

SUBDIVISION REPORT -CONCEPT/USE ON REVIEW

FILE #: 12-SC-21-C	AGENDA ITEM #: 22
12-F-21-UR	AGENDA DATE: 12/9/202
SUBDIVISION:	VINING MILL
APPLICANT/DEVELOPER:	HOMESTEAD LAND HOLDINGS, LLC
OWNER(S):	Homestead Land Holdings LLC
TAX IDENTIFICATION:	129 126.01 (PART OF) View map on KGI
JURISDICTION:	County Commission District 6
STREET ADDRESS:	0 English Ivy Ln.
LOCATION:	Southeast of English Ivy Lane terminus, south of Hardin Valley Road
SECTOR PLAN:	Northwest County
GROWTH POLICY PLAN:	Rural Area
WATERSHED:	Conner Creek
APPROXIMATE ACREAGE:	4.54 acres
ZONING:	PR (Planned Residential)
EXISTING LAND USE:	Vacant land
PROPOSED USE:	Detached residential subdivision
SURROUNDING LAND USE AND ZONING:	North: Vacant land, single family residential PR (Planned Residential) South: Rural residential A (Agricultural) East: Single family residential, rural residential PR (Planned Residential), A (Agricultural) West: Rural residential, vacant land A (Agricultural), PR (Planned Residential)
NUMBER OF LOTS:	13
SURVEYOR/ENGINEER:	Russell N. Rackley, PE / Rackley Engineering
ACCESSIBILITY:	Access is via English Ivy Ln, a local street with 26ft of pavement width within 50ft of right-of-way.
SUBDIVISION VARIANCES REQUIRED:	VARIANCES See previous concept plan approval (5-SA-17-C) except for those related to Leatherback Road that was relocated as part of this application and Needlegrass Lane that was eliminated.
	ALTERNATIVE DESIGN STANDARDS REQUIRING PLANNING COMMISSION APPROVAL 1) Reduce centerline radius from 250' to 150' on Leatherback Road at STA 1+00.

STAFF RECOMMENDATION:

Approve the alternative design standard on the recommendations of the Knox County Department of Engineering and Public Works and because the site conditions restrict compliance with the Subdivision Regulations and will not create a traffic hazard.

Approve the Concept Plan subject to 7 conditions.

1. Connection to sanitary sewer and meeting any other relevant requirements of the utility provider.

2. Provision of street names that are consistent with the Uniform Street Naming and Addressing System within Knox County (Ord. 91-1-102).

3. Providing a minimum 200 ft sight distance (line of sight) easement on the Leatherback Drive frontage of Lot 110. The driveway for this lot shall be restricted to the Velvet Leaf Lane frontage or located outside of the sight distance easement with the driveway location shown on the final plat.

4. Providing a temporary turnaround at the terminus of Leatherback Drive if the connecting road within the proposed Catatoga subdivision is not complete and installing notification of future street connection at the terminus of Leatherback Drive as required by Section 3.04.C.2.d. of the Knoxville-Knox County Subdivision Regulations. The design of the temporary turnaround shall be determined during the design plan phase.

5. Meeting all applicable requirements of the Knox County Department of Engineering and Public Works.

6. Certifying that the required sight distance can be obtained at the Leatherback Drive intersection with Velvet Leaf Lane looking to the southeast during the design plan phase with review and approval by Knox County Engineering and Public Works.

7. Submitting to Planning staff prior to final plat review by the Planning Commission or Planning staff, the certification of design plan approval form as required by the Knoxville-Knox County Subdivision Regulations.

Approve the development plan for the 13 new (177 total) detached dwellings on individual lots and the reduction of the peripheral setback for Lots 108 and 109 from 35 ft to 15 ft, subject to 1 condition.

1. Meeting all applicable requirements of the Knox County Zoning Ordinance.

With the conditions noted, this plan meets the requirements for approval in the PR (Planned Residential) district and the criteria for approval of a use on review.

COMMENTS:

VARIANCES

There were 16 variances approved with the 2017 concept plan (5-SA-17-C), however, only 6 of them are still applicable because either the road profiles were modified during the design plan phase so that the variance was no longer required or they are associated with roads being eliminated as part of this revised concept plan.

ALTERNATIVE DESIGN STANDARD REQUIRING PLANNING COMMISSION APPROVAL

1. Reduce the minimum centerline radius from 250 ft to 150 ft on Leatherback Road at STA 1+00.

a) Article 4 (Alternative Design Standards), Section 4.01 (Hillside and Ridgetop Protection Area Development Standards) of the Subdivision Regulations allows the Planning Commission to reduce the minimum horizontal curve on local streets to 105 ft in the HP (Hillside Protection) area when the road design is consistent with AASHTO (American Association of State Highway and Transportation Officials) standards for a 25 MPH design speed. The road design plans must be approved by Knox County Engineering and Public Works during the design plan phase.

b) A sight distance easement must be provided across the lot on the inside of the curve to ensure that objects or plantings do not get installed that will restrict visibility.

ALTERNATIVE DESIGN STANDARD REQUIRING KNOX COUNTY ENGINEERING AND PUBLIC WORKS APPROVAL

1. Increase the maximum intersection grade from 1% to 2% on Leatherback Road at the Velvet Leaf Lane intersection.

a) The Subdivision Regulations allow Knox County Engineering and Public Works to approve an intersection grade up to 3% when a pedestrian crossing is not proposed. The Knox County sidewalk ordinance does not require a sidewalk on the new internal streets and the developer is not proposing a private sidewalk network in this portion of the subdivision.

This proposal is a revision to the previously approved Vining Mill subdivision which is currently under

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construction. The revisions include removing 8.3 acres of land area, 15 lots, and two roads (including a secondary access point to Marietta Church Road, and creating one new road and new secondary access to N. Campbell Station Road through the previously approved Catatoga subdivision to the east (5-SB-21-C) which has not yet started construction. The overall density of the development drops slightly from 1.64 du/ac to 1.63 du/ac.

The new road (Leatherback Drive) is in the southeast portion of the property off of Velvet Leaf Lane (not yet constructed). A variance was previously approved (5-SB-21-C) for Velvet Leaf Lane to reduce the crest vertical curve (k value) near its terminus which makes the road have a sharper curve at its crest. This was approved before Leatherback Drive was proposed which now introduces a new intersection sight distance requirement with a minimum of 250 ft. The crest of Velvet Leaf Lane may need to be lowered in elevation (k value increased) slightly to obtain the minimum sight distance from the Leatherback Drive intersection. There are only 6 house lots south of the Leatherback Drive intersection and Velvet Leaf Lane is a dead-end street so there will be minimal traffic traveling northwest. The sight distance will be verified during the design plan phase.

The applicant's traffic engineer submitted a transportation impact letter (TIL) to evaluate whether the recommendations of the transportation impact studies for the two subdivisions are still valid and/or new road improvements are necessary because of the removal of the access to Marietta Church Road and the internal connection between the two subdivisions. The results of the study are that the previously recommended/required turn lanes on Hardin Valley Drive and N. Campbell Station Road are adequate and no additional improvements are recommended. The study also looked at whether the internal connection between the subdivisions than taking N. Campbell Station Road and Hardin Valley Drive between the two subdivision entrances. This does not take into account other things that may slow traffic through the subdivisions like vehicles parked on the street and pedestrians.

Staff is recommending approval of the peripheral setback reduction on Lots 108 and 109 because this setback will appear to be a side yard setback when Leatherback Drive extends into the adjacent Catatoga subdivision and there could be lots that continue along that road. This will allow for a more seamless design at the border of the two neighborhoods if this is desired.

DEVELOPMENT STANDARDS FOR USES PERMITTED ON REVIEW (ARTICLE 4.10 - SECTION 2)

The planning commission, in the exercise of its administrative judgment, shall be guided by adopted plans and policies, including the general plan and the following general standards:

1) THE PROPOSED USE IS CONSISTENT WITH THE ADOPTED PLANS AND POLICIES, INCLUDING THE GENERAL PLAN AND SECTOR PLAN.

A. The Northwest County Sector Plan recommends LDR (Low Density Residential) and HP (Hillside Protection) for the site. The LDR portion of the property allows up to 5 du/ac.

B. The property is in the Rural area on the Knoxville-Knox County-Farragut Growth Policy Plan map which allows consideration of up to 3 du/ac.

C. The average density of the subdivision is 1.63 du/ac and the overall disturbance within the HP area will be less than previously approved because of the elimination of the road connection to Marietta Church Road and the associated grading required.

2) THE USE IS IN HARMONY WITH THE GENERAL PURPOSE AND INTENT OF THE ZONING ORDINANCE.

A. The PR (Planned Residential) zone is intended to provide optional methods of land development which encourage more imaginative solutions to environmental design problems. Residential areas thus established would be characterized by a unified building and site development program, open space for recreation and provision for commercial, religious, educational, and cultural facilities which are integrated with the total project by unified architectural and open space treatment. Each planned unit development shall be compatible with the surrounding or adjacent zones. Such compatibility shall be determined by the planning commission by review of the development plans.

B. The property is zoned PR up to 2 du/ac and the proposed density is 1.63 du/ac.

C. With the elimination of the road connection to Marietta Church Road and creating new secondary access through the Catatoga subdivision, the land disturbance within the HP area will be reduced and a stream crossing will be eliminated.

 THE USE IS COMPATIBLE WITH THE CHARACTER OF THE NEIGHBORHOOD WHERE IT IS PROPOSED, AND WITH THE SIZE AND LOCATION OF BUILDINGS IN THE VICINITY.
 A. The area surrounding the Marietta Church Road and Hardin Valley Road intersection has seen several

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developments approved recently that are in various stages of development. The proposed detached residential lots are consistent with the type of development that has recently been approved in the Vining Mill subdivision and the surrounding area.

4) THE USE WILL NOT SIGNIFICANTLY INJURE THE VALUE OF ADJACENT PROPERTY. A. The proposed detached residential subdivision is compatible with the surrounding detached residential uses and will not significantly impact the value of the adjacent property.

5) THE USE WILL NOT DRAW ADDITIONAL TRAFFIC THROUGH RESIDENTIAL AREAS. A. The TIL studied the potential for cut-thru traffic if the Vining Mill and Catatoga subdivisions are connected internally and it was determined that there would be no advantage for vehicles to use the subdivision streets rather than use the external road system.

6) THE NATURE OF DEVELOPMENT IN THE SURROUNDING AREA IS NOT SUCH AS TO POSE A POTENTIAL HAZARD TO THE PROPOSED USE OR TO CREATE AN UNDESIRABLE ENVIRONMENT FOR THE PROPOSED USE.

A. There are no known uses in the area that could be a potential hazard or create an undesirable environment for the proposed use.

ESTIMATED TRAFFIC IMPACT: A traffic impact study was prepared by the applicant. The findings of that study were used in formulating the recommendations of this staff report.

ESTIMATED STUDENT YIELD: Not applicable.

Knoxville-Knox County Planning Commission's approval or denial of this concept plan request is final, unless the action is appealed to Knox County Chancery Court. The date of the Knox County Chancery Court hearing will depend on when the appeal application is filed.

Knoxville-Knox County Planning Commission's approval or denial of this use on review request is final, unless the action is appealed to the Knox County Board of Zoning Appeals. The date of the Knox County Board of Zoning Appeals hearing will depend on when the appeal application is filed.













Revised Transportation Impact Letter Vining Mill and Catatoga Subdivision Proposed Road Connection Knox County, Tennessee

Prepared For:

Rackley Engineering P.O. Box 30456 Knoxville, TN 37930

Prepared By:



Ajax Engineering, LLC 11812 Black Road Knoxville, TN 37932 Robert W. Jacks, PE 12-SC-21-C / 12-F-21-UR TIS Version 3 12/1/2021



November 2021

OVERVIEW OF RESULTS

The following is an overview of the results of constructing a proposed Vining Mill and Catatoga Subdivision internal road connection based on the updated projected 2026 conditions:

- The overall total generated trips for the subdivisions were recalculated based on the updated number of proposed houses. It was determined that the subdivisions overall would produce a reduced number of vehicle trips compared to the original studies. This calculated reduction is due to the decrease in houses in the Vining Mill Subdivision and using the recently updated equations provided in the <u>Trip</u> <u>Generation Manual, 11th Edition</u> from ITE.
- It was determined that the LOS results and capacity of the subdivision entrances will be adequate with the updated 2026 projected traffic volumes.
- The previous studies for the Vining Mill and Catatoga Subdivisions determined that exclusive entering turn lanes were warranted. The updated calculations confirmed that the original turn lane recommendations are still valid and determined that the originally recommended turn lane storage lengths are also adequate.

The developers of the subdivisions are not planning on connecting the two developments until late into the construction. The two subdivisions will be connected with a road connector in the last phase as the construction proceeds from the entrances to the rear of each development.

The Vining Mill Subdivision development has already constructed the appropriate westbound left-turn lane at the entrance on Hardin Valley Road, and Catatoga Subdivision has yet to begin construction. Assuming that the two subdivisions will not be connected until the last phase and assuming linear home construction growth in Catatoga Subdivision, it is estimated that the southbound right-turn lane on North Campbell Station Road at the entrance will be warranted by the time the 126th home is constructed in the Catatoga Subdivision. The northbound left-turn lane on North Campbell Station Road at the entrance will be warranted when the 138th home is constructed in Catatoga Subdivision. This result was determined



by iteration, and the spreadsheet for this calculation is included in the Appendix.

• The construction of an internal road connection between the subdivisions is not expected to attract any cut-thru traffic by outside motorists between North Campbell Station Road and Hardin Valley Road. The revised site plans have been specifically modified with t-intersections to create internal vehicle stops and increase travel time through the subdivisions.

Using Google Maps, it can be shown that during normal road conditions, it currently takes a motorist 4 minutes to go 2.4 miles from the entrance of Vining Mill Subdivision to the proposed Catatoga Subdivision entrance and vice versa. (It takes 6 minutes and 3.5 miles via Marietta Church Road.)



Based on the revised site plans shown in Figure 2 with a road connection, the total length of the internal roads from the Vining Mill entrance to the Catatoga entrance will be 1.73 miles. Thus, a motorist traveling southeast from the Vining Mill Subdivision entrance to the Catatoga Subdivision entrance (and vice versa) could save 0.67 miles of travel (2.4 - 1.73 = 0.67 miles) by cutting through the subdivisions in the future.



However, taking into account travel time, a motorist would lose the overall travel savings by cutting through the subdivisions. The posted speed limit in the subdivisions will be set at 25 mph. Assuming a vehicle could travel through the subdivisions at 30 mph results in an overall internal travel time of 3 minutes and 28 seconds. This time does not include the required vehicle stops at the t-intersections encountered along the internal route through the subdivisions.

The potential cut-thru route within the subdivisions would include two internal vehicle stops (Stop Signs at t-intersections) in either direction. Assuming a moderate vehicle deceleration and acceleration rate of 10 ft/s² with a vehicle speed of 30 mph would add 8.8 seconds to the travel time per stop. Two vehicle stops result in an extra 17.6 seconds, increasing the overall travel time to 3 minutes and 45.6 seconds (3 minutes, 28 seconds + 17.6 seconds = 3 minutes, 45.6 seconds). However, this does not include the additional travel time due to the vehicle delays experienced exiting either at the Vining Mill Subdivision entrance or the Catatoga Subdivision entrance.





As shown in Table 2, the 2026 projected average vehicle delay for northbound leftturns at the Vining Mill Subdivision entrance is 31.7 seconds in the AM peak hour and 18.8 seconds in the PM peak hour. The delay for eastbound right-turns at the Catatoga Subdivision entrance is 18.3 seconds in the AM peak hour and 27.1 seconds in the PM peak hour. Even if an exiting vehicle delay is assumed to be only 15 seconds at the entrances, the overall cut-thru travel time will increase above 4 minutes. This travel time can already be achieved otherwise by driving on Hardin Valley Road and North Campbell Station Road and not cutting thru the subdivisions.

Thus, even after assuming ideal road conditions (30 mph internal vehicle speeds and minimal exiting delays at the entrances), a cut-thru maneuver would not make sense for outside motorists attempting to save travel time, which is the prime goal of cut-thru traffic. Furthermore, the above ideal cut-thru travel time calculation does not consider other impediments that could reduce the potential attractiveness of cut-thru traffic. These impediments include increased travel time due to onstreet parking, residents entering and exiting driveways, and pedestrian activity.





DEVELOPMENT REQUEST

DEVELOPMENT

- Development Plan
- Planned Development
- ☑ Use on Review / Special Use

SUBDIVISION

Concept Plan

□ Final Plat

Plan Amendment

□ Rezoning

ZONING

Homestead Land Holdings, LLC

Applicant Name		Affiliation	
October 25, 2021	Dec 9, 2021	12-SC-21-C / 12-F-21-UR	
Date Filed	Meeting Date (if applicable)	File Numbers(s)	

CORRESPONDENCE

All correspondence related to this application should be directed to the approved contact listed below.

🗌 Applicant 🗌	Owner	Option Holder	Project Surveyor	📕 Engineer	Architect/Landsca	ape Architect
Russell N. Rack	ley, PE			Rackely Eng	gineering	
Name				Company		
PO Box 30456				Knoxville	TN	37930
Address				City	State	Zip
865-850-1535		Rr	Rnrackley@rackleyengineering.com			
Phone		Em	ail			

CURRENT PROPERTY INFO

Homestead Land Holdings, LLC	122 Perime	122 Perimeter Park Dr, Knoxville, TN 37922			
Owner Name (if different)	Owner Addre	SS	Owner Phone		
0 English Ivy Ln (part of)	Ln (part of) 129-126.01 (part of)		
Property Address		Parcel ID			
Rear phases of Vinning Mill suk	southeast of Ensemble Southeast of Ensemble South of Hardin	nglish Ivy Ln terminus, v Valley Rd	91 4.54 acres		
General Location			Tract Size		
6		PR<2			
Jurisdiction (specify district above)	🗎 City 🞽 County	Zoning District			
Northwest County	LDR & HP		RURAL		
Planning Sector	Sector Plan Land Use C	Classification	Growth Policy Plan Designation		
Vacant	No	WKUD	WKUD		
Existing Land Use	Septic (Y/N)	Sewer Provider	Water Provider		

REQUEST

DEVELOPMENT	 □ Development Plan	
	Vining Mill	3
SUBDIVISION	 Proposed Subdivision Name Parcel Change Combine Parcels Divide Parcel Total Number of Lots Created: Other (specify): Attachments / Additional Requirements 	Unit / Phase Number
ZONING	 Zoning Change: Proposed Zoning Plan Amendment Change: Proposed Plan Designation(s) 	
ZO	Proposed Density (units/acre) Previous Rezoning Requests Other (specify):	

	PLAT TYPE	FEE 1:	TOTAL:
⊾	Staff Review Planning Commission	0403	
ONLY	ATTACHMENTS	FEE 2:	\$900
	Property Owners / Option Holders Variance Request		
STAFF USE	ADDITIONAL REQUIREMENTS		
	Design Plan Certification (Final Plat only)	FEE 3:	
S	Use on Review / Special Use (Concept Plan only)		
	$oldsymbol{arphi}$ Traffic Impact Study (Revised TIS pending)		

AUTHORIZATION By signing below, I certify I am the property owner, applicant or the owners authorized representative.

Lunder Carly	Russell N. Rackley	10/25/21
Applicant Signature	Please Print	Date
865-850-1535	Rnrackley@rackleyengineering.com	
Phone Number	Email	
yelp)	Michael Reynolds 10)/26/21 swm
Staff Signature	Please Print	Date