



FARRAGUT MUNICIPAL PLANNING COMMISSION AGENDA

July 15, 2021 – 7:00 p.m.
Farragut Town Hall
Board Room

For questions, please e-mail Mark Shipley at mshipley@townoffarragut.org or Bart Hose at bhose@townoffarragut.org.

- 1. Election of Officers**
- 2. Approval of agenda**
- 3. Approval of minutes – June 17, 2021**
- 4. Discussion and public hearing on a re-subdivision plat for a portion of the William Coker property, Parcels 034 and 031.05, Tax Map 153, 713 Concord Road, 3.81 Acres, 3 Lots, Zoned R-2 (Benchmark Associates, Inc., Applicant)**
- 5. Discussion and public hearing on a preliminary plat for the Keeney Property Subdivision, Parcels 142.036, 142.03602, 142.03603, 142.03604, Tax Map 142, 12422 Union Road, 25.74 Acres, 6 Lots, Zoned R-2 (Urban Engineering, Applicant)**
- 6. Discussion and public hearing on a final plat for the Preserve at Turkey Creek, Parcels 02103 and 02101, Tax Map 153, 13 Lots, Zoned R-2, 10.23 Acres (Lynch Surveys, LLC., Applicant)**
- 7. Discussion and public hearing on a site plan for Moses Watersports, Parcel 176.02, Tax Map 130, 11470 Outlet Drive, Zoned OD-RE/E, 6.8 Acres (Urban Engineering, Inc., Applicant)**
- 8. Discussion on a request to consider the site related elements of expanding the dining room by approximately 500 square feet at the Big Kahuna Wings, 12828 Kingston Pike (Big Kahuna Wings, Applicant)**
- 9. Discussion and public hearing on a zoning map amendment for Lots 1-3, as shown on the preliminary plat for a portion of the Keeney Property Subdivision, 12422 Union Road, 15.5 Acres, to change the zoning from R-2 (General Single-Family Residential) to R-1 (Rural Residential) (Urban Engineering, Inc., Applicant)**
- 10. Discussion and public hearing on a future land use map amendment request for a portion of the property referenced as Parcel 069, Tax Map 142 (north of old Ingles building), 20**

11408 MUNICIPAL CENTER DRIVE | FARRAGUT, TN 37934 | 865.966.7057

WWW.TOWNOFFARRAGUT.ORG

It is the policy of the Town of Farragut not to discriminate on the basis of race, color, national origin, age, sex, or disability pursuant to Title VI of the Civil Rights Act of 1964, Public Law 93-112 and 101-336 in its hiring, employment practices and programs. To request accommodations due to disabilities, please call 865-966-7057 in advance of the meeting.

Acres, to change the future land use map from Medium Density Residential to High Density Residential (Horne Properties, Inc., Applicant)

11. Discussion and public hearing on a zoning map amendment request for a portion of the property referenced as Parcel 069, Tax Map 142 (north of old Ingles building), 20 Acres, to change the zoning from R-1 (Rural Single-Family Residential) to R-6 (Multi-Family Residential) (Horne Properties, Inc., Applicant)

12. Approval of utilities

13. Citizen Forum

**Planning Commission Meeting
Public Comment Protocol**

The Planning Commission welcomes and invites Farragut residents to participate in public meetings. At the end of each business meeting, there will be time reserved for public comment under the Citizen Forum agenda item. If you are interested in speaking, please fill out a blue comment card and turn it in to the Planning Director or other designated staff member. This time is set aside specifically for comments on items that are not on the Planning Commission regular agenda for the meeting. Each speaker will be given five (5) minutes to speak on his/her topic.

During the regular agenda portion of the meeting there may be an allowance for public comment for each agenda item. The Chairman may recognize individuals for public comment based on the following guidelines.

1. The Chairman shall maintain and control the meeting to provide a professional and objective environment;
2. Any Farragut resident, property owner, or business owner interested in speaking should fill out a blue comment card stating which agenda item they would like to comment on and turn in to the Planning Director or other designated staff member;
3. Speakers shall come to the podium and identify themselves by name and street address;
4. Public comment shall be limited to five (5) minutes per individual. Time for public comment may be amended at the discretion of the Chairman. Time is not transferable to other speakers;
5. Speakers should strive to avoid redundancy; each speaker should have their own original viewpoint;
6. Comments shall address issues, not individuals or personalities;
7. Comments may support or oppose issues or measures, but the motives of those with differing views shall not be questioned or attacked;
8. Personal attacks and malicious comments shall not be tolerated;
9. An applicant, and/or their representative(s), for an item on the regular agenda shall be afforded the time necessary to present their request and respond to questions. The five (5) minute limitation shall not apply. However, the Chairman may ask an applicant to stay on point in order to facilitate the efficiency of the meeting.

Each speaker will be asked if they can agree to abide by the Comment Protocol. If so, please be prepared to speak when your name is called.



**MINUTES
FARRAGUT MUNICIPAL PLANNING COMMISSION**

June 17, 2021

MEMBERS PRESENT

Rita Holladay, Chairman
Ed St. Clair, Vice-Chairman
Ron Williams, Mayor
Louise Povlin, Vice Mayor
Michael Bellamy
Scott Russ
Jon Greene
Betty Dick
Noah Myers

MEMBERS ABSENT

Staff Representatives: Mark Shipley, Community Development Director
Bart Hose, Assistant Community Development Director

1. Approval of agenda

Staff noted that agenda item #6 was being postponed until July. Staff recommended that the agenda be amended accordingly.

A motion was made by Vice Mayor Povlin to follow staffs' recommendation. Motion was seconded by Mayor Williams and motion passed 9-0.

2. Approval of minutes – May 20, 2021

Staff recommended approval of the May 20, 2021, minutes as submitted.

A motion was made by Vice Mayor Povlin to follow staffs' recommendation. Motion was seconded by Mayor Williams and motion passed 8-0 with Commissioner Dick abstaining due to being absent at the May 20 meeting.

3. Appointment of youth representative

Staff noted that this is a Planning Commission decision. Staff did not have a recommendation but did commend Austin Strobel on his service as the youth representative during the past fiscal year.

After a short discussion, a motion was made by Commissioner Myers to nominate Henry Standaert as the youth representative for the next fiscal year. Motion was seconded by Vice Mayor Povlin and motion passed 9-0.

4. Discussion and public hearing on a site plan for a floodway encroachment and no-rise analysis application associated with a personal use pedestrian bridge proposed to cross Little Turkey Creek on the property referenced as 12715 Union Road (Wil Glafenheim, Applicant)

Staff reviewed this item and recommended approval of the bridge crossing subject to the following:

- 1) Verification from the State NFIP Coordinator that the submitted no-rise analysis is adequate and acceptable for NFIP permitting purposes.
- 2) That an ARAP permit is obtained from TDEC.

A motion was made by Vice Mayor Povlin to follow staffs' recommendation. Motion was seconded by Mayor Williams and motion passed 9-0.

5. Discussion and public hearing on a request for a recommendation to the Board of Mayor and Alderman concerning entrance signs proposed as part of a streetscape improvement project within the public rights of ways near the Olympic Drive access off Smith Road and the Saint Andrews Drive access off Everett Road for the Fox Den Subdivision (Fox Den HOA, Applicant)

Staff reviewed this item and recommended approval subject to the following:

- 1) Approval from the VRRB.
- 2) Using an arborist to ensure that work performed in relation to the signs will not adversely affect the large trees that are nearby.
- 3) Providing a written and recorded agreement between the Town and the Fox Den HOA regarding liability and ongoing maintenance of the proposed improvements.

A motion was made by Vice Mayor Povlin to follow staffs' recommendation. Motion was seconded by Commissioner Myers and motion passed 9-0.

6. Discussion and public hearing on a preliminary plat for the Keeney Property Subdivision, Parcels 142.036, 142.03602, 142.03603, 142.03604, Tax Map 142, 12422 Union Road, 25.74 Acres, 4 Lots, Zoned R-2 (Urban Engineering, Applicant)

Removed from the agenda.

7. Discussion and public hearing on a final plat for the Old Stage Farms Subdivision, 12630 Old Stage Road, 5.65 Acres, 9 Lots, Zoned R-2 (Ryan Lynch, Applicant)

Staff reviewed this item and recommended approval subject to the following items being addressed:

- 1) On plat note #8, referencing the FUD instrument is not adequate for the Planning Commission's platting purposes. The plat must show the location of any such easement that extends beyond the standard front/side/rear property line utility easements and/or the right of way. Future property owners need to be able to more easily determine where these easements are impacting their property so they can avoid conflicts.
- 2) Please note for the 25-foot aquatic buffer and water quality/drainage easement what this is being measured from (e.g., centerline of drainage, top of bank, etc.).
- 3) The revised plat still includes construction phase TDEC buffers. This may create confusion for a future owner and, if remaining on the plat, needs to be clarified.
- 4) Satisfactory completion of all field related items from staff checklist.
- 5) Obtaining all signatures on the plat.

FMPC Minutes

June 17, 2021

Page 3

A motion was made by Vice Mayor Povlin to follow staffs' recommendation. Motion was seconded by Commissioner Myers and motion passed 9-0.

8. Discussion on a proposed modification to a portion of the concept plan associated with the northwest portion of the Bridgemore Subdivision off McFee Road, Zoned R-1/OSR (Fulghum, MacIndoe & Associates, Applicant)

For discussion purposes only.

9. Discussion on amendments to the approved site plan for the Kingston Pike Village – Phase 2 (Grocery Store and Retails Shops), 115 S. Watt Road, Zoned PCD, 8 Acres (GBS Engineering, Applicant)

For discussion purposes only.

10. Discussion and public hearing on updates to the Major Road Plan (Town of Farragut, Applicant)

Staff reviewed this item and recommended approval of Resolution PC-21-08.

A motion was made by Vice Mayor Povlin to follow staffs' recommendation. Motion was seconded by Commissioner Myers and motion passed 9-0.

11. Approval of utilities

None.

12. Citizen Forum

Vice Mayor Povlin thanked Betty Dick for her service on the Planning Commission and the Town of Farragut. This was the last Planning Commission meeting for Betty Dick.

The meeting adjourned at 8:28 p.m.

Scott Russ, Secretary

REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a re-subdivision plat for a portion of the William Coker property, Parcels 034 and 031.05, Tax Map 153, 713 Concord Road, 3.81 Acres, 3 Lots, Zoned R-2 (Benchmark Associates, Inc., Applicant)

INTRODUCTION AND BACKGROUND: This agenda item involves a re-subdivision of the property immediately south of the Concord Telephone off Concord Road. Currently, the property has one dwelling unit and a shed and outbuildings. The property has access to both Loop Road and Concord Road. Some portion of the property to the west is under water as part of the Fort Loudon Reservoir.

The plat would create three lots with two lots accessing Concord Road at a common access point consistent with the access provided as part of the TDOT road improvement project along Concord Road. One proposed lot would access Loop Road. Consistent with notes included on this plat, some of the existing improvements will be removed before Certificates of Occupancy can be issued for any new dwelling units. As part of the Concord Road improvement project with TDOT, a walking trail will be constructed along this side of Concord Road so a pedestrian facility would not be required in association with this re-subdivision.

RECOMMENDATION: Included in the packet is the revised plat. One variance for consideration will be to the required 10% open space. Staff would note that the project is relatively small with no new public improvements and the proposed lots will each be greater than one acre. The western portion is also constrained by the Fort Loudon Reservoir and the 820 Contour. These may be reasons for granting a variance in this case. Staff will make a recommendation on the plat itself based on whether the initial staff comments have been addressed.

REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a preliminary plat for the Keeney Property Subdivision, Parcels 142.036, 142.03602, 142.03603, 142.03604, Tax Map 142, 12422 Union Road, 25.74 Acres, 6 Lots, Zoned R-2 (Urban Engineering, Applicant))

INTRODUCTION AND BACKGROUND: This item was postponed last month and involves a mostly estate-sized lot subdivision located off Union Road on the section east of Everett Road. The property is currently zoned R-2 but there is a request, also on this month's agenda, to rezone the three northernmost lots (Lots 1-3) to R-1 to provide for the opportunity to have farm animals. The subdivision now includes six (6) lots and involves the re-construction of an existing driveway.

Since lots must access a public street to obtain building permits and the Town does not permit private streets, the driveway will be re-constructed to a local public street standard for eventual acceptance as a public street within a public right of way. A six-inch water line will be extended along a portion of Union Road and into the property to serve the proposed lots and to provide a fire hydrant to comply with adopted Fire Code regulations.

This development is like the Sassafras Meadows Subdivision off Dixon Road that was approved as a preliminary plat on February 15, 2018. Given the generally rural nature of the proposed subdivision, the applicant is requesting the following variances from the Subdivision Regulations that will need to be acted on separately before acting on the preliminary plat:

1. Reduction in right of way width for a local street from 50 feet to 30 feet.
2. Installation of a rural cross section street which would involve a pavement width of 18-20 feet and an open ditch drainage system. Normally, local streets are required to have a pavement width of 26 feet and curb and gutter with a storm sewer drainage system.
3. The omission of a pedestrian facility along the Union Road frontage and within the subdivision.
4. A waiver of the 10% open space required in association with a subdivision.

Two additional variances that would appear to be needed are to the length of the cul-de-sac (cul-de-sacs are not to exceed 500 feet in length without a variance approval) and to not require a vehicular connection to abutting properties.

DISCUSSION: As noted, the proposed subdivision involves a rural, generally large-lot, estate type of development that is not specifically provided for in the Town's Subdivision Regulations. The proposed road will only access six lots and will be subject to very low traffic volumes. Because of this, the Town's staff is generally supportive of the above noted variances. Staffs' recommendations on the variance requests are as follows:

1. In terms of the right of way reduction, the question is whether 30 feet provides enough physical publicly owned space for any envisioned utilities and for maintenance duties related to public improvements (in this case, the public street). In the case of the Sassafras Meadows Subdivision, there was no request for a right of way reduction so it cannot be compared to this development. On a subsequent variance request, the applicant is proposing a public street width of mostly 20 feet with a small section of 18 feet to work around an existing spring house. If approved, this would provide generally 5 feet on each side of the street for workspace and additional utilities. The applicant has noted in their justification for the variance (a copy of which is included in the packet) that the utilities are mostly existing except for service lines and a new water line that would be within the proposed right of way and easements that will be platted with this development. Staff would prefer a right of way of 40 feet to lessen any future issues related to infrastructure maintenance. If gas or a pedestrian facility is to be provided at some point in the future, it would need to be within either the right of way or an easement. The subdivision will have the required minimum ten-foot drainage and utility easement along the right of way. If a variance is granted to accept a 30 foot right of way, staff would recommend that a larger standard easement that would also provide for a pedestrian facility (should that be desired by the residents in the future) be platted along each side of the right of way. This easement should be at least 15 feet rather than 10 feet in width. The benefit of the easement is that it would be on private property and would not affect building setbacks to the extent that a public right of way would.
2. In terms of the rural cross section with the reduced street width and the open ditch drainage, staff recommends approval with the understanding that this is conditioned on the lots not being further subdivided. This reduced width and natural drainage system would help retain the rural character of the existing driveway and open space and preserve the spring house and some notable trees that would otherwise be impacted.
3. In terms of the omission of a pedestrian facility along the Union Road frontage and within the subdivision, staff recommends approval with the understanding that this is conditioned on the lots not being further subdivided. There are no pedestrian facilities abutting or on any portion of this section of Union Road currently. However, for purposes of planning for the future, staff would recommend that a pedestrian facility easement be platted along Union Road to accommodate a walking trail (should that be desired in the future) as well as the grass strip separation required for a collector street. This easement would need to be 20 feet in width like the easement approved recently for a re-subdivision plat along Boring Road.
4. In terms of the waiver of the 10% open space requirement, staff recommends approval given the rural, generally large lot nature of the subdivision where ample private open space is provided along with proposed water quality easements for the two drainages that run through different portions of the property.
5. In terms of the variance from the 500-foot length limitation for cul-de-sacs, staff recommends approval. The proposed street would be roughly 935 feet but would only serve six lots. Additional streets or connections to abutting properties are further limited due to the presence of drainageways that exist on each side of the cul-de-sac and the lack of an opportunity to extend a through street to abutting properties. Most of the abutting properties include house lots of less than one acre or are part of the existing developed property.
6. Related to this, in terms of a variance to connect both vehicular and pedestrian facilities to abutting properties, staff recommends approval. The rationale is that the surrounding properties are developed, the presence of drainageways on the north and south portion of the property, and the number of lots proposed in this development.

RECOMMENDATION: Included in your packet is a copy of the revised preliminary plat and the staffs' comments on the original plat. Staff will make a recommendation at the meeting based on whether the staffs' comments have been addressed.

PRELIMINARY PLAT

U.E.I. PROJECT NO. 2105012

KEENEY PROPERTY

CLT MAP 151, PARCELS 36, 36.02, 36.03 & 36.04

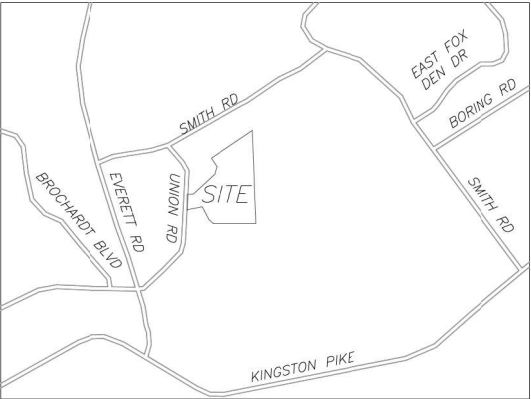
LOT ADDRESS & OWNER INFORMATION:

LOT 1 (142.036):
LOT ADDRESS: 659 OAK FARM WAY (TO BECOME 659 OAK FARM LANE)
KEVIN ORPLURT & KIMBERLY QUIGLEY
12422 UNION ROAD
KNOXVILLE, TN 37934

LOT 2 (142.03802):
LOT ADDRESS: 627 OAK FARM WAY (TO BECOME 627 OAK FARM LANE)
JASON & HOLLY ZACHARY
11329 GATES MILL DRIVE
KNOXVILLE, TN 37934

LOT 3 (142.03603):
LOT ADDRESS: 605 OAK FARM WAY (TO BECOME 605 OAK FARM LANE)
RAYMOND KEENEY, JR & NATALIE KEENEY
12422 UNION ROAD
KNOXVILLE, TN 37934

LOT 4 (142.03604):
LOT ADDRESS: 616 OAK FARM WAY (TO BECOME 616 OAK FARM LANE)
RICHARD & PAMELA ZACHARY
548 COLONIAL RIDGE LANE
KNOXVILLE, TN 37934



LOCATION MAP

DEVELOPER:

RAY KEENEY AND ASSOCIATES, LLC.
12630 OLD STAGE ROAD
KNOXVILLE, TN 37934
(865) 389-4318

SITE ENGINEER:



URBAN ENGINEERING, INC.
CHRIS SHARP
11852 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

SITE SURVEYOR:

LYNCH SURVEYS, LLC.
RYAN LYNCH
4405 COSTER ROAD
KNOXVILLE, TN 37912
865-584-2630

SPECIFICATIONS

EXCEPT WHERE DIRECTED OTHERWISE BY THE PLANS, WORKMANSHIP AND MATERIAL (BUT NOT MEASUREMENT AND PAYMENT) FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS AND STANDARDS.

ELECTRICAL - AS DIRECTED BY LCUB
GAS - AS DIRECTED BY KUB
WATER & SEWER - AS DIRECTED BY FIRST UTILITY DISTRICT
CABLE TV - AS DIRECTED BY CHARTER
TELEPHONE - AS DIRECTED BY TDS
TOWN OF FARRAGUT - ALL APPLICABLE TOWN REGULATIONS AND ORDINANCES

SHEET INDEX

TITLE

TITLE SHEET

PRELIMINARY PLAT

DRIVEWAY PLAN & PROFILE

WATER LINE 'A' PLAN & PROFILE

WATER LINE 'B' PLAN & PROFILE

SHEET

C-0

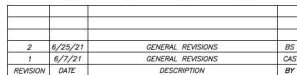
C-1

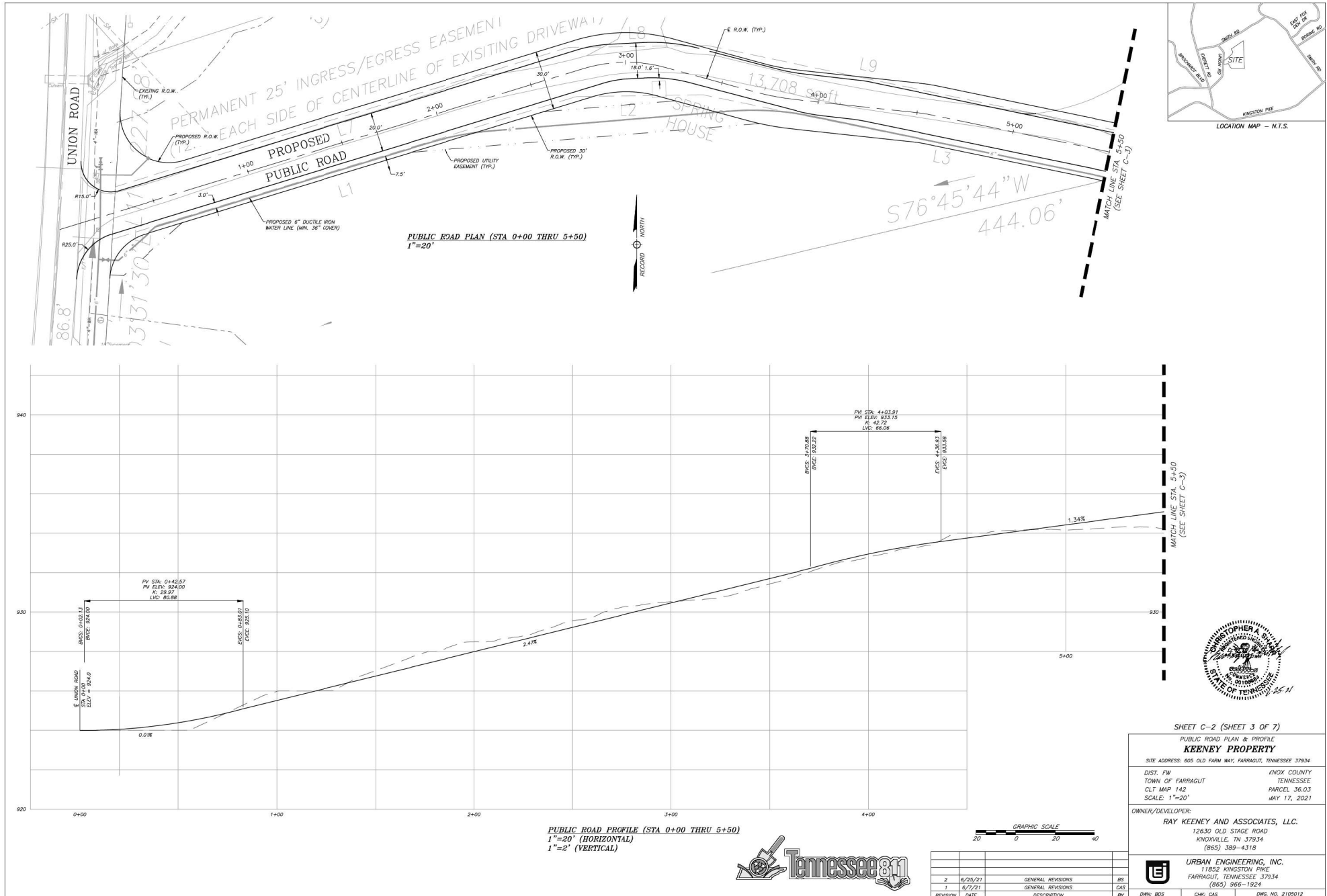
C-2 & C-3

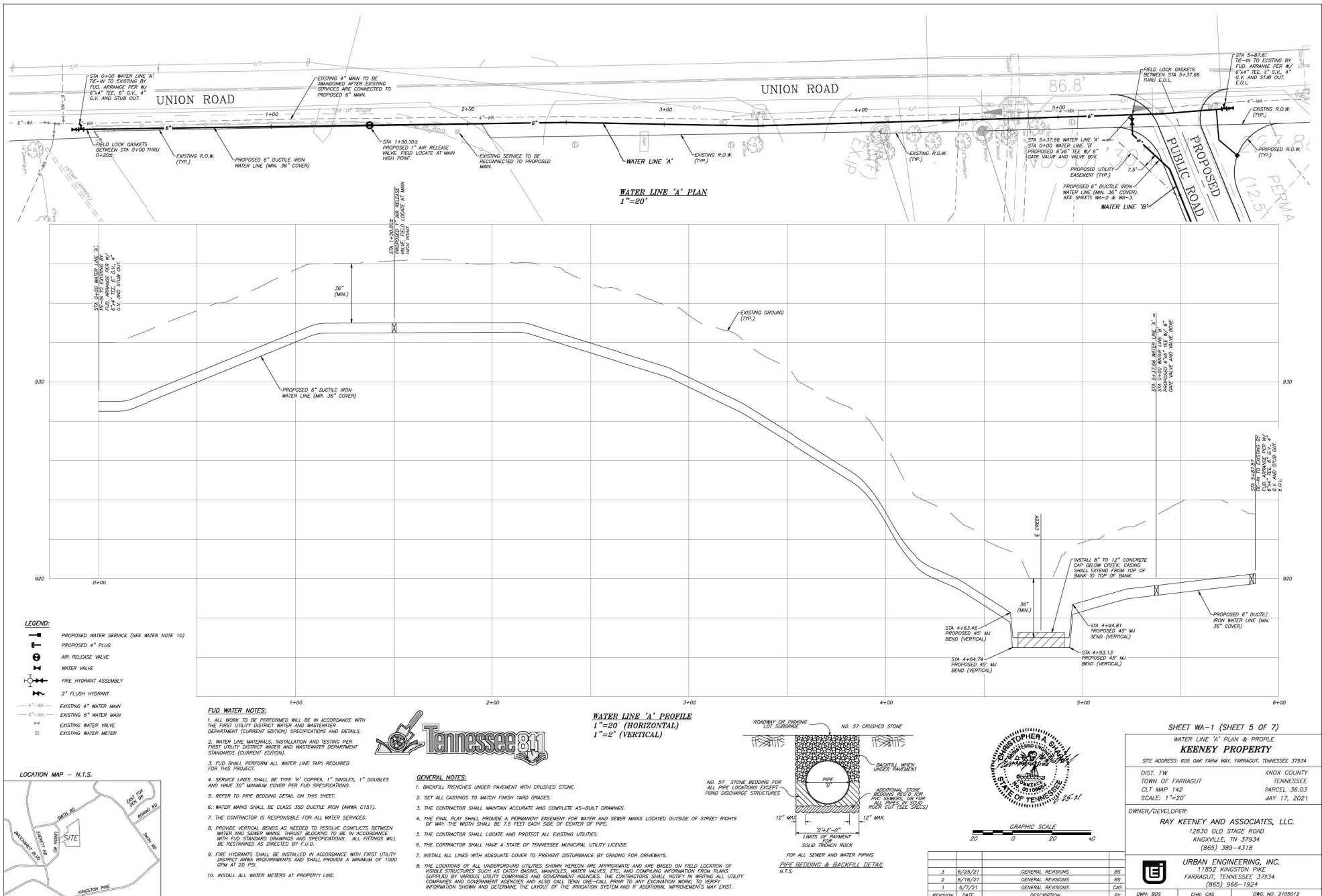
WA-1

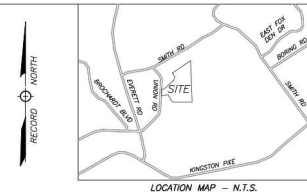
WA-2 & WA-3

3	6/25/21	GENERAL REVISIONS
2	6/7/21	GENERAL REVISIONS
ISSUE NO.	DATE	DESCRIPTION



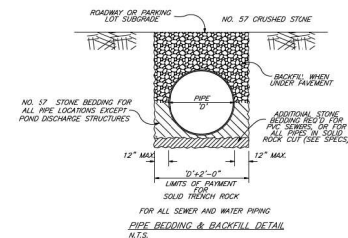






FUD WATER NOTES:

1. ALL WORK TO BE PERFORMED WILL BE IN ACCORDANCE WITH THE FIRST UTILITY DISTRICT WATER METER DEPARTMENT CURRENT EDITIONS AND SPECIFICATIONS AND DETAILS.
2. WATER LINE MATERIALS, INSTALLATION AND TESTING PER FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT STANDARDS (CURRENT EDITION).
3. FUD SHALL PERFORM ALL WATER LINE TAPS REQUIRED FOR THIS PROJECT.
4. SERVICE LINES SHALL BE TYPE "K" COPPER, 1" SINGLES, 1" DOUBLES AND HAVE 30" MINIMUM COVER PER FUD SPECIFICATIONS.
5. REFER TO PIPE BEDDING DETAIL ON THIS SHEET.
6. WATER MAINS SHALL BE CLASS 350 DUCTILE IRON (AWWA C151).
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL WATER SERVICES.
8. PROVIDE WRITTEN BENDES AS NEEDED TO RESOLVE CONFLICTS BETWEEN THE WATER MAINS AND EXISTING UTILITIES. THE CONTRACTOR SHALL BE IN ACCORDANCE WITH FUD STANDARD DRAWINGS AND SPECIFICATIONS. ALL FITTINGS WILL BE AS DIRECTED BY FUD.
9. FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH FIRST UTILITY DISTRICT AWWA REQUIREMENTS AND SHALL PROVIDE A MINIMUM OF 1000 GPM AT 20 PSI.
10. INSTALL ALL WATER METERS AT PROPERTY LINE.



WATER LINE 'B' PLAN & PROFILE
KEENEY PROPERTY

DIST. FW KNOX COUNTY
TOWN OF FARRAGUT TENNESSEE
CLT MAP 142 PARCEL 36.03
SCALE: 1"=20' MAY 17, 2021

URBAN ENGINEERING, INC.
11852 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

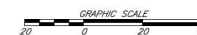
DWN: BDS	CHK: CAS	DWG. NO. 2105012
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GENERAL NOTES:

1. BACKFILL TRENCHES UNDER PAVEMENT WITH CRUSHED STONE.
2. SET ALL CASTINGS TO MATCH FINISH YARD GRADES.
3. THE CONTRACTOR SHALL MAINTAIN ACCOUNT AND COMPLETE AS-BUILT DRAWINGS.
4. THE FINAL PLANT SHALL BE PROVIDED BY THE CONTRACTOR. THE MANHOLE AND SEWER MAINS LOCATED OUTSIDE OF STREET RIGHTS OF WAY. THE WIDTH SHALL BE 7.5 FEET EACH SIDE OF CENTER OF PIPE.
5. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.
6. THE CONTRACTOR SHALL HAVE A STATE OF TENNESSEE MUNICIPAL UTILITY LICENSE.
7. INSTALL ALL LINES WITH ADEQUATE COVER TO PREVENT DISRUPTION BY GRADING FOR DRIVEWAYS.

ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WATER VALVES, ETC. AND INCLUDING INFORMATION FROM PLANS, RECORDS, FIELD SURVEY, AND OTHER SOURCES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES WITH ALL CITY, COUNTY, UTILITY COMPANIES AND GOVERNMENT AGENCIES AND MAINTAIN ALL TIE-OUTS CALL PRIOR TO ANY EXCAVATION WORK. TO VERIFY THE LOCATION OF ALL UTILITIES, THE CONTRACTOR SHALL OBTAIN A UTILITY LOCATING SERVICE FROM A LICENSED UTILITY LOCATING SERVICE PROVIDER.

WATER LINE 'B' PROFILE (STA 0+00 THRU 4+50)
1"=20' (HORIZONTAL)
1"=2' (VERTICAL)



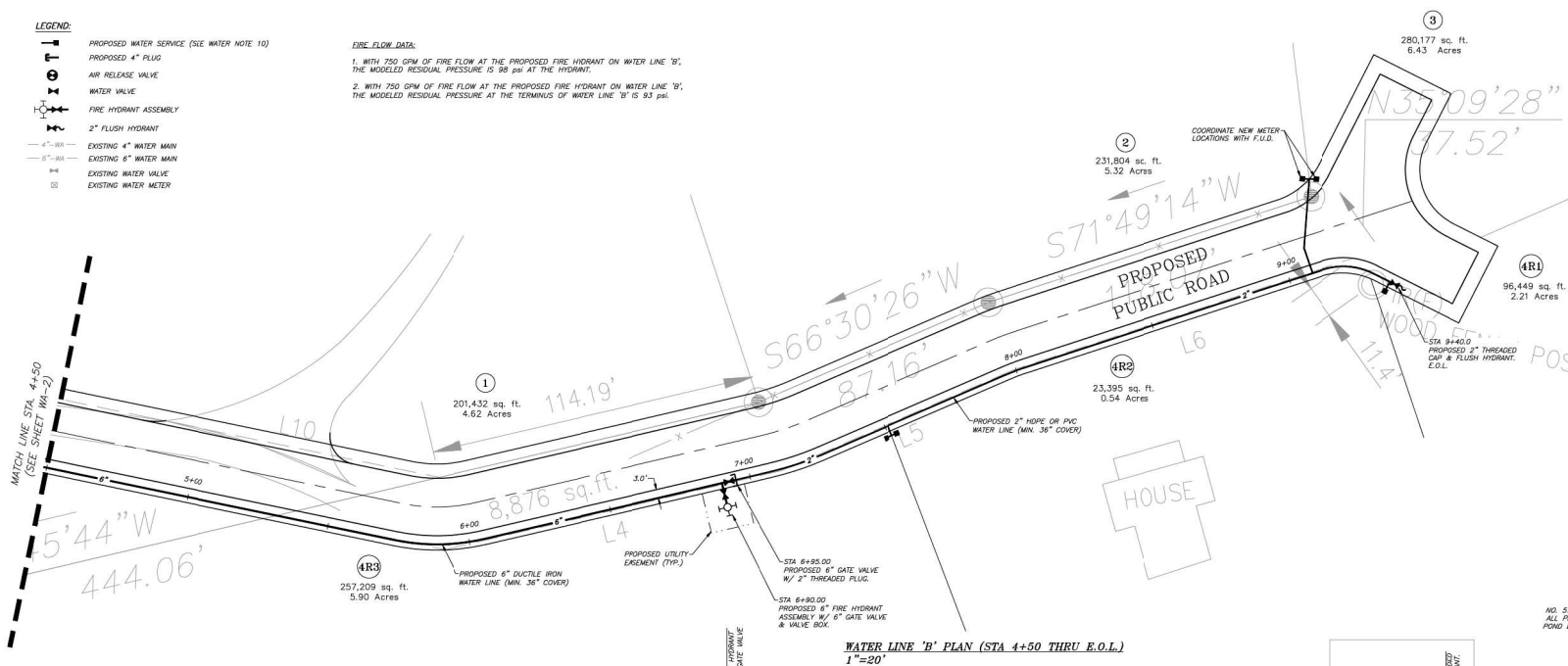
					(865) 389-4318
3	6/25/21	GENERAL REVISIONS	BS		URBAN ENGINEERING, INC. 11852 KINGSTON PIKE FARRAGUT, TENNESSEE 37834 (865) 966-1924
2	6/16/21	GENERAL REVISIONS	BS		
1	5/17/21	GENERAL REVISIONS	CAS		
REVISION	DATE	DESCRIPTION	BY	DWN: BOS	CHK: CAS DWG. NO. 2105012

LEGEND:

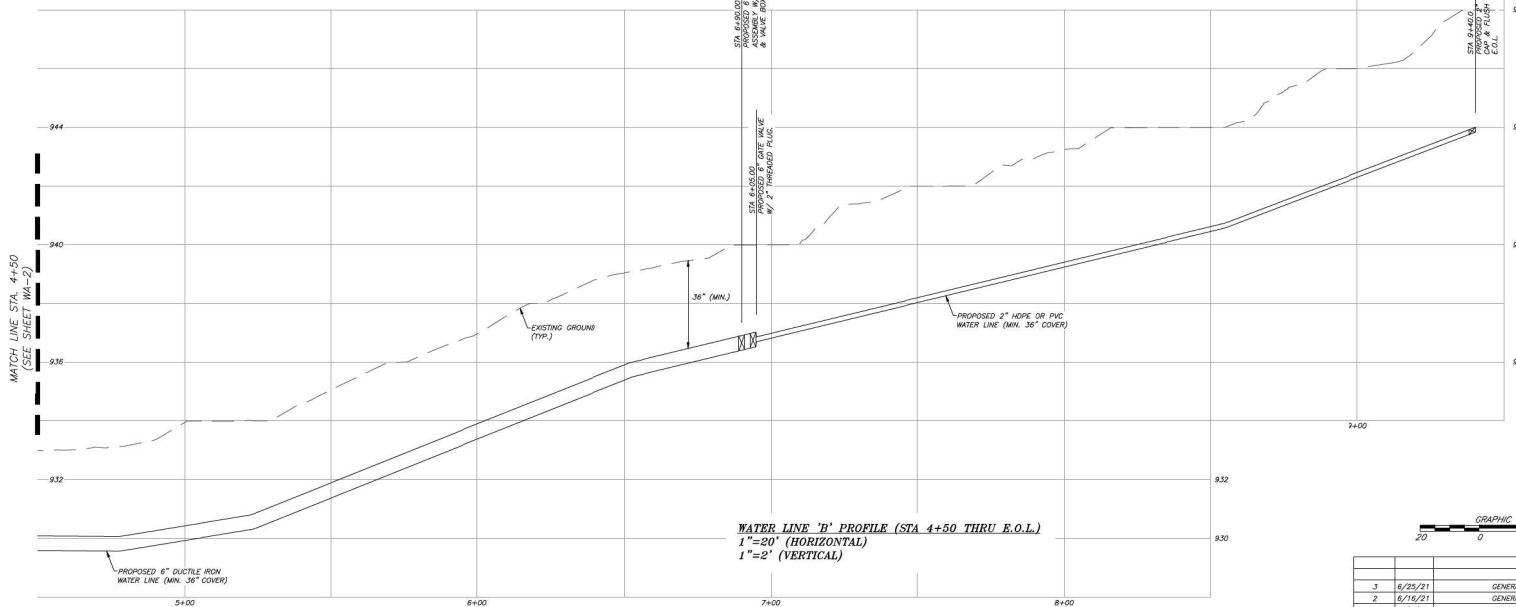
- PROPOSED WATER SERVICE (SEE WATER NOTE 10)
- PROPOSED 4" PLUG
- AIR RELEASE VALVE
- WATER VALVE
- FIRE HYDRANT ASSEMBLY
- 2" FLUSH HYDRANT
- 4"-W- EXISTING 4" WATER MAIN
- 6"-W- EXISTING 6" WATER MAIN
- W- EXISTING WATER VALVE
- W- EXISTING WATER METER

FIRE FLOW DATA:

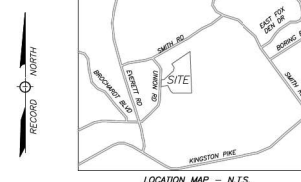
- WITH 750 GPM OF FIRE FLOW AT THE PROPOSED FIRE HYDRANT ON WATER LINE 'B', THE MODELLED RESIDUAL PRESSURE IS 38 psi AT THE HYDRANT.
- WITH 750 GPM OF FIRE FLOW AT THE PROPOSED FIRE HYDRANT ON WATER LINE 'B', THE MODELLED RESIDUAL PRESSURE AT THE TERMINUS OF WATER LINE 'B' IS 93 psi.



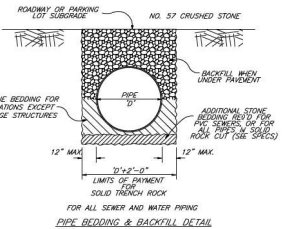
WATER LINE 'B' PLAN (STA 4+50 THRU E.O.L.)
1"=20'



WATER LINE 'B' PROFILE (STA 4+50 THRU E.O.L.)
1"=20' (HORIZONTAL)
1"=2' (VERTICAL)



- FUD WATER NOTES:**
- ALL WORK TO BE PERFORMED WILL BE IN ACCORDANCE WITH THE FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT (CURRENT EDITION) SPECIFICATIONS AND DETAILS.
 - WATER LINE MATERIALS, INSTALLATION AND TESTING PER FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT STANDARDS (CURRENT EDITION).
 - FUD SHALL PERFORM ALL WATER LINE TAPS REQUIRED FOR THIS PROJECT.
 - SERVICE LINES SHALL BE TYPE 'K' COPPER, 1" SINGLES, 1" DOUBLES AND HAVE 30" MINIMUM COVER PER FUD SPECIFICATIONS.
 - REFER TO PIPE BEDDING DETAIL ON THIS SHEET.
 - WATER MAINS SHALL BE CLASS 350 DUCTILE IRON (AWWA C151).
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL WATER SERVICES.
 - PROVIDE VERTICAL BENDS AS NEEDED TO RESOLVE CONFLICTS BETWEEN WATER AND SEWER MAINS. THRUST BLOKING TO BE IN ACCORDANCE WITH FUD STANDARD DRAWINGS AND SPECIFICATIONS. ALL FITTINGS WILL BE RESTRAINED AS DIRECTED BY FUD.
 - FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH FIRST UTILITY DISTRICT AWWA REQUIREMENTS AND SHALL PROVIDE A MINIMUM OF 1000 GPM AT 20 PSI.
 - INSTALL ALL WATER METERS AT PROPERTY LINE.



SHEET WA-3 (SHEET 7 OF 7)

WATER LINE 'B' PLAN & PROFILE			
KEENEY PROPERTY			
SITE ADDRESS: 605 OAK FARM WAY, FARRAGUT, TENNESSEE 37934			
DIST. FW	KNOW COUNTY		
TOWN OF FARRAGUT	TENNESSEE		
CLT MAP 142	PARCEL 36.03		
SCALE: 1"=20'	MAY 17, 2021		
OWNER/DEVELOPER:			
RAY KEENEY AND ASSOCIATES, LLC.			
12630 OLD STAGE ROAD			
KNOXVILLE, TN 37934			
(865) 399-4318			
URBAN ENGINEERING, INC.			
11852 KINGSTON PIKE			
FARRAGUT, TENNESSEE 37934			
(865) 966-1924			
OWN: RDS	CHK: CAS	DWG: NO. 2105012	

REVISION	DATE	DESCRIPTION	BY
3	6/25/21	GENERAL REVISIONS	BS
2	6/16/21	GENERAL REVISIONS	BS
1	6/7/21	GENERAL REVISIONS	CAS

REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a final plat for the Preserve at Turkey Creek, Parcels 02103 and 02101, Tax Map 153, 13 Lots, Zoned R-2, 10.23 Acres (Lynch Surveys, LLC., Applicant)

INTRODUCTION AND BACKGROUND: This item involves a small subdivision off Turkey Creek Road to the south of a portion of the Inverness Subdivision. The preliminary plat was approved by the Planning Commission on September 17, 2020. Since that time the developer has been working on the construction plans provided for in the preliminary plat. The subdivision includes ten house lots and will have a sidewalk on one side of the street with a sidewalk connection to the existing sidewalk on the cul-de-sac of Spring Branch Lane in Inverness. The subdivision also has an extensive streetscape plan along mostly the east side of the street and in the open space areas. This is critical to creating the functional open space required for this subdivision since it does not have a more formalized structural component.

RECOMMENDATION: Included in the packet is the revised final plat and the staffs' comments on the original plat. Staff will make a recommendation at the meeting based on whether the staffs' comments have been addressed.

TOTAL AREA = 445,737
10.23 ACRES
EXCLUDES COMMON AREA AND R.O.W.
TOTAL LOTS = 13

NOTE:
NO TITLE REPORT WAS FURNISHED TO THIS SURVEYOR AND OTHER REQUIREMENTS OF THE EXCEPTIONS NOT APPLICABLE IN THE FIELD AND IT MAY NOT EXIST AND MAY BE REVEALED BY A TITLE SEARCH BY A TITLE ATTORNEY.

DESCRIPTION OF COMMON AREAS DESIGNATION
As owner, in recording this plat I have designated certain areas of land shown herein to common areas intended for use by the homeowners within the subdivision. These areas are intended for the use of the homeowners within the subdivision and are not dedicated for use by the general public, but are dedicated to the common use of the homeowners within the subdivision.

"Declaration of Covenants and Restrictions," applicable to the above named subdivision, is hereby incorporated and made a part of this plat.

Date / Owner

PROPERTY ASSESSOR DATE

CERTIFICATE OF ELECTRIC, GAS AND TELEPHONE AVAILABILITY
This is to certify that every lot within this subdivision has available to it a source for the service identified by (alphabetically) below which service is adequate to accommodate the reasonable needs of such lot or to such service with such subdivision.

Date GAS Name, Title & Agency of Authorized Approving Agent
Date ELECTRIC Name, Title & Agency of Authorized Approving Agent
Date TELEPHONE Name, Title & Agency of Authorized Approving Agent

CERTIFICATE FOR STREET APPROVAL
I certify that streets, sidewalks, and other required improvements have been installed in accordance with the Planning Commission to ensure completion of all required improvements in case of default. Streets (are) public streets maintained at public expense.

DATE TOWN ENGINEER
License No.:

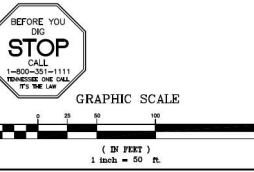
REMARKS OF APPROVAL OF STREET NAMES
This is to certify that the subdivision shown herein has been reviewed for compliance with the Knox County Uniform Street Naming & Addressing System Ordinance, and the road names are hereby approved for recording.

Knox County Addressing System / Date

CERTIFICATE OF APPROVAL OF WATER SYSTEM
I hereby certify that it has been certified to us that the water system(s) outlined or indicated on the first subdivision plat entitled (SUBDIVISION AT TURKEY CREEK) have been installed in accordance with current local and state government requirements.

CERTIFICATE OF APPROVAL FOR RECORDING
I hereby certify that the subdivision plat shown here has been found to comply with the Subdivision Regulations for Forsyth, Tennessee, with the exception of such variations, if any, as are noted in the minutes of the Planning Commission and that it has been approved for recording in the Office of the County Register of Deeds.

Date / Secretary, Planning Commission

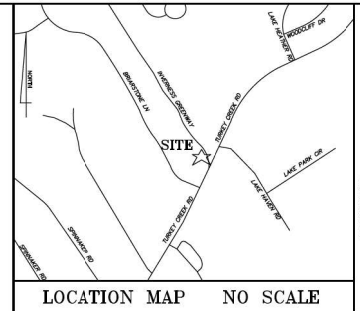


GPS SURVEY NOTE:
ALL BOUNDARY MONUMENTS AND SURVEY CONTROL WAS PERFORMED USING GPS RECEIVER: TOPCON Hiper SR NETWORK ROVER, DUAL FREQUENCY WAS USED (L1/L2). GPS SURVEY PERFORMED WAS NETWORK ADJUSTED REAL TIME KINEMATICS BASED ON TOPCON GNSS NETWORK NAD83(NR2007) VERTICAL DATUM IS NAVD83, GROUND. PRECISION OF THE GPS WORK: 8PPM, 4 CM PLUS 50 PARTS PER MILLION (BASED ON THE DIRECT DISTANCE BETWEEN THE TWO CORNERS BEING TESTED). DISTANCES HAVE NOT BEEN REDUCED TO SEA LEVEL.

TO CENTERLINE INTERSECTION
BRAINSTEAD LN AND TURKEY CREEK RD
262.45'

CERTIFICATE OF OWNERSHIP AND INDICATION
I, (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and dedicate all streets, alleys, walks, paths, and other open space to public or private use as noted.

DATE: 20 _____
OWNER: _____



- IRON PINS SET AT ALL CORNERS, BY THIS SURVEY, UNLESS OTHERWISE NOTED. ALL NEW PROPERTY MONUMENTS ARE 1/2" x 10" REBAR IRON PINS WITH PLASTIC CAP STAMPED "LYNCH 2447".
- CITY TAX MAP 153 PARCELS 021.03 & 021.01.
- DEED REFERENCES - PARCELS 021.03: 201505040059607 PARCELS 021.01: 201505040059606
- PLAT REFERENCE: LOT 2 AND LOT 3 FINAL PLAT FOR REBECCA K. COON PROPERTY 20150505053571
- THIS PROPERTY IS ZONED R-2 MINIMUM SETBACKS: FRONT: 35' SIDE: 30'(BOTH SIDES, 10' MINIMUM) REAR: 25'
- THIS PROPERTY DOES NOT LIE WITHIN A 100/100 YEAR FLOOD ZONE PER FIRM FLOOD INSURANCE RATE MAP NUMBER: 47033033570 EFFECTIVE DATE: AUGUST 5, 2013.
- ALL UNDERGROUND UTILITIES ARE REFERENCED TO UTILITY COMPANIES MAPS AND ARE TO BE CONSIDERED APPROXIMATE.
- NORTH ROTATION: NAD83(NR2007)
- UTILITY AND DRAINAGE EASEMENTS ALONG ALL LOT LINES ADJOINING STREETS AND PRIVATE R.O.W.S (INCLUDING JOINT PERMANENT EASEMENTS). 5' UTILITY AND DRAINAGE EASEMENTS ALONG ALL INTERIOR LOT LINES AND ANY OTHER EXTERIOR LOT LINES.
- 15' PERMANENT UTILITY EASEMENT (15' ON EACH SIDE OF ALL WATER AND SANITARY SEWER LINES AS BUILT) PER PERMIT NO. 20080810001336 IN KNOX COUNTY REGISTER OF DEEDS OFFICE AS SHOWN ON THIS PLAT (UTILITIES NOT IN THE R.O.W. OR THE 15' UTILITY AND DRAINAGE EASEMENT ARE SHOWN TO THE BEST OF OUR UNDERSTANDING).
- SIGHT DISTANCE AT ENTRANCE HAS BEEN FIELD VERIFIED.

CURVE TABLE				
CURVE	BEARING	CHORD	RADIUS	LENGTH
C1	N82°51'35"W	114.23'	100.00'	121.58'
C2	N78°01'17"W	127.67'	100.00'	138.48'
C3	N02°31'48"W	14.26'	10.00'	15.88'
C4	N82°51'35"W	85.86'	75.00'	91.19'
C5	S70°40'57"W	50.73'	125.00'	50.98'
C6	N70°39'09"W	100.18'	125.00'	103.08'
C7	N42°41'23"W	18.91'	125.00'	18.93'
C8	N56°47'09"W	47.43'	75.00'	48.26'
C9	N61°38'00"W	23.49'	50.00'	23.71'
C10	N08°46'13"W	63.30'	50.00'	68.50'
C10A	N74°14'17"E	69.13'	50.00'	76.33'
C11	S31°45'18"E	50.41'	50.00'	52.84'
C12	S19°54'58"E	47.43'	75.00'	48.26'
C13	S80°04'38"E	91.55'	75.00'	98.47'
C13	S40°24'24"E	5.38'	75.00'	5.38'
C14	S82°51'35"E	142.79'	125.00'	151.98'
C15	S89°27'08"E	33.08'	25.00'	36.15'
C16	S48°02'45"W	82.27'	766.00'	82.31'
C17	S50°46'35"W	44.17'	766.00'	44.18'

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S38°21'04"E	5.84'
L2	N38°21'04"W	18.42'
L3	N48°01'58"W	50.87'

OPEN SPACE CALCULATIONS:
PARENT TRACT AREA = 445,737 SQ.FT.
10.23 ACRES
REQUIRED OPEN SPACE = 674,010.0
= 445,737*0.10 = 44,774 SQ.FT.
PROVIDED OPEN SPACE = 70,572 SQ.FT.

CERTIFICATE OF SURVEY ACCURACY
I hereby certify that the plan shown and described hereon is a true and correct survey to the accuracy required by the Forsyth Municipal Planning Commission and that the monuments have been placed as shown herein, to the satisfaction of the Subdivision Regulations. This is a Category 1 Land Survey and the ratio of precision of the unscaled survey is equal to or greater than 1:10,000.

Date _____ Registered Surveyor
No. 2447



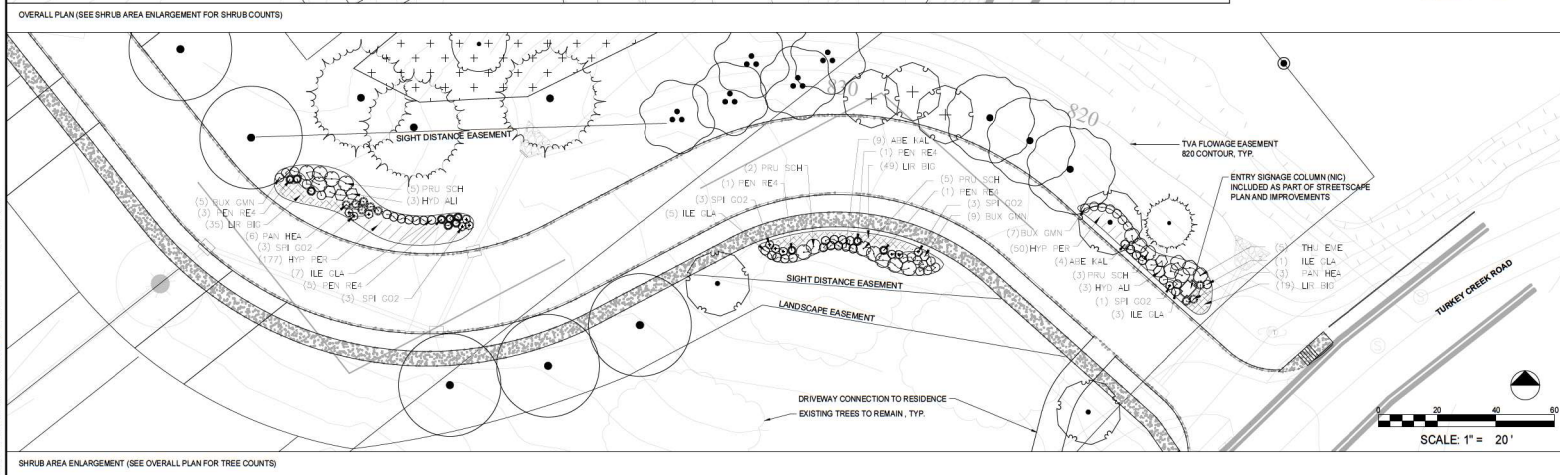
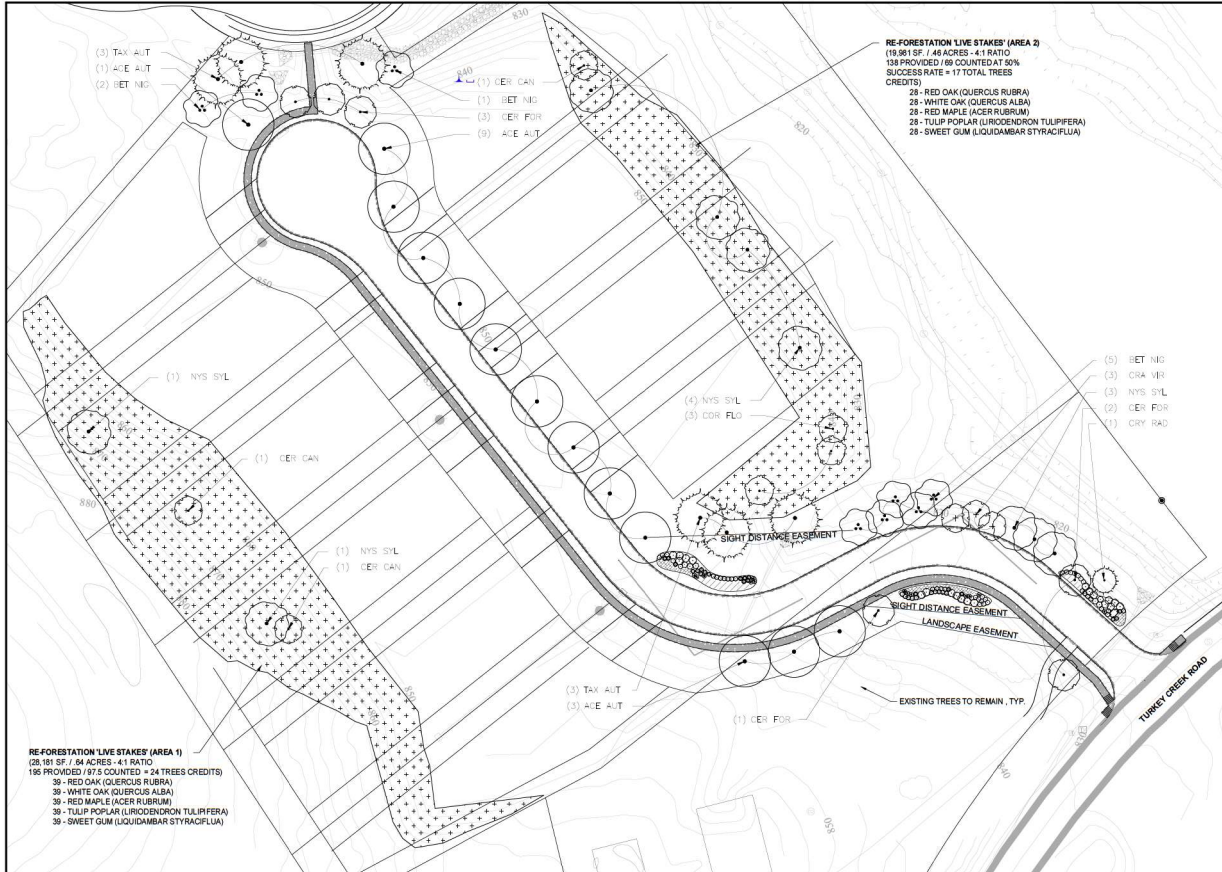
Preserve at Turkey Creek
153 021.03 & 021.01
District FW, Knox County, Tennessee

HomeStead Land Holdings
122 Perimeter Park Rd
Knoxville, Tennessee 37922
Phone 865-690-3200

LYNCH SURVEYS LLC
SUBDIVISIONS | AS-BUILTS | SITE DESIGN
4405 COSTER RD., KNOXVILLE, TENN. 37912
865-584-2630 FAX: 865-584-2801 WWW.LYNCHSURVEY.COM

PROJECT NO.
4324-3 FP
SHEET NO:
1 of 1

REVISIONS	
1	DRAWN BY: B. LYNCH
2	CHECKED BY: R. LYNCH
3	APPROVED BY: B.S.L.
4	SCALE: 1"=50'
5	DATE: 07/07/2021



TREE REPLACEMENT TABLE

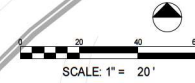
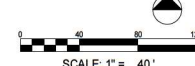
REQUIRED:
TREE REPLACEMENTS ARE BASED ON A REPLACEMENT SCHEDULE OF ONE TREE / 2,500 SF. OF DISTURBANCE BASED ON A MATURE FOREST CLASSIFICATION.
OVERALL DISTURBED VEGETATED AREA IS 232,025 SF. (8.32 ACRES) / 2,500 SF. = **93 TREES REQUIRED**

LIVE STAKES:
AREA 1 - (28,181 SF. / 64 ACRES) = 195 PROVIDED / 575 COUNTED (50%) AT 4:1 RATIO = 24 TREE CREDITS
AREA 2 - (19,981 SF. / 46 ACRES) = 138 PROVIDED / 69 COUNTED (50%) AT 4:1 RATIO = 17 TREE CREDITS
TOTAL TREE CREDITS FROM LIVE STAKES = 41 TREES

TREE PLANTINGS:
52 ADDITIONAL TREES ARE PROPOSED PER THE (93) TREE REPLACEMENT REQUIREMENTS

PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME
	ACER RUBRUM 'AUTUMN FLAME'	AUTUMN FLAME RED MAPLE
	NETULA NIGRA	RIVER BIRCH MULTI-TRUNK
	CERES CANADENSIS	EASTERN REDBUD
	CERES CANADENSIS 'FOREST PANSY'	FOREST PANSY REDBUD
	CORNUS FLORIDA	EASTERN DOGWOOD
	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN
	CRYPTOMERIA JAPONICA 'RADICANE'	RADICANE JAPANESE CEDAR
	NYSSA SYLVATICA	SOUR GUM
	TAXODIUM DISTICHUM 'AUTUMN GOLD'	AUTUMN GOLD BALD CYPRESS
SHRUBS	BOTANICAL NAME	COMMON NAME
	AEGLIUM GRANATIFLORA 'VALENDISCOPE'	VALENDISCOPE GLOSSY ABELIA
	BUXUS 'GREEN MOUND'	GREEN MOUND BOXWOOD
	HYDRANGEA QUERCIFOLIA 'ALICE'	ALICE OAKLEAF HYDRANGEA
	KIA KUMARA	WINTER HOLLY
	PANICULUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCH GRASS
	PENSTEMON BISTORIUM 'RED PINK HOOD'	DWARF PURPLE FOUNTAIN GRASS
	PRUNUS LAURO-CERASUS 'SOPHORA'	SOPHORA CHERRY LAUREL
	SPINARIA JAPONICA 'GOLDENWIND'	GOLDENWIND SPINARIA
	TRIALIA OCCIDENTALIS 'EMERALD'	EMERALD AGROVITAE



GENERAL NOTES:

- UNDERGROUND UTILITIES:
1.1. UNDERGROUND UTILITIES HAVE NOT BEEN VERIFIED BY THE OWNER, LANDSCAPE ARCHITECT, OR THEIR REPRESENTATIVES. BEFORE YOU DIG, CALL TENNESSEE ONE CALL SYSTEM-1-800-351-1111.
1.2. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY UNDERGROUND UTILITIES TO REMAIN.
2. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS TO INSURE THAT THE NEW WORK SHALL FIT INTO THE EXISTING SITE IN THE MANNER INTENDED AND AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO PERFORMING ANY WORK IN THE AREA INVOLVING DIFFERENCES. NOTIFICATION SHALL BE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS AND NOTES RELATING TO THE AREA.

LANDSCAPE NOTES:

- PLANTING BEDS AND PLANT LOCATIONS SHALL BE STAKED BY THE LANDSCAPE CONTRACTOR. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER OR THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION OF THE PLANTS.
- PLANTING BEDS SHALL BE CLEARED OF ALL GRASS AND WEEDS PRIOR TO INSTALLATION OF PLANTS, INCLUDING SPRAYING 'ROUND-UP' OR APPROVED SUBSTITUTE TO KILL ACTIVELY GROWING PLANTS. PLANT BEDS SHALL BE PREPARED AS CALLED FOR IN THE SPECIFICATIONS AND DETAILS.
- ALL OTHER DISTURBED AREAS ARE TO BE SEEDED OR SOODED AS PER THE PLANS. ADDITIONAL SEEDING OR SOODING, IF REQUIRED, WILL BE AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE. SEE EROSION CONTROL SHEET FOR SEEDING.
- PLANTING BEDS SHALL HAVE A THREE (3) INCH SHREDDED HARDWOOD BARK MULCH OVER THE ENTIRE BED, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- PRIOR TO PLANTING, ALL PLANTED AREAS SHALL BE TREATED WITH A WATER-SOLUBLE HERBICIDE FOR THE NON-SELECTIVE CONTROL OF ANNUAL AND PERENNIAL WEEDS PRIOR TO PLANTING.
- ALL TREE AND SHRUB PLANTING PITS SHALL BE BACKFILLED WITH A PLANTING SOIL MIXTURE OF ONE (1) PART ORIGINAL SOIL AND ONE (1) PART TOPSOIL, THOROUGHLY MIXED. SAMPLE OF MIXTURE TO BE APPROVED IN WRITING BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- PLANT GROUNDCOVER & ANNUAL BEDS IN SAME MIXTURE AS SHRUBS. AFTER PLANTING & MULCHING, WATER AREAS TO POINT OF SATURATION.
- ALL PLANTED AREAS ARE TO BE FERTILIZED WITH GRANULAR FERTILIZER. LANDSCAPE CONTRACTOR IS TO PROVIDE SOIL TEST RESULTS AND PROPOSED FERTILIZER APPLICATION RATES TO THE OWNER OR OWNER'S REPRESENTATIVE FOR APPROVAL.
- ALL PLANT MATERIAL IS TO BE NURSERY GROWN AND TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004) OR LATEST EDITION. PLANTS NOT IN COMPLIANCE WILL BE REJECTED AND REPLACED WITH PLANTS THAT MEET THE STANDARD.
- SPRAY TREES AND SHRUBS WITH ANTI-DESCENDANT IF FOLIAGE IS PRESENT.
- EVERGREEN TREES AND SHRUBS SHALL BE PLANTED IN THE SAME MANNER AS DECIDUOUS MATERIAL IS PLANTED.
- DO NOT PRUNE ANY PLANT MATERIAL UNTIL IT HAS BEEN INSPECTED AND ACCEPTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- ALL LANDSCAPE MATERIAL SHALL BE APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE BEFORE INSTALLATION. MATERIALS MAY BE VIEWED AT LANDSCAPE CONTRACTOR'S HOLDING SITE OR AT THIS SITE. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE OF THE AVAILABILITY OF THE MATERIALS TO BE INSPECTED.
- ALL MATERIALS INSPECTED ON THE SITE AND FOUND TO BE UNACCEPTABLE SHALL BE REMOVED FROM THE SITE ON THE DAY OF INSPECTION.
- FIELD CHANGES MUST BE APPROVED IN WRITING BY THE OWNER OR OWNER'S REPRESENTATIVE.
- EXISTING PLANT MATERIAL IS TO BE EVALUATED BY THE LANDSCAPE ARCHITECT FOR POSSIBLE RELOCATION ON SITE. THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE LANDSCAPE ARCHITECT FORTY-EIGHT (48) HOURS BEFORE BEGINNING WORK.
- ALL PLANT MATERIAL SHALL BE SUPPLIED BY APPROPRIATE SOURCES TO PREVENT UNDESIRABLE STRESS OR PROLONGED ACCLIMATIZATION WHICH WOULD INHIBIT PLANT GROWTH.
- LANDSCAPE CONTRACTOR IS TO VERIFY PLANT QUANTITIES SHOWN ON PLAN AND IN PLANT LIST. IF DISCREPANCIES OCCUR, LANDSCAPE CONTRACTOR IS TO CONTACT LANDSCAPE ARCHITECT IMMEDIATELY. QUANTITIES SHOWN ON PLAN TAKE PRECEDENCE.
- EVERGREEN TREES TO BE A MINIMUM OF 8" IN HEIGHT AT TIME OF PLANTING. DECIDUOUS TREES TO BE 2" DBH MIN AT TIME OF PLANTING. SEE PLANT LIST FOR LARGER MATERIAL REQUIRED.
- MULTI-TRUNK PLANT MATERIAL SHALL BE ONE PLANT GROWN FROM SINGLE SEEDLING. NO CLUMP MULTI-PLANT STOCK WILL BE ACCEPTED.
- IF IN THE OPINION OF THE LANDSCAPE ARCHITECT, THE CENTRAL LEADER OF ANY TREE HAS BEEN CUT IN THE HISTORY OF THE PLANT'S GROWTH, THE MATERIAL SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER. THE DECISION OF THE LANDSCAPE ARCHITECT WILL BE FINAL.

PLANT STOCK NOTES:

- ALL CANOPY TREES SHALL BE LIMBED UP AT LEAST 7' WITH A MINIMUM HEIGHT OF 12'.
- ALL PRESTRIAN ACCESS WAYS MUST HAVE AT LEAST 7' OF CLEARANCE.
- ALL UNDERSTORY TREES SHALL BE LIMBED UP AT LEAST 4' WITH A MINIMUM HEIGHT OF 8'.
- ALL CANOPY AND UNDERSTORY TREES SHALL HAVE ONE STRONG CENTRAL LEADER TRUNK. NO MULTI-TRUNK UNLESS SPECIFIED.
- THE SOUTH SIDE OF ALL TREES SHALL BE MARKED BEFORE TRANSPLANT FOR DIRECTIONAL PLACEMENT AT THE TIME OF PLANTING. CONTRACTOR SHALL BE RESPONSIBLE FOR DIRECTIONAL PLACEMENT.
- ALL TREES SHALL BE MATCHED SPECIMENS WITH A FULL CANOPY AND A UNIFORM BRANCHING HABIT.
- EVERGREEN TREES SHALL BE FULL TO GROUND WITH A HEAVY CANOPY AND STRONG CENTRAL LEADER.
- ALL SHRUBS SHALL HAVE A FULL, HEAVY BODY FOR THE COMPLETE HEIGHT OF THE SHRUB AND SHOULD NOT SHOW STRESS AT TIME OF PLANTING.
- ALL SHRUBS SHALL HAVE A MINIMUM 60 CONTAINER AT TIME OF PLANTING. PLANT SELECTION MUST BE CHOSEN BY PLANT SIZE, NOT CONTAINER SIZE.
- ALL SHRUBS, EXCEPT AS NOTED, SHALL BE PLANTED AND MAINTAINED IN THEIR NATURAL FORM TO CREATE A PLANT MASSING EFFECT. NO "GUMDROP" PRUNING IS ALLOWED.
- MULCH "VOLCANOES" ARE UNACCEPTABLE. MULCH MUST BE INSTALLED PER DETAILS.
- INSTALL ALL PLANTS IN ACCORDANCE WITH ALL APPLICABLE DETAILS AND SPECIFICATIONS INCLUDED WITHIN THE CONSTRUCTION PACKAGE.
- ALL PLANTS MUST BE SELECTED, INSTALLED, AND MAINTAINED ACCORDING TO THE SPECIFICATIONS.
- ALL TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM MAJOR UTILITY LINES. CONTACT LANDSCAPE ARCHITECT WHERE DISCREPANCIES OCCUR FOR FIELD ADJUSTMENT.



LANDSCAPE PLAN
GOIN PROPERTY SUBDIVISION
HOMESTEAD LAND HOLDINGS, LLC.
TOWN OF FARRAGUT

NO.	DATE	DESCRIPTION
1	10/27/2020	ISSUED FOR PERMIT
2		
3		
4		
5		
6		
7		
8		
9		
10		

SHEET TITLE

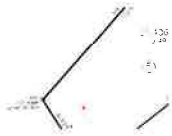
LANDSCAPE PLAN

PROJECT NO.	DATE
20164	10/27/2020
DRAWN BY	SCALE
ADS	VARIES
CHECKED BY	
DJB	
SHEET NO.	SHEET 5 OF 16

L100

Preserve at Turkey Creek Final Plat Initial Staff Comments.pdf Markup Summary

Arrow (2)



Subject: Arrow
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:53:02 PM
Status:
Color: ■
Layer:
Space:



Subject: Arrow
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:53:17 PM
Status:
Color: ■
Layer:
Space:

Callout (6)



Subject: Callout
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:47:20 PM
Status:
Color: ■
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Space:

The final plat must show the actual name of the public street.



Subject: Callout
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:52:48 PM
Status:
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Please include dimensions from property lines to proposed building envelopes.



Subject: Callout
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:54:34 PM
Status:
Color: ■
Layer:
Space:

Is this now required from the County?



Subject: Callout
Page Label: 1
Author: bhose
Date: 6/21/2021 3:03:46 PM
Status:
Color: ■
Layer:
Space:

The plat and subdivision have been renamed Preserve at Turkey Creek. See also similar wording in certificates below.



Subject: Callout
Page Label: 1
Author: bhose
Date: 6/21/2021 3:18:16 PM
Status:
Color: ■
Layer:
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There needs to be a sidewalk/walking trail easement across the open space lot to accommodate the public sidewalk/trail connection.



Subject: Callout
Page Label: 1
Author: mshipley
Date: 6/21/2021 3:23:18 PM
Status:
Color: ■
Layer:
Space:

What does the sight distance easement entail?

Cloud+ (2)



Subject: Cloud+
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:58:25 PM
Status:
Color: ■
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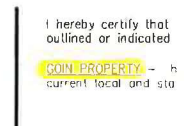
This plat is not permitted. Please remove from the plat. All utilities not within the right of way or standard easements must be shown with their associated easement. The Town will not sign the plat with this note.



Subject: Cloud+
Page Label: 1
Author: mshipley
Date: 6/21/2021 2:18:27 PM
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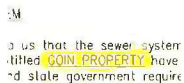
Please remove this note since this is a separate review and approval.

Highlight (2)



Subject: Highlight
Page Label: 1
Author: bhose
Date: 6/21/2021 3:01:05 PM
Status:
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I hereby certify that outlined or indicated



Subject: Highlight
Page Label: 1
Author: bhose
Date: 6/21/2021 3:01:21 PM
Status:
Color: ■
Layer:
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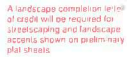
us that the sewer system titled GOIN PROPERTY have and state government require

Text Box (4)



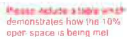
Subject: Text Box
Page Label: 1
Author: mshipley
Date: 6/21/2021 1:51:29 PM
Status:
Color: ■
Layer:
Space:

As of Friday, June 18, the site was nowhere near ready for final plat preparation. The final plat is an as-built of constructed improvements and their associated property lines and easements. These improvements have not been constructed. The road, for example, only had some base stone and the subgrade had some issues identified by engineering staff. This plat will likely not be ready for the July FMPC meeting.



Subject: Text Box
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Author: mshipley
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A landscape completion letter of credit will be required for streetscaping and landscape accents shown on preliminary plat sheets.



Subject: Text Box
Page Label: 1
Author: mshipley
Date: 6/21/2021 2:17:38 PM
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Please include a table which demonstrates how the 10% open space is being met.



Subject: Text Box
Page Label: 1
Author: mshipley
Date: 6/24/2021 11:54:40 AM
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Please complete all items on the checklist for field related items needed prior to the Town signing a final plat

REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a site plan for Moses Watersports, Parcel 176.02, Tax Map 130, 11470 Outlet Drive, Zoned OD-RE/E, 6.8 Acres (Urban Engineering, Inc., Applicant)

INTRODUCTION AND BACKGROUND: This item involves a request for approval of a site plan for the Moses Watersports boat dealership proposed just to the east of Buddy Gregg Motor Homes along Outlet Drive. The property is zoned Outlet Drive Regional Entertainment and Employment District (OD-RE/E). In this district, outdoor storage and sales are permitted provided they are contained within areas specifically designed and approved for such storage or sales as part of a site plan review. These areas are to be screened from public rights-of-ways with opaque materials that are architecturally compatible with the primary materials used on the building they are serving.

The proposed building is one story in height and 16,000 square feet in size. Within the OD-RE/E District, a building of this height and size is required to have masonry (as described in the Architectural Design Standards) on at least 60% of the net façade area of the building. As proposed, the building is roughly 63.7% masonry. The project architect is proposing to use EIFS as an accent material since it is not permitted as a primary façade material.

DISCUSSION: In this general area, including portions of this property, there are known sinkholes. The developable portion of this site has limited visibility from Outlet Drive, partly the result of tree cover within the sinkhole lip elevation. Staff has noted on review that the plans must be clear that the tree cover within the sinkhole lip elevation is to be left undisturbed. This is an environmentally sensitive area and the tree cover within this area serves essential stormwater filtration and absorption that benefits the general area, including this parcel. Staff has made it clear that the business will need to understand this on the front end as an inherent and unchangeable characteristic of the property.

Two design questions concerning the building's architecture are whether an iconic element has been provided and that the building does not appear to include a well-defined cap. As explained in the Building Design Guidelines checklist that is included with this item, the main entry element is to serve as the iconic feature to brand the building. No explanation is provided with regards to a roof form that provides a "cap." Staff also has not been provided a detail of how the applicant plans to screen the outdoor storage and sales area with opaque materials that are architecturally compatible with the primary materials used on the building they are serving. This is something that the Planning Commission will need to review and approve as part of the site plan approval.

The proposed access onto Outlet Drive will require a variance from the distance between driveways requirements for arterial streets, as provided for in the Driveways and Other Access Ways Ordinance. The applicant's engineer has provided a letter explaining their justification for the variance. The letter is included in the packet.

RECOMMENDATION: Included in the packet are copies of the revised site plan along with sheets from the initial submittal that include responses from the applicant to staff comments. Staff will make a recommendation based on whether the staff comments have been satisfactorily addressed.



URBAN ENGINEERING, INC.

CIVIL ENGINEERS • LAND PLANNERS

July 7, 2021

Town of Farragut
Mr. Mark Shipley
11408 Municipal Center Drive
Farragut, TN 37934

Re: Moses Watersports

Dear Mark:

Attached to this letter you will find the Site Plan and an exhibit showing the relationship between the proposed site ingress/egress point and intersections to the west. The subject property's western boundary lines up with the western curb line of the entrance to Tapestry at Turkey Creek. Ideally the entrances would line up directly. In this instance, lining them up directly is impractical for the following reasons:

- 1) Moving the Moses Watersports entrance to the western property line would necessitate a property line retaining/landscape wall and potentially a portion of the wall would need to be in right of way to make grades work.
- 2) There is an existing electrical pole that would conflict.
- 3) The western radius return would be in front of the Buddy Gregg facility immediately to the west.

For those reasons, we are respectfully requesting the following variance from the subdivision regulations, zoning ordinance and access ordinance:

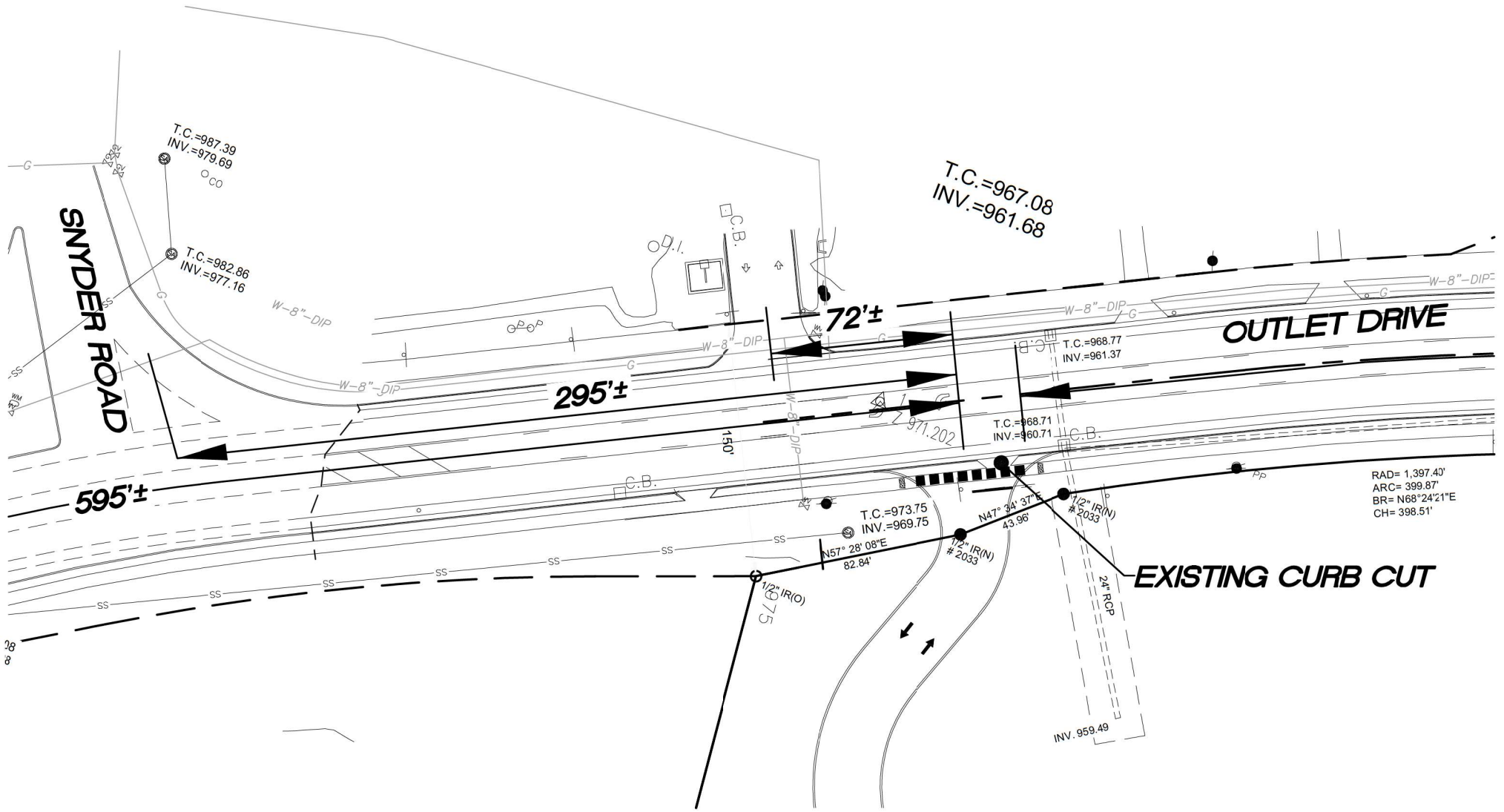
1. Reduce the required distance between curb cuts along a Minor Arterial Street from 400 feet to 72 feet.

Please do not hesitate to contact me if you have questions or need additional supporting materials.

Sincerely,

Urban Engineering, Inc.

Chris Sharp, P.E.



SNYDER ROAD

OUTLET DRIVE

EXISTING CURB CUT

T.C.=987.39
INV.=979.69
○ CO

T.C.=982.86
INV.=977.16

T.C.=967.08
INV.=961.68

T.C.=968.77
INV.=961.37

T.C.=968.71
INV.=960.71

T.C.=973.75
INV.=969.75

RAD= 1,397.40'
ARC= 399.87'
BR= N68°24'21"E
CH= 398.51'

1/2" IR(O)
7.5

1/2" IR(N)
2033

1/2" IR(N)
2033

INV. 959.49

N57° 28' 08"E
82.84'

N47° 34' 37"E
43.96'

295'±

72'±

595'±

W-8"-DIP

150'

W-8"-DIP

W-8"-DIP

C.B.

C.B.

C.B.

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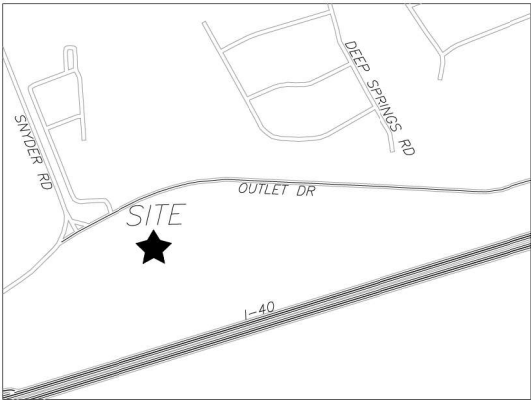
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SITE DEVELOPMENT PLANS

U.E.I. PROJECT NO. 2104008

MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE, TENNESSEE 37932
CLT MAP 130, PARCEL 176.02



LOCATION MAP

DEVELOPER:
MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890
chris@moseswatersports.com



SITE ENGINEER:
URBAN ENGINEERING, INC.
CHRIS SHARP
11852 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924
chris@urban-eng.com

SPECIFICATIONS

EXCEPT WHERE DIRECTED OTHERWISE BY THE PLANS, WORKMANSHIP AND MATERIAL (BUT NOT MEASUREMENT AND PAYMENT) FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS AND STANDARDS.

ELECTRICAL - AS DIRECTED BY LCUB
GAS - AS DIRECTED BY KUB
WATER - AS DIRECTED BY FIRST UTILITY DISTRICT
CABLE TV - AS DIRECTED BY CHARTER
TELEPHONE - AS DIRECTED BY TDS
TOWN OF FARRAGUT - ALL APPLICABLE TOWN REGULATIONS AND ORDINANCES

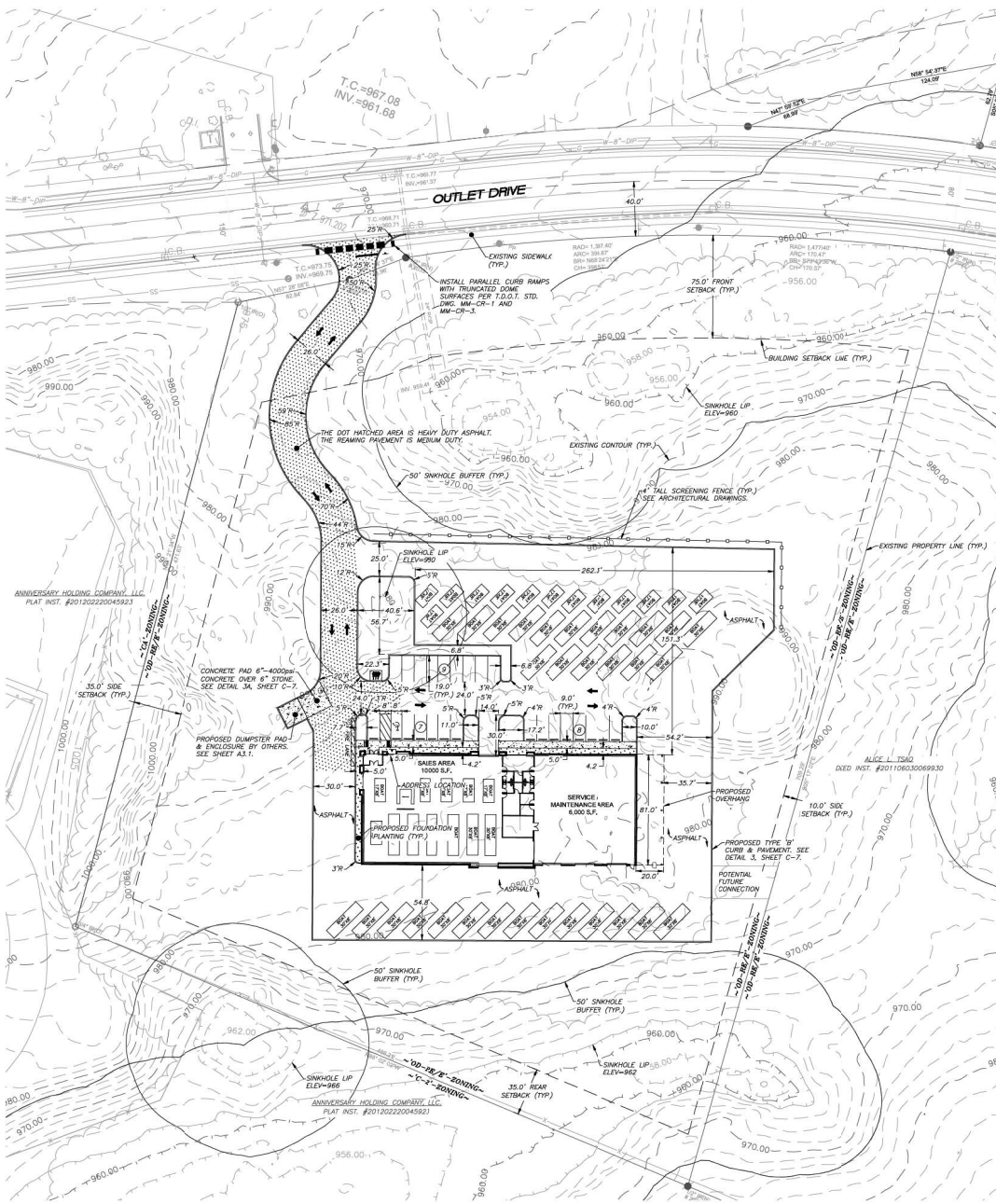
SHEET INDEX

TITLE	SHEET
TITLE SHEET	C-0
SITE PLAN	C-1
GRADING PLAN	C-2
DRAINAGE PLAN	C-3
EROSION AND SEDIMENT CONTROL PLANS	C-4 THRU C-6
SITE CONSTRUCTION DETAILS	C-7 & C-8
SANITARY SEWER AND SITE WATER PLAN	C-9
FLOOR PLAN	A1.1
ROOF PLAN	A1.2
ARCHITECTURAL ELEVATIONS	A3.1 & A3.2
LEGEND & SCHEDULE	E0.1
SITE ELECTRICAL PLAN	E1.1
SITE PHOTOMETRIC PLAN	E1.2
TREE PRESERVATION & REMOVAL PLAN	L100

BUILDING SUMMARY:

BUILDING AREA (S.F.): 16,000
NUMBER OF STORIES: 1
CONSTRUCTION TYPE: II-B
OCCUPANCY TYPE: BUSINESS
ONE-HOUR PROTECTED: NO
BUILDING SPRINKLED: NO

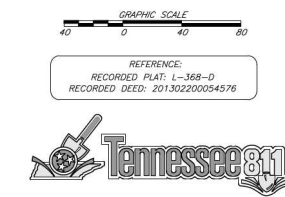
2	7/5/21	SUBMITTAL 2
ISSUE NO.	DATE	DESCRIPTION



SYMBOL	DESCRIPTION	DETAIL
	TRAFFIC ARROW	SEE DETAIL 6, SHEET C-7
	STOP SIGN / HANDICAP SIGN	STOP SIGN, SEE DETAIL 7, SHEET C-7 HANDICAP SIGN, SEE DETAIL 5, SHEET C-7
	12\" PAINTED STOP BAR (SEE NOTE 15)	
	PAINTED HANDICAP SYMBOL	SEE DETAIL 4, SHEET C-7
	3-STALL BIKE RACK	SEE DETAIL 9, SHEET C-7
	NO. OF PARKING STALLS (PROP.)	
	TURNDOWN SIDEWALK / PAD	SEE DETAIL 8, SHEET C-7
	CURB STOP	SEE DETAIL 2, SHEET C-7
	FOUNDATION PLANTING	
	HANDICAP RAMP	SEE DETAIL 1, SHEET C-7
	4\" CROSSWALK (SEE NOTE 15)	
	YELLOW TRUNCATED DOME	T.O.D.T. STD. DWG. RP-H-3



- SITE PLAN NOTES:**
- PROPERTY CORNERS MARKED AS NOTED.
 - THIS PROPERTY IS ZONED OD-RE/E, OUTLET DRIVE REGIONAL ENTERTAINMENT AND EMPLOYMENT DISTRICT. REQUIRED BUILDING SETBACKS AS FOLLOWS:
FRONT: WHERE A PARKING LOT IS SITUATED IN THE FRONT YARD BETWEEN A BUILDING AND AN ADJUTING STREET, ALL BUILDINGS SHALL BE SET BACK FROM THE NEAREST POINT OF ANY RIGHT-OF-WAY A MINIMUM OF 75 FEET.
SIDE BUILDINGS (NON-ACCESSORY) WITHIN THE OD-RE/E DISTRICT SHALL BE A MINIMUM OF 30 FEET AWAY, WHERE THE ADJUTING PROPERTY IS NOT WITHIN THE OD-RE/E DISTRICT THE SIDE SETBACK SHALL BE A MINIMUM OF 35 FEET.
REAR BUILDINGS (NON-ACCESSORY) SHALL BE SET BACK A MINIMUM OF 35 FEET.
 - VEHICLE PARKING:
NUMBER OF EMPLOYEES = 9
PROPOSED BUILDING GROSS FLOOR AREA = 16,000 S.F.
SHOWROOM GROSS FLOOR AREA = 10,000 S.F.
MAINTENANCE GROSS FLOOR AREA = 6,000 S.F.
PROPOSED PARKING SUMMARY:
1 PER EMPLOYEE (9 EMPLOYEES) = 9
1 PER 700 S.F. SHOWROOM AREA = 14
TOTAL REQUIRED = 24 SPACES (INCLUDING 1 H.C.)
PROPOSED PARKING = 24 SPACES (INCLUDING 1 H.C.)
BICYCLE PARKING: 2 BICYCLE SPACES PER 25 VEHICLE SPACES FOR THE FIRST 100 VEHICLE SPACES, PLUS 2 BICYCLE SPACES PER 50 VEHICLE SPACES FOR THE NEXT 400 VEHICLE SPACES.
REQUIRED BICYCLE SPACES = 2
PROVIDED BICYCLE SPACES = 3
 - TOTAL SITE AREA = 297,365 S.F. (6.83 ACRES)
BUILDING & ACCESSORIES = 16,000 S.F.
PARKING & PLANTWORK AREA = 72,872 S.F.
TOTAL IMPERVIOUS AREA = 88,872 S.F.
TOTAL LOT COVERAGE = 30%
*SEE DETAIL 1, SHEET C-8 FOR LOT COVERAGE DIAGRAM.
 - REQUIRED FOUNDATION PLANTING = 2.5' x 25' = 550 S.F.
PROPOSED FOUNDATION PLANTING = 1,007 S.F.
 - THERE ARE NO PROPOSED ANTENNAS AS PART OF THIS DEVELOPMENT.
 - TREES THAT ARE DAMAGED OR REMOVED ARE TO BE REPLACED PER THE TOWN OF FARRAGUT TREE PROTECTION/REPLACEMENT ORDINANCE.
 - FIRE LANES SHALL BE 3' WIDE WITH 1'-9" LETTERING AS SHOWN ON THE PLAN.
 - SIGNAGE AND STRIPING TO CONFORM TO THE MUTCD, LATEST EDITION.
 - TRAFFIC CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR.
 - PROVIDE 1/2" PRE-MOLDED EXPANSION JOINTS WHERE SIDEWALK ADJUTS BUILDING. PROVIDE SAWED CONSTRUCTION JOINTS AT 5' INTERVALS.
 - SETBACKS SHOWN ON THIS PLAN ARE PER THE CURRENT TOWN OF FARRAGUT ZONING ORDINANCE.
 - ALL WALKING FACILITIES (WALKING TRAILS/SIDEWALKS) MUST BE COORDINATED WITH TOWN STAFF PRIOR TO CONSTRUCTION.
 - ALL PROPOSED HVAC IS ROOF-MOUNTED. ALL HVAC UNITS SHALL BE SCREENED BY THE BUILDING THEY ARE SERVING SO THAT THEY ARE NOT VISIBLE FROM ADJUTING PROPERTIES OR RIGHTS OF WAYS.
 - ALL TRAFFIC MARKINGS WITHIN T.O.D.T. RIGHT OF WAY SHALL BE THERMOPLASTIC PER T.O.D.T. SPECIFICATIONS.
 - TOPO PROVIDED BY LAND DEVELOPMENT SOLUTIONS DATED 06-01-21.
 - SEE DETAIL 4, SHEET C-8 FOR ACCESS DIAGRAM.
 - THE SINKHOLES SHOWN HEREON ARE ENVIRONMENTALLY SENSITIVE AREAS. ANY NON-CONSTRUCTION RELATED CLEARING/THINNING WILL BE LIMITED.



1	7/5/21	PER TOWN COMMENTS	MB
REVISION	DATE	DESCRIPTION	BY

OWN: CLM
CHK: CAS
DWG. NO. 2104008

SHEET C-1 (2 OF 18)

SITE PLAN

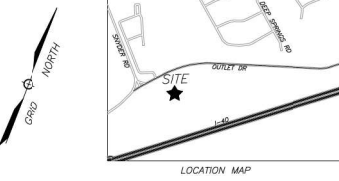
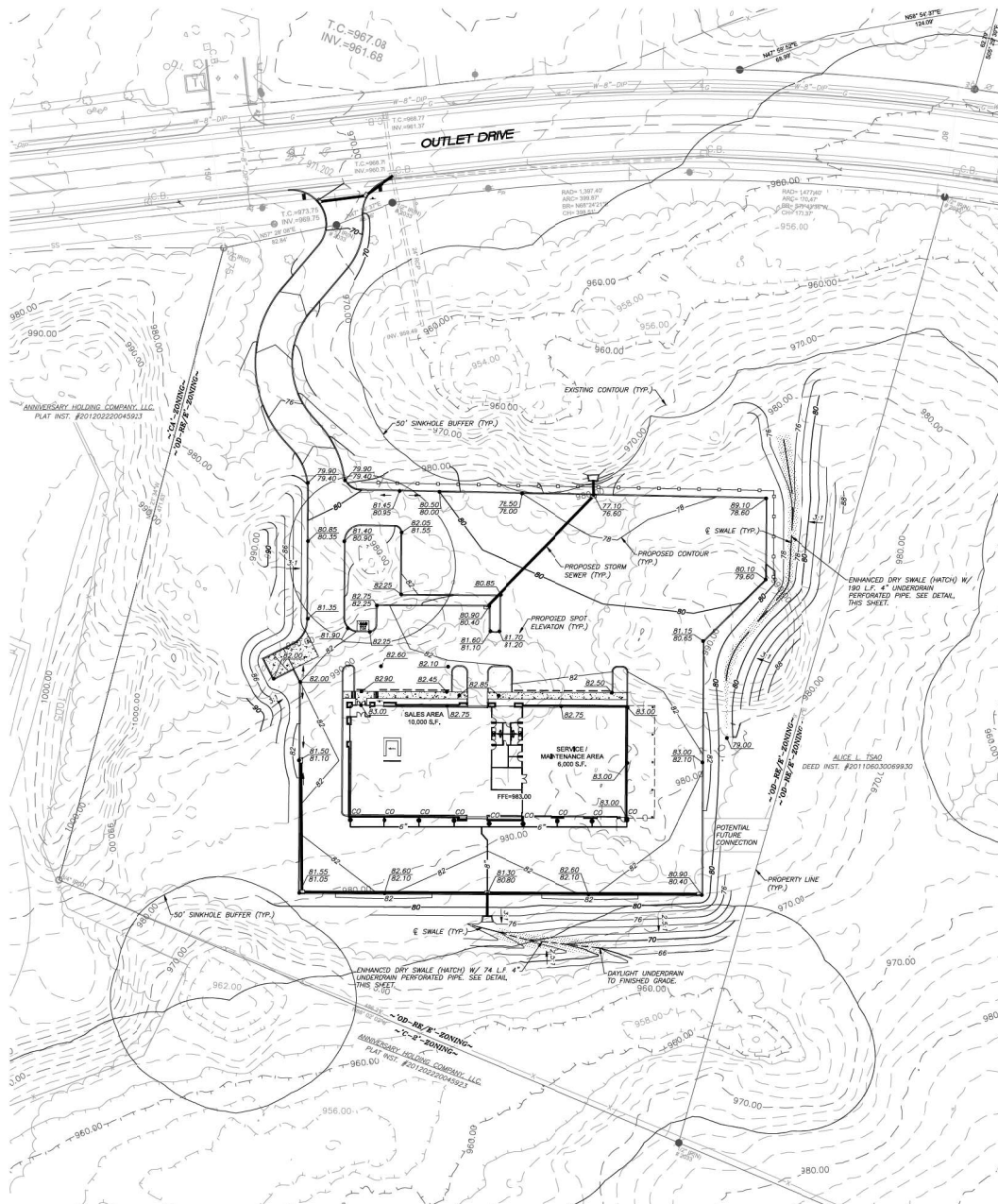
MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

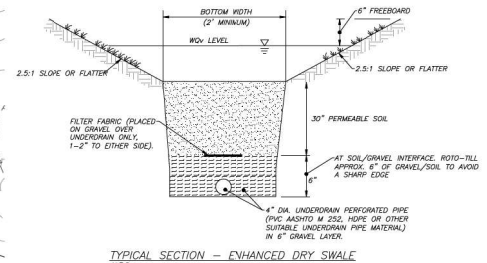
DIST. FW TOWN OF FARRAGUT
CLT MAP 130
SCALE: 1"=40'

DEVELOPER: MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890

URBAN ENGINEERING, INC.
11652 KINGSSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924



- GRADING PLAN NOTES:**
1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREIN ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS GUTCH BODIES, MANHOLES, WATER VALVES, ETC. AND COMPARE INFORMATION FROM PLANS SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES. THE CONTRACTORS SHALL NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES AND ALSO CALL TOWN ONE-CALL PRIOR TO ANY EXCAVATION WORKING TO VERIFY INFORMATION SHOWN AND DETERMINE THE LAYOUT OF THE IRRIGATION SYSTEM AND IF ADDITIONAL IMPROVEMENTS MAY EXIST.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF FARRAGUT SPECIFICATIONS FOR SITE DEVELOPMENT.
 3. ALL WORK SHALL BE SEQUENCED AND COMPLETED IN ACCORDANCE WITH THE SWPPP AND RELATED PERMITS ISSUED BY TDEC.
 4. CLEAR AND GRUB PER SPEC. REMOVE TREES, BRUSH, DEBRIS, AND STUMPS FROM THE WORK AREA. REMOVE ALL BOLLARDS, DRIVES, CROPS, FENCES, AND MISCELLANEOUS EQUIPMENT.
 5. STRIP AND STOCKPILE TOPSOIL NEEDED FOR RESEEDING AND SEEDING. SHOROUND TOPSOIL FILE WITH SILT FENCE, STRAW BALES, TEMPORARY SEEDING OR ADDITIONAL MEASURES AS NEEDED TO PREVENT EROSION/SEDIMENTATION.
 6. AFTER STRIPPING AND REMOVAL, PROOF ROLL ENTIRE DISTURBED AREA WITH TANDUM TUCK FULLY LOADED WITH EARTH. REMOVE ANY AREAS WHICH ARE SOFT OR YIELDING UNDER LOAD AND REPLACE WITH NEW MATERIAL, MEETING PROJECT SPECIFICATIONS.
 7. IF UNSUITABLE SUBGRADE MATERIALS ARE ENCOUNTERED, THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT WITH APPROVED MATERIAL FROM OUTSIDE OF APPROVED OFFSITE BORROW AREA. UNSUITABLE MATERIAL FROM THESE AREAS INCLUDING BUT NOT LIMITED TO PEAT IN ACCORDANCE WITH THE UNITED SOIL CLASSIFICATION SYSTEM.
 8. COMPACTION REQUIREMENTS ARE SUMMARIZED AS FOLLOWS: (PLACE IN 8" LFTS)
 - a. TOP 24 INCHES OF SUBGRADE UNDER PAVED AREAS 100 PERCENT STANDARD PROCTOR - LOWER THAN 24 INCHES BELOW PAVED AREA 90 PERCENT STANDARD PROCTOR.
 - b. AREAS WITHIN THE BUILDING ENVELOPE TO BE PREPARED IN ACCORDANCE WITH RECOMMENDATIONS IN REPORT OF GEOTECHNICAL INVESTIGATION AND/OR AS DIRECTED BY THE SOILS ENGINEER.
 9. ALL FINISHED YARD AREAS SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL. ALL FINISHED YARD SURFACES SHALL BE SMOOTHLY AND UNIFORMLY GRADED, FREE FROM IRREGULARITIES AND SHALL BE FULLY FUNCTIONAL TO PROVIDE PROPER DRAINAGE AT ALL LOCATIONS.
 10. THE TOTAL AREA DISTURBED AS PART OF THIS PROJECT 3.14 ACRES.
 11. PROPOSED SPOT ELEVATIONS AND PROPOSED CONTOURS ARE AFTER THE INSTALLATION OF TOPSOIL IN GRADED AREAS, PAVING WITH DRIVES AND FURNISHING.
 12. IT IS THE RESPONSIBILITY OF THE OWNER TO OBTAIN PERMISSION FROM THE NEIGHBOR TO WORK ON HIS OR HER PROPERTY.
 13. THE VERTICAL DATUM IS NAVD83.
 14. TURF REINFORCEMENT MAT SHALL BE INSTALLED ON ALL SLOPES STEEPER THAN 3:1. TURF REINFORCEMENT MAT SHALL BE WESTERN EXCELLENCE EXCEL 100-10M OR EQUIVALENT.
 15. SINKHOLE AREAS ARE CONSIDERED ENVIRONMENTALLY SENSITIVE AREAS AND TREES WITHIN 100' AREAS ARE CONSIDERED A PROTECTED GROUP UNDER THE TREE PROTECTION ACT. ANY NON-STRUCTURAL RELATED CLEARING/TRIMMING IN THESE AREAS WILL BE LIMITED.



REFERENCE:
RECORDED PLAT: L-368-D
RECORDED DEED: 201302200054576



REVISION	DATE	DESCRIPTION	BY
1	7/5/21	PER TOWN COMMENTS	MB

CHRISTOPHER A. MOSES
REGISTERED SURVEYOR
No. 10000
STATE OF TENNESSEE
2021

SHEET C-2 (3 OF 18)

GRADING PLAN

MOSES WATERSPORTS

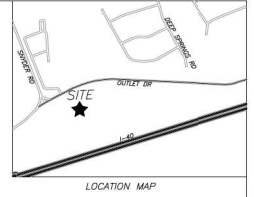
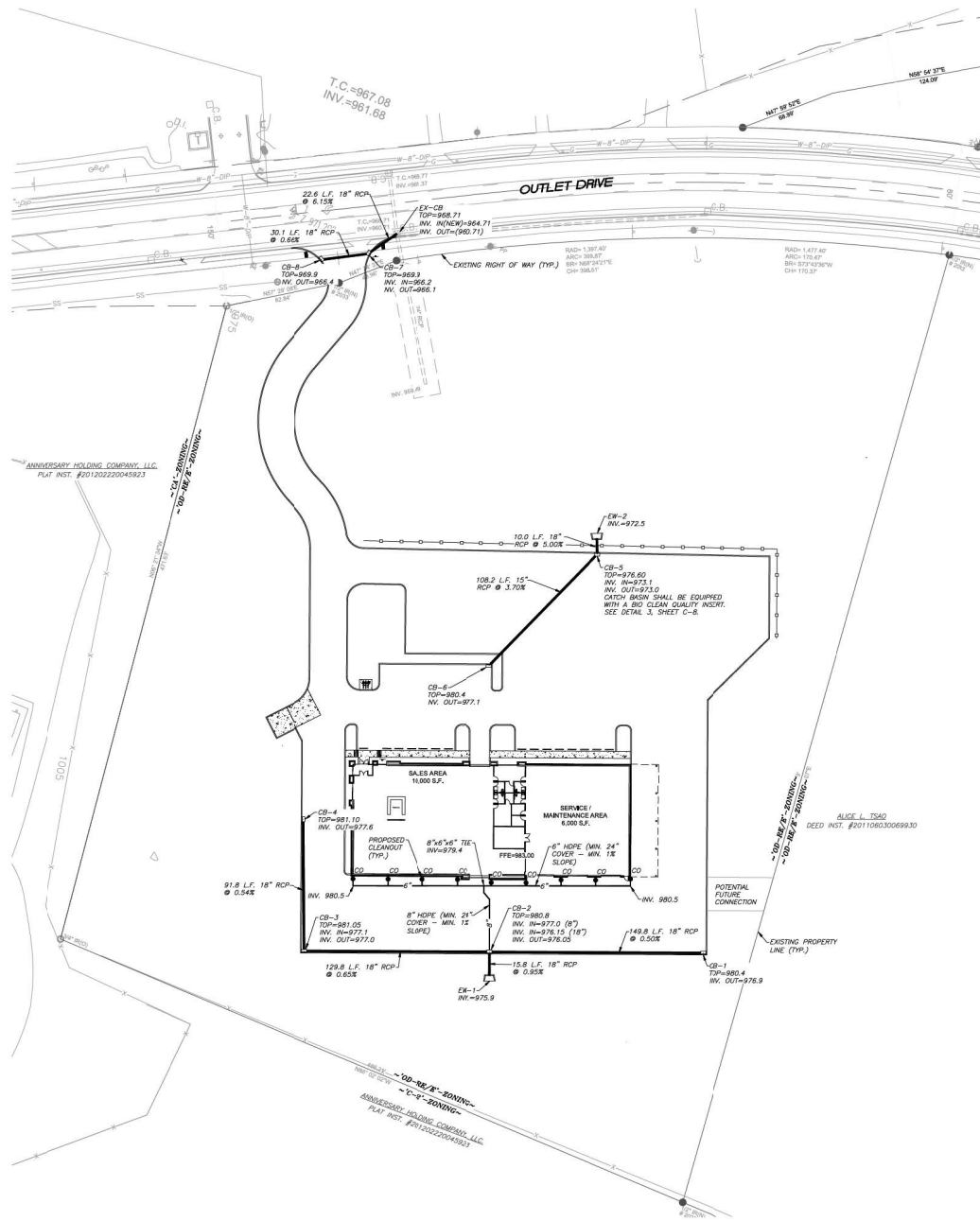
SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

DIST. FW TOWN OF FARRAGUT CLT MAP 130 SCALE: 1"=40'

DEVELOPER: **MOSES WATERSPORTS**
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37937
(865) 671-2890

URBAN ENGINEERING, INC.
11632 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

DWG. NO. 2:04008



- DRAINAGE NOTES:**
1. CORRUGATED POLYETHYLENE PIPE (HDPE) SHALL BE AASHTO M-252/M-254 TYPE 5 WITH SOL-WRHT JOINTS WITH RUBBER GASKET CONFORMING TO ASTM F477 (HANSOR H-2 DR ADS H-12 ARE ACCEPTABLE PRODUCTS). REFER TO TDD STANDARD DWG D-PB-2 FOR ADDITIONAL INSTALLATION REQUIREMENTS.
 2. ALL CONCRETE PIPE SHALL BE CLASS III.
 3. ALL WORK SHALL BE SEQUENCED AND COMPLETED IN ACCORDANCE WITH THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION EROSION CONTROL HANDBOOK AND THE RULES AND REGULATIONS OF KNOX COUNTY.
 4. ALL PAVING UNDER OR WITHIN 3' OF ASPHALT DRIVES SHALL BE BACKFILLED WITH STONE.
 5. ALL CATCH BASINS, AREA DRAIN GRATES AND MANHOLE COVERS REQUIRE PERMANENTLY CAST ENVIRONMENTAL MESSAGE, I.E. "NO DUMPING, DRAINS TO RIVER".
 6. CASTINGS FOR THE PROPOSED STRUCTURES ARE AS FOLLOWS:
CB-1, CB-2, CB-3, CB-4, CB-5, CB-6, CB-7 & C-8: V-4074-2
CB-8: V4066-1
 7. ALL MATERIALS AND INSTALLATION METHODS SHALL BE PER TDD'S SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.
 8. EASEMENTS SHALL BE PLATTED FOR STORMWATER QUALITY DETENTION, FLOOD ACCESS AND ALONG FOOT-DEVELOPED CORRIDORES FOR OPTIMUM WATER PRIOR TO BOND / LETTER OF CREDIT RELEASE.
 9. ALL DRAINAGE STRUCTURES SHALL BE PRECAST CONCRETE.
 10. CONCRETE INVERTS SHALL BE POURED IN ALL CATCH BASINS AND AREA DRAINS.
 11. CATCH BASIN 5 TO BE FITTED WITH BIO CLEAN WATER QUALITY FILTER SEE DETAIL 3, SHEET C-8.



REFERENCE:
RECORDED PLAT: L-368-D
RECORDED DEED: 20130220054576



REVISION	DATE	DESCRIPTION	BY	CHK	DATE
1	7/3/21	PER TOWN COMMENTS	MB		

SHEET C-3 (4 OF 18)

DRAINAGE PLAN

MOSES WATERSPORTS

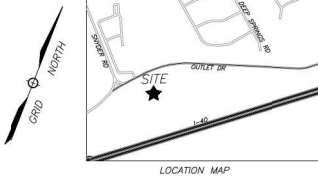
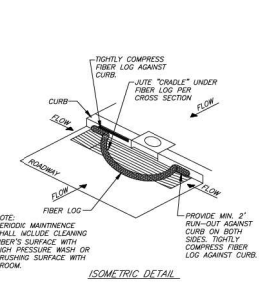
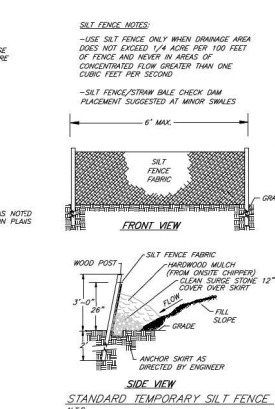
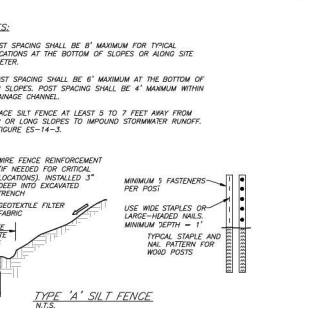
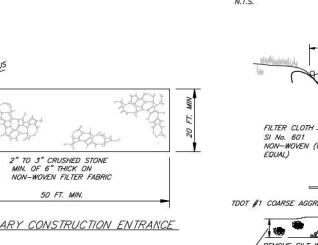
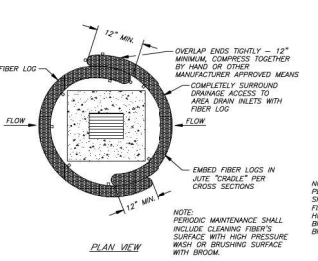
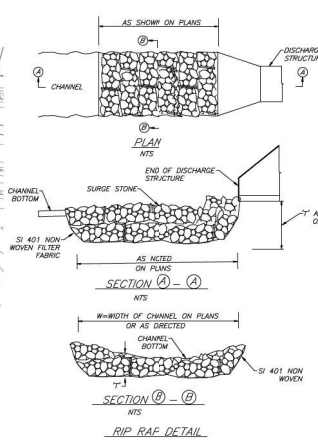
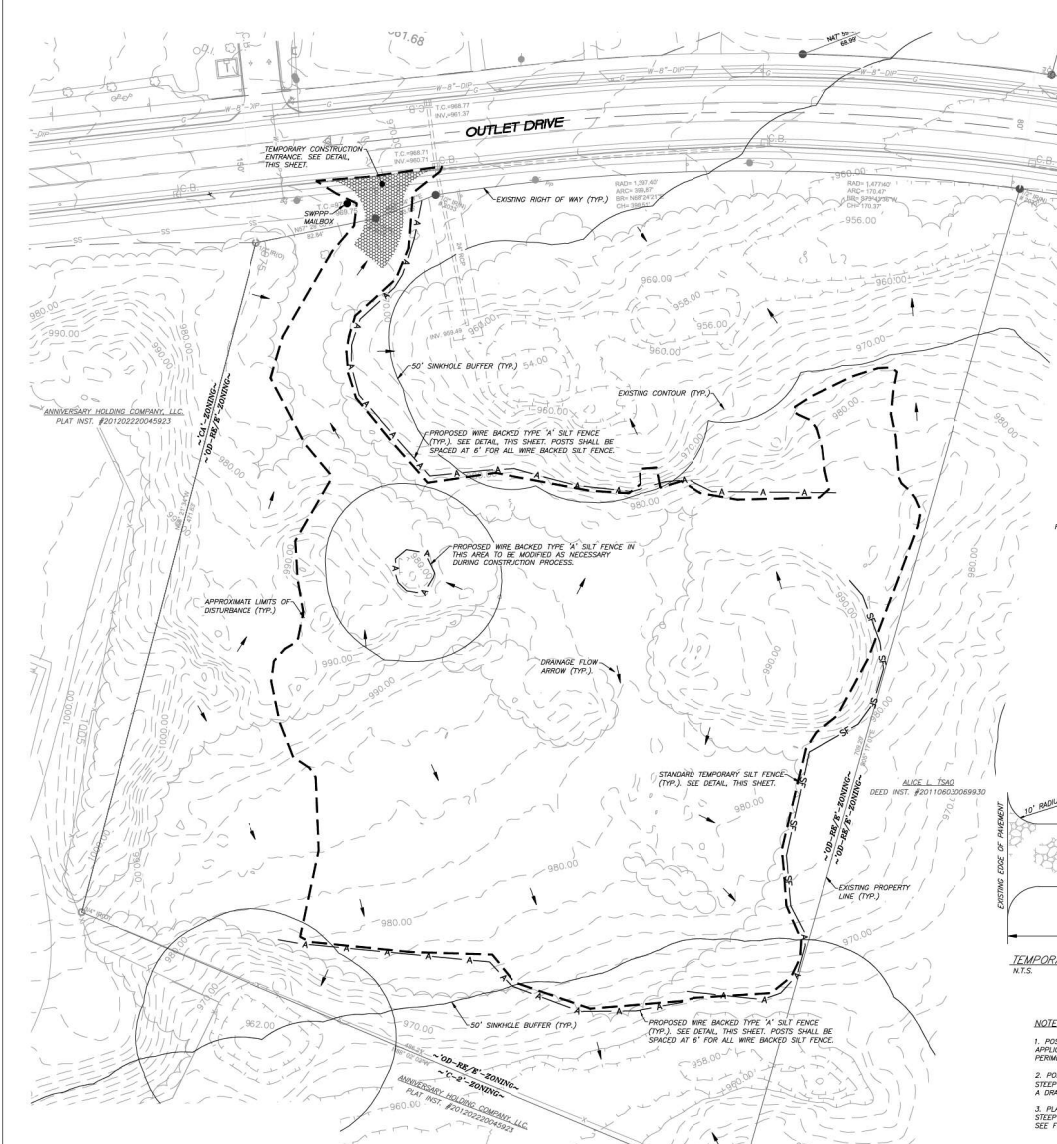
SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

DIST. FW TOWN OF FARRAGUT KNOX COUNTY
CLT MAP 130 TENNESSEE
SCALE: 1"=40' PARCEL 176.02
JUNE 14, 2021

DEVELOPER: **MOSES WATERSPORTS**
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890

URBAN ENGINEERING, INC.
11652 KINGSTON PINE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

DWG. NO.	2:04208
CHK.	CAS
DWG. NO.	2:04208



- EROSION & SEDIMENT CONTROL NOTES**
1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WELLS, PIPES, AND CONCRETE FOUNDATION PILES SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES AND GOVERNMENT AGENCIES AND ALSO CALL THEM ONE-CALL PRIOR TO ANY EXCAVATION WORK TO VERIFY INFORMATION SHOWN AND DETERMINE THE LAYOUT OF THE IRRIGATION SYSTEM AND IF ADDITIONAL IMPROVEMENTS MAY EXIST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP OF ANY VIOLATION.
 2. THE CONTRACTOR SHALL MEET ON-SITE WITH THE ENGINEER TO APPROVE THE LOCATION OF THE SILT FENCES AND OTHER EROSION CONTROL FEATURES PRIOR TO BREAKING GROUND.
 3. THE CONTRACTOR SHALL ADD TRACKING MUD AND SILT ONTO EXISTING ROADS AND SHALL BE RESPONSIBLE FOR CLEANUP OF ANY VIOLATION.
 4. ALL CONSTRUCTION SHALL COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SUBMITTED TO THE TOWN OF FARRAGUT AND THE "TOPE EROSION CONTROL HANDBOOK".
 5. ALL UNPROTECTED AREAS SHALL BE LANDSCAPED OR GROSSED. GRASS SPECIFICATIONS ARE AS FOLLOWS:
TOPSOIL TO UNIFORM DEPTH OF 4" (MIN.)
AGRICULTURAL LIME 13 TONS/ACRE
3.0 LBS. KY 31 FERTILIZER PER 1,000 SQ. FT.
0.5 LBS. CROSSLAND FIVE PER 1,000 SQ. FT.
10 LBS. DRY FERTILIZER (12-24-24 OR EQUAL) PER 1,000 SQ. FT.
100 LBS. DRY STRAW PER 1,000 SQ. FT. (EXCEPT WHERE EROSION CONTROL FABRIC REQUIRED)
 - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH A FULL COVER STAND OF VEGETATION ON THE AREAS TO BE SEED. SEEDING AREAS SHALL BE COMPLETED AND RESEEDING UNTIL A FULL STAND IS ESTABLISHED.
 6. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF CONSTRUCTION OF SITE POLLUTION PREVENTION CONTROLS THROUGHOUT THE LIFE OF THE PROJECT.
 7. ADEQUATE DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGES TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR'S OR PROPERTY OWNER'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROLS FOR THE CONSTRUCTION AREA SHALL BE THE RESPONSIBILITY OF THE GRADING PERMITTEE.
 8. THE TOTAL AREA DISTURBED AS PART OF THIS PROJECT (3.14 ACRES).

- SEQUENCE OF WORK ACTIVITIES:**
- PHASE 1:**
1. INSTALL SILT FENCES, TREE PROTECTION FENCE, TEMPORARY CONSTRUCTION ENTRANCE AND MUDWALL TO POST SWPPP.
- PHASE 2:**
2. ATTEND PRE-CONSTRUCTION MEETING WITH THE ENGINEER & THE TOWN OF FARRAGUT TO REVIEW SWPPP INSTALLATION.
 3. STRIP AND STOCKPILE TOPSOIL.
 4. STABILIZE TOPSOIL BY SILT FENCES AND/OR TEMPORARY SEEDING.
 5. CLEAR/GRUB AND DISPOSE OF TIMBER AND TRASH.
- PHASE 3:**
6. CUT/FILL FOR THE OVERALL SITE. OUTSLOPES SHALL BE MATED AND SEEDING IMMEDIATELY UPON REACHING FINISHED GRADE.
 7. INSTALL DRAINAGE AND UTILITIES' INLETS SHALL BE PROTECTED USING EROSION EELS PER THE ATTACHED DETAILS.
 8. FINALIZE SUB-GRADE, STONE, INSTALL PAVING & FLATWORK AND RESEED TOPSOIL.
 9. ESTABLISH VEGETATION ON ALL DISTURBED AREAS PER SEEDING SPECS.
 10. FOLLOWING STABILIZATION, THE SITE'S TEMPORARY EROSION CONTROL BMP'S SHALL BE REMOVED AND A NOTICE OF TERMINATION SHALL BE FILED WITH THE TOWN OF FARRAGUT.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TOPE EROSION CONTROL HANDBOOK AND THE REGULATIONS OF THE TOWN OF FARRAGUT.
- ADDITIONAL SEDIMENT CONTROL BMP'S MAY BE REQUIRED AS DICTATED BY SEQUENCE OF CONSTRUCTION.

SHEET C-4 (5 OF 18)

EROSION & SEDIMENT CONTROL PLAN (PHASE 1)

MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

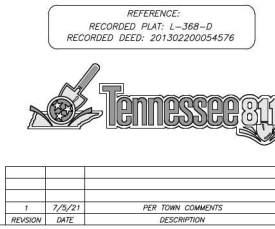
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CLT MAP 130 PARCEL 176.02
SCALE: 1"=40' JUNE 14, 2021

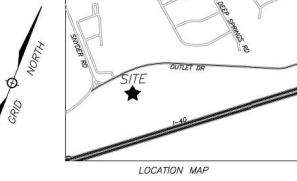
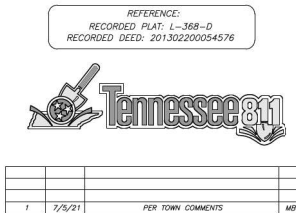
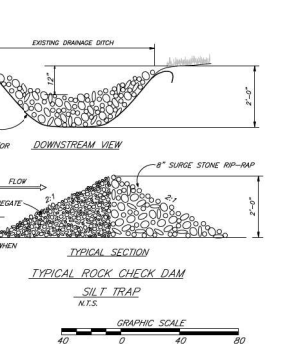
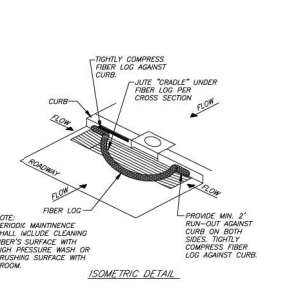
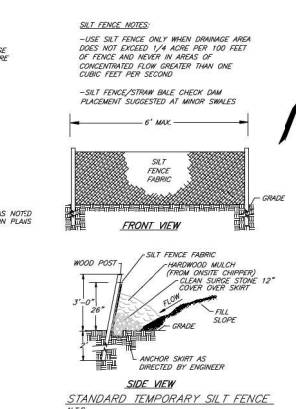
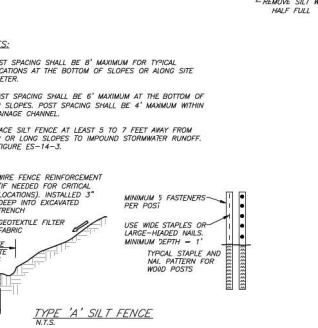
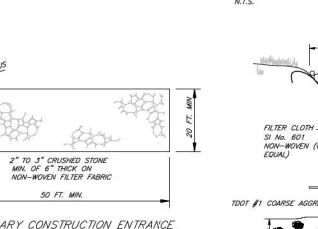
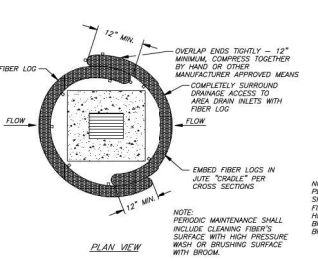
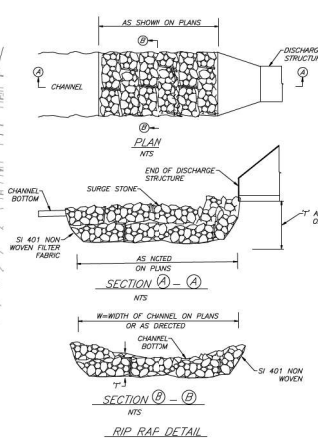
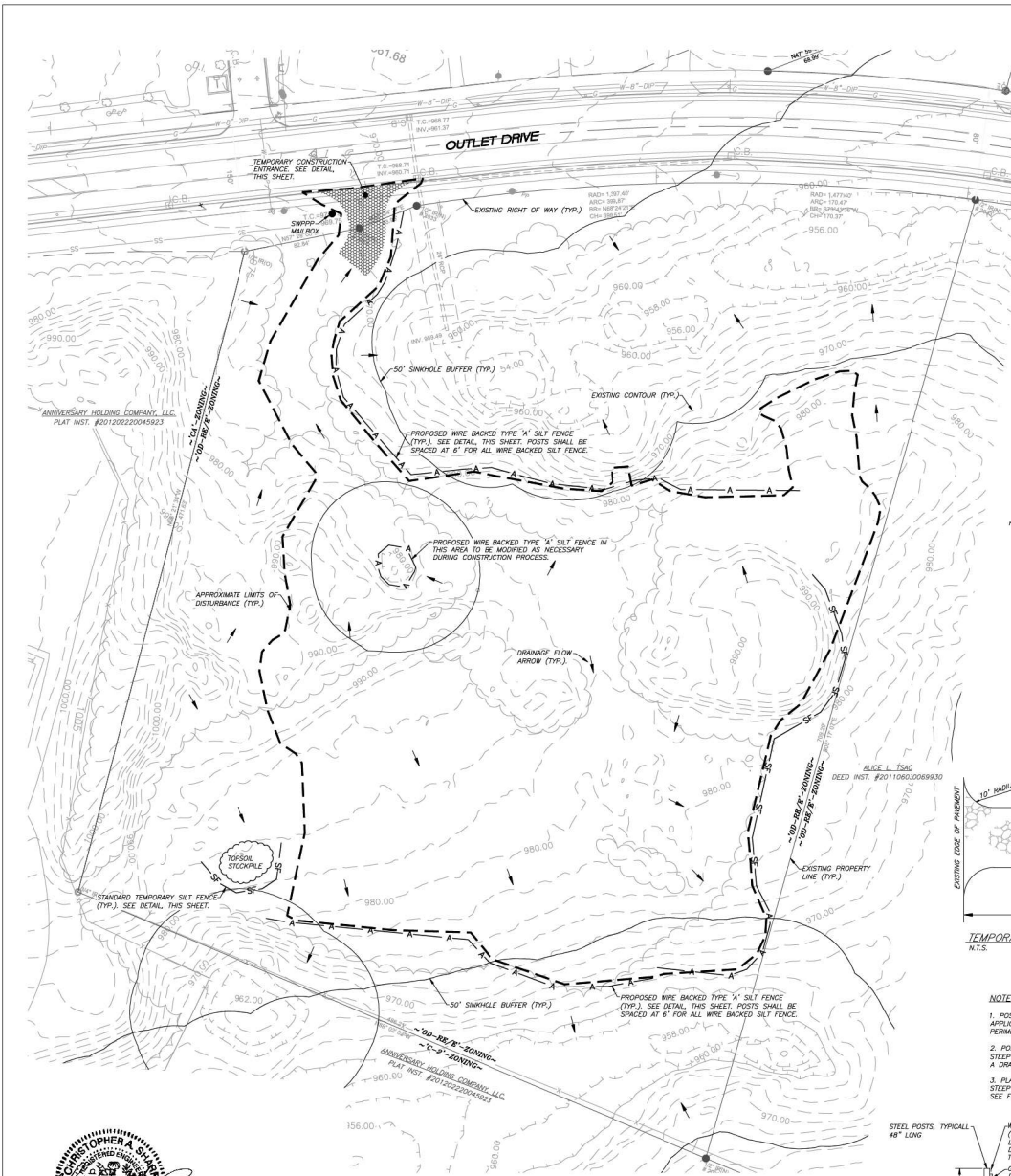
DEVELOPER: MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37937
(865) 671-2890

URBAN ENGINEERING, INC.
11832 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

1	7/5/21	PER TOWN COMMENTS	MB
REV	DATE	DESCRIPTION	BY

DWG. NO. 2:04008





- EROSION & SEDIMENT CONTROL NOTES**
1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATIONS OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WELLS, PIPES, AND CONCRETE FOUNDATION PILES. SUPPLIES BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES AND GOVERNMENT AGENCIES AND ALSO CALL THEM ONE-CALL PRIOR TO ANY EXCAVATION WORK TO VERIFY INFORMATION SHOWN AND DETERMINE THE LAYOUT OF THE IRRIGATION SYSTEM AND IF ADDITIONAL IMPROVEMENTS MAY EXIST. ANY VARIATION SHALL BE RESPONSIBLE FOR CLEANUP OF ANY VIOLATION.
 2. THE CONTRACTOR SHALL MEET ONSITE WITH THE ENGINEER TO APPROVE THE LOCATION OF THE SILT FENCES AND OTHER EROSION CONTROL FEATURES PRIOR TO BREAKING GROUND.
 3. THE CONTRACTOR SHALL ADD TRACKING MUD AND SILT ONTO EXISTING ROADS AND SHALL BE RESPONSIBLE FOR CLEANUP OF ANY VIOLATION.
 4. ALL CONSTRUCTION SHALL COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SUBMITTED TO THE TOWN OF FARRAGUT AND THE "TOOE EROSION CONTROL HANDBOOK".
 5. ALL UNPROTECTED AREAS SHALL BE LANDSCAPED OR GROSSED. GRASS SPECIFICATIONS AS FOLLOWS:
TOPSOIL TO UNIFORM DEPTH OF 4" (MIN.)
AGRICULTURAL LAND: 125 TONS/ACRE
3.0 LBS. KY 31 FESCUE PER 1,000 SQ. FT.
0.5 LBS. CLOVER PER 1,000 SQ. FT.
10 LBS. DRY FERTILIZER (12-24-24 OR EQUAL) PER 1,000 SQ. FT.
100 LBS DRY STRAW PER 1,000 SQ. FT. (EXCEPT WHERE EROSION CONTROL FABRIC REQUIRED)
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH A FULL STAND OF VEGETATION ON THE AREAS TO BE SEED. SHAVE AREAS SHALL BE RESEED UNTIL A FULL STAND IS ESTABLISHED.
 6. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF CONSTRUCTION OF SITE POLLUTION PREVENTION CONTROLS THROUGHOUT THE LIFE OF THE PROJECT.
 7. ADEQUATE DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGES TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR'S OR PROPERTY OWNER'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROLS FOR THE CONSTRUCTION AREA SHALL BE THE RESPONSIBILITY OF THE GRADING PERMITTEE.
 8. THE TOTAL AREA DISTURBED AS PART OF THIS PROJECT (3.14 ACRES).

- SEQUENCE OF WORK ACTIVITIES:**
- PHASE 1:**
1. INSTALL SILT FENCES, TREE PROTECTION FENCE, TEMPORARY CONSTRUCTION ENTRANCE AND MUDWALL TO POST SWPPP.
- PHASE 2:**
2. ATTEND PRE-CONSTRUCTION MEETING WITH THE ENGINEER & THE TOWN OF FARRAGUT TO REVIEW BMP INSTALLATION.
 3. STRIP AND STOCKPILE TOPSOIL.
 4. STABILIZE TOPSOIL BY SILT FENCES AND/OR TEMPORARY SEEDING.
 5. CLEAR/GRUB AND DISPOSE OF TIMBER AND TRASH.
- PHASE 3:**
6. OUTFILL FOR THE OVERALL SITE. OUTCROPS SHALL BE MATED AND SEEDS IMMEDIATELY UPON REACHING FINISHED GRADE.
 7. INSTALL DRAINAGE AND UTILITIES INLETS SHALL BE PROTECTED USING EROSION EELS PER THE ATTACHED DETAILS.
 8. FINALIZE SUB-GRADE, STONE, INSTALL PAVING & FLATWORK AND RESEED TOPSOIL.
 9. ESTABLISH VEGETATION ON ALL DISTURBED AREAS PER SEEDING SPECS.
 10. FOLLOWING STABILIZATION, THE SITE'S TEMPORARY EROSION CONTROL BMP'S SHALL BE REMOVED AND A NOTICE OF TERMINATION SHALL BE FILED WITH THE TOWN.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TOOE EROSION CONTROL HANDBOOK AND THE REGULATIONS OF THE TOWN OF FARRAGUT.
- ADDITIONAL SEDIMENT CONTROL BMP'S MAY BE REQUIRED AS DICTATED BY SEQUENCE OF CONSTRUCTION.

SHEET C-5 (6 OF 18)

EROSION & SEDIMENT CONTROL PLAN (PHASE 2)

MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

DIST. FW TOWN OF FARRAGUT KNOX COUNTY TENNESSEE
CLT MAP 130 PARCEL 176.02
SCALE: 1"=40' JUNE 14, 2021

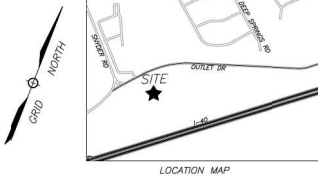
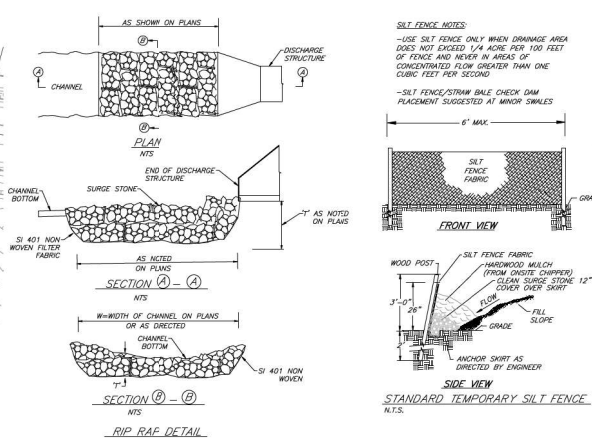
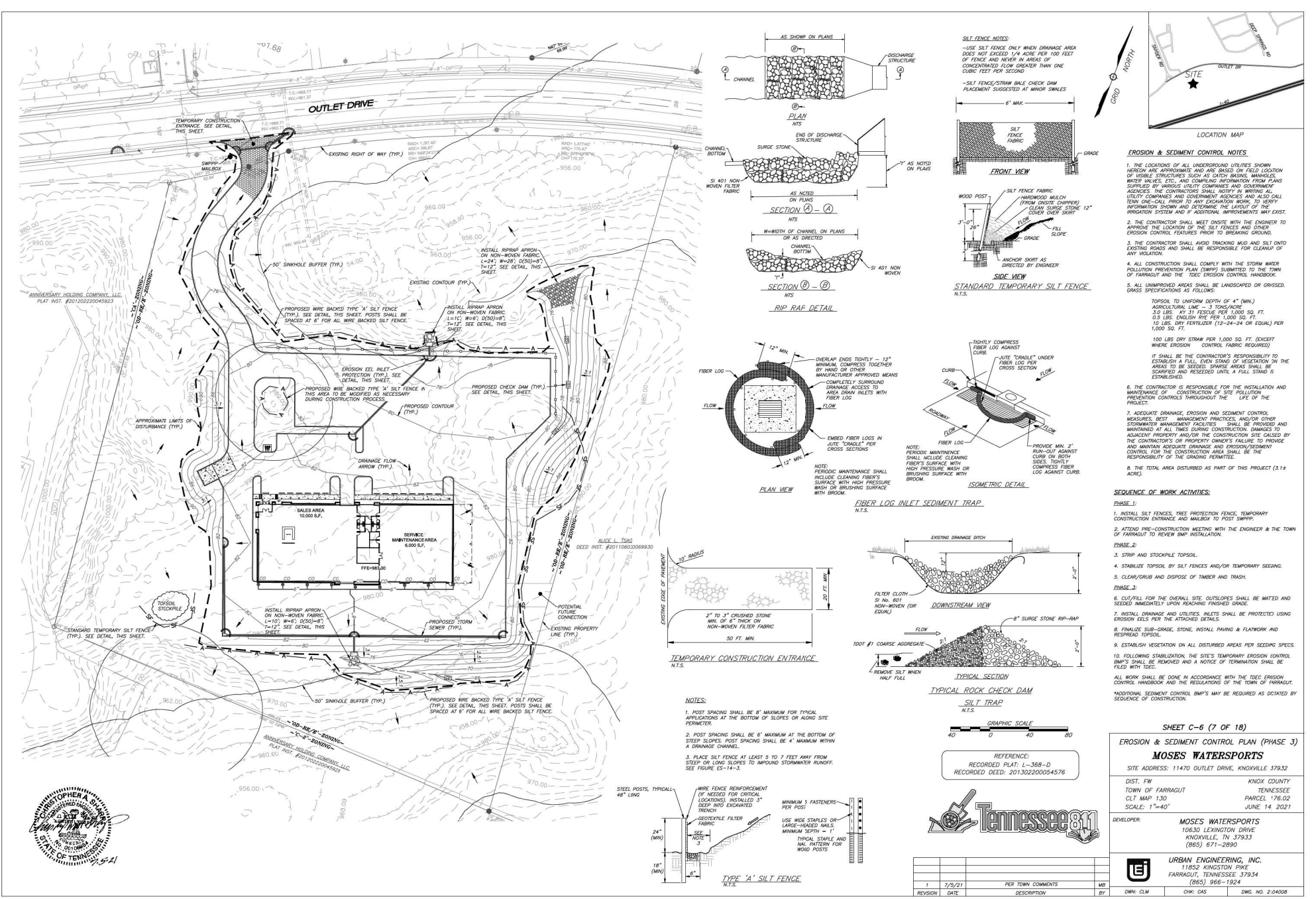
DEVELOPER: MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37937
(865) 671-2890

URBAN ENGINEERING, INC.
11852 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

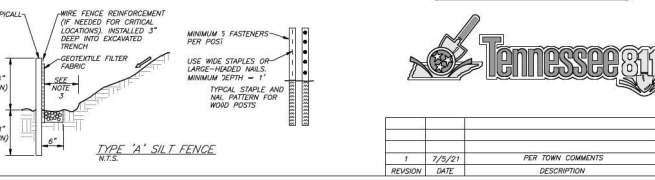
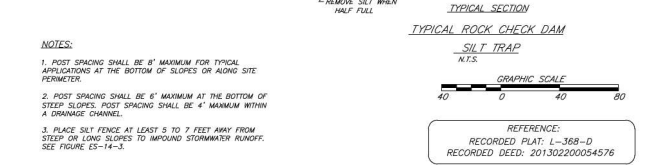
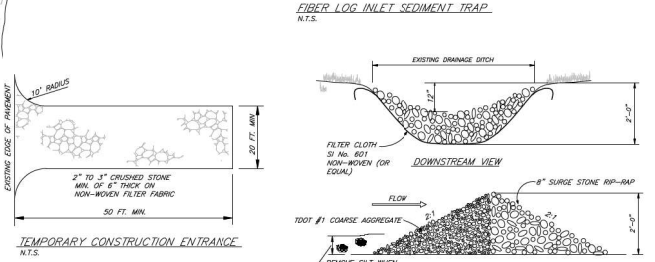
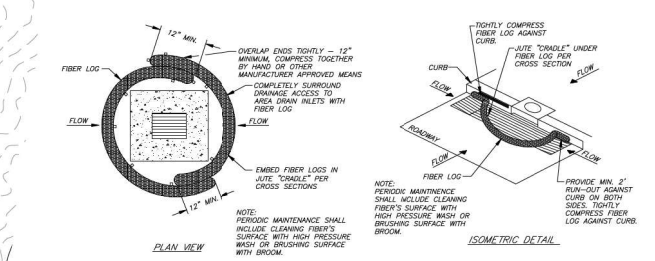
1	7/5/21	PER TOWN COMMENTS	MB
REVISED	DATE	DESCRIPTION	BY

DWG. NO. 2:04008





- EROSION & SEDIMENT CONTROL NOTES**
1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WELLS, PIPES, AND CONCRETE FOUNDATION TIE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES BY EXCAVATION PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL ALSO CALL THE TOWN OF FARRAGUT TO OBTAIN A COPY OF THE TOWN'S INFORMATION SYSTEM AND DETERMINE THE LAYOUT OF THE INFORMATION SYSTEM AND DETERMINE THE LAYOUT OF THE INFORMATION SYSTEM AND DETERMINE THE LAYOUT OF THE INFORMATION SYSTEM.
 2. THE CONTRACTOR SHALL MEET ON-SITE WITH THE ENGINEER TO APPROVE THE LOCATION OF THE SILT FENCES AND OTHER EROSION CONTROL FEATURES PRIOR TO BREAKING GROUND.
 3. THE CONTRACTOR SHALL MAINTAIN TRUCKING MUD AND SILT ONTO EXISTING ROADS AND SHALL BE RESPONSIBLE FOR CLEANUP OF ANY VIOLATION.
 4. ALL CONSTRUCTION SHALL COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SUBMITTED TO THE TOWN OF FARRAGUT AND THE TOWN'S EROSION CONTROL HANDBOOK.
 5. ALL UNIMPROVED AREAS SHALL BE LANDSCAPED OR GRASSED. GRASS SPECIFICATIONS AS FOLLOWS:
TOPSOIL TO UNIFORM DEPTH OF 4" (MIN.)
AGRICULTURAL TYPE 31 FESCUE
3.0 LBS. KY 31 FESCUE PER 1,000 SQ. FT.
0.5 LBS. CLOVER PER 1,000 SQ. FT.
10 LBS. DRY FERTILIZER (12-24-24 OR EQUAL) PER 1,000 SQ. FT.
100 LBS. DRY STRAW PER 1,000 SQ. FT. (EXCEPT WHERE EROSION CONTROL FABRIC REQUIRED)



- SEQUENCE OF WORK ACTIVITIES:**
- PHASE 1:**
1. INSTALL SILT FENCES, PRE-PROTECTION FENCE, TEMPORARY CONSTRUCTION ENTRANCE AND MEANS TO POST DRAINAGE.
- PHASE 2:**
2. ATTEND PRE-CONSTRUCTION MEETING WITH THE ENGINEER & THE TOWN OF FARRAGUT TO REVIEW BMP INSTALLATION.
- PHASE 3:**
3. STRIP AND STOCKPILE TOPSOIL.
 4. STABILIZE TOPSOIL BY SILT FENCES AND/OR TEMPORARY SEEDING.
 5. CLEAR/GRUB AND DISPOSE OF TIMBER AND TRASH.
- PHASE 4:**
6. OUT/FILL FOR THE OVERALL SITE. OUTSLOPES SHALL BE MATED AND SEEDING IMMEDIATELY UPON REACHING FINISHED GRADE.
 7. INSTALL DRAINAGE AND UTILITIES' INLETS SHALL BE PROTECTED USING EROSION EELS PER THE ATTACHED DETAILS.
 8. FINALIZE SUB-GRADE, STONE, INSTALL PAVING & FLANKWALK AND RESEED TOPSOIL.
 9. ESTABLISH VEGETATION ON ALL DISTURBED AREAS PER SEEDING SPECS.
 10. FOLLOWING STABILIZATION, THE SITE'S TEMPORARY EROSION CONTROL BMP'S SHALL BE REMOVED AND A NOTICE OF TERMINATION SHALL BE FILED WITH THE TOWN OF FARRAGUT.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF FARRAGUT EROSION CONTROL HANDBOOK AND THE REGULATIONS OF THE TOWN OF FARRAGUT.
- ADDITIONAL SEDIMENT CONTROL BMP'S MAY BE REQUIRED AS DICTATED BY SEQUENCE OF CONSTRUCTION.

- REFERENCE:**
- RECORDED PLAT: L-368-D
RECORDED DEED: 20130220054576

SHEET C-6 (7 OF 18)

EROSION & SEDIMENT CONTROL PLAN (PHASE 3)

MOSES WATERSHEDS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

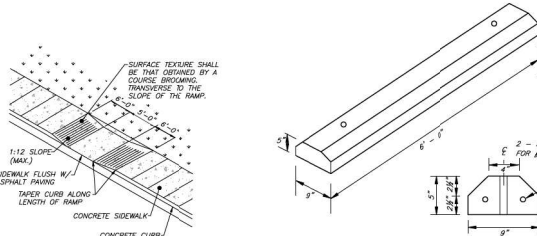
DIST. FW TOWN OF FARRAGUT KNOX COUNTY TENNESSEE
CLT MAP 130 PARCEL 176.02
SCALE: 1"=40' JUNE 14, 2021

DEVELOPER: MOSES WATERSHEDS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890

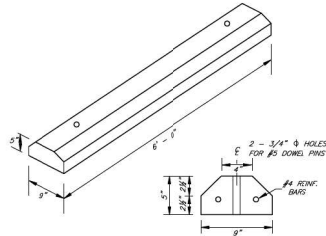
URBAN ENGINEERING, INC.
11832 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

REV	DATE	DESCRIPTION	BY	CHK	APP
1	7/5/21	PER TOWN COMMENTS	MB		

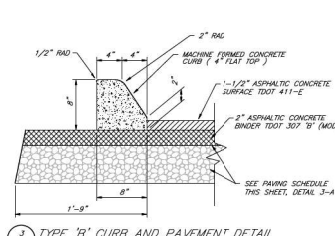
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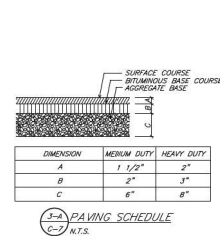
1 HANDICAPPED RAMP
C-7 N.T.S.



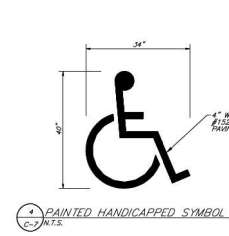
2 CONCRETE TIRE STOP
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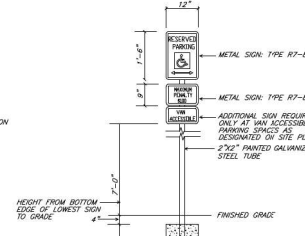
3 TYPE 'B' CURB AND PAVEMENT DETAIL
C-7 N.T.S.



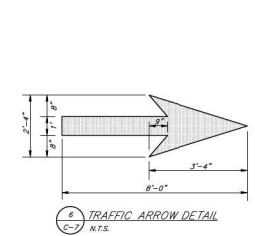
4 PAVING SCHEDULE
C-7 N.T.S.



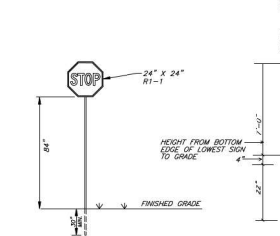
5 PAINTED HANDICAPPED SYMBOL
C-7 N.T.S.



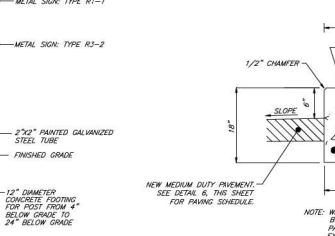
6 HANDICAPPED SIGN DETAIL
C-7 N.T.S.



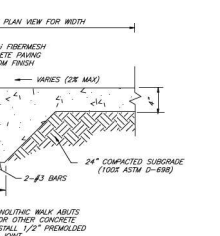
7 TRAFFIC ARROW DETAIL
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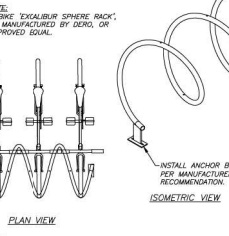
8 STOP SIGN DETAIL
C-7 N.T.S.



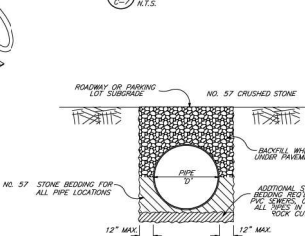
9 TURNDOWN SIDEWALK DETAIL
C-7 N.T.S.



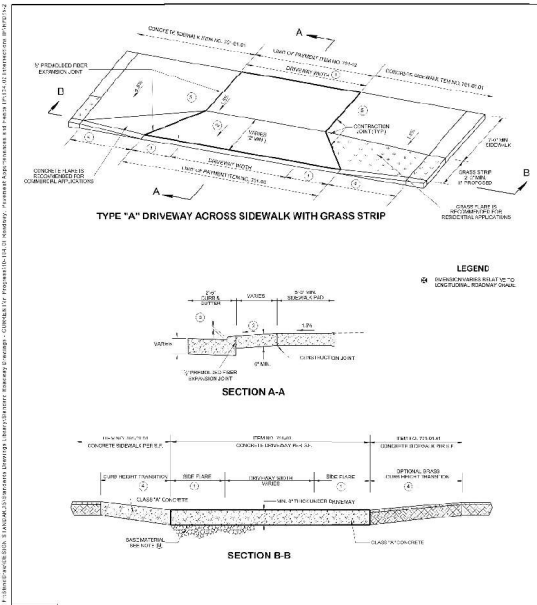
10 3-BIKE RACK DETAIL
C-7 N.T.S.



11 PIPE BEDDING & BACKFILL DETAIL
C-7 N.T.S.



12 TYPICAL CLEANOUT
C-7 N.T.S.



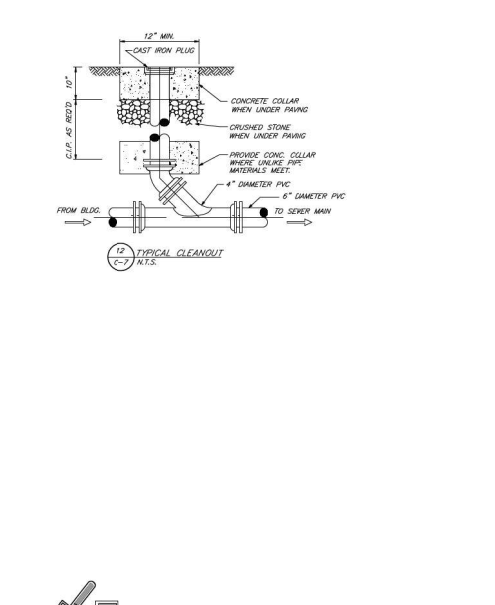
13 STANDARD DRIVEWAY DETAIL
C-7 N.T.S.

FOOTNOTES

1. SEE PLAN VIEW FOR DIMENSIONS OF DRIVEWAY.
2. DRIVEWAY SHALL BE CONCRETE OR ASPHALT.
3. DRIVEWAY SHALL BE 12" WIDE.
4. DRIVEWAY SHALL BE 12" HIGH.
5. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
6. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
7. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
8. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
9. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
10. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
11. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.
12. DRIVEWAY SHALL BE 12" FROM THE BOTTOM EDGE OF THE LOWEST SIGN TO GRADE.

GENERAL NOTES

1. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.
2. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.
3. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.
4. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.
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10. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.
11. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.
12. THIS TYPE OF DRIVEWAY IS TO BE USED FOR ALL DRIVEWAYS.



14 TYPICAL CLEANOUT
C-7 N.T.S.



15 TYPICAL CLEANOUT
C-7 N.T.S.

FOR ALL WATER, SEWER OR DRAINAGE PIPING

10 PIPE BEDDING & BACKFILL DETAIL
C-7 N.T.S.

11 PIPE BEDDING & BACKFILL DETAIL
C-7 N.T.S.

12 TYPICAL CLEANOUT
C-7 N.T.S.

13 STANDARD DRIVEWAY DETAIL
C-7 N.T.S.

14 TYPICAL CLEANOUT
C-7 N.T.S.

15 TYPICAL CLEANOUT
C-7 N.T.S.

16 TYPICAL CLEANOUT
C-7 N.T.S.

17 TYPICAL CLEANOUT
C-7 N.T.S.

18 TYPICAL CLEANOUT
C-7 N.T.S.

19 TYPICAL CLEANOUT
C-7 N.T.S.

20 TYPICAL CLEANOUT
C-7 N.T.S.

21 TYPICAL CLEANOUT
C-7 N.T.S.

22 TYPICAL CLEANOUT
C-7 N.T.S.

23 TYPICAL CLEANOUT
C-7 N.T.S.

24 TYPICAL CLEANOUT
C-7 N.T.S.

25 TYPICAL CLEANOUT
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26 TYPICAL CLEANOUT
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27 TYPICAL CLEANOUT
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28 TYPICAL CLEANOUT
C-7 N.T.S.

29 TYPICAL CLEANOUT
C-7 N.T.S.

30 TYPICAL CLEANOUT
C-7 N.T.S.

31 TYPICAL CLEANOUT
C-7 N.T.S.

32 TYPICAL CLEANOUT
C-7 N.T.S.

33 TYPICAL CLEANOUT
C-7 N.T.S.

34 TYPICAL CLEANOUT
C-7 N.T.S.

35 TYPICAL CLEANOUT
C-7 N.T.S.

36 TYPICAL CLEANOUT
C-7 N.T.S.

37 TYPICAL CLEANOUT
C-7 N.T.S.

38 TYPICAL CLEANOUT
C-7 N.T.S.

39 TYPICAL CLEANOUT
C-7 N.T.S.

40 TYPICAL CLEANOUT
C-7 N.T.S.

41 TYPICAL CLEANOUT
C-7 N.T.S.

42 TYPICAL CLEANOUT
C-7 N.T.S.

43 TYPICAL CLEANOUT
C-7 N.T.S.

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C-7 N.T.S.

171 TYPICAL CLEANOUT
C-7 N.T.S.

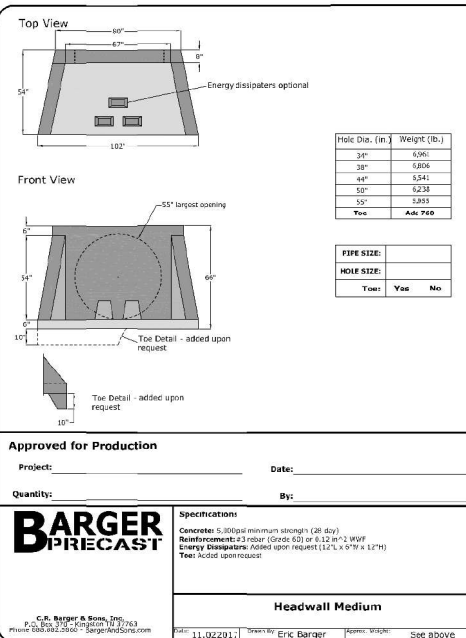
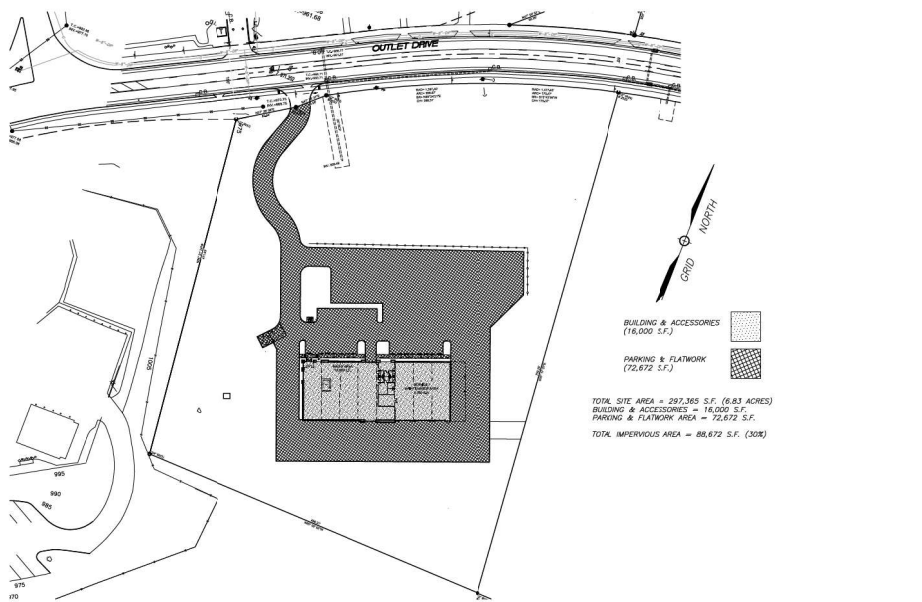
172 TYPICAL CLEANOUT
C-7 N.T.S.

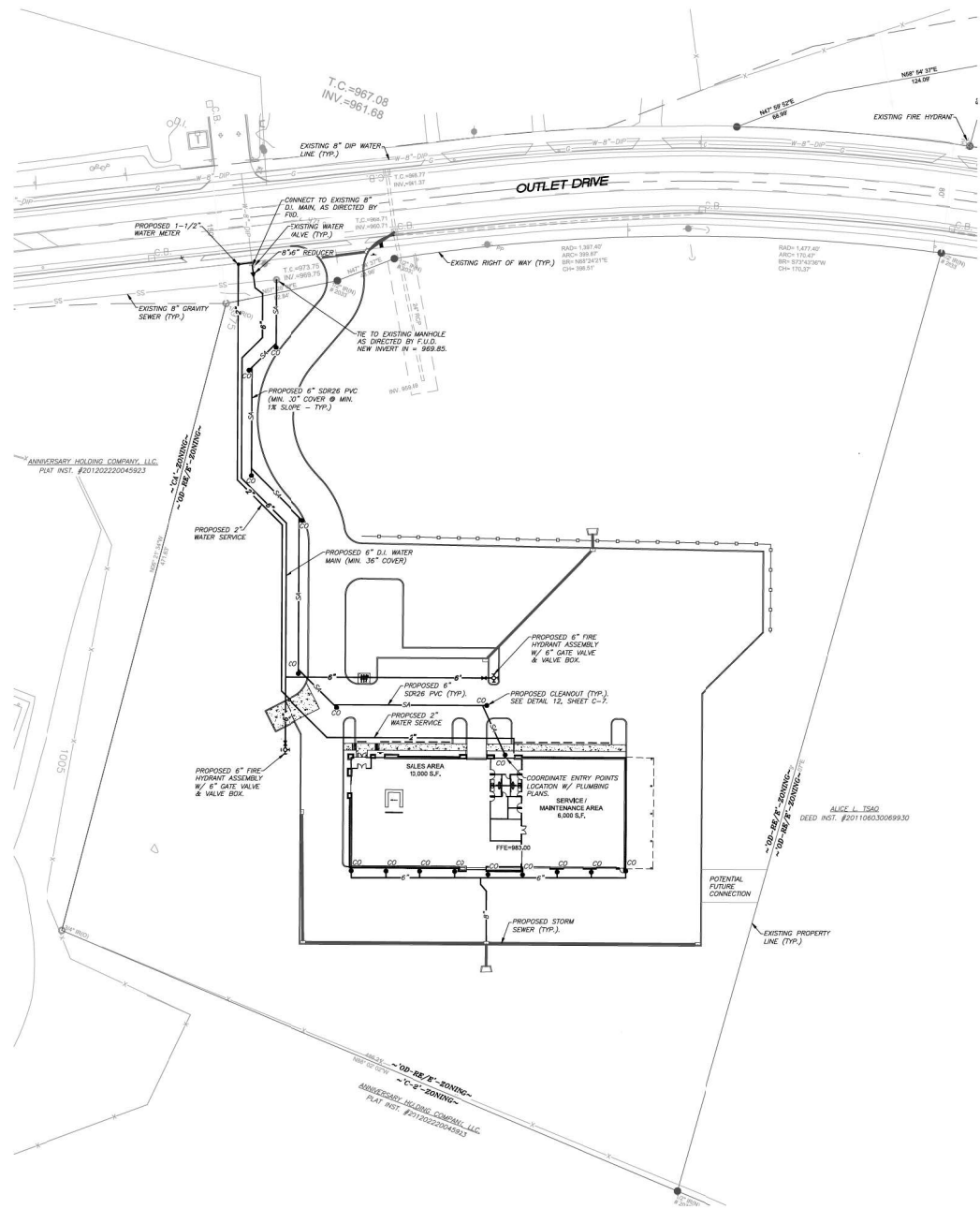
173 TYPICAL CLEANOUT
C-7 N.T.S.

174 TYPICAL CLEANOUT
C-7 N.T.S.

175 TYPICAL CLEANOUT
C-7 N.T.S.

176 TYPICAL CLEANOUT
C-7 N.T.S.





FIRE FLOW DATA:

FIRE HYDRANT IS ACROSS THE STREET FROM THE NORTHEAST PROPERTY CORNER AND WAS FLOWED BY FIRST UTILITY DISTRICT ON JUNE 7, 2021.

FLOW RATE=1,600 GPM
STATIC PRESSURE=105 PSI
RESIDUAL PRESSURE=92 PSI

FIRE FLOW NOTE:

BASED ON THE 2012 IFC TABLE 9105.1 FOR TYPE II-B CONSTRUCTION, THE PROPOSED 14,000 S.F. BUILDING WITH A TWO HOUR SEPARATION (10,000 S.F. IN LARGEST AREA) REQUIRES 2,250 GPM AND 2-HYDRANTS.

THE BUILDING IS TO BE A SEPARATED OCCUPANCY WITH A FIRE AREA NO GREATER THAN 12,000 S.F. AND SEPARATED WITH A 2-HOUR FIRE BARRIER AS REQUIRED BY NFPA 101, TABLE 6.1.1.4.1 (4).

FUD SEWER NOTES

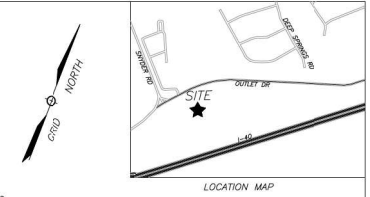
1. UNLESS EXPLICITLY AUTHORIZED BY FUD, GRAVITY SEWER DEEPER THAN EIGHT (8) FEET WILL NOT BE ACCEPTED, AND LOW PRESSURE SEWER WILL BE REQUIRED.
2. ALL WORK TO BE PERFORMED WILL BE IN ACCORDANCE WITH THE FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT (CURRENT EDITION) SPECIFICATIONS AND DETAILS.
3. SEWER LINE MATERIALS, INSTALLATION AND TESTING PER FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT STANDARDS (CURRENT EDITION).
4. ALL CLEANOUTS SHALL BE UNIDIRECTION CLEANOUTS AS MANUFACTURED BY PLASTIC TRENDS (© 1000) AND EXTEND 3' ABOVE FINISHED GROUND TO MAINTAIN SEWER SERVICE CONNECTIONS UNIT BUILDING CONNECTION IS MADE.
5. SEE DETAIL 10, SHEET C-7 FOR PIPE BEDDING SPECIFICATIONS.
6. CLEANOUT TOPS TO MATCH PLAN FINISHED GRADES AFTER CONNECTION IS MADE.
7. ALL PIPING UNDER OR WITHIN 3' OF PAVEMENT SHALL BE BACKFILLED WITH STONE.
8. REFER TO INSTRUMENT NO. 200908100011369 FOR FUD BASEMENT REQUIREMENTS.

FUD WATER NOTES

1. ALL WORK TO BE PERFORMED WILL BE IN ACCORDANCE WITH THE FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT (CURRENT EDITION) SPECIFICATIONS AND DETAILS.
2. WATER LINE MATERIALS, INSTALLATION AND TESTING PER FIRST UTILITY DISTRICT WATER AND WASTEWATER DEPARTMENT STANDARDS (CURRENT EDITION).
3. FUD SHALL PERFORM ALL WATER LINE TAPS REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL INSTALL SERVICE BRASS, COPPER SERVICE, METER YOKES AND METER BOXES.
4. SERVICE LINE (FROM MAIN TO METER) SHALL BE TYPE "K" COPPER, PER FUD SPECIFICATIONS.
5. ALL SERVICES SHALL HAVE 30" MINIMUM COVER.
6. SEE DETAIL 10, SHEET C-7 FOR PIPE BEDDING SPECIFICATIONS.
7. ALL PIPING UNDER OR WITHIN 3' OF PAVEMENT SHALL BE BACKFILLED WITH STONE.
8. REFER TO INSTRUMENT NO. 200908100011369 FOR FUD BASEMENT REQUIREMENTS.
9. FIRE HYDRANTS WILL PROVIDE A MINIMUM OF 2,250 GPM AT 25 PSI.

GENERAL NOTES:

1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WATER VALVES, ETC. AND COMPUTED INFORMATION FROM PLANS SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES. THE CONTRACTOR SHALL NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES AND ALSO CALL TOWN ONE-CALL PRIOR TO ANY EXCAVATION WORK TO VERIFY INFORMATION SHOWN AND DETERMINE THE LAYOUT OF THE IRRIGATION SYSTEM AND IF ADDITIONAL IMPROVEMENTS MAY EXIST.
2. SIDEWALKS THAT ARE DAMAGED SHALL BE REPLACED IN KIND, OR AS DIRECTED BY THE TOWN OF FARRAGUT.
3. NO NATURAL GAS SERVICE IS BEING PROPOSED.



- LEGEND:**
- 6" SDR 26 SEWER MAIN
 - 6" PROPOSED CLEANOUT
 - 6" D.I. WATER MAIN
 - 2" WATER SERVICE
 - 6" GATE VALVE
 - 6" FIRE HYDRANT ASSEMBLY



REFERENCE:
RECORDED PLAT: L-368-D
RECORDED DEED: 201302200094576



REVISION	DATE	DESCRIPTION	BY	CHK	DATE	DESCRIPTION	BY
1	7/5/21	PER TOWN COMMENTS	MB				

OWN: CLM

CHK: CAS

DWG. NO. 2104008

SHEET C-9 (10 OF 18)

SITE SANITARY SEWER & WATER PLAN

MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

DIST. FW

TOWN OF FARRAGUT

CLT MAP 130

SCALE: 1"=40'

KNOX COUNTY

TENNESSEE

PARCEL 176.02

JUNE 14, 2021

DEVELOPER:

MOSES WATERSPORTS

10630 LEXINGTON DRIVE

KNOXVILLE, TN 37933

(865) 671-2890

URBAN ENGINEERING, INC.

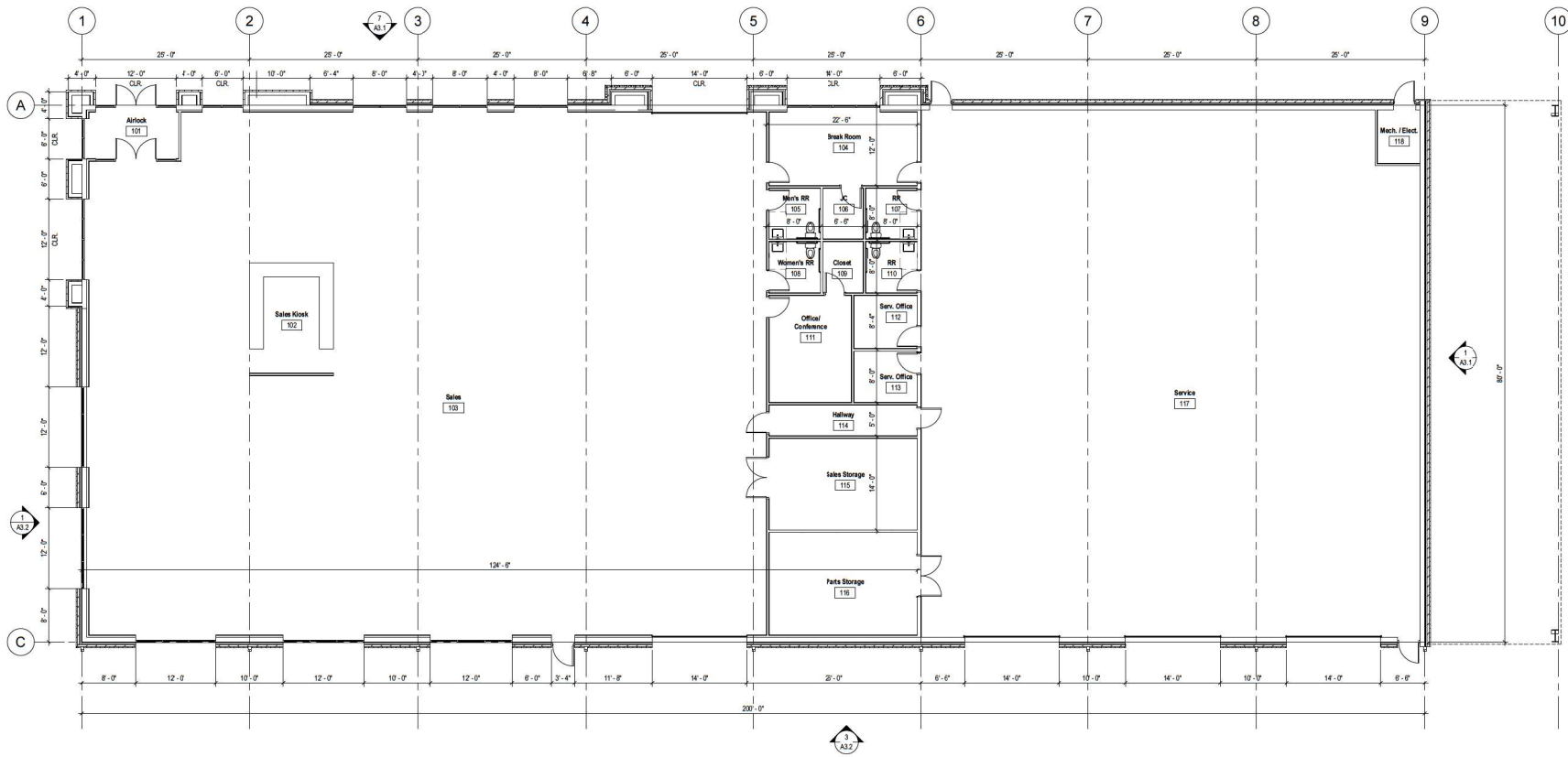
11555 KINGSTON PIKE

FARRAGUT, TENNESSEE 37934

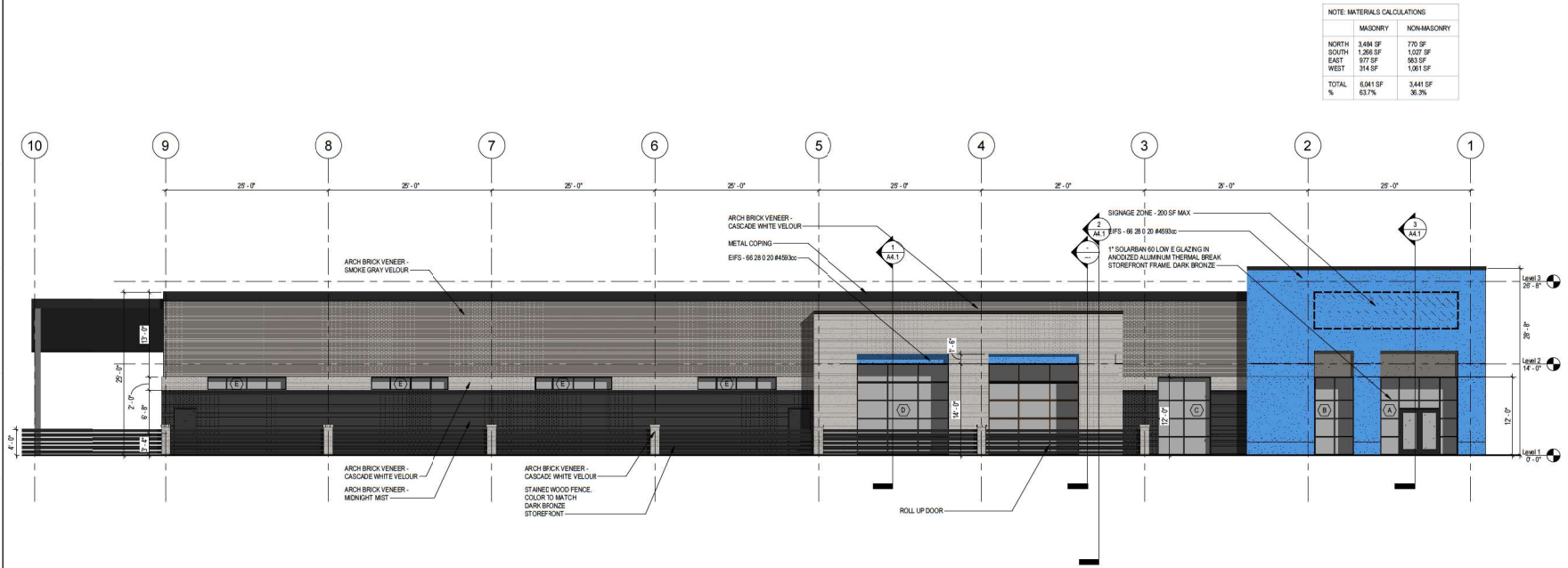
(865) 966-1924



A1.1







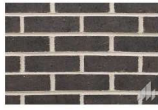
7	Building Elevation - North $1/8" = 1'-0"$
---	---



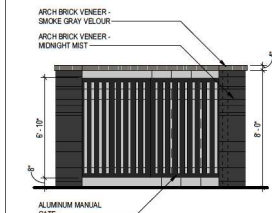
GENERAL SHALE SMOKE GRAY VELOUR



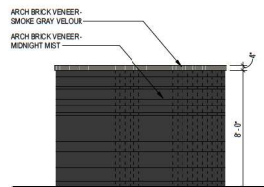
GENERAL SHALE CASACDE WHITE VELOUR



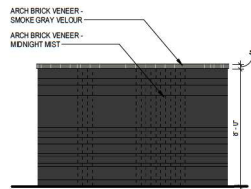
GENERAL SHALE MIDNIGHT MIST



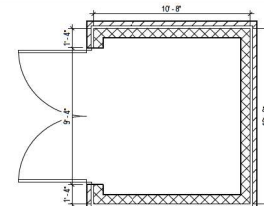
5	Dumpster Enclosure Front Elevation 1/4" = 1'-0"
---	--



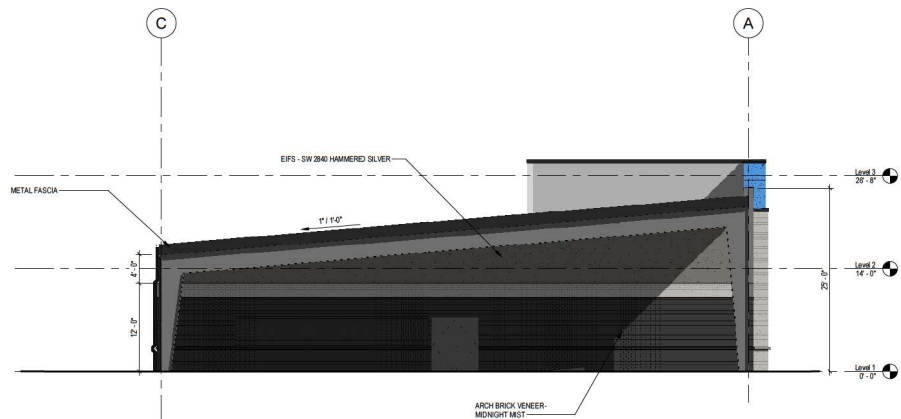
3	Dumpster Enclosure Side Elevation 1/8" = 1'-0"
---	---



4 Dumpster Enclosure Back Elevation



2	Level 1 - Dumpster Enclosure 14'0" x 1'0"
---	--



1	Building Elevation - East 1/8" = 1'-0"
---	---

NOTE: MATERIALS CALCULATIONS		
	MASONRY	NON-MASONRY
NORTH	3,404 SF	770 SF
SOUTH	1,266 SF	1,027 SF
EAST	977 SF	583 SF
WEST	314 SF	1,061 SF
TOTAL	6,041 SF	3,441 SF
%	63.7%	36.3%

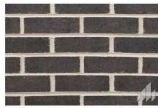
3 Building Elevation - South
1/8" = 1'-0"



GENERAL SHALE SMOKE GRAY VELOUR



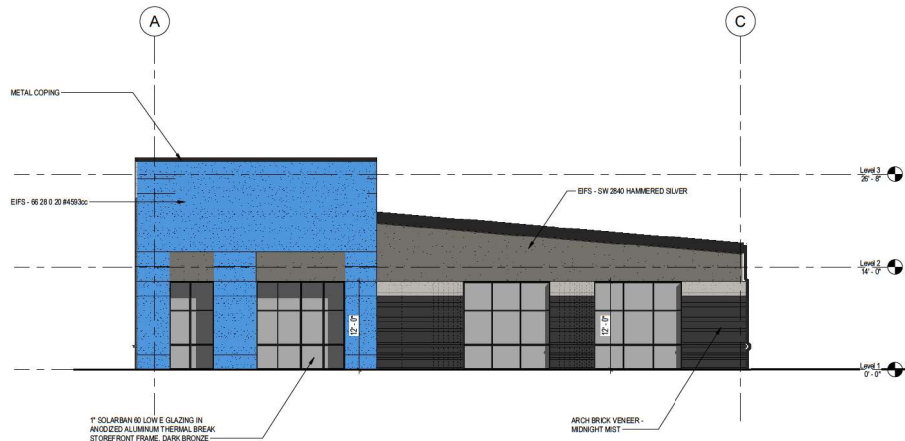
GENERAL SHALE CASCADE WHITE VELOUR



GENERAL SHALE MONLIGHT MIST

2 Exterior Materials Legend
NTS

1 Building Elevation - West
1/8" = 1'-0"



NOTE: MATERIALS CALCULATIONS		
	MASONRY	NON-MASONRY
NORTH	3,484 SF	770 SF
SOUTH	1,269 SF	1,027 SF
EAST	977 SF	963 SF
WEST	314 SF	1,061 SF
TOTAL	6,044 SF	3,441 SF
%	63.7%	36.3%

STUDIO
FOUR
DESIGN^{INC.}
ARCHITECTURE & INTERIORS

414 Clinch Ave. Knoxville, TN 37902
p 865 523-5001 f 865 523-5003
studiofourdesign.com

Moses Watersports

Address Line 1
Address Line 2

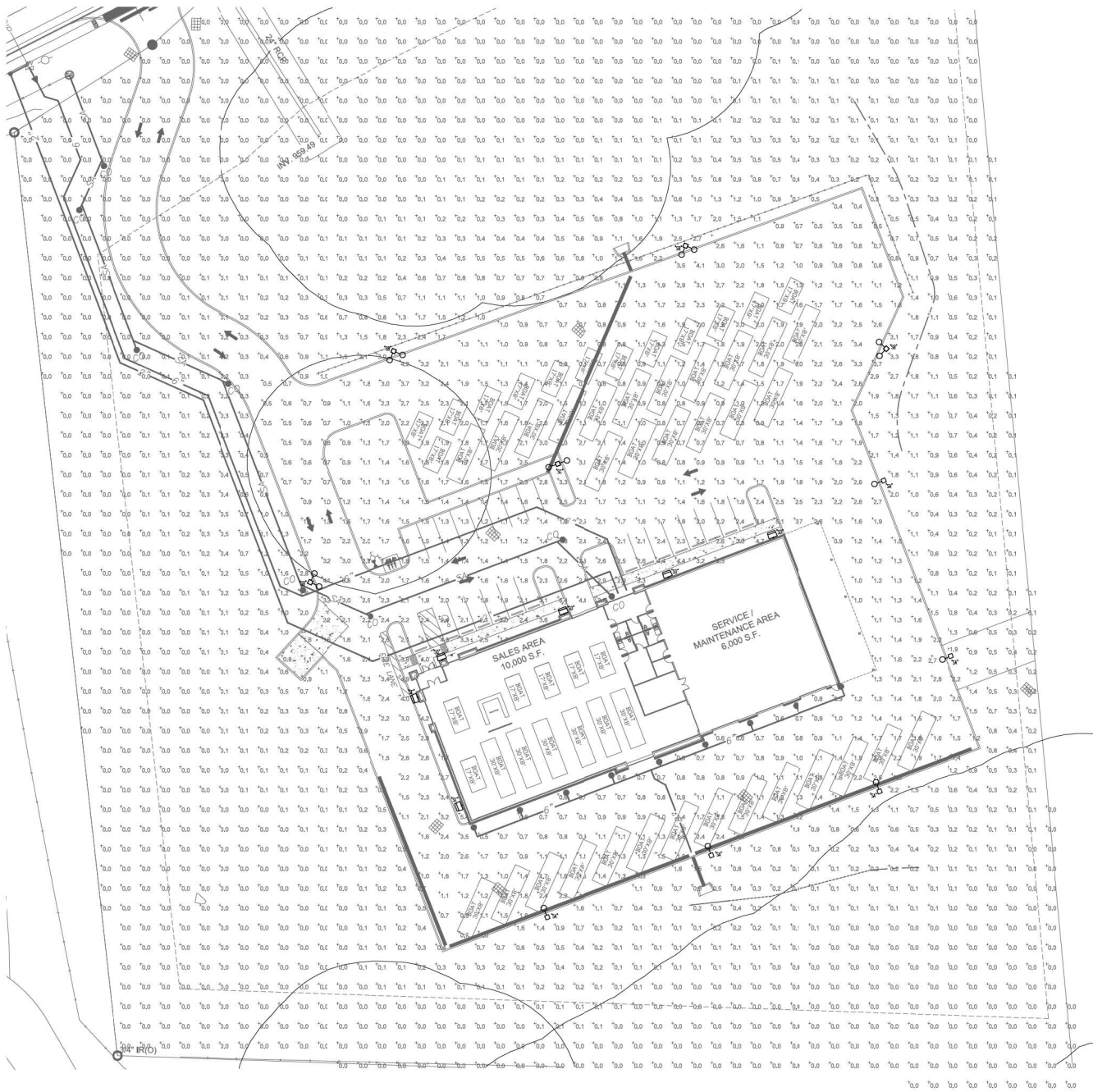


Project Phase: Schematic Design

Issue Date: 01.01.20		
Revisions		
No.	Description	Date

Job Number: 21051.00
Elevations

A3.2



FACILITY
SYSTEMS
CONSULTANTS, LLC
713 S. Central Street
Suite 101
Knoxville, Tennessee 37902
PH: (865) 248-0164
FX: (865) 248-1086

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FOR TOWN OF
FARRAGUT REVIEW,
NOT FOR
CONSTRUCTION

MOSES WATERSPORTS SITE LIGHTING
FARRAGUT, TN

Job No: MB118
Date: 01/09/2021
Designed by: LTH
Drawn by: EES

Sheet Title:
SITE PHOTOGRAPHIC PLAN

Scale: 1" = 200'

SHEET

E1.2

SITE DEVELOPMENT PLANS

U.E.I. PROJECT NO. 2104008

MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE, TENNESSEE 37932
CLT MAP 130, PARCEL 176.02

Please include as a note on the plans that no vegetation is to be removed within the areas encompassed by the sinkhole lip elevations. These areas are to be left completely and permanently undisturbed. Staff will recommend that permanent fencing be installed to protect the sinkhole lip elevation areas from encroachment in the future.

PLEASE SEE NOTE 18 ON SHEET C-1 AND NOTE 15 ON SHEET C-2.

Please submit Drainage Fee of \$2,000.00

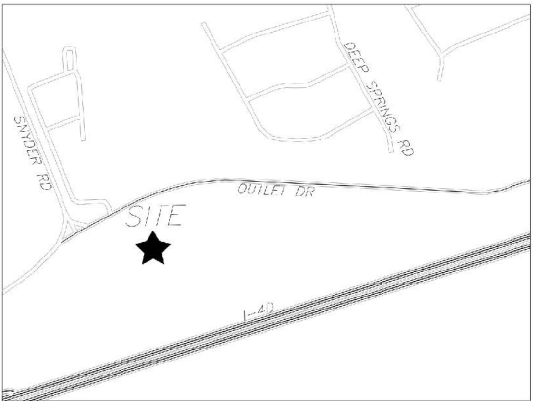
WILL SUBMIT UNDER SEPARATE COVER

Please submit irrevocable Letter of Credit for Erosion Control for \$24,000

WILL SUBMIT UNDER SEPARATE COVER

Please submit NOI

WILL SUBMIT UNDER SEPARATE COVER



LOCATION MAP

DEVELOPER:
MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890

It may be useful to include emails for all contacts.
ADDED EMAIL ADDRESSES PER COMMENT



SITE ENGINEER:
URBAN ENGINEERING, INC.
CHRIS SHARP
11852 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 966-1924

SPECIFICATIONS

EXCEPT WHERE DIRECTED OTHERWISE BY THE PLANS, WORKMANSHIP AND MATERIAL (BUT NOT MEASUREMENT AND PAYMENT) FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS AND STANDARDS.

ELECTRICAL - AS DIRECTED BY LCUB
GAS - AS DIRECTED BY KUB
WATER - AS DIRECTED BY FIRST UTILITY DISTRICT
CABLE TV - AS DIRECTED BY CHARTER
TELEPHONE - AS DIRECTED BY TDS
TOWN OF FARRAGUT - ALL APPLICABLE TOWN REGULATIONS AND ORDINANCES.

BUILDING SUMMARY:

BUILDING AREA (S.F.): 16,000
NUMBER OF STORIES: 1
CONSTRUCTION TYPE: II-B
OCCUPANCY TYPE: BUSINESS
ONE-HOUR PROTECTED: NO
BUILDING SPRINKLED: NO

A post-construction SWPPP will be required for this site. TCF staff to provide required form, which must be submitted prior to issuance of CO.

COMMENT NOTED.

A long-term stormwater maintenance agreement will be required, for catch basin inserts and enhanced swales, prior to issuance of the CO.

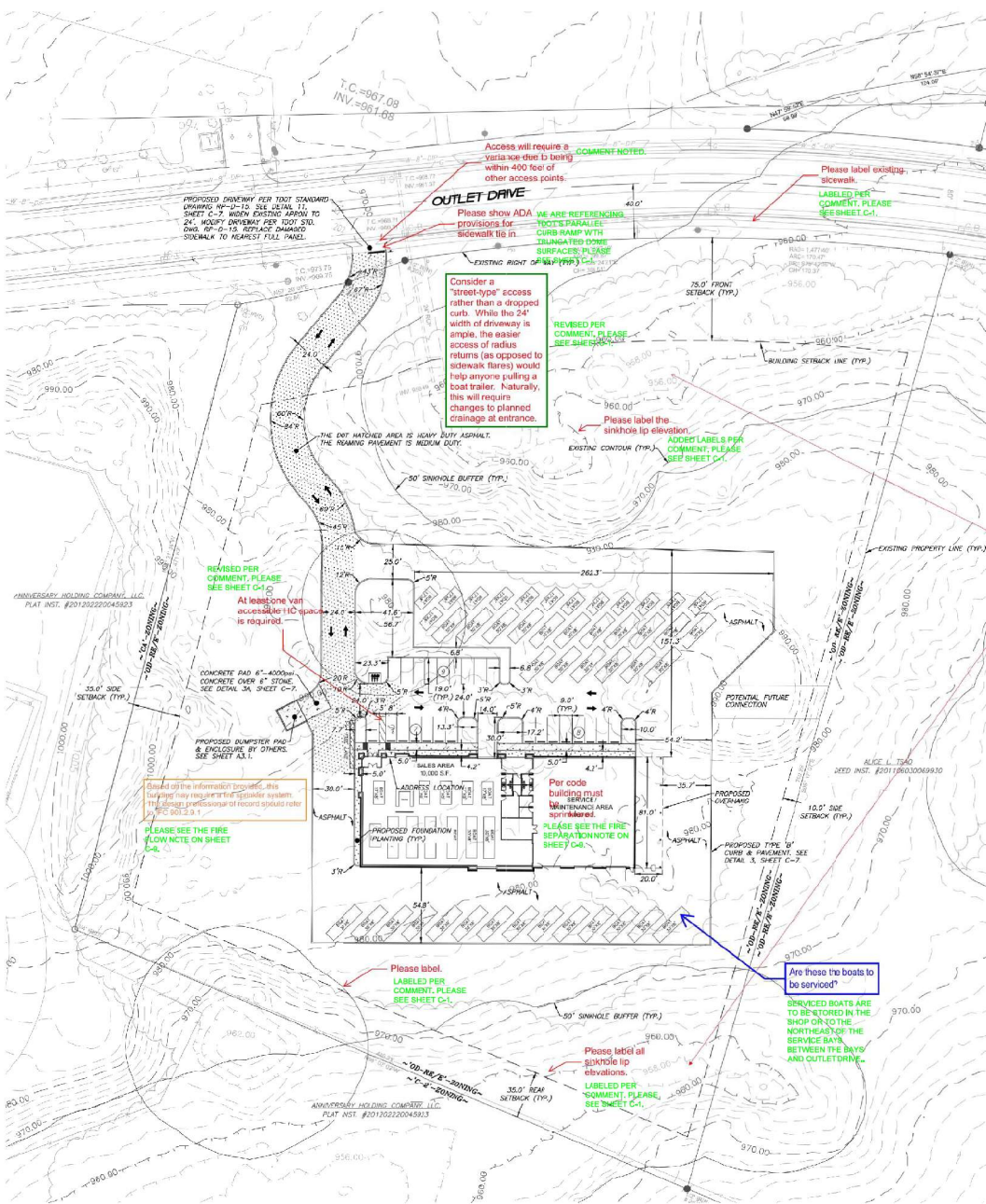
COMMENT NOTED. WE WILL COORDINATE. I HAVE NEVER SUBMITTED ONE.

Please provide a tree preservation/removal plan per the Town requirements.
INCLUDED IN THIS SUBMITTAL

SHEET INDEX

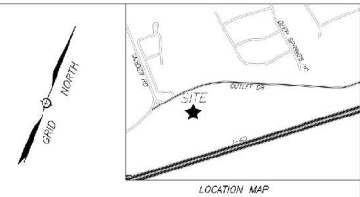
TITLE	SHEET
TITLE SHEET	C-0
SITE PLAN	C-1
GRADING PLAN	C-2
DRAINAGE PLAN	C-3
EROSION AND SEDIMENT CONTROL PLANS	C-4 THRU C-6
SITE CONSTRUCTION DETAILS	C-7 & C-8
SANITARY SEWER AND SITE WATER PLAN	C-9
FLOOR PLAN	A1.1
POOF PLAN	A1.2
ARCHITECTURAL ELEVATIONS	A3.1 & A3.2
LEGEND & SCHEDULE	E0.1
SITE ELECTRICAL PLAN	E1.1
SITE PHOTOMETRIC PLAN	E1.2
TREE PRESERVATION & REMOVAL PLAN	L100

ISSUE NO.	DATE	DESCRIPTION



Any outdoor storage or sales shall be contained within areas specifically designed and approved for such storage or sales as part of a site plan review. Such areas shall be screened from public rights-of-ways with opaque materials that are architecturally compatible with the primary materials used on the building they are serving. Such screened areas shall meet the setback requirements for accessory structures. THE PROPOSED FENCE LOCATION IS SHOWN ON SHEET C-1. A DETAIL OF THE FENCE IS SHOWN ON SHEET A-1.

SYMBOL	DESCRIPTION	DETAIL
	TRAFFIC ARROW	SEE DETAIL 6, SHEET C-7
	STOP SIGN / HANDICAP SIGN	STOP SIGN: SEE DETAIL 1, SHEET C-7 HANDICAP SIGN: SEE DETAIL 5, SHEET C-7
	12\"	
	PAINTED HANDICAP SYMBOL	SEE DETAIL 4, SHEET C-7
	3-STILL BIKE RACK	SEE DETAIL 8, SHEET C-7
	NO. OF PARKING STALLS (PROP.)	
	TURNAROUND SIDEWALK / PAD	SEE DETAIL 8, SHEET C-7
	CURB STOP	SEE DETAIL 2, SHEET C-7
	FOUNDATION PLANTING	
	HANDICAP RAMP	SEE DETAIL 1, SHEET C-7



- SITE PLAN NOTES:**
- PROPERTY CORNERS MARKED AS NOTED.
 - THIS PROPERTY IS ZONED DD-RE/VE. OUTLET DRIVE REGIONAL ENTERTAINMENT AND EMPLOYMENT DISTRICT. REQUIRED BUILDING SETBACKS AS FOLLOWS:
FRONT: WHERE A PARKING LOT IS SITUATED IN THE FRONT YARD BETWEEN A BUILDING AND AN ABUTTING STREET, ALL BUILDINGS SHALL BE SET BACK FROM THE REARST FRONT OF ANY RIGHT-OF-WAY A MINIMUM OF 75 FEET.
SIDE: BUILDINGS (NON-ACCESSORY) WITHIN THE DD-RE/VE DISTRICT SHALL BE A MINIMUM OF 30 FEET AWAY FROM THE ADJUTING PROPERTY. IF NOT WITHIN THE DD-RE/VE DISTRICT THE SIDE SETBACK SHALL BE A MINIMUM OF 30 FEET.
REAR: BUILDINGS (NON-ACCESSORY) SHALL BE SET BACK A MINIMUM OF 30 FEET.
 - VEHICLE PARKING:
NUMBER OF EMPLOYEES = 9
PROPOSED BUILDING GROSS FLOOR AREA = 16,000 S.F.
SHOWROOM GROSS FLOOR AREA = 10,000 S.F.
MAINTENANCE GROSS FLOOR AREA = 6,000 S.F.
PROPOSED PARKING SUMMARY:
1 PER EMPLOYEE (9 EMPLOYEES) = 9
1 PER 100 S.F. SHOWROOM AREA = 14
TOTAL REQUIRED = 24 SPACES (INCLUDING 1 H.C.)
PROPOSED PARKING = 24 SPACES (INCLUDING 1 H.C.)
BICYCLE PARKING: 2 BICYCLE SPACES PER 25 VEHICLE SPACES FOR THE FIRST 100 VEHICLE SPACES, PLUS 8 BICYCLE SPACES PER 50 VEHICLE SPACES FOR THE NEXT 400 VEHICLE SPACES.
REQUIRED BICYCLE SPACES = 3
PROVIDED BICYCLE SPACES = 3
 - TOTAL SITE AREA = 297,365 S.F. (6.81 ACRES)
BUILDING & ACCESSORIES = 14,000 S.F.
PARKING & PLANTING AREA = 72,975 S.F.
TOTAL IMPROVED AREA = 88,475 S.F.
TOTAL LOT COVERAGE = 30%
*SEE DETAIL 1, SHEET C-8 FOR LOT COVERAGE DIAGRAM.
 - REQUIRED FOUNDATION PLUMBING = 2.5" x 220" = 550 S.F.
PROPOSED FOUNDATION PLUMBING = 1,600 S.F.
 - THERE ARE NO PROPOSED ANTENNAS AS PART OF THIS DEVELOPMENT.
 - TREES THAT ARE DAMAGED OR REMOVED ARE TO BE REPLACED PER THE TOWN OF FARRAGUT TREE PROTECTION/REPLACEMENT ORDINANCE.
 - FIRE LAMES SHALL BE 3" WIDE WITH 1"-9" LETTERING AS SHOWN ON THE PLAN.
 - SIGNAGE AND STRIPING TO CONFORM TO THE LATEST EDITION.
 - TRAFFIC CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR.
 - PROVIDE 1/2" 1/2" PRE-MOLDED EXPANSION JOINTS WHERE SIDEWALK ABUTS BUILDING. PROVIDE SAME CONSTRUCTION JOINTS AT 5' INTERVALS.
 - SEWER/STORMS SHOWN ON THIS PLAN ARE PER THE CURRENT TOWN OF FARRAGUT ZONING ORDINANCE.
 - ALL WALKING FACILITIES (WALKING TRAILS/SIDEWALKS) MUST BE COORDINATED WITH TOWN STAFF PRIOR TO CONSTRUCTION.
 - ALL PROPOSED HAZARD LIGHTS SHALL BE SCREENED BY THE BUILDING THEY ARE SERVING SO THAT THEY ARE NOT VISIBLE FROM ADJUTING PROPERTIES OR RIGHTS OF WAY.
 - ALL WEATHER MARKINGS WITHIN 10.0' OF RIGHT OF WAY SHALL BE THERMOPLASTIC PER T.O.D.T. SPECIFICATIONS.
 - T.O.P.S. PROVIDED BY LAND DEVELOPMENT SOLUTIONS DATED 08-01-21.
 - SEE DETAIL 4, SHEET C-8 FOR ACCESS DIAGRAM.

Please note: sinkhole areas are considered environmentally sensitive areas and trees within those areas are considered a protected group under the Tree Protection Ordinance. Any non-construction related clearing/thinning in these areas will be limited.

Note to FMPC: Routing runoff to sinkholes in lieu of detention is allowed in our ordinance, provided the designer can demonstrate the sinkhole's capacity is significantly greater than the amount of runoff from the design storm. The designer has documented significantly greater volume than needed.

COMMENT NOTED.



REFERENCE:
RECORDED PLAT: L-368-D
RECORDED DEED: 201302200054576



REVISION	DATE	DESCRIPTION	BY

SHEET C-1 (2 OF 18)

SITE PLAN

MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932

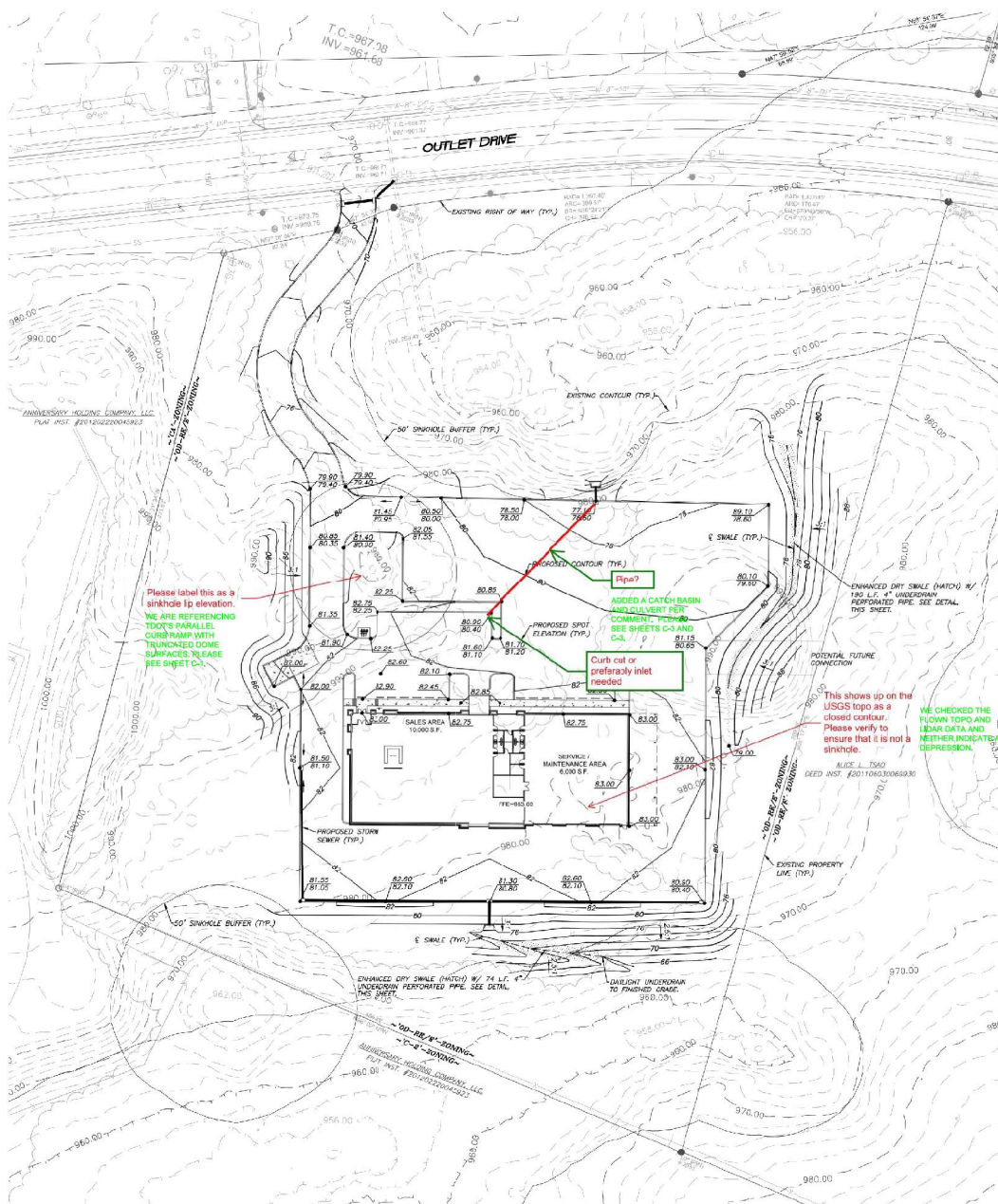
DIST. / TOWN OF FARRAGUT / KNOX COUNTY / TENNESSEE

OLT MAP 130 / PARCEL 176.02 / SCALE: 1"=40' / JUNE 14, 2021

DEVELOPER: MOSES WATERSPORTS / 10630 LEXINGTON DRIVE / KNOXVILLE, TN 37933 / (865) 671-2890

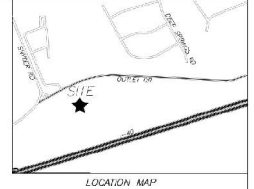
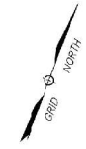
URBAN ENGINEERING, INC. / 11852 KINOSTON PIKE / FARRAGUT, TENNESSEE 37934 / (865) 966-1924

DWG. CLM / DWG. GAS / DWG. NO. 2104008



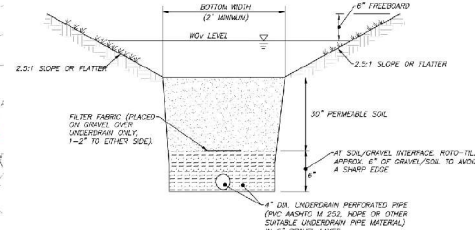
Please outline how the LID requirements are being met with this project.

WE ARE TREATING RUNOFF TO THE NORTH OF THE BUILDING WITH CATCH BASIN WATER QUALITY INSERTS, THE ROOF AND THE PAVED SURFACES TO THE SOUTH WILL BE TREATED IN A BIOWALL.



GRADING PLAN NOTES:

1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF EXISTING UTILITIES SUCH AS CATCH BASINS, MANHOLELS, WATER MAINS, ETC., AND CONFORMING INFORMATION FROM PLANS SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES. THE CONTRACTOR SHALL NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES AND ALSO SHALL TIE IN ONE-CELL PIPES TO ANY EXISTING WORK TO VERIFY INFORMATION SHOWN AND DETERMINE THE LAYOUT OF THE IRRIGATION SYSTEM AND IF ADDITIONAL IMPROVEMENTS MAY BE NEEDED.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF FARRAGUT SPECIFICATIONS FOR SITE DEVELOPMENT.
3. ALL WORK SHALL BE SEQUENCED AND COMPLETED IN ACCORDANCE WITH THE SWAMP AND RELATED PERMITS ISSUED BY TDD.
4. CLEAR AND GRUB FOR SPICES, BRUSH, TREES, BRUSH, DEBRIS, AND STUMPS WITHIN THE WORK AREA. REMOVE ALL BUILDINGS, DRIVES, CULDS, FENCES, AND MISCELLANEOUS EQUIPMENT.
5. STRIP AND STOCKPILE MATERIALS NEEDED FOR REPAIRING AND SEEDING. SURROUNDING EXISTING AREA WITH SOFT FILL, STRIP FILL, TEMPORARY SEEDING OR GRASSING MEASURES AS NEEDED TO PREVENT EROSION/SEDIMENTATION.
6. AFTER STRIPPING AND REMOVAL, PROOF SOIL ENTIRE DISTURBED AREA WITH TANGENT TRUCK FULLY LOADED WITH SOFT FILL. REMOVE ANY AREA WHICH ARE SOFT OR WELDED UNDER LOAD AND REPLACE WITH NEW MATERIAL MEETING PROJECT SPECIFICATIONS.
7. IF UNSUITABLE SURFACE MATERIALS ARE ENCOUNTERED, THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT WITH APPROVED MATERIAL FROM SOURCE OR APPROVED FILL. FILLING MATERIALS ARE THOSE CLASSIFIED AS MH, CH, OH, CL, OL, AND PEK IN ACCORDANCE WITH THE UNITED SOIL CLASSIFICATION SYSTEM.
8. COMPACTION REQUIREMENTS ARE SUMMARIZED AS FOLLOWS: (PLACE IN 8" LIFTS)
 - TOP 24 INCHES OF UNDERGROUND PAVED AREAS 100 PERCENT STANBRO PROCTOR 10000 LB
 - TOP 24 INCHES OF UNDERGROUND PAVED AREAS 100 PERCENT STANBRO PROCTOR 10000 LB
 - AREAS WITHIN THE BUILDING ENVELOPE TO BE PREPARED IN ACCORDANCE WITH RECOMMENDATIONS OF REPORT OF GEOTECHNICAL INVESTIGATION AND/OR AS DIRECTED BY THE SOILS ENGINEER.
9. ALL FINISHED GRADE AREAS SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL. TOPSOIL FINISHED GRADE SHALL BE IN PLACE OR PLACEMENT OF 4 INCHES OF TOPSOIL. FINISHED GRADE SHALL BE IN PLACE OR PLACEMENT OF 4 INCHES OF TOPSOIL. FINISHED GRADE SHALL BE IN PLACE OR PLACEMENT OF 4 INCHES OF TOPSOIL.
10. THE TOTAL AREA DISTURBED AS PART OF THIS PROJECT 3.14 ACRES.
11. PROPOSED SPOT ELEVATIONS AND PROPOSED CONTOURS ARE BASED ON THE INSTALLATION OF TOPSOIL IN GRASSED AREAS, PAVING WITHIN DRIVES AND DRIVEWAYS.
12. IT IS THE RESPONSIBILITY OF THE OWNER TO OBTAIN PERMISSION FROM THE NEIGHBOR TO WORK ON HIS OR HER PROPERTY.
13. THE VERTICAL CURVE IS 100 FEET.
14. TURN REINFORCEMENT MAT SHALL BE INSTALLED ON ALL SLOPES STEEPER THAN 3:1. TURN REINFORCEMENT MAT SHALL BE WESTERN CECILIAN EXCEL 150-150 OR EQUIVALENT.



TYPICAL SECTION - ENHANCED DRY SWALE



REFERENCE:
RECORDED PLAT: L-368-P
RECORDED DEED: 20130220034576



SHEET C-2 (3 OF 18)

GRADING PLAN

MOSES WATERSPORTS

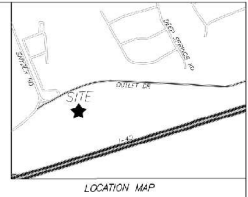
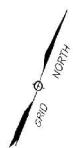
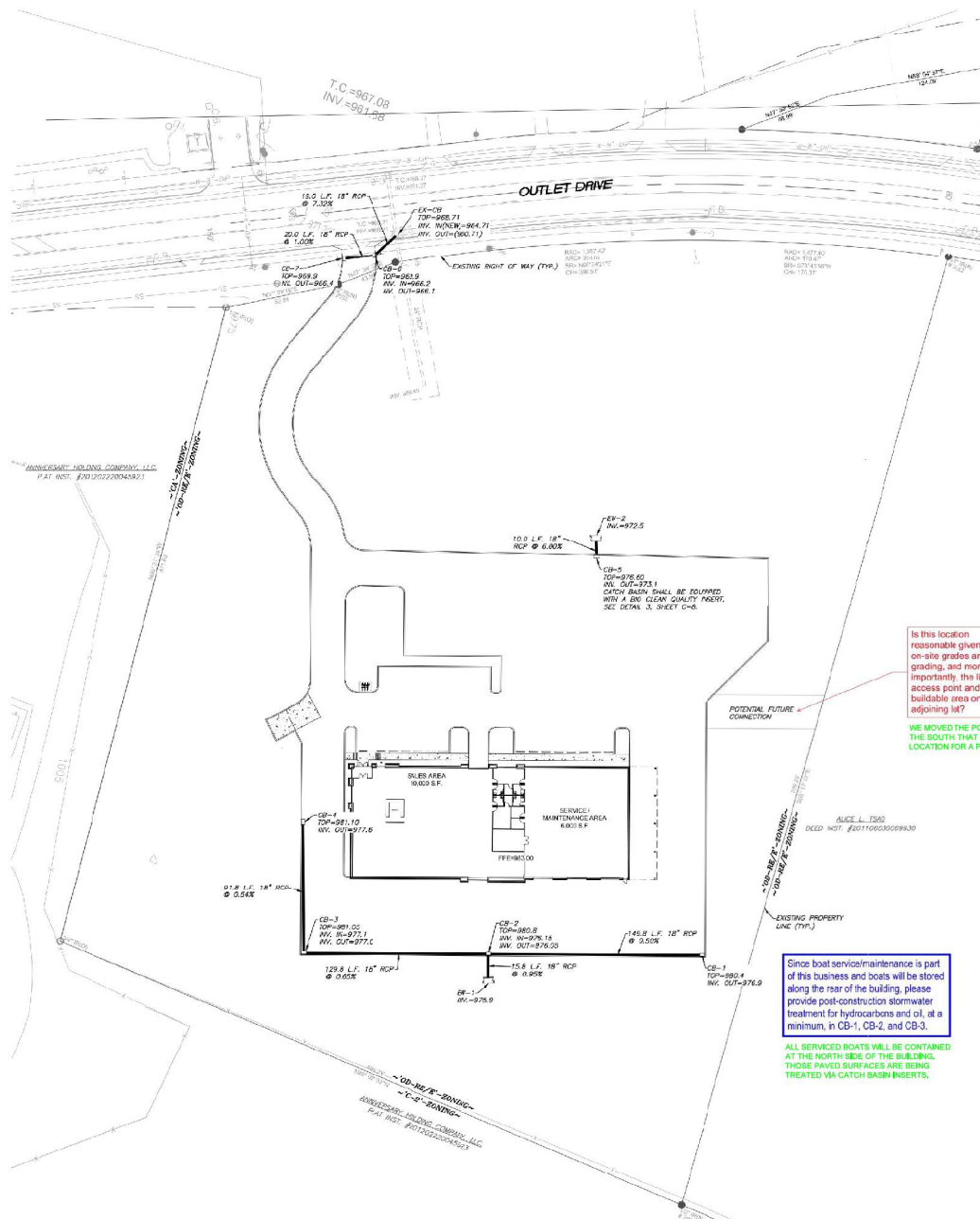
SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932
DIST. FW KNOX COUNTY
TOWN OF FARRAGUT TENNESSEE
CLT MAP 130 PARCEL 176.02
SCALE: 1"=40' JUNE 14, 2021

DEVELOPER:
MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(605) 671-2880



URBAN ENGINEERING, INC.
11852 KINGSTON PIKE
FARRAGUT, TENNESSEE 37934
(605) 966-1924

REV/NO	DATE	DESCRIPTION	BY	CHKD	CAS	DATE



DRAINAGE NOTES:

1. CORRUGATED POLYETHYLENE PIPE (HDPE) SHALL BE ASHTO M 3824M 24\"/>

Is this location reasonable given the on-site grades and grading, and more importantly, this likely access point and buildable area on the adjoining lot?

WE MOVED THE POTENTIAL CONNECTION TO THE SOUTH THAT IS A MORE LIKELY LOCATION FOR A POTENTIAL CONNECTION.

Since boat service/maintenance is part of this business and boats will be stored along the rear of the building, please provide post-construction stormwater treatment for hydrocarbons and oil, at a minimum, in CB-1, CB-2, and CB-3.

ALL SERVICED BOATS WILL BE CONTAINED AT THE NORTH SIDE OF THE BUILDING. THOSE PAVED SURFACES ARE BEING TREATED VIA CATCH BASIN INSERTS.



REFERENCE:
RECORDED PLAT: L-368-D
RECORDED DEED: 201302200054576



SHEET C-3 (4 OF 18)

DRAINAGE PLAN

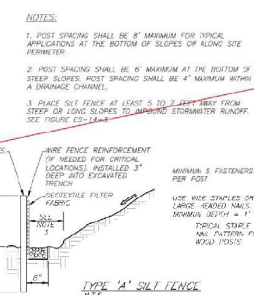
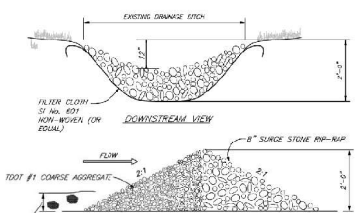
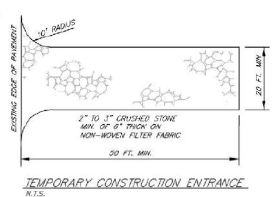
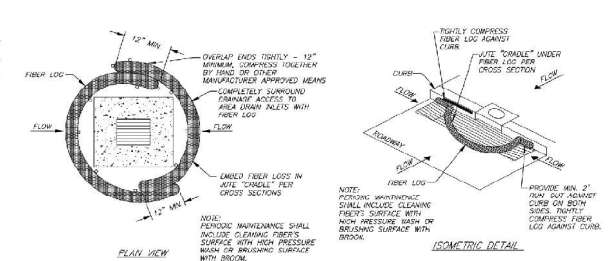
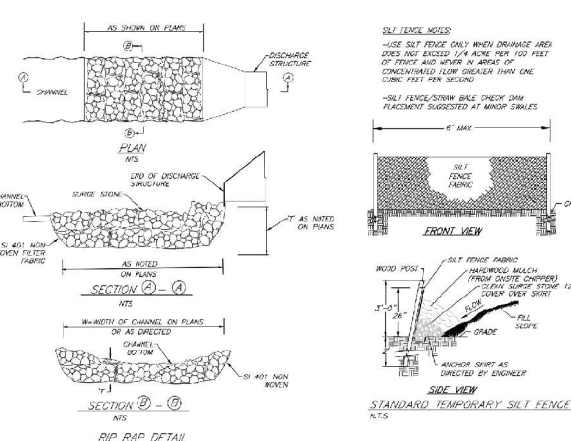
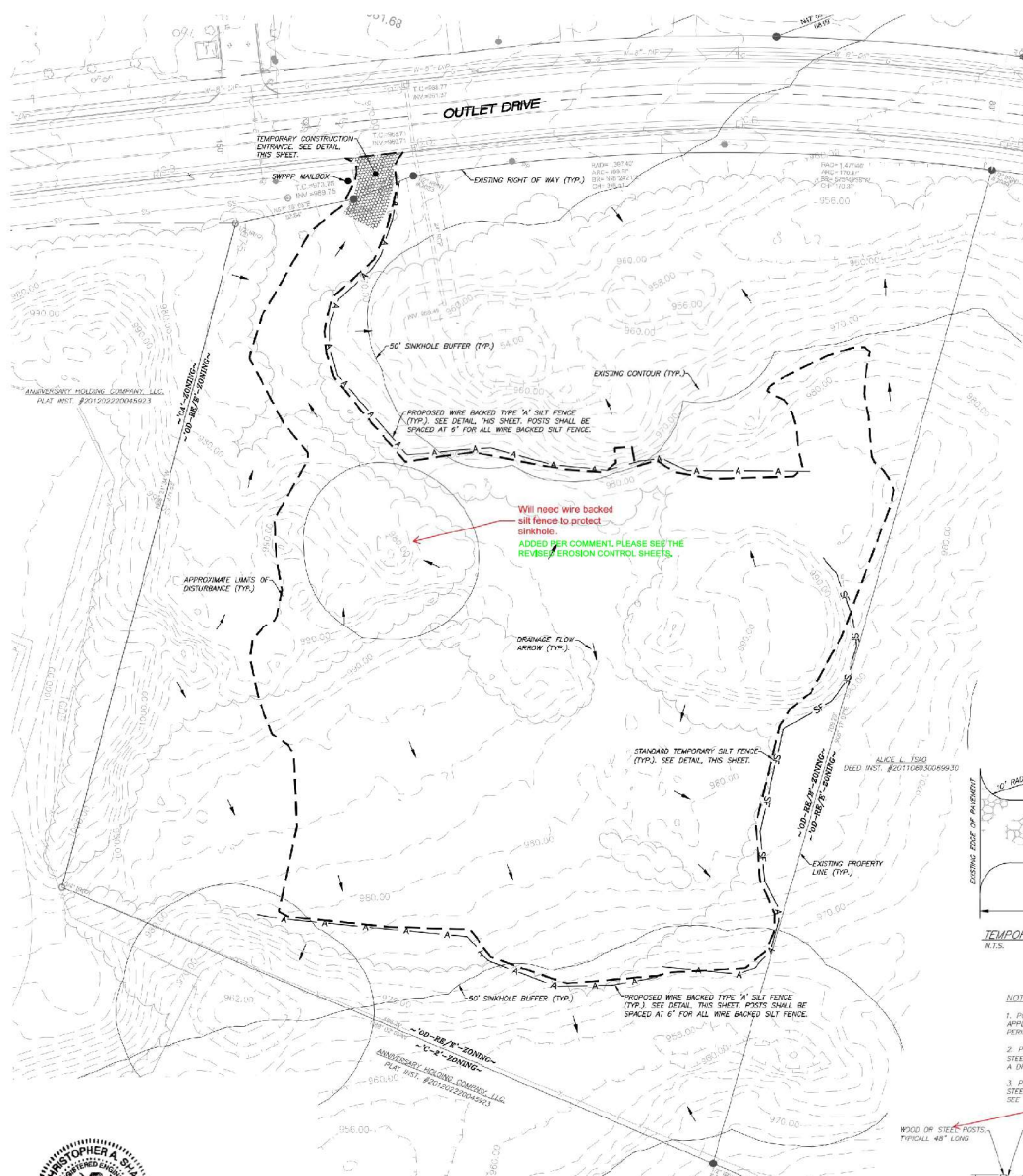
MOSES WATERSPORTS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37932
DIST. FW KNOX COUNTY
TOWN OF FARRAGUT TENNESSEE
CLT MAP 130 PARCEL 176.02
SCALE: 1"=40' JUNE 14, 2021

DEVELOPER: MOSES WATERSPORTS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890

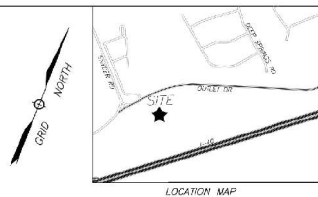
URBAN ENGINEERING, INC.
11522 KINSTON PIKE
FARRAGUT, TENNESSEE 37934
(865) 566-1924

REVISION	DATE	DESCRIPTION	BY	CHKD. DATE	DATE	DATE



PLEASE USE ONLY STEEL DOSS FOR THE WIRE BACKED SILT FENCE.
REVISED PER COMMENT, PLEASE SEE THE REVISION EROSION CONTROL SHEETS.

REFERENCE:
RECORDED: L-368-D
RECORDED: 201302200054576



- EROSION & SEDIMENT CONTROL NOTES**
1. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS OTHER DRAINAGE, MANHOLES, WATER VALVES, ETC. AND COMPLETE INFORMATION FROM PLANS SUPPLIED BY MUNICIPAL UTILITY COMMISSIONS AND GOVERNMENT AGENCIES. THE CONTRACTOR SHALL NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES AND ALSO CALL THEM ONE-CALL PRIOR TO ANY EXCAVATION WORK TO VERIFY INFORMATION SHOWN AND DETERMINE THE LAYOUT OF THE IRRIGATION SYSTEM AND IF ADDITIONAL IMPROVEMENTS MAY EXIST.
 2. THE CONTRACTOR SHALL MEET ON-SITE WITH THE ENGINEER TO APPROVE THE LOCATION OF THE SILT FENCES AND OTHER EROSION CONTROL FEATURES PRIOR TO BREAKING GROUND.
 3. THE CONTRACTOR SHALL AVOID TRACKING MUD AND SILT ONTO EXISTING ROADS AND SHALL BE RESPONSIBLE FOR CLEANUP OF ANY VIOLATION.
 4. ALL CONSTRUCTION SHALL COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SUBMITTED TO THE TOWN OF FARRAGUT AND THE TOWN ENGINEER, HARRISON.
 5. ALL UNIMPAVED AREAS SHALL BE LANDSCAPED OR GRASSED. GRASS SPECIFICATIONS AS FOLLOWS:
TOPSOIL TO UNIFORM DEPTH OF 4" (MIN)
AGRICULTURAL LINE - 3 TONS/ACRE
LAWN - 41.31 POUNDS PER 1,000 SQ. FT.
0.5 LBS. ENGLISH RYE PER 1,000 SQ. FT.
10 LBS. DRY FERTILIZER (12-24-24 OR EQUIV.) PER 1,000 SQ. FT.
100 LBS. DRY STRAW PER 1,000 SQ. FT. (EXCEPT WHERE EROSION - EROSION FACING REQUIRED)
IF SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH A FULL, EVEN STAND OF VEGETATION ON THE AREAS TO BE SEEDED. UNPAVED AREAS SHALL BE SEEDS AND RESEEDS UNTIL A FULL STAND IS ESTABLISHED.
 6. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF CONSTRUCTION OF SITE POLLUTION PREVENTION CONTROLS THROUGHOUT THE LIFE OF THE PROJECT.
 7. ADDITIONAL DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGE TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR'S OR SUBCONTRACTOR'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE GRADING PERMITTEE.
 8. THE TOTAL AREA DISTURBED AS PART OF THIS PROJECT (3.1± ACRES).

- SEQUENCE OF WORK ACTIVITIES:**
- PHASE 1**
1. INSTALL SILT FENCES, TREE PROTECTION FENCE, TEMPORARY CONSTRUCTION ENTRANCE AND MULCH/TO POST SWPPP.
 2. ATTEND PRE-CONSTRUCTION MEETING WITH THE ENGINEER & THE TOWN OF FARRAGUT TO REVIEW BAP INSTALLATION.
- PHASE 2**
3. STUMP AND STOCKPILE TOPSOIL.
 4. STABILIZE TOPSOIL BY SILT FENCES AND/OR TEMPORARY SEEDING.
 5. CLEAR/GRUB AND DISPOSE OF TIMBER AND TRASH.
- PHASE 3**
6. CUT/FILL FOR THE OVERALL SITE. OUTSLOPES SHALL BE MAINTAINED AND SEEDING IMMEDIATELY UPON REACHING FINISHED GRADE.
 7. INSTALL DRAINAGE AND UTILITIES. INLETS SHALL BE PROTECTED USING FIBER LOGS WITH THE ATTACHED DETAILS.
 8. FINALIZE SUB-GRADE, STONE, INSTALL PAVING & FLATWORK AND RESEED TOPSOIL.
 9. ESTABLISH VEGETATION ON ALL DISTURBED AREAS PER SEEDING SPECS.
 10. FOLLOWING STABILIZATION, THE SITE'S TEMPORARY EROSION CONTROL BAP'S SHALL BE REMOVED AND A NOTICE OF TERMINATION SHALL BE FILED WITH TDEC.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TDEC EROSION CONTROL HANDBOOK AND THE REGULATION OF THE TOWN OF FARRAGUT. ADDITIONAL SEDIMENT CONTROL BAP'S MAY BE REQUIRED AS DICTATED BY SEQUENCE OF CONSTRUCTION.

SHEET C-4 (5 OF 18)

EROSION & SEDIMENT CONTROL PLAN (PHASE 1)

MOSES WATERSPLITS

SITE ADDRESS: 11470 OUTLET DRIVE, KNOXVILLE 37933

DIST. FW KNOX COUNTY
TOWN OF FARRAGUT TENNESSEE
CLT MAP 130 HANCOCK 1/16.02
SCALE: 1"=40' JUNE 14, 2021

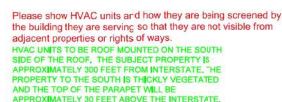
PROJECT:
MOSES WATERSPLITS
10630 LEXINGTON DRIVE
KNOXVILLE, TN 37933
(865) 671-2890

URBAN ENGINEERING, INC.
11802 KINGSTON PARK
FARRAGUT, TENNESSEE 37934
(865) 965-1924

REVISION	DATE	DESCRIPTION	BY	CHECK	DATE	DESCRIPTION



- | | | |
|----------|----------|-------------|
| OWN: CLM | CHK: CAS | CHK. NO. 27 |
|----------|----------|-------------|



NOTE: MATERIALS CALCULATIONS		
	MASONRY	NON-MASONRY
NORTH	3,484 SF	770 SF
SOUTH	1,286 SF	1,027 SF
EAST	977 SF	583 SF
WEST	314 SF	1,061 SF
TOTAL	6,041 SF	3,441 SF
%	63.7%	36.3%

COMMENT NOTED

Note: If PC asks, this accent color matches the Town's adopted color palette.

7	Building Elevation - North 1/8" = 1'-0"
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GENERAL SHALE SMOKE GRAY VELOUR



GENERAL SHALE CASCADE WHITE VELOUR



GENERAL SHALE MIDNIGHT MIST

ARCH BRICK VENEER -
SMOKE GRAY VELOUR

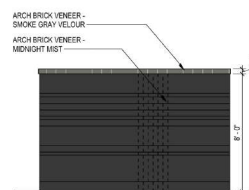
ARCH BRICK VENEER -
MOONLIGHT MIST

6'-10"

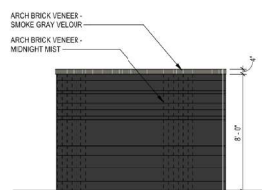
8'-10"

ALUMINUM MANUAL

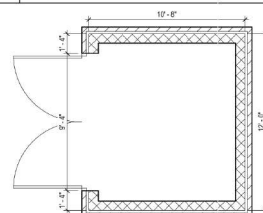
5	Dumpster Enclosure Front Elevation 1/4" = 1'-0"
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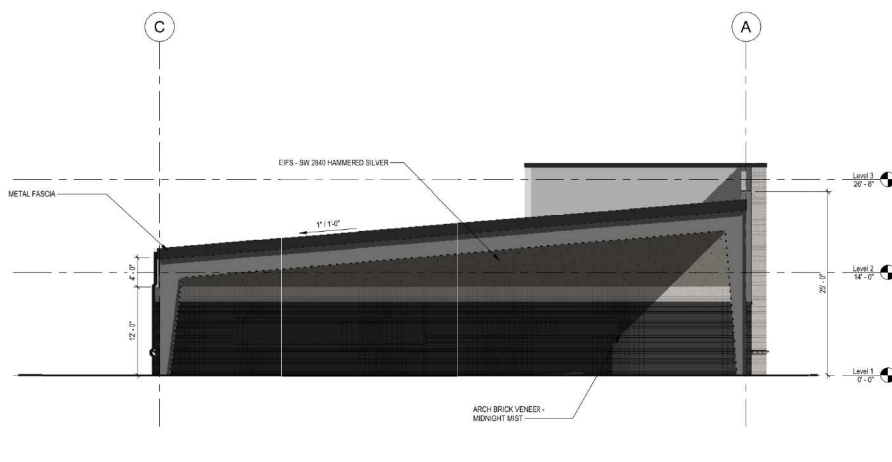
4	Dumpster Enclosure Back Elevation
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3	Dumpster Enclosure Side Elevation
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2	Level 1 - Dumpster Enclosure
---	------------------------------



1	Building Elevation - East
---	---------------------------

SHEET

E1.1

Chapter 2: Building Design Guidelines

BUILDING HEIGHT:

Intent Statement: New development and redevelopment should meet zoning requirements while recognizing traditional height variations in Farragut and stepping down towards adjacent lower-scale buildings.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 37	2.1	Provide variation in building heights.	☒	☐	☐	Comment: Building has varying heights on front elevation with taller entry element
pg. 37	2.2	Position taller building elements to minimize visual impacts.	☒	☐	☐	Comment:
pg. 37	2.3	Design floor-to-floor heights to establish a sense of scale and reflect Farragut traditions.	☒	☐	☐	Comment: Building utilizes horizontal expression of building materials to create a sense of scale

BUILDING ARTICULATION:

Intent Statement: New development and redevelopment in Farragut should incorporate articulation techniques that promote a sense of human scale and divide the mass and scale of a larger building into smaller parts that relate to traditionally-scaled buildings.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 38	2.4	Use vertical articulation techniques to add visual interest and express traditional façade widths.	☒	☐	☐	Comment:
pg. 38	2.5	Use horizontal articulation techniques to establish a sense of human scale in the design of a larger building.	☒	☐	☐	Comment: Building utilizes horizontal expression of building materials to create a sense of scale

ICONIC DESIGN FEATURES:

Intent Statement: New development and redevelopment in a highly-visible location, such as the intersection of arterial roads, should incorporate iconic design features to foster a unique sense of place, add visual interest and help differentiate Farragut from surrounding areas. In most cases, large-scale new development projects in any location should also incorporate iconic design features.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 40	2.6	Use iconic design features to foster a unique sense of place.	☒	☐	☐	Comment: The main entry element serves as the iconic feature to brand the building
pg. 40	2.7	Locate iconic design features to maximize their visibility and impact.	☒	☐	☐	Comment:

ROOF FORM:

Intent Statement: New development and redevelopment should incorporate roof forms that convey compatible mass and scale, add visual interest and are appropriate to a building's use.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 40	2.8	Create a sense of visual interest by using a variety of roof forms along the street.	☒	☐	☐	Comment: Parapet extensions are utilized to create visual interest
pg. 40	2.9	Consider incorporating a roof form that provides a "cap."	☒	☐	☐	Comment:

OVERALL FAÇADE CHARACTER:

Intent Statement: Visible building façades that incorporate high-quality design features enhance Farragut's community image and convey an active and vibrant appearance to passing vehicles and pedestrians. The design guidelines for overall façade character below apply to visible façade areas that face public streets, sidewalks, pedestrian areas or parking lots.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 42	2.10	Design a building façade to enhance community image.	☒	☐	☐	Comment: Building façade utilizes traditional materials in a modern way consistent with community image
pg. 42	2.11	Design a building façade to be compatible with its context.	☒	☐	☐	Comment: Building façade will compliment existing and proposed buildings in its vicinity

pg. 42	2.12	Design a building façade to convey visual interest.	☒	☐	☐	Comment:
pg. 42	2.13	Design a building façade to promote an active appearance.	☒	☐	☐	Comment: The main elevation of the building will be a backdrop to an active outdoor space

GROUND FLOOR DESIGN:

Intent Statement: Ground floor building design should incorporate features that help create a pedestrian-friendly street level. In a commercial area, it is especially important to incorporate active features such as ground floor storefront windows. In a multi-family residential area, the ground floor may incorporate other design features, such as porches and stoops, to engage the sidewalk and street.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 44	2.14	Design the ground floor of a building façade to engage the public realm and promote pedestrian activity.	☒	☐	☐	Comment:
pg. 44	2.15	Use high quality, durable materials to define the ground floor and add visual interest.	☒	☐	☐	Comment: Masonry is the predominant material at the base of the building

BUILDING MATERIALS & COLORS:

Intent Statement: Exterior building materials and colors provide a sense of scale and texture and are used to convey design quality and visual interest. Building façades should use high-quality, durable, materials that contribute to the visual continuity of the context and convey high quality in design and detail. Masonry should be used as a significant façade element on new construction.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 46	2.16	Use compatible materials to enhance community image.	☒	☐	☐	Comment: masonry and EIFS have been selected and utilized in accordance to design manual requirements
pg. 47	2.17	Use masonry materials to promote a cohesive community image.	☒	☐	☐	Comment: masonry and EIFS have been selected and utilized in accordance to design manual requirements

pg. 48	2.18	Use accent materials to enhance visual interest.	☒	☐	☐	Comment: EIFS in multiple colors used as accent material
pg. 48	2.19	Use materials to convey a sense of human scale and visual interest to pedestrians.	☐	☐	☐	Comment: masonry used at pedestrian scale
pg. 48	2.20	Use exterior material, paint and roof colors that are compatible with the surrounding context.	☐	☐	☐	Comment: material colors are compliant with design manual requirements

FAÇADE RENOVATION:

Intent Statement: Façade renovations are encouraged to enhance community image and help attract tenants to aging commercial or office buildings. Renovations may include ground floor improvements to attract pedestrian activity, the addition of iconic design features or complete replacement of an existing façade. When possible, such incremental improvements should anticipate future phases of development that may include new buildings, parking areas and pedestrian paths.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 50	2.21	When possible, renovate an aging commercial or office façade to enhance community image.	☐	☐	☒	Comment:
pg. 50	2.22	Anticipate future phases of development when renovating a façade.	☐	☐	☒	Comment:

ADAPTIVE REUSE:

Intent Statement: Preserving and adapting a structure to a new use has environmental benefits and may help preserve the existing character of an area. Re-using a building preserves the energy and resources invested in its construction, and removes the need for producing new construction materials. Adaptive reuse projects are encouraged.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 51	2.23	Adapt an existing structure to a new use as an alternative to demolition whenever possible.	☐	☐	☒	Comment:

pg. 51	2.24	Consider future objectives for the site when adapting an existing structure to a new use.	☐	☐	☒	Comment:
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NEIGHBORHOOD BUILDING DESIGN TRANSITIONS:

Intent Statement: The design of buildings adjacent to an existing or future residential neighborhood should provide a compatible transition that minimizes potential negative impacts while promoting visual connections. Where possible, buildings located near an adjacent neighborhood should have a lower-scale residential character to provide a compatible transition.

Page #	Guideline #	Guideline Description	Met	Not Met	NA	Brief description of how the guideline is achieved:
pg. 52	2.25	Provide a compatible scale transition adjacent to a residential neighborhood.	☐	☐	☒	Comment:
pg. 52	2.26	Incorporate residential design features adjacent to a residential neighborhood.	☐	☐	☒	Comment:

REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion on a request to consider the site related elements of expanding the dining room by approximately 500 square feet at the Big Kahuna Wings, 12828 Kingston Pike (Big Kahuna Wings, Applicant)

INTRODUCTION AND BACKGROUND: This item involves a workshop discussion on a request to expand the existing dining room area at the Big Kahuna Wings (BKW) at the eastern intersection of S. Hobbs Road and Kingston Pike. Specifically, the applicant is asking for the Planning Commission's feedback on the parking provisions, as they apply to this use and property, before a more detailed site plan is developed.

In the Town's Parking and Loading provisions in Chapter 4 of the Zoning Ordinance, a restaurant is required one parking space per 100 square feet of gross floor area plus one parking space per 200 square feet of discernable outdoor dining area. Gross floor area includes the floor area of accessory buildings. The existing BKW restaurant is 2,081 square feet with a second building on the same property that is 1,440 square feet. As noted by the owner at the staff/developer meeting on June 29, this second building is not currently used as an accessory building to the restaurant.

Based on the square footage of only the restaurant and an outdoor seating area of less than 200 square feet, the required amount of parking is 22. If the second building on the property is included in the parking requirements, the number increases to 36. The site currently has 26 parking spaces and satisfies the ratio based only on the restaurant square footage. To increase the amount of dining area in the restaurant and improve its ratio in relation to kitchen space, the owner is proposing a 445 square foot addition. An objective of the expansion would be to lessen wait times and improve overall customer experiences. The proposed addition would increase the parking requirements to 26 parking spaces if the second building on the property is not included in the ratio.

DISCUSSION: In relation to this item, staff would note that there are a couple of considerations. One is an assurance that the second building on the property will not be accessory to the restaurant and cannot be occupied since, with the requested addition, the required amount of parking for the BKW would be exactly what is provided. And second is that the property is often under parked and, as a result, BKW staff use an unimproved area on the property west of S. Hobbs Road. Though supportive of the owner's desire to expand his business, staff is concerned that additional dining room space will worsen this parking condition and that a plan for the overflow parking is needed since parking areas are subject to the standards provided for in the Town's Zoning Ordinance. Unfortunately, the BKW property has limited options for adding more parking without a fairly extensive re-development. If parking for the BKW is being provided off site, staff would recommend that this parking follow the standards of the Zoning Ordinance, including the provisions for shared parking. Staff felt this needed to be reviewed with the Planning Commission prior to the development of a site plan submittal for consideration.



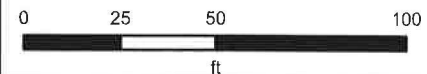
BKW

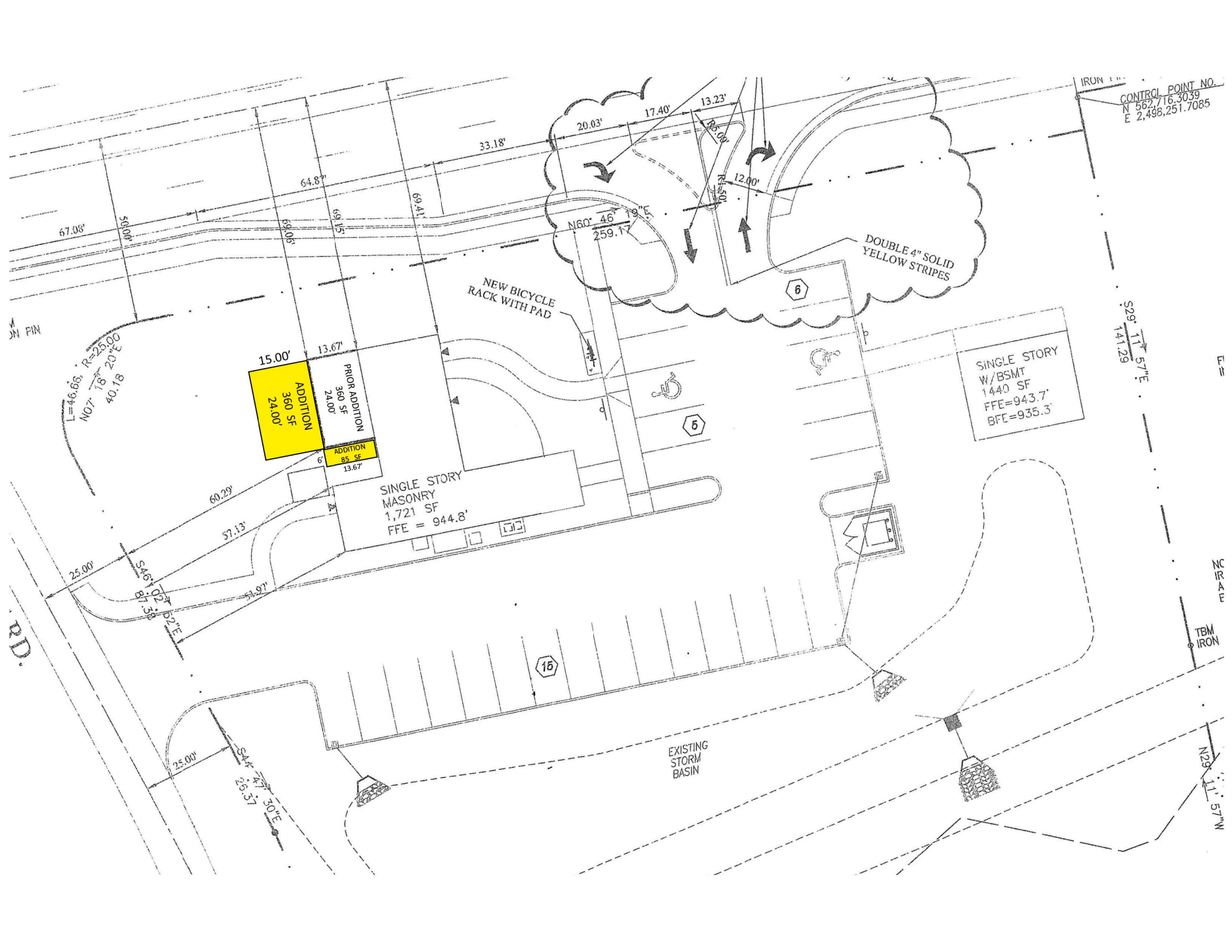
Knoxville - Knox County - KUB Geographic Information System

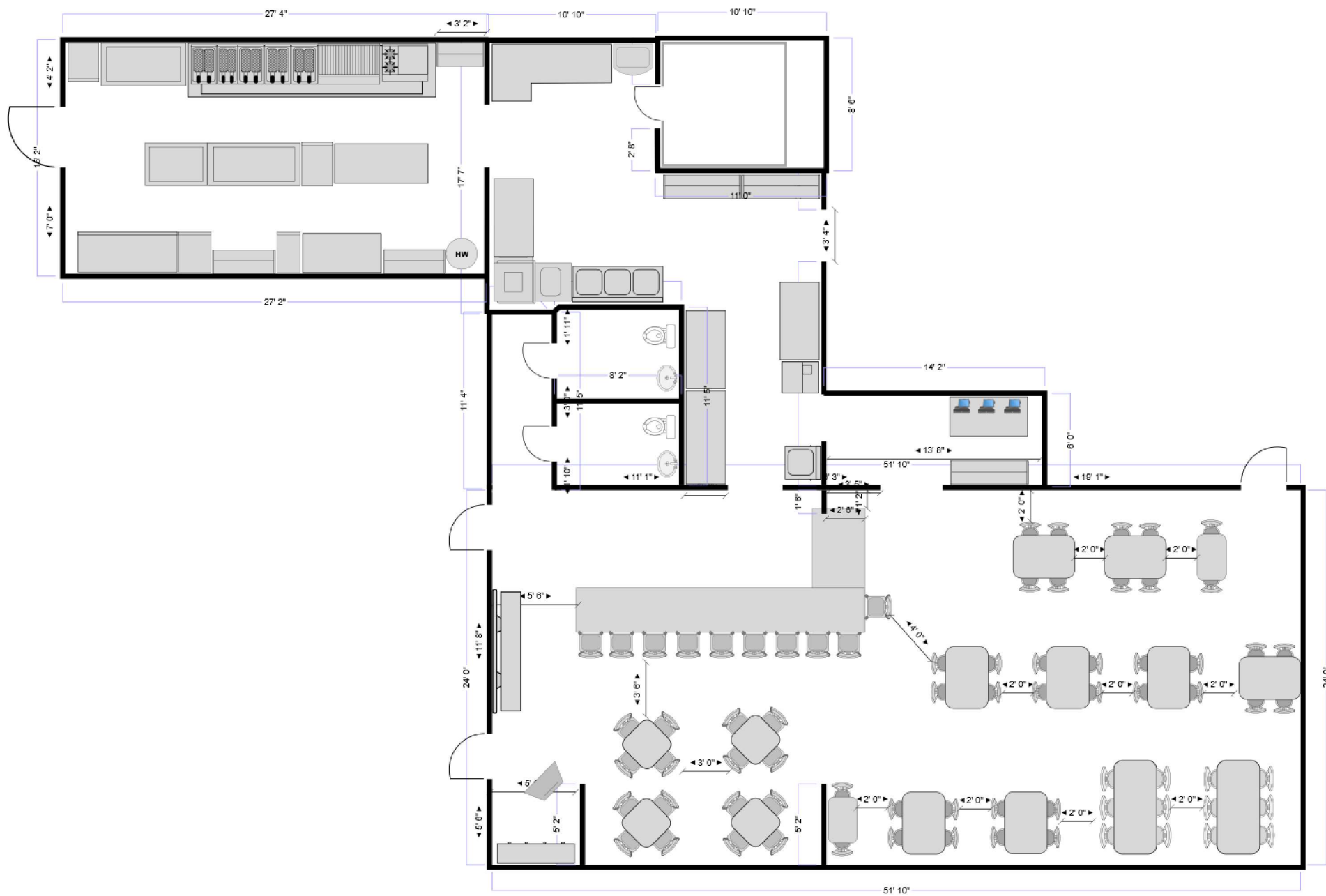
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Printed: 6/21/2021 at 11:25:20 AM









June 11, 2021

Municipal Planning Commission
Town of Farragut
11408 Municipal Center Drive
Farragut, TN 37934

RE: Parking Reduction/Adjustments

Thank you for considering my request for a special parking reduction for my business, Big Kahuna Wings, located at 12828 Kingston Pike in the town of Farragut. I am asking for this special exception to be able to expand the dining room for our inside dining. My reason for the application is because of the hardship it has created for my business.

We have been in business in the town of Farragut for over seven years. Our existing dining room only occupies fifty seats. This has created a situation that is making it hard to be competitive with other establishments in the Farragut area. Without the ability to add to the existing seating we are losing customers, have extended wait times, and are unable to service the residents of Farragut the way we intended. Our current parking lot has been reconfigured to accommodate a total of twenty-seven (27) parking spots including two handicap, five compact car, and twenty regular spots. I am asking for a reduction for required parking for the following reasons:

1. The current requirements for parking were based on square footage of restaurants with the knowledge that most all restaurants build out at a 60/40 ratio, sixty percent of the building used for dining (FOH) and forty percent used for kitchen (BOH). However, the current building was built many years ago, and then redesigned twice, which has caused the ratio to be 45% FOH and 55% BOH. This ratio is hurting the restaurants' ability to have the appropriate amount of dining area along with the required parking.
2. The current seating of the restaurant is fifty seats. Adding the extra seats would help alleviate some of the current wait times for patrons, which would help to free up parking spaces at a quicker rate. Currently we will have upwards of half of our parking spots being occupied by patrons waiting to be seated in the restaurant during busy times.

My request is for the approval of approximately five-hundred extra square feet of FOH space, which would bring the ratio to 56% FOH and 44% BOH. The plans will show that the proposed addition will blend naturally with the existing building and create an inviting area for the residents of Farragut who choose to visit our establishment.

Thank you again for your consideration of this Parking Reduction/Adjustment and I look forward to speaking with you at the monthly meeting.

Kind regards,

A handwritten signature in black ink that reads "Matt Beeler". The signature is stylized with a large, flowing "M" and "B".

Matt Beeler
Owner
Big Kahuna Wings LLC

REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a zoning map amendment for Lots 1-3, as shown on the preliminary plat for a portion of the Keeney Property Subdivision, 12422 Union Road, 15.5 Acres, to change the zoning from R-2 (General Single-Family Residential) to R-1 (Rural Residential) (Urban Engineering, Inc., Applicant)

INTRODUCTION AND BACKGROUND: This agenda item is related to Agenda Item 5. The property owner is requesting to amend the zoning map for the three northern lots in his subdivision off Union Road. The property is currently zoned R-2 and within the R-2 Zoning District, the only agricultural uses permitted are agricultural crops if the lot is at least five acres. Nursery sales or the raising of farm animals or poultry is not permitted. The R-2 District is more of a traditional residential subdivision district where the lot sizes are generally smaller than R-1 and the properties are not intended for a wider range of agricultural uses.

Some of the future residents in the owner's subdivision envision having some farm animals and, as a result, the owner is asking for their portion of his subdivision to be rezoned to R-1. Within the R-1 Zoning District, agricultural uses, as defined in Chapter 2 of the Zoning Ordinance, are permitted if the property is at least one acre. As defined in Chapter 2, an agricultural use is "All forms of agriculture, the growing of crops in the open, dairying, grazing, the raising and maintaining of poultry and other livestock, horticulture, viticulture, enclosed and open plant nursery, nursery sales and forestry uses. The feeding or disposal of community or collected garbage shall not be deemed an agricultural use, nor shall solid waste disposal sites, commercial feed lots, the raising of fur-bearing animals, fish or minnow hatcheries, riding academy, livery or boarding stables or dog kennels be so considered."

DISCUSSION: Given the rural character of the lots being proposed for rezoning and the desired use of the property, a rezoning to R-1 would be appropriate. Property in the general area is zoned a mix of R-1 and R-2. In the case of this property, the R-1 District would appear to be more compatible and would not be inconsistent with the surrounding plan of development.

RECOMMENDATION: Staff recommends approval of Resolution PC-21-09, a resolution to approve Ordinance 20-14, an ordinance to rezone Parcels 036, 03602, and 03603, Tax Map 142, said property being shown as Lots 1-3 on the preliminary plat for a portion of the Keeney Property Subdivision, 12422 Union Road, 15.5 acres, from General Single-Family Residential (R-2) to Rural Single-Family Residential (R-1).

RESOLUTION PC-21-09

FARRAGUT MUNICIPAL PLANNING COMMISSION

A RESOLUTION TO APPROVE AN AMENDMENT TO THE FARRAGUT ZONING MAP, ORDINANCE 86-16, TO RECOMMEND THE APPROVAL OF THE REZONING OF PARCELS 036, 03602, AND 03603, TAX MAP 142, SAID PROPERTY BEING SHOWN AS LOTS 1-3 ON THE PRELIMINARY PLAT FOR A PORTION OF THE KEENEY PROPERTY SUBDIVISION, 12422 UNION ROAD, 15.5 ACRES, FROM GENERAL SINGLE-FAMILY RESIDENTIAL (R-2) TO RURAL SINGLE-FAMILY RESIDENTIAL (R-1)

WHEREAS, the Tennessee Code Annotated, Section 13-4-201et seq, provides that the Municipal Planning Commission shall make and adopt a general plan for the physical development of the municipality; and

WHEREAS, the Farragut Municipal Planning Commission has adopted various elements of a zoning plan as an element of the general plan for physical development; and

WHEREAS, a public hearing was held on this request on July 15, 2021;

NOW, THEREFORE, BE IT RESOLVED that the Farragut Municipal Planning Commission hereby recommends approval of Ordinance 21-14 to the Farragut Board of Mayor and Aldermen, an ordinance amending the Farragut Zoning Ordinance and Map, Ordinance 86-16, by rezoning the above noted property.

ADOPTED this 15th day of July 2021.

Rita Holladay, Chairman

Scott Russ, Secretary

ORDINANCE:	21-14
PREPARED BY:	Shipley
REQUESTED BY:	Town of Farragut
CERTIFIED BY FMPC:	July 15, 2021
PUBLIC HEARING:	_____
PUBLISHED IN:	_____
DATE:	_____
1ST READING:	_____
2ND READING:	_____
PUBLISHED IN:	_____
DATE:	_____

AN ORDINANCE AMENDING THE ZONING ORDINANCE OF THE TOWN OF FARRAGUT, TENNESSEE, ORDINANCE 86-16, AS AMENDED, PURSUANT TO SECTION 13-4-201, TENNESSEE CODE ANNOTATED.

BE IT ORDAINED by the Board of Mayor and Aldermen of the Town of Farragut, Tennessee, that the Farragut Zoning Ordinance, Ordinance 86-16, as amended, is hereby amended as follows:

SECTION 1.

The Farragut Zoning Ordinance, Ordinance 86-16, as amended, is hereby amended by rezoning Parcels 036, 03602, and 03603, Tax Map 142, said property being shown as Lots 1-3 on the preliminary plat for a portion of the Keeney Property Subdivision, 12422 Union Road, 15.5 acres, from General Single-Family Residential (R-2) to Rural Single-Family Residential (R-1) (See Exhibit A).

SECTION 2.

This ordinance shall take effect from and after its final passage and publication, the public welfare requiring it.

Ron Williams, Mayor

Allison Myers, Town Recorder

Certified to the Farragut Board of Mayor and Aldermen this ____ day of _____, 2021,
with approval recommended by the Farragut Municipal Planning Commission (FMPC).

Rita Holladay, Chairman

Scott Russ, Secretary



**Exhibit A
Ordinance 21-14**

**Rezone
Parcel 36, 36.02, and 36.03
Tax Map 142**

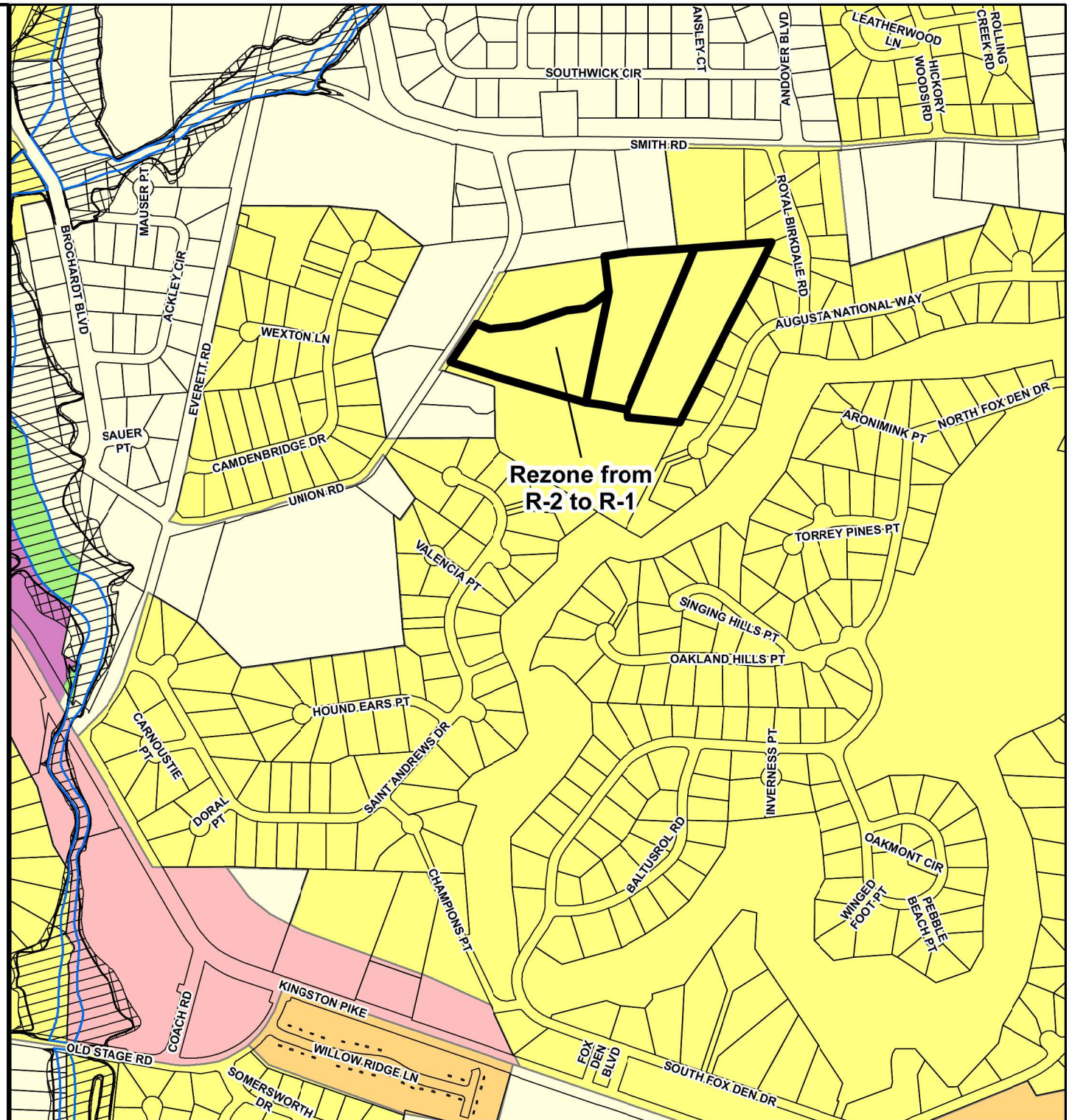
From
R-2 (General Single-Family Residential)
to
R-1 (Rural Single-Family Residential)

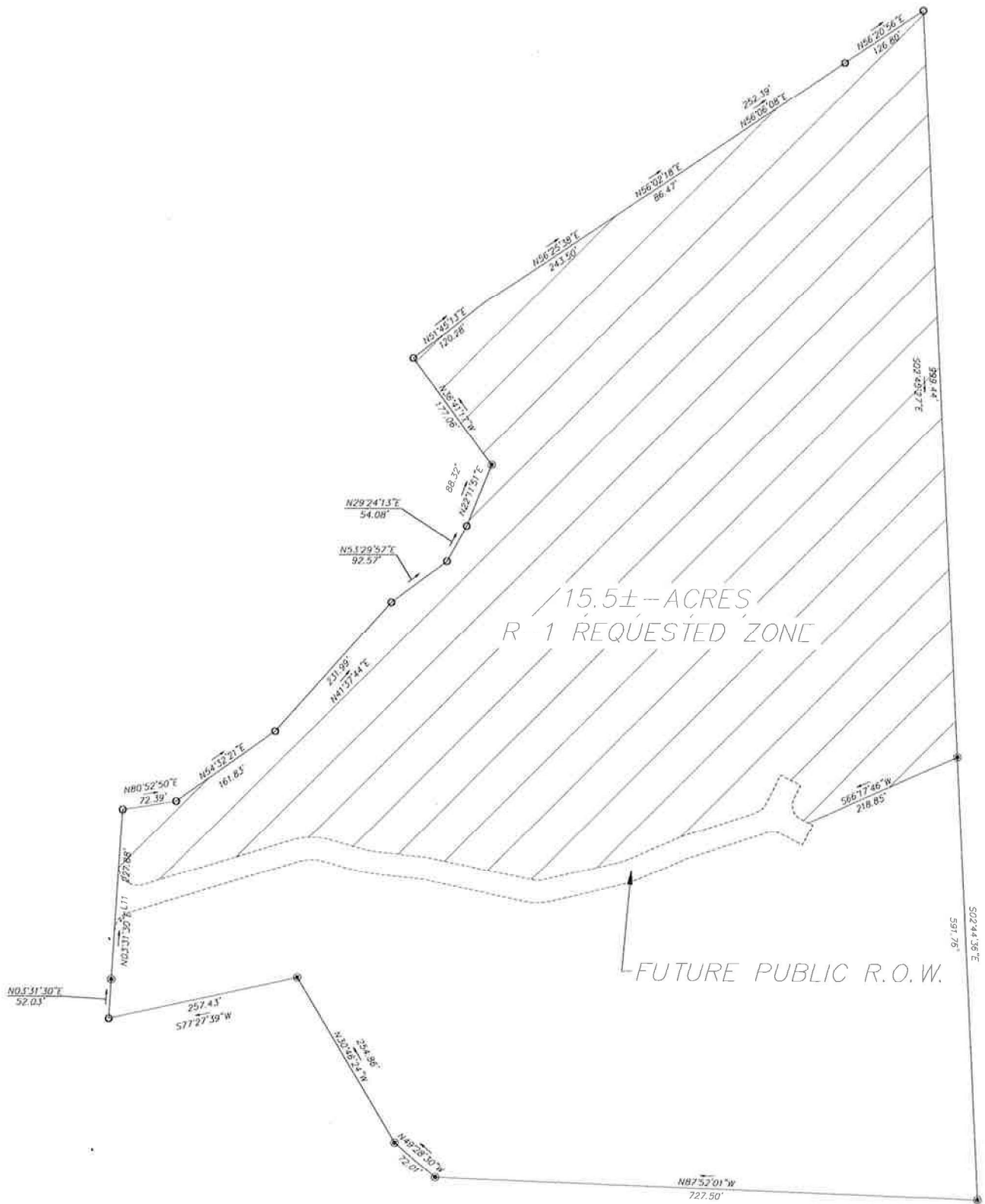
Legend

-  Subject Property
-  Floodway
-  100 year Flood Zone
-  500 year Flood Zone
-  Parcels
-  OS-P, Open Space/Park
-  R-1, Rural Single-Family Residential
-  R-2, General Single-Family Residential
-  R-4, Attached Single-Family
-  Neighborhood/Convenience Commercial
-  C-1, General Commercial



1 in = 700 ft





REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a future land use map amendment request for a portion of the property referenced as Parcel 069, Tax Map 142 (north of old Ingles building), 20 Acres, to change the future land use map from Medium Density Residential to High Density Residential (Horne Properties, Inc., Applicant)

INTRODUCTION AND BACKGROUND: This agenda item involves a request to change the future land use map for a portion of Parcel 069, Tax Map 142. This is a roughly 41-acre tract north of the old Ingles building and is designated as Medium Density Residential on the future land use map. Medium Density Residential provides for areas that may be appropriate for 6-8 dwelling units per acre. The applicant would like to rezone the southernmost 20 acres of the tract to R-6, Multi-Family Residential, and develop a multi-family project. The R-6 District provides for up to 12 dwelling units per acre which would exceed the prescribed density associated with Medium Density Residential. To be consistent with the R-6 Zoning District, the future land use map in this 20-acre area should be amended and identified for a High-Density Residential land use (9-12 dwelling units per acre).

In past Planning Commission meetings, the inconsistency between the applicant's desired zoning map amendment and the future land use map has been noted as an issue concerning their request. The applicant is now attempting to address this inconsistency by changing the future land use to High Density Residential for the 20-acre portion of the tract that is also being requested for a rezoning under the next agenda item.

DISCUSSION: In reviewing this requested change to the future land use map, some considerations include the current land use designations in the area around the property and the character (e.g., developed, and planned density, zoning, and infrastructure) of the surrounding built environment. The entire parcel in question is currently designated as Medium Density Residential so the area north of the proposed 20-acre High Density Residential area would remain Medium Density Residential on the future land use map and is currently undeveloped. To the immediate south of the area proposed for High-Density Residential is a tree covered area that is part of a 50-foot buffer zoning district (B-1). To the south of that is property zoned C-1 (General Commercial) with the old Ingles Shopping Center building. This area and the area to the west is mostly shown as Mixed-Use Neighborhood on the future land use map which provides for a residential density of up to 8 dwelling units per acre where it is part of a larger neighborhood convenience commercial development. To the east of the proposed High Density Residential area is Boring Road and a portion of the Village Green Subdivision with a land use designation of Very Low Density Residential (2-4 dwelling units per acre). The developed density of this portion of Village Green is under two units per acre. To the west of the proposed land use map change area is the Villages of Farragut senior living community. This development and the Farragut Christian Church to the south of the Villages of Farragut are shown on the future land use map as Civic/Institutional.

Though a senior living community is not bound by a density limitation, the planned residential density of the Villages of Farragut at its anticipated build out is roughly 8.23 units per acre. Other developments in the surrounding area include Baldwin Park with a developed density of 2.46 dwelling units per acre and Waverly Court with a developed density of 4.37 units per acre. There are no properties in the area with a High-Density Residential land use designation.

RECOMMENDATION: Based on the above considerations, a future land use designation of High Density Residential would provide for developed densities that would notably exceed both prescribed and existing developed densities in the area. The densities provided for in the current land use designation for the property are more compatible. High Density Residential would also need to be reviewed in relation to existing infrastructure. The property has access to Village Commons Boulevard that was constructed in relation to the Villages of Farragut senior living community. Most of the parcel's road frontage, however, is along Boring Road. The property does not directly abut a street designated as an arterial street – though both Village Commons Boulevard and Boring Road do directly connect to Kingston Pike which is a major arterial. Any change to the future land use map should take this into consideration. A resulting change to the zoning map to provide for high density residential would need to be conditioned on substantial improvements being made to Boring Road since access would likely be required onto both Villages Commons Boulevard and Boring Road.

Though the applicant has stated that their intention is to provide for a multi-family project that would be restricted to individuals over 50 and with a developed density of 10 units per acre, the Town cannot ultimately assure such restrictions. The High-Density Residential land use and, as requested in Agenda Item #11, the Multi-Family Residential (R-6) Zoning District, would represent a notable intensification of both prescribed and developed densities in the area. Smaller footprint buildings with a lower developed density would be more compatible.

Included in the packet is a copy of Resolution PC-21-11 which recommends approval of a future land use map amendment request for a portion of the property referenced as Parcel 069, Tax Map 142 (north of old Ingles building), 20 Acres, to change the future land use map from Medium Density Residential to High Density Residential.

RESOLUTION PC-21-11

FARRAGUT MUNICIPAL PLANNING COMMISSION

A RESOLUTION TO APPROVE AN AMENDMENT TO THE FUTURE LAND USE MAP OF THE COMPREHENSIVE LAND USE PLAN UPDATE DECEMBER 2012 FOR A PORTION OF PARCEL 069, TAX MAP 142, FROM MEDIUM DENSITY RESIDENTIAL TO HIGH DENSITY RESIDENTIAL

WIIEREAS, the Tennessee Code Annotated, Section 13-4-201et seq, provides that the Municipal Planning Commission shall make and adopt a general plan for the physical development of the municipality; and

WHEREAS, the Farragut Municipal Planning Commission has adopted the Comprehensive Land Use Plan Update on December 12, 2012; and

WHEREAS, the Farragut Municipal Planning Commission may periodically amend various aspects of the Comprehensive Land Use Plan Update;

NOW, THEREFORE, BE IT RESOLVED that the Farragut Municipal Planning Commission hereby recommends, through Resolution PC-21-11, to amend the Future Land Use Map of the Comprehensive Land Use Plan for a portion of Parcel 069, Tax Map 142, from Medium Density Residential to High Density Residential, as shown on Exhibit A.

ADOPTED this 15th day of July 2021.

Rita Holladay, Chairman

Scott Russ, Secretary



Exhibit A Resolution PC-21-11

Future Land Use
Village Commons

Legend

- Proposed Rezoning Area
- Parcels
- Civic/Institutional
- Office/Light industrial
- Commercial
- Open Space
- Parks and Rec
- Rural Residential (> 1 Acre lots)
- Very Low Density Residential (2-4 DUs / Acre)
- Low Density Residential (3-6 DUs / Acre)
- Med Density Residential (5-8 DUs / Acre)
- High Density Residential (9-12 DUs/Acre)
- Mixed Use Neighborhood (6-8 DUs / Acre)

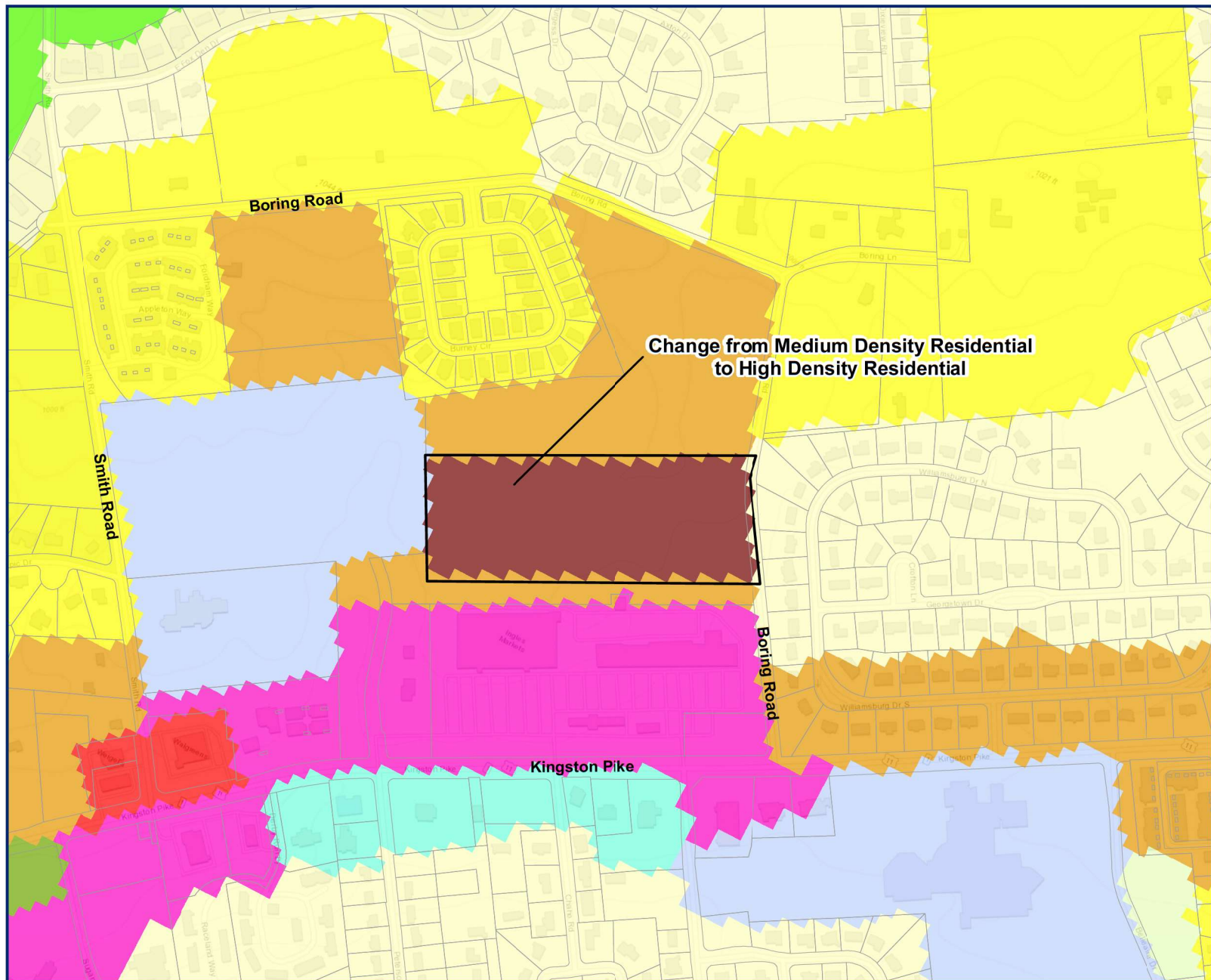


0 200 400 800
SCALE IN FEET

CONTACTS:

GIS:
Carrie Smith
carrie.smith@aecom.com

1 inch = 400 feet
Map Prepared: 7/8/2021



REPORT TO THE FARRAGUT MUNICIPAL PLANNING COMMISSION

PREPARED BY: Mark Shipley, Community Development Director

SUBJECT: Discussion and public hearing on a zoning map amendment request for a portion of the property referenced as Parcel 069, Tax Map 142 (north of old Ingles building), 20 Acres, to change the zoning from R-1 (Rural Single-Family Residential) to R-6 (Multi-Family Residential) (Horne Properties, Inc., Applicant)

INTRODUCTION AND BACKGROUND: Please see report for Agenda Item #10 as it is tied to this agenda item.

RECOMMENDATION: Included in the packet is a copy of Resolution PC-21-10 which recommends approval of Ordinance 21-15, an ordinance to rezone a portion of the property referenced as Parcel 069, Tax Map 142 (north of old Ingles building), 20 Acres, to change the zoning from R-1 (Rural Single-Family Residential) to R-6 (Multi-Family Residential), as shown on Exhibit A.

RESOLUTION PC-21-10

FARRAGUT MUNICIPAL PLANNING COMMISSION

A RESOLUTION TO APPROVE AN AMENDMENT TO THE FARRAGUT ZONING MAP, ORDINANCE 86-16, TO RECOMMEND THE APPROVAL OF THE REZONING OF THE SOUTHERN PORTION OF PARCEL 069, TAX MAP 142, SAID PROPERTY BEING LOCATED OFF VILLAGE COMMONS BOULEVARD AND ALONG BORING ROAD, AND INCLUDING APPROXIMATELY 20 ACRES, FROM RURAL SINGLE-FAMILY RESIDENTIAL (R-1) AND GENERAL SINGLE-FAMILY RESIDENTIAL (R-2) TO MULTI-FAMILY RESIDENTIAL (R-6)

WHEREAS, the Tennessee Code Annotated, Section 13-4-201et seq, provides that the Municipal Planning Commission shall make and adopt a general plan for the physical development of the municipality; and

WHEREAS, the Farragut Municipal Planning Commission has adopted various elements of a zoning plan as an element of the general plan for physical development; and

WHEREAS, a public hearing was held on this request on July 15, 2021;

NOW, THEREFORE, BE IT RESOLVED that the Farragut Municipal Planning Commission hereby recommends approval of Ordinance 21-15 to the Farragut Board of Mayor and Aldermen, an ordinance amending the Farragut Zoning Ordinance and Map, Ordinance 86-16, by rezoning the above noted property.

ADOPTED this 15th day of July 2021.

Rita Holladay, Chairman

Scott Russ, Secretary

ORDINANCE:	21-15
PREPARED BY:	Shipley
REQUESTED BY:	Town of Farragut
CERTIFIED BY FMPC:	July 15, 2021
PUBLIC HEARING:	_____
PUBLISHED IN:	_____
DATE:	_____
1ST READING:	_____
2ND READING:	_____
PUBLISHED IN:	_____
DATE:	_____

AN ORDINANCE AMENDING THE ZONING ORDINANCE OF THE TOWN OF FARRAGUT, TENNESSEE, ORDINANCE 86-16, AS AMENDED, PURSUANT TO SECTION 13-4-201, TENNESSEE CODE ANNOTATED.

BE IT ORDAINED by the Board of Mayor and Aldermen of the Town of Farragut, Tennessee, that the Farragut Zoning Ordinance, Ordinance 86-16, as amended, is hereby amended as follows:

SECTION 1.

The Farragut Zoning Ordinance, Ordinance 86-16, as amended, is hereby amended by rezoning the southern portion of Parcel 069, Tax Map 142, said property being located off Village Commons Boulevard and along Boring Road, and including approximately 20 acres, from Rural Single-Family Residential (R-1) and General Single-Family Residential (R-2) to Multi-Family Residential (R-6) (See Exhibit A).

SECTION 2.

This ordinance shall take effect from and after its final passage and publication, the public welfare requiring it.

Ron Williams, Mayor

Allison Myers, Town Recorder

Certified to the Farragut Board of Mayor and Aldermen this ____ day of _____, 2021,
with approval recommended by the Farragut Municipal Planning Commission (FMPC).

Rita Holladay, Chairman

Scott Russ, Secretary



**Exhibit A
Ordinance 21-15**

**Rezone
A portion of Parcel 069
Tax Map 142
Off Village Commons Boulevard
and along Boring Road**

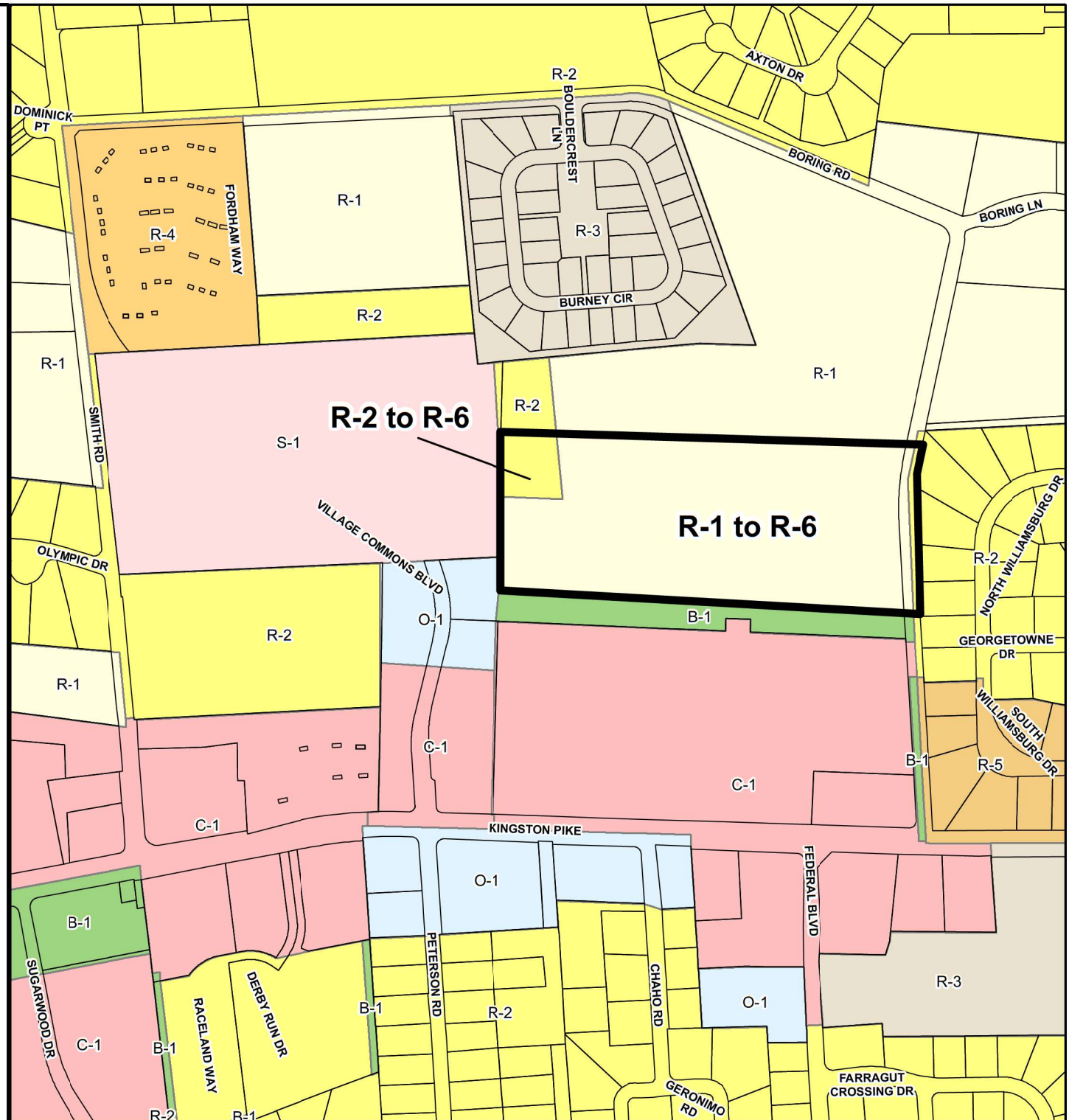
From
R-1 (Rural Single-Family Residential)
and R-2 (General Single-Family Residential)
to
R-6 (Multi-Family Residential)

Legend

-  Subject Property
-  Parcels
-  B-1, Buffer
-  S-1, Community Service
-  R-1, Rural Single-Family Residential
-  R-2, General Single-Family Residential
-  R-3, Small Lot Single-Family Residential
-  R-4, Attached Single-Family Residential
-  R-5, Two-Family Residential
-  O-1, Office
-  C-1, General Commercial



1 in = 480 ft



INDEPENDENT SENIOR LIVING FARRAGUT, TENNESSEE

TRAFFIC IMPACT STUDY

VILLAGE COMMONS BOULEVARD
FARRAGUT, TENNESSEE

CCI PROJECT NO. 00217-0005

PREPARED FOR:

Horne Properties
412 N. Cedar Bluff Road
Suite 205
Knoxville, TN 37923

SUBMITTED BY:

Cannon & Cannon, Inc.
8550 Kingston Pike
Knoxville, TN 37919
865.670.8555



May 11
2021

INDEPENDENT SENIOR LIVING FARRAGUT, TENNESSEE

TRAFFIC IMPACT STUDY

VILLAGE COMMONS BOULEVARD
FARRAGUT, TENNESSEE

CCI PROJECT NO. 00217-0005



PREPARED FOR:

Horne Properties
412 N. Cedar Bluff Road
Suite 205
Knoxville, TN 37923

SUBMITTED BY:

Cannon & Cannon, Inc.
8550 Kingston Pike
Knoxville, TN 37919
865.670.8555

May 11
2021

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EXECUTIVE SUMMARY

This report provides a summary of a traffic impact study that was performed for a proposed senior adult housing and single-family development to be located on Village Commons Boulevard in the Town of Farragut. The project site is located north of Kingston Pike between Boring Road and Village Commons Boulevard behind the Ingles shopping center.

The purpose of this study was the evaluation of the traffic operational and safety impacts of the proposed development upon roadways in the vicinity of the project site. Of particular interest were the existing signalized intersections Kingston Pike and Peterson Road / Village Commons Boulevard & Kingston Pike and Smith Road, as well as, the existing unsignalized intersections of Smith Road and Boring Road and Kingston Pike and Boring Road. Capacity analyses were conducted at these locations for existing and future conditions, both with and without traffic volumes generated from the proposed development. These evaluations were conducted in order to determine the anticipated impacts and to establish recommended measures to mitigate these impacts.

The primary conclusion of this study is that the traffic generated from the proposed development will have minimal overall impact on the studied intersections. This is illustrated by the project capacity analyses which indicate that the signalized intersections of Kingston Pike and Smith Road & Kingston Pike and Peterson Road are anticipated to operate at level-of-service "D" or better during the combined peak traffic hours. Additionally, the unsignalized intersection of Smith Road and Boring Road is anticipated to operate at a level-of-service "B" on the Boring Road westbound approach.

At the intersection of Boring Road and Kingston Pike, the Boring Road southbound approach is anticipated to operate at a level-of-service "F" during the PM peak hour under background and level-of-service "E" during the PM peak hour under combined conditions. This is mainly due to the significant traffic volumes along Kingston Pike during the PM peak hour. As previously discussed, it is likely that the southbound approach will operate somewhat better than reported due to the proximity of the Kingston Pike and Federal Boulevard signalized intersection, roughly 350-feet to the west. Acceptable gaps in traffic are likely to occur at regular intervals due to the signal phasing at this intersection.

In order to comply with Town ordinance requirements, Boring Road is proposed to be widened from Kingston Pike to the limits of the proposed development's frontage along Boring Road. The widening will improve Boring Road from a 14–15-foot roadway width to 24-feet wide with curb & gutter and sidewalks.

INTRODUCTION & PURPOSE OF STUDY

This report provides a summary of a traffic impact study that was performed for a proposed senior adult housing and single-family development to be located on Village Commons Boulevard in the Town of Farragut. The project site is located north of Kingston Pike between Boring Road and Village Commons Boulevard behind the Ingles shopping center. FIGURE 1 is a location map identifying the major roadways in the project vicinity.



**FIGURE 1
LOCATION MAP**

The development plan for this project will consist of 240 senior housing residential units spread out amongst 11 buildings. Additionally, 12 single-family housing units are proposed immediately north of the senior housing development. The project will have two full access driveways, one onto Boring Road (primarily for the single-family portion of the development) and one onto Village Commons Boulevard. Village Commons Boulevard ties into Kingston Pike directly across from Peterson Road. FIGURE 2 is a Conceptual Site Plan detailing the proposed site.

The purpose of this study was the evaluation of the traffic operational and safety impacts of the proposed development upon roadways in the vicinity of the project site. Of particular interest were the existing signalized intersections Kingston Pike and Peterson Road / Village Commons Boulevard & Kingston Pike and Smith Road, as well as, the existing unsignalized intersections of Smith Road and Boring Road and Kingston Pike and Boring Road. Capacity analyses were conducted at these locations for existing and future conditions, both with and without traffic volumes generated from the proposed development. These evaluations were conducted in order to determine the anticipated impacts and to establish recommended measures to mitigate these impacts.



EXISTING CONDITIONS

EXISTING ROADWAY CONDITIONS

Kingston Pike (S.R. 1-U.S. 11/70) is a Major Arterial highway that provides east-west access for west Knox County. It carries significant traffic to and from residential and commercial areas, and is part of a major state and federal highway that stretches east-west across Tennessee. In the vicinity of the proposed development, the roadway consists of two through travel lanes in each direction, with a center two-way left-turn lane. Curb and gutter and sidewalks are also located along both sides of the roadway. The speed limit on Kingston Pike is posted as 45 mph.

Peterson Road is classified as a Local Collector roadway by the Town of Farragut. The portion north of Kingston Pike has recently been constructed and provides access the Villages at Farragut, a mixed senior housing and assisted living residential development. It also provides access to a driveway that serves commercial businesses located to the east. It is four lanes wide, two in each direction, with curb and gutter within the immediate vicinity of the signalized intersection with Kingston Pike.

The intersection of Kingston Pike and Peterson Road is controlled by an actuated traffic signal that operates as part of a signal system along Kingston Pike. Left-turn phases are present for both east and west directions, and pedestrian signals and crosswalks serve the north, south, and east legs of the intersection. The other signalized study intersection, Kingston Pike at Smith Road, is also controlled with an actuated traffic signal that is included in the signal system.

Smith Road is a two-lane road with a posted speed limit of 40mph and connects Kingston Pike to Campbell Station Road via Grigsby Chapel Road. Boring Road is an unmarked local road that connects Kingston Pike to Smith Road. Boring Road is 14 to 15-feet wide from Kingston Pike to the Baldwin Park neighborhood frontage where it becomes 24-feet wide with curb and gutter up to the intersection with Smith Road.

EXISTING SITE CONDITIONS

The project site consists of roughly 20 acres located north of Kingston Pike and west of Boring Road. The land is currently undeveloped and is surrounded by mostly residential with commercial uses immediately to the south.

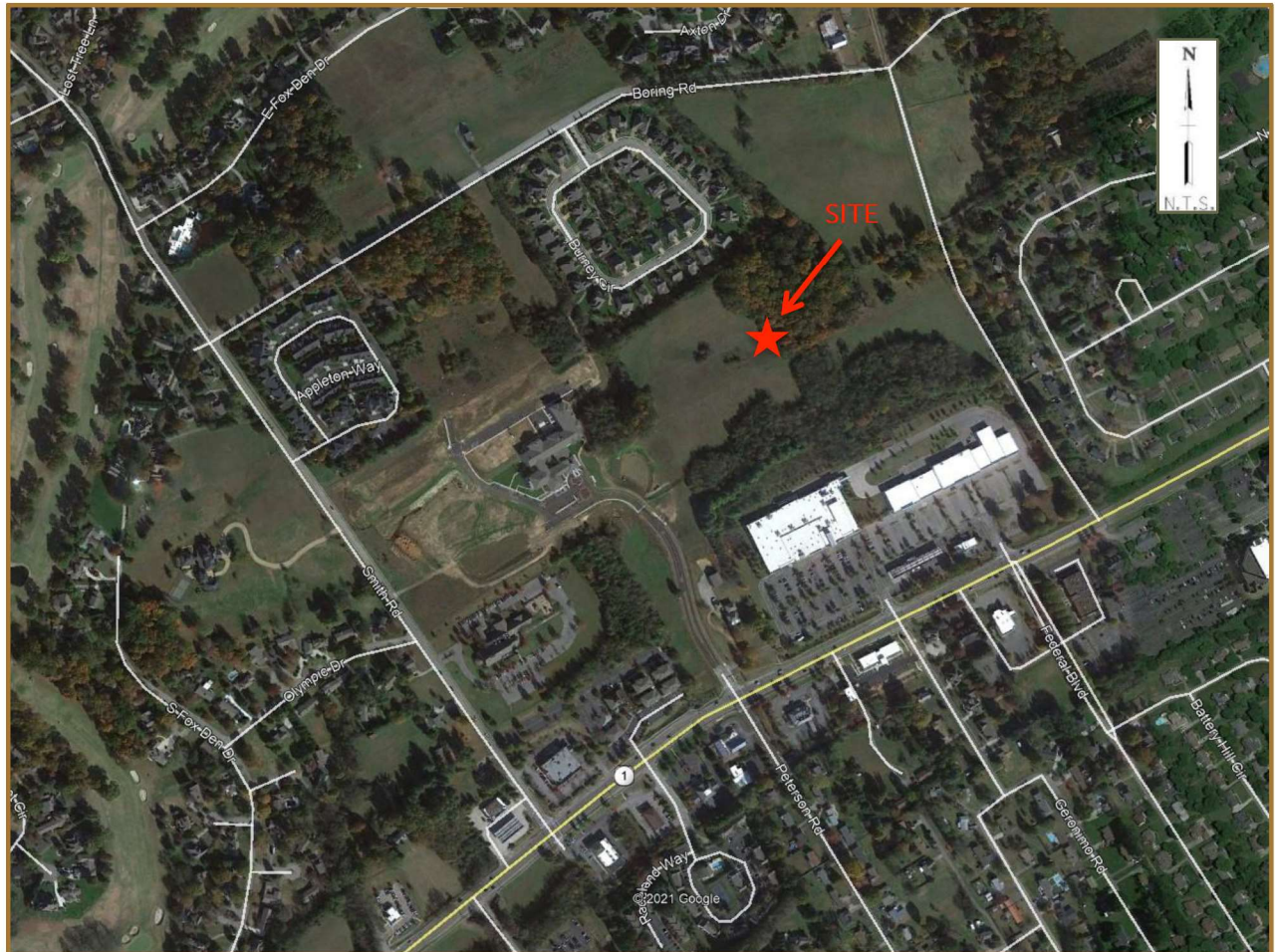


FIGURE 3
EXISTING SITE CONDITIONS

EXISTING TRAFFIC DATA

Two types of existing traffic data were gathered for this study. The Tennessee Department of Transportation (TDOT) collects annual average daily traffic (AADT) data on roadways in the study area. The most currently available data from a TDOT count station is contained in Table 1.

TABLE 1: ANNUAL AVERAGE DAILY TRAFFIC COUNT SUMMARY

COUNT YEAR	TDOT COUNT STATION 47000363 KINGSTON PIKE (S.R. 1, US 11/70) BETWEEN OLD STAGE ROAD & SMITH ROAD
2016	22,569
2017	23,233
2018	23,637
2019	22,258
2020	19,421

In addition to the available AADT data, intersection turning movement counts were conducted in order to determine the current AM and PM peak hour operating volumes for the existing study intersections of Smith Road and Boring Road and Kingston Pike and Boring Road. Previously collected turning movement count data was utilized at the signalized intersection of Kingston Pike and Smith Road and Kingston Pike and Peterson Road / Village Commons Boulevard. The previously collected turning movement counts were collected in April 2016 and forecasted, with approval from Town of Farragut, to the existing year (2021) utilizing a 2% yearly growth rate. The existing peak hour traffic counts are summarized on FIGURE 4 and the raw data traffic count summary sheets are contained in APPENDIX A.

These identified peak hours are as follows:

- Smith Road and Boring Road – AM Peak – 7:15 – 8:15 AM || PM Peak – 5:00 – 6:00 PM
- Kingston Pike and Smith Road – AM Peak – 7:30 – 8:30 AM || PM Peak – 5:00 – 6:00 PM
- Kingston Pike and Peterson Road – AM Peak – 7:30 – 8:30 AM || PM Peak – 5:00 – 6:00 PM
- Kingston Pike and Boring Road – AM Peak – 7:15 – 8:15 AM || PM Peak – 5:00 – 6:00 PM

In order to establish an ADT volume along Boring Road, the peak hour turning movement count data from the PM peak hour was converted to ADT data. This conversion was based on a Knox County study indicating that roughly 10% of a roadway's daily volume occurs during the PM peak hour. Using this calculation, the estimated ADT volume along Boring Road within the vicinity of Kingston Pike is around 140 vehicles per day. The estimated ADT volume along Boring Road within the vicinity of Smith Road is 400 vehicles per day.

EXISTING CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses employing the methods of the Highway Capacity Manual (6th Edition) were conducted for the existing study intersection, defined above. These analyses were performed with the 2021 existing traffic volumes and existing intersection traffic control and lane configurations. These analyses indicate that the existing signalized intersections (Kingston Pike and Smith Road & Kingston Pike and Peterson Road) are currently operating at acceptable level-of-service ("D" or better) during the evaluated traffic periods. The unsignalized intersection of Smith Road and Boring Road is currently operating at an acceptable level-of-service "B" for the Boring Road westbound approach.

At the intersection of Kingston Pike and Boring Road, the Boring Road southbound approach is operating at a level-of-service "F". Level-of-service "F" is not uncommon operation for a side street approach at an unsignalized intersection, especially at intersections with mainline commuter traffic patterns as seen on Kingston Pike. Additionally, it is likely that the southbound approach will operate somewhat better than reported due to the proximity of the Kingston Pike and Federal Boulevard signalized intersection, roughly 350-feet to the west. Acceptable gaps in traffic are likely to occur at regular intervals due to the signal phasing at this intersection.

The EVALUATIONS section of this report may be referenced for tabular summaries of these analyses, while more detailed summaries are presented on the computer printouts contained in APPENDIX C. Also contained in APPENDIX C is a section entitled "Capacity and Level of Service Concepts", which provides a description of the utilized procedures.

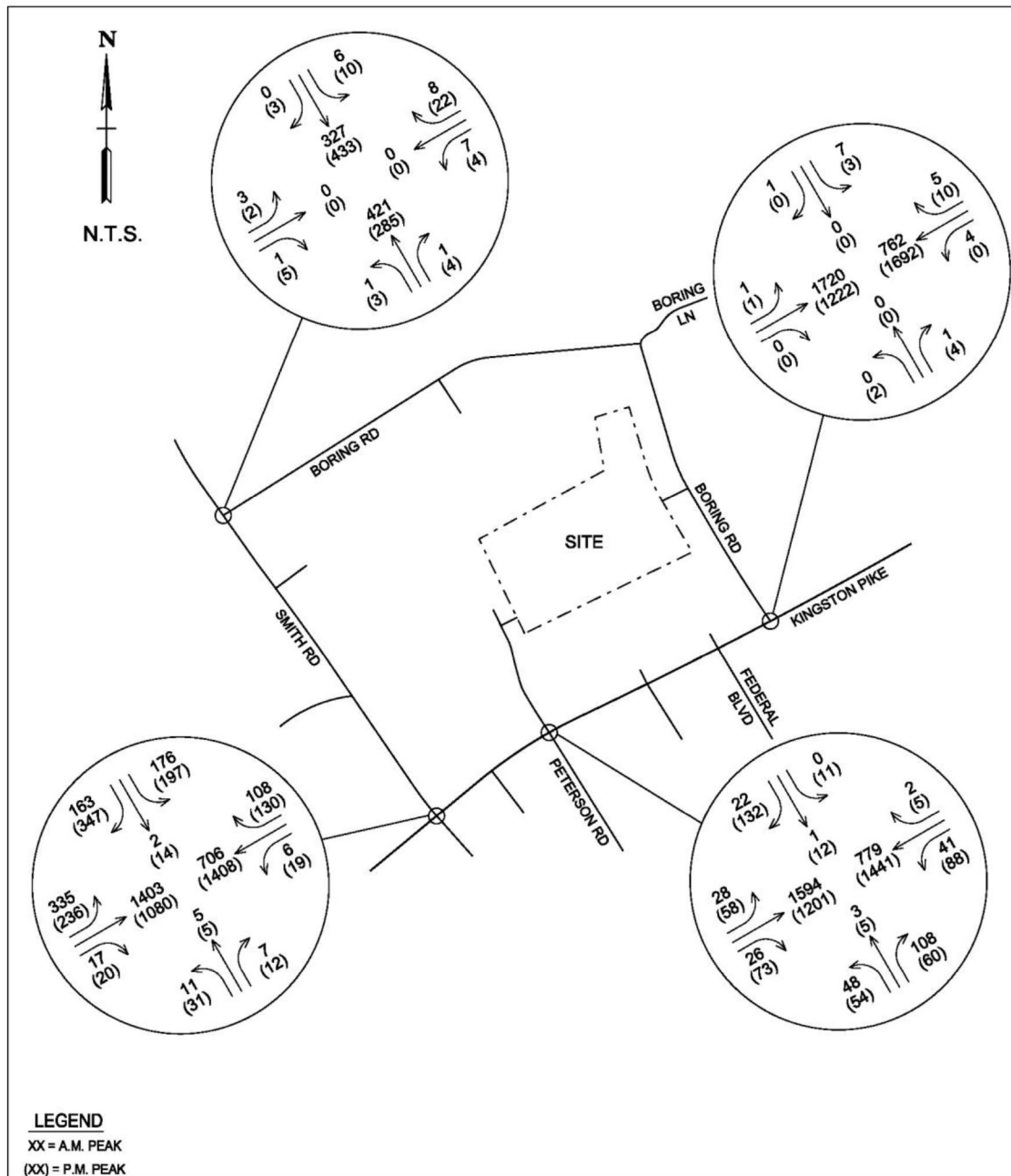


FIGURE 4
2021 EXISTING TRAFFIC VOLUMES

BACKGROUND CONDITIONS

BACKGROUND TRAFFIC GROWTH

The proposed development is anticipated to be constructed with completion anticipated by 2022. Therefore, year 2022 was established as the appropriate design / analysis year for the study. In order to determine traffic volumes resulting solely from background traffic growth to year 2022, it was necessary to establish an annual growth rate for existing traffic. The TDOT ADT values previously discussed, as well as knowledge of the area, were used to determine an approximate annual growth rate. Based on the available data, a background annual growth rate of 2.0% was assumed.

As previously discussed, a mixed senior housing and assisted living residential development was recently constructed along Village Commons Boulevard. The anticipated site trips from the senior housing development were included in the background traffic growth volumes.

FIGURE 5 contains the background traffic volumes that would result from the annual growth rate from year 2021 to year 2022 and the proposed senior housing development.

BACKGROUND CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses as described in the Existing Conditions section of this report were conducted utilizing the Year 2022 background volumes shown in FIGURE 5 and existing intersection traffic control and lane configurations. These analyses indicate that the existing signalized intersections (Kingston Pike and Smith Road & Kingston Pike and Peterson Road) are anticipated to operate at acceptable level-of-service ("D" or better) during the evaluated background traffic periods. The unsignalized intersection of Smith Road and Boring Road is anticipated to operate at an acceptable level-of-service "B" for the Boring Road westbound approach.

At the intersection of Kingston Pike and Boring Road, the Boring Road southbound approach is anticipated to operate at a level-of-service "F". However, as previously mentioned, it is likely that the southbound approach will operate somewhat better than reported due to the proximity of the Kingston Pike and Federal Boulevard signalized intersection, roughly 350-feet to the west. Acceptable gaps in traffic are likely to occur at regular intervals due to the signal phasing at this intersection.

The EVALUATIONS section of this report may be referenced for tabular summaries of these analyses, while more detailed summaries are presented on the computer printouts contained in APPENDIX C.

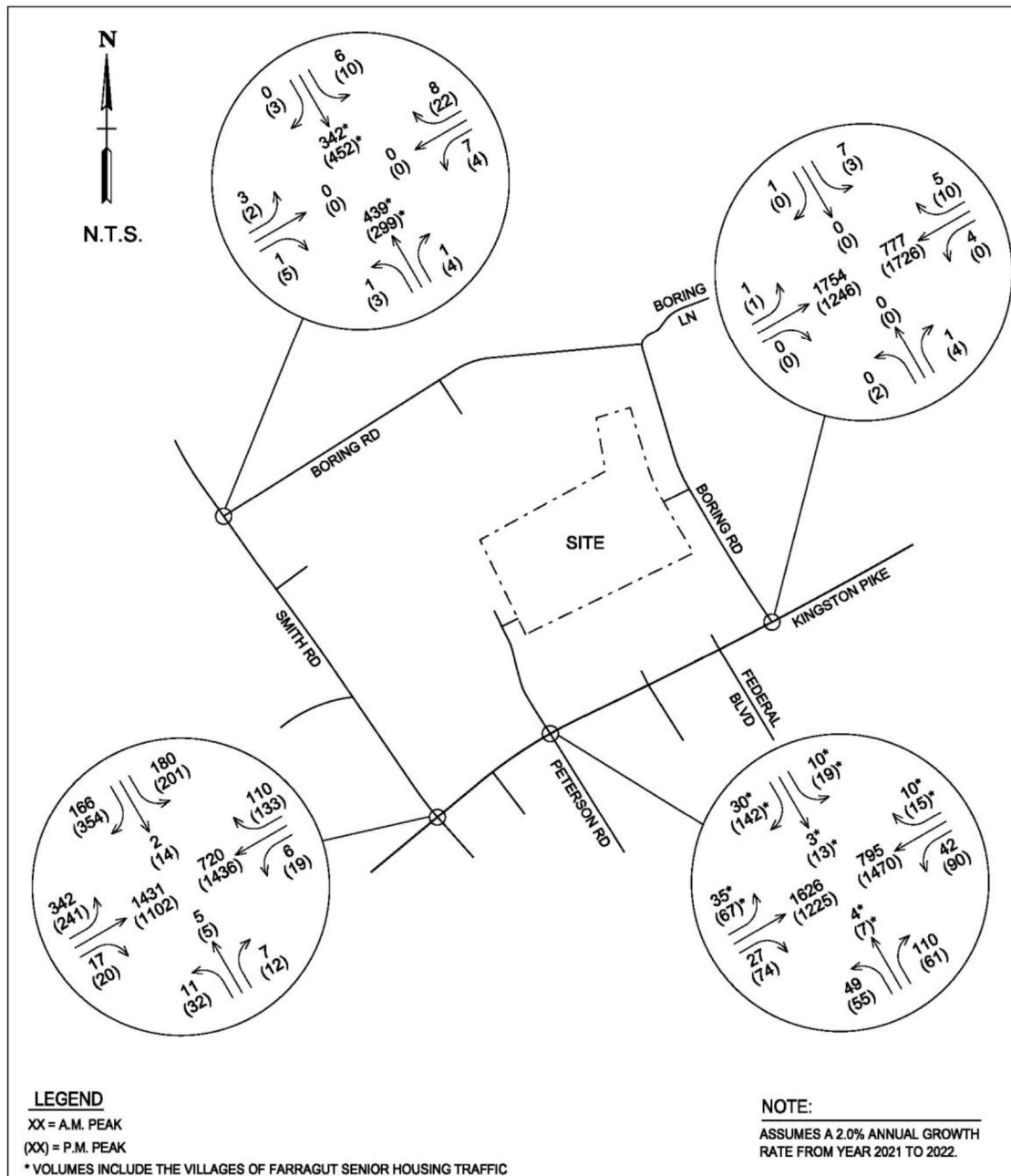


FIGURE 5
2022 BACKGROUND TRAFFIC VOLUMES

FUTURE CONDITIONS

TRIP GENERATION

In order to estimate the expected traffic volumes to be generated by the proposed development, the procedures of *Trip Generation, Tenth Edition* (Institute of Transportation Engineers-ITE) were utilized. The generated traffic volumes were determined based on the data for the peak hours of adjacent street traffic for Land Use Code 252 (Senior Adult Housing – Attached) and Land Use Code 210 (Single-Family Detached Housing). See TABLE 2 for a summary of the traffic generated for this project. More detailed information is contained in APPENDIX B.

TABLE 2: TRIP GENERATION SUMMARY

LAND USE	ITE CODE	SIZE	WEEKDAY (TRIPS/DAY)	AM PEAK HOUR (TRIPS/HOUR)	PM PEAK HOUR (TRIPS/HOUR)
Senior Adult Housing – Attached	252	240 Units	939	48	60
Entering Trips			469 (50%)	17 (35%)	33 (55%)
Exiting Trips			470 (50%)	31 (65%)	27 (45%)
Single-Family Detached Housing	210	12 Units	148	13	13
Entering Trips			74 (50%)	3 (25%)	8 (63%)
Exiting Trips			74 (50%)	10 (75%)	5 (37%)
TOTAL TRIPS			1,087	61	73
Total Entering Trips			543	20	41
Total Exiting Trips			544	41	32

TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 6 provides a summary of the trip distribution patterns developed for the studied intersections, which were derived from the existing traffic counts and knowledge of local area travel trends. FIGURE 7 provides the generated traffic volumes as assigned to the local roadway network in accordance with these distribution patterns.

FUTURE TRAFFIC VOLUMES

FIGURE 8 shows the combined year 2022 volumes reflecting the existing traffic, the background traffic growth, and the newly generated traffic from the proposed development. These are the volumes used in the analysis of full build-out conditions.

FUTURE CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses as described in the EXISTING CONDITIONS section of this report were conducted for 2022 full build-out conditions utilizing the Year 2022 Combined volumes shown in FIGURE 8. These analyses employed appropriate modifications to the existing lane configurations and traffic control as discussed in the CONCLUSIONS AND RECOMMENDATIONS section of this report. Tabular summaries of the analyses results and associated discussion are contained in the EVALUATIONS section. In addition, detailed computer printout summaries of the analyses are contained in APPENDIX C.

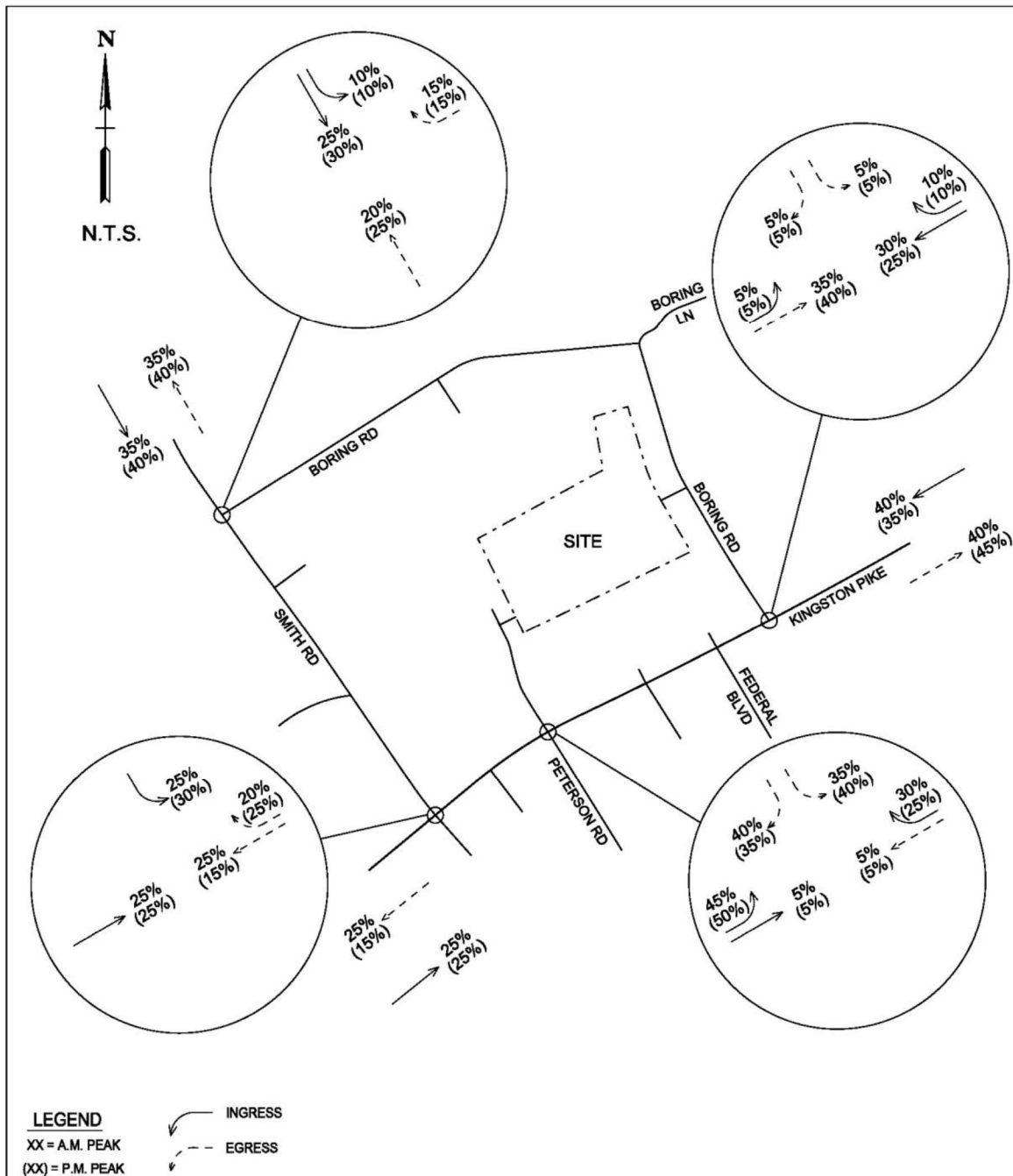


FIGURE 6
TRIP DISTRIBUTION

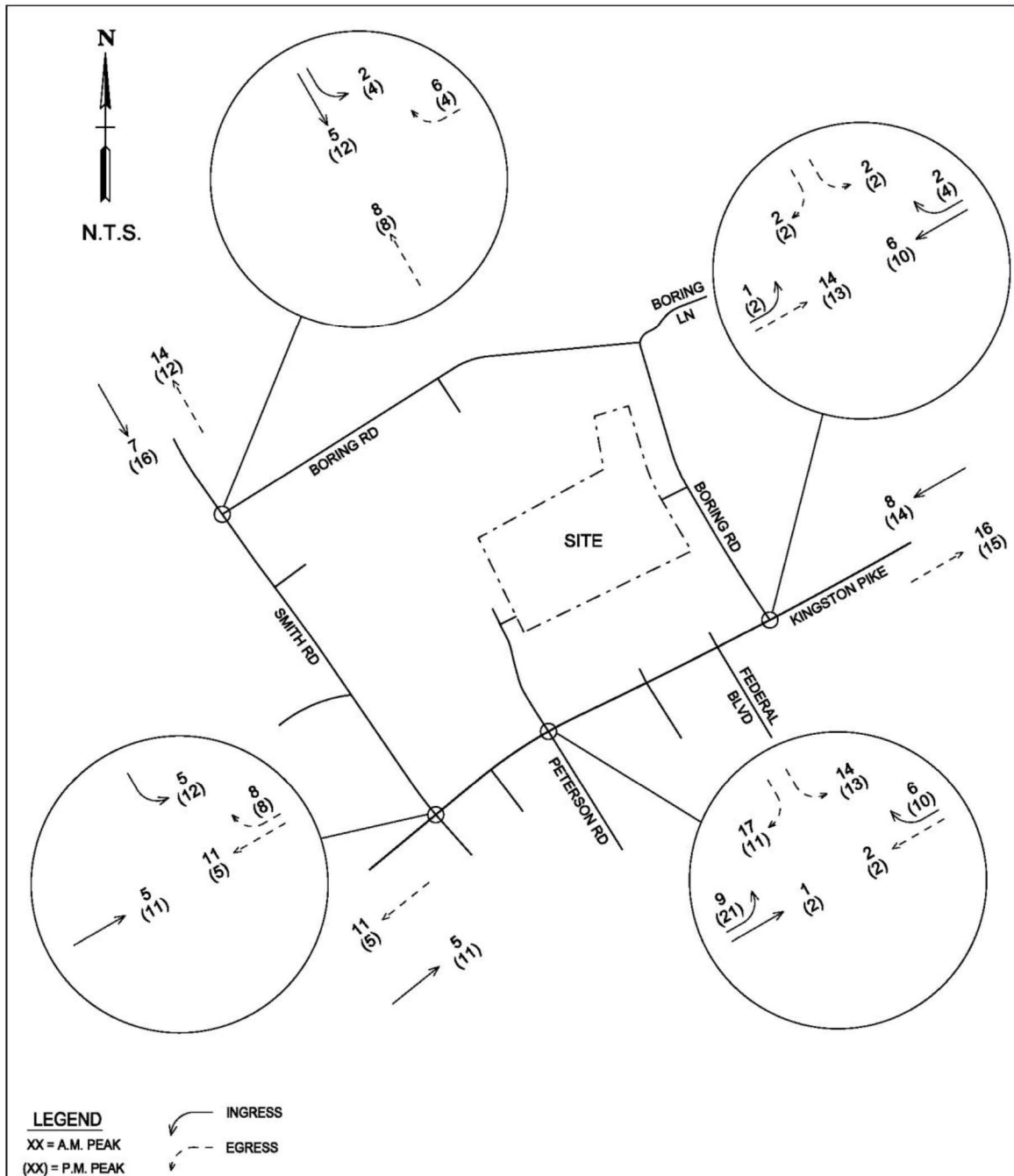


FIGURE 7
TRIP ASSIGNMENT

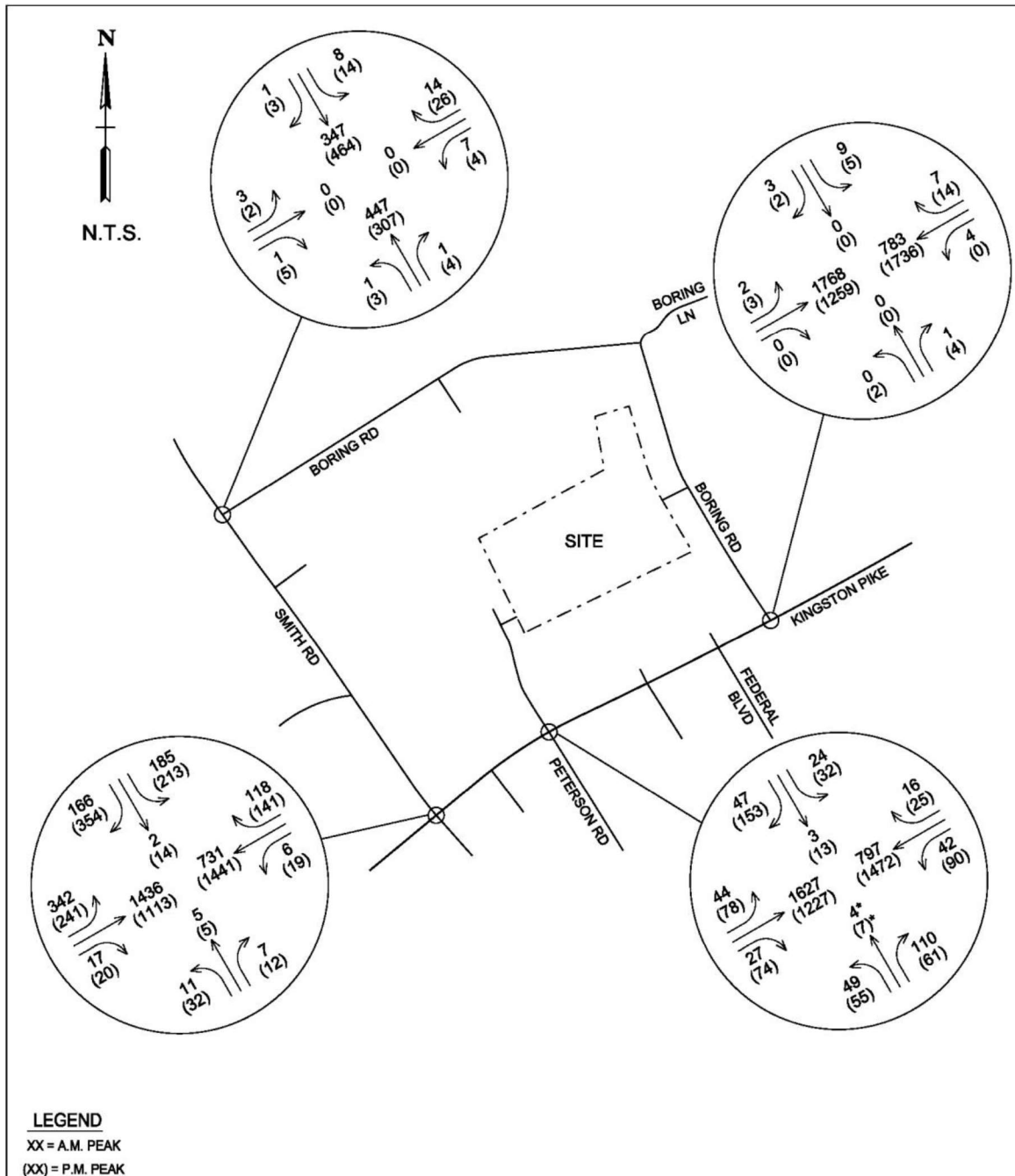


FIGURE 8
2022 COMBINED TRAFFIC VOLUMES

EVALUATIONS

INTERSECTION CAPACITY ANALYSES

As discussed in the preceding sections of this report, capacity analyses employing the methods of the Highway Capacity Manual (6th Edition) were conducted for the study intersections. These analyses were performed for existing, background, and anticipated 2022 combined traffic conditions. Existing geometry and traffic control were used in the 2021 Existing and 2022 Background analyses, while appropriate modifications were proposed and included in the 2022 Combined analyses. A summary of the capacity analyses results is shown in TABLE 3, while the resulting conclusions and recommendations are covered in the CONCLUSIONS and RECOMMENDATIONS section of this report.

TABLE 3: CAPACITY ANALYSES SUMMARY

INTERSECTION	TIME PERIOD	YEAR 2021 EXISTING (LOS/DELAY)	YEAR 2023 BACKGROUND (LOS/DELAY)	YEAR 2023 COMBINED (LOS/DELAY)
Boring Road at Smith Road (SIDE STREET STOP CONTROL ¹)	EB A.M. EB P.M.	C 15.9 B 13.1	C 16.5 B 13.5	C 17.0 B 13.8
	WB A.M. WB P.M.	B 14.3 B 11.4	B 14.8 B 11.6	B 14.1 B 11.6
Boring Road at Kingston Pike (SIDE STREET STOP CONTROL ¹)	NB A.M. NB P.M.	C 18.4 C 19.3	C 18.7 C 19.7	C 18.9 C 20.0
	SB A.M. SB P.M.	C 19.9 F 54.3*	C 20.3 F 57.1*	C 19.4 E 48.8*
Smith Road at Kingston Pike (SIGNALIZED ²)	A.M. P.M.	B 19.5 D 41.1	C 20.3 D 42.9	C 21.1 D 47.0
Peterson Road / Village Commons at Kingston Pike (SIGNALIZED ²)	A.M. P.M.	A 9.1 B 12.3	A 9.7 B 13.4	A 10.0 B 14.2

¹SIDE STREET STOP CONTROL – Data provided are Level-of-Service and Average Vehicular Delay (seconds) for side street approach utilizing HCM methodology.

²SIGNALIZED CONTROL – Level-of-Service and Average Vehicle Delay (seconds) for full intersection utilizing HCM methodology.

*Likely to experience better than reported operation due to proximity of adjacent signalized intersection of Kingston Pike and Federal Boulevard.

These analyses indicate that the existing signalized intersections (Kingston Pike and Smith Road & Kingston Pike and Peterson Road) are anticipated to operate at acceptable level-of-service (“D” or better) during the evaluated combined traffic periods. The unsignalized intersection of Smith Road and Boring Road is anticipated to operate at an acceptable level-of-service “B” for the Boring Road westbound approach.

At the intersection of Kingston Pike and Boring Road, the Boring Road southbound approach is anticipated to operate at a level-of-service "E" during the evaluated combined traffic periods. However, as previously mentioned, it is likely that the southbound approach will operate somewhat better than reported due to the proximity of the Kingston Pike and Federal Boulevard signalized intersection, roughly 350-feet to the west. Acceptable gaps in traffic are likely to occur at regular intervals due to the signal phasing at this intersection.

CONCLUSIONS & RECOMMENDATIONS

The primary conclusion of this study is that the traffic generated from the proposed development will have minimal overall impact on the studied intersections. This is illustrated by the project capacity analyses which indicate that the signalized intersections of Kingston Pike and Smith Road & Kingston Pike and Peterson Road are anticipated to operate at level-of-service "D" or better during the combined peak traffic hours. Additionally, the unsignalized intersection of Smith Road and Boring Road is anticipated to operate at a level-of-service "B" on the Boring Road westbound approach.

At the intersection of Boring Road and Kingston Pike, the Boring Road southbound approach is anticipated to operate at a level-of-service "F" during the PM peak hour under background and level-of-service "E" during the PM peak hour under combined conditions. This is mainly due to the significant traffic volumes along Kingston Pike during the PM peak hour. As previously discussed, it is likely that the southbound approach will operate somewhat better than reported due to the proximity of the Kingston Pike and Federal Boulevard signalized intersection, roughly 350-feet to the west. Acceptable gaps in traffic are likely to occur at regular intervals due to the signal phasing at this intersection.

In order to comply with Town ordinance requirements, Boring Road is proposed to be widened from Kingston Pike to the limits of the proposed development's frontage along Boring Road. The widening will improve Boring Road from a 14–15-foot roadway width to 24-feet wide with curb & gutter and sidewalks.

APPENDIX

APPENDIX A – TRAFFIC DATA

APPENDIX B – TRIP GENERATION

APPENDIX C – CAPACITY ANALYSES

APPENDIX A – TRAFFIC DATA

Cannon & Cannon, Inc.

8550 Kingston Pike
Knoxville, Tennessee 37919
(865) 670-8555

File Name : Boring @ Smith - TMC
Site Code : 00000002
Start Date : 10/2/2019
Page No : 1

Groups Printed- All Vehicles

Start Time	Smith Southbound					Boring Westbound					Smith Northbound					Driveways Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:15 AM	0	48	0	0	48	2	0	2	0	4	1	122	0	0	123	1	0	1	0	2	177
07:30 AM	2	79	0	0	81	2	0	1	0	3	0	110	1	0	111	2	0	0	0	2	197
07:45 AM	2	112	0	0	114	3	0	3	0	6	0	86	0	0	86	0	0	0	0	0	206
Total	4	239	0	0	243	7	0	6	0	13	1	318	1	0	320	3	0	1	0	4	580
08:00 AM	2	75	0	0	77	0	0	2	0	2	0	87	0	0	87	0	0	0	0	0	166
08:15 AM	0	55	0	0	55	0	0	3	0	3	0	74	0	0	74	0	0	1	0	1	133
*** BREAK ***																					
Total	2	130	0	0	132	0	0	5	0	5	0	161	0	0	161	0	0	1	0	1	299
*** BREAK ***																					
04:45 PM	5	102	2	0	109	0	0	3	0	3	0	73	1	0	74	0	0	1	0	1	187
Total	5	102	2	0	109	0	0	3	0	3	0	73	1	0	74	0	0	1	0	1	187
05:00 PM	3	99	2	0	104	2	0	4	0	6	1	67	2	0	70	0	0	0	0	0	180
05:15 PM	1	106	0	0	107	1	0	3	0	4	2	67	0	0	69	1	0	3	0	4	184
05:30 PM	1	98	0	0	99	0	0	12	0	12	0	73	1	0	74	1	0	1	0	2	187
05:45 PM	1	113	1	0	115	1	0	2	0	3	0	67	1	0	68	0	0	1	0	1	187
Total	6	416	3	0	425	4	0	21	0	25	3	274	4	0	281	2	0	5	0	7	738
Grand Total	17	887	5	0	909	11	0	35	0	46	4	826	6	0	836	5	0	8	0	13	1804
Apprch %	1.9	97.6	0.6	0		23.9	0	76.1	0		0.5	98.8	0.7	0		38.5	0	61.5	0		
Total %	0.9	49.2	0.3	0	50.4	0.6	0	1.9	0	2.5	0.2	45.8	0.3	0	46.3	0.3	0	0.4	0	0.7	

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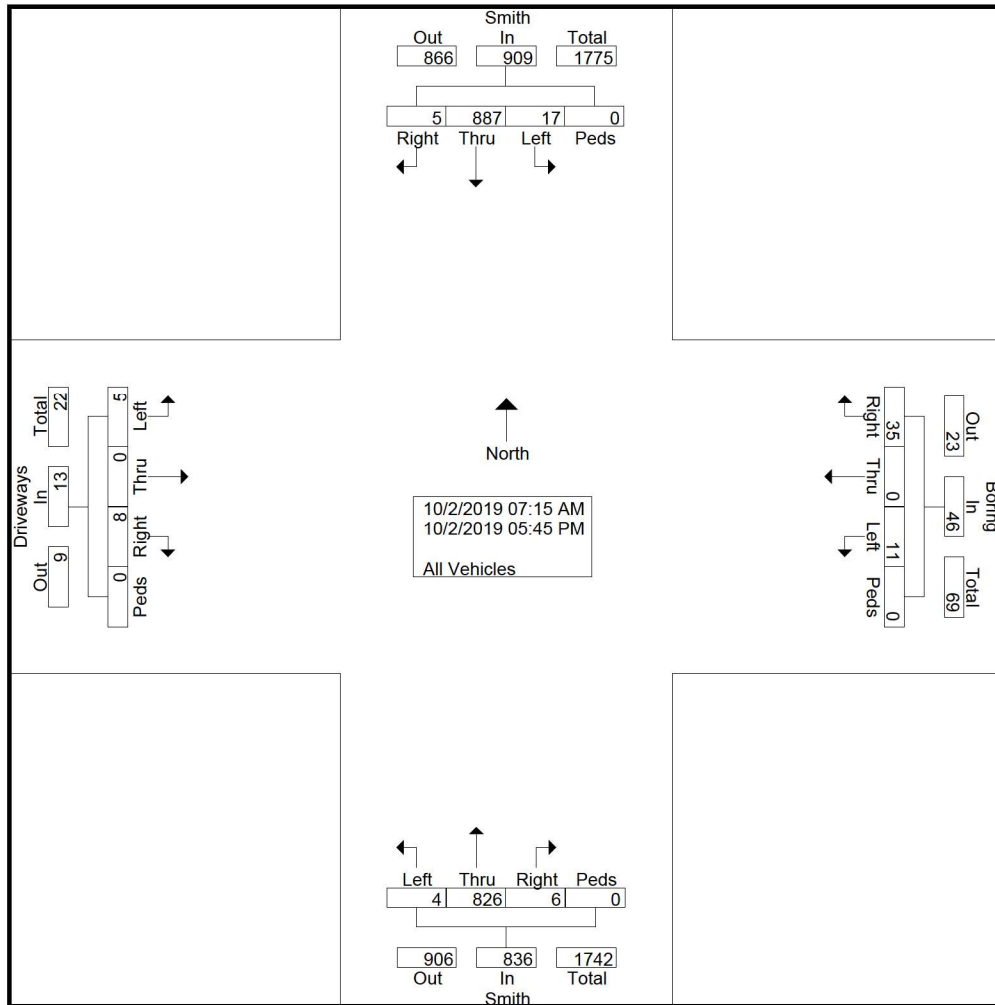
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(865) 670-8555

File Name : Boring @ Smith - TMC

Site Code : 00000002

Start Date : 10/2/2019

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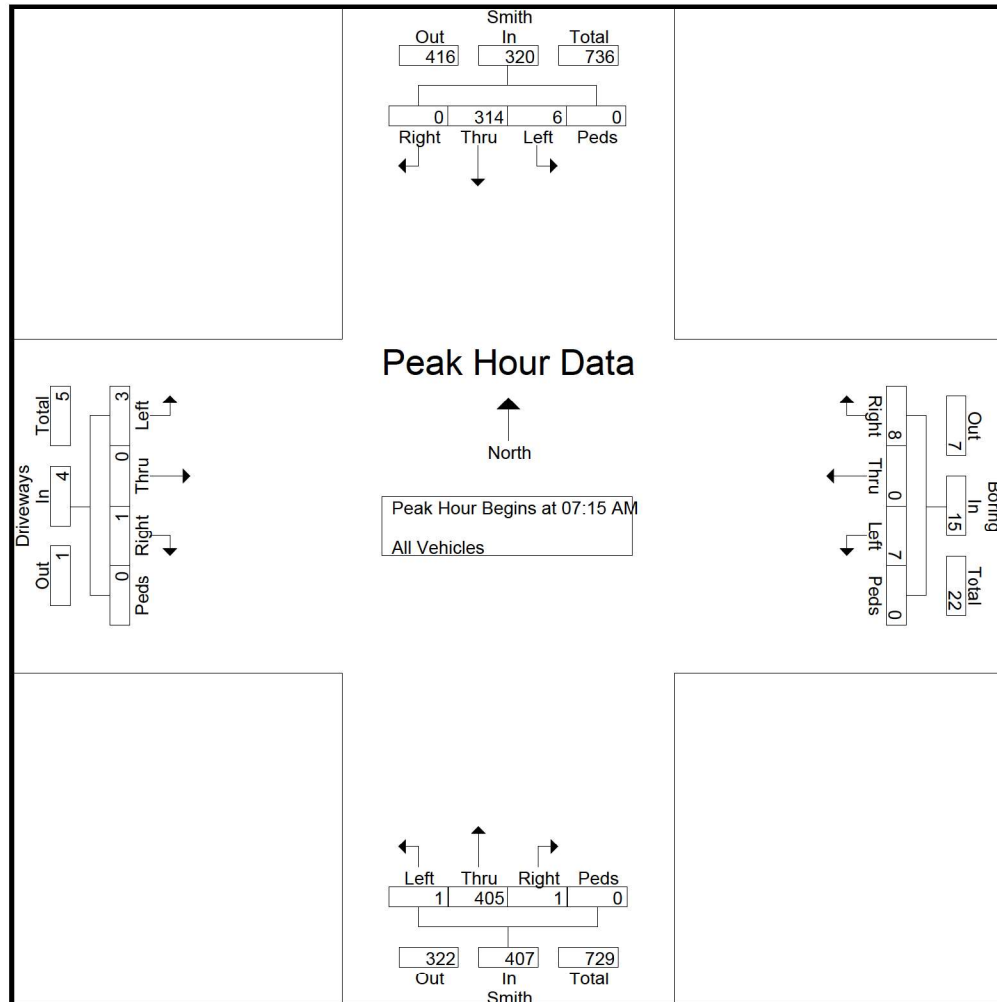
File Name : Boring @ Smith - TMC

Site Code : 00000002

Start Date : 10/2/2019

Page No : 3

	Smith Southbound					Boring Westbound					Smith Northbound					Driveways Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	48	0	0	48	2	0	2	0	4	1	122	0	0	123	1	0	1	0	2	177
07:30 AM	2	79	0	0	81	2	0	1	0	3	0	110	1	0	111	2	0	0	0	2	197
07:45 AM	2	112	0	0	114	3	0	3	0	6	0	86	0	0	86	0	0	0	0	0	206
08:00 AM	2	75	0	0	77	0	0	2	0	2	0	87	0	0	87	0	0	0	0	0	166
Total Volume	6	314	0	0	320	7	0	8	0	15	1	405	1	0	407	3	0	1	0	4	746
% App. Total	1.9	98.1	0	0		46.7	0	53.3	0		0.2	99.5	0.2	0		75	0	25	0		
PHF	.750	.701	.000	.000	.702	.583	.000	.667	.000	.625	.250	.830	.250	.000	.827	.375	.000	.250	.000	.500	.905



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(865) 670-8555

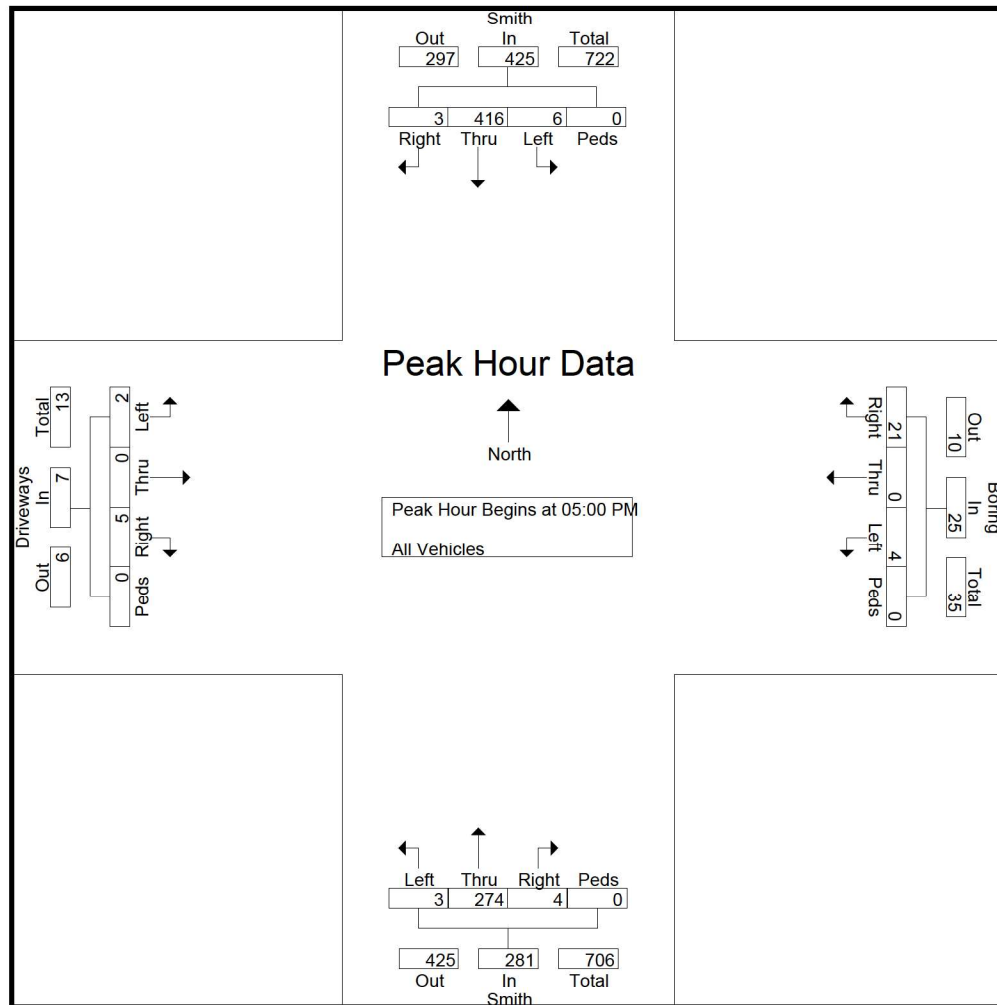
File Name : Boring @ Smith - TMC

Site Code : 00000002

Start Date : 10/2/2019

Page No : 4

	Smith Southbound					Boring Westbound					Smith Northbound					Driveways Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	99	2	0	104	2	0	4	0	6	1	67	2	0	70	0	0	0	0	0	180
05:15 PM	1	106	0	0	107	1	0	3	0	4	2	67	0	0	69	1	0	3	0	4	184
05:30 PM	1	98	0	0	99	0	0	12	0	12	0	73	1	0	74	1	0	1	0	2	187
05:45 PM	1	113	1	0	115	1	0	2	0	3	0	67	1	0	68	0	0	1	0	1	187
Total Volume	6	416	3	0	425	4	0	21	0	25	3	274	4	0	281	2	0	5	0	7	738
% App. Total	1.4	97.9	0.7	0		16	0	84	0		1.1	97.5	1.4	0		28.6	0	71.4	0		
PHF	.500	.920	.375	.000	.924	.500	.000	.438	.000	.521	.375	.938	.500	.000	.949	.500	.000	.417	.000	.438	.987



Cannon & Cannon, Inc.

8550 Kingston Pike
Knoxville, Tennessee 37919
(865) 670-8555

File Name : Boring @ Kingston

Site Code : 00000000

Start Date : 10/3/2019

Page No : 1

Groups Printed- All Vehicles

	BORING Southbound					KINGSTON Westbound					BORING Northbound					KINGSTON Eastbound					
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07:30 AM	0	0	0	0	0	0	210	2	0	212	0	0	0	0	0	0	411	0	0	411	623
07:45 AM	6	0	1	0	7	3	194	1	0	198	0	0	1	0	1	1	444	0	0	445	651
Total	6	0	1	0	7	3	557	4	0	564	0	0	1	0	1	1	1262	0	0	1263	1835
08:00 AM	1	0	0	0	1	1	175	1	0	177	0	0	0	0	0	0	391	0	0	391	569
08:15 AM	2	0	0	0	2	1	204	2	0	207	1	1	0	0	2	0	269	0	0	269	480
*** BREAK ***																					
Total	3	0	0	0	3	2	379	3	0	384	1	1	0	0	2	0	660	0	0	660	1049
*** BREAK ***																					
04:45 PM	1	0	1	0	2	0	373	3	0	376	0	0	2	0	2	2	279	0	0	281	661
Total	1	0	1	0	2	0	373	3	0	376	0	0	2	0	2	2	279	0	0	281	661
05:00 PM	2	0	0	0	2	0	385	2	0	387	2	0	3	0	5	0	287	0	0	287	681
05:15 PM	1	0	0	0	1	0	410	1	0	411	0	0	0	0	0	1	298	0	0	299	711
05:30 PM	0	0	0	0	0	0	431	4	0	435	0	0	1	0	1	0	299	0	0	299	735
05:45 PM	0	0	0	0	0	0	400	3	0	403	0	0	0	0	0	0	291	0	0	291	694
Total	3	0	0	0	3	0	1626	10	0	1636	2	0	4	0	6	1	1175	0	0	1176	2821
Grand Total	13	0	2	0	15	5	2935	20	0	2960	3	1	7	0	11	4	3376	0	0	3380	6366
Apprch %	86.7	0	13.3	0		0.2	99.2	0.7	0		27.3	9.1	63.6	0		0.1	99.9	0	0		
Total %	0.2	0	0	0	0.2	0.1	46.1	0.3	0	46.5	0	0	0.1	0	0.2	0.1	53	0	0	53.1	

Cannon & Cannon, Inc.

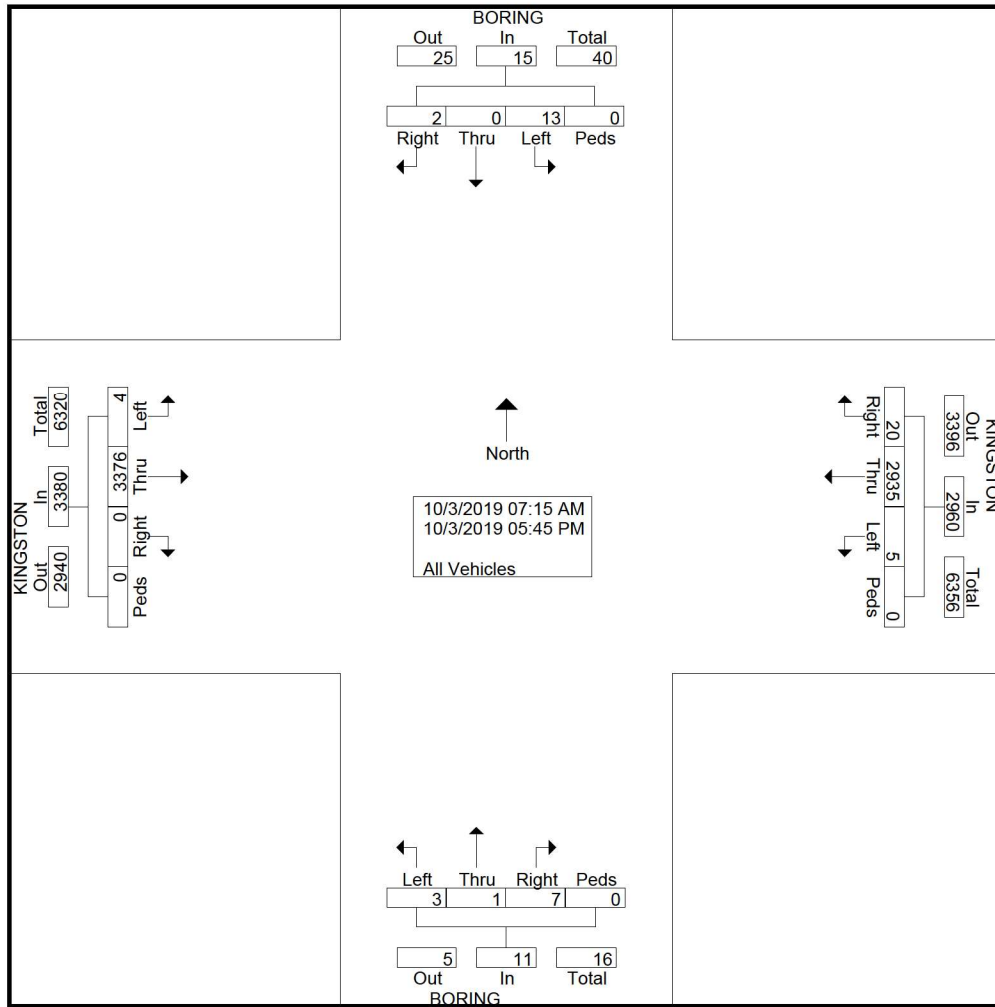
8550 Kingston Pike
Knoxville, Tennessee 37919
(865) 670-8555

File Name : Boring @ Kingston

Site Code : 00000000

Start Date : 10/3/2019

Page No : 2



Cannon & Cannon, Inc.

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Knoxville, Tennessee 37919
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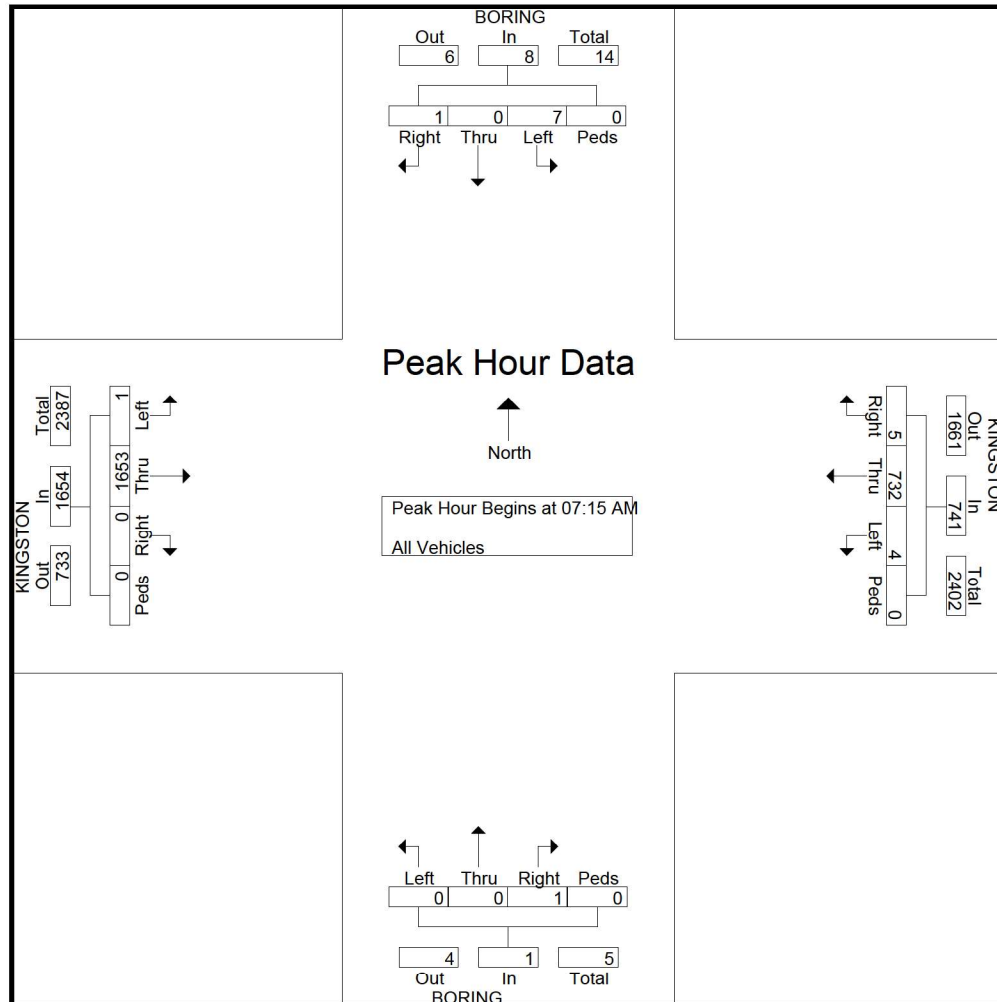
File Name : Boring @ Kingston

Site Code : 00000000

Start Date : 10/3/2019

Page No : 3

	BORING Southbound					KINGSTON Westbound					BORING Northbound					KINGSTON Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	153	1	0	154	0	0	0	0	0	0	407	0	0	407	561
07:30 AM	0	0	0	0	0	0	210	2	0	212	0	0	0	0	0	0	411	0	0	411	623
07:45 AM	6	0	1	0	7	3	194	1	0	198	0	0	1	0	1	1	444	0	0	445	651
08:00 AM	1	0	0	0	1	1	175	1	0	177	0	0	0	0	0	0	391	0	0	391	569
Total Volume	7	0	1	0	8	4	732	5	0	741	0	0	1	0	1	1	1653	0	0	1654	2404
% App. Total	87.5	0	12.5	0		0.5	98.8	0.7	0		0	0	100	0		0.1	99.9	0	0		
PHF	.292	.000	.250	.000	.286	.333	.871	.625	.000	.874	.000	.000	.250	.000	.250	.250	.931	.000	.000	.929	.923



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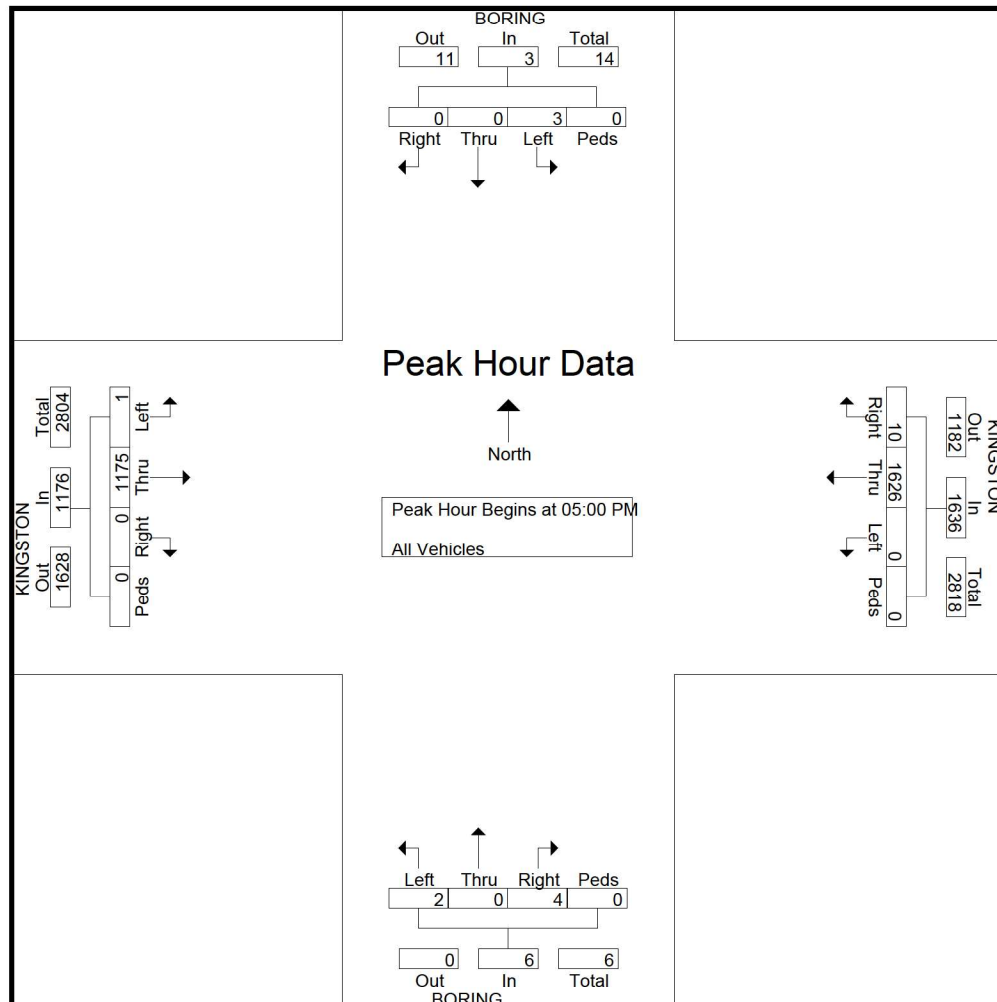
File Name : Boring @ Kingston

Site Code : 00000000

Start Date : 10/3/2019

Page No : 4

	BORING Southbound					KINGSTON Westbound					BORING Northbound					KINGSTON Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	0	0	0	2	0	385	2	0	387	2	0	3	0	5	0	287	0	0	287	681
05:15 PM	1	0	0	0	1	0	410	1	0	411	0	0	0	0	0	1	298	0	0	299	711
05:30 PM	0	0	0	0	0	0	431	4	0	435	0	0	1	0	1	0	299	0	0	299	735
05:45 PM	0	0	0	0	0	0	400	3	0	403	0	0	0	0	0	0	291	0	0	291	694
Total Volume	3	0	0	0	3	0	1626	10	0	1636	2	0	4	0	6	1	1175	0	0	1176	2821
% App. Total	100	0	0	0		0	99.4	0.6	0		33.3	0	66.7	0		0.1	99.9	0	0		
PHF	.375	.000	.000	.000	.375	.000	.943	.625	.000	.940	.250	.000	.333	.000	.300	.250	.982	.000	.000	.983	.960



APPENDIX B – TRIP GENERATION

Land Use: 252

Senior Adult Housing—Attached

Description

Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. These developments may include limited social or recreational services. However, they generally lack centralized dining and onsite medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired. Senior adult housing—detached (Land Use 251), congregate care facility (Land Use 253), assisted living (Land Use 254), and continuing care retirement community (Land Use 255) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the one general urban/suburban site with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:00 and 1:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, and the 2000s in Alberta (CAN), California, Illinois, New Hampshire, New Jersey, New York, and Pennsylvania.

Source Numbers

272, 501, 576, 602, 703, 734, 741, 902, 970

Senior Adult Housing - Attached (252)

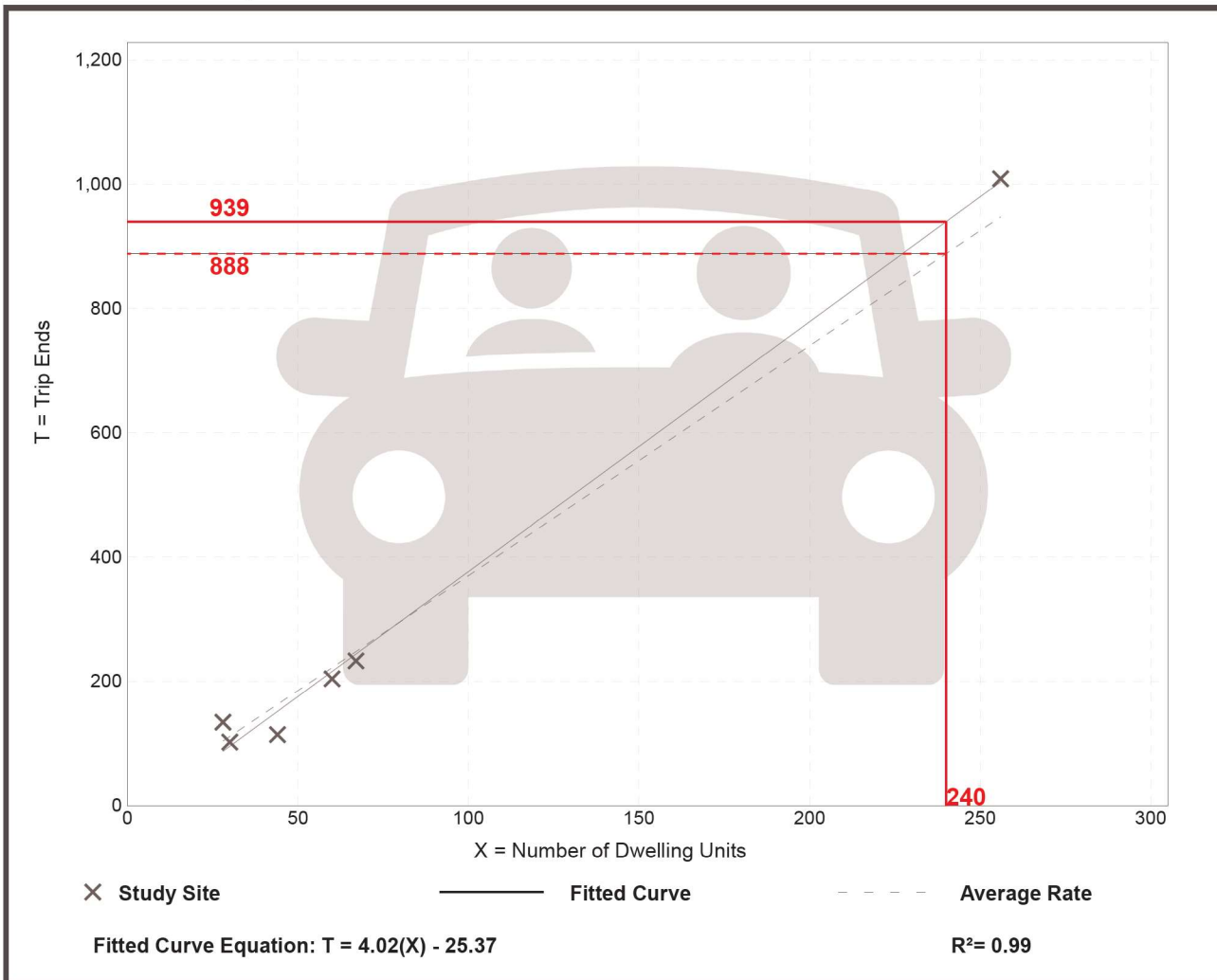
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Dwelling Units: 81
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.70	2.59 - 4.79	0.53

Data Plot and Equation



Senior Adult Housing - Attached (252)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 11

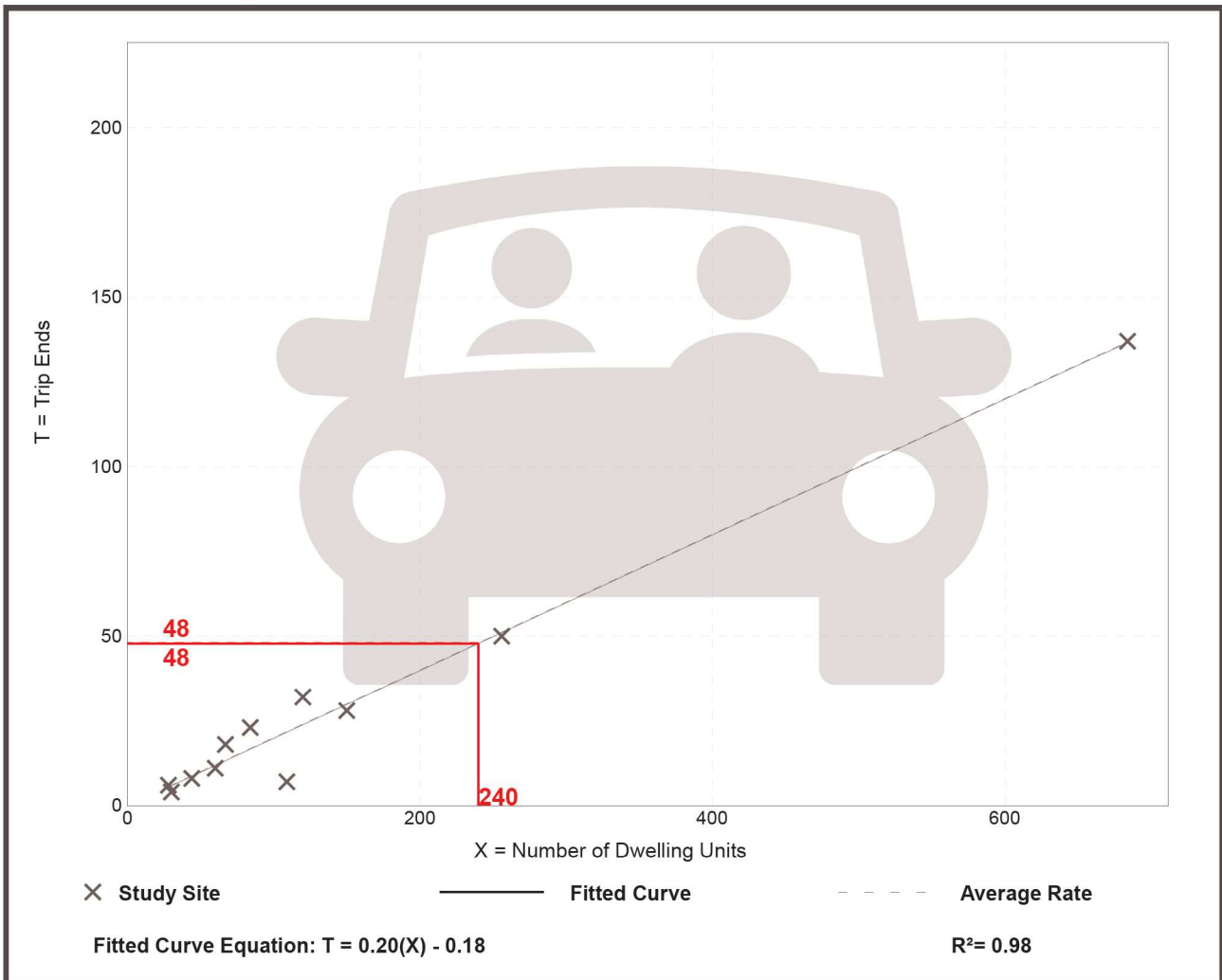
Avg. Num. of Dwelling Units: 148

Directional Distribution: 35% entering, 65% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.20	0.06 - 0.27	0.05

Data Plot and Equation



Senior Adult Housing - Attached (252)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 11

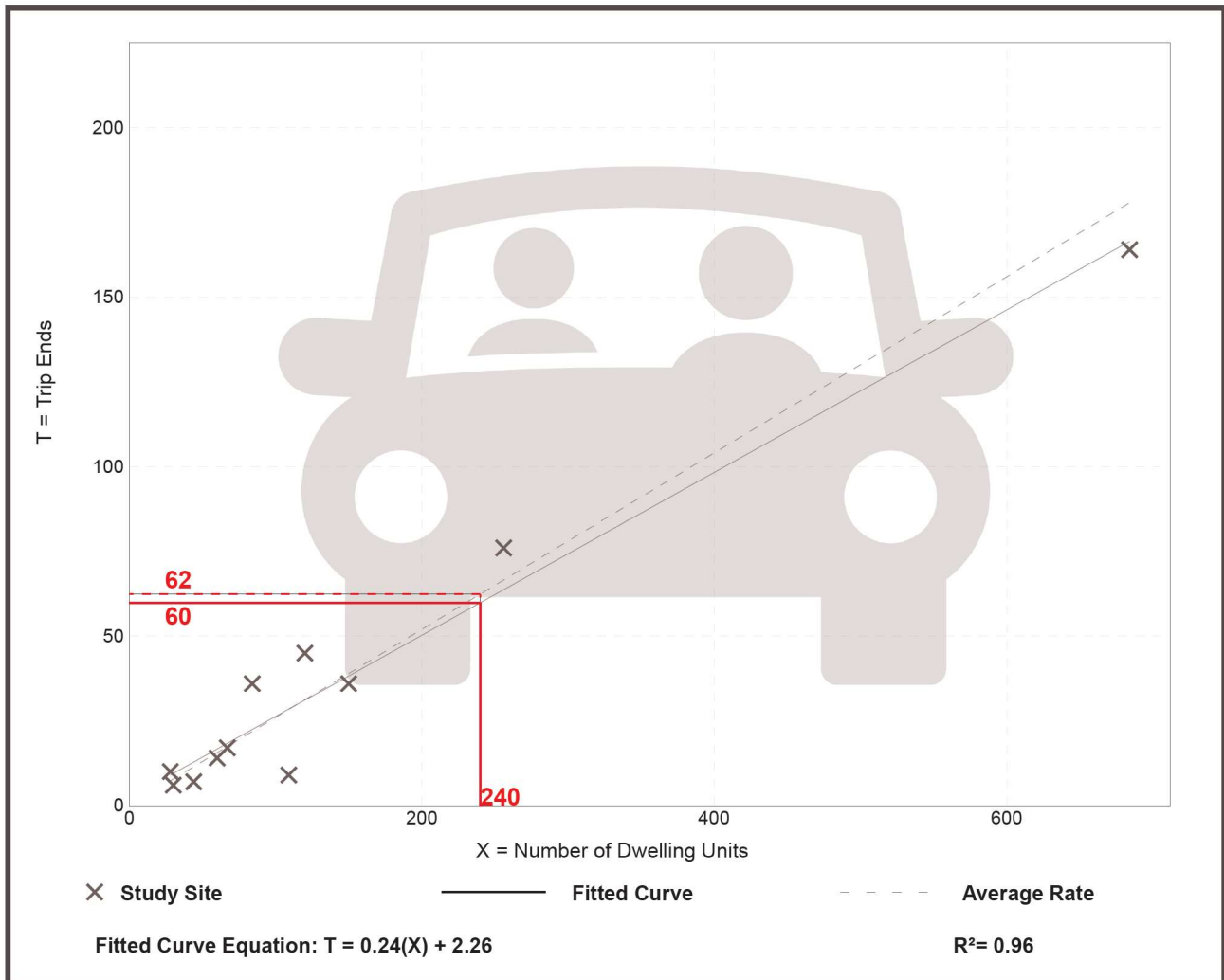
Avg. Num. of Dwelling Units: 148

Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.26	0.08 - 0.43	0.08

Data Plot and Equation



Land Use: 210

Single-Family Detached Housing

Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

Additional Data

The number of vehicles and residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it was usually readily available, easy to project, and had a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas, and other trip attractors than other residential land uses; and they generally had fewer alternative modes of transportation available because they were typically not as concentrated as other residential land uses.

Time-of-day distribution data for this land use are presented in Appendix A. For the six general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:00 and 5:00 p.m., respectively. For the two sites with Saturday data, the overall highest vehicle volume was counted between 3:00 and 4:00 p.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 10:15 and 11:15 a.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Delaware, Illinois, Indiana, Maryland, Minnesota, Montana, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, and Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 903, 925, 936

Single-Family Detached Housing (210)

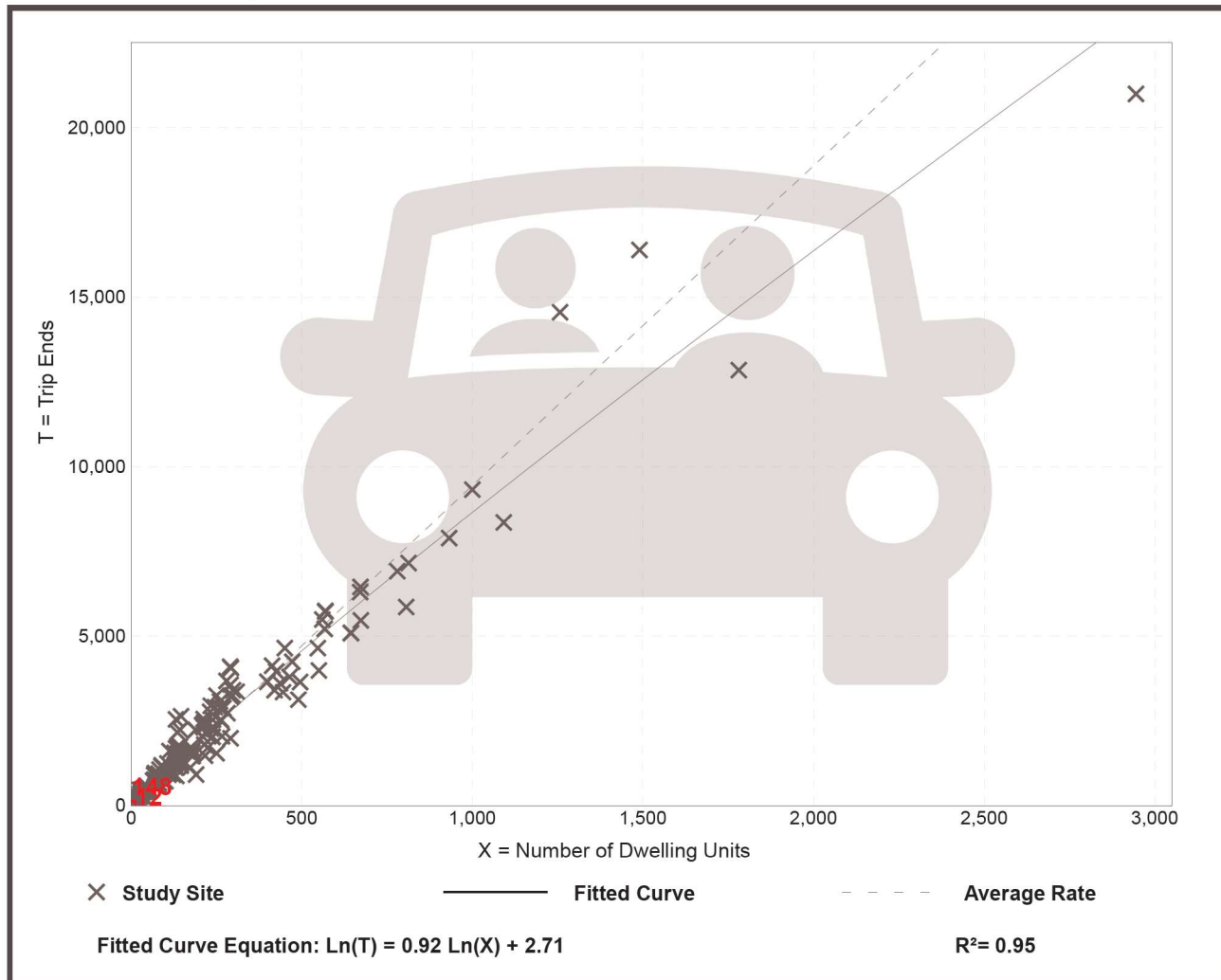
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 173

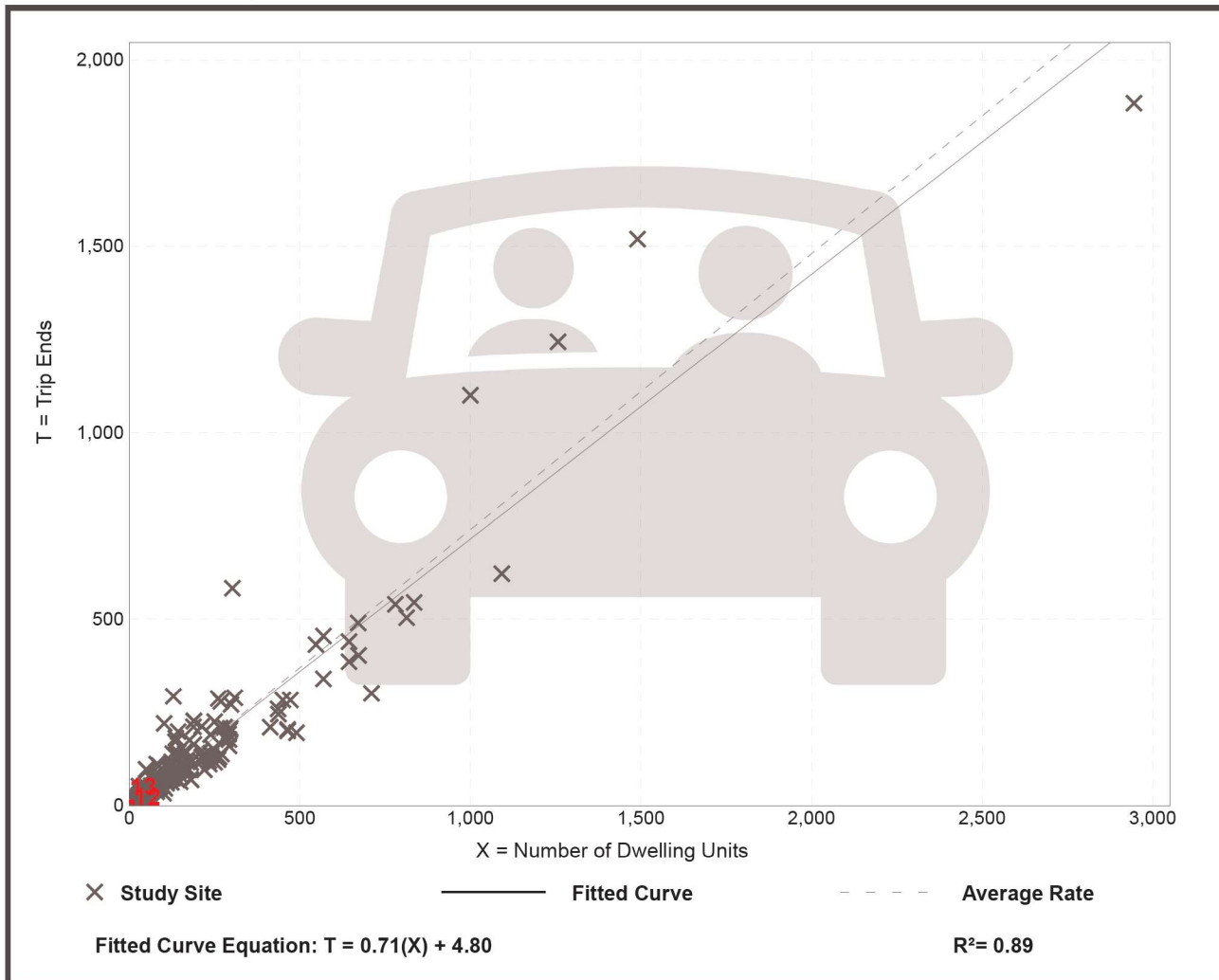
Avg. Num. of Dwelling Units: 219

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 190

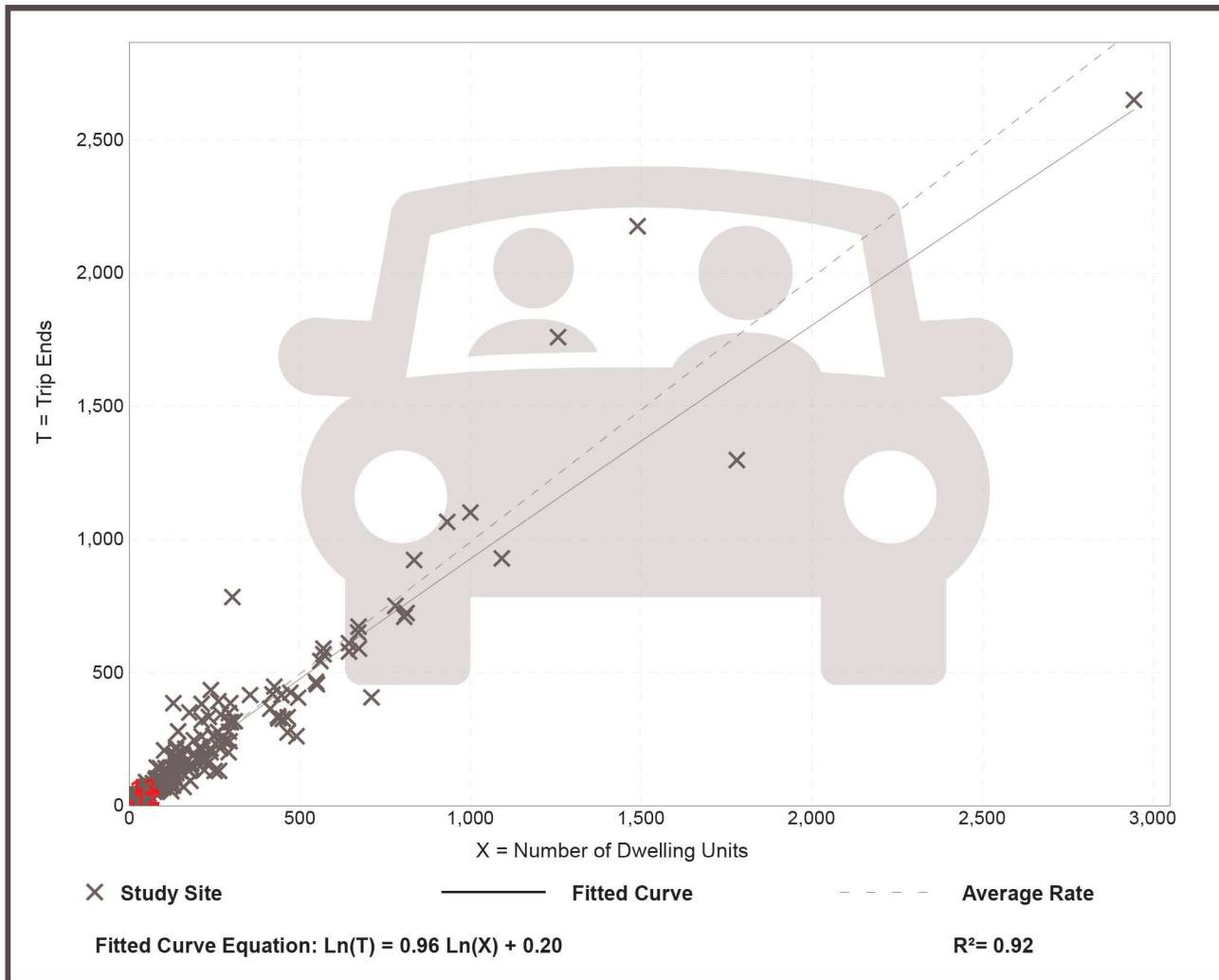
Avg. Num. of Dwelling Units: 242

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



APPENDIX C – CAPACITY ANALYSES

CAPACITY AND LEVEL-OF-SERVICE CONCEPTS

In a general sense, a roadway is similar to a pipeline or other material carrying conduit in that it has a certain capacity for the amount of material (vehicles) that it can efficiently carry. As the number of vehicles in a given time period gradually increases, the quality of traffic flow gradually decreases. On roadway sections this results in increasing turbulence in the traffic stream, and at intersections it results in increasing stops and delay. As the volumes begin to approach the capacity of the facility, these problems rapidly magnify, with resulting serious levels of congestion, stops, delay, excess fuel consumption, pollutant emissions, etc.

The Transportation Research Board has published the Year 2010 Highway Capacity Manual (HCM2010), which establishes theoretical techniques to quantify the capacity conditions on all types of roadways, intersections, ramps, pedestrian facilities, etc. A basic concept that is applicable to most of these techniques is the idea of level of service (LOS). This concept establishes a rating system that quantifies the quality of traffic flow, as perceived by motorists and/or passengers. The general system is similar to a school grade scale, and is outlined as follows:

Level of Service (LOS)	General Quality of Traffic Flow	Description of Corresponding Conditions
A	Excellent	Roadways – Free flow, high maneuverability Intersections – Very few stops, very low delay
B	Very Good	Roadways – Free flow, slightly lower maneuverability Intersections – Minor stops, low delay
C	Good	Roadways – Stable flow, restricted maneuverability Intersections – Significant stops, significant delay
D	Fair	Roadways – Marginally stable flow, congestion seriously restricts maneuverability Intersections – High stops, long but tolerable delay
E	Poor	Roadways – Unstable flow*, lower operating speeds, congestion severely restricts maneuverability Intersections – All vehicles stop, very long queues and very long intolerable delay
F	Very Poor	Roadways – Forced flow, stoppages may be lengthy, congestion severely restricts maneuverability Intersections – All vehicles stop, extensive queues and extremely long intolerable delay

*Unstable flow is such that minor fluctuations or disruptions can result in rapid degradation to LOS F.

LOS CRITERIA: SIGNALIZED & UNSIGNALIZED INTERSECTIONS

LOS	CONTROL DELAY (S/VEH)		
	SIGNALIZED	UNSIGNALIZED	ROUNDBABOUT
A	≤10	≤10	≤10
B	>10-20	>10-15	>10-15
C	>20-35	>15-25	>15-25
D	>35-55	>25-35	>25-35
E	>55-80	>35-50	>35-50
F	>80	>50	>50

Another measure of intersection capacity that is often used in the evaluation of intersection operations is the volume to capacity (V/C) ratio. This ratio is defined as “the ratio of flow rate to capacity”, and is a good measure of how much of an intersection’s available capacity has been used up by the analysis volumes. Conversely, it also provides an indication of the reserve capacity available for future growth in traffic volumes.

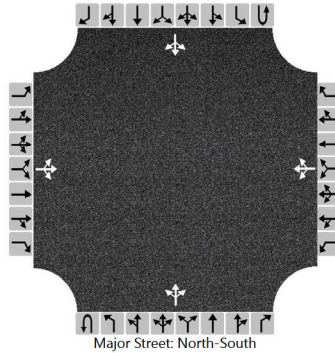
The Intersection Capacity Utilization (ICU) is another measure that expresses a value similar to the V/C ratio. Specifically, the ICU method “sums the amount of the time required to serve all movements at saturation for a given cycle length and divides by that reference cycle length.” The ICU is considered a more accurate measure of volume to capacity conditions for a signalized intersection, primarily because it accounts for the effects of the signal timing on intersection capacity.

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Smith and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Boring Road
Analysis Year	2021	North/South Street	Smith Road
Time Analyzed	Existing AM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Existing		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	0	1		7	0	8		1	421	1		6	327	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.23		

Delay, Queue Length, and Level of Service

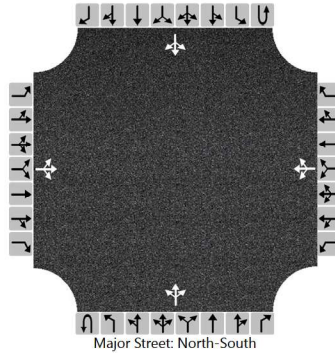
Flow Rate, v (veh/h)			4				16			1				7		
Capacity, c (veh/h)			333				402			1196				1096		
v/c Ratio			0.01				0.04			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.0				0.1			0.0				0.0		
Control Delay (s/veh)			15.9				14.3			8.0				8.3		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	15.9				14.3				0.0				0.2			
Approach LOS	C				B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Smith and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Boring Road
Analysis Year	2021	North/South Street	Smith Road
Time Analyzed	Existing PM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Existing		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	0	5		4	0	22		3	285	4		10	433	3
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			8				28			3				11		
Capacity, c (veh/h)			452				595			1082				1239		
v/c Ratio			0.02				0.05			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.1				0.1			0.0				0.0		
Control Delay (s/veh)			13.1				11.4			8.3				7.9		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.1				11.4				0.1				0.3			
Approach LOS	B				B											

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Existing AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	1403	17	6	706	108	11	5	7	176	2	163
Future Volume (vph)	335	1403	17	6	706	108	11	5	7	176	2	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			-8%	
Storage Length (ft)	195		0	100		100	0		15	0		210
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	100			75			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.966			0.953	
Satd. Flow (prot)	1752	3497	0	1787	3575	1599	0	1817	1599	0	1846	1647
Flt Permitted	0.165			0.117				0.768			0.717	
Satd. Flow (perm)	304	3497	0	220	3575	1599	0	1445	1599	0	1389	1647
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				170			170			40
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2110			982			174			2504	
Travel Time (s)		32.0			14.9			4.7			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	372	1559	19	8	981	150	12	5	8	220	3	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	372	1578	0	8	981	150	0	17	8	0	223	204
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.95	0.95
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	1	6		5	2			4			8	1
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	4	4	4	8	8	1
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	8.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0	13.0
Total Split (s)	23.0	52.0		13.0	42.0	42.0	25.0	25.0	25.0	25.0	25.0	23.0
Total Split (%)	25.6%	57.8%		14.4%	46.7%	46.7%	27.8%	27.8%	27.8%	27.8%	27.8%	25.6%
Maximum Green (s)	17.5	46.0		7.5	36.0	36.0	19.0	19.0	19.0	19.0	19.0	17.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	6.0		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Existing AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	61.1	58.3		46.4	39.9	39.9		17.4	17.4		17.4	38.6
Actuated g/C Ratio	0.68	0.65		0.52	0.44	0.44		0.19	0.19		0.19	0.43
v/c Ratio	0.82	0.70		0.04	0.62	0.19		0.06	0.02		0.83	0.28
Control Delay	35.3	7.8		7.8	26.3	6.8		29.2	0.1		60.9	13.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	35.3	7.8		7.8	26.3	6.8		29.2	0.1		60.9	13.3
LOS	D	A		A	C	A		C	A		E	B
Approach Delay		13.0			23.6			19.9			38.2	
Approach LOS		B			C			B			D	
Queue Length 50th (ft)	101	126		2	264	8		8	0		120	53
Queue Length 95th (ft)	#252	177		m5	157	22		25	0		#186	82
Internal Link Dist (ft)		2030			902			94			2424	
Turn Bay Length (ft)	195			100		100			15			210
Base Capacity (vph)	487	2267		247	1583	802		305	471		293	769
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.76	0.70		0.03	0.62	0.19		0.06	0.02		0.76	0.27

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 53 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 75.4%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Kingston Pike & Smith Road



Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Existing PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	1080	20	19	1408	130	31	5	12	197	14	347
Future Volume (vph)	236	1080	20	19	1408	130	31	5	12	197	14	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			-8%	
Storage Length (ft)	195		0	100		100	0		15	0		210
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	100			75			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.958			0.955	
Satd. Flow (prot)	1752	3493	0	1787	3575	1599	0	1802	1599	0	1850	1647
Flt Permitted	0.076			0.196				0.424			0.712	
Satd. Flow (perm)	140	3493	0	369	3575	1599	0	798	1599	0	1379	1647
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				103			103			36
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2110			982			174			2504	
Travel Time (s)		32.0			14.9			4.7			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	262	1200	22	26	1956	181	34	5	13	246	18	434
Shared Lane Traffic (%)												
Lane Group Flow (vph)	262	1222	0	26	1956	181	0	39	13	0	264	434
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.95	0.95
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	1	6		5	2			4			8	1
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	4	4	4	8	8	1
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	8.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0	13.0
Total Split (s)	15.0	55.0		13.0	53.0	53.0	22.0	22.0	22.0	22.0	22.0	15.0
Total Split (%)	16.7%	61.1%		14.4%	58.9%	58.9%	24.4%	24.4%	24.4%	24.4%	24.4%	16.7%
Maximum Green (s)	9.5	49.0		7.5	47.0	47.0	16.0	16.0	16.0	16.0	16.0	9.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	6.0		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Existing PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	61.7	57.4		53.5	47.0	47.0		16.0	16.0		16.0	31.5
Actuated g/C Ratio	0.69	0.64		0.59	0.52	0.52		0.18	0.18		0.18	0.35
v/c Ratio	0.98	0.55		0.08	1.05	0.20		0.28	0.04		1.08	0.72
Control Delay	77.0	5.4		6.9	54.3	7.7		38.0	0.2		117.4	31.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	77.0	5.4		6.9	54.3	7.7		38.0	0.2		117.4	31.5
LOS	E	A		A	D	A		D	A		F	C
Approach Delay		18.0			49.8			28.5			64.0	
Approach LOS		B			D			C			E	
Queue Length 50th (ft)	114	82		5	~658	22		19	0		~169	195
Queue Length 95th (ft)	m#248	120		m8	327	38		50	0		#267	256
Internal Link Dist (ft)		2030			902			94			2424	
Turn Bay Length (ft)	195			100		100			15			210
Base Capacity (vph)	266	2229		343	1866	884		141	368		245	599
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.98	0.55		0.08	1.05	0.20		0.28	0.04		1.08	0.72

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 53 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 41.1

Intersection LOS: D

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Kingston Pike & Smith Road



Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Existing AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1594	26	41	779	2	48	3	108	0	1	22
Future Volume (vph)	28	1594	26	41	779	2	48	3	108	0	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			0%			-2%	
Storage Length (ft)	75		0	75		75	60		0	0		0
Storage Lanes	1		0	1		1	1		1	0		1
Taper Length (ft)	30			40			40			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.955				
Satd. Flow (prot)	1761	3514	0	1761	3522	1575	0	1779	1583	0	1881	1599
Flt Permitted	0.277			0.066				0.739				
Satd. Flow (perm)	513	3514	0	122	3522	1575	0	1377	1583	0	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				103			36			38
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		982			1296			695			295	
Travel Time (s)		14.9			19.6			19.0			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.83	0.83	0.83	0.58	0.58	0.58
Adj. Flow (vph)	33	1875	31	51	962	2	58	4	130	0	2	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	1906	0	51	962	2	0	62	130	0	2	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov		NA	pm+ov
Protected Phases	5	2		1	6			4	1		8	5
Permitted Phases	2			6		6	4		4	8		8
Detector Phase	5	2		1	6	6	4	4	1	8	8	5
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	6.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	13.0	62.0		13.0	62.0	62.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (%)	14.4%	68.9%		14.4%	68.9%	68.9%	16.7%	16.7%	14.4%	16.7%	16.7%	14.4%
Maximum Green (s)	7.5	56.0		7.5	56.0	56.0	9.0	9.0	7.5	9.0	9.0	7.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	5.5		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	2.5	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Existing AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	67.1	60.6		68.4	64.2	64.2		8.6	17.9		8.6	17.8
Actuated g/C Ratio	0.75	0.67		0.76	0.71	0.71		0.10	0.20		0.10	0.20
v/c Ratio	0.07	0.80		0.25	0.38	0.00		0.47	0.38		0.01	0.11
Control Delay	1.4	8.5		10.1	5.9	0.0		50.9	24.2		37.0	10.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	1.4	8.5		10.1	5.9	0.0		50.9	24.2		37.0	10.0
LOS	A	A		B	A	A		D	C		D	B
Approach Delay		8.4			6.1			32.8			11.4	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)	2	449		5	80	0		34	44		1	0
Queue Length 95th (ft)	m3	117		m26	118	m0		68	84		5	9
Internal Link Dist (ft)		902			1216			615			215	
Turn Bay Length (ft)	75			75		75						
Base Capacity (vph)	495	2368		230	2512	1153		137	367		188	372
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.07	0.80		0.22	0.38	0.00		0.45	0.35		0.01	0.10

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 72.8%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Peterson Road & Kingston Pike

 Ø1	 Ø2 (R)	 Ø4
13 s	62 s	15 s
 Ø5	 Ø6 (R)	 Ø8
13 s	62 s	15 s

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Existing PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1201	73	88	1441	5	54	5	60	11	12	132
Future Volume (vph)	58	1201	73	88	1441	5	54	5	60	11	12	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			0%			-2%	
Storage Length (ft)	75		0	75		75	60		0	0		0
Storage Lanes	1		0	1		1	1		1	0		1
Taper Length (ft)	30			40			40			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.956			0.977	
Satd. Flow (prot)	1761	3490	0	1761	3522	1575	0	1781	1583	0	1838	1599
Flt Permitted	0.067			0.128				0.715			0.813	
Satd. Flow (perm)	124	3490	0	237	3522	1575	0	1332	1583	0	1530	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				103			52			36
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		982			1296			695			295	
Travel Time (s)		14.9			19.6			19.0			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.83	0.83	0.83	0.58	0.58	0.58
Adj. Flow (vph)	68	1413	86	109	1779	6	65	6	72	19	21	228
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1499	0	109	1779	6	0	71	72	0	40	228
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			4	1		8	5
Permitted Phases	2			6		6	4		4	8		8
Detector Phase	5	2		1	6	6	4	4	1	8	8	5
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	6.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	14.0	62.0		13.0	61.0	61.0	15.0	15.0	13.0	15.0	15.0	14.0
Total Split (%)	15.6%	68.9%		14.4%	67.8%	67.8%	16.7%	16.7%	14.4%	16.7%	16.7%	15.6%
Maximum Green (s)	8.5	56.0		7.5	55.0	55.0	9.0	9.0	7.5	9.0	9.0	8.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	5.5		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	2.5	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Existing PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	68.7	63.6		66.0	59.0	59.0		8.7	18.4		8.7	19.5
Actuated g/C Ratio	0.76	0.71		0.73	0.66	0.66		0.10	0.20		0.10	0.22
v/c Ratio	0.29	0.61		0.38	0.77	0.01		0.55	0.20		0.27	0.61
Control Delay	11.6	5.8		8.0	13.0	0.0		55.9	12.9		42.6	32.9
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	11.6	5.8		8.0	13.0	0.0		55.9	12.9		42.6	32.9
LOS	B	A		A	B	A		E	B		D	C
Approach Delay		6.1			12.7			34.2			34.4	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	4	180		11	229	0		39	9		21	96
Queue Length 95th (ft)	m23	m103		m31	318	m0		76	37		33	90
Internal Link Dist (ft)		902			1216			615			215	
Turn Bay Length (ft)	75			75		75						
Base Capacity (vph)	252	2470		303	2308	1068		133	381		153	391
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.27	0.61		0.36	0.77	0.01		0.53	0.19		0.26	0.58

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Peterson Road & Kingston Pike

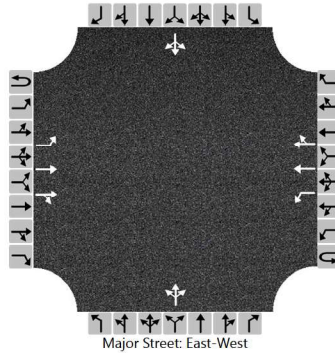
 Ø1	 Ø2 (R)	 Ø4
13 s	62 s	15 s
 Ø5	 Ø6 (R)	 Ø8
14 s	61 s	15 s

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Kingston and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Kingston Pike
Analysis Year	2021	North/South Street	Boring Road
Time Analyzed	Existing AM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Existing		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	1	1720	0	0	4	762	5		0	0	1		7	0	1
Percent Heavy Vehicles (%)	0	0			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Left Only								3							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

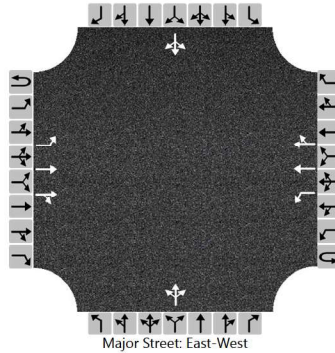
Flow Rate, v (veh/h)		1				4					1				9	
Capacity, c (veh/h)		808				327					271				250	
v/c Ratio		0.00				0.01					0.00				0.03	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.0				0.1	
Control Delay (s/veh)		9.5				16.2					18.4				19.9	
Level of Service (LOS)		A				C					C				C	
Approach Delay (s/veh)	0.0				0.1				18.4				19.9			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Kingston and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Kingston Pike
Analysis Year	2021	North/South Street	Boring Road
Time Analyzed	Existing PM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Existing		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	1	1222	0	0	0	1692	10		2	0	4		3	0	0
Percent Heavy Vehicles (%)	0	0			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Left Only								3							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

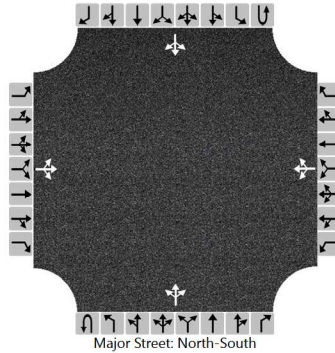
Flow Rate, v (veh/h)		1				0					7				3	
Capacity, c (veh/h)		332				526					259				76	
v/c Ratio		0.00				0.00					0.03				0.04	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.1				0.1	
Control Delay (s/veh)		15.9				11.8					19.3				54.3	
Level of Service (LOS)		C				B					C				F	
Approach Delay (s/veh)	0.0				0.0				19.3				54.3			
Approach LOS									C				F			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Smith and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Boring Road
Analysis Year	2022	North/South Street	Smith Road
Time Analyzed	Background AM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Background		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	0	1		7	0	8		1	439	1		6	342	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.23		

Delay, Queue Length, and Level of Service

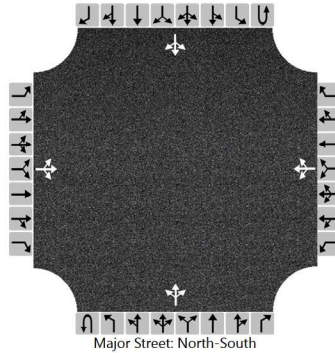
Flow Rate, v (veh/h)			4				16			1				7		
Capacity, c (veh/h)			316				384			1180				1078		
v/c Ratio			0.01				0.04			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.0				0.1			0.0				0.0		
Control Delay (s/veh)			16.5				14.8			8.1				8.4		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	16.5				14.8				0.0				0.2			
Approach LOS	C				B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Smith and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Boring Road
Analysis Year	2022	North/South Street	Smith Road
Time Analyzed	Background PM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Background		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	0	5		4	0	22		3	299	4		10	452	3
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			8				28			3				11		
Capacity, c (veh/h)			434				577			1063				1223		
v/c Ratio			0.02				0.05			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.1				0.2			0.0				0.0		
Control Delay (s/veh)			13.5				11.6			8.4				8.0		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.5				11.6				0.1				0.3			
Approach LOS	B				B											

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Background AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	342	1431	17	6	720	110	11	5	7	180	2	166
Future Volume (vph)	342	1431	17	6	720	110	11	5	7	180	2	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			-8%	
Storage Length (ft)	195		0	100		100	0		15	0		210
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	100			75			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.966			0.953	
Satd. Flow (prot)	1752	3497	0	1787	3575	1599	0	1817	1599	0	1846	1647
Flt Permitted	0.156			0.109				0.767			0.717	
Satd. Flow (perm)	288	3497	0	205	3575	1599	0	1443	1599	0	1389	1647
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				170			170			38
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2110			982			174			2504	
Travel Time (s)		32.0			14.9			4.7			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	380	1590	19	8	1000	153	12	5	8	225	3	208
Shared Lane Traffic (%)												
Lane Group Flow (vph)	380	1609	0	8	1000	153	0	17	8	0	228	208
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.95	0.95
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	1	6		5	2			4			8	1
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	4	4	4	8	8	1
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	8.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0	13.0
Total Split (s)	23.0	52.0		13.0	42.0	42.0	25.0	25.0	25.0	25.0	25.0	23.0
Total Split (%)	25.6%	57.8%		14.4%	46.7%	46.7%	27.8%	27.8%	27.8%	27.8%	27.8%	25.6%
Maximum Green (s)	17.5	46.0		7.5	36.0	36.0	19.0	19.0	19.0	19.0	19.0	17.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	6.0		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Background AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	61.0	58.2		45.8	39.3	39.3		17.5	17.5		17.5	39.2
Actuated g/C Ratio	0.68	0.65		0.51	0.44	0.44		0.19	0.19		0.19	0.44
v/c Ratio	0.84	0.71		0.04	0.64	0.19		0.06	0.02		0.84	0.28
Control Delay	38.1	8.4		7.7	26.7	6.7		29.2	0.1		62.0	13.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	38.1	8.4		7.7	26.7	6.7		29.2	0.1		62.0	13.4
LOS	D	A		A	C	A		C	A		E	B
Approach Delay		14.1			23.9			19.9			38.8	
Approach LOS		B			C			B			D	
Queue Length 50th (ft)	110	131		2	268	8		8	0		123	55
Queue Length 95th (ft)	#272	217		m4	160	22		25	0		#193	85
Internal Link Dist (ft)		2030			902			94			2424	
Turn Bay Length (ft)	195			100		100			15			210
Base Capacity (vph)	479	2260		239	1559	793		304	471		293	771
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.79	0.71		0.03	0.64	0.19		0.06	0.02		0.78	0.27

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 53 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 20.3

Intersection LOS: C

Intersection Capacity Utilization 76.4%

ICU Level of Service D

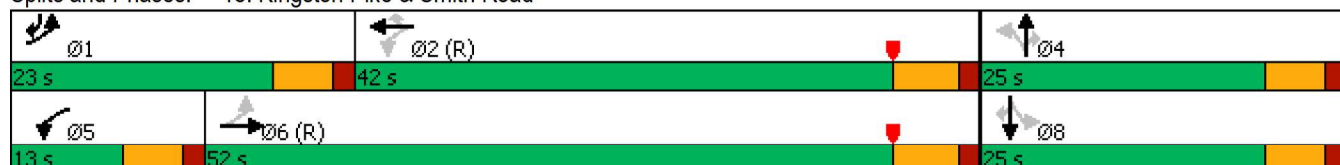
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Kingston Pike & Smith Road



Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Background PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	1102	20	19	1436	133	32	5	12	201	14	354
Future Volume (vph)	241	1102	20	19	1436	133	32	5	12	201	14	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			-8%	
Storage Length (ft)	195		0	100		100	0		15	0		210
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	100			75			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.958			0.955	
Satd. Flow (prot)	1752	3493	0	1787	3575	1599	0	1802	1599	0	1850	1647
Flt Permitted	0.075			0.192				0.357			0.711	
Satd. Flow (perm)	138	3493	0	361	3575	1599	0	672	1599	0	1377	1647
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				103			103			36
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2110			982			174			2504	
Travel Time (s)		32.0			14.9			4.7			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	268	1224	22	26	1994	185	35	5	13	251	18	443
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	1246	0	26	1994	185	0	40	13	0	269	443
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.95	0.95
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	1	6		5	2			4			8	1
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	4	4	4	8	8	1
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	8.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0	13.0
Total Split (s)	15.0	56.0		13.0	54.0	54.0	21.0	21.0	21.0	21.0	21.0	15.0
Total Split (%)	16.7%	62.2%		14.4%	60.0%	60.0%	23.3%	23.3%	23.3%	23.3%	23.3%	16.7%
Maximum Green (s)	9.5	50.0		7.5	48.0	48.0	15.0	15.0	15.0	15.0	15.0	9.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	6.0		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Background PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	62.7	58.4		54.5	48.0	48.0		15.0	15.0		15.0	30.5
Actuated g/C Ratio	0.70	0.65		0.61	0.53	0.53		0.17	0.17		0.17	0.34
v/c Ratio	1.01	0.55		0.08	1.05	0.21		0.36	0.04		1.17	0.76
Control Delay	82.7	5.1		6.5	52.4	7.6		43.4	0.2		150.8	34.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	82.7	5.1		6.5	52.4	7.6		43.4	0.2		150.8	34.5
LOS	F	A		A	D	A		D	A		F	C
Approach Delay		18.8			48.1			32.8			78.4	
Approach LOS		B			D			C			E	
Queue Length 50th (ft)	~118	83		5	~654	21		20	0		~184	205
Queue Length 95th (ft)	m#257	121		m7	337	m39		53	0		#284	269
Internal Link Dist (ft)		2030			902			94			2424	
Turn Bay Length (ft)	195			100		100			15			210
Base Capacity (vph)	266	2268		343	1906	900		112	352		229	581
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	1.01	0.55		0.08	1.05	0.21		0.36	0.04		1.17	0.76

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 53 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 42.9

Intersection LOS: D

Intersection Capacity Utilization 86.2%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Kingston Pike & Smith Road

 Ø1	 Ø2 (R)	 Ø4
15 s	54 s	21 s
 Ø5	 Ø6 (R)	 Ø8
13 s	56 s	21 s

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Background AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1626	27	42	795	10	49	4	110	10	3	30
Future Volume (vph)	35	1626	27	42	795	10	49	4	110	10	3	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			0%			-2%	
Storage Length (ft)	75		0	75		75	60		0	0		0
Storage Lanes	1		0	1		1	1		1	0		1
Taper Length (ft)	30			40			40			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.956			0.963	
Satd. Flow (prot)	1761	3514	0	1761	3522	1575	0	1781	1583	0	1812	1599
Flt Permitted	0.270			0.066				0.727			0.733	
Satd. Flow (perm)	500	3514	0	122	3522	1575	0	1354	1583	0	1379	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				103			36			52
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		982			1296			695			295	
Travel Time (s)		14.9			19.6			19.0			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.83	0.83	0.83	0.58	0.58	0.58
Adj. Flow (vph)	41	1913	32	52	981	12	59	5	133	17	5	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	1945	0	52	981	12	0	64	133	0	22	52
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			4	1		8	5
Permitted Phases	2			6		6	4		4	8		8
Detector Phase	5	2		1	6	6	4	4	1	8	8	5
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	6.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	13.0	62.0		13.0	62.0	62.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (%)	14.4%	68.9%		14.4%	68.9%	68.9%	16.7%	16.7%	14.4%	16.7%	16.7%	14.4%
Maximum Green (s)	7.5	56.0		7.5	56.0	56.0	9.0	9.0	7.5	9.0	9.0	7.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	5.5		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	2.5	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Background AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	67.2	60.6		68.3	64.2	64.2		8.6	17.9		8.6	17.8
Actuated g/C Ratio	0.75	0.67		0.76	0.71	0.71		0.10	0.20		0.10	0.20
v/c Ratio	0.09	0.82		0.26	0.39	0.01		0.50	0.39		0.17	0.15
Control Delay	1.4	9.1		10.1	5.9	0.0		52.3	24.6		40.5	9.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	1.4	9.1		10.1	5.9	0.0		52.3	24.6		40.5	9.2
LOS	A	A		B	A	A		D	C		D	A
Approach Delay		8.9			6.1			33.6			18.5	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)	2	516		5	83	0		35	45		12	0
Queue Length 95th (ft)	m3	120		m27	121	m0		70	86		22	10
Internal Link Dist (ft)		902			1216			615			215	
Turn Bay Length (ft)	75			75		75						
Base Capacity (vph)	486	2368		230	2511	1152		135	367		137	383
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.08	0.82		0.23	0.39	0.01		0.47	0.36		0.16	0.14

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 9.7

Intersection LOS: A

Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Peterson Road & Kingston Pike

 Ø1	 Ø2 (R)	 Ø4
13 s	62 s	15 s
 Ø5	 Ø6 (R)	 Ø8
13 s	62 s	15 s

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Background PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	1225	74	90	1470	15	55	7	61	19	13	142
Future Volume (vph)	67	1225	74	90	1470	15	55	7	61	19	13	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			0%			-2%	
Storage Length (ft)	75		0	75		75	60		0	0		0
Storage Lanes	1		0	1		1	1		1	0		1
Taper Length (ft)	30			40			40			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.957			0.971	
Satd. Flow (prot)	1761	3490	0	1761	3522	1575	0	1783	1583	0	1827	1599
Flt Permitted	0.068			0.117				0.710			0.773	
Satd. Flow (perm)	126	3490	0	217	3522	1575	0	1323	1583	0	1454	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				103			49			36
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		982			1296			695			295	
Travel Time (s)		14.9			19.6			19.0			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.83	0.83	0.83	0.58	0.58	0.58
Adj. Flow (vph)	79	1441	87	111	1815	19	66	8	73	33	22	245
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	1528	0	111	1815	19	0	74	73	0	55	245
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			4	1		8	5
Permitted Phases	2			6		6	4		4	8		8
Detector Phase	5	2		1	6	6	4	4	1	8	8	5
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	6.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	14.0	62.0		13.0	61.0	61.0	15.0	15.0	13.0	15.0	15.0	14.0
Total Split (%)	15.6%	68.9%		14.4%	67.8%	67.8%	16.7%	16.7%	14.4%	16.7%	16.7%	15.6%
Maximum Green (s)	8.5	56.0		7.5	55.0	55.0	9.0	9.0	7.5	9.0	9.0	8.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	5.5		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	2.5	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Background PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	68.5	60.1		65.6	58.6	58.6		8.7	18.4		8.7	19.9
Actuated g/C Ratio	0.76	0.67		0.73	0.65	0.65		0.10	0.20		0.10	0.22
v/c Ratio	0.33	0.65		0.41	0.79	0.02		0.58	0.20		0.39	0.64
Control Delay	13.6	6.7		9.0	13.8	0.0		57.8	13.7		46.8	34.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	13.6	6.7		9.0	13.8	0.0		57.8	13.7		46.8	34.4
LOS	B	A		A	B	A		E	B		D	C
Approach Delay		7.1			13.4			35.9			36.6	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	5	184		11	264	0		41	11		30	104
Queue Length 95th (ft)	m33	m104		m34	335	m0		#80	38		42	98
Internal Link Dist (ft)		902			1216			615			215	
Turn Bay Length (ft)	75			75		75						
Base Capacity (vph)	255	2333		289	2294	1061		132	379		145	394
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.31	0.65		0.38	0.79	0.02		0.56	0.19		0.38	0.62

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 13.4

Intersection LOS: B

Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Peterson Road & Kingston Pike

 Ø1	 Ø2 (R)	 Ø4
13 s	62 s	15 s
 Ø5	 Ø6 (R)	 Ø8
14 s	61 s	15 s

HCS7 Two-Way Stop-Control Report

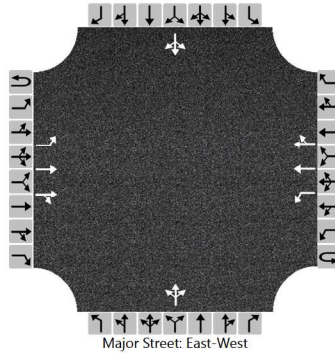
General Information

Analyst	Wesley Stokes
Agency/Co.	Cannon & Cannon, Inc.
Date Performed	05/05/2021
Analysis Year	2022
Time Analyzed	Background AM
Intersection Orientation	East-West
Project Description	Background

Site Information

Intersection	Kingston and Boring
Jurisdiction	Farragut
East/West Street	Kingston Pike
North/South Street	Boring Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	1	1754	0	0	4	777	5		0	0	1		7	0	1
Percent Heavy Vehicles (%)	0	0			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Left Only								3							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

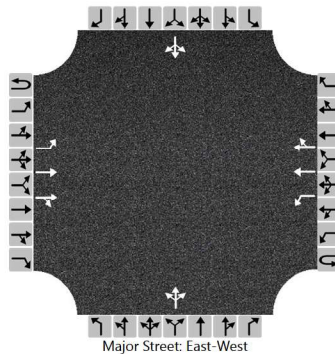
Flow Rate, v (veh/h)		1				4					1				9	
Capacity, c (veh/h)		797				316					263				244	
v/c Ratio		0.00				0.01					0.00				0.04	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.0				0.1	
Control Delay (s/veh)		9.5				16.6					18.7				20.3	
Level of Service (LOS)		A				C					C				C	
Approach Delay (s/veh)	0.0				0.1				18.7				20.3			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Kingston and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Kingston Pike
Analysis Year	2022	North/South Street	Boring Road
Time Analyzed	Background PM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Background		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	1	1246	0	0	0	1726	10		2	0	4		3	0	0
Percent Heavy Vehicles (%)	0	0			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Left Only								3							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

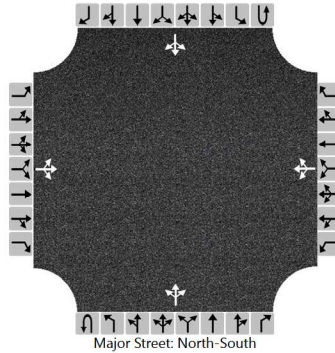
Flow Rate, v (veh/h)		1				0					7				3	
Capacity, c (veh/h)		321				515					251				72	
v/c Ratio		0.00				0.00					0.03				0.05	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.1				0.1	
Control Delay (s/veh)		16.2				12.0					19.7				57.1	
Level of Service (LOS)		C				B					C				F	
Approach Delay (s/veh)	0.0				0.0				19.7				57.1			
Approach LOS									C				F			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Smith and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	10/9/2019	East/West Street	Boring Road
Analysis Year	2022	North/South Street	Smith Road
Time Analyzed	Combined AM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Combined		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	0	1		7	0	14		1	447	1		8	347	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.23		

Delay, Queue Length, and Level of Service

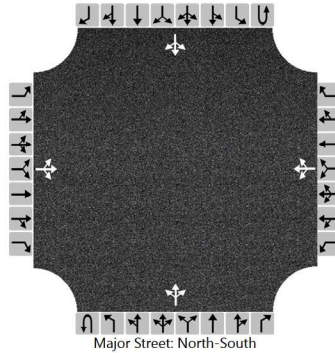
Flow Rate, v (veh/h)			4				23			1				9		
Capacity, c (veh/h)			303				418			1174				1070		
v/c Ratio			0.01				0.05			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.0				0.2			0.0				0.0		
Control Delay (s/veh)			17.0				14.1			8.1				8.4		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	17.0				14.1				0.0				0.3			
Approach LOS	C				B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Smith and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Boring Road
Analysis Year	2022	North/South Street	Smith Road
Time Analyzed	Combined PM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Combined		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	0	5		4	0	26		3	307	4		14	464	3
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			8				33			3				15		
Capacity, c (veh/h)			417				579			1051				1214		
v/c Ratio			0.02				0.06			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.1				0.2			0.0				0.0		
Control Delay (s/veh)			13.8				11.6			8.4				8.0		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.8				11.6				0.1				0.4			
Approach LOS	B				B											

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Combined AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	342	1436	17	6	731	118	11	5	7	185	2	166
Future Volume (vph)	342	1436	17	6	731	118	11	5	7	185	2	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			-8%	
Storage Length (ft)	195		0	100		100	0		15	0		210
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	100			75			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.966			0.953	
Satd. Flow (prot)	1752	3497	0	1787	3575	1599	0	1817	1599	0	1846	1647
Flt Permitted	0.144			0.105				0.769			0.717	
Satd. Flow (perm)	266	3497	0	198	3575	1599	0	1447	1599	0	1389	1647
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				170			170			36
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2110			982			174			2504	
Travel Time (s)		32.0			14.9			4.7			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	380	1596	19	8	1015	164	12	5	8	231	3	208
Shared Lane Traffic (%)												
Lane Group Flow (vph)	380	1615	0	8	1015	164	0	17	8	0	234	208
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.95	0.95
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	1	6		5	2			4			8	1
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	4	4	4	8	8	1
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	8.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0	13.0
Total Split (s)	23.0	51.0		13.0	41.0	41.0	26.0	26.0	26.0	26.0	26.0	23.0
Total Split (%)	25.6%	56.7%		14.4%	45.6%	45.6%	28.9%	28.9%	28.9%	28.9%	28.9%	25.6%
Maximum Green (s)	17.5	45.0		7.5	35.0	35.0	20.0	20.0	20.0	20.0	20.0	17.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	6.0		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Combined AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	60.3	57.5		44.7	38.2	38.2		18.2	18.2		18.2	40.3
Actuated g/C Ratio	0.67	0.64		0.50	0.42	0.42		0.20	0.20		0.20	0.45
v/c Ratio	0.86	0.72		0.04	0.67	0.21		0.06	0.02		0.84	0.27
Control Delay	40.7	9.2		8.0	28.0	7.3		28.4	0.0		59.7	13.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	40.7	9.2		8.0	28.0	7.3		28.4	0.0		59.7	13.0
LOS	D	A		A	C	A		C	A		E	B
Approach Delay		15.2			25.0			19.3			37.7	
Approach LOS		B			C			B			D	
Queue Length 50th (ft)	114	133		2	273	20		8	0		125	54
Queue Length 95th (ft)	#290	#342		m5	184	24		25	0		#184	83
Internal Link Dist (ft)		2030			902			94			2424	
Turn Bay Length (ft)	195			100		100			15			210
Base Capacity (vph)	466	2234		234	1515	775		321	487		308	782
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.82	0.72		0.03	0.67	0.21		0.05	0.02		0.76	0.27

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 53 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 21.1

Intersection LOS: C

Intersection Capacity Utilization 76.8%

ICU Level of Service D

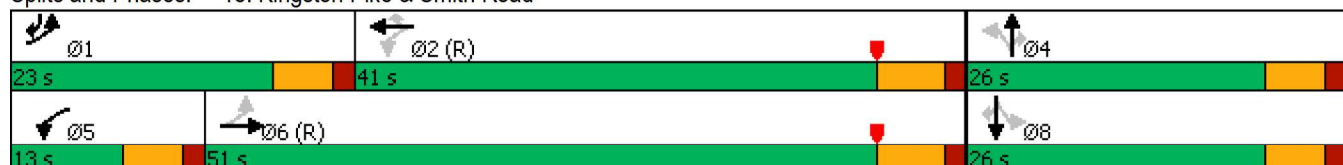
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Kingston Pike & Smith Road



Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Combined PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	1113	20	19	1441	141	32	5	12	213	14	354
Future Volume (vph)	241	1113	20	19	1441	141	32	5	12	213	14	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			-8%	
Storage Length (ft)	195		0	100		100	0		15	0		210
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	100			75			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.958			0.955	
Satd. Flow (prot)	1752	3493	0	1787	3575	1599	0	1802	1599	0	1850	1647
Flt Permitted	0.076			0.184				0.370			0.710	
Satd. Flow (perm)	140	3493	0	346	3575	1599	0	696	1599	0	1375	1647
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				103			103			36
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2110			982			174			2504	
Travel Time (s)		32.0			14.9			4.7			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	268	1237	22	26	2001	196	35	5	13	266	18	443
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	1259	0	26	2001	196	0	40	13	0	284	443
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.95	0.95
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	1	6		5	2			4			8	1
Permitted Phases	6			2		2	4		4	8		8
Detector Phase	1	6		5	2	2	4	4	4	8	8	1
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	8.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0	13.0
Total Split (s)	15.0	55.0		13.0	53.0	53.0	22.0	22.0	22.0	22.0	22.0	15.0
Total Split (%)	16.7%	61.1%		14.4%	58.9%	58.9%	24.4%	24.4%	24.4%	24.4%	24.4%	16.7%
Maximum Green (s)	9.5	49.0		7.5	47.0	47.0	16.0	16.0	16.0	16.0	16.0	9.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	6.0		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
18: Kingston Pike & Smith Road

Combined PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	61.7	57.4		53.5	47.0	47.0		16.0	16.0		16.0	31.5
Actuated g/C Ratio	0.69	0.64		0.59	0.52	0.52		0.18	0.18		0.18	0.35
v/c Ratio	1.01	0.56		0.09	1.07	0.22		0.33	0.04		1.16	0.74
Control Delay	82.7	5.5		6.9	62.6	8.0		40.6	0.2		145.0	32.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	82.7	5.5		6.9	62.6	8.0		40.6	0.2		145.0	32.3
LOS	F	A		A	E	A		D	A		F	C
Approach Delay		19.0			57.1			30.7			76.3	
Approach LOS		B			E			C			E	
Queue Length 50th (ft)	~118	85		5	~660	25		20	0		~193	201
Queue Length 95th (ft)	m#258	123		m8	348	42		52	0		#293	263
Internal Link Dist (ft)		2030			902			94			2424	
Turn Bay Length (ft)	195			100		100			15			210
Base Capacity (vph)	266	2229		331	1866	884		123	368		244	599
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	1.01	0.56		0.08	1.07	0.22		0.33	0.04		1.16	0.74

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 53 (59%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 47.0

Intersection LOS: D

Intersection Capacity Utilization 87.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Kingston Pike & Smith Road



Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Combined AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1627	27	42	797	16	49	4	110	24	3	47
Future Volume (vph)	44	1627	27	42	797	16	49	4	110	24	3	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			0%			-2%	
Storage Length (ft)	75		0	75		75	60		0	0		0
Storage Lanes	1		0	1		1	1		1	0		1
Taper Length (ft)	30			40			40			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.956			0.957	
Satd. Flow (prot)	1761	3514	0	1761	3522	1575	0	1781	1583	0	1800	1599
Flt Permitted	0.268			0.066				0.709			0.704	
Satd. Flow (perm)	497	3514	0	122	3522	1575	0	1321	1583	0	1324	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				103			36			81
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		982			1296			695			295	
Travel Time (s)		14.9			19.6			19.0			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.83	0.83	0.83	0.58	0.58	0.58
Adj. Flow (vph)	52	1914	32	52	984	20	59	5	133	41	5	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1946	0	52	984	20	0	64	133	0	46	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			4	1		8	5
Permitted Phases	2			6		6	4		4	8		8
Detector Phase	5	2		1	6	6	4	4	1	8	8	5
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	6.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	13.0	62.0		13.0	62.0	62.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (%)	14.4%	68.9%		14.4%	68.9%	68.9%	16.7%	16.7%	14.4%	16.7%	16.7%	14.4%
Maximum Green (s)	7.5	56.0		7.5	56.0	56.0	9.0	9.0	7.5	9.0	9.0	7.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	5.5		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	2.5	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Combined AM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	67.2	60.6		68.3	64.1	64.1		8.6	17.9		8.6	17.9
Actuated g/C Ratio	0.75	0.67		0.76	0.71	0.71		0.10	0.20		0.10	0.20
v/c Ratio	0.11	0.82		0.26	0.39	0.02		0.51	0.39		0.37	0.21
Control Delay	1.5	9.1		10.0	6.0	0.1		53.2	24.6		46.7	8.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	1.5	9.1		10.0	6.0	0.1		53.2	24.6		46.7	8.2
LOS	A	A		B	A	A		D	C		D	A
Approach Delay		8.9			6.1			33.9			22.1	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	2	518		5	83	0		35	45		25	0
Queue Length 95th (ft)	m4	122		m27	122	m0		70	86		37	9
Internal Link Dist (ft)		902			1216			615			215	
Turn Bay Length (ft)	75			75		75						
Base Capacity (vph)	484	2368		230	2510	1152		132	367		132	406
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.11	0.82		0.23	0.39	0.02		0.48	0.36		0.35	0.20

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 10.0

Intersection LOS: A

Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Peterson Road & Kingston Pike

 Ø1	 Ø2 (R)	 Ø4
13 s	62 s	15 s
 Ø5	 Ø6 (R)	 Ø8
13 s	62 s	15 s

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Combined PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	1227	74	90	1472	25	55	7	61	32	13	153
Future Volume (vph)	78	1227	74	90	1472	25	55	7	61	32	13	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			0%			-2%	
Storage Length (ft)	75		0	75		75	60		0	0		0
Storage Lanes	1		0	1		1	1		1	0		1
Taper Length (ft)	30			40			40			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.957			0.966	
Satd. Flow (prot)	1761	3490	0	1761	3522	1575	0	1783	1583	0	1817	1599
Flt Permitted	0.068			0.117				0.695			0.741	
Satd. Flow (perm)	126	3490	0	217	3522	1575	0	1295	1583	0	1394	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				103			48			36
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		982			1296			695			295	
Travel Time (s)		14.9			19.6			19.0			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.83	0.83	0.83	0.58	0.58	0.58
Adj. Flow (vph)	92	1444	87	111	1817	31	66	8	73	55	22	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	1531	0	111	1817	31	0	74	73	0	77	264
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			4	1		8	5
Permitted Phases	2			6		6	4		4	8		8
Detector Phase	5	2		1	6	6	4	4	1	8	8	5
Switch Phase												
Minimum Initial (s)	6.0	15.0		6.0	15.0	15.0	8.0	8.0	6.0	8.0	8.0	6.0
Minimum Split (s)	13.0	22.0		13.0	22.0	22.0	15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	14.0	62.0		13.0	61.0	61.0	15.0	15.0	13.0	15.0	15.0	14.0
Total Split (%)	15.6%	68.9%		14.4%	67.8%	67.8%	16.7%	16.7%	14.4%	16.7%	16.7%	15.6%
Maximum Green (s)	8.5	56.0		7.5	55.0	55.0	9.0	9.0	7.5	9.0	9.0	8.5
Yellow Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	6.0		5.5	6.0	6.0		6.0	5.5		6.0	5.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	3.0	3.0	2.5	3.0	3.0	2.5
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None

Lanes, Volumes, Timings
17: Peterson Road & Kingston Pike

Combined PM
05/05/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	68.8	60.0		65.3	58.3	58.3		8.7	18.5		8.7	20.2
Actuated g/C Ratio	0.76	0.67		0.73	0.65	0.65		0.10	0.21		0.10	0.22
v/c Ratio	0.37	0.66		0.41	0.80	0.03		0.59	0.20		0.57	0.68
Control Delay	16.3	6.7		9.1	14.1	0.0		59.1	13.9		56.3	36.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	16.3	6.7		9.1	14.1	0.0		59.1	13.9		56.3	36.2
LOS	B	A		A	B	A		E	B		E	D
Approach Delay		7.2			13.6			36.6			40.7	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	5	186		12	284	0		41	11		42	114
Queue Length 95th (ft)	m43	m107		m34	336	m0		#84	39		54	106
Internal Link Dist (ft)		902			1216			615			215	
Turn Bay Length (ft)	75			75		75						
Base Capacity (vph)	258	2332		288	2279	1055		129	379		139	397
Starvation Cap Reductn	0	0		0	0	0		0	0		0	0
Spillback Cap Reductn	0	0		0	0	0		0	0		0	0
Storage Cap Reductn	0	0		0	0	0		0	0		0	0
Reduced v/c Ratio	0.36	0.66		0.39	0.80	0.03		0.57	0.19		0.55	0.66

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 71.4%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Peterson Road & Kingston Pike

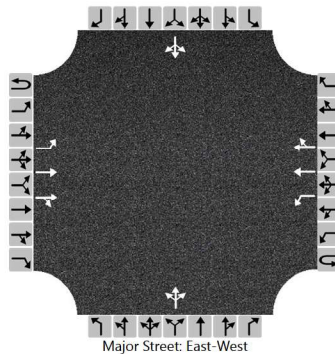
 Ø1	 Ø2 (R)	 Ø4
13 s	62 s	15 s
 Ø5	 Ø6 (R)	 Ø8
14 s	61 s	15 s

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Kingston and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Kingston Pike
Analysis Year	2022	North/South Street	Boring Road
Time Analyzed	Combined AM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Combined		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	2	1768	0	0	4	783	7		0	0	1		9	0	3
Percent Heavy Vehicles (%)	0	0			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Left Only								3							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

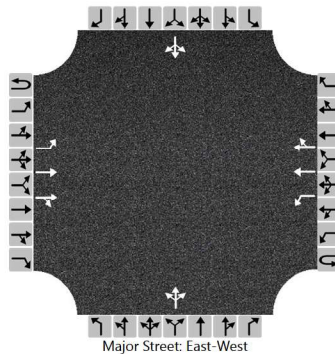
Flow Rate, v (veh/h)		2				4					1				13	
Capacity, c (veh/h)		791				312					260				262	
v/c Ratio		0.00				0.01					0.00				0.05	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.0				0.2	
Control Delay (s/veh)		9.6				16.7					18.9				19.4	
Level of Service (LOS)		A				C					C				C	
Approach Delay (s/veh)	0.0				0.1				18.9				19.4			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	Wesley Stokes	Intersection	Kingston and Boring
Agency/Co.	Cannon & Cannon, Inc.	Jurisdiction	Farragut
Date Performed	05/05/2021	East/West Street	Kingston Pike
Analysis Year	2022	North/South Street	Boring Road
Time Analyzed	Combined PM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Combined		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	3	1259	0	0	0	1736	14		2	0	4		5	0	2
Percent Heavy Vehicles (%)	0	0			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Left Only								3							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				0					7				8	
Capacity, c (veh/h)		317				508					246				90	
v/c Ratio		0.01				0.00					0.03				0.08	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.1				0.3	
Control Delay (s/veh)		16.5				12.1					20.0				48.8	
Level of Service (LOS)		C				B					C				E	
Approach Delay (s/veh)	0.0				0.0				20.0				48.8			
Approach LOS									C				E			