOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR CONSENT OF THE ENGINEER AND THE MUNICIPALITY MAY CAUSE FOR THE WORK TO BE UNACCEPTABLE.
7. ALL MATERIALS SHALL BE NEW UNLESS USED OR SALVAGED MATERIALS ARE AUTHORIZED BY THE OWNER.
8. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AROUND THE WORK AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.
9. ALL WORK SHALL BE PERFORMED IN A FINISHED AND WORKMANLIKE MANNER TO THE ENTIRE SATISFACTION OF THE OWNER, AND IN ACCORDANCE WITH THE BEST RECOGNIZED TRADE PRACTICES.
10. THE CONTRACTOR SHALL PROVIDE SHEETING AND SHORING FOR ALL TRENCH CONSTRUCTION IN ACCORDANCE WITH OSHA GUIDELINES.
11. ALL PIPE LENGTHS SHOWN ARE TO THE CENTERLINE OF THE STRUCTURES UNLESS SPECIFICALLY NOTED.
12. PIPES (STORM AND SANITARY SEWER) SHALL BE LAID ON SMOOTH, CONTINUOUS GRADES WITH NO VISIBLE BENDS AT THE JOINTS.
13. BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUM REQUIRED FOR RELATIVELY DRY STABLE EARTH CONDITIONS. ADDITIONAL BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES TO PROVIDE SUCH ADDITIONAL BEDDING AS REQUIRED TO PROPERLY CONSTRUCT WORK.
14. ALL STORM DRAINAGE INLET STRUCTURES SHALL HAVE METAL RING AND COVER FOR ACCESS.
15. ALL ANGLES SHOWN ARE 90 DEGREES UNLESS SHOWN OTHERWISE.
16. ALL GRADES SHOWN ARE FINISHED GRADES. CONTRACTOR SHALL VERIFY DIMENSIONS, GRADES, AND EXISTING ELEVATIONS PRIOR TO CONSTRUCTION.
17. CONCRETE CURBS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS SHOWN ON PLANS. MATERIALS, EQUIPMENT, METHODS OF CONSTRUCTION AND WORKMANSHIP SHALL CONFORM TO STATE D.O.T. STANDARD SPECIFICATIONS.
18. ALL CONCRETE SHALL HAVE 3000 PSI COMPRESSIVE STRENGTH AFTER 28 DAYS, WITH A MAXIMUM SLUMP OF FOUR (4) INCHES, UNLESS SPECIFIED OTHERWISE.
19. ALL EXPOSED CONCRETE SHALL HAVE A FINE HAIR BROOMED FINISH.
20. PARKING AND DRIVEWAY BASE COURSE AND ASPHALTIC CONCRETE SURFACE AND PRIME MATERIALS, EQUIPMENT, METHODS FOR CONSTRUCTION AND WORKMANSHIP SHALL CONFORM TO STATE D.O.T. STANDARD SPECIFICATIONS.
21. CONTRACTOR TO FIELD VERIFY ALL STORM, SANITARY, WATER AND OTHER UTILITIES LOCATIONS AND INVERTS PRIOR TO INSTALLATION OF ANY UTILITIES. NOTIFY ENGINEER PRIOR TO PROCEEDING WITH ANY WORK IF DISCREPANCIES FOUND.
22. THE USE OF CONCRETE THRUST BLOCKS FOR THE INSTALLATION OF WATER MAINS IS STRICTLY PROHIBITED. PRESSURE PIPE FITTINGS AND OTHER ITEMS REQUIRING RESTRAINT SHALL BE RESTRAINED USING METHODS SPECIFIED AND APPROVED BY COUNTY/CITY TECHNICAL STANDARDS, SPECIFICATIONS AND REGULATIONS. THE PREFERRED METHOD OF RESTRAINT IS THROUGH THE USE OF "MEGA-LUGS" OR "MJR" DEVICES.
23. ALL DIMENSIONS ARE MEASURED TO THE BACK OF CURB UNLESS OTHERWISE NOTED.

EARTHWORK SPECIFICATIONS

CLEARING AND GRUBBING

1. CLEARING AND GRUBBING SHALL CONSIST OF CLEARING THE SURFACE OF THE GROUND OF THE DESIGNATED AREAS OF ALL TREES, LOGS, SNAGS, BRUSH, UNDERGROWTH, HEAVY GROWTH OF GRASS, WEEDS, FENCE STRUCTURES, DEBRIS AND RUBBISH OF ANY NATURE, NATURAL OBSTRUCTIONS SUCH AS OBJECTIONABLE SOIL MATERIAL UNSATISFACTORY FOR FOUNDATIONS. IT SHALL ALSO CONSIST OF GRUBBING OF STUMPS, ROOTS FOUNDATIONS AND DISPOSAL OF ALL SUCH MATERIAL. ALL HOLES REMAINING AFTER THE GRUBBING OPERATION IN EMBANKMENT AREAS AND IN EXCAVATION AREAS LESS THAN TWO (2) FEET IN DEPTH, SHALL HAVE SIDES BROKEN DOWN AND LEVELED IF NECESSARY TO FLATTEN OUT SLOPES, REFILLED WITH ACCEPTABLE MATERIAL THAT IS PROPERLY COMPACTED IN LAYERS BY TAMPERS, ROLLERS OR CONSTRUCTION EQUIPMENT.
2. BURNING ON SITE IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE LOCAL GOVERNING AUTHORITIES HAVING JURISDICTION.

EXISTING TREES OUTSIDE OF GRADING LIMITS LINE:

1. TREES AND VEGETATION TO BE SAVED SHALL BE PROTECTED FROM DAMAGE BY A FENCE BARRICADE PRIOR TO, OR DURING, CLEARING OPERATIONS. TREES TO BE REMOVED FROM THE AREA OUTSIDE THE LIMITS OF GRADING OR FROM SPECIFICALLY DESIGNATED AREAS WITHIN THE CONSTRUCTION AREAS. IF, IN THE OPINION OF THE ENGINEER, A CONTRACTOR DAMAGES A TREE NOT TO BE REMOVED, THE CONTRACTOR WILL BE FINED A PREDETERMINED AMOUNT FOR EACH DAMAGED TREE. THE CONTRACT SHALL ALSO BE RESPONSIBLE FOR ALL COSTS ASSOCIATED IN REMOVING THE DAMAGED TREE FROM THE SITE.

FILL:

1. ALL VEGETATION SUCH AS ROOTS, BRUSH, HEAVY GROWTH OF GRASS, TOPSOIL, ALL DECAYED VEGETABLE MATTER, RUBBISH, AND OTHER UNSUITABLE MATERIAL WITHIN THE AREA UPON WHICH FILL IS TO BE PLACED SHALL BE STRIPPED OR BE OTHERWISE REMOVED BEFORE THE FILL OPERATION IS STARTED. IN NO CASE SHALL UNSUITABLE MATERIAL REMAIN IN OR UNDER THE FILL AREA. SLOPED GROUND SURFACE STEEPER THAN ON VERTICAL TO FOUR HORIZONTAL, ON WHICH FILL IS TO BE PLACED, SHALL BE PLACED, STEPPED OR BENCHED IN SUCH A MANNER THAT THE FILL TO BE PLACED SHALL BE 97 PERCENT OF THE MAXIMUM LABORATORY DRY DENSITY ACCORDING TO STANDARD PROCTOR (AASHTO T99, ASTM D-698). MOISTURE CONTENT SHALL BE WITHIN 3 PERCENT OF THE OPTIMUM MOISTURE CONTENT. PROOF ROLL THE AREAS TO BE FILLED OR ON WHICH STRUCTURES ARE TO BE PLACED. A LOADED DUMP TRUCK OR OTHER RUBBER TIRED EQUIPMENT SHALL BE USED FOR PROOF ROLLING. OVERLAPPING PASSES OF A VEHICLES SHOULD BE MADE ACROSS THE SITE IN ONE DIRECTION AND THEN PERPENDICULAR TO THE ORIGINAL DIRECTION OF ROLLING.
2. ANY YIELDING, PUMPING OR SOFT AREAS SHOULD BE CUT OUT AND REPLACED WITH FILL COMPACTED AS DESCRIBED HEREIN.
3. THE PROPOSED FILL SHOULD BE LIMITED TO SOILS CLASSIFIED IN ACCORDANCE WITH ASTM D-2487 AS GM, GC, SW, SM, SC, ML AND CL. SOIL CLASSIFIED AS PT, OH, OL, CH AND MH ARE NOT SATISFACTORY AS COMPACTED FILL.
4. FILLS AND EMBANKMENTS SHALL BE CONSTRUCTED AT THE LACTATIONS AND TO THE LINES AND GRADES INDICATED ON CONSTRUCTION PLANS. THE SLOPE SHALL NOT EXCEED 2 FOOT HORIZONTAL TO 1 FOOT VERTICAL (3 FOOT HORIZONTAL TO 1 FOOT VERTICAL IN THE PUBLIC RIGHT OF WAY). THE COMPLETED FILL SHALL CORRESPOND TO THE SHAPE OF THE TYPICAL SECTIONS INDICATED ON THE CONSTRUCTION PLANS. MATERIAL REMOVED FROM THE EXCAVATION SHALL BE USED IN FORMING THE FILL. FILL MATERIAL SHALL BE REASONABLY FREE FROM ROOTS, OTHER ORGANIC MATERIAL, TRASH AND STONES HAVING MAXIMUM DIMENSIONS GREATER THAN 6 INCHES (4 INCHES IN TRENCHES FOR UTILITIES). NO FROZEN MATERIAL WILL BE PERMITTED IN THE FILL. STONES HAVING A MAXIMUM DIMENSION OF 4 INCHES WILL NOT BE PERMITTED IN THE UPPER SIX INCHES OF FILL OR EMBANKMENT OR UTILITY TRENCH. THE MATERIAL SHALL BE PLACED IN SUCCESSIVE HORIZONTAL LAYERS NOT MORE THAN 8 INCHES THICK, UNLESS OTHERWISE NOTED, IN LOOSE DEPTH FOR THE WIDTH OF THE CROSS-SECTION AND SHALL BE COMPACTED TO AT LEAST 97 PERCENT OF THE MAXIMUM LABORATORY DRY DENSITY ACCORDING TO STANDARD PROCTOR (ASTM D-698, AASHTO T-99). MOISTURE SHALL BE WITHIN 3 PERCENT OF THE OPTIMUM MOISTURE CONTENT. THE TOP 12 INCHES OF THE PAVING, PARKING AND/OR ROADWAY SUB-GRADE SHALL BE COMPACTED TO 97 PERCENT OF THE MAXIMUM DRY DENSITY (STANDARD PROCTOR). EACH LIFT SHALL BE ROLLED WITH A VIBRATORY ROLLER, A SHEEPSFOOT ROLLER, OR A LOADED RUBBER TIRED DUMP TRUCK, SCRAPER OR LOADER. IF THE SOIL IS TOO DRY, A WATER TRUCK WITH SPREADER BAR OR SPRAY HOSE SHALL BE USED TO BRING THE SOIL TO THE PROPER MOISTURE RANGE. THE WATER SHALL BE THOROUGHLY AND PROPERLY MIXED WITH THE SOIL PRIOR TO COMPACTION.
5. STORM DRAIN PIPES SHALL BE PLACED ON FIRM BOTTOM AND HAND TAMPED TO SAFE UP THE PIPE. A CUSHION OF SOIL SHALL BE TAMPED ABOVE THE CROWN OF THE PIPE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS SO THAT THE HEAVIER COMPACTION EQUIPMENT CAN THEN BE USED TO BRING THE SOIL TO A DENSITY AS DESCRIBED ABOVE FOR FILL AREAS.
6. IF SOILS INVESTIGATION REPORT IS PROVIDED, THEN FOLLOW THE RECOMMENDATIONS OF THE REPORT IF THEY EXCEED THE RECOMMENDATIONS OF THESE SPECIFICATIONS.

TOPSOIL:

1. UNLESS OTHERWISE SPECIFIED, AREAS DESIGNATED FOR GRADING OPERATIONS THAT CONTAIN A BLANKET OF TOPSOIL SHALL BE STRIPPED AND PLACED IN CONVENIENT STOCKPILES FOR LATER USE AS A TOPSOIL BLANKET ON THE NEW GRADED AREAS SPECIFIED HEREIN, OR AS DESIGNATED. TOPSOIL SHALL BE STRIPPED FROM ALL AREAS DESIGNATED TO RECEIVE FILL. THE STRIPPING OF MATERIAL FOR TOPSOIL SHALL BE CAREFULLY DETERMINED AND ONLY THE QUANTITY REQUIRED SHALL BE STOCKPILED. MATERIAL STOCKPILED SHALL BE STORED IN A SATISFACTORY MANNER TO AFFORD PROPER DRAINAGE. WHEN GRADING OPERATIONS PERMIT, INSTEAD OF STOCKPILING, THE TOPSOIL SHALL BE HAULED AND SPREAD DIRECTLY ON THE AREAS DESIGNATED TO RECEIVE TOPSOIL.

ROCK EXCAVATION:

1. IF ROCK IS ENCOUNTERED, CLEAR AWAY EARTH TO EXPOSE MATERIAL. NOTIFY OWNER AND RECEIVE WRITTEN INSTRUCTIONS PRIOR TO EXCAVATION. REMOVE ROCK TO A DEPTH OF 6 INCHES BELOW AND 8 INCHES ON EACH SIDE OF PIPES IN TRENCHES. A MEASUREMENT OF EXTENT OF ROCK TO BE REMOVED SHALL BE MADE. ROCK EXCAVATION SHALL BE PAID FOR IN ACCORDANCE WITH AGREEMENT WITH THE OWNER.

DEMOLITION NOTES

EXISTING STRUCTURES & FACILITIES:

1. THE LOCATIONS OF ALL EXISTING FACILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER / LANDSCAPE ARCHITECT ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ON-SITE LOCATIONS OF EXISTING UTILITIES.
2. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, SUPERVISION AND EQUIPMENT REQUIRED FOR THE ORDERLY DEMOLITION AND REMOVAL OF EXISTING STRUCTURES, PAVEMENT, AND UTILITIES AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.
3. THE CONTRACTOR IS REQUIRED TO FAMILIARIZE HIM/HERSELF WITH THE STRUCTURES TO BE DEMOLISHED. A BRIEF DESCRIPTION OF THE STRUCTURES PROPOSED TO BE INSTALLED AND DEMOLISHED ARE INCLUDED FOR THE CONTRACTOR'S CONVENIENCE ONLY.
4. THE FOLLOWING LIST OF STRUCTURES REQUIRING DEMOLITION IS INCLUDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE DRAWINGS INDICATE THE SCOPE OF THE DEMOLITION WHERE DEMOLITION IS REQUIRED (SEE CORRESPONDING PLANS):
   - 4.1. DEMOLITION AND REMOVAL OF EXISTING ON-SITE ASPHALT, CONCRETE, PAVING, AND CURBING TO LIMITS OF DISTURBANCE/DEMOLITION AS SHOWN ON THE CORRESPONDING PLANS. CONTRACTOR TO VERIFY AND COORDINATE ANY DISCREPANCIES AND/OR CONCERNS WITH ENGINEER/LANDSCAPE ARCHITECT ACCORDINGLY.
5. ALL ON-SITE UNDERGROUND STRUCTURES AND PIPING MUST BE COMPLETELY REMOVED AND OVER-EXCAVATED BY A MINIMUM OF 12" BENEATH THE STRUCTURES. CONTRACTOR SHALL USE APPROVED FILLING MATERIAL FOR FILLING THESE AREAS. FILL SHALL BE CLEAN WITH LESS THAN 50% PASSING THE #200 SIEVE, PLASTICITY INDEX LESS THAN 10, WITH MAXIMUM PARTICLE SIZE OF 1.25 INCHES, AND SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES IN THICKNESS AND COMPACTED TO AT LEAST 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T99).
6. ALL EXISTING STRUCTURES, PAVEMENTS, SLABS, FOUNDATIONS, STEPS AND OTHER EXISTING FEATURES INDICATED ON THE DRAWINGS TO BE REMOVED SHALL BE DEMOLISHED AND REMOVED BY THE CONTRACTOR. REMOVE NO STRUCTURE SUBSTANTIALLY AS A WHOLE. DEMOLISH COMPLETELY ON THE PREMISES.
7. ALL EXISTING SEWERS, PIPING, UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. CONTRACTOR SHALL GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH THE WORK.
8. CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION FOR PERSON AND PROPERTY AT ALL TIMES. HE OR SHE SHALL EXECUTE THE WORK IN A MANNER THAT AVOIDS HAZARDS TO PERSONS AND PROPERTY AND THAT PREVENTS INTERFERENCE WITH THE USE AND ACCESS TO ADJACENT PROPERTIES, BUILDINGS, AND ADJACENT STREETS. STREETS AND SIDEWALKS SHALL NOT BE BLOCKED BY DEBRIS AND EQUIPMENT.
9. CONTRACTOR MUST STOP OPERATION AND NOTIFY THE OWNER FOR PROPER DIRECTION IF ANY ENVIRONMENTAL OR HEALTH RELATED CONTAMINATE IS ENCOUNTERED DURING THE DEMOLITION AND/OR EXCAVATION PROCESS.

DISPOSAL:

10. REMOVE AND LEGALLY DISPOSE OF ALL OTHER RUBBISH, RUBBLE, AND DEBRIS. ALL REFUSE AND MISCELLANEOUS ITEMS TO BE REMOVED, THAT ARE NOT TO BE STOCKPILED FOR LATER USE ON THE PROJECT OR DELIVERED TO THE OWNER, SHALL BE LEGALLY DIPOSED OF OFF-SITE BY THE CONTRACTOR IN ACCORDANCE WITH ANY AND ALL APPLICABLE LAWS, STANDARDS, AND REGULATIONS SET FORTH BY LOCAL, STATE, AND FEDERAL OFFICIALS THAT GOVERN THE DISPOSAL OF WASTE AND DEBRIS.

PAVEMENT REMOVAL:

11. WHERE EXISTING PAVEMENT IS TO BE REMOVED, CONTRACTOR SHALL SAW-CUT THE SURFACING LEAVING A UNIFORM AND STRAIGHT EDGE WITH THE MINIMAL DISTURBANCE POSSIBLE TO THE REMAINING ADJACENT SURFACING. IF CONSTRUCTION RESULTS IN RAVELING OF THE SAW-CUT SURFACE, RECUT BACK FROM THE RAVELED EDGE PRIOR TO RESTORATION.
12. WHERE EXISTING PAVEMENT, CURB, CURB AND GUTTER, SIDEWALK, DRIVEWAY OR VALLEY GUTTER IS TO BE REMOVED FOR THE PURPOSE OF CONSTRUCTION OR REMOVING BOX CULVERTS, PIPE, INLETS, MANHOLES, APPURTENANCES, FACILITIES OR STRUCTURES, SAID PAVEMENT, ETC., THE SAID OR PROPOSED STRUCTURE SHALL BE REPLACED AND RESTORED IN EQUAL OR BETTER CONDITION THAN THE ORIGINAL. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, MATERIALS, EQUIPMENT, TOOLS, SUPPLIES, AND ANY OTHER NECESSARY EQUIPMENT AS REQUIRED BY PROJECT AND SITE REQUIREMENTS.

ACCESS:

13. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR THE SURROUNDING PROPERTIES AT ALL TIMES DURING THE DEMOLITION PROCESS OF THE EXISTING FACILITIES AND SITE.

PERMITTING:

14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY REQUIRED PERMITTING FOR DEMOLITION FROM THE RESPONSIBLE AUTHORITIES AND REGULATIONS AND FULLY ACKNOWLEDGE AND COMPLY WITH ALL REQUIREMENTS PRIOR TO COMMENCING OF DEMOTION WORK.
15. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE EXTENT OF DEMOLITION REQUIRED IN ORDER TO PERFORM THE CONTRACT WORK FOR THIS PROJECT. THE CONTRACTOR SHALL CONDUCT SITE VISITS AND SHALL EXAMINE ALL OF THE INFORMATION WITHIN THESE DOCUMENTS AND ALL DISCREPANCIES AND/OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LEAD ENGINEER/ARCHITECT PRIOR TO BID SUBMITTAL.
16. CONTRACTOR SHALL LIMIT ALL DEMOLITION ACTIVITY TO THAT AREA DELINEATED IN THE DRAWING AND APPROVED BY OFFICIALS.
17. ALL OTHER EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO STORM DRAINAGE, GAS, ELECTRIC, TELEPHONE, AND WATER & SEWER SHALL BE PRESERVED AND PROTECTED AT ALL TIMES AS NEEDED AND AS REQUIRED.

STAKING AND SURVEYING NOTES

STAKING:

1. THE CONTRACTOR SHALL PERFORM ALL CONSTRUCTION STAKING AND CONSTRUCTION ACTIVITIES BASED ON THE LATEST APPROVED DESIGN PLANS AND/OR DESIGN FILE(S) AS PROVIDED AND AS WARRANTED BY CLIENT AND PROJECT NEEDS.
2. PRIOR TO COMMENCING CONSTRUCTION STAKING OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR AND/OR STAKING SURVEYOR SHALL CONFIRM WITH THE PROJECT LEAD ENGINEER/ARCHITECT, WHO'S RESPONSIBLE FOR THIS PROJECT, THAT THE LATEST PLANS AND/OR DESIGN FILE(S) ARE BEING UTILIZED.
3. THE ENGINEER/LANDSCAPE ARCHITECT IS NOT RESPONSIBLE FOR OWNERS, CONTRACTORS OR SURVEYORS STAKING OR PERFORMING CONSTRUCTION ACTIVITIES BASED ON OUT-OF-DATE DESIGN PLANS AND/OR DESIGN FILES.
4. CONSTRUCTION STAKING SHALL ADHERE TO THE HORIZONTAL AND VERTICAL DATUM LISTED IN THIS CONSTRUCTION SET AND AS PROVIDED IN THE CORRESPONDING FILES, NOTES, AND/OR DRAWINGS.

TOLERANCES & DISCREPANCIES:

5. IF, DURING CONSTRUCTION STAKING OR CONSTRUCTION ACTIVITIES, SURVEY DISCREPANCIES ARE ENCOUNTERED WITH REGARD TO THE DESIGN PLANS OR DESIGN FILE, WORK SHOULD CEASE AND THE LEAD ENGINEER/LANDSCAPE ARCHITECT SHOULD BE NOTIFIED IMMEDIATELY TO RESOLVE THE ISSUE OR ISSUES. THE ENGINEER / LANDSCAPE ARCHITECT CAN NOT BE HELD RESPONSIBLE OR LIABLE FOR ISSUES THAT THEY HAVE NOT RECEIVED NOTIFICATION.
6. THE CONSTRUCTION TOLERANCES SHOWN IN THE CORRESPONDING DRAWINGS, NOTES, AND/OR FILES, IN GENERAL, REPRESENT INDUSTRY STANDARDS. HOWEVER, EXCEPTIONS CAN BE MADE IF IT DETERMINED THAT CERTAIN DEVIATED CONSTRUCTION ACTIVITIES DO NOT ADVERSELY AFFECT THE DESIGN REQUIREMENTS OR FUNCTIONALITY. THE LEAD ENGINEER/LANDSCAPE ARCHITECT WILL EVALUATE CONSTRUCTION ACTIVITIES THAT DEVIATE FROM THE DESIGN PLANS ON A CASE-BY-CASE BASIS. IF IT IS DETERMINED THAT THE CERTAIN DEVIATED CONSTRUCTION ACTIVITIES DO ADVERSELY AFFECT THE DESIGN REQUIREMENTS, FUNCTIONALITY, AND INTENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR REPAIRING ALL ITEMS TO THE PLANS AND SPECIFICATIONS AS DETERMINED AND REQUIRED BY DESIGN PROFESSIONAL, AT THE CONTRACTOR'S EXPENSE.

CIVIL ENGINEERING DESIGN TOLERANCES FOR PROJECT:

GENERAL GRADING:	±0.10 FEET	RETAINING WALLS:	±0.05 FEET
ALL PIPE/CONDUITS:	±0.05 FEET	SITE FEATURES (SPOT ELEV., ETC.)	±0.05 FEET
DRAINAGE STRUCTURES:	±0.05 FEET	UTILITY ELEVATIONS:	±0.10 FEET
SANITARY SEWER STRUCTURES:	±0.05 FEET	EROSION CONTROL BMPS:	±0.05 FEET
STORMWATER POND FEATURES:	±0.05 FEET		

AS-BUILT & SPECIFICATIONS:

7. THE ENGINEER/LANDSCAPE ARCHITECT SHOULD BE PROVIDED WITH AN AS-BUILT SURVEY OF THE PROJECT FOR REVIEW AND APPROVAL AFTER THE PROJECT IS COMPLETE. CONTRACTOR IS RESPONSIBLE FOR COORDINATING EFFORTS WITH DESIGN PROFESSIONAL.
8. SEE THE PROJECT SPECIFICATIONS FOR ADDITIONAL SITE SPECIFIC REQUIREMENTS REGARDING CONSTRUCTION, MATERIALS, TESTING, AND CERTIFICATIONS.

PROJECT GEOGRAPHICAL INFORMATION

PROJECT PROJECTION & DATUM:

HORIZONTAL DATUM: NAD83 TENNESSEE STATE PLANE ZONE, US FOOT
VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

BOUNDARY SURVEY:

SURVEYOR FIRM: YOUNG - HOBBS AND ASSOCIATES
SURVEYOR NAME: XXX
SURVEYOR CONTACT: (931) 645-2524
DATE OF SURVEY: 2/15/23
TRACT OR PARCEL: 103MA004
HORIZONTAL DATUM: NAD83 TENNESSEE STATE PLANE ZONE, US FOOT
VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

TOPOGRAPHIC SURVEY:

SURVEYOR FIRM: YOUNG - HOBBS AND ASSOCIATES
SURVEYOR NAME: XXX
SURVEYOR CONTACT: (931) 645-2524
DATE OF SURVEY: 2/15/23
TRACT OR PARCEL: 103MA004
HORIZONTAL DATUM: NAD83 TENNESSEE STATE PLANE ZONE, US FOOT
VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

GEOGRAPHICAL INFORMATION SYSTEMS (GIS) DATA UTILIZED:

TOPOGRAPHIC DATA: N/A
PARCEL DATA: N/A
ADDITIONAL DATA: N/A

NOTE:

THE TOPOGRAPHIC AND ELEVATION DATA SHOWN HEREON WAS OBTAINED FROM YOUNG - HOBBS AND ASSOCIATES AND IS NOT CERTIFIED AS CORRECT BY THIS ENGINEER. USERS OF THIS DATA DO SO AT THEIR OWN RISK.

5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

JAMES J CARTER
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
TENNESSEE
109479

CARTER ENGINEERING

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

GENERAL NOTES

REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet

C-1.1

SITE UTILITIES

SEWER
Agency: West Knox Utility District
Address: 2328 Lovell Road, Knoxville, TN 37932
Contact: Mr. Christian Kidd, P.E.
Phone: 865-690-2521
Email: ckidd@wkud.com

STORM
Agency: Knox County Land Development Services
Address: 205 West Baxter Avenue, Knoxville, TN 37917
Contact: Mr. Martin Pleasant
Phone: 865-215-5859
Email: Martin.Pleasant@knoxcounty.org

WATER
Agency: West Knox Utility District
Address: 2328 Lovell Road, Knoxville, TN 37932
Contact: Mr. Christian Kidd, P.E.
Phone: 865-690-2521
Email: ckidd@wkud.com

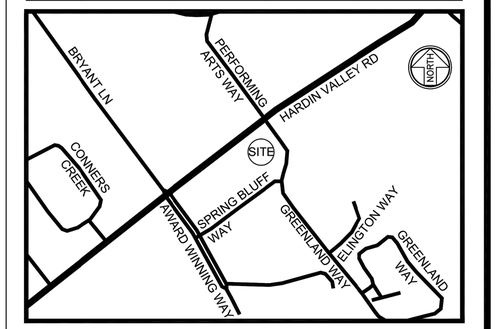
ELECTRIC
Agency: LCUB – Lenoir City Utilities Board
Address: 7698 Creekwood Park Blvd., Lenoir City, TN 37772
Contact: Mr. Jay Hines
Phone: 865-988-0730
Email: jhines@lcub.com

TELEPHONE
Agency: AT&T
Address:
Contact: Customer Service
Phone: 877-625-9103
Email:

GAS
Agency: Knoxville Utilities Board (KUB)
Address: 4428 Western Ave, Knoxville, TN 37921
Contact: New Construction
Phone: 865-558-2555
Email:

811 Know what's **below.** **Call** before you dig.

LOCATION MAP NTS



SITE ADDRESS

2187 GREENLAND WAY
KNOXVILLE, TN 37932

PARKING COUNT

REGULAR - 0
HANDICAP - 0

CLIENT INFORMATION

CHICK-FIL-A
5200 BUFFINTON ROAD
ATLANTA, GA 3034-32998

OWNER INFORMATION

OKR, GP
INST. NO. 201806040071672;
PLAT OF LOT 4R, THE VILLAGE AT HARDIN VALLEY,
PLAT BOOK 200807170003867
PARCEL ID 103MA004
CITY OF KNOXVILLE,
KNOX COUNTY, TN

LAND DESCRIPTION (PER TITLE COMMITMENT):

NOT A PART OF THIS ALTA

PARCEL 1:
A CERTAIN TRACT OR PARCEL OF LAND IN KNOX COUNTY, STATE OF TENNESSEE, DESCRIBED AS FOLLOWS, TO-WIT:
SITUATED IN DISTRICT NUMBER SIX (6) OF KNOX COUNTY, TENNESSEE, AND WITHOUT THE CORPORATE LIMITS OF THE CITY OF KNOXVILLE, TENNESSEE, AND BEING KNOWN AS ALL OF LOT NUMBER 1R, IN THE REVISED FINAL PLAT OF LOTS 1, 2, 3, 5, 7, & 8, OF THE VILLAGE AT HARDIN VALLEY SUBDIVISION, AS THE SAME APPEARS OF RECORD IN INSTRUMENT NO. 201008160009832 IN THE REGISTER'S OFFICE FOR KNOX COUNTY, TENNESSEE, TO WHICH SPECIFIC REFERENCE IS HEREBY MADE FOR A MORE PARTICULAR DESCRIPTION.

LESS AND EXCEPT: QUIT CLAIM DEED RECORDED FEBRUARY 10, 2017, IN INSTRUMENT NO. 201702100049663, IN THE REGISTER'S OFFICE OF KNOX COUNTY, TENNESSEE. BEING THE SAME PROPERTY CONVEYED TO OKR GP, A TENNESSEE GENERAL PARTNERSHIP (BY VIRTUE OF WARRANTY DEED FROM KNOXVILLE TVA EMPLOYEES CREDIT UNION, DATED MAY 23, 2016, RECORDED JUNE 6, 2016, IN INSTRUMENT NO. 201606060070861, IN THE REGISTER'S OFFICE OF KNOX COUNTY, TENNESSEE).

PARCELS 2, 3 AND 5:
A CERTAIN TRACT OR PARCEL OF LAND IN KNOX COUNTY, STATE OF TENNESSEE, DESCRIBED AS FOLLOWS, TO-WIT:
SITUATED IN THE SIXTH (6TH) CIVIL DISTRICT OF KNOX COUNTY, TENNESSEE, AND BEING LOTS 2R, 3R AND 5 OF THE REVISED FINAL PLAT OF LOTS 1, 2, 3, 5, 7, & 8 OF THE VILLAGE AT HARDIN VALLEY, AS SHOWN ON PLAT OF RECORD IN INSTRUMENT NO. 201008160009832 IN THE REGISTER'S OFFICE FOR KNOX COUNTY, TENNESSEE, TO WHICH PLAT SPECIFIC REFERENCE IS HEREBY MADE FOR A MORE PARTICULAR DESCRIPTION. BEING THE SAME PROPERTY CONVEYED TO OKR GP, A TENNESSEE GENERAL PARTNERSHIP (BY VIRTUE OF WARRANTY DEED FROM BURR, LLC, A TENNESSEE LIMITED LIABILITY COMPANY, DATED MAY 23, 2016, RECORDED MAY 26, 2016, IN INSTRUMENT NO. 201605260068749, KNOX COUNTY, TENNESSEE).

SUBJECT PROPERTY

PARCEL 4:
ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING LOCATED ON CLT MAP 103 AND BEING SITUATED WITHIN THE SIXTH CIVIL DISTRICT OF KNOX COUNTY, TENNESSEE BEING LOT 4 OF THE VILLAGE AT HARDIN VALLEY SUBDIVISION AS SHOWN ON THAT CERTAIN FINAL PLAT OF THE VILLAGE AT HARDIN VALLEY, OF RECORD AS INSTRUMENT NUMBER 20071002-0027968 IN THE OFFICE OF THE REGISTER OF DEEDS FOR KNOX COUNTY, TENNESSEE, AS AMENDED BY THAT CERTAIN FINAL PLAT OF LOT 4, THE VILLAGE AT HARDIN VALLEY, OF RECORD AS INSTRUMENT NUMBER 20080717-003867 IN THE OFFICE OF THE REGISTER OF DEEDS FOR KNOX COUNTY TENNESSEE.

LESS AND EXCEPT:
THE FOLLOWING PORTION OF THE ABOVE-DESCRIBED PROPERTY THAT WAS CONVEYED BY GRANTOR TO KNOX COUNTY, TENNESSEE: COMMENCING AT THE POINT OF BEGINNING, POINT BEING 68.22 FEET RIGHT OF THE CENTERLINE STA. 186+54.83; THENCE SOUTH 50 DEGREES, 41 MINUTES, 12 SECONDS WEST, A DISTANCE OF 29.86 FEET; THEN NORTH 39 DEGREES, 18 MINUTES, 48 SECONDS WEST, A DISTANCE OF 19.45 FEET TO THE ENDING POINT BEING 49.22 FEET RIGHT OF STA. 186+23.71. CONTAINING 378 SQUARE FEET, MORE OR LESS, IN THE ABOVE-DESCRIBED PARCEL.

BEING THE SAME PROPERTY CONVEYED TO OKR GP, A TENNESSEE GENERAL PARTNERSHIP (BY VIRTUE OF SPECIAL WARRANTY DEED FROM SUNTRUST BANK, A GEORGIA BANKING CORPORATION, DATED MAY 29, 2018, RECORDED JUNE 4, 2018, IN INSTRUMENT NO. 201806040071672, KNOX COUNTY, TENNESSEE).

NOT A PART OF THIS ALTA

PARCEL 6:
SITUATED WITHIN THE SIXTH (6TH) CIVIL DISTRICT OF KNOX COUNTY, TENNESSEE, WITHOUT THE CORPORATE LIMITS OF THE CITY OF KNOXVILLE, TENNESSEE, BEING LOT 6 OF THE FINAL PLAT OF THE VILLAGE AT HARDIN VALLEY, AS SHOWN ON MAP FILED FOR RECORD AS INSTRUMENT NO. 200710020027968 IN THE KNOX COUNTY REGISTER OF DEEDS OFFICE, TO WHICH MAP SPECIFIC REFERENCE IS HEREBY MADE FOR A MORE PARTICULAR DESCRIPTION OF SAID LOT. BEING THE SAME PROPERTY CONVEYED TO OKR GP, A TENNESSEE GENERAL PARTNERSHIP (BY VIRTUE OF WARRANTY DEED FROM ORNL FEDERAL CREDIT UNION, DATED MAY 23, 2016, RECORDED JUNE 9, 2015, IN INSTRUMENT NO. 201506090067733, KNOX COUNTY, TENNESSEE).

ZONING: PER SITE INVESTIGATION REPORT

THE FOLLOWING ZONING INFORMATION WAS TAKEN FROM THE SITE INVESTIGATION REPORT.

THE SUBJECT PARCEL IS ZONED (PC), PLANNED COMMERCIAL ZONE, AND (TO), TECHNOLOGY OVERLAY.

BUILDING SETBACK :	BUILDING	PARKING	LANDSCAPING
FRONT (HARDIN VALLEY RD)	50'	20'	20'
REAR (SPRING BLUFF WAY)	50'	0'	0'
LEFT SIDE (GREENLAND WAY)	50'	0'	0'
RIGHT SIDE (UNDEVELOPED/PARKING LOT)	20'	0'	0'

MAXIMUM BUILDING HEIGHT: EXCEPT IN HILLSIDE AND RIDGETOP PROTECTION AREAS, THE MAXIMUM ALLOWABLE HEIGHT OF A STRUCTURE IS SET AT NINETY (90) FEET, MEASURED FROM THE FINISHED GRADE..

BUILDING FLOOR AREA RATIO: SHALL NOT EXCEED 30% EXCEPT WHERE A PROPOSED BUILDING INCLUDES AN UNDER-BUILDING PARKING STRUCTURE, IN WHICH CASE THE FLOOR AREA RATION MAY NOT EXCEED 40%.

SURVEYOR'S CERTIFICATION:

To: CHICK-FIL-A, INC A GEORGIA CORPORATION, DESIGNEE OF HILLIARD CREWS PARTNERSHIP, A TENNESSEE GENERAL PARTNERSHIP AND FIDELITY NATIONAL TITLE INSURANCE COMPANY.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6(a), 7(a), 7(b)(1), 7(c), 8, 9, 10(a), 11, 13, 14, 16, 17, 18, AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON MARCH 11, 2022.

DATE OF PLAT OR MAP: FEBRUARY 15, 2023.

PRELIMINARY

KENNETH A. BAU, RLS 2019 — DATE
kenny@younghobbs.com

LAND DESCRIPTION (AS SURVEYED):

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING LOCATED ON CLT MAP 103 AND BEING SITUATED WITHIN THE SIXTH CIVIL DISTRICT OF KNOX COUNTY, TENNESSEE BEING LOT 4R OF THE FINAL PLAT OF LOT 4, THE VILLAGE AT HARDIN VALLEY, OF RECORD AS INSTRUMENT NUMBER 20080717-003867 IN THE OFFICE OF THE REGISTER OF DEEDS FOR KNOX COUNTY TENNESSEE.

LESS AND EXCEPT:
THE FOLLOWING PORTION OF THE ABOVE-DESCRIBED PROPERTY THAT WAS CONVEYED BY GRANTOR TO KNOX COUNTY, TENNESSEE: COMMENCING AT THE POINT OF BEGINNING, POINT BEING 68.22 FEET RIGHT OF THE CENTERLINE STA. 186+54.83; THENCE SOUTH 50 DEGREES, 41 MINUTES, 12 SECONDS WEST, A DISTANCE OF 29.86 FEET; THEN NORTH 39 DEGREES, 18 MINUTES, 48 SECONDS WEST, A DISTANCE OF 19.45 FEET TO THE ENDING POINT BEING 49.22 FEET RIGHT OF STA. 186+23.71. CONTAINING 378 SQUARE FEET, MORE OR LESS, IN THE ABOVE-DESCRIBED PARCEL.

BEING THE SAME PROPERTY CONVEYED TO OKR GP, A TENNESSEE GENERAL PARTNERSHIP (BY VIRTUE OF SPECIAL WARRANTY DEED FROM SUNTRUST BANK, A GEORGIA BANKING CORPORATION, DATED MAY 29, 2018, RECORDED JUNE 4, 2018, IN INSTRUMENT NO. 201806040071672, KNOX COUNTY, TENNESSEE).

AS DESCRIBED AS FOLLOWS:

BEGINNING AT 5/8" IRON PIN FOUND IN THE SOUTHEAST RIGHT OF WAY LINE OF HARDIN VALLEY ROAD, SAID IRON PIN BEING THE NORTH CORNER OF LOT 2R, AS SHOWN IN INSTR. NO. 201008160009832; THENCE WITH SAID RIGHT OF WAY LINE, AS FOLLOWS: N 62°02'14" E A DISTANCE OF 48.37 FEET TO A 5/8" IRON PIN FOUND; THENCE N 50°37'39" E A DISTANCE OF 179.32 FEET TO A PK NAIL SET; THENCE S 39°18'48" E A DISTANCE OF 19.45 FEET TO A 1/2" IRON PIN SET; THENCE N 50°41'12" E A DISTANCE OF 29.84 FEET TO A 1/2" IRON PIN SET; THENCE WITH THE SOUTHWEST RIGHT OF WAY LINE OF GREENLAND WAY, AS FOLLOWS: S 84°19'41" E A DISTANCE OF 6.34 FEET TO A 5/8" IRON PIN SET; THENCE WITH A CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 19.93 FEET WITH A RADIUS OF 25.00 FEET WITH A CHORD BEARING OF S 61°29'32" E, WITH A CHORD LENGTH OF 19.40 FEET TO A 5/8" IRON PIN FOUND; THENCE S 38°42'21" E A DISTANCE OF 129.74 FEET TO A 5/8" IRON PIN FOUND; THENCE WITH A CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 81.59 FEET WITH A RADIUS OF 93.50 FEET WITH A CHORD BEARING OF S 13°39'29" E, WITH A CHORD LENGTH OF 79.02 FEET TO A 5/8" IRON PIN FOUND; THENCE S 11°20'49" W A DISTANCE OF 90.28 FEET TO A 5/8" IRON PIN FOUND; THENCE WITH A CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 17.39 FEET WITH A RADIUS OF 25.00 FEET WITH A CHORD BEARING OF S 31°07'34" W, WITH A CHORD LENGTH OF 17.04 FEET TO A 5/8" IRON PIN FOUND; THENCE WITH THE NORTHWEST RIGHT OF WAY LINE OF SPRING BLUFF WAY S 51°04'58" W A DISTANCE OF 150.37 FEET TO A 5/8" IRON PIN FOUND; THENCE LEAVING SAID RIGHT OF WAY LINE WITH LOTS 2R & 3R, AS SHOWN IN INSTR. NO. 201008160009832 N 38°41'12" W A DISTANCE OF 314.12 FEET TO THE POINT OF BEGINNING, HAVING AN AREA OF 76,244 SQUARE FEET, 1.750 ACRES, MORE OR LESS.

NOTES CORRESPONDING TO SCHEDULE B SECTION II:

FIDELITY NATIONAL TITLE INSURANCE COMPANY

COMMITMENT DATE: NOVEMBER 1, 2022 @ 8:00 A.M.

COMMITMENT NO.: TN2522101000J/223508ATL

ITEMS 1-9 ARE STANDARD EXCEPTIONS AND/OR NOT SURVEYING RELATED.

THE TITLE COMMITMENT PROVIDED TO THE SURVEYOR IS FOR MULTIPLE PARCELS. THE SURVEYOR REVIEW THE TITLE COMMITMENT AS TO HOW THE ITEMS WOULD AFFECT LOT 4R OF INSTRUMENT NUMBER 200807170003867.

10. EASEMENT AGREEMENT AND TERMINATION OF EASEMENT RECORDED JUNE 12, 1990, IN BOOK 2011, PAGE 89, AFORESAID RECORDS. **DOES NOT AFFECT.** (DOES NOT AFFECT EASEMENT PARCEL)

11. UTILITY EASEMENT RECORDED JUNE 13, 2002, IN INSTRUMENT NO. 200206130102985, AFORESAID RECORDS. DOES NOT AFFECT. (DOES NOT AFFECT EASEMENT PARCEL)

12. EASEMENT CONTAINED IN WARRANTY DEED RECORDED JUNE 19, 2002, IN INSTRUMENT NO. 200206190104399, AFORESAID RECORDS. DOES NOT AFFECT.

13. TERMS AND CONDITIONS OF AGREED FINAL ORDER RECORDED AUGUST 21, 2007, IN INSTRUMENT NO. 200708270018101, AFORESAID RECORDS. (AFFECTS PARCEL 1, 3, 5 AND 6) DOES NOT AFFECT.

14. ACCESS AND CONSTRUCTION EASEMENT AGREEMENT RECORDED APRIL 19, 2011, IN INSTRUMENT NO. 201104190061661, AFORESAID RECORDS.

PARCELS 1, 2 3, 5 AND 6: DOES NOT AFFECT.

15. RESTRICTIONS CONTAINED IN SPECIAL WARRANTY DEED RECORDED JUNE 4, 2018, IN INSTRUMENT NO. 201806040071672, AFORESAID RECORDS. AFFECTS, NOT PLOTTABLE. (EXPIRE ON JUNE 3, 2023)

16. TERMS AND CONDITIONS OF DECLARATION OF COVENANTS CONDITIONS AND RESTRICTIONS (THE VILLAGE AT HARDIN VALLEY) RECORDED OCTOBER 1, 2007, IN INSTRUMENT NO. 200710010027935; AS AFFECTED BY THAT PARTIAL RELEASE AS TO EASEMENT AREA RECORDED MARCH 8, 2013, IN INSTRUMENT NO. 201303080058732; AS AMENDED BY THAT AMENDED DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS RECORDED APRIL 19, 2011, IN INSTRUMENT NO. 201104190061662; AS AFFECTED BY THAT PARTIAL RELEASE AS TO EASEMENT AREA RECORDED MARCH 8, 2013, IN INSTRUMENT NO. 201303080058734, AFORESAID RECORDS. AFFECTS, NO PLOTTABLE EASEMENTS.

17. EASEMENT CONTAINED IN WARRANTY DEED RECORDED NOVEMBER 20, 2001, IN INSTRUMENT NO. 200111200040361, AFORESAID RECORDS. DOES NOT AFFECT.

18. EASEMENT CONTAINED IN SPECIAL WARRANTY DEED RECORDED SEPTEMBER 11, 2015, IN INSTRUMENT NO. 201509110016643, AFORESAID RECORDS.

PARCELS 1, 2, 3, 4, 5 AND 6: AF FECTS VESTED TITLE ONLY, NO PLOTTABLE EASEMENT.

19. UTILITY EASEMENT IN FAVOR OF WEST KNOX UTILITY DISTRICT RECORDED FEBRUARY 13, 2002, IN INSTRUMENT NO. 200202130066934, AFORESAID RECORDS. **DOES NOT AFFECT.** (DOES NOT AFFECT EASEMENT PARCEL)

20. COVENANTS FOR PERMANENT MAINTENANCE OF STORMWATER FACILITIES RECORDED AUGUST 31, 2007, IN INSTRUMENT NO. 200708310019574, AFORESAID RECORDS. AFFECTS, NO PLOTTABLE EASEMENTS.

21. UTILITY EASEMENT AGREEMENT RECORDED JULY 18, 2008, IN INSTRUMENT NO. 200807180000449 AND INSTRUMENT NO. 200807180004495, INSTRUMENT NO. 200807180004496, AFORESAID RECORDS. AFFECTS, NO NEW EASEMENTS CREATED.

22. DECLARATION OF ACCESS EASEMENTS RECORDED AUGUST 16, 2010, IN INSTRUMENT NO. 201008160009831, AFORESAID RECORDS. DOES NOT AFFECT. (DOES NOT AFFECT EASEMENT PARCEL)

23. RECIPROCAL EASEMENT AGREEMENT AND AMENDMENT OF RESTRICTIONS RECORDED FEBRUARY 28, 2011, IN INSTRUMENT NO. 201102280051564; AS AFFECTED BY THAT PARTIAL RELEASE AS TO EASEMENT AREA RECORDED MARCH 8, 2013, IN INSTRUMENT NO. 201303080058732; AS AFFECTED BY THAT PARTIAL RELEASE AS TO EASEMENT AREA RECORDED MARCH 8, 2013, IN INSTRUMENT NO. 201303080058734, AFORESAID RECORDS. AFFECTS, NO PLOTTABLE EASEMENTS.

24. EASEMENTS, RIGHTS OF WAY, BOUNDARY LINES AND IMPROVEMENTS AS SHOWN ON PLAT RECORDED IN INSTRUMENT NO. 200710020027968; INSTRUMENT NO. 200807170003867; INSTRUMENT NO. 201008160009832, AFORESAID RECORDS. AFFECTS, AS SHOWN.

25. TERMS AND CONDITIONS OF CONSENT AGREEMENT BY ORNL FEDERAL CREDIT UNION RECORDED APRIL 1, 2011, IN INSTRUMENT NO. 201104010058366, AFORESAID RECORDS.

PARCEL 4: DOES NOT AFFECT. (DOES NOT AFFECT EASEMENT PARCEL)

26. GRANT OF TRANSMISSION LINE EASEMENT RECORDED IN BOOK 1243, PAGE 68, AFORESAID RECORDS. DOES NOT AFFECT.

TABLE A NOTES:

ITEM 2: SITE ADDRESS SHOWN IS PER KNOX COUNTY, TN TAX RECORD.

ITEM 3: THIS PROPERTY IS LOCATED WITHIN AN AREA HAVING ZONE DESIGNATIONS OF ZONE "X" BY THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT, ON FLOOD INSURANCE RATE MAP NO. 47093C0233G, WITH AN EFFECTIVE DATE OF AUGUSTY 5, 2013, IN KNOX COUNTY UNINCORPORATED AREAS, STATE OF TENNESSEE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED."

ITEM 5: CONTOURS WERE DERIVED FROM RANDOM SHOTS AND CROSS SECTIONS AND ARE SHOWN AT ONE FOOT INTERVALS. ELEVATIONS SHOWN HEREON ARE BASED ON GPS OBSERVATIONS TOGETHER WITH AN OPUS SOLUTION, DATED 02/21/2023 (NAVD88, GEOID12B).

ITEM 6A: NO ZONING LETTER SENT TO THIS SURVEYOR.

ITEM 16: THERE WAS NO EVIDENCE OF RECENT EARTH MOVING, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.

ITEM 17: THERE WAS NO EVIDENCE OF RECENT CHANGES IN STREET RIGHT OF WAY LINES. THERE WAS NO EVIDENCE OF RECENT OR STREET SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.

SURVEY NOTES:

INFORMATION REGARDING THE PRESENCE, SIZE AND LOCATION OF UNDERGROUND UTILITIES IS SHOWN HEREON. THIS INFORMATION HAS BEEN SHOWN BASED ON THE LOCATION OF ABOVE GROUND APPURTENANCES, AVAILABLE DESIGN PLANS, AND FLAGS AND PAINT PLACED BY THE UNDERGROUND PROTECTION SERVICE. NO CERTIFICATION IS MADE AS TO THE ACCURACY OF THOROUGHNESS OF THE INFORMATION CONCERNING UNDERGROUND UTILITIES AND STRUCTURES SHOWN HEREON. (TENNESSEE ONE CALL 811 - TENN811.COM) (TICKET NUMBER 220681406).

NO PRIVATE UTILITY LOCATE WAS PERFORMED ON THIS SITE AT THE TIME OF THIS SURVEY.

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

THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF THE PERSON OR ENTITIES NAMED HEREON. NO EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE INFORMATION SHOWN HEREON IS TO BE EXTENDED TO ANY PERSONS OR ENTITIES OTHER THAN THOSE SHOWN HEREON.

LIST OF ENCROACHMENTS: NONE NOTED

THERE ARE NO BUILDINGS ON SITE AT THE TIME OF THIS SURVEY

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

GROUND MEASUREMENTS ARE USED AS THE BASIS FOR LOCATION OF ALL FEATURES OF THE SUBJECT PROPERTY.

UNLESS STATED OTHERWISE, ANY MONUMENT REFERRED TO HEREIN AS AN "IRON PIN SET" IS A SET 1/2" DIAMETER REBAR, 18" IN LENGTH, WITH A YELLOW PLASTIC CAP STAMPED "YOUNG HOBBS" OR A PK NAIL SET WITH A 1-1/2" ALUMINUM DISK STAMPED "YOUNG HOBBS".

ALL MATTERS SHOWN ON RECORDED PLATS ARE SHOWN ON SURVEY.

I HEREBY CERTIFY THAT THIS SURVEY HAS BEEN MADE USING THE RECORDED INFORMATION SHOWN, AND THAT THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I HEREBY CERTIFY THAT THIS IS A CATEGORY 1 SURVEY AND THAT THE RATIO OF PRECISION OF THE UNADJUSTED TRAVERSE IS BETTER THAN 1:10,000 AS SHOWN HEREON.

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia 30349-2998

YOUNG - HOBBS AND ASSOCIATES
1202 CROSSLAND AVE.
CLARKSVILLE, TN 37040
PHONE 931-645-2524
FAX 931-645-2768

PRELIMINARY, NOT FOR RECORDING OR TRANSFER

CHICK-FIL-A
HARDIN VALLEY
KNOXVILLE, TENNESSEE

FSU# 5442

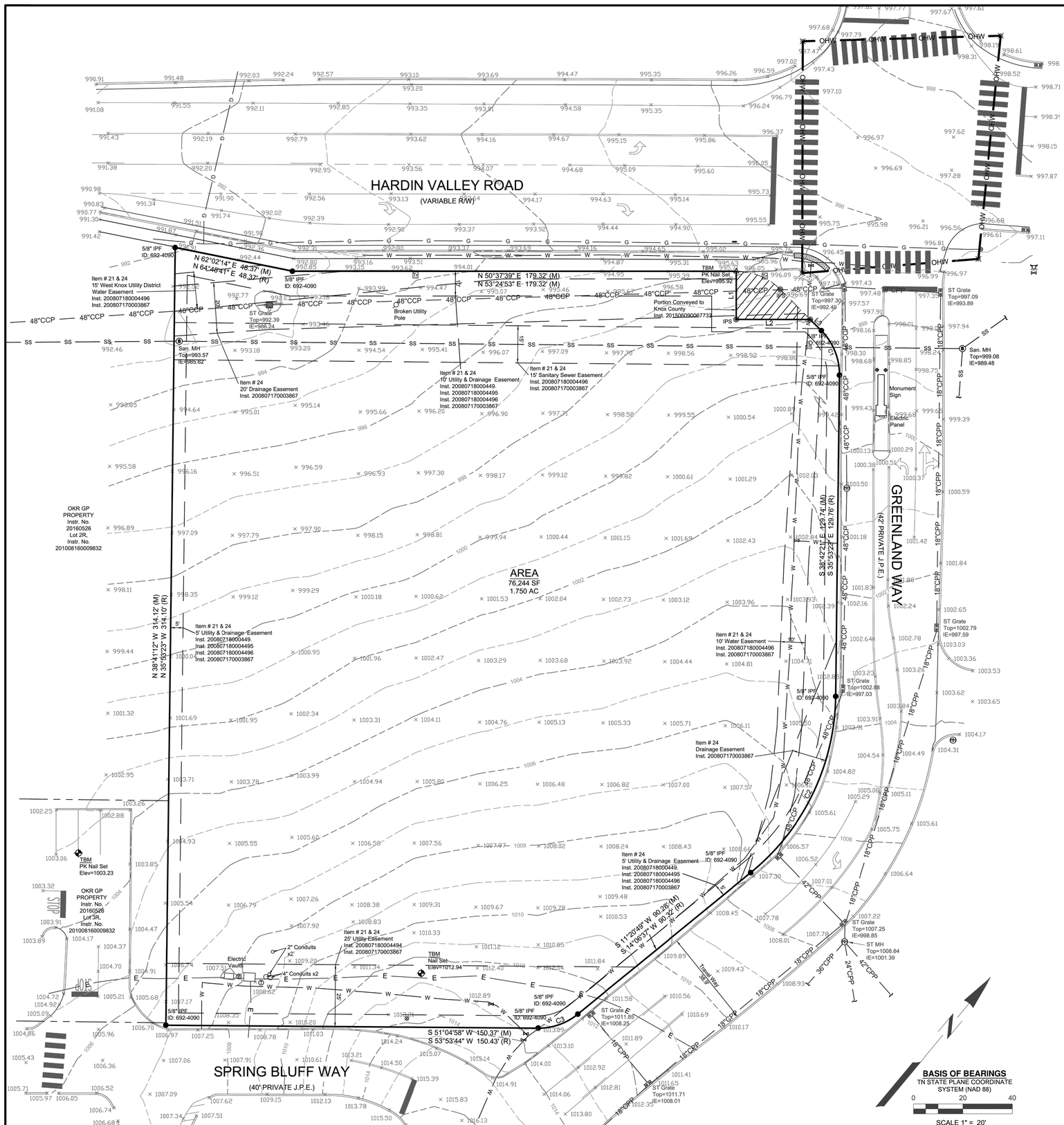
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
1	5/19/23	TOL COMMENTS
2		

YHA PROJECT #	028-23
DATE (FIELD)	2/15/23
DATE (OFFICE)	2/21/23
CHECKED BY	CTH

ALTA/NSPS LAND TITLE SURVEY
SHEET 1 OF 2

SHEET NUMBER
C-1.2



SITE ADDRESS

2187 GREENLAND WAY
KNOXVILLE, TN 37932

PARKING COUNT

REGULAR - 0
HANDICAP - 0

CLIENT INFORMATION

CHICK-FIL-A
5200 BUFFINGTON ROAD
ATLANTA, GEORGIA 30349-2998

OWNER INFORMATION

OKR, GP
INST. NO. 201806040071672;
PLAT OF LOT 4R, THE VILLAGE AT HARDIN VALLEY,
PLAT BOOK 2008071700003867
PARCEL ID 103MA004
CITY OF KNOXVILLE,
KNOX COUNTY, TN

Item # 24
PLAT NOTE: (INSTR. NO. 200807170003867)
1. JOINT PERMANENT EASEMENT (J.P.E.) ARE NOT A PUBLIC ROADS AND WILL NOT BE MAINTAINED BY KNOX COUNTYL.
2. JOINT PERMANENT EAEMENT WILL ALSO FUNCTION AS A UTILITY EASEMENT.
3. THE GRADE OF THE JPE IS 12% OR LESS.
4. THE DECLARATION OF MAINTENANCE AGREEMENT FOR THE JPE IS OF RECORD IN INSTRUMENT #200708310019574 OF SAID REGISTERS OFFICE.
5. THE HOMEOWNERS ASSOCIATION HAS BEEN ESTABLISHED TO BE RESPONSIBLE FOR THE MAINTENANCE OF THE DETENTION BASIN AND COMMON AREAS AND IS OF RECORD IN INSTRUMENT #200708310019574 OF SAID REGISTERS OFFICE.
6. ALL LOTS WILL HAVE ACCESS TO INTERIOR STREET SYSTEM ONLY.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1 M	25.00'	19.93'	19.40'	S 61°29'32" E	45°40'07"
C1 R	25.00'	19.94'	19.41'	S 58°44'15" E	N/A
C2 M	93.50'	81.59'	79.02'	S 13°39'29" E	49°59'47"
C2 R	93.50'	81.59'	79.03'	S 10°53'23" E	N/A
C3 M	25.00'	17.39'	17.04'	S 31°07'34" W	39°50'40"
C3 R	25.00'	17.36'	17.01'	S 34°00'11" W	N/A

LINE	BEARING	DISTANCE
L1 M	S 39°18'48" E	19.45'
L1 R	S 39°18'48" E	19.45'
L2 M	N 50°41'12" E	29.84'
L2 R	N 50°41'12" E	29.86'
L3 M	S 84°19'41" E	6.34'
L3	S 84°19'41" E	6.34'

LEGEND

- IRON PIN SET (IPS)
- IRON PIN FOUND, AS NOTED
- BOLLARD
- SEWER MANHOLE
- FIRE HYDRANT
- WATER VALVE
- UTILITY POLE
- TRAFFIC VAULT
- TRAFFIC POLE
- GAS VALVE
- TELEPHONE BOX
- CURB INLET
- GRATE INLET
- STORM MANHOLE
- PROPERTY LINE
- EASEMENT LINE
- SETBACK LINES
- OHW — OVERHEAD TRAFFIC WIRE
- E — UNDERGROUND ELECTRIC
- G — GAS LINE, AS NOTED
- W — WATER LINE, AS NOTED
- SS — SANITARY SEWER, AS NOTED
- ST — STORM SEWER PIPE, AS NOTED

BASIS OF BEARINGS
TN STATE PLANE COORDINATE SYSTEM (NAD 88)

0 20 40
SCALE 1" = 20'

811 Know what's **below.** **Call** before you dig.

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia 30349-2998

YOUNG - HOBBS AND ASSOCIATES
1202 CROSSLAND AVE.
CLARKSVILLE, TN 37040
PHONE 931-645-2524
FAX 931-645-2768

PRELIMINARY, NOT FOR RECORDING OR TRANSFER

CHICK-FIL-A
HARDIN VALLEY
KNOXVILLE, TENNESSEE

FSU# 5442

REVISION SCHEDULE

NO.	DATE	DESCRIPTION
1	5/19/23	TOL COMMENTS
2		

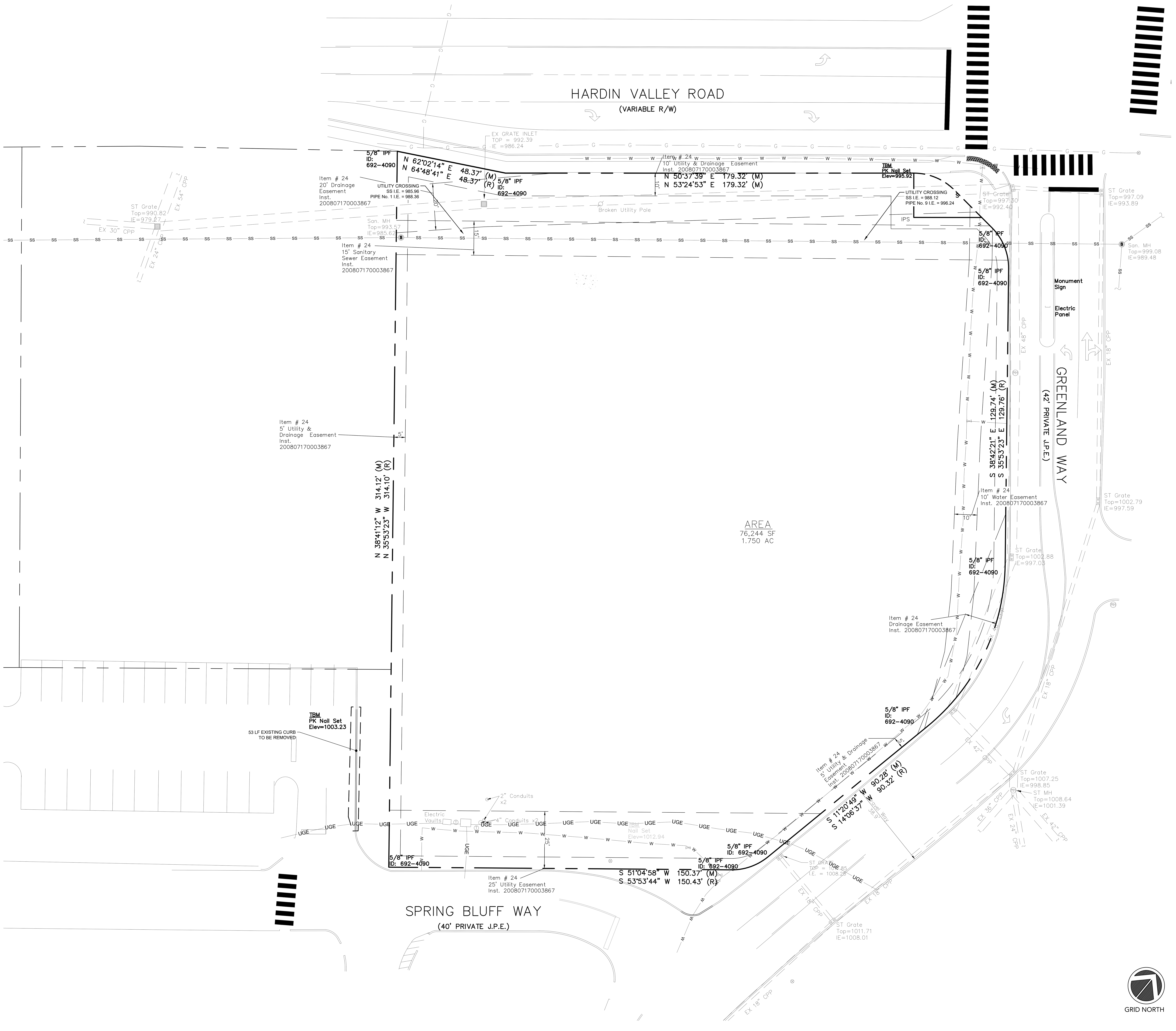
YHA PROJECT #	026-23
DATE (FIELD)	2/15/23
DATE (OFFICE)	2/21/23
CHECKED BY	CTH

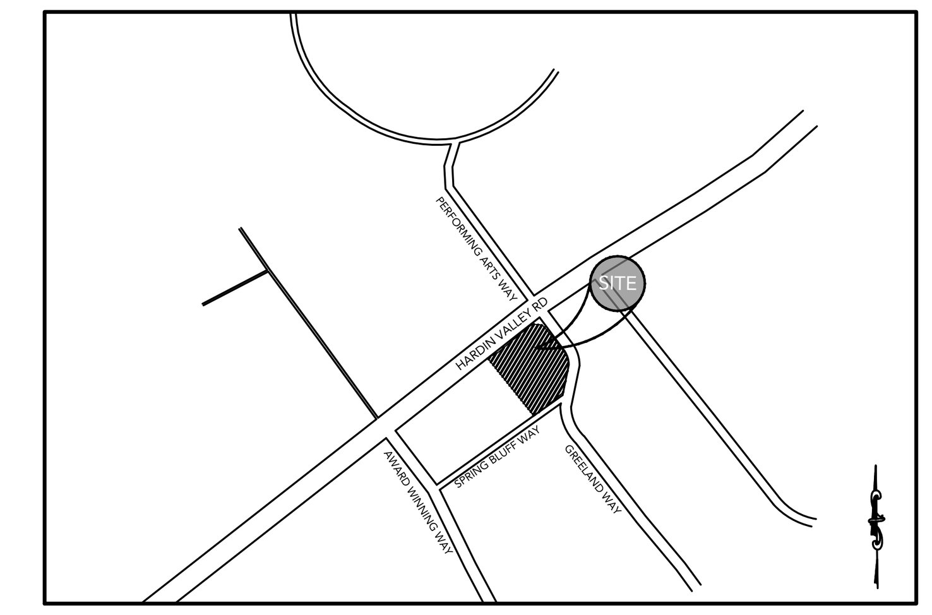
SHEET

ALTA/NSPS LAND TITLE SURVEY
SHEET 2 OF 2

SHEET NUMBER

C-1.3





LOCATION MAP
SCALE: N.T.S.

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349–2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

CARTER ENGINEERING

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

DEMOLITION PLAN

REVISION 4–2023

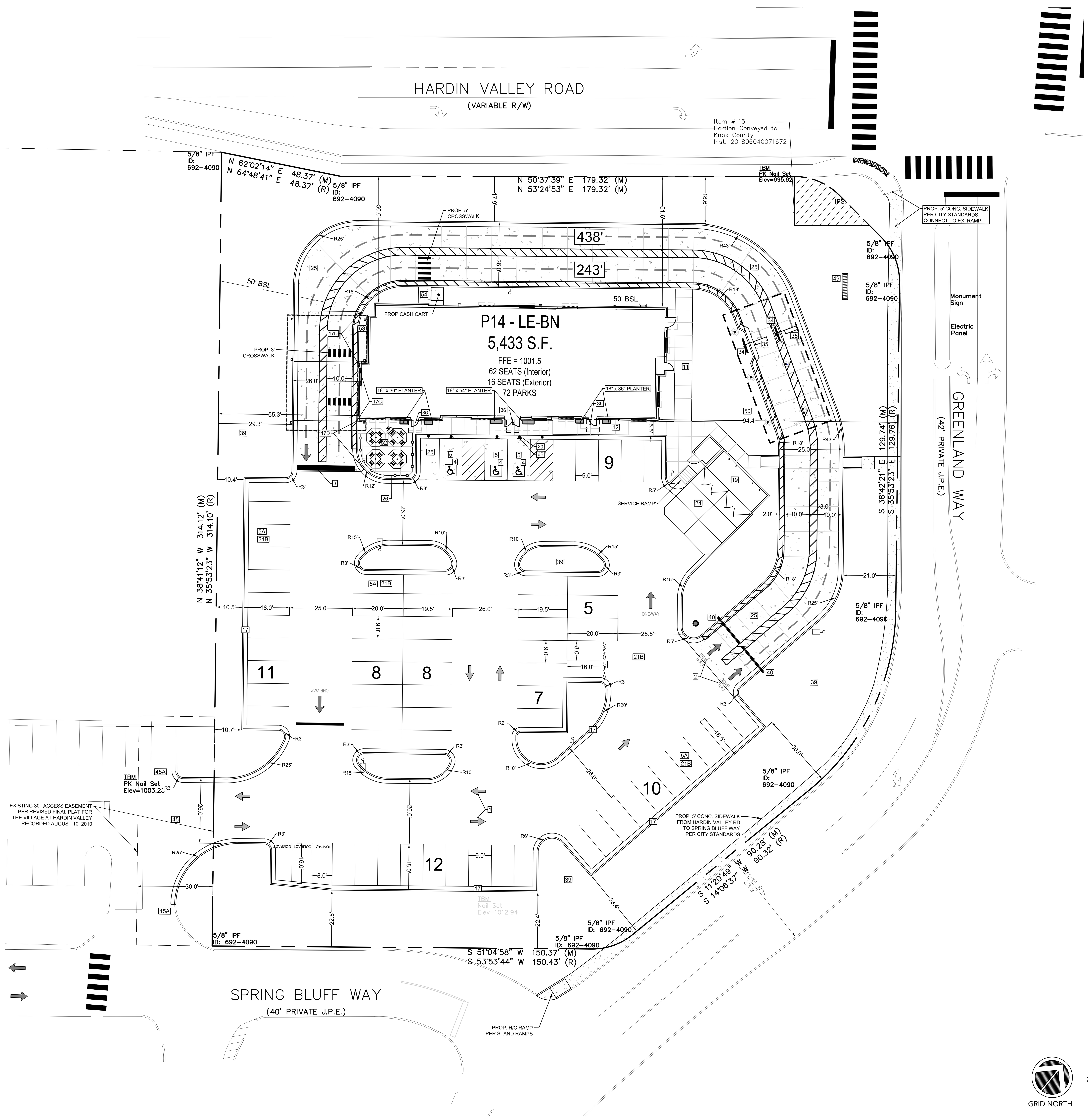
Job No. : 23043CFA
Store : 05442
Date : 08/28/23

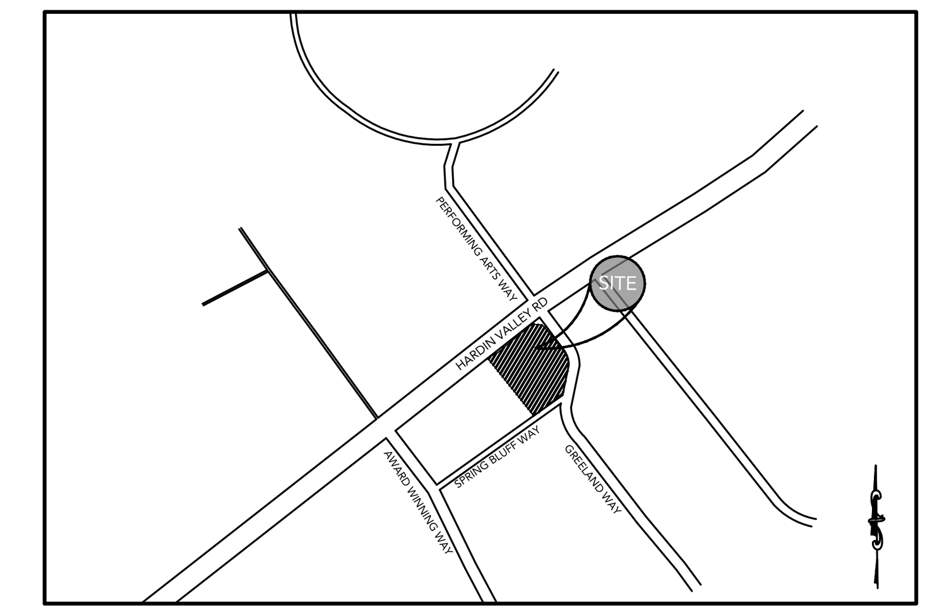
Sheet
C-1.4

ISSUE FOR PERMIT

SITE PLAN DESIGN NOTES & KEY PLAN

1	PAINTED DIRECTIONAL ARROW
2	PAINTED DRIVE-THRU GRAPHICS
3	PAINTED STOP LINE GRAPHIC
4	PAINTED HANDICAP PARKING SYMBOL
5	ACCESSIBLE PARKING STALL
5A	~~60° PARKING STALL @ 9' x 18' MIN.~~
5B	90° PARKING STALL @ 9' x 18.5' (OR 9'X18')
5C	~~BICYCLE PARKING~~
6	DIRECTIONAL SIGNAGE (SEE SIGNAGE PACKAGE)
6A	"STOP" SIGN (SEE SIGNAGE PACKAGE)
6B	"ACCESSIBLE PARKING" SIGN (SEE SIGNAGE PACKAGE)
6C	~~"CIRCLE BUILDING FOR DRIVE-THRU SERVICE" (SEE SIGNAGE PACKAGE)~~
6D	~~"RIGHT TURN ONLY" SIGN (SEE SIGNAGE PACKAGE)~~
6E	"ONE WAY" SIGN (USE APPLICABLE DIRECTION) (SEE SIGNAGE PACKAGE)
6F	~~"LEFT TURN ONLY" SIGN (SEE SIGNAGE PACKAGE)~~
6G	"PEDESTRIAN CROSSWALK" SIGN (SEE SIGNAGE PACKAGE)
6H	"DO NOT ENTER" SIGN (SEE SIGNAGE PACKAGE)
6I	~~"NO PARKING" SIGN (SEE SIGNAGE PACKAGE)~~
6J	~~"TWO ORDER LANES" SIGN (SEE SIGNAGE PACKAGE)~~
6K	~~"LANES MERGE" SIGN (SEE SIGNAGE PACKAGE)~~
7	SIDEWALK ACCESSIBLE RAMP
8	~~CURB RAMP WITH FLARED SIDES~~
8A	~~CURB RAMP WITH SHORT FLARED SIDES~~
9	~~RETURNED CURB ACCESSIBLE RAMP~~
10	TRUNCATED DOMES - CAST IN PLACE (ONLY IF REQUIRED)
11	TYPICAL CONCRETE SIDEWALK (SEE DETAIL FOR REVISIONS)
11A	TYPICAL CONCRETE SIDEWALK SECTION **WITH ADDED BLACK TENT MIX FOR AREAS WITH A CROSS SLOPE TO STEEP FOR PEDESTRIAN ACCESS**
12	SIDEWALK WITH CURB & GUTTER SECTION (SEE DETAIL FOR REVISIONS)
13	~~DRIVE-THRU PLAN~~
14	~~DRIVE-THRU ISOMETRIC~~
15	~~CONCRETE WHEEL STOP~~
16	~~LANDSCAPE & IRRIGATION PROTECTOR~~
17	24" CONCRETE CURB & GUTTER
17A	SPILLING 24" CONCRETE CURB & GUTTER
17B	CATCHING 24" CONCRETE CURB & GUTTER
17C	CURB HEIGHT TO MATCH CONC. PAVEMENT AT DRIVE-THRU DOOR
17D	TRANSITION CURB HEIGHT W/ RAMPED CONC. PAVEMENT TO MATCH LEVEL PAVEMENT AT DRIVE-THRU DOOR
18	~~ROLLOVER/MOUNTABLE CURB~~
19	SCREENED REFUSE ENCLOSURE
19A	~~SCREENED REFUSE ENCLOSURE STAGGERED~~
19B	~~SCREENED REFUSE ENCLOSURE ALTERNATE DRAINAGE~~
20	CONCRETE BOLLARD
21A	TYPICAL PAVEMENT SECTION - MEDIUM DUTY
21B	TYPICAL PAVEMENT SECTION - HEAVY DUTY
21C	~~LIGHT DUTY PAVEMENT RESURFACE~~
22	TRANSVERSE & LONGITUDINAL CONTRACTION JOINT
23	TRANSVERSE & LONGITUDINAL DOWELED CONSTRUCTION JOINT
24	CONCRETE APRON @ TRASH ENCLOSURE
25	CONCRETE PAVING
26	ALUMINUM HANDRAIL
27	~~TYPICAL ADA RAMP AND HANDRAIL~~
28	CONTRACTION JOINT
29	KEYED CONSTRUCTION JOINT
30	LONGITUDINAL BUTT JOINT
31	EXPANSION JOINT
32	~~MULTI-LANE DIRECTIONAL GRAPHICS~~
33	PAINTED CROSS WALK
34	MENU BOARD & CANOPY ORDERING STATION
35	MENU BOARD LOOP DETECTION SYSTEM
36	5'x5' LANDING AND ENTRY DOOR FROST SLAB
37	~~GREASE TRAP (SEE UTILITY PLAN)~~
38	~~ROOF DOWNSPOUT (TO CONNECT TO SITE DRAINAGE SYSTEM)~~
39	LANDSCAPED AREA (SEE LANDSCAPE PLAN)
40	CLEARANCE BAR (SEE SIGNAGE PACKAGE)
41	PAVEMENT STRIPING AREA
42	~~THICKENED SLAB EDGE AT RAILING CORE-DRILLS~~
43	~~CONCRETE FLUME~~
44	EX. ASPHALT / PROP. CONCRETE INTERFACE
45	EX./PROP. ASPHALT INTERFACE
45A	EX./PROP. CURB INTERFACE
46	~~EX./PROP. CONCRETE INTERFACE~~
47A	SHORT TERM BIKE PARKING
47B	LONG TERM BIKE PARKING
48	~~TRANSFORMER~~
49	CHICK-FIL-A PRIME SIGN (SEE SIGNAGE PACKAGE)
50	FLAGPOLE, 50' (SEE SIGNAGE PACKAGE)
51	~~RETAINING WALL WITH HANDRAIL ON TOP (HANDRAIL SIMILAR TO DETAIL 26/C-4.2)~~
52	TYPICAL LOCATION FOR THREE OUTDOOR TABLES. WHEN MORE SPACE IS AVAILABLE, OUTDOOR SEATING MAY BE EXPANDED.
53	4" THICK CONCRETE STRIP BETWEEN BUILDING AND BACK OF CURB
54	6" THICK CONCRETE SIDEWALK BETWEEN DRIVE-THRU LANE AND BUILDING
55	4" WIDE PAINT STRIPE
56	~~STANDARD LIGHT POLE~~
57	~~CURBSIDE DELIVERY SIGN (SEE SIGNAGE PACKAGE)~~
58	CONCRETE STRIPING AREA. CONCRETE TO BE PER CONCRETE PAVING DETAIL ON SHEET C-5.1
59	~~CONCRETE VALLEY GUTTER~~
60A	~~4' WIDE CONCRETE FLUME~~
60B	~~3' WIDE CONCRETE FLUME~~
61	~~CATERING & CARRY-OUT (SEE SIGNAGE PACKAGE)~~
62	~~CURBSIDE DELIVERY (SEE SIGNAGE PACKAGE)~~
63	~~2' WIDE 4" THICK CONCRETE LANDSCAPE PROTECTION STRIP~~





LOCATION MAP
SCALE: N.T.S.

SITE DATA:

TOTAL SITE AREA:	1.75
BUILDING AREA :	5,872 S.F.
PROP. IMPERVIOUS AREA:	1.14 ACRES
PROP. IMPERVIOUS COVERAGE:	65%
PROP. OPEN SPACE:	35%
DISTURBED AREA:	1.5 AC

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349–2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

JAMES J CARTER REGISTERED ENGINEER AGRICULTURE COMMERCE TENNESSEE NO. 109479

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

SITE PLAN

REVISION 4–2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet
C-2.0

LAYOUT NOTES

1 INSTALL 2" DOMESTIC WATER SERVICE CONNECTION PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. WATER COMPANY TO MAKE TAP.

1A INSTALL 1" IRRIGATION WATER SERVICE CONNECTION PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS.

1B INSTALL 8" FIRE PROTECTION LINE CONNECTION TO INCLUDE MAKING TAP. (FIRE LINE BACKFLOW HAS TO BE A DCDA BACKFLOW. **(NO AMES BACKFLOWS ALLOWED.)**

2 INSTALL 2" BACKFLOW PREVENTOR FOR DOMESTIC WATER SERVICE.

REDUCED PRESSURE ASSEMBLY

THE CONTRACTOR SHALL INSTALL A BACKFLOW PREVENTER (FEBCO, OR APPROVED EQUAL) FOR SERVICE LINE INDICATED ON DRAWING. INSTALLATION SHALL INCLUDE BOX OR VAULT, AS APPLICABLE. THE CONTRACTOR SHALL COORDINATE WITH KNOXVILLE-KNOX COUNTY FOR INSPECTION, TESTING, AND CERTIFICATION OF BACKFLOW PREVENTERS. ALL BACKFLOW DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE WATER DEPT. STANDARDS AND SPECIFICATIONS. THE CONTRACTOR'S BID PRICE SHALL INCLUDE ALL COST ASSOCIATED WITH DEVICE INSTALLATION, INSPECTION, TESTING, CERTIFICATION, ETC. TO INCLUDE ANY FEES CHARGED BY THE WATER DEPARTMENT.

TESTING OF BACKFLOW DEVICE SHALL BE COMPLETED BY A CERTIFIED BACKFLOW DEVICE TESTER. ALL TEST RESULTS SHALL BE SUBMITTED TO THE WATER DEPARTMENT.

2A INSTALL 1" BACKFLOW PREVENTOR FOR IRRIGATION WATER SERVICE.

REDUCED PRESSURE ASSEMBLY

SEE NOTES ITEM # 2 ABOVE - INSPECTION, TESTING AND CERTIFICATION

2B INSTALL 4" FIRE PROTECTION DOUBLE CHECK VALVE ASSEMBLY INSIDE BUILDING PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS.

3 INSTALL 2" TYPE K COPPER DOMESTIC WATER SERVICE PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

3A INSTALL 1" TYPE K COPPER IRRIGATION WATER SERVICE PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. SITE CONTRACTOR TO COORDINATE WITH BUILDING, PLUMBING AND IRRIGATION CONTRACTOR.

3B INSTALL 4" AWWA C-900 WATER MAIN FOR FIRE PROTECTION PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. SITE CONTRACTOR TO COORDINATE WITH BUILDING, PLUMBING AND FIRE PROTECTION CONTRACTOR.

3C INSTALL 8" AWWA C-900 WATER MAIN FOR SERVICE PER WATER COMPANYS SPECIFICATIONS AND REQUIREMENTS. SITE CONTRACTOR TO COORDINATE WITH BUILDING, PLUMBING AND FIRE PROTECTION CONTRACTOR.

4 INSTALL 1-1/2" DOMESTIC WATER METER AND METER PIT PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. WATER COMPANY TO INSTALL WATER METER AND CONTRACTOR TO INSTALL PIT.

4A INSTALL 1" IRRIGATION METER AND METER PIT PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. WATER COMPANY TO INSTALL WATER METER AND AND CONTRACTOR TO INSTALL PIT.

4B INSTALL 4" METER AND METER PIT PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS. WATER COMPANY TO INSTALL WATER METER AND CONTRACTOR TO INSTALL PIT.

5 INSTALL 3/4" TYPE K COPPER COLD WATER SERVICE TO DUMPSTER POST HYDRANT. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

6 INSTALL DUMPSTER POST HYDRANT. REFER TO THE FIXTURE CONNECTION SCHEDULE (P-31) DEPICTED ON THE PROJECT PLUMBING PLANS

7 WATER SERVICE CONNECTION POINT. CONTRACTOR TO LOCATE EXISTING WATER LINE PRIOR TO START OF CONSTRUCTION. CONNECTION TO BE MADE WITH A 12"x2" TAPPING SADDLE & VALVE PER WATER COMPANY'S SPECIFICATIONS AND REQUIREMENTS.

8 EXISTING WATER LINE PER RECORDS.

9 INSTALL REMOTE FIRE DEPARTMENT CONNECTION (FDC) PER FIRE DEPARTMENTS SPECIFICATIONS AND REQUIREMENTS. SITE CONTRACTOR TO COORDINATE WITH BUILDING, PLUMBING AND FIRE PROTECTION CONTRACTOR.

10 WASTEWATER SERVICE SEWER CONNECTION POINT. CONTRACTOR TO LOCATE EXISTING SEWER PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO MAKE CONNECTION TO EXISTING SEWER AS REQUIRED PER UTILITY COMPANY'S SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR RESPONSIBLE TO OBTAIN THE EXISTING ELEVATION OF THE CONNECTION POINT AND VERIFY THAT IT IS DEEP ENOUGH TO SERVICE THE BUILDING FINISHED FLOOR AS DESIGNED. REPORT ANY ISSUES TO CARTER ENGINEERING CONSULTANTS, INC. PRIOR TO THE START OF THE BUILDING FOUNDATION CONSTRUCTION.

11 INSTALL 6" SCHEDULE 40 PVC WASTEWATER SERVICE LINE AT 1.0% MINIMUM SLOPE. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

12 INSTALL 6" CLEAN OUT . CLEAN OUT SHALL BE FLUSH W/ PAVEMENT & INSTALLED UNDER A PROTECTIVE METAL BOX COVER SIMILAR TO A METER PIT COVER WITH A TRAFFIC BEARING LID.

12A INSTALL 6" TWO-WAY CLEAN OUT. CLEAN OUT SHALL BE FLUSH W/ PAVEMENT & INSTALLED UNDER A PROTECTIVE METAL BOX COVER SIMILAR TO A METER PIT COVER WITH A TRAFFIC BEARING LID.

13 INSTALL PRECAST 1,500 GALLON CAPACITY GREASE TRAP. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR. TOP OF MANHOLE TO MATCH APPROACH PAD GRADES WHERE REQUIRED. VERIFY GREASE TRAP MEETS CITY/COUNTY SPECIFICATIONS PRIOR TO INSTALLATION. CONTRACTOR RESPONSIBLE TO VERIFY ELEVATION OF SANITARY LATERAL PIPES AT GREASE TRAP PRIOR TO THE START OF SEWER CONSTRUCTION.

14 INSTALL 4" KITCHEN WASTE LINE (FL = 5'-0" BELOW FINISHED FLOOR ELEVATION). SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

15 INSTALL 3" VENT LINE. CONNECT TO GREASE INTERCEPTOR (SEE SHEET P-1 FOR LOCATION). SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

16 INSTALL 4" RESTROOM WASTE LINE (FL = 4'-0" BELOW FINISHED FLOOR ELEVATION). SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

17 INSTALL 6" SCHEDULE 40 PVC DUMPSTER WASTE LINE AT 1.0% MINIMUM SLOPE INCLUDING ALL FITTINGS. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

18 INSTALL DUMPSTER PAD DRAIN. REFER TO THE FIXTURE CONNECTION SCHEDULE (P-32) DEPICTED ON THE PROJECT PLUMBING PLANS. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

19 INSTALL DOWNSPOUT FOR ROOF DRAINAGE (REFER TO ARCHITECTURAL PLANS). CONNECT TO STORM SEWER. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR (SEE DETAIL 38 ON SHEET C-4.3).

20 INSTALL 6" SCHEDULE 40 PVC ROOF DRAIN PIPE DRAIN INCLUDING ALL NECESSARY FITTINGS. CONNECT TO ROOF DRAIN. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

21 INSTALL 10" ADS ROOF DRAIN PIPE INCLUDING ALL NECESSARY FITTINGS. CONNECT TO STORM SEWER. SITE CONTRACTOR TO COORDINATE WITH BUILDING AND PLUMBING CONTRACTOR.

22 INSTALL GAS SERVICE. CONTRACTOR SHALL COORDINATE INSTALLATION TO INSURE THE APPROPRIATE BENDS ARE INCORPORATED TO MAINTAIN A MINIMUM OF 1.0' CLEARANCE BELOW ALL STORM SEWER, WATER, AND WASTEWATER LINES OR SERVICES WHEN CROSSING. CONTRACTOR TO COORDINATE WITH GAS COMPANY.

23 COORDINATE GAS METER INSTALLATION WITH GAS COMPANY. CONTRACTOR TO MARK LOCATION OF METER ON WALL PRIOR TO GAS COMPANY ARRIVING ON-SITE.

24 INSTALL 4" ODE EDGE 40 PVC IRRIGATION SLEEVE (REFER TO IRRIGATION PLANS). SITE CONTRACTOR TO COORDINATE WITH IRRIGATION CONTRACTOR. (NOT USED)

25 INSTALL UNDERGROUND PRIMARY ELECTRIC SERVICE. INSTALL 3-4" SCHEDULE 40 CONDUITS FROM POWER POLE TO TRANSFORMER PAD LOCATION ALONG WITH PULL STRINGS. ALL ITEMS PER ELECTRIC COMPANY SPECIFICATIONS AND REQUIREMENTS. CONDUIT DEPTH TO BE ___'.

PROVIDE TRENCHING:	__ CONTRACTOR	__ ELECTRIC COMPANY
PROVIDE CONDUITS:	__ CONTRACTOR	__ ELECTRIC COMPANY
INSTALL CONDUITS:	__ CONTRACTOR	__ ELECTRIC COMPANY
PROVIDE CABLES:	__ CONTRACTOR	__ ELECTRIC COMPANY
INSTALL CABLES:	__ CONTRACTOR	__ ELECTRIC COMPANY

26 CONTRACTOR TO PROVIDE PAD MOUNTED TRANSFORMER PAD PER ELECTRIC COMPANY STANDARDS. CONTRACTOR TO INSTALL PAD MOUNTED TRANSFORMER PAD PER ELECTRIC COMPANY STANDARDS.

27 INSTALL UNDERGROUND SECONDARY ELECTRIC SERVICE TO BUILDING (REFER TO MEP PLANS). INSTALL TRENCHING, 2-4" SCHEDULE 40 PVC CONDUITS AND 1-2" SCHEDULE 40 PVC CONDUIT, CT CABINET AND METER BASE. ALL ITEMS PER ELECTRIC COMPANY SPECIFICATIONS AND REQUIREMENTS.

27A CONTRACTOR TO PROVIDE ELECTRICAL CONDUITS TO HOT BOX AT BACKFLOW PREVENTOR LOCATION. COORDINATE CONDUIT SIZING AND ELECTRICAL INFORMATION WITH ELECTRICAL PLANS.

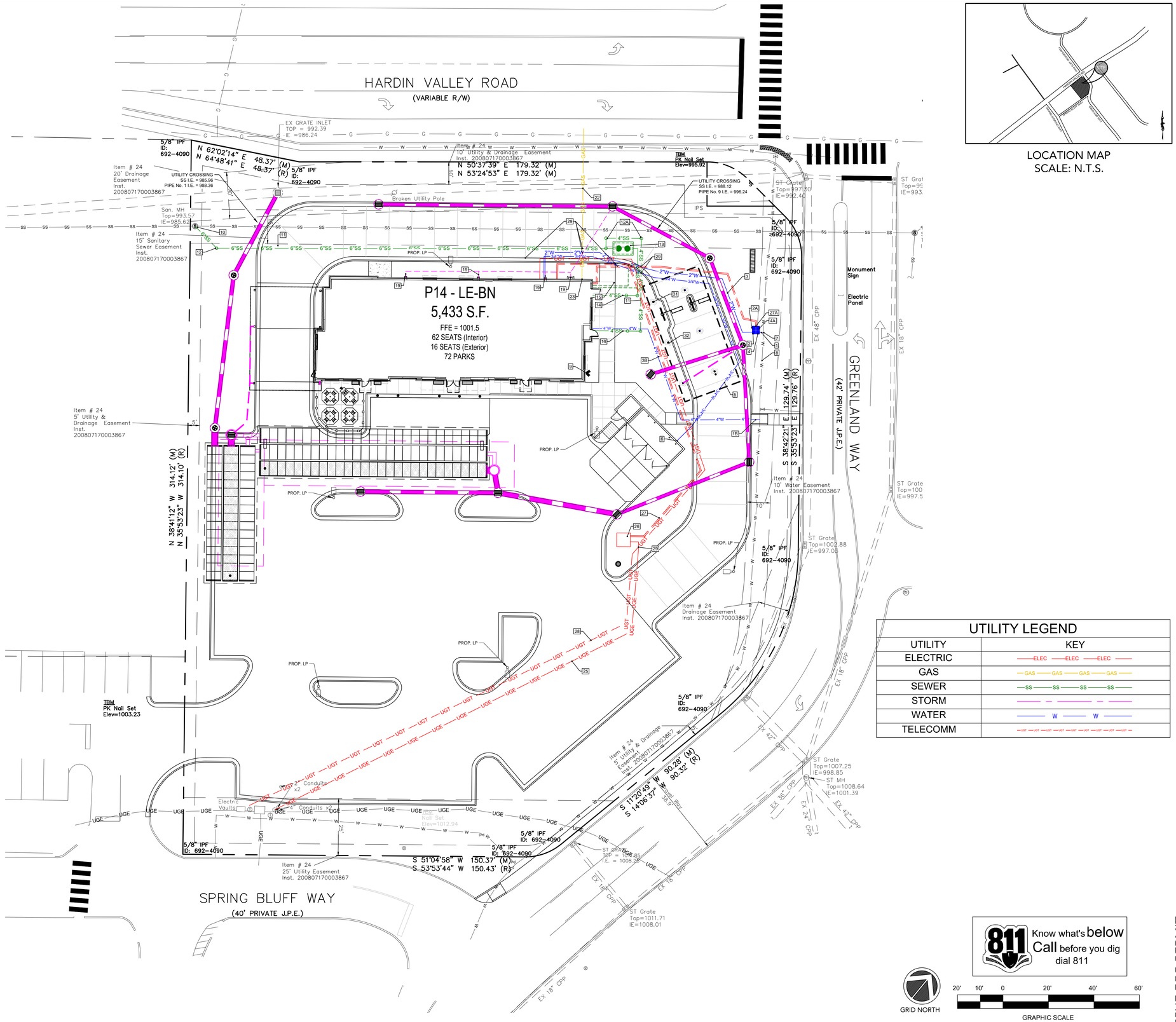
28 INSTALL UNDERGROUND PRIMARY TELEPHONE SERVICE. CONTRACTOR TO INSTALL 1-3" SCHEDULE 40 PVC CONDUIT W/SWEEPING 90'S AND W/PULL STRING FOR TELEPHONE COMPANY. A 4'X4'X3/4" PIECE OF PLYWOOD MUST BE IN PLACE PRIOR TO INSTALLATION OF THE SERVICE. ALSO A #6 GROUND MUST BE AVAILABLE. CONTRACTOR TO ALSO INSTALL AN ADDITIONAL SPARE 4" SCHEDULE 40 PVC CONDUIT PARALLEL TO THE TELEPHONE COMPANY'S CONDUIT FOR FUTURE USE BY CHICK-FIL-A.

29 PROPOSED UTILITY CROSSING-CONTRACTOR TO MAINTAIN REQUIRED CLEARANCES.

30 EXISTING UTILITY CROSSING. CONTRACTOR TO VERIFY EXACT ELEVATIONS OF THE EXISTING UTILITY PRIOR TO THE START OF CONSTRUCTION. REPORT ANY CONFLICTS WITH PROPOSED UTILITIES TO GBC DESIGN, INC. PRIOR TO THE START OF CONSTRUCTION OF THE PROPOSED UTILITY. CONTRACTOR TO MAINTAIN REQUIRED CLEARANCES.

31 PROPOSED ELECTRIC CONDUIT IN CANOPY COLUMN REFERENCE ELECTRICAL/PLUMBING PLANS

32 PROPOSED GAS PIPING IN CANOPY COLUMN REFERENCE PLUMBING PLANS.



UTILITY LEGEND

UTILITY	KEY
ELECTRIC	ELEC ELEC ELEC
GAS	GAS GAS GAS GAS
SEWER	SS SS SS SS
STORM	
WATER	W W
TELECOMM	UGT UGT UGT UGT UGT UGT UGT

GRID NORTH

GRAPHIC SCALE
SCALE 1" = 20'
20' 10' 0 20' 40' 60'

811 Know what's **below** **Call** before you dig dial 811

ISSUE FOR PERMIT

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

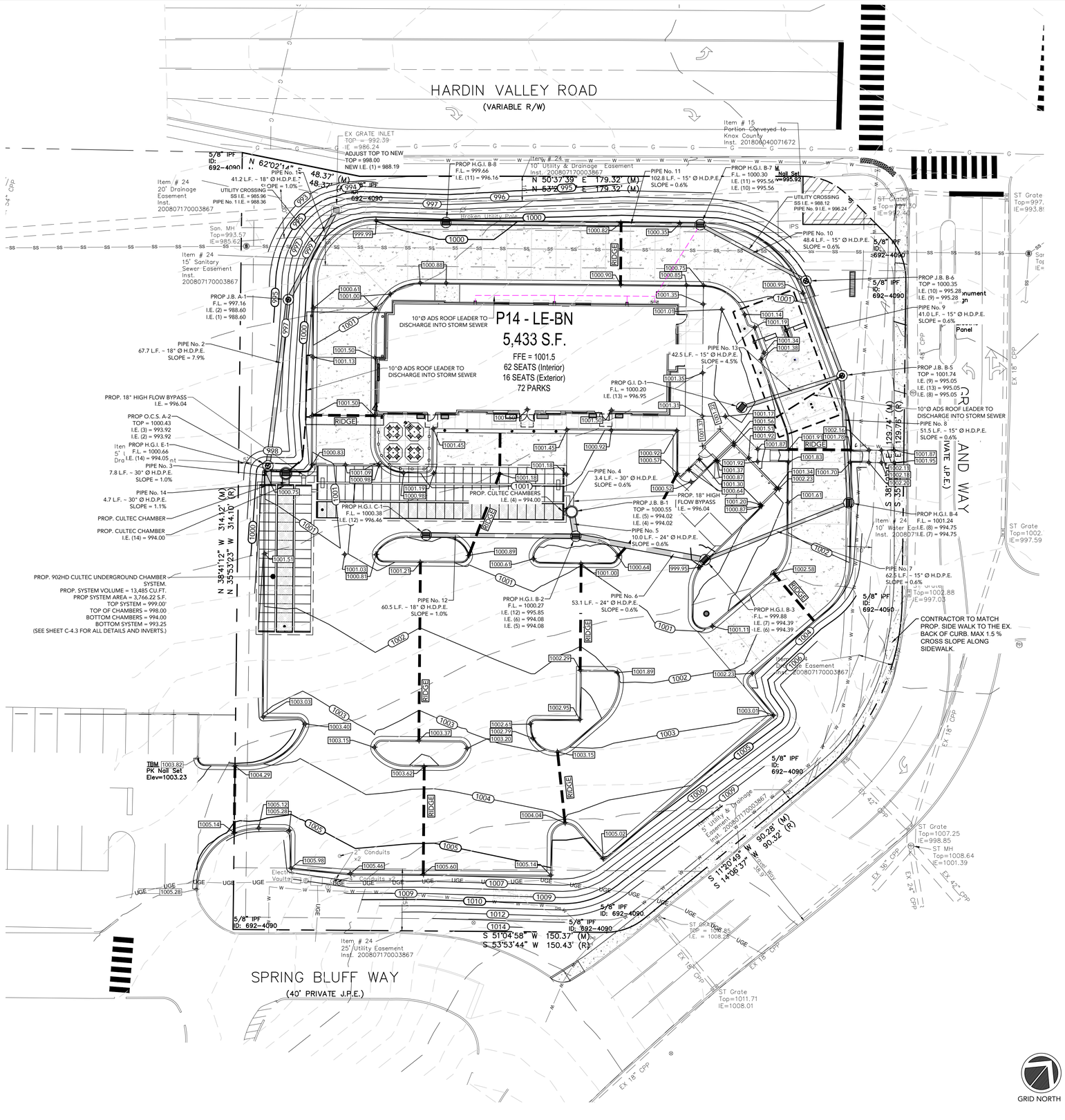
SHEET TITLE

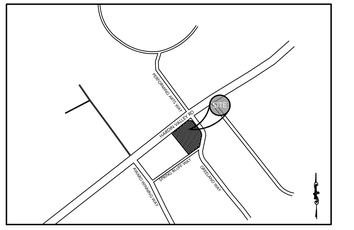
UTILITY PLAN

REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

Sheet
C-3.0





LOCATION MAP
SCALE: N.T.S.

GRADING NOTE:

1. **ALL SPOTS SHOWN ON THIS PLAN ARE FLOW LINE ELEVATIONS UNLESS OTHERWISE STATED.**
2. **CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT PROPOSED DRIVEWAY LOCATIONS.**
3. **DUMPSTER ENCLOSURES SHALL HAVE A 4 TO 6 INCH KEY ALONG THE FACE OF THE DUMPSTER. (SEE PLAN FOR ELEVATIONS.)**

STORMWATER NOTE:

THE PROPOSED SITE WILL DRAIN TO THE PROPOSED STORMWATER NETWORK. THE NETWORK WILL DISCHARGE TO AN UNDERGROUND STORMWATER MANAGEMENT FACILITY. THE FACILITY WILL PROVIDE TREATMENT OF THE FIRST 1.1" RAINFALL BY INFILTRATING THE VOLUME THROUGH THE BOTTOM OF THE SYSTEM. THE FACILITY WILL ALSO PROVIDE DETENTION OF POST DEVELOPED STORM EVENTS BELOW EXISTING STORM EVENTS PER THE HYDROLOGY REPORT DATED JULY 27, 2023.

GRID NORTH

GRAPHIC SCALE
SCALE 1" = 20'
20' 10' 0 20' 40' 60'

Know what's below
Call before you dig
dial 811

ISSUE FOR PERMIT

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION		
A	06/02/2023	INITIAL REVIEW	-	-
B	06/06/2023	PCR	-	-
C	07/25/2023	TTCDA SUBMITTAL	-	-
D	08/28/2023	REVISED PER TTCDA COMMENTS	-	-

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

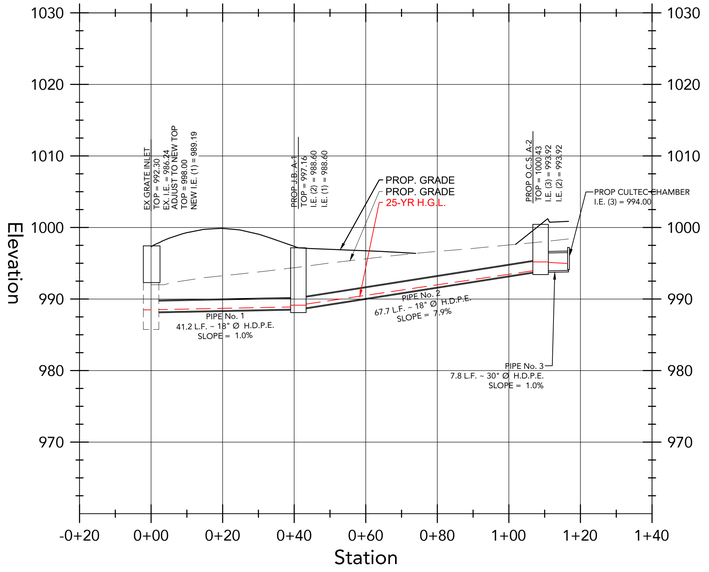
SHEET TITLE

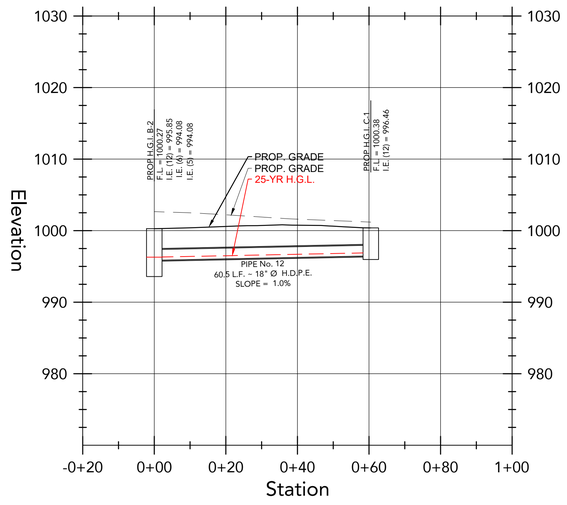
GRADING & DRAINAGE PLAN

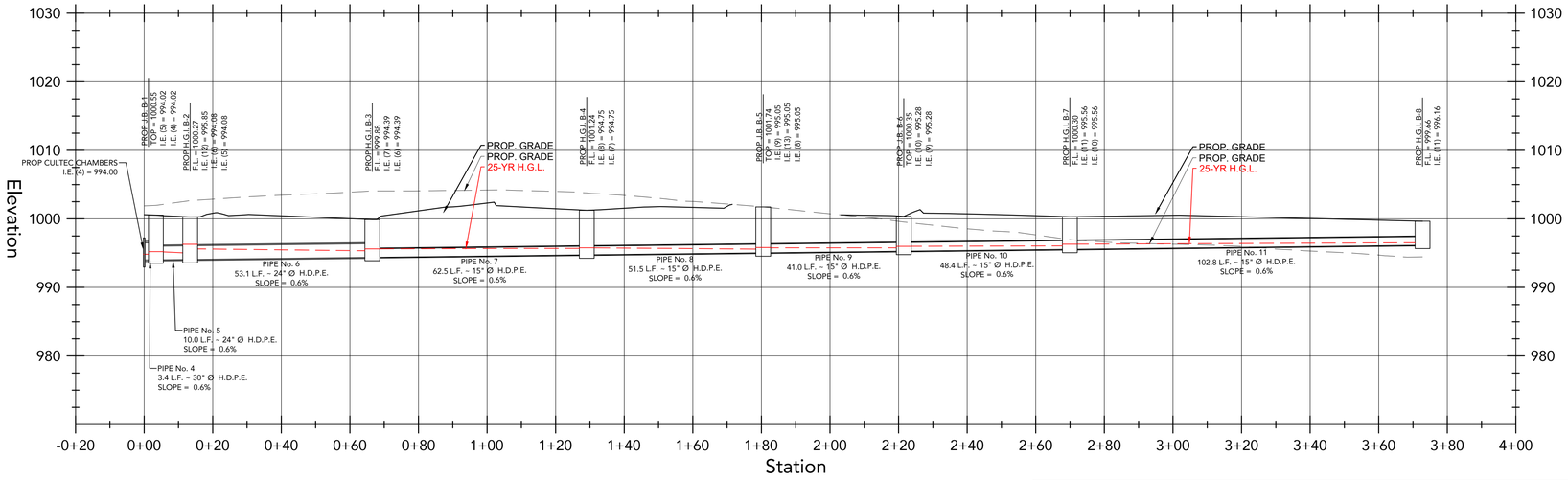
REVISION 4-2023

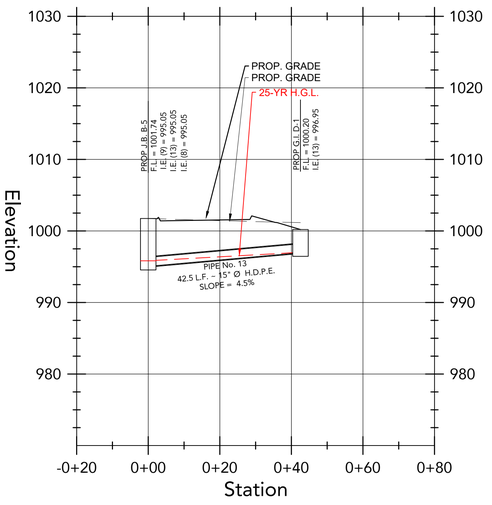
Job No. : 23043CFA
Store : 05442
Date : 08/28/23

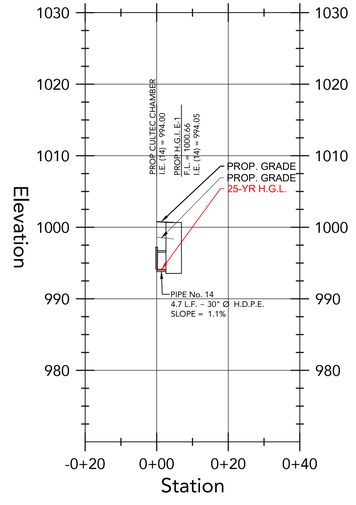
Sheet
C-4.0











25- YR STORM SEWER PROFILES										
SCALE: 1(in) = 20 (ft) H, 1(in) = 10(ft) V										
Pipe No.	Flow	Size	Mat'l	Length	I.E. Down	I.E. Up	Slope	HGL Down	HGL Up	Velocity
	(cfs)	(in)		(ft)	(ft)	(ft)	(%)	(ft)	(ft)	(ft/s)
1	1.06	18	HDPE	41.2	988.19	988.60	1.0	988.57	988.98	2.97
2	1.06	18	HDPE	67.7	988.60	993.92	7.9	988.98	994.30	2.97
3	1.06	30	HDPE	7.8	993.92	994.00	1.0	994.30	994.33	2.47
4	5.18	30	HDPE	3.4	994.00	994.02	0.6	994.75	994.77	4.18
5	5.19	24	HDPE	10.0	994.02	994.08	0.6	994.77	994.88	4.61
6	2.37	24	HDPE	53.1	994.08	994.39	0.6	994.88	994.92	2.76
7	1.64	15	HDPE	62.5	994.39	994.75	0.6	994.92	995.26	3.39
8	1.21	15	HDPE	51.5	994.75	995.05	0.6	995.26	995.48	2.90
9	1.62	15	HDPE	41.0	995.05	995.28	0.6	995.53	995.78	3.63
10	1.65	15	HDPE	48.2	995.28	995.56	0.6	995.78	996.07	3.54
11	0.96	15	HDPE	102.8	995.56	996.16	0.6	996.07	996.54	2.52
12	2.12	18	HDPE	60.5	995.85	996.46	1.0	996.29	997.01	4.28
13	0.07	15	HDPE	42.5	995.05	996.95	4.5	995.48	997.05	0.82
14	0.21	30	HDPE	4.8	994.00	994.05	1.1	994.15	994.20	1.78

GRID NORTH

811 Know what's below Call before you dig dial 811

20' 10' 0 20' 40' 60'
GRAPHIC SCALE
SCALE 1" = 20'

ISSUE FOR PERMIT

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

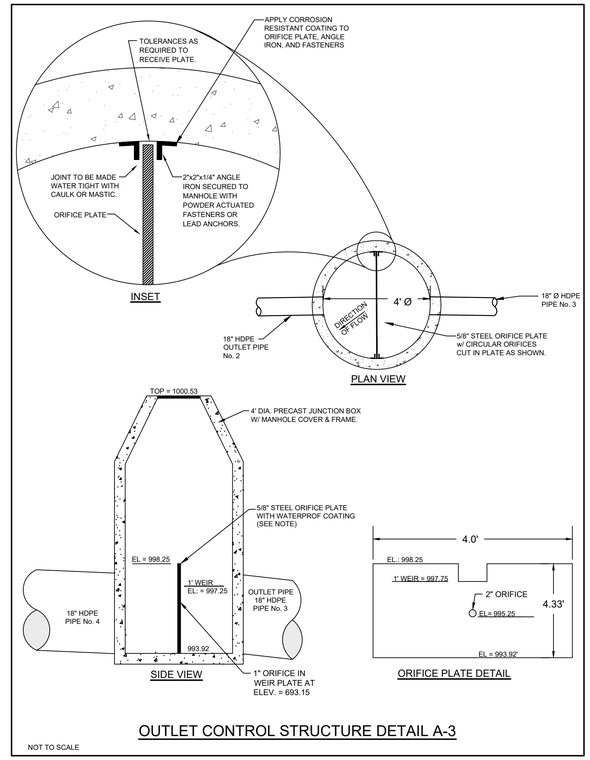
SHEET TITLE

PIPE PROFILES

REVISION 4-2023

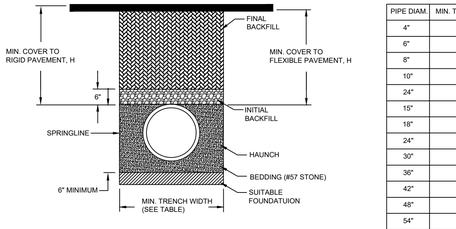
Job No. : 23043CFA
Store : 05442
Date : 08/28/23

Sheet
C-4.1



OUTLET CONTROL STRUCTURE DETAIL A-3

NOT TO SCALE



RECOMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
24"	48"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MINIMUM RECOMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD)*
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQIRE ADDITIONAL COVER

MINIMUM RECOMENDED COVER BASED ON RAILWAY LOADING CONDITIONS

PIPE DIAM.	COOPER E-80**
UP TO 24"	24"
30"-36"	24"
42"-60"	24"

** COVER IS MEASURED FROM TOP OF PIPE TO BOTTOM OF RAILWAY TEI.
** E-80 COVER REQUIREMENTS, ARE ONLY APPLICABLE TO ASTM F 2306 PIPE.

*NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLAITION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSUITABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL

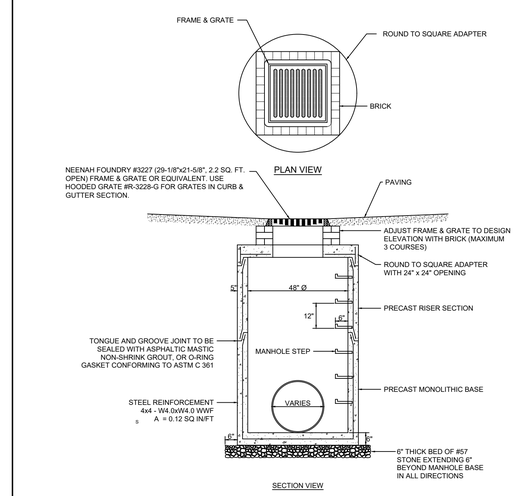
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III (#57 STONE). THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR THE MATERIAL SPECIFICATION TO THE ENGINEER. UNLESS OTHERWISED NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 6" (150mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF THE PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

NTS

Typical HDPE Bedding Detail



GRATE INLET

1. ALL PRECAST SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C 478.
2. CONCRETE FOR PRECAST SECTIONS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 P.S.I.
3. CLASS B CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 P.S.I.
4. ALL MANHOLE STEPS SHALL CONFORM TO ASTM F 783
5. ALL HOLES FOR PIPES SHALL BE CAST IN PLACE AT THE FACTORY OR CORED ON-SITE WITH A BORING MACHINE.
6. ALL GROUT USED IN MANHOLE CONSTRUCTION SHALL BE NON-SHRINKING, TYPE M, MORTAR CONFORMING TO ASTM C 270.

GRATE INLET
HOODED GRATE INLET

NOT TO SCALE

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

STORMWATER DETAILS

REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

Sheet

C-4.2

ISSUE FOR PERMIT

HARDIN VALLEY FSU STORE #05422

2187 GREENLAND WAY
KNOXVILLE, TN

DRAWING INDEX

PROJECT INFORMATION						
PROJECT NO:	23-0960					
CULTEC SALES REP:	JON SHELL 475-289-7108 JONATHAN.SHELL@CULTEC.COM					
CULTEC PROJECT SUPERVISOR:	ANN SCHWENZER 475-289-7116 ANN.SCHWENZER@CULTEC.COM					
ENGINEER OF RECORD	CARTER ENGINEERING					
REVISIONS:	ITERATION	DATE	BY	COMMENTS	EOR SHEET REFERENCE	DATE
	00	07/20/2023	JIG	SUBMITTAL DRAWINGS	C-4.0 GRADING AND DRAINAGE PLAN	06/06/2023
	01	07/25/2023	JIG	REVISE SUBMITTAL DRAWING TO INCLUDE 18" TEE FITTING CONNECTION	C-4.0 GRADING AND DRAINAGE PLAN	06/06/2023

CULTEC, Inc.
Subsurface Stormwater Management Systems
P.O. Box 280
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: (203) 775-4416
PH: (800) 4-CULTEC
FX: (203) 775-1462
tech@cultec.com

NOTE: THESE SHOP DRAWINGS MAY CONTAIN COMPONENTS INCLUDING BUT NOT LIMITED TO MANHOLES, CATCH BASINS, STORM PIPES AND FITTINGS, MANIFOLDS, CASTINGS AND OTHER NECESSARY APPURTENANCES THAT MAY NOT BE SUPPLIED BY CULTEC, INC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR SUPPLIER TO CONFIRM WITH CULTEC THE MATERIALS PROVIDED.

BEFORE YOU BEGIN - REQUIRED MATERIALS AND EQUIPMENT

1. PROPER GEOTECHNICAL SOIL EVALUATION BY A QUALIFIED ENGINEER OR SOIL SCIENTIST TO DETERMINE SUITABILITY OF STRUCTURAL INSTALLATION
2. OSHA COMPLIANCE
3. CULTEC WARNING TAPE, OR EQUIVALENT
4. ASSURANCES FROM LOCAL UTILITIES THAT NO UNDERGROUND GAS, ELECTRICAL OR OTHER POTENTIALLY DANGEROUS PIPELINES OR CONDUITS ARE ALREADY BURIED AT THE SITE
5. ACCEPTABLE 1- 2 INCH (25 - 51 mm) WASHED, CRUSHED STONE AS DETAILED IN CULTEC'S INSTALLATION INSTRUCTIONS. CLEANLINESS OF STONE TO BE VERIFIED BY ENGINEER.
6. ACCEPTABLE FILL MATERIAL AS SHOWN IN CULTEC'S INSTALLATION INSTRUCTIONS.
7. ALL CULTEC CHAMBERS AND ACCESSORIES AS SPECIFIED IN THE ENGINEER'S PLANS INCLUDING CULTEC NO. 410 NON-WOVEN GEOTEXTILE, CULTEC STORMFILTER AND CULTEC NO. 4800 WOVEN GEOTEXTILE, WHERE APPLICABLE.
8. RECIPROCATING SAW OR ROUTER
9. STONE BUCKET
10. STONE CONVEYOR AND/OR TRACKED EXCAVATOR
11. TRANSIT OR LASER LEVEL MEASURING DEVICE
12. COMPACTION EQUIPMENT WITH MAXIMUM GROSS VEHICLE WEIGHT OF 12,000 LBS (5,440 KGS). VIBRATORY ROLLERS MAY ONLY BE USED ON THE STONE BASE PRIOR TO THE INSTALLATION OF CHAMBERS.
13. CHECK CULTEC CHAMBERS FOR DAMAGE PRIOR TO INSTALLATION. DO NOT USE DAMAGED CULTEC CHAMBERS, CONTACT YOUR SUPPLIER IMMEDIATELY TO REPORT DAMAGE OR PACKING-LIST DISCREPANCIES.

REQUIREMENTS FOR CULTEC CHAMBER SYSTEM INSTALLATIONS

1. INSTALLING CONTRACTORS ARE EXPECTED TO COMPREHEND AND USE THE MOST CURRENT INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING A SYSTEM INSTALLATION. IF THERE IS ANY QUESTION AS TO WHETHER YOU POSSESS THE MOST CURRENT INSTRUCTIONS, CONTACT CULTEC AT (203) 775-4416 OR VISIT WWW.CULTEC.COM.
2. CONTACT CULTEC AT LEAST THIRTY DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
3. ALL CULTEC SYSTEM DESIGNS MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
4. USE CULTEC INSTALLATION INSTRUCTIONS AS A GUIDELINE ONLY FOR MINIMUM/MAXIMUM REQUIREMENTS. ACTUAL DESIGN MAY VARY. REFER TO APPROVED CONSTRUCTION DRAWINGS FOR JOB-SPECIFIC DETAILS. BE SURE TO FOLLOW THE ENGINEER'S DRAWINGS AS YOUR PRIMARY GUIDE.
5. THE FOUNDATION STONE SHALL BE LEVEL AND COMPACTED PRIOR TO CHAMBER INSTALLATION.
6. OVERLAPPING RIB CONNECTIONS OF CHAMBERS SHALL BE FULLY SHOULDERED PRIOR TO STONE PLACEMENT.
7. CENTER-TO-CENTER SPACING SHALL BE CHECKED AND MAINTAINED THROUGHOUT INSTALLATION PROCESS.
8. ANY DISCREPANCIES WITH THE SYSTEM SUB-GRADE SOIL'S BEARING CAPACITY MUST BE REPORTED TO THE DESIGN ENGINEER.
9. NON-WOVEN GEOTEXTILE MUST BE USED AS SPECIFIED IN THE ENGINEER'S DRAWINGS.
10. CULTEC REQUIRES THE CONTRACTOR TO REFER TO CULTEC'S INSTALLATION INSTRUCTIONS CONCERNING VEHICULAR TRAFFIC. RESPONSIBILITY FOR PREVENTING VEHICLES THAT EXCEED CULTEC'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE CHAMBER SYSTEM LIES SOLELY WITH THE CONTRACTOR THROUGHOUT THE ENTIRE SITE CONSTRUCTION PROCESS. THE PLACEMENT OF WARNING TAPE, TEMPORARY FENCING, AND/OR APPROPRIATELY LOCATED SIGNS IS HIGHLY RECOMMENDED. IMPRINTED WARNING TAPE IS AVAILABLE FROM CULTEC. FOR ACCEPTABLE VEHICLE LOAD INFORMATION, REFER TO CULTEC INSTALLATION INSTRUCTIONS.
11. TRAFFIC OF INSTALLATION EQUIPMENT OR OTHER VEHICULAR TRAFFIC OVER TOP OF THE CULTEC STORMWATER SYSTEM IS STRICTLY RESTRICTED AND PROHIBITED UNTIL SATISFACTORY COVER AND COMPACTION IS ACHIEVED ACCORDING TO CULTEC'S MANUFACTURER INSTALLATION INSTRUCTIONS.
12. EROSION AND SEDIMENT-CONTROL MEASURES MUST MEET LOCAL CODES AND THE DESIGN ENGINEER'S SPECIFICATIONS THROUGHOUT THE ENTIRE SITE CONSTRUCTION PROCESS.
13. CULTEC SYSTEMS MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. FAILURE TO DO SO WILL VOID THE LIMITED WARRANTY.
14. CONTACT CULTEC, INC. AT 203-775-4416 WITH ANY QUESTIONS OR FURTHER CLARIFICATION OF REQUIREMENTS.
15. PLACEMENT OF EMBEDMENT STONE MUST BE IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS. STONE COLUMN HEIGHT DEFERENTIAL MUST NEVER EXCEED 12" (305 mm) BETWEEN CHAMBER ROWS, ADJACENT CHAMBERS OR STONE PERIMETER. STONE MUST BE PLACED OVER THE CROWN OF THE CHAMBERS TO ANCHOR THE CHAMBERS IN PLACE AND MAINTAIN ROW SPACING.
16. EMBEDMENT STONE MUST ONLY BE PLACED BY EXCAVATOR OR TELESCOPING CONVEYOR BOOM. PLACEMENT OF EMBEDMENT STONE WITH BULLDOZER IS NOT AN ACCEPTABLE METHOD OF INSTALLATION AND MAY CAUSE DAMAGE TO THE CHAMBERS. ANY CHAMBERS DAMAGED USING AN UNACCEPTABLE METHOD OF BACKFILL ARE NOT COVERED UNDER THE CULTEC LIMITED WARRANTY.

THIS DRAWING HAS BEEN PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO CULTEC UNDER THE DIRECTION OF THE PROJECT ENGINEER OF RECORD OR OTHER PROJECT REPRESENTATIVE. IT IS ULTIMATE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE CULTEC SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND MANUFACTURER REQUIREMENTS.

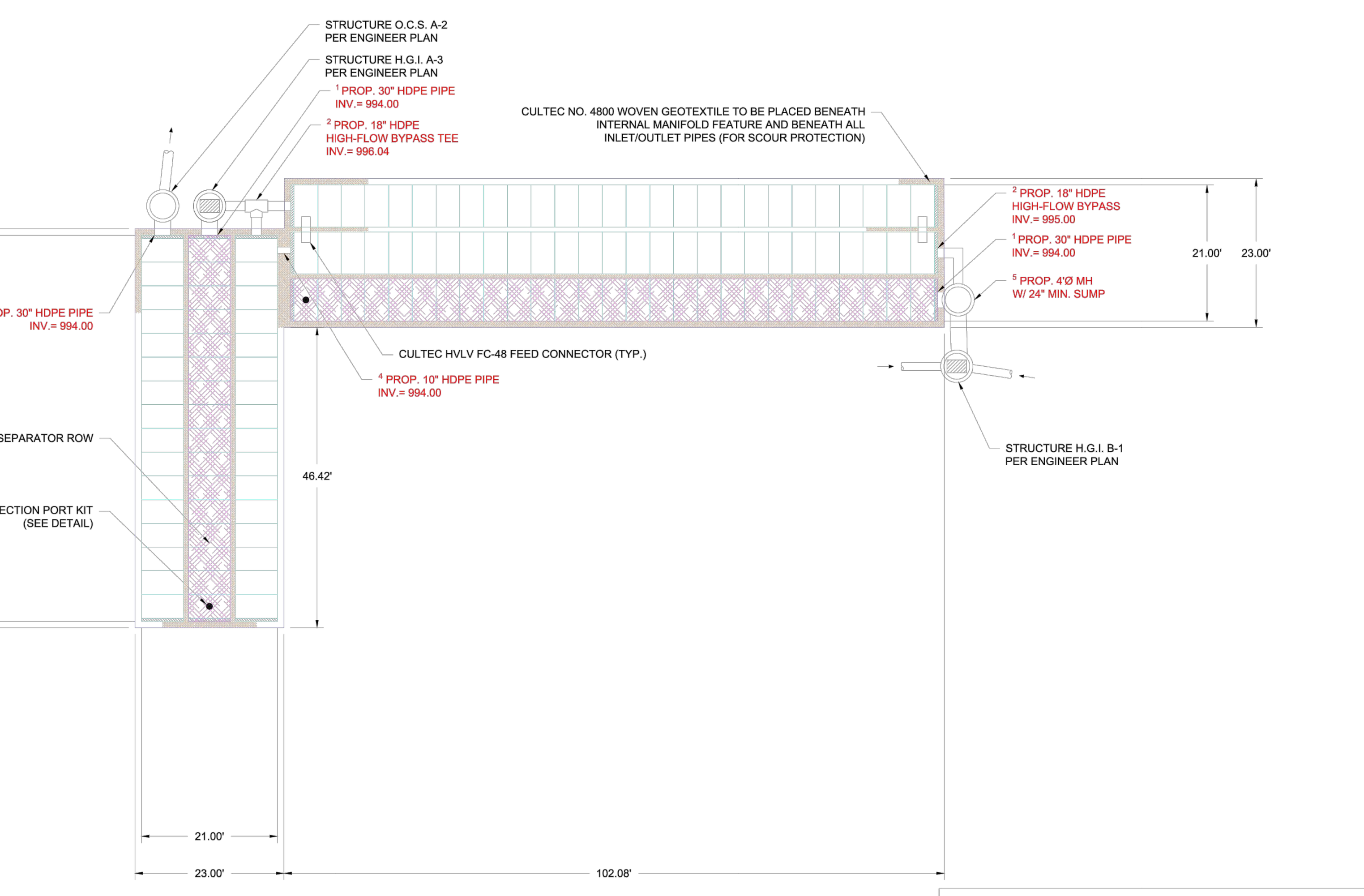
PROPOSED STORMWATER MANAGEMENT SYSTEM ELEVATIONS
(TO BE APPROVED BY ENGINEER OF RECORD)
*ENGINEER OF RECORD TO CONFIRM MINIMUM AND MAXIMUM BURIAL REQUIREMENTS ARE MET)

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT OR UNPAVED)	1006.30
MINIMUM ALLOWABLE GRADE (UNPAVED TRAFFIC)	1000.50
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)	1000.00
MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)	1000.00
TOP OF STONE ELEVATION	999.00
TOP OF CHAMBER ELEVATION	998.00
18" HIGH-FLOW BYPASS PIPE INVERT	996.04
OUTLET PIPE INVERT	994.00
INLET PIPE INVERT	994.00
BOTTOM OF CHAMBER ELEVATION	994.00
BOTTOM OF STONE ELEVATION	993.25

CULTEC STORMWATER MANAGEMENT SYSTEM SUMMARY

TOTAL STORAGE REQUIRED (CF)	13,397
TOTAL STORAGE PROVIDED (CF)	13,596
% STONE POROSITY	40
SYSTEM AREA (SF)	3766.22
DEPTH OF EMBEDMENT STONE (IN)	12
DEPTH OF BEDDING STONE (IN)	9
STONE PERIMETER (IN)	12
SPACING BETWEEN CHAMBER ROWS (IN)	9

CULTEC RECHARGER® 902HD LEGEND
- CULTEC RECHARGER 902HD CHAMBER
- CULTEC RECHARGER 902HD END CAP
- CULTEC HVLV FC-48 FEED CONNECTORS
- CULTEC SEPARATOR ROW
- CULTEC NO. 4800 WOVEN GEOTEXTILE
- STONE BORDER



1 SYSTEM LAYOUT DETAIL NTS

NOTE: ALL EXTERNAL SYSTEM STRUCTURES, INLET/OUTLET PIPES AND PROPOSED ELEVATIONS MUST BE DESIGNED AND APPROVED BY THE ENGINEER OF RECORD. ALL PROPOSED SYSTEM ELEVATIONS PROVIDED MUST BE VERIFIED BY THE ENGINEER OF RECORD ENGINEER AND THE ENGINEER OF RECORD MUST ENSURE CHAMBER BURIAL REQUIREMENTS ARE MET

MATERIALS LIST SUPPLIED BY CULTEC		
CULTEC RECHARGER 902HD CHAMBER	129	PIECES
CULTEC RECHARGER 902HD END CAP	12	PIECES
CULTEC HVLV FC-48 FEED CONNECTORS	2	PIECES
CULTEC NO. 410 NON-WOVEN GEOTEXTILE	1550	SQ. YARDS
CULTEC NO. 4800 WOVEN GEOTEXTILE	288	LINEAL FEET
CULTEC INSPECTION PORT KIT	2	PIECES
MATERIALS LIST NOT SUPPLIED BY CULTEC		
1-2 INCH WASHED, CRUSHED STONE	498	CUBIC YARDS
8 OZ. NON-WOVEN GEOTEXTILE	N/A	SQ. YARDS
30 MIL. PVC THERMOPLASTIC LINER	N/A	SQ. YARDS

PROPOSED SYSTEM ALTERATION TABLE	
1	PROPOSED SEPARATOR ROW ACCESS PIPE
2	PROPOSED SEPARATOR ROW HIGH-FLOW BYPASS TEE FITTING
3	PROPOSED OUTLET PIPE
4	PROPOSED PIPE CONNECTION. MAXIMUM PIPE CONNECTION TO SIDE OF CHAMBER = 10" HDPE OR 12" PVC
5	PROPOSED SEPARATOR ROW ACCESS MANHOLE

CULTEC STORMWATER CHAMBER	
PROJECT NO: 23-0960.01	DATE: 07/25/2023
DESIGNED BY: JIG	CHECKED BY: AES
SCALE: N.T.S.	SHEET NO: 2 OF 5

HARDIN VALLEY FSU STORE #05422
2187 GREENLAND WAY
KNOXVILLE, TN
SYSTEM LAYOUT SHEET

CULTEC Recharger 902HD Stormwater System Calculations

Consulting Engineer:	Project Information:
Carter Engineering	Hardin Valley FSU - CFA Knoxville, TN

Calculations Performed By:	Date:	Project Number:
Johnny Gonzalez Cultec, Inc. 878 Federal Rd. Brookfield, CT 06804 PH: 203-775-4416 FX: 203-775-5887	7/25/23	23-0960.01

System Information

Irregular Bed Inputs				
No. of Rows	6		Total No. of Chambers	129
System Area (sq. ft) (from CAD)	3,766		System Perimeter (ft) (from CAD)	382

Given:

Storage required	13,397	CF		m³
No. 4800 Fabric For Internal/External Manifolds	30	feet		
Number of Inlet/Outlet Pipes (Do Not Include Separator Rows)	6			
Stone Base	9	inches	229	mm
Stone Above	12	inches	305	mm
Spacing Between Rows	9	inches	229	mm
No. of HVLV FC-48 Feed Connectors	2	units		
12"x6" CULTEC Inspection Port Kit	2	units		
Stone Porosity	40	%		
Stone Border Width	12	inches	305	mm

☐ Discount stone base from total storage provided (If Applicable)
☐ Discount stone above from total storage provided (If Applicable)

Other Parameters:

Length of Separator Row	160	feet	48.768	m
Type of Lining	None			
☐ Sand Filter Depth (If Applicable)		feet	0.000	m
☐ Sloped Sides (1:1) (If Applicable)				

Maximum Finished Grade Elevation:	1006.30
Minimum Finished Grade Elevation (Unpaved):	1000.50
Minimum Finished Grade Elevation (Base of Flexible Pavement):	1000.00
Minimum Finished Grade Elevation (Top of Rigid Pavement):	1000.00
Top of Stone Elevation:	999.00
Top of Chamber Elevation:	998.00
Bottom of Chamber Elevation:	994.00
Bottom of Stone Elevation:	993.25

Assumptions

Model Name		Chamber Height	Design Unit Height	Chamber Width	Chamber Spacing	Design Unit Width	Chamber Volume per Linear Foot	Design Unit Volume	Installed Chamber Length
		inches / mm	feet / m	inches / mm	inches / mm	feet / m	cu. ft/ft / cu. m/m	cu. ft/ft / cu. m/m	feet / m
Recharger® 902HD Chamber	English	48	5.750	78	9	7.25	17.31	27.061	3.667
	Metric	1219	1.753	1981	229	2.21	1.608	2.514	1.118
Recharger® 902HD End Cap	English	48.5	5.750	78	9	7.25	5.509	19.980	0.501
	Metric	1232	1.753	1981	229	2.21	0.512	1.856	0.153
HVLV™ FC-48 Feed Connectors	English	12	n/a	16	n/a	n/a	0.913	n/a	0.750
	Metric	305	n/a	406	n/a	n/a	0.085	n/a	0.229

Storage Provided within CULTEC Recharger 902HD Stormwater Chamber, End Caps and HVLV FC-48 Feed Connector Internal Manifold System - *not including stone*

Number of Recharger 902HD chambers by design			=	129 pcs		
129	pcs x	3.667	=	473.00 feet	144.17	m
Number of Recharger 902HD end caps			=	12 pcs		
12	pcs x	0.501	=	6.01 feet	1.83	m
Number of HVLV FC-48 Feed Connectors			=	2 pcs		
2	pcs x	0.750	=	1.50 feet	0.46	m
Total footage of Recharger 902HD chambers			=	473.00 feet	144.17	m
Total footage of Recharger 902HD end caps			=	6.01 feet		
Total footage of HVLV FC-48 Feed Connectors			=	1.50 feet	0.46	m
Storage provided within Recharger 902HD chambers			=	8187.70 CF	231.88	m³
Storage provided within Recharger 902HD end caps				33.12 CF	0.94	m³
Storage provided within HVLV FC-48 Feed Connectors			=	1.37 CF	0.04	m³
Total Storage within Recharger 902HD chambers and feed connectors			=	**8222.19 CF**	**232.85**	**m³**

Storage Provided within Entire CULTEC Stormwater System - *including stone*

Bed Depth		5.75 feet	1.75 m
Total Area		3766.22 sq. ft.	349.88 m²
Volume of Effective Excavation (not including additional cover)		21655.77 CF	613.29 m³
Perimeter of Bed		382.43 feet	116.56 m
Total Storage within chambers, end caps and feed connectors		8222.19 CF	232.85 m³
Total Stone Required		13433.57 CF	380.44 m³
		498 CY	
		697 tons	
Storage provided within stone		5373.43 CF	152.18 m³
Total Storage within CULTEC Stormwater System	=	**13596 CF**	**385 m³**

Req. storage attained.

CULTEC MATERIALS LIST

Model	Model #	Quantity	Unit of Measure	Quantity	Unit of Measure
Recharger 902HD Heavy Duty Chamber	902HD	129	pcs		
Recharger 902HD End Cap	902HD EC	12	pcs		
HVLV FC-48 Feed Connectors	FC-48	2	pcs		
CULTEC No. 410 Non-Woven Geotextile	NWG410	1550	Sq. Yards	1296	m2
CULTEC No. 4800 Woven Geotextile 7.5' x 100' (2.29 m x 30.48 m)	75WG4800	288	feet	88	m
12"x6" CULTEC Inspection Port Kit	INSP KIT 126	2	pcs		
Total Stone		498	cubic yards	380	cubic meters

SYSTEM STORAGE CALCULATION

CULTEC Recharger 902HD Stormwater Incremental Storage

Date: July 25, 2023

Project Information: Hardin Valley FSU - CFA, Knoxville, TN

Project Number: 23-0960.01

Base of Stone Elevation- 993.25

CULTEC Recharger 902HD Incremental Storage Volumes

Height of System (in)	Height of System (mm)	End Cap Volume (ft³)	End Cap Volume (m³)	Chamber Volume (ft³)	Chamber Volume (m³)	HVLV FC-48 Feed Connector Volume (ft³)	HVLV FC-48 Feed Connector Volume (m³)	Stone Volume (ft³)	Stone Volume (m³)	Cumulative Storage Volume (ft³)	Cumulative Storage Volume (m³)	Total Cumulative Storage Volume (ft³)	Total Cumulative Storage Volume (m³)	Stage/Area (ft²)	Stage/Area (m²)	Elevation (ft)	Elevation (m)	
69.00	1753	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	13595	384.97	1506.49	139.95	999.00	995.00	Top of Stone Elevation
68.00	1727	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	13469	381.41	1506.49	139.95	998.92	994.98	
67.00	1702	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	13344	377.86	1506.49	139.95	998.83	994.95	
66.00	1676	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	13218	374.30	1506.49	139.95	998.75	994.93	
65.00	1651	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	13093	370.75	1506.49	139.95	998.67	994.90	
64.00	1626	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12967	367.19	1506.49	139.95	998.58	994.88	
63.00	1600	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12842	363.64	1506.49	139.95	998.50	994.85	
62.00	1575	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12716	360.08	1506.49	139.95	998.42	994.82	
61.00	1549	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12591	356.53	1506.49	139.95	998.33	994.80	
60.00	1524	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12465	352.97	1506.49	139.95	998.25	994.77	
59.00	1499	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12340	349.42	1506.49	139.95	998.17	994.75	
58.00	1473	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	12214	345.86	1506.49	139.95	998.08	994.72	
57.00	1448	0.23	0.01	9.46	0.27	0.00	0.00	121.66	3.45	131.356	3.72	12088	342.31	1576.27	146.44	998.00	994.70	Top of Chamber Elevation
56.00	1422	0.35	0.01	23.65	0.67	0.00	0.00	115.94	3.28	139.940	3.96	11957	338.59	1679.28	156.01	997.92	994.67	
55.00	1397	0.35	0.01	33.11	0.94	0.00	0.00	112.16	3.18	145.616	4.12	11817	334.62	1747.39	162.33	997.83	994.65	
54.00	1372	0.47	0.01	56.76	1.61	0.00	0.00	102.65	2.91	159.876	4.53	11672	330.50	1918.51	178.23	997.75	994.62	
53.00	1346	0.58	0.02	75.68	2.14	0.00	0.00	95.04	2.69	171.298	4.85	11512	325.97	2055.57	190.96	997.67	994.60	
52.00	1321	0.47	0.01	94.60	2.68	0.00	0.00	87.51	2.48	182.580	5.17	11340	321.12	2190.96	203.54	997.58	994.57	
51.00	1295	0.58	0.02	104.06	2.95	0.00	0.00	83.68	2.37	188.326	5.33	11158	315.95	2259.91	209.95	997.50	994.55	
50.00	1270	0.58	0.02	113.52	3.21	0.00	0.00	79.90	2.26	194.002	5.49	10969	310.62	2328.02	216.27	997.42	994.52	
49.00	1245	0.58	0.02	127.71	3.62	0.00	0.00	74.22	2.10	202.516	5.73	10775	305.13	2430.19	225.76	997.33	994.49	
48.00	1219	0.58	0.02	127.71	3.62	0.00	0.00	74.22	2.10	202.516	5.73	10573	299.39	2430.19	225.76	997.25	994.47	
47.00	1194	0.58	0.02	137.17	3.88	0.00	0.00	70.44	1.99	208.192	5.90	10370	293.66	2498.30	232.09	997.17	994.44	
46.00	1168	0.70	0.02	141.90	4.02	0.00	0.00	68.50	1.94	211.099	5.98	10162	287.76	2533.19	235.33	997.08	994.42	
45.00	1143	0.58	0.02	146.63	4.15	0.00	0.00	66.66	1.89	213.868	6.06	9951	281.79	2566.41	238.42	997.00	994.39	
44.00	1118	0.58	0.02	156.09	4.42	0.00	0.00	62.87	1.78	219.544	6.22	9737	275.73	2634.52	244.75	996.92	994.37	
43.00	1092	0.70	0.02	160.82	4.55	0.00	0.00	60.93	1.73	222.451	6.30	9518	269.51	2669.42	247.99	996.83	994.34	
42.00	1067	0.58	0.02	165.55	4.69	0.00	0.00	59.09	1.67	225.220	6.38	9295	263.21	2702.63	251.07	996.75	994.32	
41.00	1041	0.58	0.02	165.55	4.69	0.00	0.00	59.09	1.67	225.220	6.38	9070	256.84	2702.63	251.07	996.67	994.29	
40.00	1016	0.70	0.02	170.28	4.82	0.00	0.00	57.15	1.62	228.127	6.46	8845	250.46	2737.53	254.32	996.58	994.27	
39.00	991	0.58	0.02	175.01	4.96	0.00	0.00	55.30	1.57	230.896	6.54	8617	244.00	2770.75	257.40	996.50	994.24	
38.00	965	0.81	0.02	179.74	5.09	0.00	0.00	53.32	1.51	233.873	6.62	8386	237.46	2806.48	260.72	996.42	994.22	
37.00	940	0.58	0.02	184.47	5.22	0.00	0.00	51.52	1.46	236.572	6.70	8152	230.84	2838.86	263.73	996.33	994.19	
36.00	914	0.70	0.02	184.47	5.22	0.00	0.00	51.47	1.46	236.641	6.70	7915	224.14	2839.70	263.81	996.25	994.16	
35.00	889	0.70	0.02	189.20	5.36	0.00	0.00	49.58	1.40	239.479	6.78	7679	217.44	2873.75	266.97	996.17	994.14	
34.00	864	0.58	0.02	189.20	5.36	0.00	0.00	49.63	1.41	239.410	6.78	7439	210.66	2872.91	266.89	996.08	994.11	
33.00	838	0.70	0.02	193.93	5.49	0.00	0.00	47.69	1.35	242.317	6.86	7200	203.88	2907.81	270.14	996.00	994.09	
32.00	813	0.70	0.02	193.93	5.49	0.00	0.00	47.69	1.35	242.317	6.86	6958	197.02	2907.81	270.14	995.92	994.06	
31.00	787	0.81	0.02	193.93	5.49	0.00	0.00	47.64	1.35	242.387	6.86	6715	190.15	2908.64	270.21	995.83	994.04	
30.00	762	0.70	0.02	198.66	5.63	0.00	0.00	45.80	1.30	245.155	6.94	6473	183.29	2941.86	273.30	995.75	994.01	
29.00	737	0.70	0.02	198.66	5.63	0.00	0.00	45.80	1.30	245.155	6.94	6228	176.35	2941.86	273.30	995.67	993.99	
28.00	711	0.70	0.02	198.66	5.63	0.00	0.00	45.80	1.30	245.155	6.94	5983	169.41	2941.86	273.30	995.58	993.96	
27.00	686	0.70	0.02	203.39	5.76	0.00	0.00	43.91	1.24	247.993	7.02	5737	162.46	2975.92	276.46	995.50	993.94	
26.00	660	0.70	0.02	203.39	5.76	0.00	0.00	43.91	1.24	247.993	7.02	5489	155.44	2975.92	276.46	995.42	993.91	
25.00	635	0.81	0.02	208.12	5.89	0.00	0.00	41.97	1.19	250.901	7.10	5241	148.42	3010.81	279.70	995.33	993.89	
24.00	610	0.70	0.02	208.12	5.89	0.00	0.00	42.01	1.19	250.831	7.10	4990	141.31	3009.98	279.63	995.25	993.86	
23.00	584	0.70	0.02	212.85	6.03	0.00	0.00	40.12	1.14	253.669	7.18	4740	134.21	3044.03	282.79	995.17	993.83	
22.00	559	0.70	0.02	212.85	6.03	0.00	0.00	40.12	1.14	253.669	7.18	4486	127.03	3044.03	282.79	995.08	993.81	
21.00	533	0.81	0.02	212.85	6.03	0.01	0.00	40.07	1.13	253.743	7.19	4232	119.85	3044.91	282.87	995.00	993.78	
20.00	508	0.70	0.02	212.85	6.03	0.05	0.00	40.10	1.14	253.697	7.18	3979	112.66	3044.37	282.82	994.92	993.76	
19.00	483	0.81	0.02	217.58	6.16	0.09	0.00	38.15	1.08	256.631	7.27	3725	105.48	3079.57	286.09	994.83	993.73	
18.00	457	0.81	0.02	217.58	6.16	0.11	0.00	38.14	1.08	256.643	7.27	3468	98.21	3079.71	286.11	994.75	993.71	
17.00	432	0.81	0.02	217.58	6.16	0.12	0.00	38.13	1.08	256.650	7.27	3212	90.94	3079.80	286.12	994.67	993.68	
16.00	406	0.81	0.02	217.58	6.16	0.13	0.00	38.13	1.08	256.654	7.27	2955	83.67	3079.84	286.12	994.58	993.66	
15.00	381	0.70	0.02	222.31	6.30	0.13	0.00	36.28	1.03	259.425	7.35	2698	76.41	3113.10	289.21	994.50	993.63	
14.00	356	0.81	0.02	222.31	6.30	0.14	0.00	36.24	1.03	259.499	7.35	2439	69.06	3113.99	289.29	994.42	993.61	
13.00	330	0.81	0.02	227.04	6.43	0.14	0.00	34.34	0.97	262.339	7.43	2179	61.71	3148.06	292.46	994.33	993.58	
12.00	305	0.93	0.03	227.04	6.43	0.15	0.00	34.29	0.97	262.410	7.43	1917	54.28	3148.91	292.54	994.25	993.55	
11.00	279	0.81	0.02	227.04	6.43	0.15	0.00	34.34	0.97	262.342	7.43	1655	46.85	3148.11	292.46	994.17	993.53	
10.00	254	0.93	0.03	227.04	6.43	0.16	0.00	34.29	0.97	262.418	7.43	1392	39.43	3149.02	292.54	994.08	993.50	
9.00	229	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	1130	31.99	1506.49	139.95	994.00	993.48	Bottom of Chamber Elevation
8.00	203	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	1004	28.44	1506.49	139.95	993.92	993.45	
7.00	178	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	879	24.88	1506.49	139.95	993.83	993.43	
6.00	152	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	753	21.33	1506.49	139.95	993.75	993.40	
5.00	127	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	628	17.77	1506.49	139.95	993.67	993.38	
4.00	102	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	502	14.22	1506.49	139.95	993.58	993.35	
3.00	76	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	377	10.66	1506.49	139.95	993.50	993.33	
2.00	51	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	251	7.11	1506.49	139.95	993.42	993.30	
1.00	25	0.00	0.00	0.00	0.00	0.00	0.00	125.54	3.55	125.541	3.55	126	3.55	1506.49	139.95	993.33	993.28	
0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0	0.00	0.00	0.00	993.25	993.25	Bottom of Stone Elevation

SYSTEM STAGE-STORAGE TABLE

CULTEC STORMWATER CHAMBER	
PROJECT NO: 23-0960.01	DATE: 07/25/2023
DESIGNED BY: JIG	CHECKED BY: AES
SCALE: N.T.S.	SHEET NO: 3 OF 5

HARDIN VALLEY FSU STORE #05422
2187 GREENLAND WAY
KNOXVILLE, TN
SYSTEM CALCULATION SHEET

CULTEC RECHARGER® 902HD SPECIFICATIONS

GENERAL

CULTEC RECHARGER® 902HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED IN THE U.S.A. OR CANADA BY CULTEC, INC. OF BROOKFIELD, CT (CULTEC.COM, 203-775-4416).
2. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". THE LOAD CONFIGURATION SHALL INCLUDE:
   A. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   B. MAXIMUM PERMANENT (50-YEAR) COVER LOAD
   C.1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
3. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F3430-20 "STANDARD SPECIFICATION FOR CELLULAR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   A. THE CREEP MODULUS SHALL BE 50-YEAR AS SPECIFIED IN ASTM F3430
   B. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   C. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95
5. THE CHAMBER SHALL BE STRUCTURAL FOAM INJECTION MOLDED OF BLUE VIRGIN HIGH MOLECULAR WEIGHT IMPACT-MODIFIED POLYPROPYLENE.
6. THE CHAMBER SHALL BE ARCHED IN SHAPE.
7. THE CHAMBER SHALL BE OPEN-BOTTOMED.
8. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER® 902HD SHALL BE 48 INCHES (1219 MM) TALL, 78 INCHES (1981 MM) WIDE AND 4.25 FEET (1.30 M) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 902HD SHALL BE 3.67 FEET (1.12 M).
10. MULTIPLE CHAMBERS MAY BE CONNECTED TO FORM DIFFERENT LENGTH ROWS. EACH ROW SHALL BEGIN AND END WITH A SEPARATELY FORMED CULTEC RECHARGER® 902HD END CAP. MAXIMUM INLET OPENING ON THE END CAP IS 30 INCHES (750 MM) HDPE OR 36 INCHES (900 MM) PVC.
11. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV™ FC-48 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. MAXIMUM ALLOWABLE PIPE SIZE IN THE SIDE PORTAL IS 10 INCHES (250 MM) HDPE AND 12 INCHES (300 MM) PVC.
12. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV™ FC-48 FEED CONNECTOR SHALL BE 12 INCHES (305 MM) TALL, 16 INCHES (406 MM) WIDE AND 49 INCHES (1245 MM) LONG.
13. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 902HD CHAMBER SHALL BE 17.31 FT³/ FT (1.61 M³ / M) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 902HD SHALL BE 63.47 FT³ / UNIT (1.80 M³ / UNIT) - WITHOUT STONE.
14. THE NOMINAL STORAGE VOLUME OF THE HVLV™ FC-48 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 M³ / M) - WITHOUT STONE.
15. THE RECHARGER 902HD CHAMBER SHALL HAVE 5 CORRUGATIONS.
16. THE CHAMBER SHALL BE CAPABLE OF ACCEPTING A 6 INCH (150 MM) INSPECTION PORT OPENING AT THE TOP CENTER OF EACH CHAMBER, CENTERED ON THE CORRUGATION CREST.
17. THE CHAMBER SHALL BE MANUFACTURED IN A FACILITY EMPLOYING CULTEC'S QUALITY CONTROL AND ASSURANCE PROCEDURES.
18. MAXIMUM ALLOWABLE COVER OVER THE TOP OF THE CHAMBER SHALL BE 8.3 FEET (2.53 M).

END CAP PARAMETERS

1. THE CULTEC RECHARGER® 902HD END CAP (REFERRED TO AS 'END CAP') SHALL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT (CULTEC.COM, 203-775-4416).
2. THE END CAP SHALL BE TWIN-SHEET THERMOFORMED OF VIRGIN HIGH MOLECULAR WEIGHT POLYETHYLENE.
3. THE END CAP SHALL BE JOINED AT THE BEGINNING AND END OF EACH ROW OF CHAMBERS USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
4. THE NOMINAL DIMENSIONS OF THE END CAP SHALL BE 48.5 INCHES (1231 MM) TALL, 78 INCHES (1982 MM) WIDE AND 9.7 INCHES (246 MM) LONG. WHEN JOINED WITH A RECHARGER 902HD CHAMBER, THE INSTALLED LENGTH OF THE END CAP SHALL BE 6.2 INCHES (157 MM).
5. THE NOMINAL STORAGE VOLUME OF THE END CAP SHALL BE 5.34 FT³/ FT (0.50 M³ / M) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF AN INTERLOCKED END CAP SHALL BE 2.76 FT³ / UNIT (0.08 M³ / UNIT) - WITHOUT STONE.
6. MAXIMUM INLET OPENING ON THE END CAP IS 30 INCHES (750 MM) HDPE OR 36 INCHES (900 MM) PVC.
7. THE END CAP SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12.

CULTEC HVLV FC-48 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL

CULTEC HVLV FC-48 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 902HD STORMWATER CHAMBERS.

FEED CONNECTOR PARAMETERS

1. THE FEED CONNECTOR SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE FEED CONNECTOR SHALL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE FEED CONNECTOR SHALL BE ARCHED IN SHAPE.
4. THE FEED CONNECTOR SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL DIMENSIONS OF THE CULTEC HVLV FC-48 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 49 INCHES (1245 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-48 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-48 FEED CONNECTOR SHALL HAVE 4 CORRUGATIONS.
8. THE HVLV FC-48 FEED CONNECTOR MUST BE FORMED AS A WHOLE UNIT HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE FEED CONNECTOR SHALL BE DESIGNED TO WITHSTAND AASHTO HS-25 DEFINED LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE FEED CONNECTOR SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

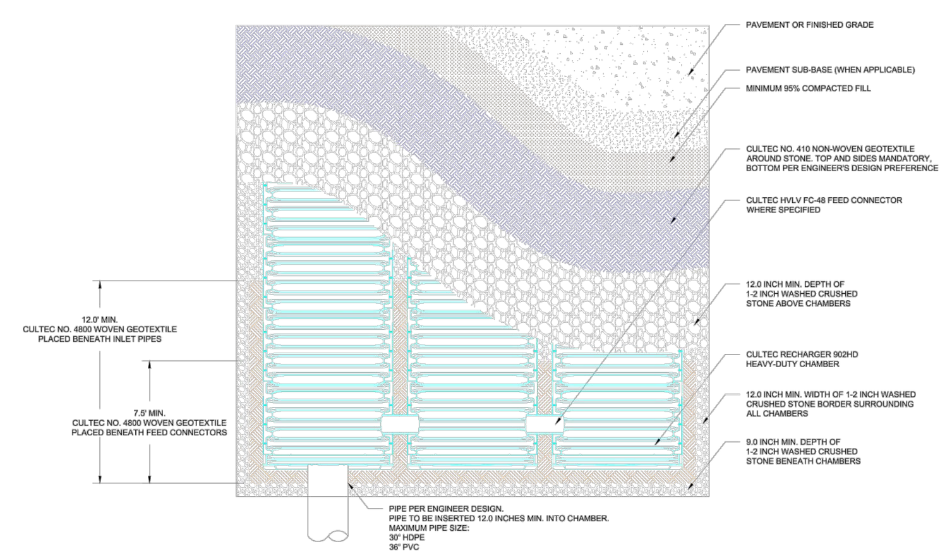
CULTEC NO. 4800™ WOVEN GEOTEXTILE

CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

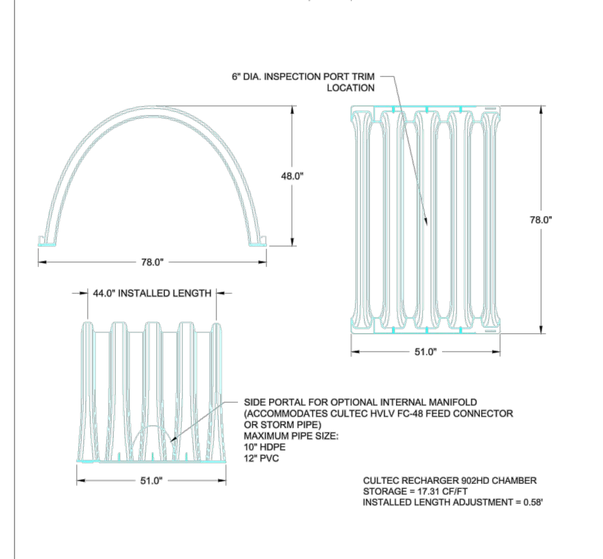
GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2, 740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

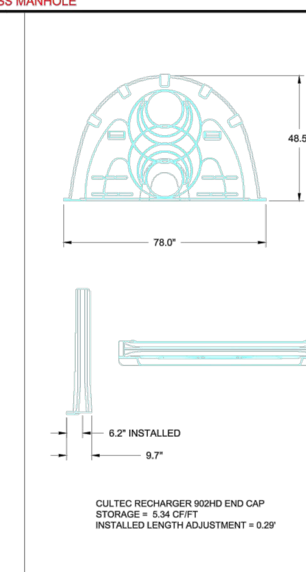
902HD 1.0 GENERAL NOTES



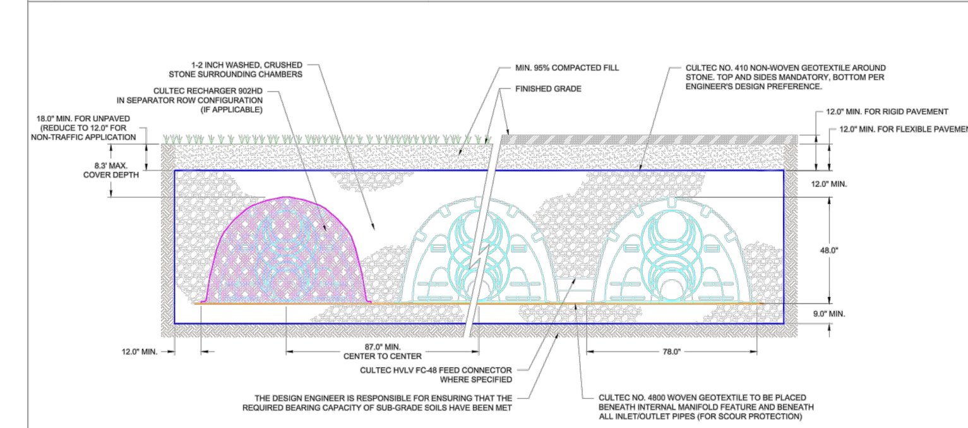
902HD 2.0 CULTEC RECHARGER 902HD HEAVY DUTY PLAN VIEW



902HD 3.0 CULTEC RECHARGER 902HD HEAVY DUTY THREE VIEW

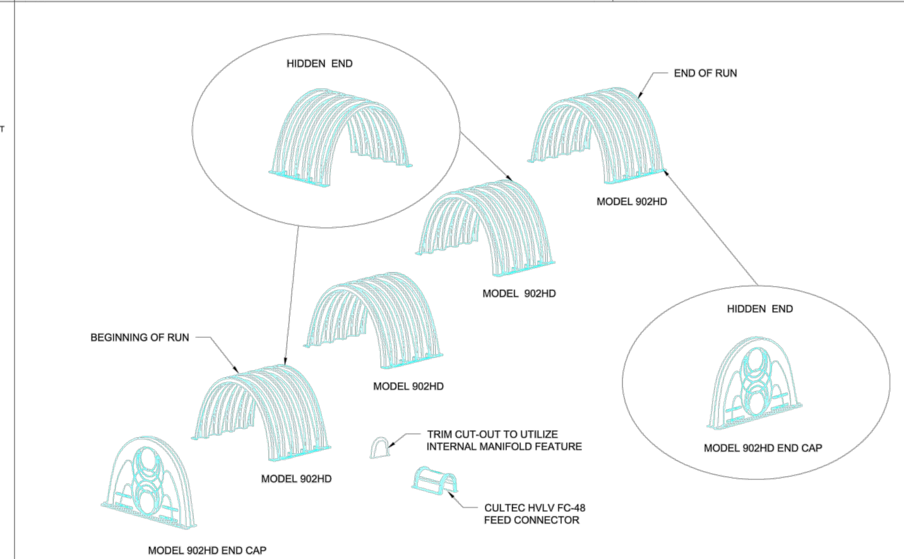


902HD 4.0 CULTEC RECHARGER 902HD HEAVY DUTY END CAP THREE VIEW



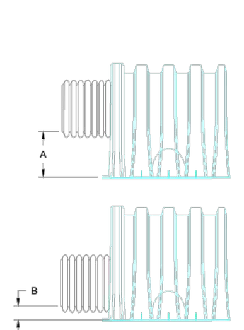
NOTES:
1. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS." THE LOAD CONFIGURATION SHALL INCLUDE:
   1.a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   1.b. MAXIMUM PERMANENT (50-YEAR) COVER LOAD
   1.c. 1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
2. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F3430-20 "STANDARD SPECIFICATION FOR CELLULAR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   3.a. THE CREEP MODULUS SHALL BE 50-YEAR AS SPECIFIED IN ASTM F3430
   3.b. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   3.c. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95

902HD 5.0 CULTEC RECHARGER 902HD HEAVY DUTY CROSS SECTION



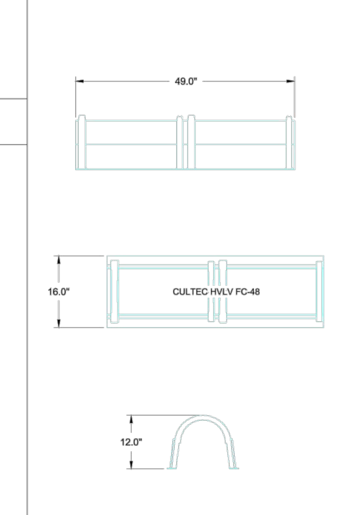
902HD 6.0 CULTEC RECHARGER 902HD HEAVY DUTY TYPICAL INTERLOCK

PIPE	A	B
6" [150 mm]	N/A	N/A
8" [200 mm]	N/A	N/A
10" [250 mm]	N/A	N/A
12" [300 mm]	29.50" [749 mm]	2.25" [57 mm]
15" [375 mm]	26.50" [673 mm]	2.25" [57 mm]
18" [450 mm]	23.50" [597 mm]	2.50" [64 mm]
24" [600 mm]	16.50" [420 mm]	3.00" [76 mm]

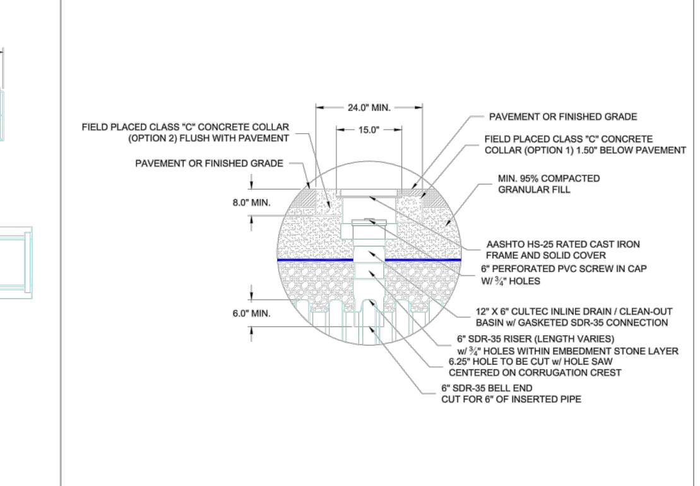


*THE TYPICAL INVERT TABLE ABOVE IS BASED ON THE INSIDE DIAMETER OF STANDARD CORRUGATED PLASTIC PIPE. THE HEAVY DUTY END CAP HAS PRE-MARKED TRIM LINES FOR PIPE DIAMETERS 12" (300mm), 15" (375mm), 18" (450mm) AND 24" (600mm). PIPES OF ANY SIZE AND MATERIAL UP TO 24" MAY BE PLACED AT CUSTOM LOCATIONS AND CUSTOM INVERTS. THE CROWN OF THE PIPE MUST REMAIN A MINIMUM OF 4" (100mm) FROM THE EDGE OF THE HEAVY DUTY END CAP.

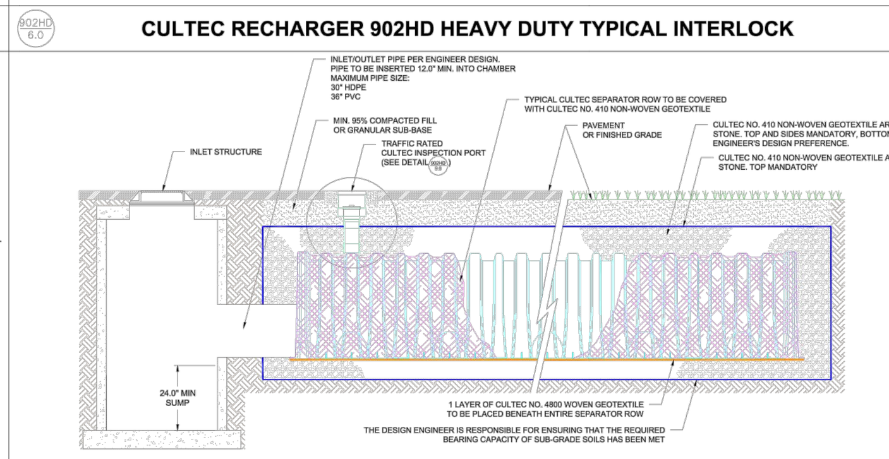
902HD 7.0 CULTEC RECHARGER 902HD TYPICAL PIPE INVERTS



902HD 8.0 CULTEC HVLV FC-48 FEED CONNECTOR THREE VIEW



902HD 9.0 CULTEC INSPECTION PORT - ZOOM DETAIL



NOTES:
1. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS." THE LOAD CONFIGURATION SHALL INCLUDE:
   1.a. INSTANTANEOUS AASHTO DESIGN TRUCK LIVE LOAD AT MINIMUM COVER
   1.b. MAXIMUM PERMANENT (50-YEAR) COVER LOAD
   1.c. 1-WEEK PARKED AASHTO DESIGN TRUCK LOAD
2. THE CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F3430-20 "STANDARD SPECIFICATION FOR CELLULAR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. THE STRUCTURAL DESIGN OF THE CHAMBERS SHALL INCLUDE THE FOLLOWING:
   3.a. THE CREEP MODULUS SHALL BE 50-YEAR AS SPECIFIED IN ASTM F3430
   3.b. THE MINIMUM SAFETY FACTOR FOR LIVE LOADS SHALL BE 1.75
   3.c. THE MINIMUM SAFETY FACTOR FOR DEAD LOADS SHALL BE 1.95

FIGURE 1 — MAX. PIPE: 10" HDPE 12" PVC — ZOOM OF SIDE PORTAL SHOWING MAX. PIPE O.D.

902HD 10.0 CULTEC SEPARATOR ROW - CULTEC INSPECTION PORT DETAIL (IF APPLICABLE)

CULTEC STORMWATER CHAMBER	
PROJECT NO: 23-0960.01	DATE: 07/25/2023
DESIGNED BY: JIG	CHECKED BY: AES
SCALE: N.T.S.	SHEET NO: 5 OF 5

HARDIN VALLEY FSU STORE #05422
2187 GREENLAND WAY
KNOXVILLE, TN
SYSTEM DETAIL SHEET

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

JAMES J. CARTER — REGISTERED ENGINEER — TENNESSEE NO. 109479

CARTER ENGINEERING

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU STORE # 05442
9-B-23-TOB / 9-C-23-DP

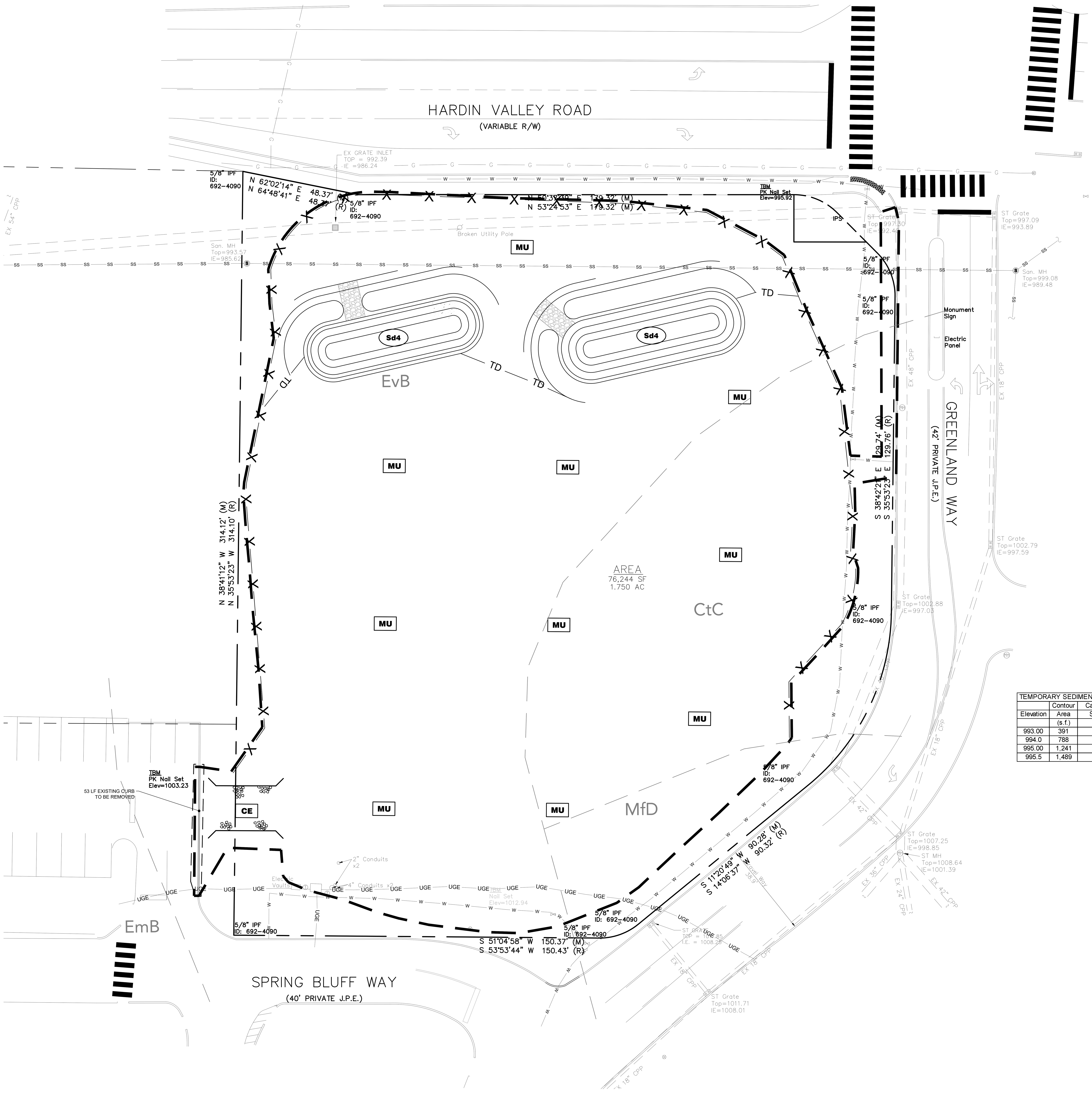
2187 GREENLAND WAY,
KNOXVILLE, TN 37932

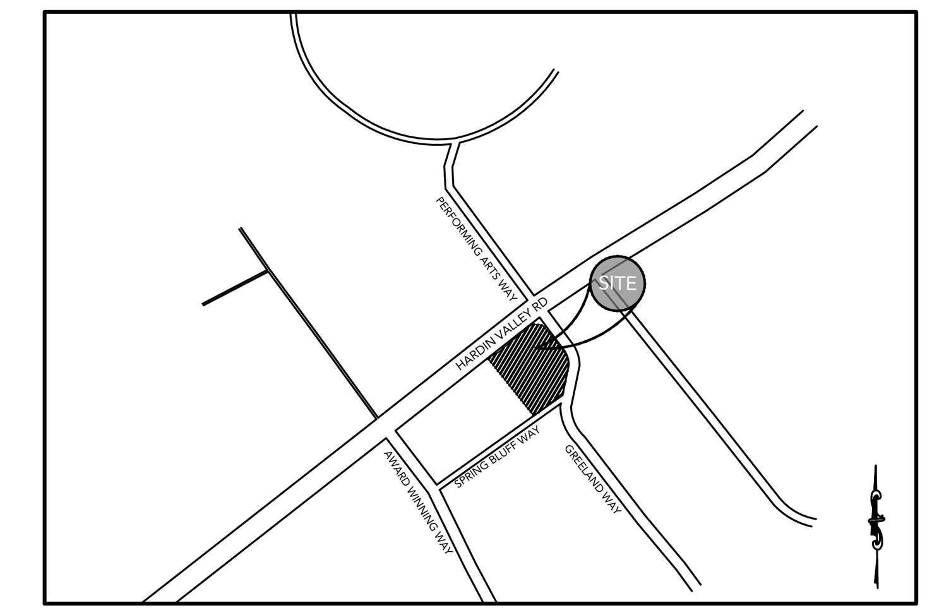
SHEET TITLE
CULTEC DETAILS
REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet
C-4.3





LOCATION MAP
SCALE: N.T.S.

EROSION CONTROL NOTES:

1. DEVELOPER/OWNER: CHICK-FIL-A, INC.,5200 BUFFINGTON RD., ATLANTA GA 30349,(678) 758-4513
2. NAME AND PHONE NUMBER OF THE 24-HOUR CONTACT PERSON FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS IS: TODD WILLIAMS (678) 758-4513
3. TOTAL PROJECT AREA = 1.75
4. TOTAL DISTURBED AREA = 1.5 AC
5. **THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.**
6. **EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.**
7. SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES, INDICATING THE ⅓ FULL VOLUME.
8. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL AT ALL TIMES BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
9. **ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.**
10. ALL FILL SLOPES SHALL HAVE SILT FENCE PLACED AT THE SLOPE'S TOE.
11. CONCENTRATED FLOW AREAS AND ALL SLOPES STEEPER THAN 2.5:1 WITH A HEIGHT OF TEN FEET OR GREATER SHALL BE STABILIZED WITH APPROPRIATE EROSION CONTROL MATTING OR BLANKET.
12. THE PROFESSIONAL WHO SEALS THIS PLAN CERTIFIES UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY THE PROFESSIONAL OR THE PROFESSIONAL'S AUTHORIZED AGENT, UNDER THE PROFESSIONAL'S DIRECT SUPERVISION.
13. UPON NOTIFICATION AND AUTHORIZATION OF THE OWNER, THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS RESPONSIBLE FOR INSPECTING THE INSTALLATION OF THE BMP'S WITHIN 7 DAYS AFTER INITIAL CONSTRUCTION ACTIVITIES BEGINS.
14. THE RECEIVING WATER(S) IS UNNAMED TRIBUTARY TO TOBY CREEK.
15. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE SIGNIFICANT EFFECT ON BMP'S WITH HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
16. **MAINTENANCE OF ALL EROSION CONTROL MEASURES, WEATHER TEMPORARY OR PERMANENT, SHALL AT ALL TIME BE THE RESPONSIBILITY OF THE OWNER.**

TEMPORARY SEDIMENT TRAP A		
	Contour	Calculated
Elevation	Area	Storage
	(s.f.)	(c.y.)
993.00	391	0.00
994.0	788	21.83
995.00	1,241	59.41
995.5	1,489	84.69

TEMPORARY SEDIMENT TRAP B		
	Contour	Calculated
Elevation	Area	Storage
	(s.f.)	(c.y.)
996.00	391	0.00
997.0	788	21.83
998.00	1,241	59.41
998.5	1,489	84.69

LEGEND

Symbol	Description
MU	TEMPORARY MULCHING
SOD	SOD - PERMANENT GROUND COVER
MB	MATTING BLANKET
IP	INLET PROTECTION
IP-B	SILT SACK
PS	PERMANENT SEEDING
CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
SD3	TEMPORARY SEDIMENT TRAP
— TD —	TEMPORARY DIVERSION
— — —	LIMITS OF DISTURBANCE

NOTE: * INLET SEDIMENT TRAP Sd2-F SHALL BE USED IN NON PAVED ARES UNTIL PAVING INS COMPLETE. WHILE Sd2-SS SHALL BE USED IN AREAS THAT IS PAVED.

811 Know what's below Call before you dig dial 811

ISSUE FOR PERMIT

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	
-	-	

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

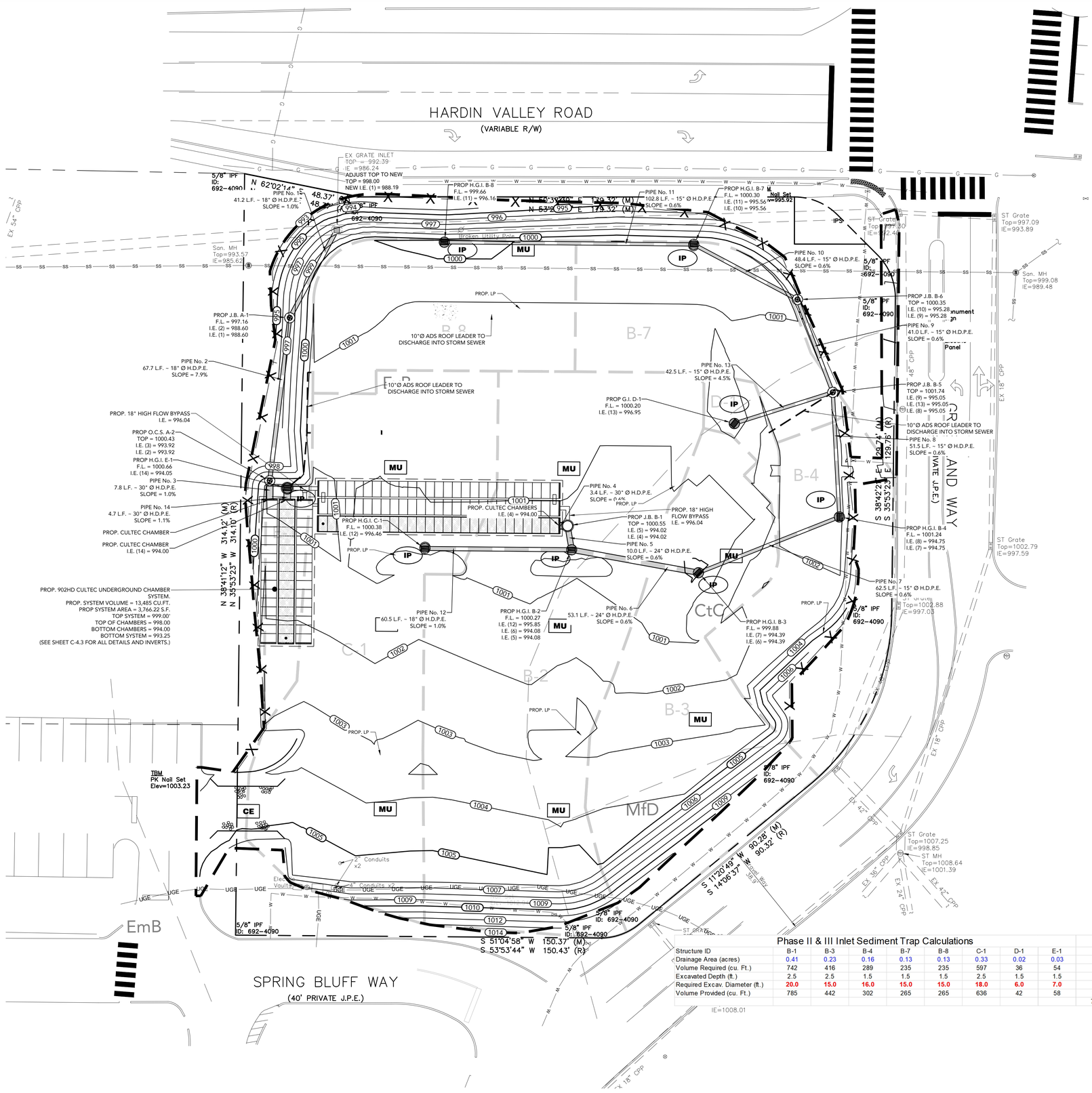
E&SC PLAN PHASE I

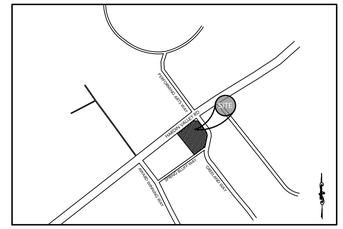
REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

Sheet

C-5.0





LOCATION MAP
SCALE: N.T.S.

EROSION CONTROL NOTES:

1. DEVELOPER/OWNER: CHICK-FIL-A, INC.,5200 BUFFINGTON RD., ATLANTA GA 30349,(678) 758-4513
2. NAME AND PHONE NUMBER OF THE 24-HOUR CONTACT PERSON FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS IS: TODD WILLIAMS (678) 758-4513
3. TOTAL PROJECT AREA = 1.75
4. TOTAL DISTURBED AREA = 1.5 AC
5. **THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.**
6. **EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.**
7. SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES, INDICATING THE ½ FULL VOLUME.
8. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL AT ALL TIMES BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
9. **ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.**
10. ALL FILL SLOPES SHALL HAVE SILT FENCE PLACED AT THE SLOPE'S TOE.
11. CONCENTRATED FLOW AREAS AND ALL SLOPES STEEPER THAN 2.5:1 WITH A HEIGHT OF TEN FEET OR GREATER SHALL BE STABILIZED WITH APPROPRIATE EROSION CONTROL MATTING OR BLANKET.
12. THE PROFESSIONAL WHO SEALS THIS PLAN CERTIFIES UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY THE PROFESSIONAL OR THE PROFESSIONAL'S AUTHORIZED AGENT, UNDER THE PROFESSIONAL'S DIRECT SUPERVISION.
13. UPON NOTIFICATION AND AUTHORIZATION OF THE OWNER, THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS RESPONSIBLE FOR INSPECTING THE INSTALLATION OF THE BMP'S WITHIN 7 DAYS AFTER INITIAL CONSTRUCTION ACTIVITIES BEGINS.
14. THE RECEIVING WATER(S) IS UNNAMED TRIBUTARY TO TOBY CREEK.
15. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE SIGNIFICANT EFFECT ON BMP'S WITH HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
16. **MAINTENANCE OF ALL EROSION CONTROL MEASURES, WEATHER TEMPORARY OR PERMANENT, SHALL AT ALL TIME BE THE RESPONSIBILITY OF THE OWNER.**

LEGEND

MU	TEMPORARY MULCHING
SOD	SOD - PERMANENT GROUND COVER
MB	MATTING BLANKET
IP	INLET PROTECTION
IP-B	SILT SACK
PS	PERMANENT SEEDING
CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
SD3	TEMPORARY SEDIMENT TRAP
	TEMPORARY DIVERSION — TD —
	LIMITS OF DISTURBANCE — — —

NOTE: * INLET SEDIMENT TRAP Sd2-F SHALL BE USED IN NON PAVED ARES UNTIL PAVING INS COMPLETE. WHILE Sd2-SS SHALL BE USED IN AREAS THAT IS PAVED.

Phase II & III Inlet Sediment Trap Calculations

Structure ID	B-1	B-3	B-4	B-7	B-8	C-1	D-1	E-1		
Drainage Area (acres)	0.41	0.23	0.16	0.13	0.13	0.33	0.02	0.03		
Volume Required (cu. Ft.)	742	416	289	235	235	597	36	54		
Excavated Depth (ft.)	2.5	2.5	1.5	1.5	1.5	2.5	1.5	1.5		
Required Excav. Diameter (ft.)	20.0	15.0	16.0	15.0	15.0	18.0	6.0	7.0	TOTAL	
Volume Provided (cu. Ft.)	785	442	302	265	265	636	42	58	2059 C.F	
									76.26 C.Y.D.	

811 Know what's below Call before you dig dial 811

GRID NORTH

20' 10' 0 20' 40' 60'

GRAPHIC SCALE
SCALE 1" = 20'

ISSUE FOR PERMIT

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

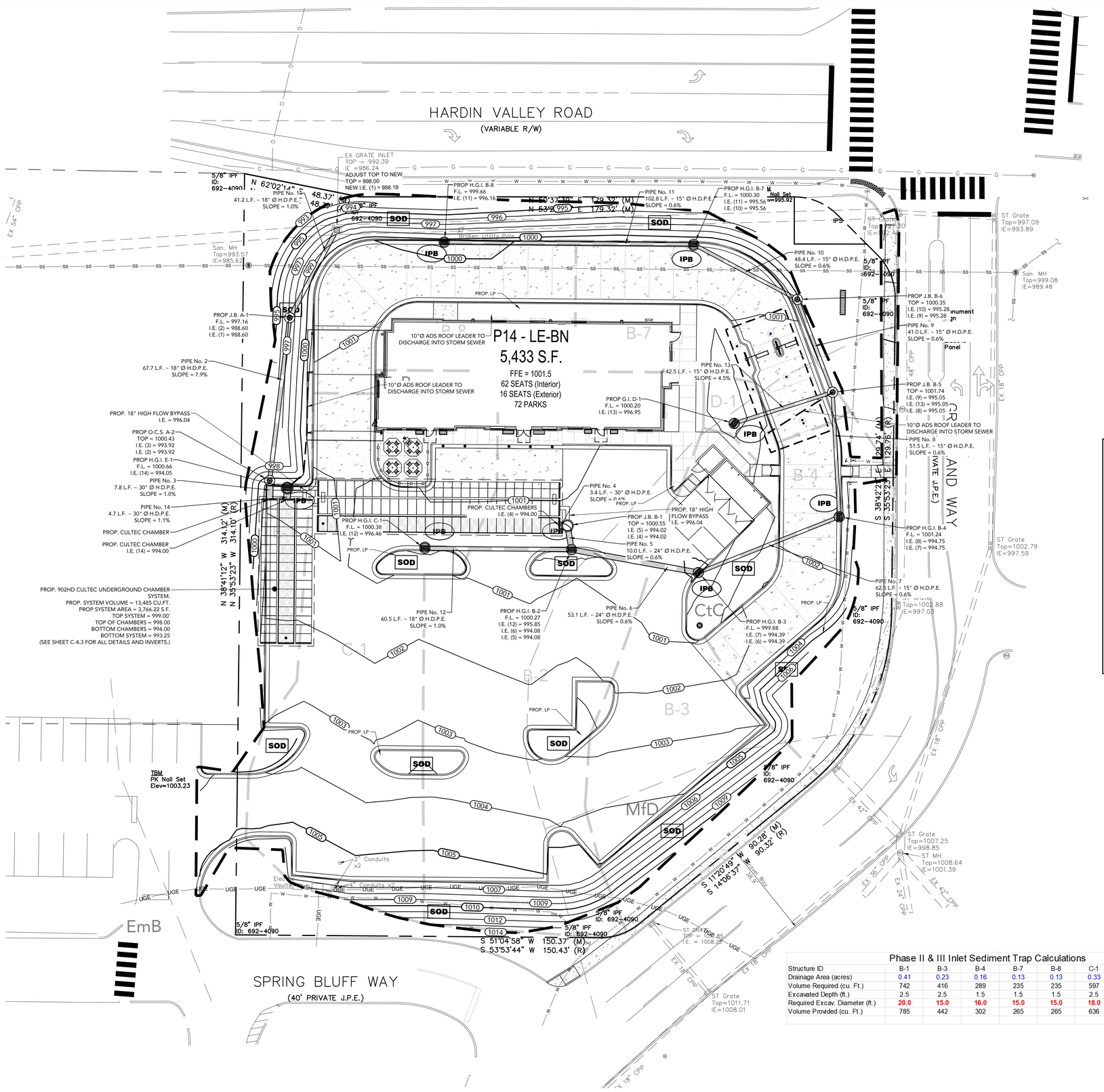
SHEET TITLE

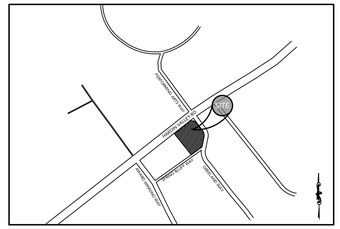
E&SC PLAN
PHASE II

REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

Sheet
C-5.1





EROSION CONTROL NOTES:

1. DEVELOPER/OWNER: CHICK-FIL-A, INC.,5200 BUFFINGTON RD., ATLANTA GA 30349,(678) 758-4513
2. NAME AND PHONE NUMBER OF THE 24-HOUR CONTACT PERSON FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS IS: TODD WILLIAMS (678) 758-4513
3. TOTAL PROJECT AREA = 1.75
4. TOTAL DISTURBED AREA = 1.5 AC
5. **THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.**
6. **EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.**
7. SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES, INDICATING THE ½ FULL VOLUME.
8. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL AT ALL TIMES BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
9. **ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.**
10. ALL FILL SLOPES SHALL HAVE SILT FENCE PLACED AT THE SLOPE'S TOE.
11. CONCENTRATED FLOW AREAS AND ALL SLOPES STEEPER THAN 2.5:1 WITH A HEIGHT OF TEN FEET OR GREATER SHALL BE STABILIZED WITH APPROPRIATE EROSION CONTROL MATTING OR BLANKET.
12. THE PROFESSIONAL WHO SEALS THIS PLAN CERTIFIES UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY THE PROFESSIONAL OR THE PROFESSIONAL'S AUTHORIZED AGENT, UNDER THE PROFESSIONAL'S DIRECT SUPERVISION.
13. UPON NOTIFICATION AND AUTHORIZATION OF THE OWNER, THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS RESPONSIBLE FOR INSPECTING THE INSTALLATION OF THE BMP'S WITHIN 7 DAYS AFTER INITIAL CONSTRUCTION ACTIVITIES BEGINS.
14. THE RECEIVING WATER(S) IS UNNAMED TRIBUTARY TO TOBY CREEK.
15. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE SIGNIFICANT EFFECT ON BMP'S WITH HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
16. **MAINTENANCE OF ALL EROSION CONTROL MEASURES, WEATHER TEMPORARY OR PERMANENT, SHALL AT ALL TIME BE THE RESPONSIBILITY OF THE OWNER.**

LEGEND

MU	TEMPORARY MULCHING
SOD	SOD - PERMANENT GROUND COVER
MB	MATTING BLANKET
IP	INLET PROTECTION
IP-B	SILT SACK
PS	PERMANENT SEEDING
CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
SD3	TEMPORARY SEDIMENT TRAP
	TEMPORARY DIVERSION — TD —
	LIMITS OF DISTURBANCE — — —

NOTE: * INLET SEDIMENT TRAP Sd2-F SHALL BE USED IN NON PAVED AREA UNTIL PAVING INS COMPLETE. WHILE Sd2-SS SHALL BE USED IN AREAS THAT IS PAVED.

Phase II & III Inlet Sediment Trap Calculations

Structure ID	B-1	B-3	B-4	B-7	B-8	C-1	D-1	E-1		
Drainage Area (acres)	0.41	0.23	0.16	0.13	0.13	0.33	0.02	0.03		
Volume Required (cu. Ft.)	742	416	289	235	235	597	36	54		
Excavated Depth (ft.)	2.5	2.5	1.5	1.5	1.5	2.5	1.5	1.5		
Required Excav. Diameter (ft.)	20.0	15.0	16.0	15.0	15.0	18.0	6.0	7.0	TOTAL	
Volume Provided (cu. Ft.)	785	442	302	265	265	636	42	58	2059 C.F	
									76.26 C.Y.	

811 Know what's below Call before you dig dial 811

GRID NORTH

20' 10' 0 20' 40' 60'

GRAPHIC SCALE
SCALE 1" = 20'

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

E&SC PLAN
PHASE III

REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet
C-5.2

PS

Permanent Cover Seeding Mixtures

Seeding Dates	Grass Seed	Percentages
February 1 to July 1	Kentucky 31 Fescue	80%
	Korean Lespedeza	15%
	English Rye	5%
June 1 to August 15	Kentucky 31 Fescue	55%
	English Rye	20%
	Korean Lespedeza	15%
	German Millet	10%
April 15 to August 15	Bermudagrass (hulled)	70%
	Annual Lespedeza	30%
August 1 to December 1	Kentucky 31 Fescue	70%
	English Rye	20%
	White Clover	10%
February 1 to December 1	Kentucky 31 Fescue	70%
	Crown Vetch	25%
	English Rye	5%

Source: TDOT Standard Specifications

Table 1

TS

Topsoil: Topsoil should be friable and loamy, free of debris, objectionable weeds and stones, and contain no toxic substances that may be harmful to plant growth. When replacing topsoil on disturbed areas, maintain needed erosion and sediment control practices such as diversions, berms, sediment basins, etc. Grades containing these structures should be maintained after the topsoil is applied.

Topsoil should be handled only when it is dry enough to work without damaging soil structure. A uniform application of 5 inches (unsettled) is recommended, but may be adjusted at the discretion of the engineer or landscape architect. See Table 2 for additional information about the volume of topsoil to achieve various depths.

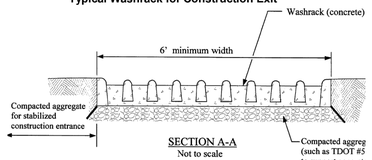
Seedbed Preparation: When conventional seeding is to be used, topsoil should be applied to any area where the disturbance results in subsoil being the final grade surface.

Broadcast plantings

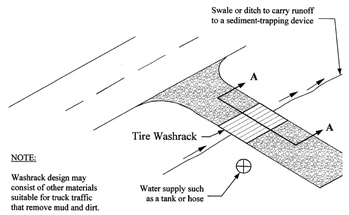
1. Seedbed preparation may not be required where hydraulic seeding equipment is to be used.
2. Tillage, at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate topsoil, lime, and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a crimper is to be used.
3. Tillage may be done with any suitable equipment.
4. Tillage should be done parallel to the contour where feasible.
5. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide consecutive beds, 6 to 8 inches apart, in which seed may

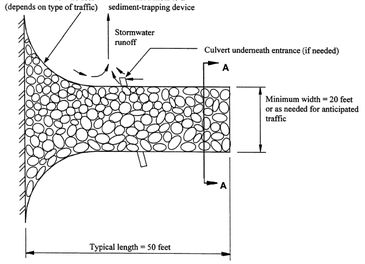
CE

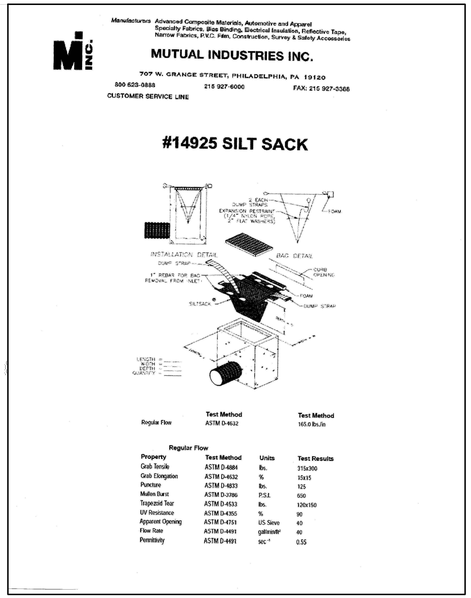
Typical Washrack for Construction Exit



Construction Exit







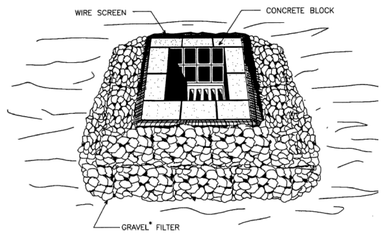
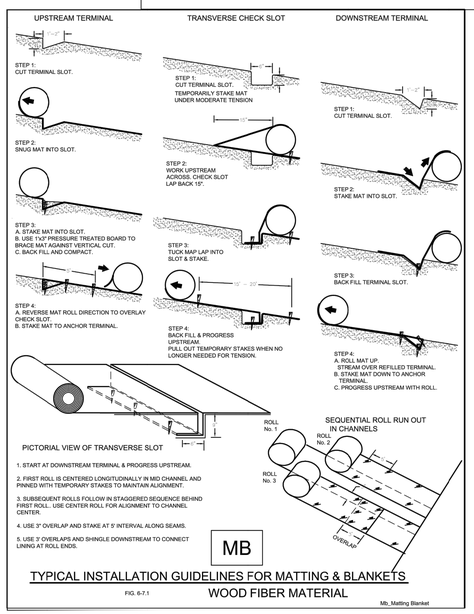
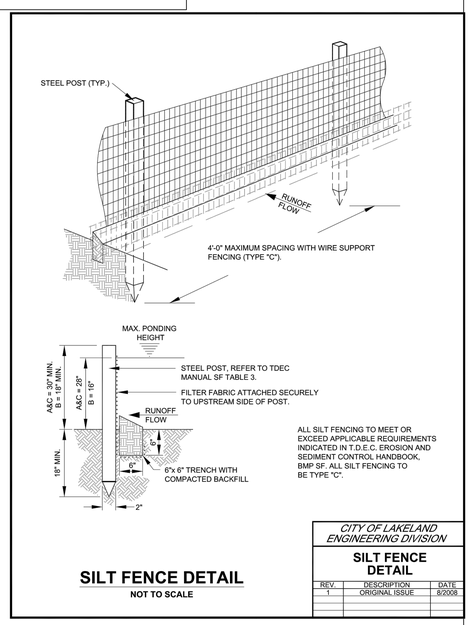


Figure 7.35-3 Block and Gravel Inlet Protection (*Source: VA DSWC*)





Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

CARTER ENGINEERING
CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622
P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

EROSION DETAILS

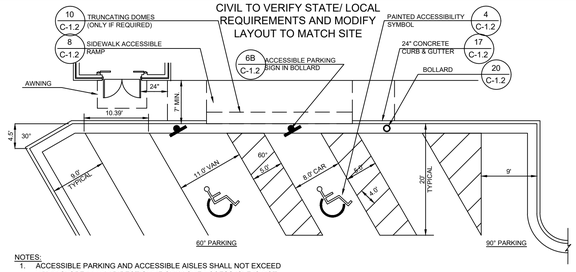
REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet
C-5.3

CIVIL TO VERIFY STATE/ LOCAL REQUIREMENTS AND MODIFY LAYOUT TO MATCH SITE



NOTES:
1. ACCESSIBLE PARKING AND ACCESSIBLE AISLES SHALL NOT EXCEED 1:50 IN SLOPE IN ANY DIRECTION. IF ONLY ONE ACCESS ISLE IS NOT INSTALLED, IT IS TO BE A VAN SIZE.
2. PARKING STALL DIMENSIONING SHALL BE IN ACCORDANCE WITH APPLICABLE GOVERNING AUTHORITY'S AND ADA STANDARDS AND IF DIFFERENT THAN THIS DETAIL SHALL BE THE DIMENSIONING SHOWN ON THE SITE LAYOUT PLAN.
3. GENERAL CONTRACTOR SHALL REFER TO CHICK-FIL-A PARKING LOT STRIPING SPECIFICATIONS.
4. CONTRACTOR SHALL USE 4" WIDE WHITE REFLECTIVE PAINT FOR STRIPING ON ASPHALT PARKING LOTS.
5. CONTRACTOR SHALL USE 4" WIDE YELLOW REFLECTIVE PAINT FOR STRIPING ON CONCRETE PARKING LOTS.
6. NO WHEEL STOPS TO BE INSTALLED WHEN PARKING IS ADJACENT TO SIDEWALK.
7. ADA SIGNS IN BOLLARDS AND BOLLARDS SHALL BE INSTALLED WHEN PARKING IS ADJACENT TO FLUSH CURB OR A RAMP.

STANDARDS:
1. ALWAYS FOLLOW ALL APPLICABLE GOVERNING AUTHORITY'S STANDARDS.
2. SURFACES SHOULD BE CLEAN, DRY, AND FREE FROM LOOSE OR PEELING PAINT. REMOVE ALL OIL, DUST, GREASE, DIRT AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. DO NOT APPLY WHEN AIR OR SURFACE TEMPERATURES ARE BELOW 40° F.
3. APPLY SHERWIN-WILLIAMS SETFAST PREMIUM ALKYD ZONE MARKING PAINT A300 WHITE OR A303 YELLOW USING EITHER AIRLESS OR CONVENTIONAL LINE STRIPING EQUIPMENT. USE THE FOLLOWING SETTING AS A GUIDE-ACTUAL SETTINGS DEPEND ON ATMOSPHERIC CONDITIONS AT THE TIME OF APPLICATION.

AIRLESS

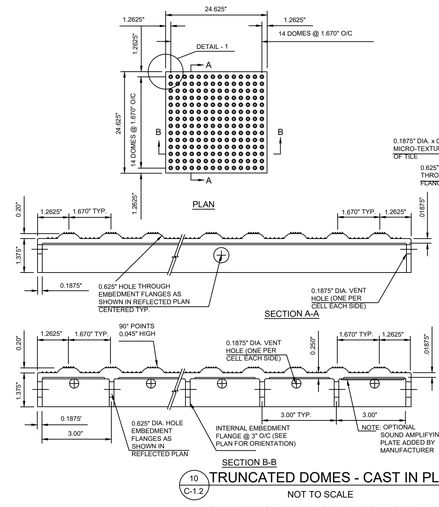
PRESSURE	1800-2700 PSI
HOSE	¼"- ⅜" ID
TIP	0.015"-0.017"
FILTER	60 MESH
REDUCTION	ONLY IF NECESSARY, UP TO1PT/GAL VM&P NAPTHA R1K3

CONVENTIONAL

GUN	BLINKS 21 (BLEEDER) OR EQUIVALENT
FLUID NOZZLE	#68
AIR NOZZLE	INTERNAL MIX, #709
ATOMIZATION PRESSURE	45-80 PSI
FLUID PRESSURE	40-70 PSI
REDUCTION	ONLY IF NECESSARY, UP TO 1 PT/GAL VM&P NAPTHA R1K3

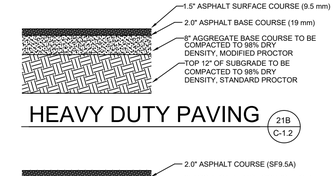
- MIX PAINT THOROUGHLY BY BOXING, STIRRING, OR POWER AGITATION BEFORE USE. APPLY 15 MILS WET TO ACHIEVE A SPEED RATE OF 400-500 LINEAL FEET OF STANDARD 4" STRIPE PER GALLON. APPLIED AT THIS RATE AT 70 DEGREES F AND 50% RELATIVE HUMIDITY, PAINT WILL DRY WITH NO TRAFFIC PICKUP AFTER 20 MINUTES.
- GENERAL CONTRACTOR TO RE-STRIPE THE LOT 45 DAYS AFTER OPENING.

5B C-1.2 STANDARD PARKING STALL
NOT TO SCALE

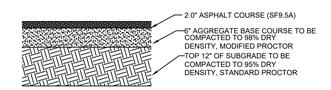


10 C-1.2 TRUNCATED DOMES - CAST IN PLACE
NOT TO SCALE
ONLY IF REQUIRED BY STATE/LOCAL ORDINANCE

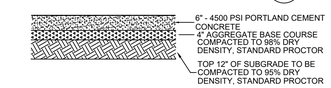
NOTES:
1. CURB RAMP RUNNING SLOPES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPES SHALL BE 2% OR FLATTER.
2. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED BY TEXTURING PRODUCTS CONFORMING TO PROWAG R304. TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS. CONTRACTORS SHALL CONFIRM LOCAL CODES ARE MET.
3. WHERE A CURB RAMP IS CONSTRUCTED WITHIN AN EXISTING CURB & GUTTER AND OR SIDEWALK, THE EXISTING CURB &GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB & GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE JOINT BEYOND THE TRANSITION SLOPE WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5'.
4. THE PLAN MUST PROVIDE FOR DETECTABLE WARNING SURFACE COLORS OR MATERIALS THAT PROVIDE THE NECESSARY CONTRAST, EITHER DARK-ON-LIGHT OR LIGHT-ON DARK. STANDARD DOME COLOR I BRICK RED.
5. TRUNCATED DOMES TO BE INSTALLED USING ARMOR TILE CAST IN PLACE DOME TACTILE TILE. PART NUMBER ADA-2424 OR OTHER EQUIVALENT APPROVED MATERIAL. PREFERRED MANUFACTURER ARMOR TILE TACTILE SYSTEMS LANCE MITCHELL (916) 622-4615 UNLESS PAVERS ARE REQUIRED, CONTRACTOR TO VERIFY THAT CURB RAMPS MEET LOCAL CODES AND ADA REQUIREMENTS.



HEAVY DUTY PAVING 21B C-1.2

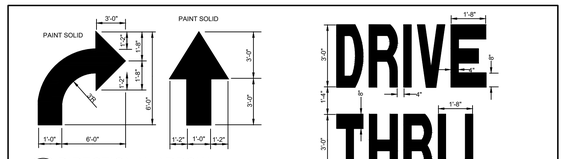


MEDIUM DUTY PAVING 21A C-1.2



CONCRETE PAVEMENT 24 C-1.2 25 C-1.2

1. REFER TO THE PAVEMENT RECOMMENDATIONS WITHIN THE GEOTECHNICAL REPORT PREPARED BY XXX DATED XXXX.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COPY OF THE GEOTECHNICAL REPORT FROM THE OWNER PRIOR TO CONSTRUCTION AND REVIEW THE RECOMMENDATIONS THOROUGHLY.
3. ALL SUBBASE, CRUSHED STONE, AND ASPHALTIC LAYERS TO BE COMPACTED PER GDOT STANDARDS.



1 C-1.2 DIRECTIONAL ARROW
NOT TO SCALE

NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO CHICK-FIL-A PARKING LOT STRIPING SPECIFICATIONS, SEE DETAIL 3 C-1.2
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT AND YELLOW REFLECTIVE PAINT ON CONCRETE.

3 C-1.2 STOP LINE GRAPHIC
NOT TO SCALE

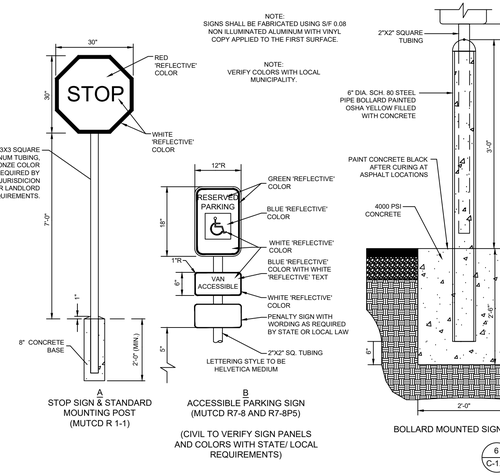
NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO CHICK-FIL-A PARKING LOT STRIPING SPECIFICATIONS, SEE DETAIL 3 C-1.2
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT AND YELLOW REFLECTIVE PAINT ON CONCRETE.
3. IF STOP SIGN IS PROPOSED, STOP LINE GRAPHIC IS NOT REQUIRED.

2 C-1.2 DRIVE THRU GRAPHICS
NOT TO SCALE

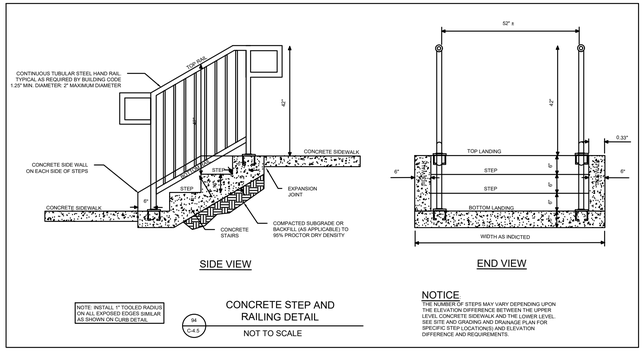
NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO CHICK-FIL-A PARKING LOT STRIPING SPECIFICATIONS, SEE DETAIL 2 C-1.2
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT AND YELLOW REFLECTIVE PAINT ON CONCRETE.

4 C-1.2 PAINTED ACCESSIBILITY SYMBOL
NOT TO SCALE

NOTES:
1. GENERAL CONTRACTOR SHALL REFER TO CHICK-FIL-A PARKING LOT STRIPING SPECIFICATIONS, SEE DETAIL 4 C-1.2
2. CONTRACTOR SHALL USE WHITE REFLECTIVE PAINT ON ASPHALT AND YELLOW REFLECTIVE PAINT ON CONCRETE, UNLESS UPON VERIFICATION BY THE GENERAL CONTRACTOR IT IS DETERMINED THAT LOCAL, STATE OR ADA CODES DIFER, IN WHICH THESE CODES SHALL GOVERN.



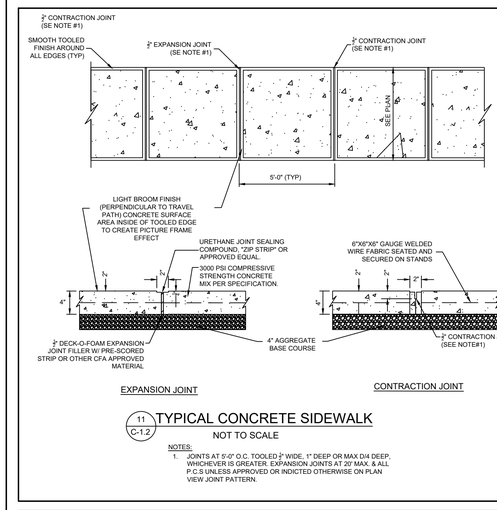
6 C-1.2 DIRECTIONAL SIGNAGE
NOT TO SCALE



NOTE: INSTALL 1" TOOLED RADIUS ON ALL EXPOSED EDGES SIMILAR AS SHOWN ON CURB DETAIL

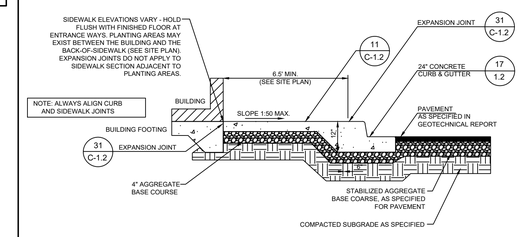
14 C-4.5 CONCRETE STEP AND RAILING DETAIL
NOT TO SCALE

NOTICE
THE NUMBER OF STEPS MAY VARY DEPENDING UPON THE ELEVATION DIFFERENCE BETWEEN THE UPPER LEVEL CONCRETE SIDEWALK AND THE LOWER LEVEL. SEE SITE AND GRADING AND DRAINAGE PLAN FOR SPECIFIC STEP LOCATION(S) AND ELEVATION DIFFERENCE AND REQUIREMENTS.



11 C-1.2 TYPICAL CONCRETE SIDEWALK
NOT TO SCALE

NOTES:
1. JOINTS AT 5'-0" O.C. TOOLED ½" WIDE, 1" DEEP OR MAX D/4 DEEP, WHICHEVER IS GREATER. EXPANSION JOINTS AT 20' MAX. & ALL P.C.S UNLESS APPROVED OR INDICTED OTHERWISE ON PLAN VIEW JOINT PATTERN.



12 C-1.2 SIDEWALK CURB AND GUTTER SECTION
NOT TO SCALE

ISSUE FOR PERMIT

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

5200 Buffington Rd.
Atlanta Georgia,
30349-2998

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

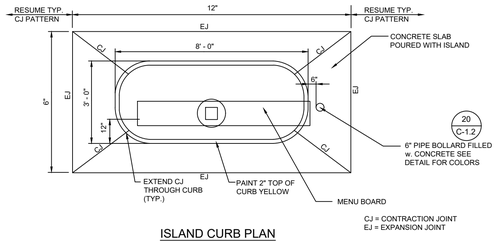
2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE
STANDARD DETAILS I

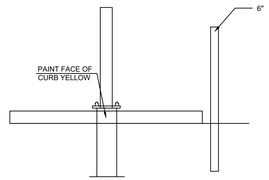
REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

Sheet
C-6.0



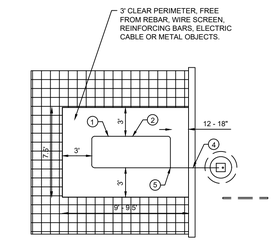
ISLAND CURB PLAN



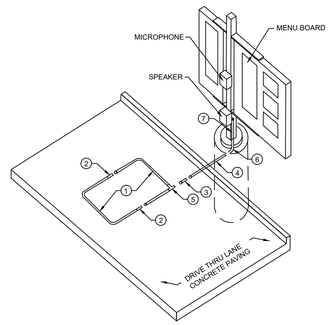
ISLAND CURB ELEVATION

34 / 1.2 DRIVE THRU ORDER POINT ISLAND CURB

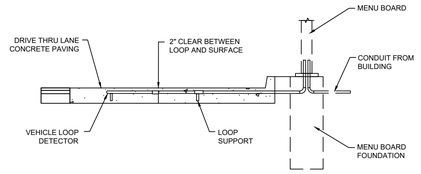
NOT TO SCALE



PLAN VIEW



ISOMETRIC VIEW



SECTION VIEW

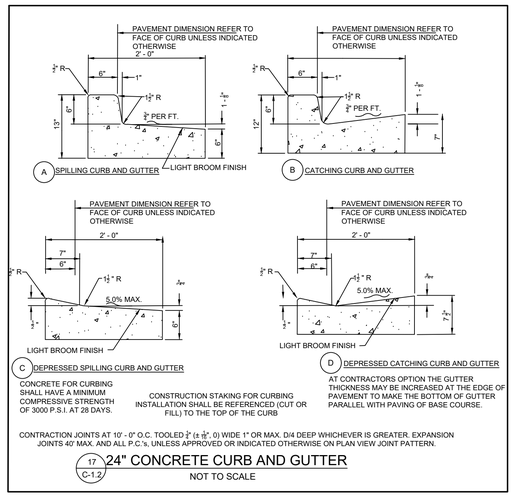
PARTS LIST

1. PREFAB (FOLDED) LOOP (1.5'X1.5')
2. ¾" PVC COUPLING
3. ¾" PVC SLEEVE COUPLING
4. ¾" PVC TUBING (3' LENGTH)
5. ¾" PVC CORNER FITTING
6. ¾" PVC 90° ELBOW
7. ¾" PVC TUBING (2' LENGTH)

35 / C-1.2 MENU BOARD LOOP DETECTION SYSTEM

NOT TO SCALE

NOTES:
1. LOOP DETECTOR MODEL NO. VDL100 VEHICLE DETECTION LOOP MANUFACTURED BY MH ELECTRONICS, INC.
2. FOLLOW MANUFACTURERS INSTRUCTION FOR INSTALLATION



CONCRETE FOR CURBING SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.

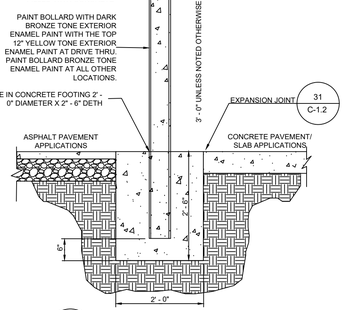
CONSTRUCTION STAKING FOR CURBING INSTALLATION SHALL BE REFERENCED (CUT OR FILL) TO THE TOP OF THE CURB

AT CONTRACTORS OPTION THE GUTTER THICKNESS MAY BE INCREASED AT THE EDGE OF PAVEMENT TO MAKE THE BOTTOM OF GUTTER PARALLEL WITH PAVING OF BASE COURSE.

CONTRACTION JOINTS AT 10' - 0" O.C. TOOLED ¾" (± ⅛", 0) WIDE 1" OR MAX. D/4 DEEP WHICHEVER IS GREATER. EXPANSION JOINTS 40' MAX. AND ALL P.C.'s, UNLESS APPROVED OR INDICATED OTHERWISE ON PLAN VIEW JOINT PATTERN.

17 / C-1.2 24" CONCRETE CURB AND GUTTER

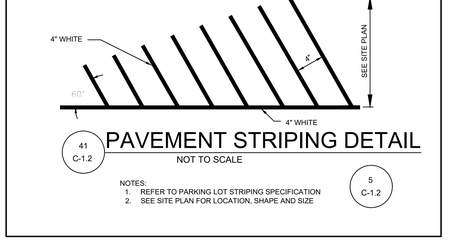
NOT TO SCALE



20 / C-1.2 CONCRETE BOLLARD

NOT TO SCALE

NOTES: BOLLARD HEIGHT SHALL BE 5' - 0" AT DRIVE THRU WINDOW AND DUMPSTER ENCLOSURE

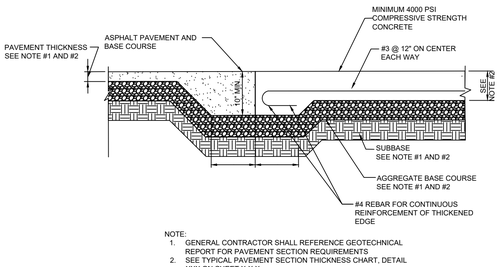


41 / C-1.2 PAVEMENT STRIPING DETAIL

NOT TO SCALE

NOTES:
1. REFER TO PARKING LOT STRIPING SPECIFICATION
2. SEE SITE PLAN FOR LOCATION, SHAPE AND SIZE

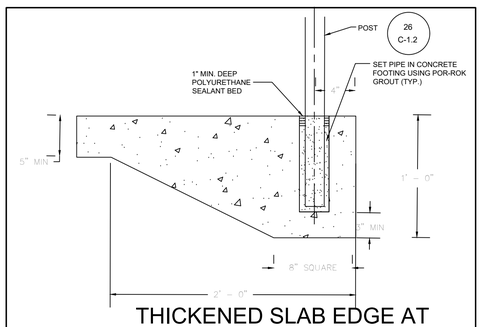
5 / C-1.2



NOTE:
1. GENERAL CONTRACTOR SHALL REFERENCE GEOTECHNICAL REPORT FOR PAVEMENT SECTION REQUIREMENTS
2. SEE TYPICAL PAVEMENT SECTION THICKNESS CHART, DETAIL XXX ON SHEET X-X.X

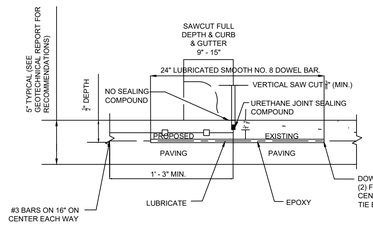
24 / C-1.2 CONCRETE APRON @ TRASH ENCLOSURE

NOT TO SCALE



42 / C-1.2 THICKENED SLAB EDGE AT RAILING CORE DRILLS

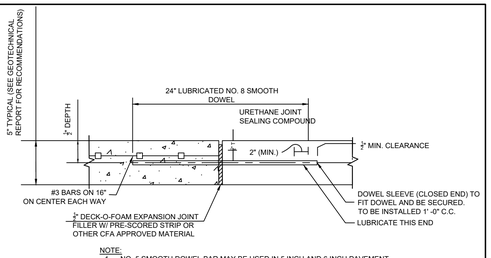
NOT TO SCALE



NOTES:
1. NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 5 INCH AND 6 INCH PAVEMENT THICKNESS.
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED AND EPOXIED INTO PAVEMENT HORIZONTALLY BY USE OF MECHANICAL EQUIPMENT.
4. PUSHING DOWEL BARS INTO WET CONCRETE IS NOT ACCEPTABLE.

30 / C-1.2 LONGITUDINAL BUTT JOINT

NOT TO SCALE



NOTE:
1. NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 5 INCH AND 6 INCH PAVEMENT THICKNESS.
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL EQUIPMENT.
4. DRILLING BY HAND IS NOT ACCEPTABLE PUSHING DOWEL BARS INTO WET CONCRETE IS NOT ACCEPTABLE.
5. JOINT SPACING TO BE 24'X24' (EVERY OTHER JOINT)

31 / #### EXPANSION JOINT

NOT TO SCALE

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

STANDARD DETAILS II

REVISION 4-2023

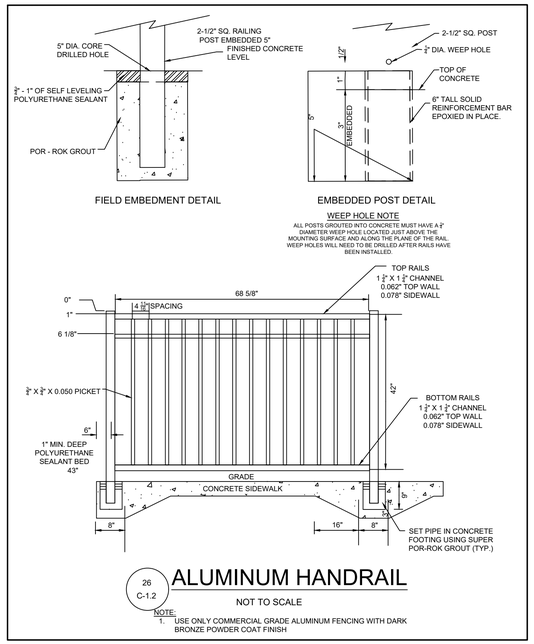
Job No. : 23043CFA
Store : 05442
Date : 08/28/23

ISSUE FOR PERMIT

Sheet

C-6.1

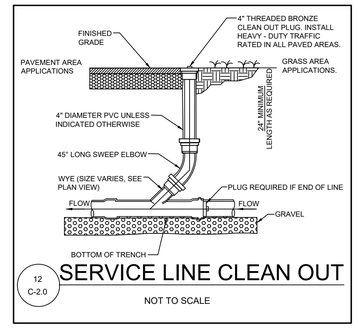
UTILITY STANDARD DETAILS



26 C-1.2 ALUMINUM HANDRAIL

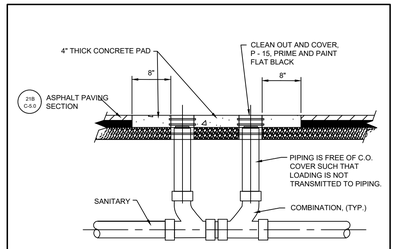
NOT TO SCALE

NOTE:
1. USE ONLY COMMERCIAL GRADE ALUMINUM FENCING WITH DARK BRONZE POWDER COAT FINISH



12 C-2.0 SERVICE LINE CLEAN OUT

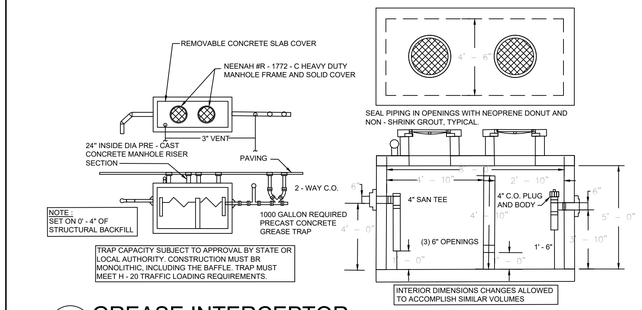
NOT TO SCALE



12A C-2.0 SAN C.O. OUTSIDE BUILDING

NOT TO SCALE

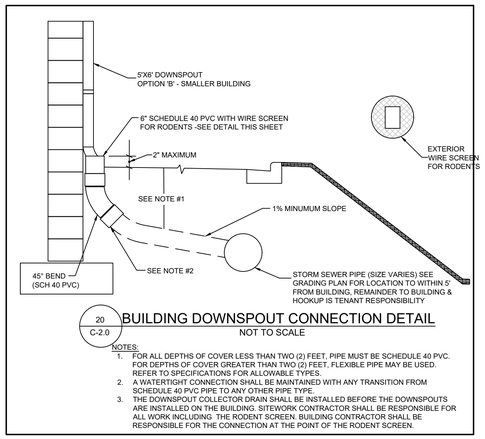
NOTE: SEE PLUMBING PLANS FOR GREASE TRAP DETAIL



13 C-2.0 GREASE INTERCEPTOR

SCALE (NONE) NOT TO SCALE

REFERENCE DRAWING: PLUMBING PLAN SHEET P1 DETAIL #2 FOR GREASE INTERCEPTOR DETAIL



20 C-2.0 BUILDING DOWNSPOUT CONNECTION DETAIL

NOT TO SCALE

NOTES:
1. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE TYPES.
2. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
3. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

Chick-fil-A
5200 Buffington Rd.
Atlanta Georgia,
30349-2998

REVISION BLOCK:

REV. #	DATE	REVISION
A	06/02/2023	INITIAL REVIEW
B	06/06/2023	PCR
C	07/25/2023	TTCDA SUBMITTAL
D	08/28/2023	REVISED PER TTCDA COMMENTS
-	-	-
-	-	-

CARTER ENGINEERING
1010 COMMERCE DRIVE,
BOGART, GA 30622

P: 770.725.1200
F: 770.725.1204
www.carterengineering.com

HARDIN VALLEY FSU
STORE # 05442
9-B-23-TOB / 9-C-23-DP

2187 GREENLAND WAY,
KNOXVILLE, TN 37932

SHEET TITLE

STANDARD DETAILS III

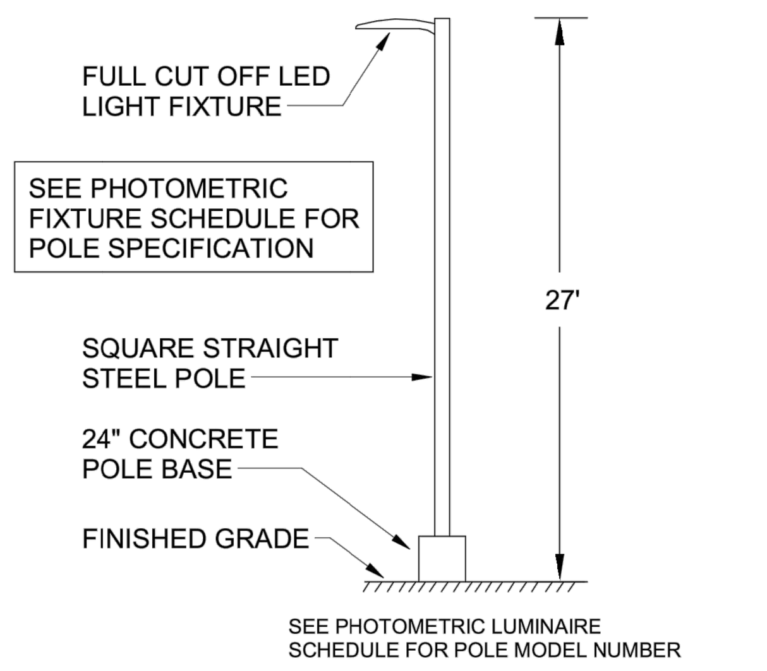
REVISION 4-2023

Job No. : 23043CFA
Store : 05442
Date : 08/28/23

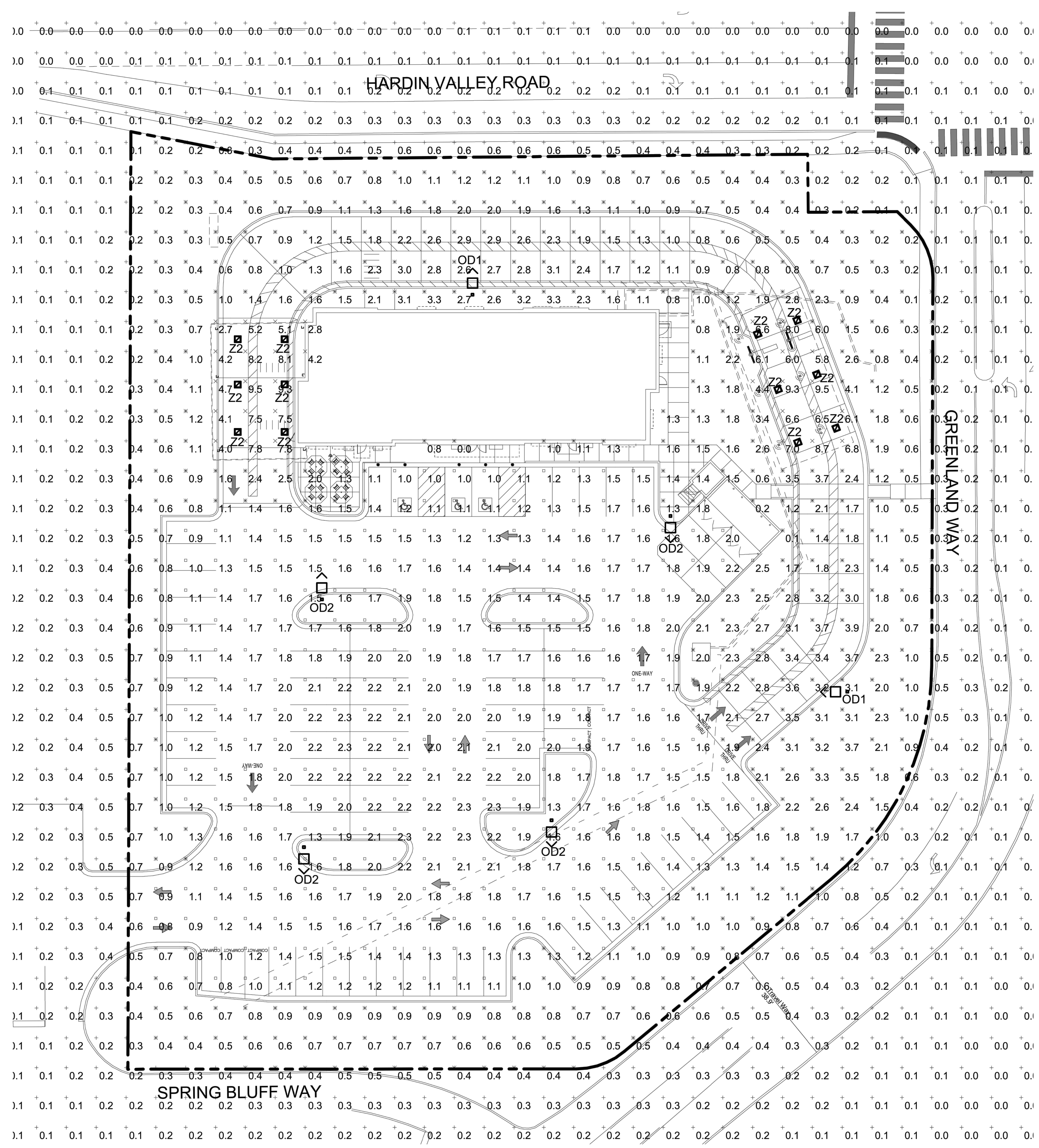
ISSUE FOR PERMIT

Sheet

C-6.2



E1 AREA LIGHTING POLE DETAIL
N.T.S.



A1 PHOTOMETRIC PLAN
1" = 20'-0"

Schedule								
Symbol	Label	Quantity	Manufacturer	Catalog Number	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
	OD1	2	EATON - LUMARK (FORMER COOPER LIGHTING)	PRV-C60-D-UNV-T3-BZ	2	10029	0.95	153
	OD2	4	EATON - LUMARK (FORMER COOPER LIGHTING)	PRV-C60-D-UNV-T5-BZ	2	10678	0.95	153
	Z2	12	LSI INDUSTRIES, INC	CRUS-SC-SLW-30	1	5584	0.4	38

OD POLES SHALL BE 25' SQUARE STRAIGHT STEEL POLES BY KW INDUSTRIES: SSP25-4.0-7-BRZ-DM10/2180-BC.
MOUNT POLES ON A 2' CONCRETE POLE BASE. POLES AND LIGHTING FIXTURES TO HAVE A DARK BRONZE FINISH.

NOTE:
THE LIGHT LOSS FACTOR FOR FIXTURE Z2 WAS ADJUSTED TO LIMIT THE FOOT CANDLE LEVELS BELOW THE CANOPIES. A DIMMER WILL BE INSTALLED AT EACH CANOPY IN ORDER TO MAINTAIN THE REQUIRED LIGHT LEVELS. REFER TO WIRING DIAGRAMS ON SHEETS E-303 AND E-304 FOR ADDITIONAL INFO ON THE DIMMER.

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone	+	0.9 fc	9.5 fc	0.0 fc	N/A	N/A
CFA Lot Summary	⋇	1.7 fc	9.5 fc	0.0 fc	N/A	N/A
Parking Lot Summary	□	1.6 fc	2.5 fc	0.8 fc	3.1:1	2.0:1
Meal Delivery Canopy	×	6.0 fc	9.5 fc	2.7 fc	3.5:1	2.2:1
Order Canopy	×	7.0 fc	9.5 fc	4.4 fc	2.2:1	1.6:1

20' 10' 0' 20' 40'

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

Kurzynske & Associates
2705 Lebanon Pike - Suite One
Nashville, Tennessee 37214
Telephone: (615) 255-5203

MARK KURZYNSKE
STATE OF TENNESSEE
08/23/23

CHICK-FIL-A
HARDIN VALLEY FSU

2187 Greenland Way
Knoxville, TN 37932

FSR#05442

BUILDING TYPE / SIZE: P14 LE
RELEASE: 23.02
PRINTED FOR
PERMIT

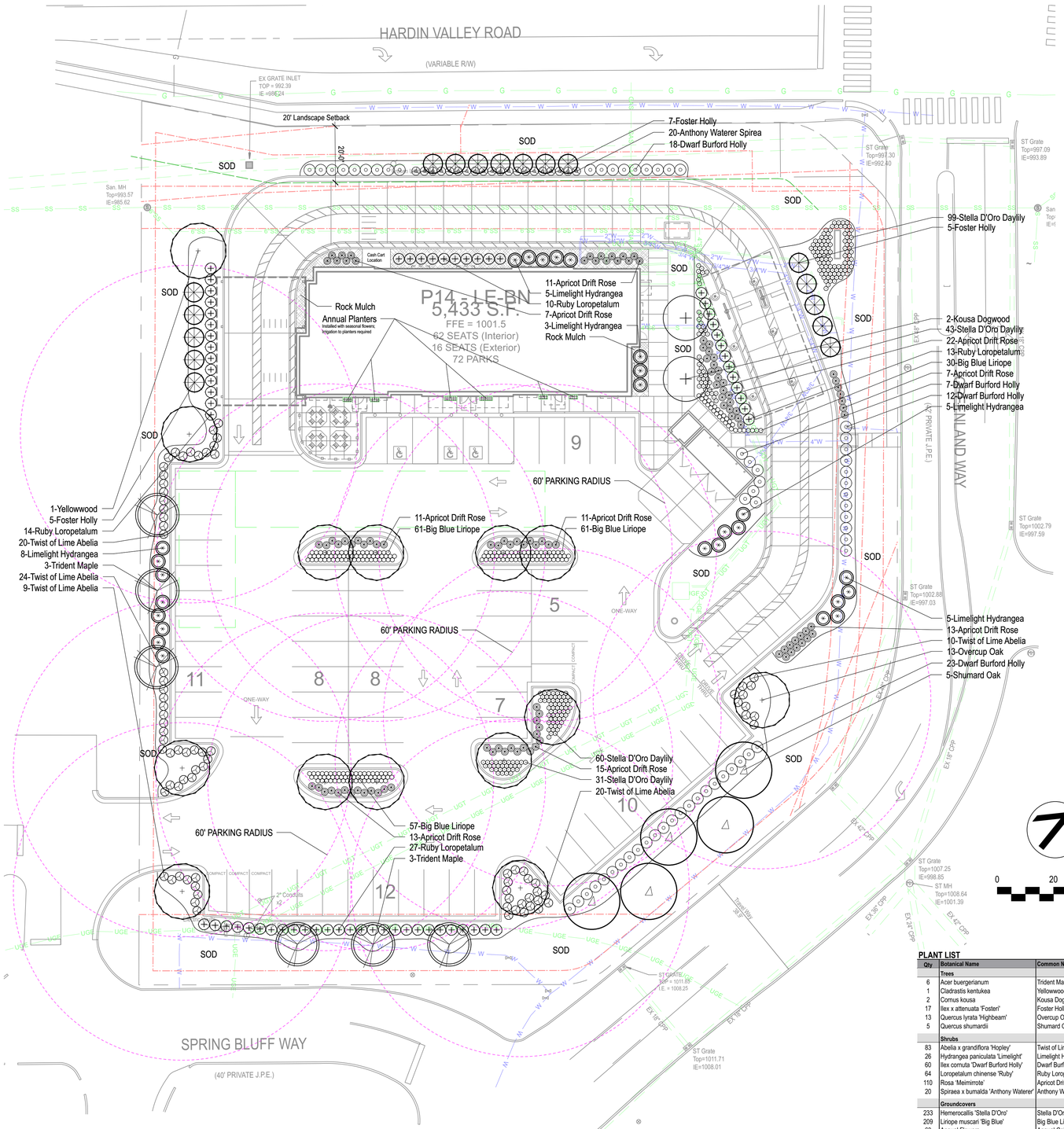
REVISION SCHEDULE

NO.	DATE	DESCRIPTION

CONSULTANT PROJECT # 23124.EH.S
DATE 08/23/2023
DRAWN BY SM

SHEET
SITE PHOTOMETRIC PLAN

SHEET NUMBER
E-102



LANDSCAPE REQUIREMENTS

A. GENERAL/DIVERSITY

REQUIRED

1. Evergreen trees min. 8' hgt.; Shade trees min. 2" cal.; Single stem ornamental min. 2.5" cal.; multistem ornamental min. 8' hgt. All shrubs min. 18" hgt.
2. Species diversity required per Table 12-1: Plant Diversity Requirements
3. Min. 25% new trees must be evergreen.
4. Provide a roughly equal combination of large, medium, and small trees (utilize Appendix B).
   Min. 10 large trees per acre of yard space. 10 x 1.75 acres = 18 large trees required
5. Min. 20' required landscape front yard for building w/ no parking in front. (Hardin Valley Rd.)
6. Max. GAC (ground area coverage) 25%. Building Footprint Area/Gross Lot Area < Less than 25% required

PROVIDED

1. We meet requirement - See Plant List table.
2. 42 Total Trees: Max. 40% 1 species - (no more than qty 17) = 17 Foster Holly provided
   5 tree species provided
   331 Total Shrubs: Max 25% 1 species - (no more than qty 83) = 83 Abelia provided
   6 shrub species provided
3. 17 evergreen trees/42 total trees = 40% provided
4. 13 Overcup Oak, 5 Shumard Oak = 18 large trees provided
5. 20' landscape setback noted on plan along Hardin Valley Rd.
6. 5,433 SF/76,244 SF = 7% provided

B. PARKING LOT PERIMETER LANDSCAPE

REQUIRED

1. Min. 3 shade and/or evergreen trees and 10 shrubs per 100 LF perimeter yard. Min. 50% shrubs must be evergreen.
   Hardin Valley Rd = No Parking frontage
   Greenland Way = 120 LF/100*3 = 4 trees required
   Greenland Way = 120 LF/100*10 = 12 shrubs required
   Spring Bluff Way = 114 LF/100*3 = 3 trees required
   Spring Bluff Way = 114 LF/100*10 = 11 shrubs required
   Perimeter A = 96 LF/100*3 = 3 trees required
   Perimeter A = 96 LF/100*10 = 10 shrubs required
2. Min. 60% of landscape area outside of shrub & tree masses must be groundcover, perennials, grass.
3. Parking areas required to be screened from public ROW by landscaped berms and/or low level shrubbery.

PROVIDED

1. Hardin Valley Rd = No Parking frontage
   Greenland Way = Shumard Oak = 5 trees
   Greenland Way = Burford Holly (evergreen) = 23 shrubs
   Spring Bluff Way = Trident Maple = 3 trees
   Spring Bluff Way = Loropetalum (evergreen) = 27 shrubs
   Perimeter A = Trident Maple = 3 trees
   Perimeter A = Abelia (evergreen) = 18 shrubs
2. We exceed the requirement. More than 60% other area is living landscape.
3. All parking areas screened with appropriate evergreen plant material.

C. INTERIOR PARKING LOT LANDSCAPE

REQUIRED

1. Min. 1 medium or large shade tree per parking island (2 shade trees for double row parking lot islands).
   Per parking rows/islands provided = 13 trees required
   Min. 1 medium or large canopy tree per 10 parking spaces provided.
   72 Parking spaces/10 = 7 trees required
2. Min. 60% of islands planted w/ shrubs, groundcover, perennials, or grass.
3. No parking space to be located >60' from the trunk of a large canopy tree.
4. In addition to required canopy trees, planting areas for ornamental trees, shrubbery and bedding plants shall be min. 5% of the surface area devoted to parking.
   26,750 SF parking lot area & 2,780 landscape interior islands = Min. 5% required

PROVIDED

1. Overcup Oaks (meeting greater of requirements) = 13 trees provided
2. We exceed the requirement. All islands planted with shrubs and/or groundcovers.
3. We meet the requirement - See 60' parking radius circles shown on plan.
4. 10% (of surface parking area) devoted to landscape planting areas. = 10% provided

D. BUILDING LANDSCAPE

REQUIRED

1. Areas around buildings equal to 50% of the area of each front and side elevation shall be planted with ornamental trees, shrubbery and bedding plants.
   Building Height: 20.5 FT
   Front: 119 LF x 20.5 FT = 2,439.5 SF
   R Side: 44 LF x 20.5 FT = 902 SF
   L Side: 45 LF x 20.5 FT = 922.5 SF
   TOTAL SF = 4,264 SF
   4,264 x 50% = 2,132 SF bldg LS required
2. Landscape required around base of the freestanding sign.

PROVIDED

1. Planting beds adjacent to/abutting building = 2,311 SF bldg LS provided
2. Landscaping provided (Daylilies and shrubs adjacent) around sign.

PLANT LIST

Qty	Botanical Name	Common Name	Scheduled Size	Remarks
	Trees			
6	Acer buergerianum	Trident Maple	2" Cal.	
1	Cladrastis kentukea	Yellowwood	2" Cal.	B & B
2	Cornus kousa	Kousa Dogwood	2" Cal.	B & B
17	Ilex x attenuata 'Fosteri'	Foster Holly	8' Hgt.	
13	Quercus lyrata 'Highbeam'	Overcup Oak	2" Cal.	
5	Quercus shumardii	Shumard Oak	2" Cal.	B & B; single straight leader
	Shrubs			
83	Abelia x grandiflora 'Hopley'	Twist of Lime Abelia	18" Hgt.	
26	Hydrangea paniculata 'Limelight'	Limelight Hydrangea	18" Hgt.	
60	Ilex cornuta 'Dwarf Burford Holly'	Dwarf Burford Holly	18" Hgt.	
64	Loropetalum chinense 'Ruby'	Ruby Loropetalum	18" Hgt.	
110	Rosa 'Meimirrote'	Apricot Drift Rose	18" Hgt.	
20	Spiraea x bumalda 'Anthony Waterer'	Anthony Waterer Spirea	18" Hgt.	
	Groundcovers			
233	Hemerocallis 'Stella D'Oro'	Stella D'Oro Daylily	1 Gal.	Plant 18" O.C.
209	Liriope muscari 'Big Blue'	Big Blue Liriope	1 Gal.	Plant 18" O.C.
63	Annual Flowers NOTE: **ANNUAL FLOWERS FOR ENTRY PLANTERS REQUIRED. **	Annual Color Planters	SF; Prep & Plant	Selections to be made by contractor and based on seasonal availability. Irrigation for planters required.
	Other			
930	Rock Mulch	Rock Mulch	SF.	See Specifications

ATLANTIC LANDSCAPE NOTES

1. Landscape Contractor to read and understand the Landscape Specifications prior to finalizing bids. The Landscape Specifications shall be adhered to throughout the construction process.
2. Contractor is responsible for locating and protecting all underground utilities prior to digging.
3. Contractor is responsible for protecting existing trees from damage during construction.
4. All tree protection devices to be installed prior to the start of land disturbance, and maintained until final landscaping.
5. All tree protection areas to be protected from sedimentation.
6. All tree protection fencing to be inspected daily, and repaired or replaced as needed.
7. No parking, storage or other construction activities are to occur within tree protection areas.
8. All planting areas shall be cleaned of construction debris (ie. concrete, rock, rubble, building materials, etc) prior to adding and spreading of the topsoil.
9. General Contractor is responsible for adding a min of 4" clean friable topsoil in all planting beds and all grassed areas. Graded areas to be held down the appropriate elevation to account for topsoil depth. See Landscape Specifications for required topsoil characteristics.
10. In all parking lot islands, the General Contractor is responsible to remove all debris, fracture/loosen subgrade to a min. 24" depth. Add topsoil to a 6"-8" berm height above island curbing; refer to landscape specifications and landscape island detail.
11. Prior to beginning work, the Landscape Contractor shall inspect the subgrade, general site conditions, verify elevations, utility locations, irrigation, approve topsoil provided by the General Contractor and observe the site conditions under which the work is to be done. Notify the General Contractor of any unsatisfactory conditions, work shall not proceed until such conditions have been corrected and are acceptable to the Landscape Contractor.
12. Any deviations from the approved set of plans are to be approved by the Landscape Architect.
13. Landscaping shall be installed in conformance with ANSI Z60.1 the "American Standard for Nursery Stock" and the accepted standards of the American Association of Nurserymen.
14. Existing grass in proposed planting areas shall be killed and removed. Hand rake to remove all rocks and debris larger than 1 inch in diameter, prior to adding topsoil and planting shrubs.
15. Soil to be tested to determine fertilizer and lime requirements prior to laying sod.
16. Annual and perennial beds: add min. 4 inch layer of organic material and till to a min. depth of 12 inches. Mulch annual and perennial beds with 2-3 inch depth of mini nuggets.
17. All shrubs beds (existing and new) to be mulched with a min. 3 inch layer of mulch (mulch type to be: double shredded hardwood mulch).
18. Planting holes to be dug a minimum of twice the width of the root ball, for both shrub and tree. Set plant material 2-3" above finish grade. Backfill planting pit with topsoil and native excavated soil.
19. Sod to be delivered fresh (Cut less than 24 hours prior to arriving on site), laid immediately, rolled, and watered thoroughly immediately after planting. Edge of sod at planting beds are to be "V" trenched; see Landscape Details.
20. Any existing grass disturbed during construction to be fully removed, regraded and replaced. All tire marks and indentions to be repaired.
21. Water thoroughly twice in first 24 hours and apply mulch immediately.
22. The Landscape Contractor shall guarantee all plants installed for one full year from date of acceptance by the owner. All plants shall be alive and at a vigorous rate of growth at the end of the guarantee period. The Landscape Contractor shall not be responsible for acts of God or vandalism. See Landscape Specifications for Warranty requirements/expectations.
23. Any plant that is determined dead, in an unhealthy, unsightly condition, lost its shape due to dead branches, or other symptoms of poor, non-vigorous growth, shall be replaced by the Landscape Contractor. See Landscape Specifications for warranty requirements/expectations.
24. Site to be 100% irrigated in all planting beds and grass area by an automatic underground Irrigation System. Irrigation as-built shall be provided to the Landscape Architect within 24 hours of irrigation install completion.
25. Stake all evergreen and deciduous trees as shown in the planting detail and as per the Landscape Specifications.
26. Remove stakes and guying from all trees after one year from planting.

811 Know what's below. Call before you dig.

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia 30349-2998

manley LAND DESIGN
Landscape Architecture
Manley Land Design, Inc.
51 Old Canton Street
Alpharetta, Georgia 30009
770.442.8171 tel

AARON D. NEIZKE
REGISTERED
LANDSCAPE ARCHITECT
TENNESSEE NO. 1031

CHICK-FIL-A
HARDIN VALLEY
2187 GREENLAND WAY
KNOXVILLE, TN 37932

FSU# 05442

REVISION SCHEDULE

NO.	DATE	BY	DESCRIPTION
1	8/25/23	DO	City Comments

MLD PROJECT #	**2023173**
PRINTED FOR	PERMIT
DATE	7/6/23
DRAWN BY	DO

SHEET

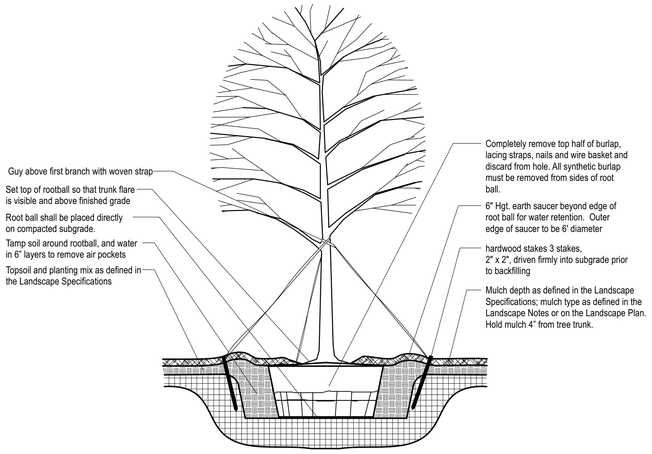
PERMIT

Landscape Plan

TTCDA & Development Plan File #s:
9-B-23-TOB / 9-C-23-DP

SHEET NUMBER

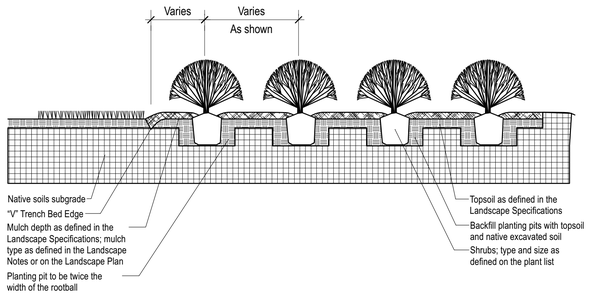
L-100



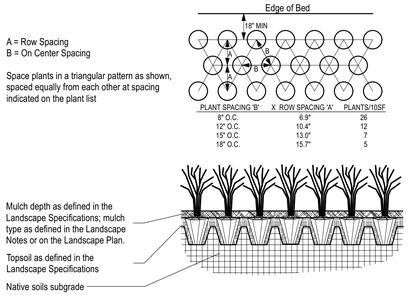
NOTE

1. Hole to be twice the width of the rootball.
2. Do not heavily prune tree at planting. Prune only crossover limbs, broken or dead branches; Do not remove the terminal buds of branches that extend to the edge of the crown.
3. Each tree must be planted such that the trunk flare is visible at the top of the rootball. Trees where the trunk flare is not visible shall be rejected. Do not cover the top of the rootball with soil. Mulch to be held back 4" away from trunk.
4. Remove Guy Wires and Staking when warranty period has expired (after one year).

1 TREE PLANTING & STAKING
SCALE: NTS



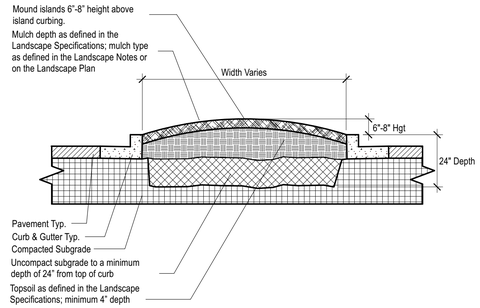
2 SHRUB BED PLANTING DETAIL
SCALE: NTS



NOTE

1. Space groundcover plants in accordance with indicated spacing listed on the plant list, or as shown on the landscape plan.
2. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants.
3. Plant to within 24" of the trunks of trees and shrubs within planting bed and to within 18" of edge of bed.

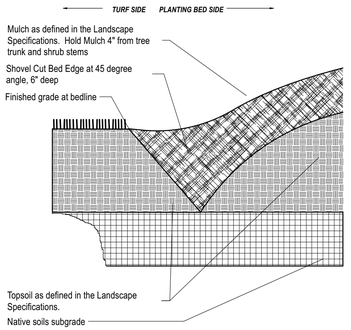
3 GROUNDCOVER PLANTING DETAIL
SCALE: NTS



NOTE

1. Clean construction debris from within landscape island areas (ie. concrete, rocks, rubble, building materials, ect), prior to installing topsoil and plant material.
2. Fracture/loosen existing subgrade to a minimum 24" depth. Remove and replace any subgrade unsuitable for planting. Once subgrade is clean of debris and loosened, add topsoil to a minimum bermed 6"-8" height above island curbing.
3. Island plant material as per the Landscape Plan.
4. Install plant material as per tree, shrub and ground cover planting details, and as defined in the Landsacpe Specifications.
5. Install mulch or sod as specified on the Landscape Plan, and as defined in the Landscape Specifications.

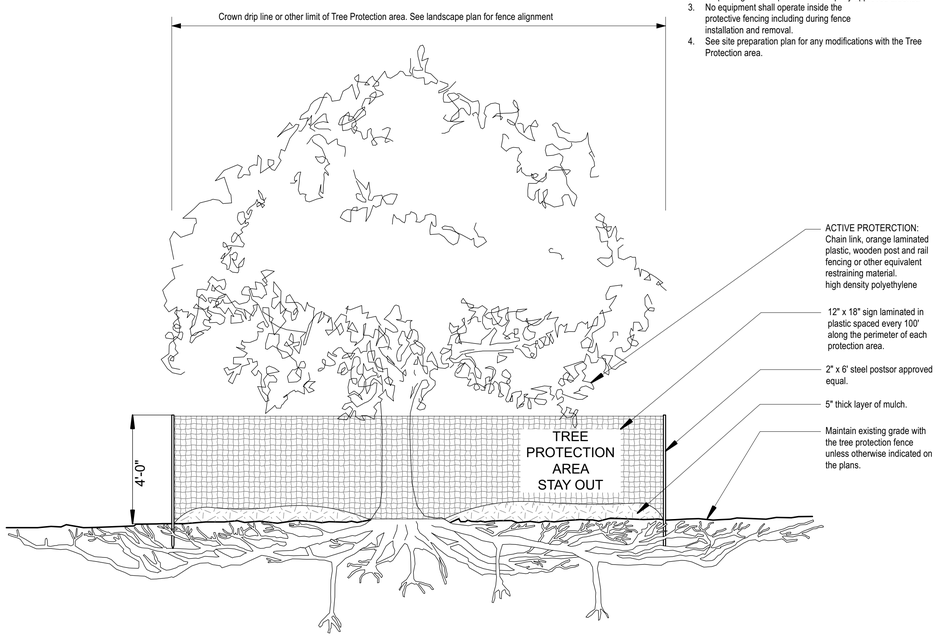
4 PARKING ISLAND DETAIL
SCALE: NTS



5 "V" TRENCH BED EDGING
SCALE: NTS

Notes:

1. See notes for additional tree protection requirements.
2. No pruning shall be performed except by approved arborist.
3. No equipment shall operate inside the protective fencing including during fence installation and removal.
4. See site preparation plan for any modifications with the Tree Protection area.



6 TREE PROTECTION FENCING DETAIL
SCALE: NTS

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia 30349-2998

manley LAND DESIGN
Landscape Architecture

Manley Land Design, Inc.
51 Old Canton Street
Alpharetta, Georgia 30009

770.442.8171 tel

AARON D. NEITZKE REGISTERED LANDSCAPE ARCHITECT TENNESSEE NO. 1017

CHICK-FIL-A
HARDIN VALLEY
2187 GREENLAND WAY
KNOXVILLE, TN 37932

FSU# 05442

REVISION SCHEDULE

NO.	DATE	BY	DESCRIPTION
1	8/25/23	DO	City Comments

MLD PROJECT #	**2023173**
PRINTED FOR	PERMIT
DATE	7/6/23
DRAWN BY	DO

SHEET

Landscape Details

TTCDA & Development Plan File #s:
9-B-23-TOB / 9-C-23-DP

PERMIT

SHEET NUMBER

L-101

LANDSCAPE SPECIFICATIONS

PART 1 - GENERAL

DESCRIPTION
Provide trees, shrubs, ground covers, sod, and annuals/perennials as shown and specified on the landscape plan. The work includes:
1. Soil preparation.
2. Trees, shrubs, ground covers, and annuals/perennials.
3. Planting mixes.
4. Top Soil, Mulch and Planting accessories.
5. Maintenance.
6. Decorative stone.

Related Work:
1. Irrigation System.

QUALITY ASSURANCE
Plant names indicated; comply with “Standardized Plant Names” as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.

Comply with sizing and grading standards of the latest edition of “American Standard for Nursery Stock”. A plant shall be dimensioned as it stands in its natural position.

All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of 2 years.

Nursery Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, and providing that the larger plants will not be cut back to size indicated. Provide plants indicated by two measurements so that only a maximum of 25% are of the minimum size indicated and 75% are of the maximum size indicated.

Before submitting a bid, the Contractor shall have investigated the sources of supply and be satisfied that they can supply the listed plants in the size, variety and quality as specified. Failure to take this precaution will not relieve the Contractor from their responsibility for furnishing and installing all plant materials in strict accordance with the Contract Documents without additional cost to the Owner. The Landscape Architect shall approve any substitutes of plant material, or changes in plant material size, prior to the Landscape Contractor submitting a bid.

DELIVER, STORAGE AND HANDLING
Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. Spray deciduous plants in foliage with an approved “Anti-Desiccant” immediately after digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order to stock. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss, or in a manner acceptable to the Landscape Architect. Water heeled-in plantings daily. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Cover plants transported on open vehicles with a protective covering to prevent wind burn.

PROJECT CONDITIONS
Protect existing utilities, paving, and other facilities from damage caused by landscape operations.

A complete list of plants, including a schedule of sizes, quantities, and other requirements are shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.

The irrigation system will be installed prior to planting. Locate, protect and maintain the irrigation system during planting operations. Repair irrigation system components damaged during planting operations; at the Contractor’s expense. Refer to the irrigation specifications, irrigation plan and irrigation details.

Do not begin landscape accessory work before completion of final grading or surfacing.

WARRANTY
Warrant plant material to remain alive, be healthy and in a vigorous condition for a period of 1 year after completion and final acceptance of entire project.

Replace, in accordance with the drawings and specifications, all plants that are dead or, are in an unhealthy, or unsightly condition, and have lost their natural shape due to dead branches, or other causes due to the Contractor’s negligence. The cost of such replacement(s) is at the Contractor’s expense. Warrant all replacement plants for 1 year after installation.

Warranty shall not include damage, loss of trees, plants, or ground covers caused by fires, floods, freezing rains, lightning storms, winds over 75 miles per hour, winter kill caused by extreme cold, severe winter conditions not typical of planting area, and/or acts of vandalism or negligence on a part of the Owner.

Remove and immediately replace all plants, found to be unsatisfactory during the initial planting installation.

Maintain and protect plant material, lawns, and irrigation until final acceptance is made.

ACCEPTANCE
Inspection of planted areas will be made by the Owner’s representative.
1. Planted areas will be accepted provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition.

Upon acceptance, the Contractor shall commence the specified plant maintenance.

CODES, PERMITS AND FEES
Obtain any necessary permits for this Section of Work and pay any fees required for permits.

The entire installation shall fully comply with all local and state laws and ordinances, and with all established codes applicable thereto; also as depicted on the landscape and irrigation construction set.

PART 2 - PRODUCTS

MATERIALS
Plants: Provide typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sun scald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces. Plants held on storage will be rejected if they show signs of growth during the storage period.
1. Balled and plants wrapped with burlap, to have firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the “American Standard for Nursery Stock”. Cracked or mushroomed balls, or signs of circling roots are not acceptable.
2. Container- grown stock: Grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.
   a. No plants shall be loose in the container.
   b. Container stock shall not be pot bound.
3. Plants planted in rows shall be matched in form.
4. Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.
   a. If the use of larger plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.
5. The height of the trees, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated in the plant list.
6. No pruning wounds shall be present with a diameter of more than 1” and such wounds must show vigorous bark on all edges.
7. Evergreen trees shall be branched to the ground or as specified in plant list.
8. Shrubs and small plants shall meet the requirements for spread and height indicated in the plant list.
   a. The measurements for height shall be taken from the ground level to the height of the top of the plant and not the longest branch.
   b. Single stemmed or thin plants will not be accepted.
   c. Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground.
   d. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other root or branch injuries.

ACCESSORIES
Topsoil: Shall be Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, roots, sticks, and other foreign materials, with acidity range of between pH 6.0 and 6.8.

Note: All planting areas shall be cleaned of construction debris (ie. Concrete, rubble, stones, building material, etc.) prior to adding and spreading of the top soil.
1. *Sod Areas:* Spread a minimum 4” layer of top soil and rake smooth.
2. *Planting bed areas:* Spread a minimum 4” layer of top soil and rake smooth.
3. *Landscape Islands/Medians:* Fracture/loosen existing subgrade to a minimum 24” depth. Remove and replace any subgrade unsuitable for planting. Once subgrade is clean of debris and loosened, add topsoil to a minimum berm 6”-8” height above island curbing.
4. *Annual/Perennial bed areas:* Add a minimum of 4” organic matter and till to a minimum 12” depth.

Mulch: Type selected dependent on region and availability; see landscape plans for type of much to be used. Hold mulch 4” from tree trunks and shrub stems.
1. Hardwood: (color) dark brown, 6 month old well rotted double shredded native hardwood bark mulch not larger than 4” in length and ½” in width, free of wood chips and sawdust. Install minimum depth of 3”.
2. Pine Straw: Pine straw to be fresh harvest, free of debris, bright in color. Bales to be wired and tightly bound. Needles to be dry. Install minimum depth of 3”.
3. River Rock: (color) light gray to buff to dark brown, washed river rock, 1” – 3” in size. Install in shrub beds to an even depth of 3”. Weed control barrier to be installed under all rock mulch areas. Use caution during installation not to damage plant material.
4. Mini Nuggets: Install to a minimum depth of 2”-3” at all locations of annual and perennial beds. Lift the stems and leaves of the annuals and carefully spread the mulch to avoid injuring the plants. Gently brush the mulch off the plants.

Guying/Staking:
1. Arbortie: Green (or white) staking and guying material to be flat, woven, polypropylene material, ¾” wide 900 lb. break strength. Arbortie shall be fastened to stakes in a manner which permits tree movement and supports the tree.
2. Remove Guying/Staking after one year from planting.

Tree Wrap: Tree wraps should be used on young, newly planted thin-barked trees (Cherry, Crabapple, Honey Locust, Linden, Maple, Mountain Ash, Plum) that are most susceptible to sun scald/Sunburn. Standard waterproofed tree wrapping paper, 2-1/2” wide, made of 2 layers of crepe Draft paper weighing not less than 30 lbs. per ream, cemented together with asphalt. Wrap the tree in the fall and leave the wrap in place throughout the winter and early spring. Tree wraps are temporary and no longer needed once trees develop corky bark.

PART 3 – EXECUTION

INSPECTION
Prior to beginning work, the Landscape Contractor shall inspect the subgrade, general site conditions, verify elevations, utility locations, irrigation, approve top soil provided by the General Contractor and observe the site conditions under which the work is to be done. Notify the General Contractor of any unsatisfactory conditions, and work shall not proceed until such conditions have been corrected and are acceptable to the Landscape Contractor.

PREPARATION
Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

Locate plants as indicated on the plans or as approved in the field after staking by the Landscape Contractor. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations until alternate plant locations have been selected and approved by the Landscape Architect; spacing of plant material shall be as shown on the landscape plan.

Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide shrub pits at least 12” greater than the diameter of the root system and 24” greater for trees. Depth of pit shall accommodate the root system. Provide undisturbed sub grade to hold root ball at nursery grade as shown on the drawings.

INSTALLATION
Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. Set plant material 2” – 3” above the finish grade. No filling will be permitted around trunks or stems. Backfill the pit with topsoil mix and excavated material. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water.

After balled and wrapped in burlap plants are set, muddle planting soil mixture around bases of balls and fill all voids.
1. Remove all burlap, ropes, and wires from the top 1/3 of the root ball

Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 24” of the trunks of trees and shrubs within planting bed and to within 18” of edge of bed.

Mulching:
1. Mulch tree and shrub planting pits and shrub beds with required mulching material (see landscape plan for mulch type); depth of mulch as noted above. **Hold mulch back 4” away from tree trunks and shrub stems.** Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

Decorative Stone: (where indicated on landscape plan)
1. Install weed control barrier over sub-grade prior to installing stone. Lap 6” on all sides.
2. Place stone without damaging weed barrier.
3. Arrange stones for best appearance and to cover all weed barrier fabric.

Wrapping, guying, staking:
1. Inspect trees for injury to trunks, evidence of insect infestation, and improper pruning before wrapping.
2. Wrapping:
   a. Wrap trunks of all young newly planted trees known to have thin bark. Wrap spirally from bottom to top with specified tree wrap and secure in place.
   b. Overlap ½ the width of the tree wrap strip and cover the trunk from the ground to the height of the second branch.
   c. Secure tree wrap in place with twine wound spirally downward in the opposite direction, tied around the tree in at least 3 places in addition to the top and bottom.
   d. Wrap the trees in the fall and leave the wrap in place throughout the winter and early spring.
   d. Tree wraps are temporary and no longer needed once the trees develop corky bark.
3. Staking/Guying:
   a. Stake/guy all trees immediately after lawn sodding operations and prior to acceptance.
   b. Stake deciduous trees 2” caliper and less. Stake evergreen trees under 7’-0” tall.
      1. Stakes are placed in line with prevailing wind direction and driven into undisturbed soil.
      2. Ties are attached to the tree, usually at the lowest branch.
   c. Guy deciduous trees over 2” caliper. Guy evergreen trees 7’-0” tall and over.
      1. Guy wires to be attached to three stakes driven into undisturbed soil, with one stake placed in the direction of the prevailing wind.
      2. Ties are attached to the tree as high as practical.
      3. The axis of the stake should be at 90 degree angle to the axis on the pull of the guy wire.
4. **Remove all guying and staking after one year from planting.**

Pruning:
1. Prune deciduous trees and evergreens only to remove broken or damaged branches.

WORKMANSHIP
During landscape/irrigation installation operations, all areas shall be kept neat and clean. Precautions shall be taken to avoid damage to existing structures. All work shall be performed in a safe manner to the operators, the occupants and any pedestrians.

Upon completion of installation operations, all excess materials, equipment, debris and waste material shall be cleaned up and removed from the site; unless provisions have been granted by the owner to use on-site trash receptacles. Sweep parking and walks clean of dirt and debris. Remove all plant tags and other debris from lawns and planting areas.

Any damage to the landscape, the structure, or the irrigation system caused by the landscape contractor shall be repaired by the landscape contractor without charge to the owner.

MAINTENANCE
Contractor shall provide maintenance until work has been accepted by the Owner's Representative.

Maintenance shall include mowing, fertilizing, mulching, pruning, cultivation, weeding, watering, and application of appropriate insecticides and fungicides necessary to maintain plants and lawns free of insects and disease.
1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.
2. repair guy wires and stakes as required. Remove all stakes and guy wires after 1 year.
3. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.
4. Water trees, plants and ground cover beds within the first 24 hours of initial planting, and not less than twice per week until final acceptance.

LANDSCAPE MAINTENANCE SPECIFICATIONS

The Contractor shall provide as a separate bid, maintenance for a period of ***1 year*** after final acceptance of the project landscaping. The Contractor must be able to provide continued maintenance if requested by the Owner or provide the name of a reputable landscape contractor who can provide maintenance.

STANDARDS
All landscape maintenance services shall be performed by trained personnel using current, acceptable horticultural practices.

All work shall be performed in a manner that maintains the original intent of the landscape design.

All chemical applications shall be performed in accordance with current county, state and federal laws, using EPA registered materials and methods of application. These applications shall be performed under the supervision of a Licensed Certified applicator.

APPROVALS
Any work performed in addition to that which is outlined in the contract shall only be done upon written approval by the Owner’s Representative (General Manager of the restaurant).

All seasonal color selections shall be approved by the General Manager prior to ordering and installation.

SOIL TESTING
The maintenance contractor shall perform soil tests as needed to identify imbalances or deficiencies causing plant material decline. The owner shall be notified of the recommendation for approval, and the necessary corrections made at an additional cost to the owner.

Acceptable Soil Test Results

	Landscape Trees and Shrubs	Turf
pH Range	5.0-7.0	6.0-7.0
Organic Matter	>1.5%	>2.5%
Magnesium (Mg)	100+lbs./acre	100+lbs./acre
Phosphorus (P2OS)	150+lbs./acre	150+lbs./acre
Potassium (K2O)	120+lbs./acre	120+lbs./acre
Soluble salts/ Conductivity	Not to exceed 900ppm/1.9 mmhos/cm in soil; not to exceed 1400 ppm/2.5 mmhos/cm in high organic mix	Not to exceed 750ppm/0.75 mmhos/cm in soil; not to exceed 2000 ppm/2.0 mmhos/cm in high organic mix

For unusual soil conditions, the following optional tests are recommended with levels not to exceed:

Boron	3 pounds per acre
Manganese	50 pounds per acre
Potassium (K2O)	450 pounds per acre
Sodium	20 pounds per acre

WORKMANSHIP
During landscape maintenance operations, all areas shall be kept neat and clean. Precautions shall be taken to avoid damage to existing structures. All work shall be performed in a safe manner to the operators, the occupants and any pedestrians.

Upon completion of maintenance operations, all debris and waste material shall be cleaned up and removed from the site, unless provisions have been granted by the owner to use on-site trash receptacles.

Any damage to the landscape, the structure, or the irrigation system caused by the maintenance contractor, shall be repaired by the maintenance contractor without charge to the owner.

TURF

GENERAL CLEAN UP
Prior to mowing, all trash, sticks, and other unwanted debris shall be removed from lawns, plant beds, and paved areas.

MOWING
Warm season grasses (i.e. Bermuda grass) shall be maintained at a height of 1” to 2” during the growing season.

Cool season grasses, including blue grass, tall fescue, perennial ryegrass, etc., shall be maintained at a height of 2” to 3” in spring and fall. From June through September, mowing height shall be maintained at no less than 3’.

The mowing operation includes trimming around all obstacles, raking excessive grass clippings and removing debris from walks, curbs, and parking areas. Caution: Weed eaters should NOT be used around trees because of potential damage to the bark.

EDGING
Edging of all sidewalks, curbs and other paved areas shall be performed once every other mowing. Debris from the edging operations shall be removed and the areas swept clean. Caution shall be used to avoid flying debris.

LIMING & FERTILIZING
A soil test shall be taken to determine whether an application of limestone in late fall is necessary. If limestone is required, the landscape contractor shall specify the rate, obtain approval from the owner and apply it at an additional cost. A unit price for liming of turf shall accompany the bid based on a rate of 50 pounds per 1000 square feet.

Fertilizer shall be applied in areas based on the existing turf species.

LAWN WEED CONTROL: HERBICIDES
Selection and proper use of herbicides shall be the landscape contractor’s responsibility. All chemical applications shall be performed under the supervision of a Licensed Certified Applicator. **Read the label prior to applying any chemical.**

INSECT & DISEASE CONTROL FOR TURF
The contractor shall be responsible for monitoring the site conditions on each visit to determine if any insect pest or disease problems exist. The contractor shall identify the insect pest or disease, as well as the host plant, and then consult the most current edition of the Cooperative Extension Service’s “Commercial Insecticide Recommendation for Turf” for control. The licensed applicator shall be familiar with the label provided for the selected product prior to application.

Inspection and treatment to control insect pests shall be included in the contract price.

TREES, SHRUBS, & GROUND COVER

PRUNING
All ornamental trees, shrubs and ground cover shall be pruned when appropriate to remove dead or damaged branches, develop the natural shapes. **Do not shear trees or shrubs**. If previous maintenance practice has been to shear and ball, then a natural shape will be restored gradually.

Pruning Guidelines:
1. Prune those that flower before the end of June immediately after flowering. Flower buds develop during the previous growing season. Fall, winter or spring pruning would reduce the spring flowering display.
2. Prune those that flower in summer or autumn in winter or spring before new growth begins, since these plants develop flowers on new growth.
3. Delay pruning plants grown for ornamental fruits, such as cotoneasters, pyracanthas and viburnums.
4. Hollies and other evergreens may be pruned during winter in order to use their branches for seasonal decoration. However, severe pruning of evergreens should be done in early spring only.
5. Broadleaf evergreen shrubs shall be hand-pruned to maintain their natural appearance after the new growth hardens off.
6. Hedges or shrubs that require shearing to maintain a formal appearance shall be pruned as required. Dead wood shall be removed from sheared plants before the first shearing of the season.
7. Conifers shall be pruned, if required, according to their genus.
   A. Yews, junipers, hemlocks, arborvitae, and false-cypress may be pruned after new growth has hardened off in late summer. If severe pruning is necessary, it must be done in early spring.
   B. Firs and spruces may be lightly pruned in late summer, fall, or winter after completing growth. Leave side buds. Never cut central leader.
   C. Pines may be lightly pruned in early June by reducing candles.
8. Groundcover shall be edged and pruned as needed to contain it within its borders.
9. Thinning: Remove branches and water sprouts by cutting them back to their point of origin on parent stems. This method results in a more open plant, without stimulating excessive growth. Thinning is used on crepe myrtle, lilacs, viburnums, smoke bush,etc.
10. Renewal pruning: Remove oldest branches of shrub at ground, leaving the younger, more vigorous branches. Also remove weak stems. On overgrown plants, this method may be best done over a three-year period. Renewal pruning may be used on abelia, forsythia, deutzia, spiraea, etc.

Plants overhanging passageways and parking areas and damaged plants shall be pruned as needed.

Shade trees that cannot be adequately pruned from the ground shall not be included in the Maintenance Contract. A certified arborist under a separate contract shall perform this type of work.

SPRING CLEANUP
Plant beds shall receive a general cleanup before fertilizing and mulching. Cleanup includes removing debris and trash from beds and cutting back herbaceous perennials left standing through winter, e.g. ornamental grasses, Sedum Autumn Joy.

FERTILIZING
For trees, the rate of fertilization depends on the tree species, tree vigor, area available for fertilization, and growth stage of the tree. Mature specimens benefit from fertilization every 3 to 4 years; younger trees shall be fertilized more often during rapid growth stages.

The current recommendation is based on the rate of 1000 square feet of area under the tree to be fertilized. For deciduous trees, 2 to 6 pounds of Nitrogen per 1000 square feet; for narrow-leaf evergreens, 1 to 4 pounds of Nitrogen per 1000 square feet; for broadleaf evergreens, 1 to 3 pounds of Nitrogen per 1000 square feet.

Shrubs and groundcover shall be top-dressed with compost 1” deep, or fertilized once in March with 10-6-4 analysis fertilizer at the rate of 3 pounds per 100 square feet of bed area. Ericaceous material shall be fertilized with an ericaceous fertilizer at the manufacturer’s recommendation rate. If plants are growing poorly, a soil sample should be taken.

MULCHING
Annually, all tree and shrub beds will be prepared and mulched, to a minimum depth of 3” with quality mulch to match existing. Bed preparation shall include removing all weeds, cleaning up said bed, edging and cultivating decayed mulch into the soil. Debris from edging is to be removed from beds where applicable. If deemed necessary, a pre-emergent herbicide may be applied to the soil to inhibit the growth of future weeds.

Organically maintained gardens shall not receive any pre-emergent herbicides. Mulch in excess of 4” will be removed from the bed areas. SPECIAL CARE shall be taken in the mulching operation not to over-mulch or cover the base of trees and shrubs. This can be detrimental to the health of the plants.

WEEDING
All beds shall be weeded on a continuous basis throughout the growing season to maintain a neat appearance at all times.

Pre-emergent (soil-applied) and post-emergent (foliar-applied) herbicides shall be used where and when applicable and in accordance with the product’s label.

INSECT & DISEASE CONTROL: TREES, SHRUBS & GROUNDCOVER

The maintenance contractor shall be responsible for monitoring the landscape site on a regular basis. The monitoring frequency shall be monthly except for growing season, which will be every other week. Trained personnel shall monitor for plant damaging insect activity, plant pathogenic diseases and potential cultural problems in the landscape. The pest or cultural problem will be identified under the supervision of the contractor.

For plant damaging insects and mites identified in the landscape, the contractor shall consult and follow the recommendations of the most current edition of the state Cooperative Service publication on insect control on landscape plant material.

Plant pathogenic disease problems identified by the contractor that can be resolved by pruning or physical removal of damaged plant parts will be performed as part of the contract. For an additional charge, plant pathogenic diseases that can be resolved through properly timed applications of fungicides shall be made when the owner authorizes it.

If the contractor notes an especially insect-or disease-prone plant species in the landscape, he/she will suggest replacement with a more pest-resistant cultivar or species that is consistent with the intent of the landscape design.

NOTE: For identification of plant-damaging insects and mites, a reference textbook that can be used is *Insects that feed on Trees and Shrubs* by Johnson and Lyon, Comstock Publishing Associates. For plan pathogenic diseases, two references are suggested: *Scouting and Controlling Woody Ornamental Diseases in Landscapes and Nurseries*, authorized by Gary Moorman, published by Penn State College of Agricultural Sciences, and *Diseases of Trees and Shrubs* by Sinclair and Lyon, published by Comstock Publishing Press.

TRASH REMOVAL
The maintenance contractor shall remove trash from all shrub and groundcover beds with each visit.

LEAF REMOVAL
All fallen leaves shall be removed from the site in November and once in December. If requested by the owner, the maintenance contractor, at an additional cost to the owner shall perform supplemental leaf removals.

WINTER CLEAN-UP
The project shall receive a general clean-up once during each of the winter months, i.e., January, February, and March.

Clean-up includes:
- Cleaning curbs and parking areas
- Removing all trash and unwanted debris
- Turning mulch where necessary
- Inspection of grounds

SEASONAL COLOR: PERENNIALS, ANNUALS, AND BULBS

The installation of perennials, annuals, and bulbs, unless specified herein, shall be reviewed with the owner, and, if accepted, installed and billed to the owner.

SEASONAL COLOR MAINTENANCE

Perennialization of Bulbs:
1. After flowering, cut off spent flower heads.
2. Allow leaves of daffodils and hyacinths to remain for six weeks after flowers have faded. Cut off at base.
3. Allow leaves of other bulbs to yellow naturally and then cut off at base.
4. Apply fertilizer after flowering in spring, possibly again in fall. Apply 10-10-10 at the rate of 2 pounds per 1000 square feet, or top-dress with compost 1” deep. Fall fertilization with a bulb fertilizer or mulching with 1” of compost is optional.

Flower Rotation:
1. Bulbs: Remove the entire plant and bulb after flowers have faded or at the direction of the owner, and install new plants if included in contract.
2. Summer Annuals or Fall Plants:
   a. Dead heading: Pinch and remove dead flowers on annuals as necessary.
   b. Fertilizing Summer Annuals: Fertilize using one or two methods: Apply a slow-release fertilizer in May following manufacturer’s recommendations. A booster such as 10-10-10 may be necessary in late summer. Or, apply liquid fertilizations of 20-20-20 water-soluble fertilizers, not to exceed 2 pounds of 20-20-20 per 100 gallons of water, monthly; or mulch with compost 1” deep.
   c. Removal: If fall plants are to be installed, summer annuals shall be left in the ground until the first killing frost and then removed, unless otherwise directed by the owner.

Perennials:
1. After initial installation, if a time-released fertilizer has been incorporated during plant installation, no more fertilizer need be applied the first growing season.
2. The following year:
   a. Fertilize perennials with a slow-release fertilizer or any 50% organic fertilizer, or mulch perennials with compost 1” deep.
   b. Cut all deciduous perennials flush to the ground by March 1, if this was not done the previous fall, to allow new growth to develop freely.
   c. Mulch the perennial bed once in early spring at 1”-2” depth. If soil is bared in late fall, re-mulch lightly after ground is frozen to protect perennials.
   d. Inspect for insect or disease problems on perennials. Monitor and control slugs on hostas and ligularias. Powdery mildew on phlox, monardas, and asters can be prevented with properly timed fungicides or use of disease-resistant varieties.
   e. Weed perennial bed as specified in “WEEDING” above.
   f. Prune branching species to increase density. Cut only the flowering stems after blooming. Do not remove the foliage.
3. The following fall cut back deteriorating plant parts unless instructed to retain for winter interest, e.g. Sedum Autumn Joy and ornamental grasses.
4. Long-term Care:
   a. Divide plants that overcrowd the space provided. Divide according to the species. Some need frequent dividing, e.g. asters and yarrow every two years; other rarely, if ever, e.g. peonies, hosta, and astilbe.
   b. For detailed information regarding the care of specific perennials, refer to *All About Perennials* by Ortho; *Perennials: How to Select, Grow and Enjoy* by Pamela Harper and Frederick McGouty, Hp Books Publisher; *Herbaceous Perennial Plants: A Treatise on their Identification, Culture and Garden Attributes* by Allan Armitage, Stipes Pub LLC.

SUMMARY OF MAINTENANCE

LAWN MAINTENANCE
1. Soil analysis performed annually to determine pH. If pH does not fall within specified range, adjust according to soil test recommendations.
2. Maintain proper fertility and pH levels of the soil to provide an environment conducive to turf vitality for cool season grasses
3. Mow warm and cool season on a regular basis and as season and weather dictates. Remove no more than the top 1/3 of leaf blade. Clippings on paved and bed areas will be removed.
4. Aerate warm season turf areas to maintain high standards of turf appearance.
5. Apply pre-emergent to turf in two applications in early February and early April to extend barrier.
6. Apply post emergent as needed to control weeds.
7. Mechanically edge curbs and walks.
8. Apply non-selective herbicide, to mulched bed areas and pavement and remove excess runners to maintain clean defined beds.

TREE, GROUNDCOVER, AND SHRUB BED MAINTENANCE
1. Prune shrubs, trees and groundcover to encourage healthy growth and create a natural appearance.
2. Mulch to be applied in February/March with a half rate in late summer to top dress.
3. Apply pre-emergent herbicides in February and April.
4. Manual weed control to maintain clean bed appearance.
5. Apply fungicides and insecticides as needed to control insects and disease.
6. Ornamental shrubs, trees and groundcovers to be fertilized three (3) times per year with a balanced material (January/February, April/May, and October/November)
7. Edge all mulched beds.
8. Remove all litter and debris.

GENERAL MAINTENANCE
1. Remove all man-made debris, blow edges.
2. Inspect grounds on a monthly basis and schedule inspection with Unit Operator.

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia 30349-2998

manley LAND DESIGN
Landscape Architecture

Manley Land Design, Inc.
51 Old Canton Street
Alpharetta, Georgia 30009

770.442.8171 tel

AARON D. NEIZKE — REGISTERED — STATE OF TENNESSEE NO. 101 — LANDSCAPE ARCHITECT

CHICK-FIL-A
HARDIN VALLEY
2187 GREENLAND WAY
KNOXVILLE, TN 37932

FSU# 05442

REVISION SCHEDULE

NO.	DATE	BY	DESCRIPTION
1	8/25/23	DO	City Comments

MLD PROJECT #	2023173
PRINTED FOR	PERMIT
DATE	8/25/23
DRAWN BY	DO

SHEET

PERMIT

Landscape Maintenance & Specifications

TTCDA & Development Plan File #s:
9-B-23-TOB / 9-C-23-DP

SHEET NUMBER

L-102