

SUBDIVISION REPORT - CONCEPT/USE ON REVIEW

► FILE #: 10-SC-20-C AGENDA ITEM #: 32

10-D-20-UR AGENDA DATE: 10/8/2020

► SUBDIVISION: B & B BUILDERS - DRY GAP PIKE

► APPLICANT/DEVELOPER: B&B BUILDERS, INC.

OWNER(S): Jason Baker

TAX IDENTIFICATION: 47 241 View map on KGIS

JURISDICTION: County Commission District 7

STREET ADDRESS: 1611 Dry Gap Pk.

► LOCATION: Southwest side of Dry Gap Pk., north of Branch Field Ln.

SECTOR PLAN: North County

GROWTH POLICY PLAN: Planned Growth Area

WATERSHED: Beaver Creek

APPROXIMATE ACREAGE: 25.15 acres

ZONING: PR (Planned Residential)

EXISTING LAND USE: Vacant land

► PROPOSED USE: Attached residential subdivision

SURROUNDING LAND

North: Vacant / Single family residential / A (Agriculture), PR (Planned USE AND ZONING:

Residential), CA (General Business)

South: Single family residential / PR (Planned Residential)

East: Rural residential / Multifamily residential / A (Agriculture) / PR (Planned

Residential)

West: Single family residential / PR (Planned Residential)

► NUMBER OF LOTS: 93

SURVEYOR/ENGINEER: Batson, Himes, Norvell & Poe

ACCESSIBILITY: Access is via Dry Gap Pike, a minor collector with a pavement with of 51' -

33' within a right of way width of 86' - 100'.

SUBDIVISION VARIANCES

REQUIRED:

VARIANCES:

1) REDUCTION OF INTERSECTION SPACING ON POND GAP PIKE BETWEEN ROAD 'A' AND AUTUMN PATH LANE FROM 300 FEET TO

295.6 FEET.

2) REDUCTION OF THE MINIMUM CONNECTING VERTICAL CURVE K

VALUE ON ROAD 'A' AT STA 2+50, FROM 25 TO 15.

ALTERNATE DESIGN STANDARDS REQUIRING PLANNING

COMMISSION APPROVAL:

1) REDUCTION OF MINIMUM HORZONTAL CURVE RADIUS ON ROAD

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'B' AT STA 2+50 FROM 250' TO 230'
2) REDUCTION OF MINIMUM HORIZONTAL CURVE RADIUS ON ROAD
'B' AT STA 6+00 FROM 250' TO 200'

ALTERNATE DESIGN STANDARDS APPROVED BY KNOX COUNTY ENGINEERING AND PUBLIC WORKS:

- 1) INCREASE MINIMUM INTERSECTION GRADE AT ROAD 'A', STA 0+13 TO STA 2+50, FROM 1% TO 2%
- 2) INCREASE MINIMUM INTERSECTION GRADE AT ROAD 'B', STA 0+13 TO STA 2+25, FROM 1% TO 3%
- 3) INCREASE MINIMUM INTERSECTION GRADE AT ROAD 'C', STA 0+13 TO STA 1+00, FROM 1% TO 2%

STAFF RECOMMENDATION:

► APPROVE variance 1-2 and alternate design standard 1-2 based 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 the proposed variance will not create a traffic hazard.

APPROVE the Concept Plan subject to 11 conditions.

- 1. Connection to sanitary sewer and meeting any other relevant requirements of the utility provider.
- 2. Provision of street names which are consistent with the Uniform Street Naming and Addressing System within Knox County (Ord 91-1-102).
- 3. Installation of all sidewalks required by the Knox County sidewalk ordinance (Ord 19-12-101) or as otherwise required by Knox County Engineering and Public Works.
- 4. Providing an access easement, as shown on the Concept Plan, for the existing driveway on the adjacent property (parcel 047-24102) that crosses the subject property through the common area south of Road 'A' along Dry Gap Pike and lots 88-93.
- 5. Implementation of the road improvement recommendations outlined in the Dry gap Pike Subdivision Transportation Impact Study (TIS) prepared by Ajax Engineering (September 17, 2020), as revised, and reviewed and approved by Planning Commission staff and Knox County Engineering and Public Works (see Exhibit A). The design details of the road improvements shall be worked out with the Knox County Department of Engineering and Public Works during the design plan stage for the subdivision and the improvements shall be completed prior to certification of the final plat for recording.
- 6. Revising Road 'A' at the Dry Gap Pike intersection to work with the proposed profile and pavement edge of the pending Dry Gap Pike road widening project.
- 7. Revising the grade of Road 'A' at the Dry Gap Pike intersection to meet the crosswalk requirements of ADA and the Knox County Department of Engineering and Public Works.
- 8. Meeting all applicable requirements of the Knox County Department of Engineering and Public Works.
- 9. All closed contours/sinkholes and the 50' setback around the feature shall be shown on the final plat. Building construction within the 50' setback may be permitted if a geotechnical study prepared by a registered engineer states that building within the 50' sinkhole buffer is acceptable and the study is approved by the Knox County Department of Engineering and Public Works. The geotechnical study must be completed and submitted to Knox County Department of Engineering and Public Works prior to submission of the final plat for any lots that do not have a building area outside of the 50' setback area. A 5' drainage easement extending outside of the uppermost closed contour is required. Building construction is not permitted within the hatchered contour area of the sinkhole or the drainage easement. Engineered footings may be required for any structures within the 50' sinkhole buffer.
- 10. Prior to certification of the final plat for the subdivision, establishing a property owners association that will be responsible for the maintenance of the common areas and stormwater/drainage facilities.
- 11. Submitting the certification of design plan approval form to Planning Commission staff prior to final plat review by the Planning Commission or Planning staff, as required by the Knoxville-Knox County Subdivision Regulations (Section 2.08, Design Plan -- Major Subdivisions).
- ► APPROVE the development plan for up to 93 attached dwellings on individual lots, 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 zone and the other criteria for approval of a concept plan and use-on-review.

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COMMENTS:

The applicant is proposing to subdivide this 25.15-acre tract into 93 attached residential lots and common area at a density of 3.70 du/ac. This property was rezoned to PR at a density of up to 4 du/ac in January 2019 (12-E-18-RZ).

The Dry Gap Pike Transportation Impact Study (TIS) (Ajax Engineering, September 2020) recommends that a left turn lane and a right turn lane be installed on Dry Gap Pike at the Road 'A' intersection (see Exhibit A). The design of these turn lane improvements will be determined during design plan review by Knox County Engineering and Public Works (EPW) and must be installed before a final plat for the subdivision is certified for recording.

There is usable common open space located on the south side of Road 'A', adjacent to lot 93 and the stream buffer, and at the Road 'C' cul-de-sac. A walking trail connects the Road 'B' and Road 'C' cul-de-sacs, located within common open space.

The property has approximately 5 acres of hillside protection (HP) area along the southwest property line. The slopes within the HP area are moderate, with 2-acres being less than 15 percent and 2.62 acres 15-25 percent. The lots proposed in the HP area have more depth which will for less of this area to be disturbed.

EFFECT OF THE PROPOSAL ON THE SUBJECT PROPERTY, SURROUNDING PROPERTY AND THE COMMUNITY AS A WHOLE

- 1. The proposed residential subdivision will have minimal impact on local services since utilities are available to serve this site.
- 2. With the implementation of the road improvements outlined in the TIS, as required by Knox County Engineering and Public Works, the development should have minimal impact on the road system.
- 3. The proposed residential subdivision at a density of 3.70 du/ac, is consistent in use and density with the approved rezoning for the property (PR up to 4 du/ac).

CONFORMITY OF THE PROPOSAL TO CRITERIA ESTABLISHED BY THE KNOX COUNTY ZONING ORDINANCE

- 1. With the recommended conditions, the proposed subdivision is consistent with all relevant requirements of the PR zoning, as well as other criteria for approval of a use on review.
- 2. The development is consistent with the following general standards for uses permitted on review: The proposal is consistent with the adopted plans and policies of the General Plan and Sector Plan. The use in is harmony with the general purpose and intent of the Zoning Ordinance. The use will not significantly injure the value of adjacent property. The use will not draw additional traffic through residential areas.

CONFORMITY OF THE PROPOSAL TO ADOPTED PLANS

1. The North County Sector Plan designates this property for low density residential uses with a maximum density of 5 du/ac. The proposed subdivision at a density of 3.70 du/ac is consistent with the sector plan.

2. This site is located within the Planned Growth Area on the Knoxville-Knox County-Farragut Growth Policy Plan map.

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: 7 (public school children, grades K-12)

Schools affected by this proposal: Brickey-McCloud Elementary, Powell Middle, and Central High.

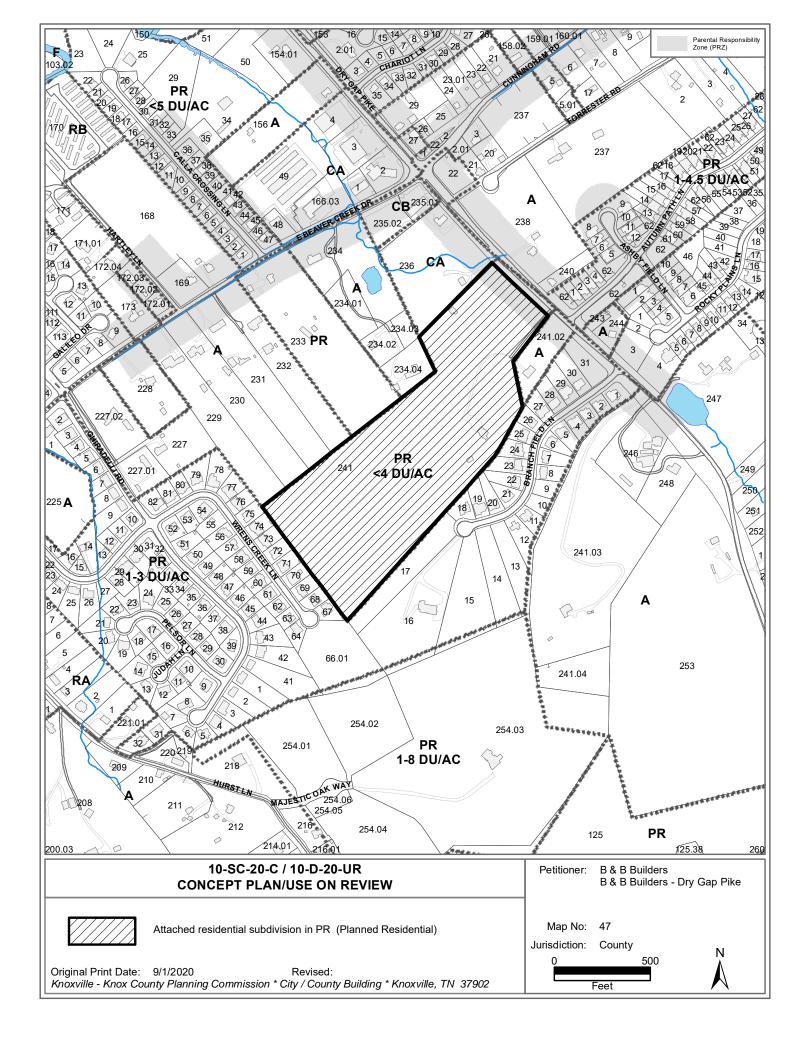
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- Potential new school population is estimated using locally-derived data on public school student yield generated by new housing.
- Students are assigned to schools based on current attendance zones as determined by Knox County Schools. Students may request transfers to different zones, and zone boundaries are subject to change.
- Estimates presume full build-out of the proposed development. Build-out is subject to market forces, and timing varies widely from proposal to proposal.
- Student yields from new development do not reflect a net addition of children in schools. Additions occur incrementally over the build-out period. New students may replace current population that ages through the system or moves from the attendance zone.

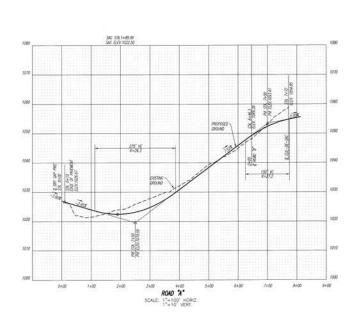
Knoxville-Knox County Planning Commission's approval or denial of this concept plan request is final, unless the action is appealed to Knox County Chancery Court. The date of the Knox County Chancery Court hearing will depend on when the appeal application is filed.

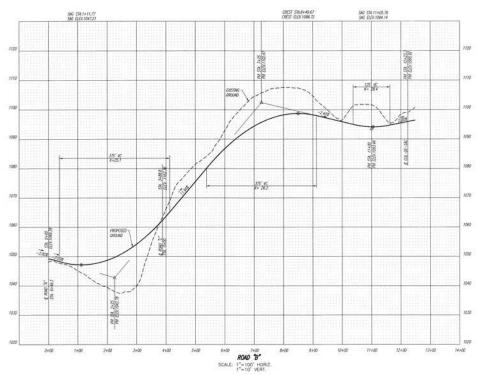
Knoxville-Knox County Planning Commission's approval or denial of this use on review request is final, unless the action is appealed to the Knox County Board of Zoning Appeals. The date of the Knox County Board of Zoning Appeals hearing will depend on when the appeal application is filed.

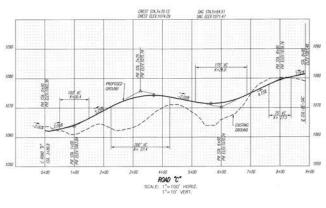
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Revised: 9/21/2020

OWNER/DEVELOPER

B & B BUILDERS INC C/O

JASON BAKER
PO. 60X 71235

PHONE 566) 607-3326

PAGE 566) 607-3326

REGISTERED ENGINEERS & LAND STRIPTIONS REGISTERED ENGINEERS & LAND STRIPTIONS SHOONALL, TIDMESSEE, 37900 PROJEC (665) 586-6472 FEX. (865) 586-6473 energi@hep-p.com		DBH									SCALE NOTED
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	CHECKE	DBH	T. NO.	9-21-20 DATE	PLANNING COMMISSION COMMENTS REVISION	APPR.	NO.	DATE	REVISION	APPR.	05/29/19

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CONCLUSIONS & RECOMMENDATIONS

The following is an overview of recommendations to minimize the traffic impacts of the proposed development on the adjacent road system while attempting to achieve an acceptable level of traffic flow and safety.



Dry Gap Pike at Road "A":

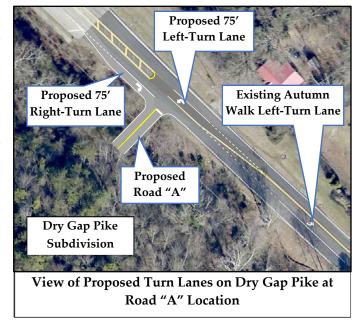
- 1a) The capacity calculation results shown in Table 5 indicate that northbound left-turns from a separate left-turn lane on Dry Gap Pike into the development at Road "A" should operate very well during the AM and PM peak periods in the year 2025. The level of service for exiting vehicles at Road "A" with a single lane will operate adequately but at a reduced level. For the AM and PM peak periods, eastbound exiting vehicles will operate at LOS C and D, respectively. These lower levels of service are directly related to large numbers of thru vehicles on Dry Gap Pike in the peak periods that conflict with these future exiting turning movements. However, it is possible the gaps in traffic on Dry Gap Pike due to the influence of the signalized intersection to the north at East Beaver Creek Drive/Cunningham Road may be more significant than can be modeled.
- 1b) As discussed earlier, it is recommended that the intersection of Dry Gap Pike at Road "A" have an exclusive southbound right-turn lane and northbound left-turn lane based on the projected 2025 AM and PM peak hour volumes. These lanes should be installed by 2025 or before the subdivision is completely constructed.

Typically, determining the length of a right-turn lane would be made by calculating the stopping sight distance based on the observed operating speed. Based on <u>A Policy on Geometric Design of Highway and Streets</u> by the American Association of Highway Transportation Officials (AASHTO), 325 feet is recommended for vehicles to decelerate and stop from a posted speed limit of 40-mph. However, this recommended length is based on vehicles coming to a complete stop, and the southbound right-turning vehicles coming off Dry Gap Pike onto Road "A" will not completely stop. A 75-foot right-turn length is a reasonable length consistent with the Autumn Walk Subdivision right-turn lane located across Dry Gap Pike. A recommended taper length of 120 feet (10:1) with 75 feet of storage is based on the available distance between the proposed subdivision entrance location and the adjacent property line to the north. The right-turn lane should



be marked with the appropriate right-turn pavement marking symbols.

The northbound left-turn lane is also recommended to be 75 feet in length, and the taper should match the existing taper provided for the left-turn lane for the Autumn Walk Subdivision. Due to horizontal space constraints, the proposed left-turn lane for the Dry Gap Pike Subdivision will need to be constructed back-to-back to the existing southbound left-turn Dry lane Gap Pike. on



Constructing a left-turn lane for the Dry Gap Pike Subdivision will also require Dry Gap Pike to be widened slightly since the existing center transverse pavement marking area is only approximately 8 feet in width at the proposed entrance location. The left-turn lane will require the appropriate pavement marking symbols and marked at the proper spacing.

1c) As part of the analysis of the proposed intersection northbound left-turn lane length, a calculation to estimate the vehicle queue length with the projected left-turn traffic volumes in the year 2025 was completed.

The previously mentioned Synchro Traffic Software includes SimTraffic. The Synchro portion of the software performs the macroscopic calculations for intersections, and SimTraffic performs micro-simulation and animation of vehicular traffic. SimTraffic (Version 8) software was utilized to estimate the required northbound left-turn storage lengths on Dry Gap Pike at Road "A".

Based on the software results from the projected northbound left-turn 2025 volumes, the 95th percentile vehicle queue distance was calculated. The 95th percentile vehicle queue is the recognized measurement in the traffic engineering profession as the design standard used when considering queue distances. A 95th percentile vehicle queue



means that there is a 95% certainty the vehicle queue will not extend beyond that point. The calculated vehicle queue results were based on averaging the outcome obtained during ten traffic simulations. The vehicle queue results from the SimTraffic software are in Appendix I. The 95th percentile queue for northbound left-turns on Dry Gap Pike at Road "A" was calculated to be 9 feet during the projected AM peak hour and 37 feet during the projected PM peak hour. Based on these results, the proposed storage length of 75 feet, which is the Knox County standard minimum length for left-turn storage lanes, is adequate.

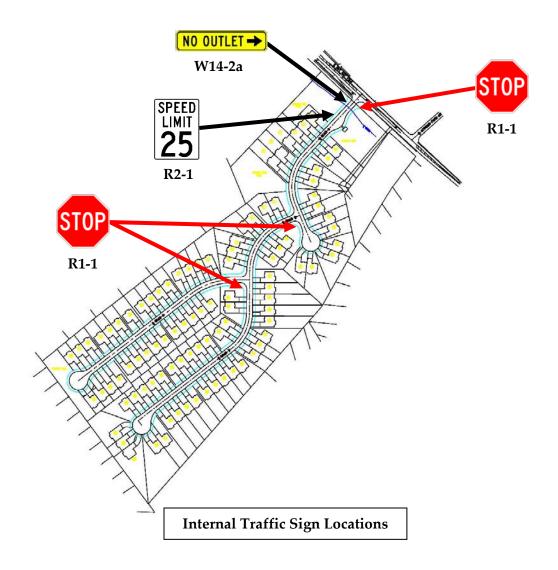
- 1d) Sight distance at the new proposed Road "A" at Dry Gap Pike intersection must not be impacted by new signage, future landscaping, or existing vegetation. The existing site is heavily forested and will need site clearing along the roadway to ensure sight distances are adequate. Based on a posted speed limit on Dry Gap Pike, the required Intersection Sight Distance (ISD) is 400 feet, and the Stopping Sight Distance (SSD) is 350 feet. These distances must be met to ensure safe operations.
- 1e) It is recommended that the Road "A" entrance approach at Dry Gap Pike be designed and constructed with a 24" white stop bar and a Stop Sign (R1-1). The stop bar should be applied at a minimum of 4 feet away from the edge of Dry Gap Pike and should be placed at the desired stopping point that provides the maximum sight distance.





<u>Dry Gap Pike Subdivision Internal Roads</u>: The current concept plan shows three new streets being constructed within the development, as shown in Figure 3.

- 2a) It is recommended that a "No Outlet" Sign (W14-2a) be posted near the front of the subdivision on Road "A". This sign can be posted below the street name sign. A 25-mph Speed Limit Sign (R2-1) should also be posted at the beginning of Road "A".
- 2b) Stop Signs (R1-1) with 24" white stop bars and other traffic signage should be installed at the locations, as shown below:





- 2c) Sight distance at the new internal intersections in the subdivision must not be impacted by new signage or future landscaping. For a posted speed limit of 25-mph in the subdivision, the intersection sight distance requirement is 250 feet. The stopping sight distance required is 155 feet for a level road grade. The road layout designer should ensure that these sight distance lengths are met, and they should be labeled on the plans.
- 2d) All drainage grates and covers for the residential development need to be pedestrian and bicycle-safe.
- 2e) Sidewalks are not shown on the concept plan. If the development does install internal sidewalks, they should have appropriate ADA compliant curbed ramps at intersection corners and are recommended to be 5 feet minimum in width. Furthermore, if provided, the internal sidewalk system should tie into the existing sidewalk located on the west side of Dry Gap Pike that currently terminates just to the north of the proposed subdivision entrance location.
- 2f) The United States Postal Service (USPS) has recently implemented changes to its guidelines for delivery in new residential subdivisions. If directed by the local post office, the designer should include an area within the development with a parking area for a centralized mail delivery center.



2g) All road grade and intersection elements, internally and externally, should be designed to AASHTO, TDOT, and Knox County specifications and guidelines to ensure proper operation.



Dry Gap Pike:

- 3a) The Knox County requirement for intersection spacing on a collector road is 300 feet. This requirement is met since the proposed Road "A" intersection location is just a couple feet short of 300 feet (~296 feet) from the existing Autumn Path Lane intersection.
- 3b) It is recommended that a 40-mph Speed Limit Sign (R2-1) be posted on Dry Gap Pike for southbound traffic just to the south of the signalized intersection at East Beaver Creek Drive/Cunningham Road. Based on Google Street View, several years ago, a 40-mph speed limit sign was posted on the road at this location. It has since been removed, and it is recommended to be reinstalled to notify motorists on the appropriate speed before traveling thru the area on Dry Gap Pike, where three residential subdivisions will be closely spaced together.





DEVELOPMENT REQUEST

	DEVELOT MENT REQUEST					
	DEVELOPMENT	SUBDIVISI	ON Z	ONING		
Planning	Development PlanPlanned DevelopmentUse on Review / Special U	☐ Final f	ept Plan E Plat E			
B&B BUILDERS INC. Applicant Name			Affiliation			
8/24/20	10 8 20	10-	50-20-0	c/10-D-20-1		
Date Filed	Meeting Date (if applicable) File Numbers(s)					
75-200 participants (see \$1000)	application should be directed to the a	72		na Architect		
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DAVID HARBIN Name		rsb n, HIMES, N ompany	ORVELL 4	POE		
4334 PAPERMILL DRIV	/E KNO	XVILLE	TN	37909		
Address	C	ity	State	Zip		
865 - 588 - 6472 Phone	harbın @ bhn-p.C Email	0 M				
CURRENT PROPERTY	INFO					
Jason Baker	IGH DRY GAP	PIKE				
Owner Name (if different)	Owner Address		Ov	vner Phone		
1611 DRY GAP PIKE		MAP 47 P	ARCEL 241			
Property Address		ParcelID				
SW. SIDE OF DRY GAP PI	KE, N. OF BRANCH FIELD		25.15 AC			
General Location	LANE		Tract Size			
74A EL		PR				
Jurisdiction (specify district above)	☐ City 🔀 County	Zoning Distric	t			
NORTH COUNTY	LOR		7, 200 8,600	ED GROWTH		
Planning Sector	Sector Plan Land Use Classific	cation	Growth Poli	Growth Policy Plan Designation		
VACANT	NIA	HPUD	HP	VD		
Existing Land Use	Septic (Y/N)	Sewer Provider	Water	Provider		

REQUEST

1	NEQUEST					
DEVELOPMENT	☐ Development Plan ☐ Use on Review / Specify): ☐ Residential ☐ Non-Residential ☐ Home Occupation (specify):	pecial Use				
DE	☐ Other (specify):					
ZONING SUBDIVISION	B B Buldes de Proposed Subdivision Name □ Parcel Change □ Combine Parcels □ Divide Parcel □ Other (specify): □ Attachments / Additional Requirements □ Zoning Change: □ Proposed Zoning □ Plan Amendment Change: □ Proposed Plan De	Total Number of Lots		Unit / Phase Number		
100	Proposed Density (units/acre)	Previous Rezoning Re	equests			
	☐ Other (specify):					
IAPT USE	PLAT TYPE Staff Review Planning Commission ATTACHMENTS Property Owners / Option Holders Varian ADDITIONAL REQUIREMENTS Design Plan Certification (Final Plat only) Use on Review / Special Use (Concept Plan only) Traffic Impact Study		FEE 1: OHOG 381 FEE 2:	TOTAL: 5.00 #3815		
AUTHORIZATION By signing below, I certify I am the property owner, applicant or the owners authorized representative. DAVID HARBIN Applicant Signature Date						

865-588-6472

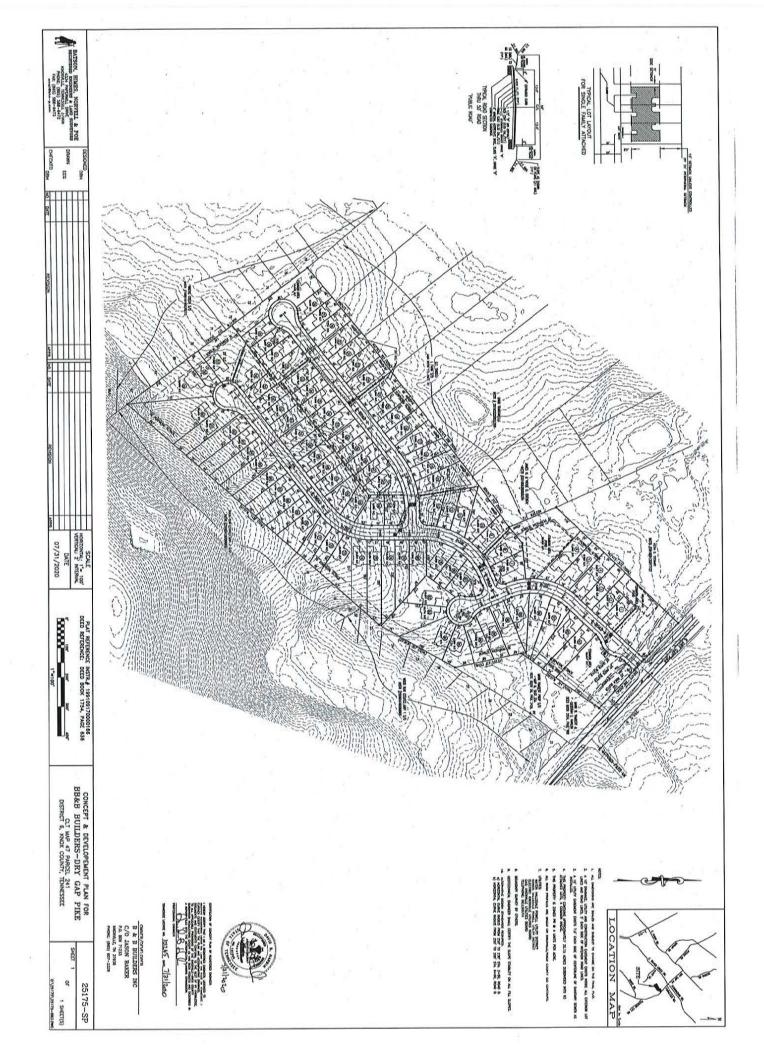
harbin@bhn-p.com

Phone Number

SHERRY MICHIENZI

Please Print

Date



PA SILVIDIO PA SILVIDIO PA GILVIDIO A) 1112182 SE SE SHAN DRAWN EEC PM SILVENORO PM DEVINERSO SOULE 1"=10" HORZ.
1"=10" VERT. SCATE 1 - 100, HOME WAR 1 - 100, HOME WAR 548 8 PM STAFFOO PM BLD 1992 DECOR. ě DIV KSAK 5400 £ 1 gat-a-s 200 100 100 100 ij ii. ğ 10 1 ĕ ir inner 50 H18 (UPS) SECURIOR SE MOVING SE N SUNDO DATE 05/29/19 NOTED 504E: 1"-10" YEST. 20.00 M SD 7478 ROAD PROFILES FOR
B&B BUILDERS-DRY GAP PIKE
CLT MAP 47 PARCEL 241
DISTRICT 6, KNOX COUNTY, TENNESSEE ST STATE OF 778 OMEDATORLOGIS

B & B BUILDRES INC C/O
LASON BAKER
PA DE PELS
PACHALL NA 2028
PHONE BEG MIN-2223

OCCUPANT 3 T396 1 SHEET(S) R 25175-RP