



VICINITY MAP
N.T.S.

KEY NOTES	
(1)	18" CURB & GUTTER, SEE SHEET C-7.0 FOR DETAIL
(2)	24" WHITE STOP BAR, SEE SHEET C-7.1 FOR DETAIL
(3)	PERVIOUS CONCRETE PAVEMENT, SEE SHEET C-7.0 FOR PAVEMENT SPECIFICATIONS
(4)	STANDARD DUTY ASPHALT, SEE SHEET C-7.0 FOR PAVEMENT SPECIFICATIONS
(5)	HEAVY DUTY ASPHALT, SEE SHEET C-7.0 FOR PAVEMENT SPECIFICATIONS
(6)	CONCRETE SIDEWALK, SEE DETAIL SHEET C-7.0 & C-7.2 FOR DETAIL
(7)	TAPER CURBING FROM 6" TO 0" OVER 5'
(8)	"TYPE A" CURB RAMP, SEE SHEET C-7.0 FOR DETAILS
(9)	"TYPE D" CURB RAMP, SEE SHEET C-7.0 FOR DETAILS
(10)	STOP SIGN (R1-1). SEE DETAIL SHEET C-7.1
(11)	LANDSCAPE AREA. SEE SHEET L-1.0 FOR FURTHER DETAIL
(12)	DIRECTIONAL ARROWS. SEE DETAIL SHEET C-7.1
(13)	ADA PARKING AREA WITH SIGNAGE
(14)	DRIVE THRU MENU AND ORDER BOARD
(15)	PROPOSED GATED DUMPER ENCLOSURE WITH MINIMUM 6' HIGH FENCE WALL WITH CONCRETE APRON. SEE ARCHITECTURAL PLANS FOR DETAILS
(16)	CONCRETE BOLLARDS. SEE DETAIL SHEET C-7.0
(17)	6'X10' AREA FOR CITY OF KNOXVILLE BICYCLE PARKING RACK, SEE SHEET C-7.1 FOR DETAIL
(18)	4" WIDE SINGLE SOLID WHITE LINE (SSWL)
(19)	4" WIDE DOUBLE SOLID YELLOW LINE (DSYL)
(20)	CONCRETE TRANSFORMER PAD PER UTILITY OWNER REQUIREMENT.
(21)	30" CURB & GUTTER, SEE SHEET C-7.0 FOR DETAIL
(22)	8" HEADER CURB, SEE SHEET C-7.0 FOR DETAIL
(23)	YIELD SIGN, SEE SHEET C-XXX FOR DETAIL
(24)	"NO LEFT TURN" SIGN, SEE SHEET C-XXX FOR DETAIL
(25)	2' GRASS STRIP, SEE SHEET C-XXX FOR DETAIL

SITE AREA

TOTAL PROPERTY AREA:	0.52± AC (22651± S.F.)
DISTURBED AREA:	0.58± AC (25264.800000± S.F.)
IMPERVIOUS AREA:	TBD± AC (##### S.F.)
PERVIOUS AREA:	TBD± AC (##### S.F.)

ZONING CLASSIFICATION

JURISDICTION:	CITY OF KNOXVILLE AND TD
ZONING:	C-G-1 (PENDING)
ADJACENT ZONING:	C-G-3

BUILDING SETBACKS

BUILDING SEPARATORS	
FRONT	N/A
SIDE	N/A
REAR	N/A

BUILDING SUMMARY

PROPOSED BUILDING AREA:	1,970 SF
BUILDING AREA LIMIT:	N/A
BUILDING HEIGHT LIMIT:	45 FEET

PARKING SUMMARY

PARKING REQUIREMENTS	EATING AND DRINKING ESTABLISHMENTS: 6 SPACES PER 1000 SF GFA; VEHICLE REPAIR SERVICE MINOR: 2 SPACES PER BAY
TOTAL PARKING REQUIRED	7 SPACES
PARKING PROVIDED	9 SPACES
BIKE PARKING PROVIDED	4 SPACES















LANDSCAPING SUMMARY

PARKING ISLANDS	9 FEET X 18 FEET
FRONT LANDSCAPE BUFFER	6 FEET TO 10 FEET
SIDE LANDSCAPE BUFFER	N/A
REAR LANDSCAPE BUFFER	N/A

GENERAL SITE NOTES

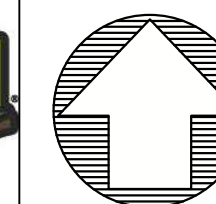
2. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
3. ALL NEW CURB AND GUTTER TO BE 24" CURB AND GUTTER UNLESS OTHERWISE SPECIFIED.
4. ALL EXISTING CURB AND GUTTER TO BE STABILIZED TO PREVENT COMPLETION OF DEMOLITION.
5. ALL TREES SHALL HAVE PROPER PROTECTION DURING CONSTRUCTION UNLESS APPROVED PLANS SPECIFY OTHERWISE.
6. TOPOGRAPHIC SURVEY BY PROFESSIONAL LAND SYSTEMS, DATED 06/29/2020.
7. FLOODPLAIN IS NOT PRESENT ON SITE AS DEPICTED BY FEMA FIRM PANEL NUMBER 47093C0266F. DATED 05/02/2007.
8. OWNER IS RESPONSIBLE FOR OBTAINING ANY NECESSARY AGREEMENTS FROM ADJACENT PROPERTY OWNERS FOR THE ORDER OF CONSTRUCTION AND THE ORDER OF UTILITIES, STORMWATER UTILITIES, CONNECTIONS, SIDEWALK, CURB AND GUTTER AND PAVEMENT TIE-INS AND GRADING.
9. ALL NEW ASPHALT AND OR PAVEMENT SHALL MEET THE GDOT TECHNICAL RECOMMENDATION.

SITE LEGEND

	EXISTING PROPERTY LINE		PARKING SPACE COUNT
	EXISTING RIGHT-OF-WAY		SIGN
	EXISTING SETBACK LINE		LIGHT POLE
	PROPOSED SETBACK LINE		GROUP OF FOUR GUARD POSTS
	PROPOSED SETBACK LINE		DUMPSTER PAD
	100 YEAR FLOOD PLAIN		TRANSFORMER PAD
	18" CURB AND GUTTER		PROPOSED SIGNAL
	24" CURB AND GUTTER		GRATE INLET
	PROPOSED RETAINING WALL		STORM MANHOLE
	CROSS WALK		DOUBLE WING CATCH BASIN
	STOP BAR (PAVEMENT MARKING)		SINGLE WING CATCH BASIN
	TRAFFIC FLOW ARROW (PAVEMENT MARKING)		AREA INLET
	"YIELD" (PAVEMENT MARKING)		OUTLET CONTROL STRUCTURE
	DIRECTIONAL ARROWS (PAVEMENT MARKING)		HEADWALL
	"ONLY" DIRECTIONAL ARROWS (PAVEMENT MARKING)		SANITARY SEWER MANHOLE
	HANDICAP STALL		CONCRETE
	CONCRETE WHEEL STOP		STANDARD DUTY PAVING
	A.D.A. STD HANDICAP RAMP		HEAVY DUTY PAVING
			OVERLAY EXISTING PAVEMENT

1-D-21-UR
Revised: 3/31/2021

FILE #: 1-D-21-SU



FILE NAME: K:\2002310\Task 5 - 03 - Acornella DWF (Engineering)\04 - PROSPECTION\1100 LANDSCAPE.dwg LAST DATE: 11/30/2020 1:52 PM PLOTTED BY: Lupton Waters 11/24/2020 14:52:45 AREA FULL BLEED 6 (24.00 x 36.00 INCHES) DEVICE: DWG TO PDF PLOT STYLE: ATWELL.CTB

QTY	COMMON NAME	BOTANICAL NAME	SIZE	COMMENTS
4	PAPERBARK ELM	ACER GRISEUM	2.5" CAL.	B&B, 14-16' HT.
3	LITTLE GEM MAGNOLIA	MAGNOLIA GRANDIFLORA	2.5" CAL.	B&B, 14-16' HT.
2	FLOWERING CRABAPPLE	MALUS SPP	2.5" CAL.	B&B, 14-16' HT.
45	DWF YAUPON HOLLY	ILEX VOMITORIA 'NANA'	3-GAL.	SPACING AS SHOWN

SITE AREA	
TOTAL PROPERTY AREA:	0.52± AC (22651± S.F.)
DISTURBED AREA:	0.58± AC (25264.800000± S.F.)
IMPERVIOUS AREA:	TBD± AC (####± S.F.)
PERVIOUS AREA:	TBD± AC (####± S.F.)
ZONING CLASSIFICATION	
JURISDICTION:	CITY OF KNOXVILLE AND TDOT
ZONING:	C-H-2
ADJACENT ZONING:	C-G-3
BUILDING SETBACKS	
FRONT	20 FEET
SIDE	10 FEET
REAR	10 FEET
BUILDING SUMMARY	
PROPOSED BUILDING AREA:	1,970 SF
BUILDING AREA LIMIT:	N/A
BUILDING HEIGHT LIMIT:	90'; HOWEVER, STRUCTURES MUST SET BACK
AN ADDITIONAL 1' FOR EVERY 2' OF HEIGHT OVER 45' FROM ANY REQUIRED SETBACK	
ABUTTING RESIDENTIAL DISTRICT LOT LINE	
PARKING SUMMARY	
PARKING REQUIREMENTS	EATING AND DRINKING ESTABLISHMENTS: 6
SPACES PER 1000 SF GFA; VEHICLE REPAIR SERVICE MINOR:	2 SPACES PER BAY
TOTAL PARKING REQUIRED	7 SPACES
PARKING PROVIDED	8 SPACES
LANDSCAPING SUMMARY	
PARKING ISLANDS	9 FEET X 18 FEET
FRONT LANDSCAPE BUFFER	6 FEET TO 10 FEET
SIDE LANDSCAPE BUFFER	N/A
REAR LANDSCAPE BUFFER	N/A



VICINITY MAP

N.T.S.

GENERAL

- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL WORK AS SPECIFIED IN ACCORDANCE WITH THE PLANS AND AS LISTED IN THE GENERAL NOTES.
- BEFORE BEGINNING ANY WORK, ALL UTILITIES AND UNDERGROUND CONSTRUCTION SHALL BE LOCATED BY THE LANDSCAPE CONTRACTOR SO THAT PROPER PRECAUTIONS MAY BE TAKEN NOT TO DISTURB OR DAMAGE ANY SUBSURFACE IMPROVEMENTS. WHERE PUBLIC UTILITIES ARE PRESENT, THE LANDSCAPE CONTRACTOR SHALL REQUEST ON-SITE LOCATIONS BY ALL UTILITY COMPANIES AND CONFIRM THAT SUCH LOCATIONS HAVE BEEN COMPLETED. THE LANDSCAPE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR MAKING, AT HIS OWN EXPENSE, ALL REPAIRS TO DAMAGED UTILITIES RESULTING FROM WORK COVERED BY THIS CONTRACT.
- ANY DAMAGE DONE BY THE LANDSCAPE CONTRACTOR TO ANY PAVING, BUILDINGS, CURB, OR WALKS SHALL BE REPAIRED OR REPLACED BY THE LANDSCAPE CONTRACTOR.
- THE LANDSCAPE CONTRACTOR SHALL TAKE MEASURES TO PREVENT DUST, MUD, MARKS, ETC FROM SOILING AND DAMAGING IMPROVEMENTS. ANY DAMAGE SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
- THE LANDSCAPE CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE FROM ALL PARTS OF THE PROJECT.
- ALL PROPOSED PLANT MATERIALS SHALL BE FREE FROM INJURY, PEST, DISEASE, OR ROOT DEFECTS AND SHALL MEET OR EXCEED STANDARDS SET FORTH IN THE CURRENT EDITION OF AMERICAN STANDARD FOR NURSERY STOCK. THE LANDSCAPE ARCHITECT MAY REJECT PLANT MATERIAL OR INSTALLATION WHICH DOES NOT COMPLY WITH THE SPECIFICATIONS OF THIS DRAWING AT ANY TIME PRIOR TO FINAL ACCEPTANCE.
- PLANTS SHALL BE WATERED PRIOR TO TRANSPORTATION AND SHALL BE KEPT MOIST UNTIL PLANTED. ALL PLANTS SHALL BE PROTECTED FROM DESICCATION DURING DELIVERY WITH A PROTECTIVE COVERING OR ENCLOSED TRUCK.
- THE PLANT LIST IS FOR THE LANDSCAPE CONTRACTORS CONVENIENCE. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE COUNT FROM THE PLAN AND REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.
- ALL LANDSCAPE AREAS WHERE ASPHALT OR CURBING HAS BEEN REMOVED AND ALL LANDSCAPE ISLANDS MUST HAVE CLEAN, FRIABLE TOPSOIL TO A TOTAL DEPTH OF TWO (2) FEET.
- THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL MATERIALS INCLUDING, BUT NOT LIMITED TO, TOPSOIL, MULCHES, LIMES, AND FERTILIZERS NECESSARY FOR THE HEALTHY GROWTH OF PLANT MATERIAL.
- INSTALL TREES PLUMB. DO NOT DEPEND ON STAKING TO PULL PLANTS TO PLUMB POSITION. STAKING SHALL BE ON AN AS-NEEDED BASIS.
- ALL MOWABLE LAWN AREAS SHALL BE SODDED WITH BERMUDA GRASS. ALL SLOPES 3:1 OR GREATER SHALL BE SEEDED AS NOTED ON PLAN.
- MULCH ALL GROUND COVER AND PLANTING BEDS AND A 4'-0" DIAMETER BASE AROUND ALL FREE STANDING TREES WITH 4" MIN. FRESH PINE STRAW.
- WHERE TREES ARE PLANTED CLOSER THAN 5 FEET FROM CURB OR SIDEWALK, EITHER CONCRETE OR HDPE (HIGH DENSITY POLYURETHANE PLASTIC) ROOT BARRIERS MUST BE INSTALLED. THESE ROOT BARRIERS MUST BE A MINIMUM OF 30 INCHES DEEP.
- ALL TEMPORARY CONSTRUCTION ACTIVITIES WILL OCCUR IN PARKING LOT AREAS ON THE SITE.
- SHRUB HEIGHTS SHALL BE MAINTAINED AT 2'-0" AND TREE CANOPIES SHALL BE ABOVE 6'-0" AT ALL PLANTING ISLANDS AND DRIVE OPENINGS WITHIN THE PARKING LOT AND INTERSECTING STREETS BY LANDSCAPE CONTRACTOR AND OWNER TO INSURE SAFE SIGHT DISTANCES.
- ALL CONSTRUCTION DEBRIS IS TO BE ENTIRELY REMOVED FROM SITE BY THE LANDSCAPE CONTRACTOR.
- THE LANDSCAPE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE MAINTENANCE, INCLUDING WATERING, WEEDING, PRUNING, MOWING OF LAWNS, AND RE-MULCHING OF THIS WORK UNTIL DATE OF FINAL ACCEPTANCE.

FOR SODDED AREA

- SOD SHALL BE WELL ROOTED, 2 YEAR OLD STOCK. THE SOD SHALL BE TOP QUALITY CERTIFIED SOD, FREE OF WEEDS, UNDESIRABLE NATIVE GRASSES, INSECTS AND DISEASES. PROVIDE CERTIFICATION TAG TO OWNER. ALL SOD SHALL BE MACHINE CUT AND VIGOROUSLY GROWING (NOT DORMANT).
- LAY SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS. DO NOT OVERLAP.
- IN SLOPING AREAS, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOURS AND WITH JOINTS STAGGERED.
- SOD SHALL BE SECURED IN PLACE WITH STAPLES ON SLOPES GREATER THAN 3:1. STAPLES FOR SOD STAKING SHALL BE NO. 11 GAUGE STEEL WIRE, U-SHAPED WITH LEGS 12 INCHES IN LENGTH AND 1" CROWN. STAPLES SHALL BE PLACED AT INTERVALS NO GREATER THAN 2' ON CENTER. TOP OF STAKES SHALL BE DRIVEN FLUSH WITH SOD AS NOT TO INTERFERE WITH MOWING OPERATIONS.
- TAMP OR ROLL TO INSURE CONTACT WITH SOIL. WORK SIFTED SOIL INTO MINOR CRACKS BETWEEN PIECES OF SOD. REMOVE EXCESS SOIL TO AVOID SMOTHERING OF ADJACENT GRASS.
- SOD SHALL BE WATERED IMMEDIATELY AFTER ROLLING OR TAMPING.

GRASSING

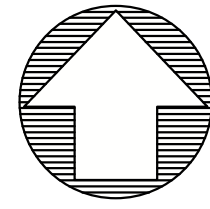
- PREPARE AREAS TO BE GRASSED BY REFINED GRADING TO INSURE PROPER DRAINAGE AND DISCOURAGE EROSION.
- ELIMINATE UNDESIRABLE GRASS AND WEED GROWTH IN AREAS TO BE GRASSED AND TAKE MEASURES AS NECESSARY TO PREVENT REGROWTH OF UNDESIRABLE PLANTS. SOIL SHALL BE TILLED OR LOOSENEED TO 4" MIN. DEPTH, INCORPORATING FERTILIZER, LIME AND OTHER APPROPRIATE ADDITIVES AS INDICATED BY SOIL TEST INTO THE TOP 2' TO 3'.

INSPECTION

- THE OWNER'S REPRESENTATIVE SHALL INSPECT THE TOTAL WORK FOR ACCEPTANCE UPON REQUEST OF THE LANDSCAPE CONTRACTOR. ANY UNSATISFACTORY ITEMS SHALL BE NOTED AND MUST BE REMEDIED BY THE LANDSCAPE CONTRACTOR PRIOR TO ACCEPTANCE. UPON SATISFACTORY COMPLETION OF ALL WORK, THE OWNER'S REPRESENTATIVE SHALL CERTIFY IN WRITING ACCEPTANCE OF THE WORK. PAYMENT FOR CONTRACT WORK TO THE CONTRACTOR PURSUANT TO ISSUANCE OF ACCEPTANCE SHALL BE DEEMED THE FINAL PAYMENT FOR SAID WORK.

WARRANTY

- ALL PLANT MATERIAL SHALL BE WARRANTED BY THE LANDSCAPE CONTRACTOR FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE. THE LANDSCAPE CONTRACTOR SHALL REPLACE, AT NO EXPENSE TO THE OWNER, UNHEALTHY PLANTS WITHIN 15 DAYS. THIS ASSUMES THAT THE OWNER HAS FOLLOWED THE APPROPRIATE MAINTENANCE PROCEDURES AND THAT NO SUCH REPLACEMENTS ARE NECESSITATED BY NEGLIGENCE OR ABUSE BY OWNER, BY VANDALISM OR BY ACTS-OF-GOD DAMAGE.
- REPLACEMENT SIZES SHALL BE COMPARABLE TO THOSE ATTAINED BY ADJACENT THRIVING PLANTS. ALL REPLACEMENT STOCK WILL BE SUBJECT TO THE SAME WARRANTY REQUIREMENTS AS THE ORIGINAL STOCK. REPLACEMENT WARRANTY BEGINS ON DAY OF INSTALLATION.
- THE LANDSCAPE CONTRACTOR SHALL MAKE ALL NECESSARY REPAIRS TO GRADES, VEGETATIVE COVER AND PAVING REQUIRED BECAUSE OF PLANT REPLACEMENTS. SUCH REPAIRS SHALL BE DONE AT NO EXTRA COST TO THE OWNER.



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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCURRED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY INJURY OR DAMAGE TO PERSONS OR PROPERTY OF ANY NATURE, INCLUDING BUT NOT LIMITED TO, THE WORK OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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**24 HOUR
EMERGENCY CONTACT**
MICHAEL ALTERMAN
(678) 358-7650

ATWELL
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LAWRENCEVILLE, GA 30045
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CERTIFICATE OF AUTHORIZATION
TN 6804

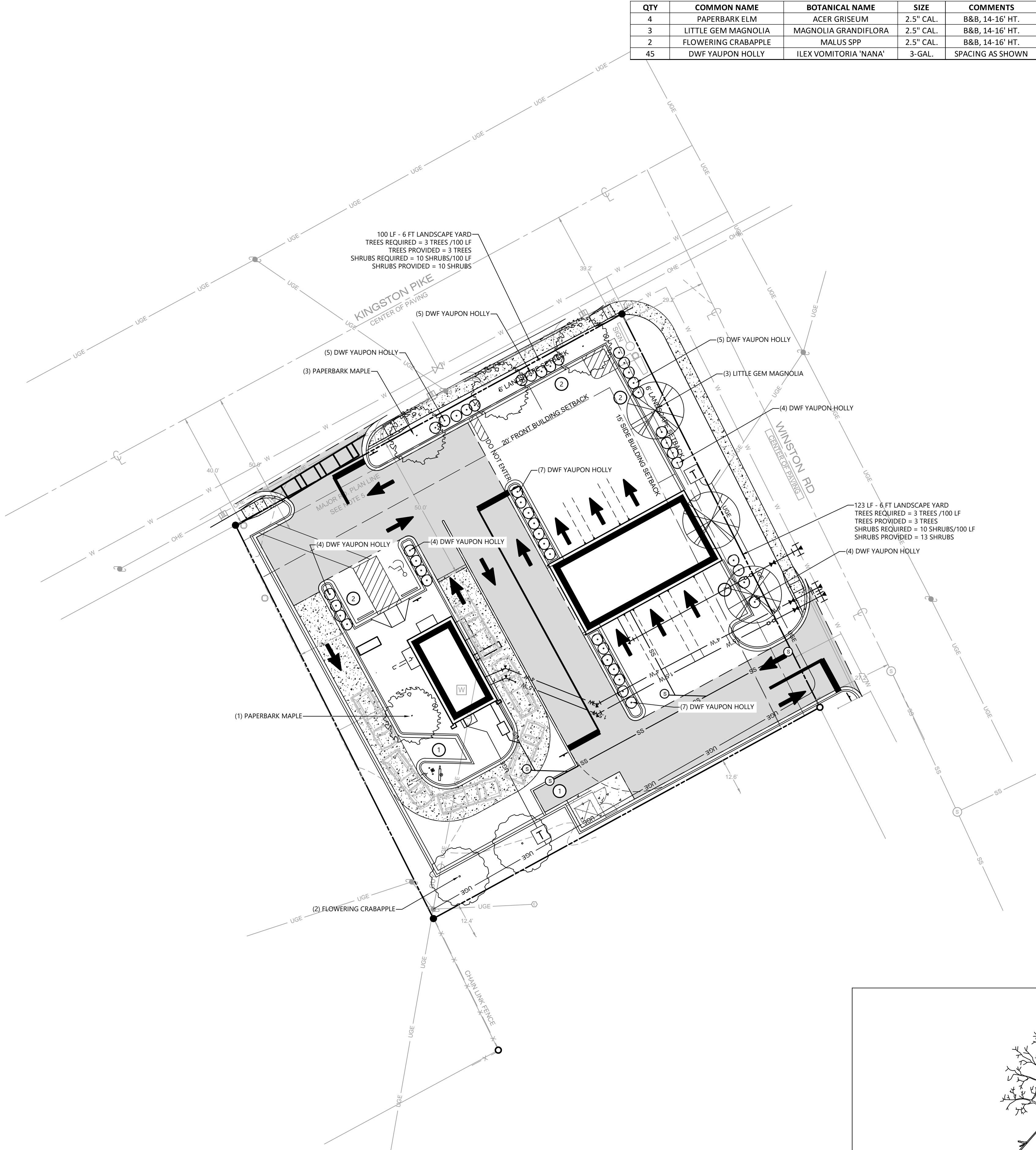
5TH DISTRICT	8002 KINGSTON PIKE	CITY OF KNOXVILLE	KNOX COUNTY, TENNESSEE
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CLIENT: ALTERMAN COMMERCIAL	TAKE 5 - KNOXVILLE, TN	SITE DEVELOPMENT PLANS	LANDSCAPE PLAN
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DATE: 12/04/2020	
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REVISIONS

DRAWN BY: AJA	CHECKED BY: TS
PROJECT MANAGER: THEO STONE	JOB #: 20002310
FILE CODE: DESIGN	SHEET NO. L-1.0





ISO 9001:2015 CERTIFIED

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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February 26, 2021
Revised March 5, 2021

Stella Blue Ventures, LLC
c/o Mr. Michael Alterman
3715 Northside Parkway
Suite 4-515
Atlanta, GA 30327

**RE: Take 5 Development – Transportation Impact Letter (TIL)
Knoxville / Knox County, Tennessee**

KCI Technologies, Inc. has prepared this memorandum summarizing the expected trip generation for the proposed retail development located in the southwest quadrant of the intersection of Kingston Pike at Winston Road. The information is intended to address the comments in the *Pre-Submittal Transportation Impact Analysis Scope Determination Form*, dated January 5, 2021.

Based on the site plan (date 12/4/2020), the development proposes one 1,431 SF oil change building (three service positions) and one 550 SF drive-thru coffee shop. The coffee shop does not have indoor seating.

Site Access

Kingston Pike is a four-lane roadway with a center two-way left-turn lane. Winston Road is a two-lane road. The property proposes two access driveways – one along Kingston Pike and Winston Road. Both driveways will allow two-way traffic and operate with stop-control for exiting vehicles. Vehicles are expected to find gaps in traffic to be able to enter and exit at either driveway.

Site Circulation

The site plan provides site circulation – allowing drivers to enter and exit at either driveway of their choice. Upon entering the site, drivers can access either retail use. Drivers will circulate clockwise around the proposed Scooters coffee building. The site layout accommodates nine large SUV type vehicles without impacting the driveway at Kingston Pike. This is greater than the minimum required by the ordinance (4 vehicles for restaurant use). Drivers to the Take 5 retail use will enter at the south side of the building and exit at the north side.

Estimated Site Traffic

Traffic anticipated to be generated by the retail uses was based on the Trip Generation Manual, 10th Edition, by the Institute of Transportation Engineers (ITE). This is the nationally recognized database which provides trip generation estimates for multiple land uses. For this development, site traffic was estimated for the typical weekday daily, AM peak hour, and PM peak hour volumes for a quick

lubrication vehicle shop (LU code 941) and a coffee/donut shop with drive through window and no indoor seating (LU code 938). **Table 1** summarizes the results. The total number of vehicles (both entering and exiting) the site on a weekday is estimated to be 1,220 vehicles. The total number of vehicles during the AM peak hour is 194 vehicles and during the PM peak hour is 61 vehicles.

TABLE 1 - TRIP GENERATION Take 5 Development										
Land Use		Units	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
				Two-way	Total	In	Out	Total	In	Out
938	Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	SF	550	1,100	185	93	92	46	23	23
941	Quick Lubrication Vehicle Shop	serving positions	3	120	9	6	3	15	8	7
Driveway Volumes				1,220	194	99	95	61	31	30

Notes: Trip Generation Rates based on ITE Trip Generation, 10th Edition

Pass-by reduction for the restaurant use equals 49% during the AM peak hour, and 50% during the PM peak hour and daily.

On-site queuing

Based on information provided by the proposed small coffee shop tenant, an estimate of on-site queueing for this use was performed. The coffee shop tenant, Scooters, has a store operations method to maximize the speed of drive-thru service. The business holds their employees to an average ticket time of 40 seconds per vehicle (from order to pick up).

An analysis was performed to check the on-site vehicle storage and estimated vehicle queues. Based on the trip generation, an estimated ninety-three (93) vehicles enter in the AM peak hour. Assuming a peak hour factor of 0.85, the number of vehicles arriving during the peak 15-minute period is 28 vehicles, or a rate of 1 vehicle every 32 seconds. Based on the departure rate of 1 vehicles every 40 seconds, the number of vehicles which have departed after the peak 15-minute period is 22.5. The expected queue at the end of the peak 15 minutes is 5.5 vehicles. Table 2 summarizes the queueing analysis.

Table 2: Queuing Analysis		
	Vehicles	Rate
Entering/Arrivals	28	1 vehicle every 32 seconds
Exiting/Departures	22.5	1 vehicle every 40 seconds
Expected queue at end of 15 minutes	5.5	-

The vehicle queue will not grow indefinitely because the following 15 minutes is expected to have fewer arriving vehicles. The site layout accommodates nine large SUV type vehicles without impacting the driveway at Kingston Pike; therefore, the development is expected to provide enough on-site storage for vehicle queuing.

The Take 5 retail use provide three service positions and vehicle queue space at the building entrance (south side). One vehicle can be queued (waiting) to enter all three service positions without impacting site circulation; the internal vehicle route.

This memorandum provides an estimate of traffic volumes for the site. The actual traffic volumes may vary.

Please contact me if there are any questions.

Prepared by:
Andrew Antweiler, PE, PTOE
Sr. Project Manager

