Louisville Metro Planning Commission Public Hearing – February 7, 2019

Neighborhood Meeting – October 13, 2018

Docket No. 18SUBDIV1023

Proposed LDC 4.7.7 subdivision to allow 556 lots on 209 +/- acres on the overall 332 acre property located south of I-64, west of Eastwood-Fisherville Road and east of Echo Trail

Long Run Creek Properties, LLC

c/o Brad Rives, Rick Riney & Jack Smith

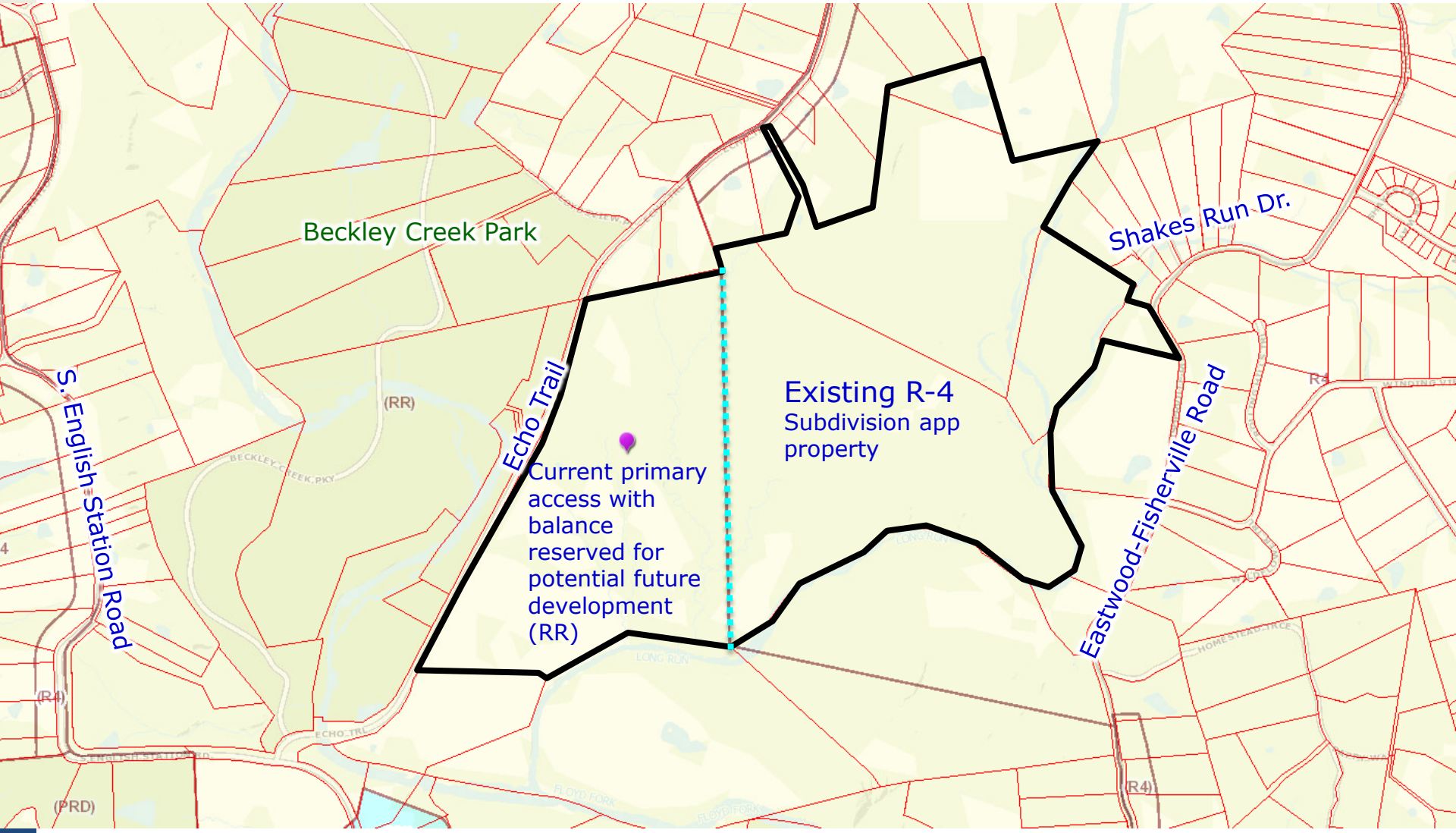
Attorneys: Bardenwerper Talbott & Roberts, PLLC

Land Planners, Landscape Architects & Engineers: Mindel Scott & Associates

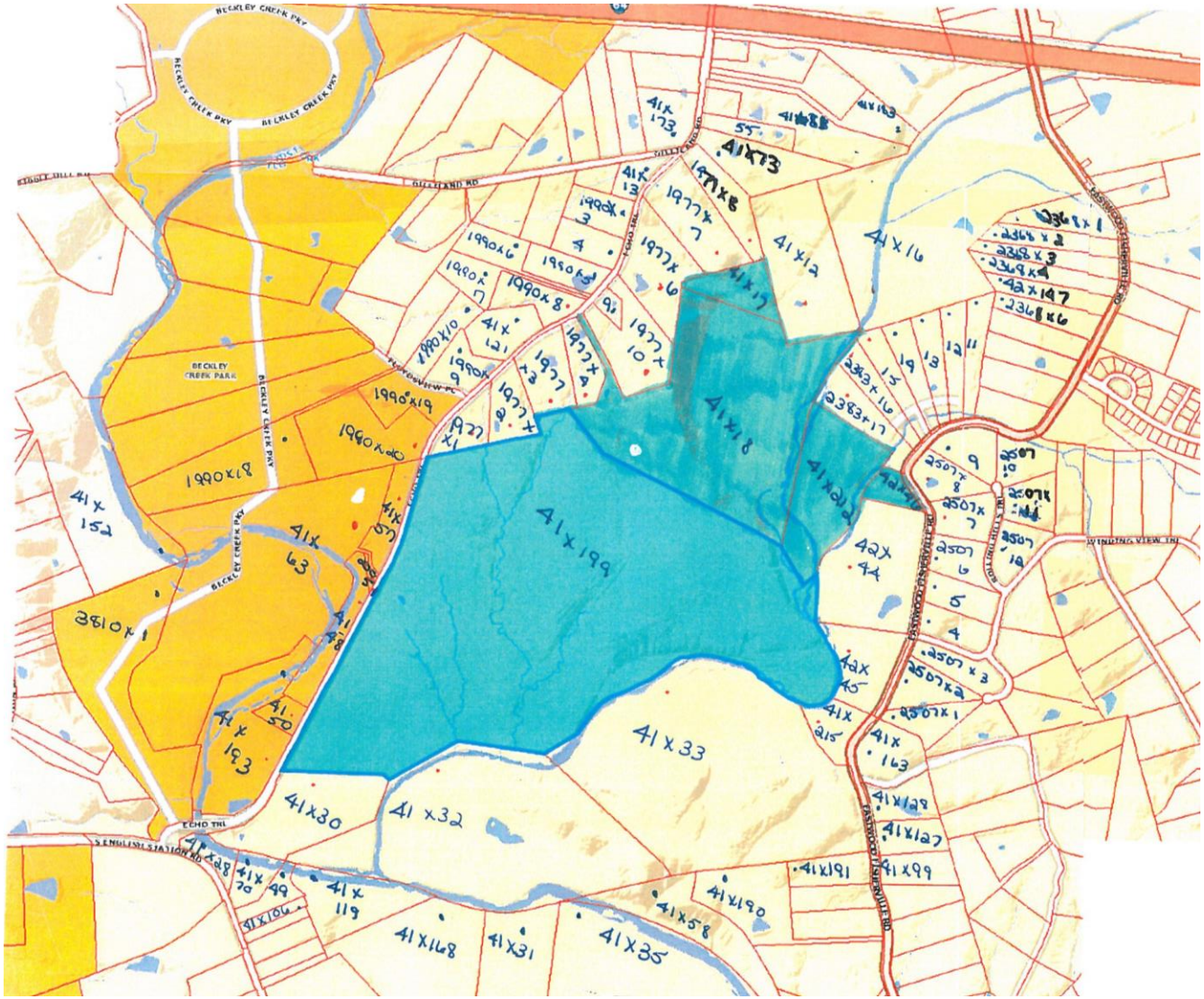
Traffic Engineer: Diane B. Zimmerman Traffic Engineering, LLC

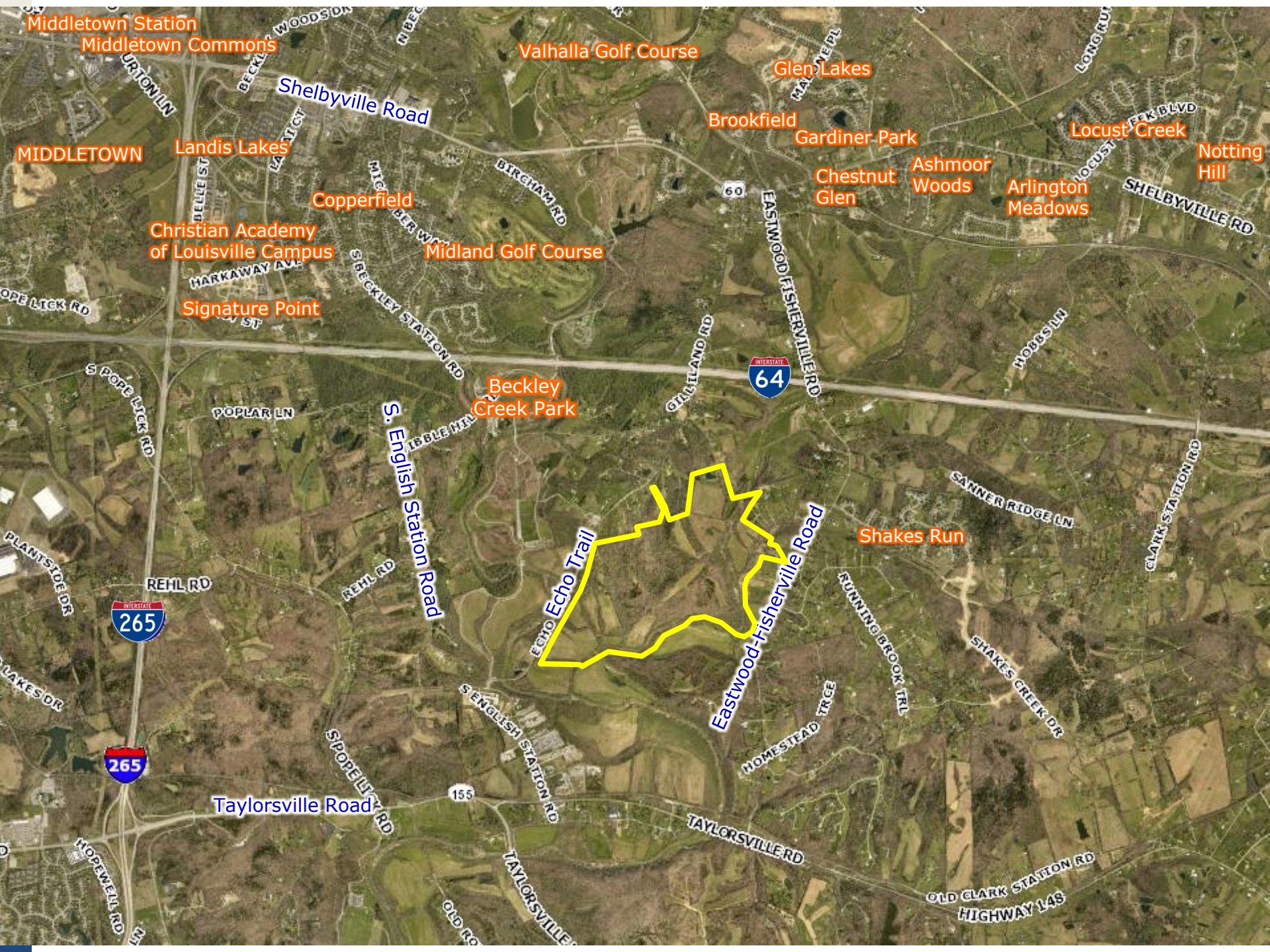
Geotechnical Engineers: ECS Southeast, LLC

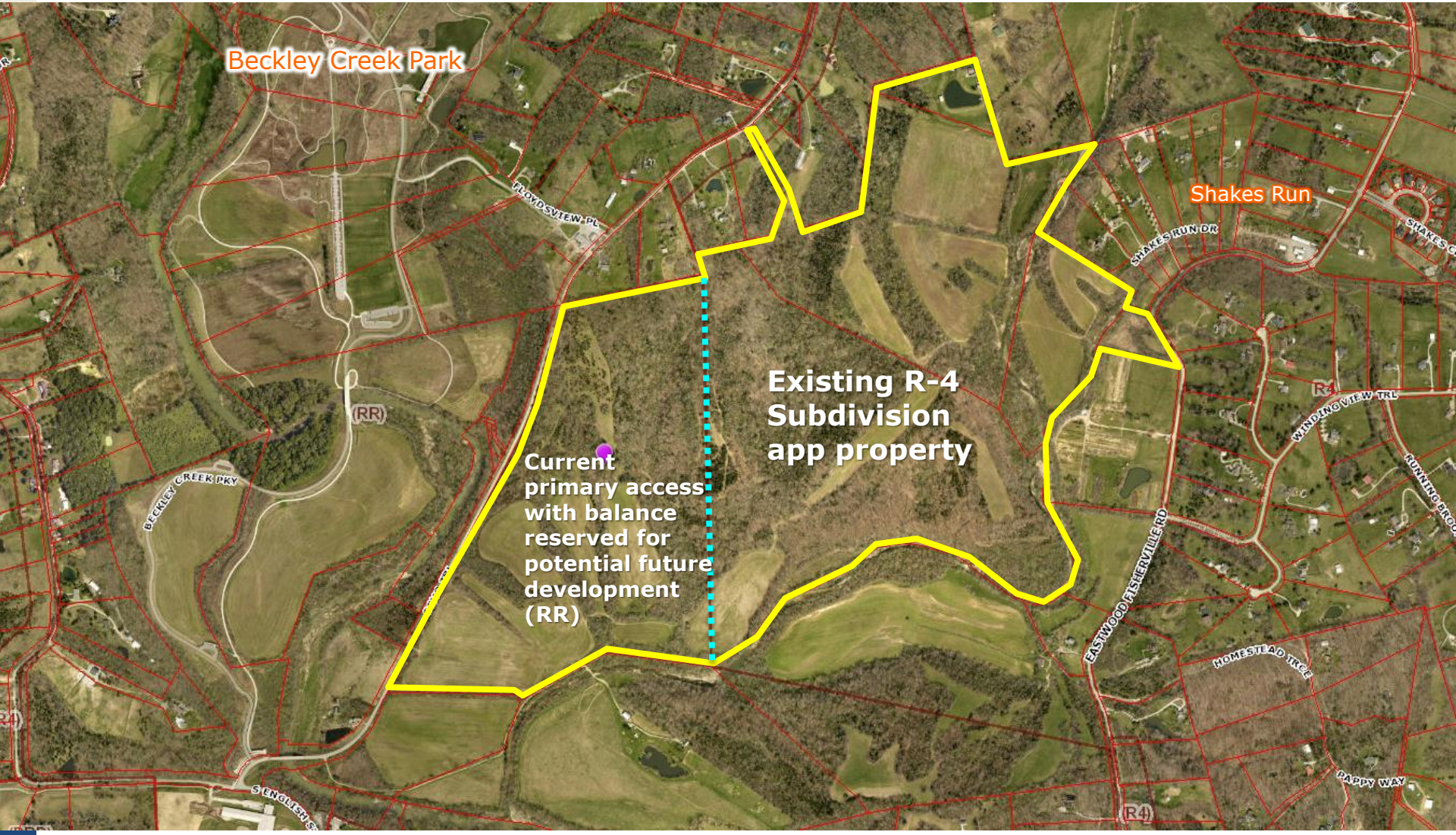
Wetlands and Stream Consultants: Redwing Ecological Services

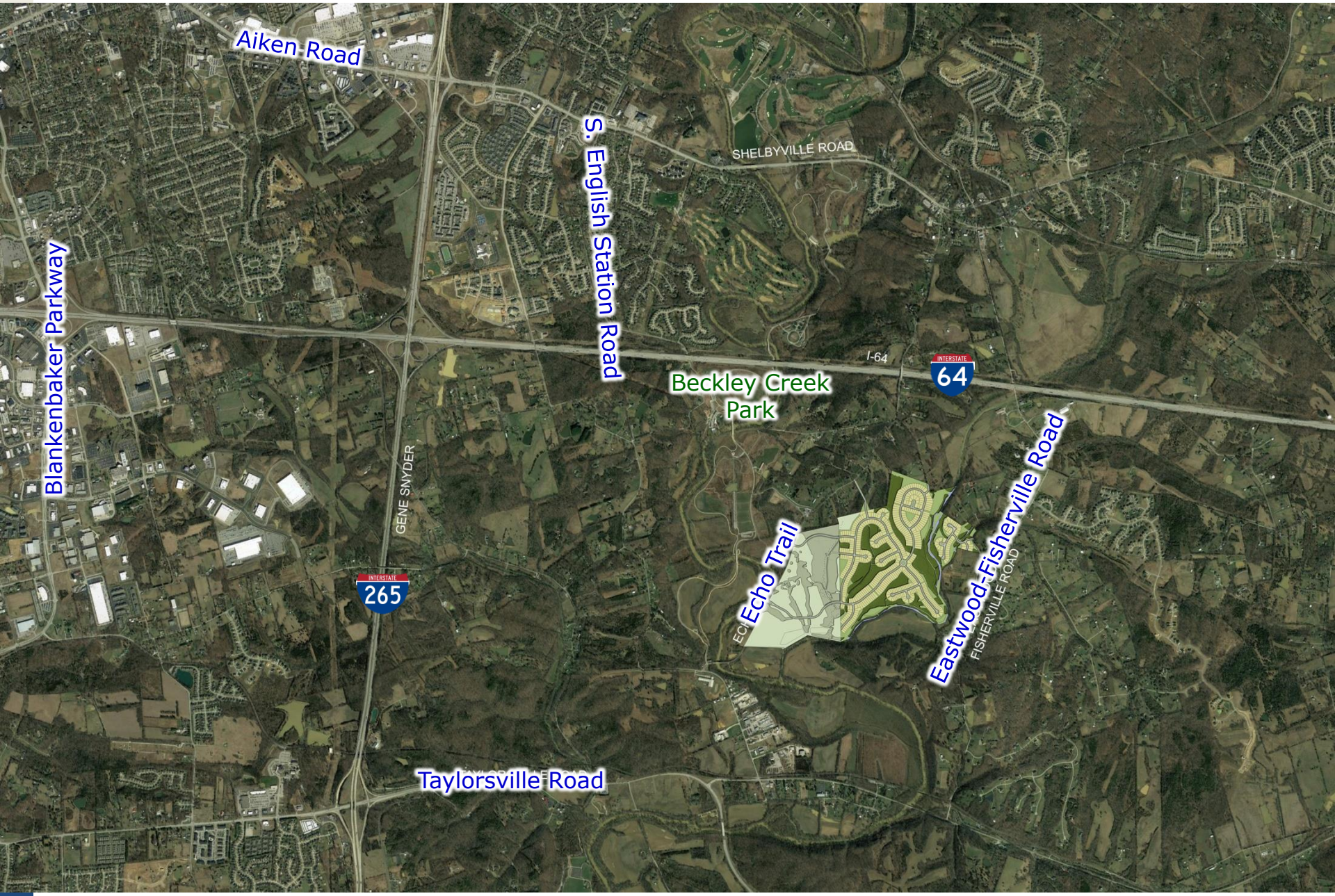

Beckley Creek Park
Shakes Run Dr.
S. English Station Road
Echo Trail
Existing R-4
Subdivision app
property
Current primary
access with
balance
reserved for
potential future
development
(RR)
Eastwood-Fisherville Road
(RR)
(R4)
(PRD)
(R4)

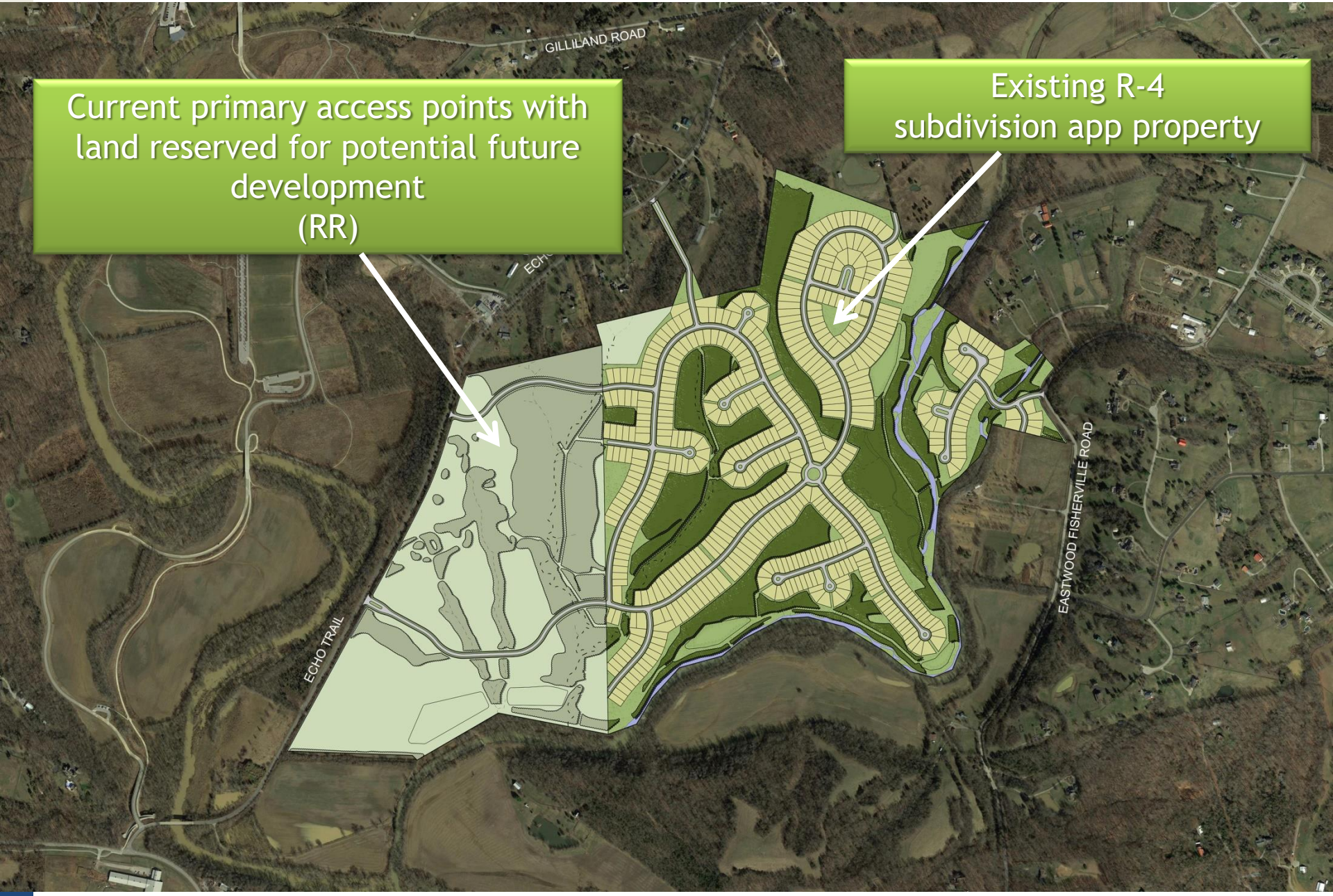
Adjoining property owner notice list map wherein 86 neighbors plus those on the DPDS “interested party list” were invited to the neighborhood meeting and subsequent Planning Commission public hearing.




Middletown Station
Middletown Commons
Valhalla Golf Course
Glen Lakes
Shelbyville Road
Brookfield
Gardiner Park
Locust Creek
Notting Hill
MIDDLETOWN
Landis Lakes
Chestnut Glen
Ashmoor Woods
Arlington Meadows
Copperfield
Christian Academy of Louisville Campus
Midland Golf Course
Signature Point
Beckley Creek Park
S. English Station Road
Echo Trail
Eastwood-Fisherville Road
Shakes Run
Taylorsville Road
REHL RD
POPLAR LN
HARKAWAY AVE
S BECKLEY STATION RD
BIRCHAM RD
EASTWOOD FISHERVILLE RD
GILLILAND RD
HOBBS LN
SANNER RIDGE LN
CLARK STATION RD
RUNNING BROOK TRL
SHAKES CREEK DR
HOMESTEAD TREE
S ENGLISH STATION RD
TAYLORSVILLE RD
OLD CLARK STATION RD
HIGHWAY 148
S POPE LICK RD
INTERSTATE 64
INTERSTATE 265
60
155


Beckley Creek Park
Shakes Run
Existing R-4 Subdivision app property
Current primary access with balance reserved for potential future development (RR)
(RR)
(R4)
FLOYD SVIEW PL
SHAKES RUN DR
WINDING VIEW TRL
BECKLEY CREEK PKY
EASTWOOD FISHERVILLE RD
HOMESTEAD TRCE
PAPPY WAY
S ENGLISH ST


Aiken Road
S. English Station Road
SHELBYVILLE ROAD
Blankenbaker Parkway
I-64
INTERSTATE
64
Beckley Creek
Park
GENE SNYDER
INTERSTATE
265
Echo Trail
Eastwood-Fisherville Road
FISHERVILLE ROAD
Taylorsville Road


Current primary access points with land reserved for potential future development (RR)
Existing R-4 subdivision app property
GILLILAND ROAD
ECHO TRAIL
EASTWOOD FISHERVILLE ROAD


ECHO TRAIL
RESIDUAL TRACT 4
RESIDUAL TRACT 1
LONG RUN CREEK
SHAKES RUN DRIVE
SHAKER RUN CREEK
DETENTION BASIN/ WATER QUALITY
DETENTION BASIN
EASTWOOD FISHERVILLE ROAD
RESIDUAL TRACT 2
FLOYDS FORK
SHAKER RUN CREEK
DETENTION BASIN/ WATER QUALITY
DETENTION BASIN/ WATER QUALITY
RESIDUAL TRACT 3
DETENTION BASIN/ WATER QUALITY
DETENTION BASIN/ WATER QUALITY
ECHO TRAIL

Regulation setting forth calculation for determining the number of smaller lots by transferring development density out of steep slope areas

4.7.7 Development Potential Transfer Allowed

A. Major subdivision development proposals submitted after the effective date of this regulation and which permanently preserve areas of the site with slopes greater than 20% may transfer the development potential (building sites or floor area) of the permanently preserved area to the remainder of the site subject to the following limitations:

1. The subdivision is not being developed under the Alternative Development Incentives of the Land Development Code; and,
2. Areas to be permanently preserved are preserved in a manner acceptable to the Commission (e.g., conservation easement, common open space, etc.); and,
3. The area of the site to which development potential is being transferred is at least as large as the area from which development potential is being transferred (for example; if an applicant wishes to transfer development potential from 3 acres, the portion of the site to which development is shifted must be at least 3 acres); and,
4. All lots in the proposed development meet the minimum alternative development incentive lot size of the applicable Form District; and,
5. All lots in the proposed development meet the height, yard and setback requirements of the applicable Form District.

B. The maximum development potential allowable for transfer shall be determined by one of the following methods:

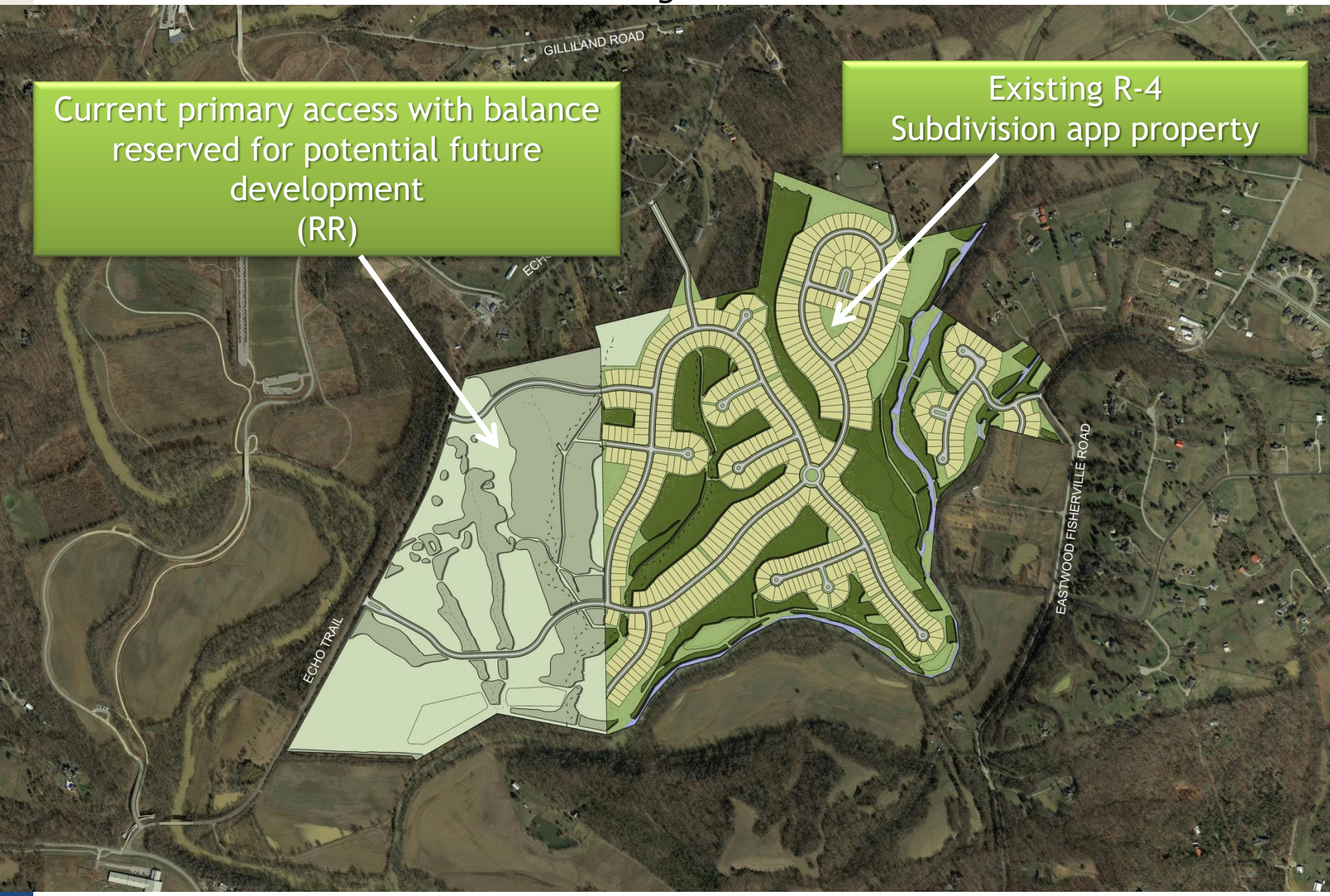
1. One half of the theoretical development potential based on the number of acres preserved and the existing zoning of the area to be preserved (for example; if 3 acres of an R-4 site is proposed for protection, then 7 building sites could be transferred to other portions of the same property - 3ac x 4.84 units/acre / 2 = 7.26 units); or,
2. The realistic development potential determined by an engineered development plan including a preliminary geotechnical feasibility study and meeting all other requirements of the Land Development Code.

NOTE: *Although lot sizes are reduced setbacks are not reduced for density transfer lots. Consistent appearance throughout the subdivision is intended.*

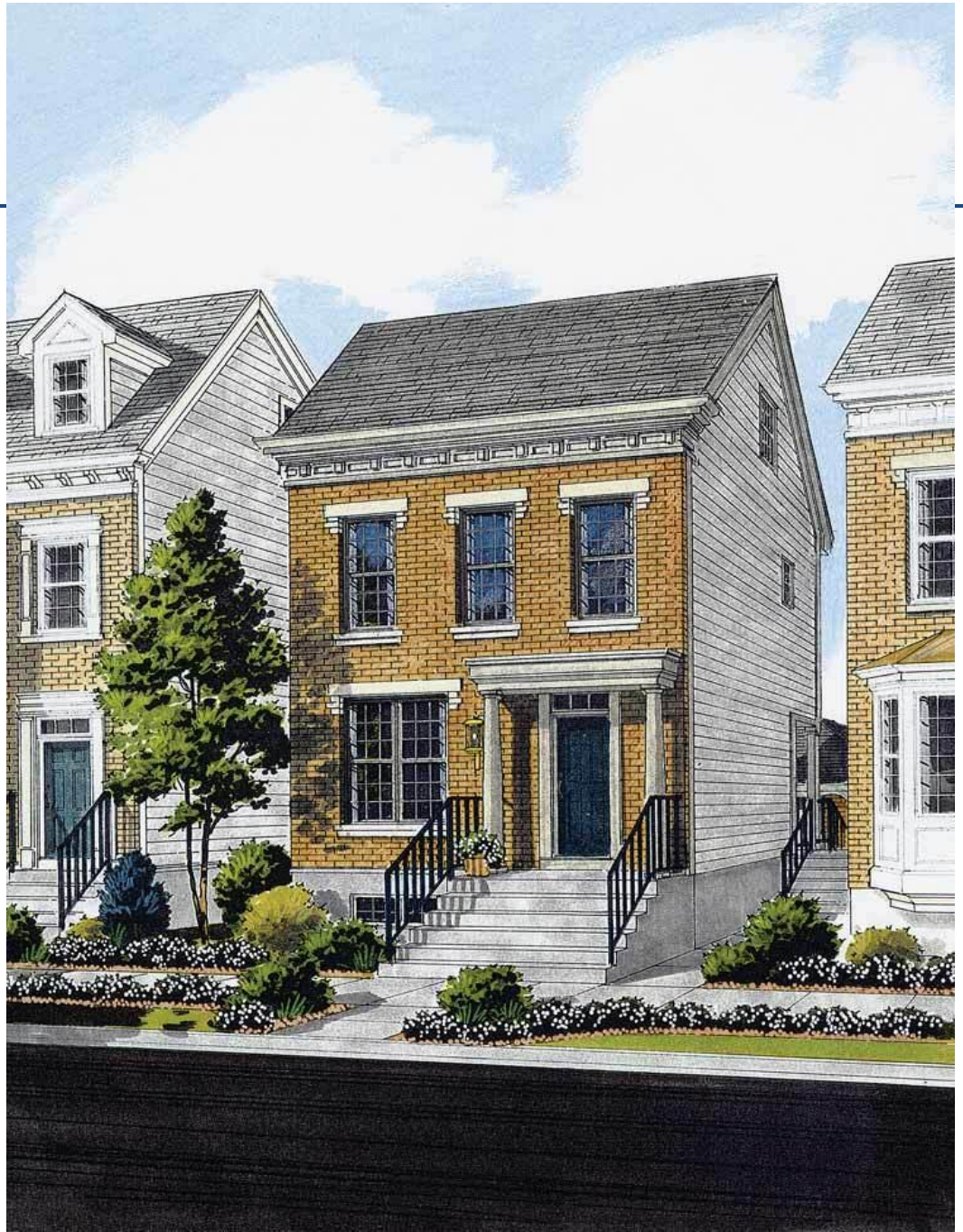
Calculations for determining the number of smaller lots by transferring development density out of steep slope areas

	R-4 Existing	R-4 w/ density transfer
Density/lot total calculations	4.84 du/a on 185.27 net acres (209.44 gross acres less 24.17 acres of infrastructure)	Two-part maximum lot calculation: 1. Total area (209.44 acres) – infrastructure area (24.17 acres) – steep slope area (16.00 acres) = net acreage for calculation (169.27 acres) x allowed density of 4.84 du/a = <u>819 lots</u> plus 2. Steep slope area (16.00 acres) x allowed density of 4.84 du/a = 77 lots / 2 = <u>39 lots</u>
Maximum # of lots	897	858
# of lots proposed	n/a	556 = 2.65 du/a gross and 3.00 du/a net (i.e., 302 lots less than density transfer maximum # and 341 lots less than standard R-4 maximum #)
ADI detached unit compliance percentages (no lots smaller than 4500 sf; min 20% of lots > 9000 sf; no more than 25% of lots < 6000 sf	9,000 sf min	23% of lots > 9,000 sf 58% of lots between 6,000 – 9,000 sf 19% of lots < 6,000 sf
Open Space	0% required	45% provided

R-4 developed vs. RR undeveloped areas (except for subdivision access), showing lot sizes

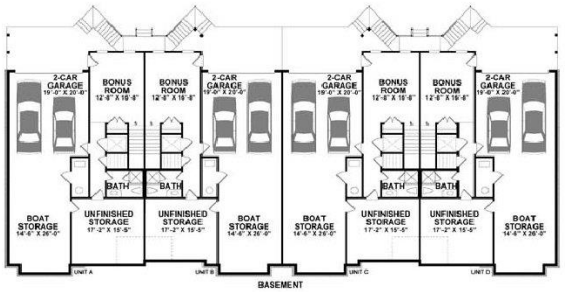


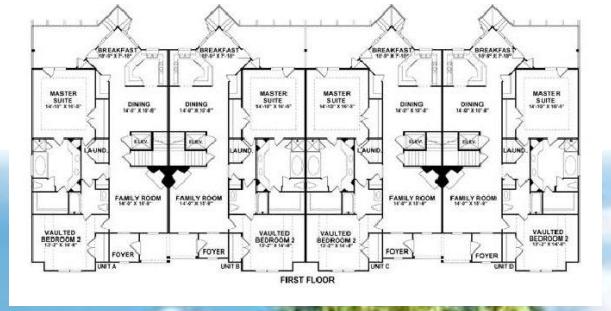
Example of possible 30’ wide lot home type



Example of possible 30’ wide lot home type

Example of possible 30’ wide lot attached home type (in the event applicant later applies for side yard variances)

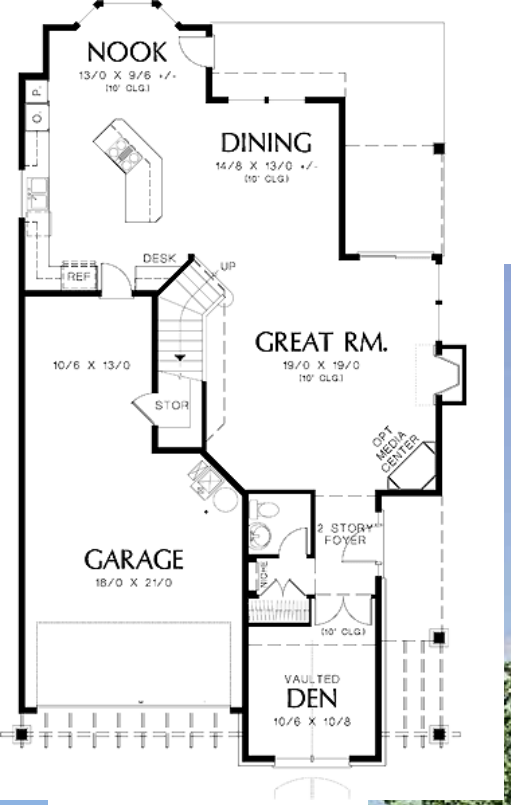




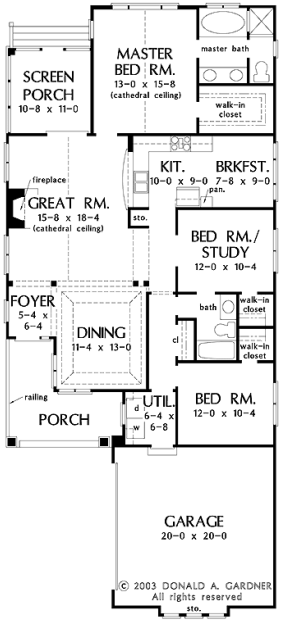
Example of possible 30’ wide lot attached home type (in the event applicant later applies for side yard variances)

Main Floor

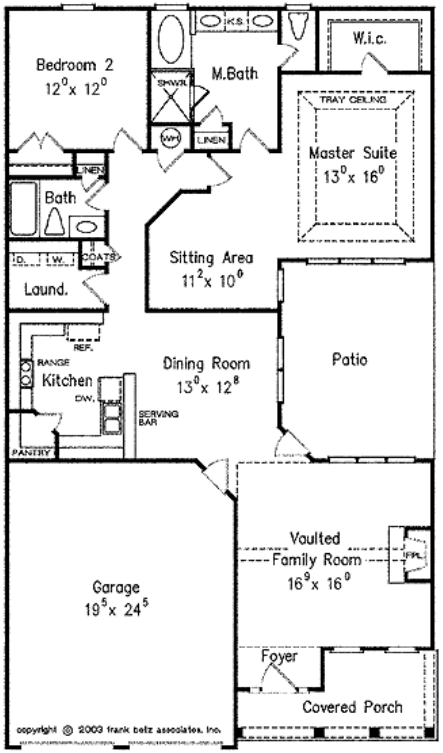
Example of possible 40’ wide lot home type



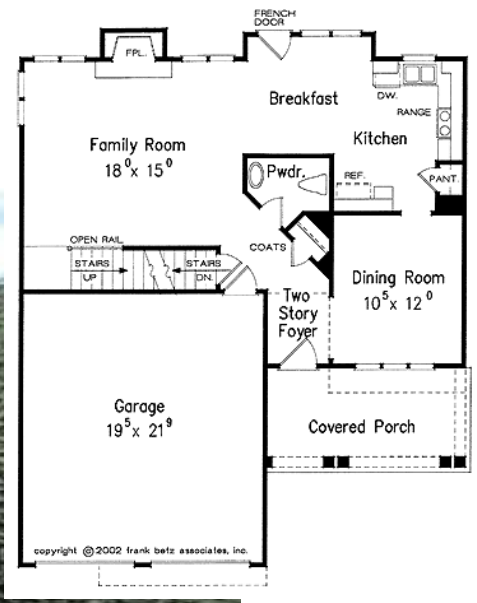
Example of possible 40’ wide lot home type



Example of possible 50’ wide lot home type



Example of possible 50’ wide lot home type



DPDS Staff Report Technical Review regarding LDC Section 4.7.5 Land Disturbing Activity on Slopes Greater than 20%

TECHNICAL REVIEW

The application of development potential transfer on this project allows for the following:

- Lot sizes to be reduced in accordance with the alternative development incentives of the Neighborhood form district.
- Setbacks to be applied as required for standard subdivision development in the R-4 zoning district.
- The transferrable potential is based on the theoretical maximum allowable density of the zoning district containing the preserved slopes; therefore, the development potential of preserved areas is incorporated through reductions in lot sizes across the total area of the subdivision.
- Areas of steep slopes may be present within single-family lots subject to the requirements of Chapter 4, Part 7.5 – Land Disturbing Activity on Slopes Greater than 20%. Areas within lots may not be used for development potential transfer.
- All areas being considered for development transfer potential must be preserved as open space or by other acceptable means.

The proposed subdivision includes disturbance of slopes in excess of 20%. Land Development Code, section 4.7.5 provides that Land disturbing activities on slopes greater than 20% is permitted on lots created by major subdivision after the effective date of this regulation only if the activity is in keeping with the Comprehensive Plan and the proposed activity complies with the provided standards of this part. A staff analysis has been included in this report for the Planning Commission's consideration.

A sanitary sewer line makes 3 crossings over the protected waterway and a proposed public roadway makes another. Crossings for roads, bridges, trails and utilities are permitted in a buffer area and may cross the protected waterway subject to the Planning Commission's approval authorized under Land Development Code, section 4.8.6.J. Land Development Code, section 4.8.6.K will require restoration for disturbance as a result of crossings or any other disturbance not otherwise authorized. The sewer crossings appear to be as close to perpendicular as possible given the topography, the necessary flow of water through the sanitary sewer system, and the meandering of the stream. Preliminary approvals of the drainage facilities and road crossing have been received from public works and MSD. Constructions plans will be required prior to record plat to formalize these crossings.

The majority of the residual land is within the FFRO. No residential development is proposed at this time. Roadways have not been located within the floodplain. There does not appear to be any modification of the stream or impervious surfaces located within stream buffers. Floodplain compensation is included within the area and an erosion/sediment control plan will be submitted to MSD as a component of the construction review process. Future development of these residual lands will require additional review under the FFRO design guidelines.

Plan 2040

(Cornerstone 2020 does not apply after 12/31/18)

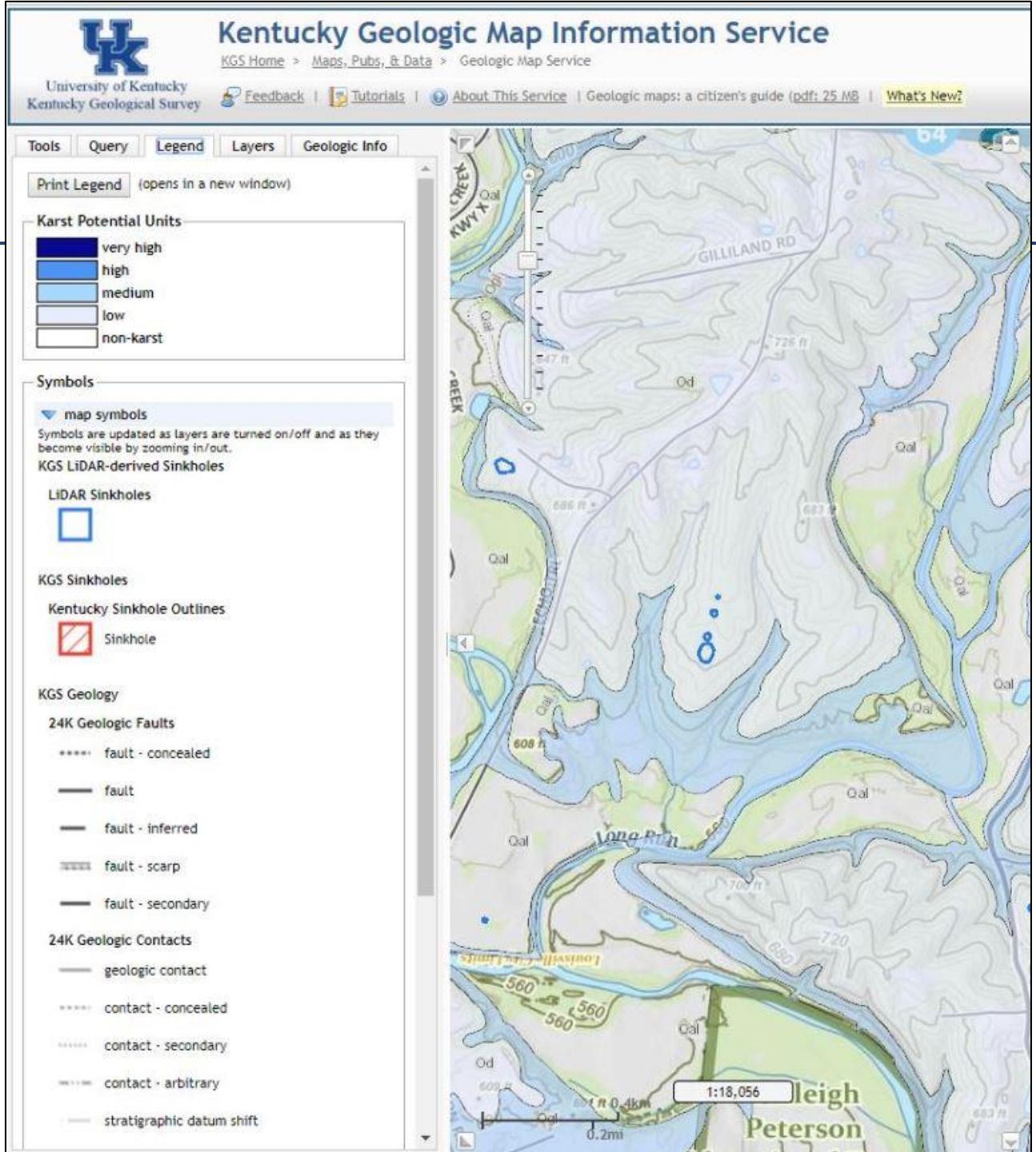
References to steep slopes

Policies

Land Use & Development

1. Encourage creation of common, usable and accessible open space in new residential development based on density, need for open space, size of development, and proximity to greenways through the use of regulatory incentives and other tools.
2. Design open space to meet outdoor recreation, natural resource protection, aesthetic, cultural and educational, public, or health and safety needs. Open space may also be associated with civic uses, managed for production of resources and designed to ensure compatibility between differing land uses.
3. Design open space to be compatible with the pattern of development in the Form District.
4. Ensure that transitions between existing public parks and new development minimize impacts and provide access.
5. Provide access to greenways whenever possible.
6. Encourage open space that is created by new development to help meet the recreation needs of the community.
7. Encourage natural features to be integrated within the prescribed pattern of development.
8. Conserve, restore and protect vital natural resource systems such as mature trees, steep slopes, streams and wetlands. Open spaces should be integrated with other design decisions to shape the pattern of development. Encourage the use of greenways as a way to connect neighborhoods. Encourage use of conservation subdivisions, conservation easements, transfer of development rights and other innovative methods to permanently protect open space.
9. Encourage development that respects the natural features of the site through sensitive site design, avoids substantial changes to the topography, and minimizes property damage and environmental degradation resulting from disturbance of natural systems.
10. Encourage development to avoid wet or highly permeable soils, severe, steep or unstable slopes where the potential for severe erosion problems exists in order to prevent property damage and public costs associated with soil slippage and foundation failure and to minimize environmental degradation.
11. Encourage land uses within the Ohio River Corridor that are appropriate for and related to river corridor activities and that are consistent with the Goals and Objectives of the Ohio River Corridor Master Plan. Reserve appropriate riverfront sites such as the Upper River Road industrial area for river-related development. Allow development of commercial leisure businesses related to the river, such as boating services and restaurants in appropriate locations. Encourage new development in the Ohio River corridor and along key greenway and street connections to provide for public access in new riverfront development and to maintain views of the river from public rights-of-way.
12. When reviewing proposed developments consider changes to flood-prone areas and other features vulnerable to natural disasters such as sinkholes and landslides. Ensure appropriate measures to protect health, safety and welfare of future users of the development.
13. Provide for the continuing maintenance of common open space. Provisions may include joint ownership by all residents in a homeowners association, donation of open space or conservation easements to a land trust or government entity or other measures.

Report submitted to DPDS by ECS Southeast, LLP


Kentucky Geologic Map Information Service
KGS Home > Maps, Pubs, & Data > Geologic Map Service
University of Kentucky
Kentucky Geological Survey
Feedback | Tutorials | About This Service | Geologic maps: a citizen's guide (pdf: 25 MB | What's New?
Tools
Query
Legend
Layers
Geologic Info
Print Legend
(opens in a new window)
Karst Potential Units
very high
high
medium
low
non-karst
Symbols
map symbols
Symbols are updated as layers are turned on/off and as they become visible by zooming in/out.
KGS LiDAR-derived Sinkholes
LiDAR Sinkholes
KGS Sinkholes
Kentucky Sinkhole Outlines
Sinkhole
KGS Geology
24K Geologic Faults
fault - concealed
fault
fault - inferred
fault - scarp
fault - secondary
24K Geologic Contacts
geologic contact
contact - concealed
contact - secondary
contact - arbitrary
stratigraphic datum shift
GILLILAND RD
Qal
Qd
1:18,056
0.4km
0.2mi
Peterson

December 28, 2018

S. B. Rives
Long Run Creek Properties LLC
3911 Wilderness Trail
Louisville, Kentucky 40299
sevirb926@gmail.com

Subject: Geotechnical Slope Evaluation Report
Proposed Echo Trail Subdivision
2605 Echo Trail, Eastwood Fisherville Road
Louisville, Kentucky 40245
ECS Project No. 61-1893

Dear Mr. Rives:

A new residential subdivision is proposed for construction in Louisville, Jefferson County, Kentucky. The site is located east of Echo Trail, approximately 2/3 mile south of I-64, and approximately 1-mile southeast of the Parklands of Floyds Fork. The approximate site location is shown on the attached Site Vicinity Map. The property generally consisted of wooded, rolling hills with some cleared fields. Surface drainage generally was directed to Long Run along the southern and eastern portions of the site by small swales and streams. Provided drawings and Google Earth data indicated that existing surface elevations ranged from approximately ~EL 560 to ~EL 580 at low points along the northeastern and southern portions of the site, to ~EL 680 in the western portion of the site.

The "Preliminary Subdivision (Development Potential Transfer) & Floyds Fork Overlay Plan, Echo Trail" (Plan) prepared by Mindel Scott, dated 10/15/2018 identified existing 20-30% slopes and >30% slopes on the property. A reduced copy of this drawing is attached.

The current Metro Louisville Land Development Code (LDC) 4.7.5 includes requirements for land disturbing activities on slopes greater than 20%. Item B.3 of 4.7.5 states "Land disturbing activities on slopes greater than 20% and less than 30% shall be required to prepare a geotechnical survey report if the staff of the USDA Natural Resources Conservation Service (NRCS) determines such a study is warranted, given the site's soil and geologic characteristics. A geotechnical survey report shall be submitted for land disturbing activities on slopes greater than 30%."

We understand that at present the NRCS is not making the determination of the need for a geotechnical survey report. Accordingly, ECS Southeast, LLP (ECS) was retained to conduct an initial slope evaluation of the site and to determine if additional geotechnical exploration/analyses would be required. Our evaluation consisted of the following tasks:

- Review the Plan
- Review USGS Geologic Quadrangle Map information
- Review USDA NRCS Soil Survey information
- Conduct a visual reconnaissance of indicated steeper slope areas that would be disturbed by new construction
- Evaluate the reviewed information and prepare a report of our findings and recommendations

USGS Geologic Quadrangle Map Review

The "Geologic Map of the Fisherville Quadrangle, Jefferson County, Kentucky" published by the U. S. Geological Survey and shown on the Kentucky Geologic Map Information Service indicated that the majority of the proposed development area (roughly above ~EL 620) was underlain by the Drakes Formation. The lower slopes were underlain by Grant Lake Limestone (roughly ~EL 580 to ~EL 620), with the remainder of the site mantled by alluvium (roughly below ~EL 580). The mapped extent of the bedrock formations is shown on Figure 1.

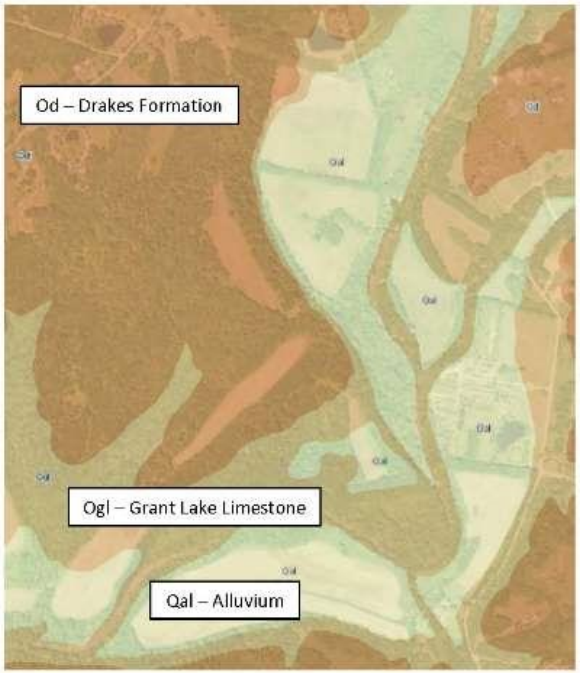


Figure 1: Reported Site Geology

Drakes Formation (4 Members: Hitz Limestone Bed, Saluda Dolomite Member, Bardstown Member, Rowland Member)

Total Reported Thickness: ±140'
Karst Potential: Low

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Hitz Limestone Bed of Saluda Dolomite Member
Primary Lithology: Limestone, dolomite, and shale.
Total Reported Thickness: 0' – 7'

Limestone and dolomite are dark gray to olive gray, weather light gray to grayish orange, locally reddish brown cast; very fine to medium grained, silty, laminated in part; hackly to blocky fracture; inter-bedded and inter-tongued. Limestone and dolomite occur in at least four distinct alternating layers 0.2 to 0.4 foot thick with limestone at base. Pink calcite locally fills large fossil cavities. Shale is grayish black to dusky brown, carbonaceous, calcareous, and strongly fissile; commonly in two beds, one about 0.5 foot thick near base and one 0.2 foot thick near top. Small sinkholes are common.

Saluda Dolomite Member
Primary Lithology: Dolomite and dolomudstone.
Total Reported Thickness: 37 – 45'

Dolomite, greenish gray, light to medium light gray, grayish yellowish green, and light olive gray in distinct color bands, weathers same to grayish orange and yellowish gray; mottled in part. Dolomite in upper three fourths of unit is laminated; calcareous; quartz silt and sand grains make up 0 to 3 percent; mud cracks and rip up clasts on some bedding planes; weathers blocky to massive in steep ravines, shaly to flaggy on weathered slopes. Lower one-fourth of unit is dolomudstone that lacks prominent lamination; fracture is subconchoidal; weathers shaly or to blocky prisms 1 to 2 inches across. Limestone is bluish gray, weathers olive gray to brownish gray; dense, micritic; conchoidal fracture; commonly as one or two beds 0.1 to 0.6 foot thick in lower part of laminated dolomite sequence. Shale, in same part of sequence, light gray to olive black, 0.1 to 1.0 foot thick. Basal 5 feet of unit locally contains very thin inter-beds of abundantly fossiliferous limestone characteristic of underlying Bardstown Member. Residuum thickest 3 to 7 feet on ridgetops. Water sufficient only for domestic and farm use is obtained from shallow wells in the Saluda Dolomite.

Bardstown Member
Primary Lithology: Limestone, mudstone, and shale.
Total Reported Thickness: 35 – 46'

Limestone, mudstone, and shale. Limestone in three types: Most common type is medium to dark gray, weathers yellowish brown; micritic to fine grained; beds very thin, laminated, continuous; fossils common. Second type is medium light gray to light olive gray, weathers light gray to dark yellowish orange; micritic to coarse grained; beds very thin, discontinuous; abundant whole fossils distinctive. Third type is muddy limestone, bluish to olive gray, weathers greenish gray to yellowish green, resembles limestone of underlying Rowland Member. Mudstone and shale, as inter-beds in limestone, are olive gray, somewhat calcareous, weather light olive gray to light gray. Near top and base shale is calcareous and carbonaceous, grayish to brownish black, weathers medium gray, in beds 0.1 foot to nearly 1-foot thick. All shale is fossiliferous.

Rowland Member
Primary Lithology: Limestone and shale.
Total Reported Thickness: ±50'

Limestone and shale. Dominant limestone is medium gray and greenish gray to medium bluish gray calcisiltite; weathers pale olive to yellowish gray; dolomitic and argillaceous; streaked with irregular burrows filled with dusky yellowish-green

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glauconitic material which weathers readily to form a pitted surface; thin to thick bedded in continuous planar beds; internal bedding laminations poorly preserved owing to bioturbation. Thin inter-beds of brownish black carbonaceous shale in this zone are similar to shale beds near base of overlying Bardstown Member. Dominant shale is olive gray, light olive gray, dark greenish gray, and greenish gray; weathers yellowish gray; calcareous, clayey; inter-beds higher in section are thinner and less prominent except near top of member where shale is locally dominant rock type in upper 5 feet. Basal shale contains locally cherty, laminated, thin bedded limestone in southern and central parts of quadrangle, and, in north central part along Floyds Fork between U.S. Highway 60 and Interstate Highway 64, a cross-bedded, fossil fragmental, mud supported limestone. Water sufficient only for domestic and farm use is obtained from shallow wells in the Rowland Members. Springs issue locally from limestone beds immediately above thick shale sections in the Rowland. Small sinkholes are common.

Grant Lake Limestone

Total Reported Thickness: ±100'
Karst Potential: Medium
Primary Lithology: Limestone and shale.

Limestone and shale. Dominant limestone type is medium gray, contains abundant coarse fossil fragments and whole fossils in a greenish gray calcareous mudstone or a medium to very coarse grained calcarenite cemented by sparry calcite; beds uneven to nodular, some continuous, commonly less than 0.2 foot thick; the brachiopod Platystrophia ponderosa is abundant. Less abundant limestone type is medium gray, fossil fragmental, poorly sorted calcarenite with sparry cement; weathers with abundant brown specks; in crossbeds 0.1 to 1.3 feet thick with smooth to undulating surfaces. Cross-bedded limestone common about 10 feet below top of unit; forms 15 foot thick sequence underlying bench capped with alluvial gravel along east side of Floyds Fork between the mouths of Pope Lick and Cane Run 45 to 60 feet below top of unit. Least abundant limestone type is medium gray, micro-grained to medium grained, well-sorted, planar laminated calcarenite to calcisiltite in smooth surfaced, even, continuous inter-beds 0.1 to 0.4 foot thick; fossils not conspicuous; this limestone type present only in upper part of unit. Shale is olive gray to dark greenish gray, weathers light olive gray and dusky yellow; calcareous; in partings and beds 0.1 to 1.2 feet thick, commonly less than 0.6 foot thick; sparsely fossiliferous. Base of unit not exposed. Water sufficient only for domestic and farm use is obtained from shallow wells from the thick calcarenite in the upper part of the Grant Lake Limestone. Springs issue from thick calcarenite in the Grant Lake Limestone. Small ponds for livestock and for recreation are common in areas surfaced by the shale of the upper part of the Grant Lake Limestone.

Alluvium

Total Reported Thickness: 0-30'
Karst Potential: Non-karst
Primary Lithology: Silt, clay, sand, and gravel.

Silt, clay, sand, and gravel; along Floyds Fork, silty clay, olive gray in root zone, grades downward to moderate brown to grayish brown clayey silt with blocky structure, then to moderate brown, calcareous, sandy, silty clay containing thin-shelled pelecypods, in turn underlain by as much as 3.5 feet of limestone gravel containing abundant cobbles and pebbles. In smaller stream valleys alluvium is brown to dark grayish brown silty clay and clayey silt, sand, and gravel.

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Gravel ranges in size from granules to boulders. Most granules and sand are limonite derived from soil; pebbles, cobbles, and slabs are from local bedrock. Older alluvium on limestone bench 30 to 45 feet above Floyds Fork is 15 to 20 feet thick; alluvium beneath modern flood plain is 8 to 10 feet thick. Basal gravel in older alluvium contains pebbles as much as 0.2 foot long; consists of brown chert, quartz geodes, silicified corals, and limonite cemented siltstone; overlain by grayish orange to moderate yellowish orange silty clay. Locally completely removed by stream erosion. Older alluvial soils include mainly Elk, Captina, Robertsville, and Taft Series; younger alluvial soils include Huntington, Ashton, Newark, and Lindside Series. Water sufficient only for domestic and farm use is obtained from shallow wells in alluvium

Soil Conservation Service Soil Survey

The USDA Natural Resources Conservation Service "Web Soil Survey" website indicated 22 general soil types at the site as shown in Figure 2. Descriptions of these soil types are summarized below.

Figure 2: Reported Soil Data

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BeB Beasley silt loam – 2 to 6 percent slopes
Parent material – clayey residuum weathered from calcareous shale
Typical Profile
0 to 7 inches: silt loam
7 to 29 inches: silty clay
29 to 50 inches silty clay
50 to 60 inches: bedrock

BeC Beasley silt loam – 6 to 12 percent slopes
Parent material – clayey residuum weathered from calcareous shale and/or calcareous siltstone
Typical Profile
0 to 6 inches: silt loam
6 to 48 inches: silty clay
48 to 58 inches: weathered bedrock

BeD Beasley silt loam – 12 to 25 percent slopes
Parent material – clayey residuum weathered from calcareous shale and/or calcareous siltstone
Typical Profile
0 to 6 inches: silt loam
6 to 48 inches: silty clay
48 to 58 inches: weathered bedrock

Bo Boonewood silt loam – occasionally flooded
Parent material – mixed fine-silty alluvium over limestone
Typical Profile
0 to 6 inches: silt loam
6 to 30 inches: silty clay
30 to 40 inches: unweathered bedrock

EoA Elk silt loam – 0 to 2 percent slopes, occasionally flooded
Parent material – mixed fine-silty alluvium
Typical Profile
0 to 36 inches: silt loam
36 to 69 inches: silty clay loam
69 to 87 inches: gravely silty clay loam

FaC Faywood silt loam – 6 to 12 percent slopes
Parent material – clayey residuum weathered from limestone and shale
Typical Profile
0 to 7 inches: silt loam
7 to 29 inches: silty clay
29 to 39 inches: bedrock

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FaD Faywood silt loam – 12 to 25 percent slopes
Parent material – clayey residuum weathered from limestone and shale
Typical Profile
0 to 7 inches: silt loam
7 to 29 inches: silty clay
29 to 39 inches: bedrock

FsF Faywood-Shrouts-Beasley complex – 25 to 50 percent slopes
Parent material – clayey residuum weathered from limestone and shale
Typical Profile
0 to 7 inches: silt loam
7 to 29 inches: silty clay
29 to 39 inches: unweathered bedrock

LaA Lawrence silt loam – 0 to 2 percent slopes
Parent material – fine-silty alluvium over clayey residuum weathered from limestone and dolomite
Typical Profile
0 to 38 inches: silt loam
38 to 53 inches: silty clay loam
53 to 80 inches: silty clay

LbA Lawrence silt loam – 0 to 2 percent slopes, occasionally flooded
Parent material – fine-silty alluvium over clayey residuum weathered from limestone and dolomite
Typical Profile
0 to 44 inches: silt loam
44 to 80 inches: silty clay

Ld Lindside silt loam – 0 to 2 percent slopes, occasionally flooded
Parent material – mixed fine-silty alluvium
Typical Profile
0 to 27 inches: silt loam
27 to 80 inches: silty clay loam

Ne Newark silt loam – 0 to 2 percent slopes, occasionally flooded
Parent material – mixed fine-silty alluvium
Typical Profile
0 to 7 inches: silt loam
7 to 66 inches: silty clay loam
66 to 80 inches: loam

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NhB Nicholson silt loam – 2 to 6 percent slopes
Parent material – fine-silty noncalcareous loess over clayey residuum weathered from limestone
Typical Profile
0 to 28 inches: silt loam
28 to 38 inches: silty clay loam
38 to 80 inches: clay

No Nolin silt loam – 0 to 2 percent slopes, occasionally flooded
Parent material – mixed fine-silty alluvium
Typical Profile
0 to 82 inches: silt loam
82 to 101 inches: loam

OwB Otwood silt loam – 2 to 6 percent slopes, occasionally flooded
Parent material – mixed fine-silty alluvium
Typical Profile
0 to 83 inches: silt loam
83 to 91 inches: loam

RoA Robertsville silt loam – 0 to 2 percent slopes
Parent material – thin fine-silty loess over clayey residuum weathered from limestone
Typical Profile
0 to 7 inches: silt loam
7 to 66 inches: silty clay loam
66 to 80 inches: loam

SaB Sandview silt loam – 2 to 6 percent slopes
Parent material – thin fine-silty loess over clayey residuum weathered from limestone and dolomite
Typical Profile
0 to 41 inches: silt loam
41 to 82 inches: silty clay

ShC3 Shrouts silt loam – 6 to 12 percent slopes – severely eroded
Parent material – clayey residuum weathered from calcareous shale and/or siltstone
Typical Profile
0 to 2 inches: silt loam
2 to 35 inches: silty clay
35 to 45 inches: weathered bedrock

ShD3 Shrouts silt loam – 12 to 25 percent slopes – severely eroded - very rocky
Parent material – clayey residuum weathered from calcareous shale and/or siltstone
Typical Profile
0 to 2 inches: silt loam
2 to 35 inches: silty clay
35 to 45 inches: weathered bedrock

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UkC Urban land – Alfic Udarents - Beasley complex - 0 to 12 percent slopes
Parent material – clayey residuum weathered from calcareous shale and/or calcareous siltstone
Typical Profile
0 to 48 inches: silty clay
48 to 58 inches weathered bedrock

UwC Urban land – Alfic Udarents - Shrouts complex - 0 to 12 percent slopes
Parent material – clayey residuum weathered from calcareous shale and/or calcareous siltstone
Typical Profile
0 to 35 inches: silty clay
35 to 45 inches weathered bedrock

UwD Urban land – Alfic Udarents - Shrouts complex - 12 to 25 percent slopes
Parent material – clayey residuum weathered from calcareous shale and/or calcareous siltstone
Typical Profile
0 to 35 inches: silty clay
35 to 45 inches weathered bedrock

Visual Reconnaissance of Selected Slope Areas

Three areas shown on the Plan as >30% slopes would be disturbed during site development for new road construction (Area 01 and 02) and new home construction (Area 03 / Lot 29). See attached Visual Slope Reconnaissance Plan for approximate locations. A visual reconnaissance of these areas was conducted on December 19, 2018. Photos of the conditions observed at these areas are shown below. Similar conditions were observed in most areas. The slopes primarily were wooded with many small to large trees. Brush, vines, and other low vegetation also was present. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. Flag stones were observed along the bottom and banks of swales and small streams. Some indications of erosion were observed including occasional patches of bare soil and small gullies, primarily along the swales and small streams. No indications of large, wide-scale scale erosion were noted. No visual indications of slope instability were observed. In particular, none of the following were noted: unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas.

Steep slope at Area 01

Steep slope at Area 02

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Steep Slope Area 03


Steep Slope Area 03

Based on our review of the above reference information and on our past experience with construction under similar conditions in Jefferson County, our opinion is that the on-site slopes (excluding small, localized erosion features along swales and streams) in the observed areas were stable at the time of our reconnaissance. The current, on-site slope stability likely is related to the following factors:

- Relatively thin depths of soil in slope areas
- Cohesive (clayey) soil matrix
- Rocky soil texture
- Limestone bedrock in many areas
- Numerous trees and other vegetation

Based on the conditions observed, our opinion is that additional geotechnical exploration/analyses including soil/rock test borings/coring, shear strength tests of soils, etc. are not required for the evaluated on-site slopes, provided that the planned subdivision configuration does not involve disturbance significantly greater that what was indicated on the Plan.

Several measures may be considered to help maintain the stability of the existing and planned slopes during construction of the new subdivision and over the life of the new homes. These measures include:

- Plan grading to minimize changes to existing topography along slopes.
- Minimize disturbance to slopes and vegetation outside new construction areas.
- Avoid significant transverse cuts along or at the toe of existing slopes.
- Avoid significant embankments along or at the crest of existing slopes.
- Maintain the following limits for new embankments without additional geotechnical exploration and analysis:
  - 3:1 (horizontal:vertical) or flatter slopes.
  - Properly strip all vegetation, topsoil, etc. where fill will be placed.
  - Construct embankments with controlled fill compacted to at least 98 percent standard Proctor maximum dry density and within 2 percent of the optimum moisture content.
  - Maximum fill embankment height – 5 feet.
  - Horizontally bench new fill into existing slopes.

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- Maintain the following limits for new cuts in soil without additional geotechnical exploration and analysis:
  - 3:1 (horizontal:vertical) or flatter slopes.
  - Maximum cut height – 5 feet.
- Provide adequate erosion and surface water drainage control during construction and over the life of the subdivision.
- Establish permanent vegetative cover as soon as practical.

We appreciate the opportunity to work with you on this project. If you have any questions about this evaluation, or if you need any further assistance, please call us at any time.

Cordially,
ECS Southeast, LLP

Jeremy Hudson, P.E.
Senior Project Engineer

Michael C. Ronayne, P.E.
Chief Engineer

Attachments: Site Vicinity Map
Preliminary Plan South English Station Property
Visual Slope Reconnaissance Plan

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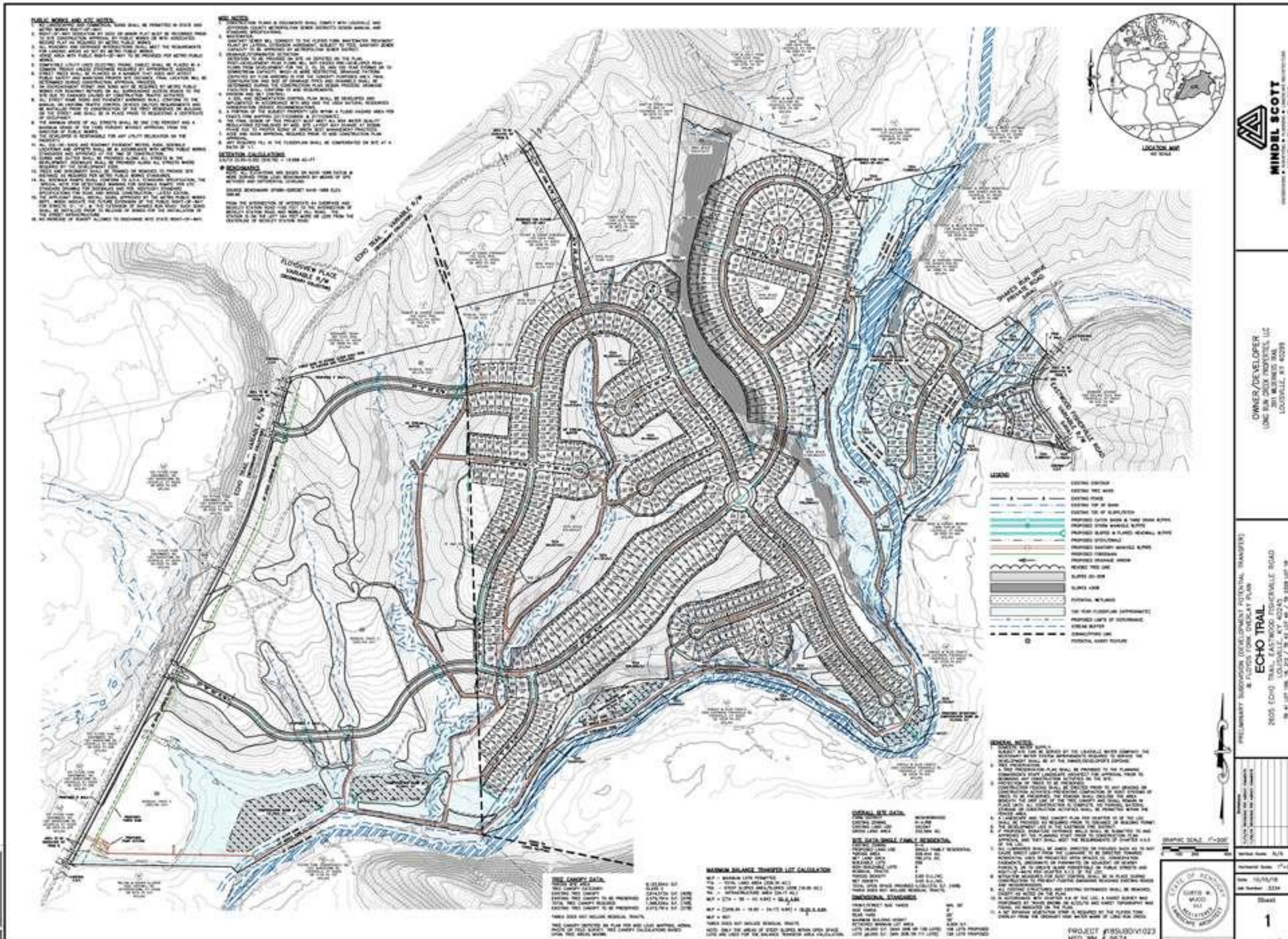
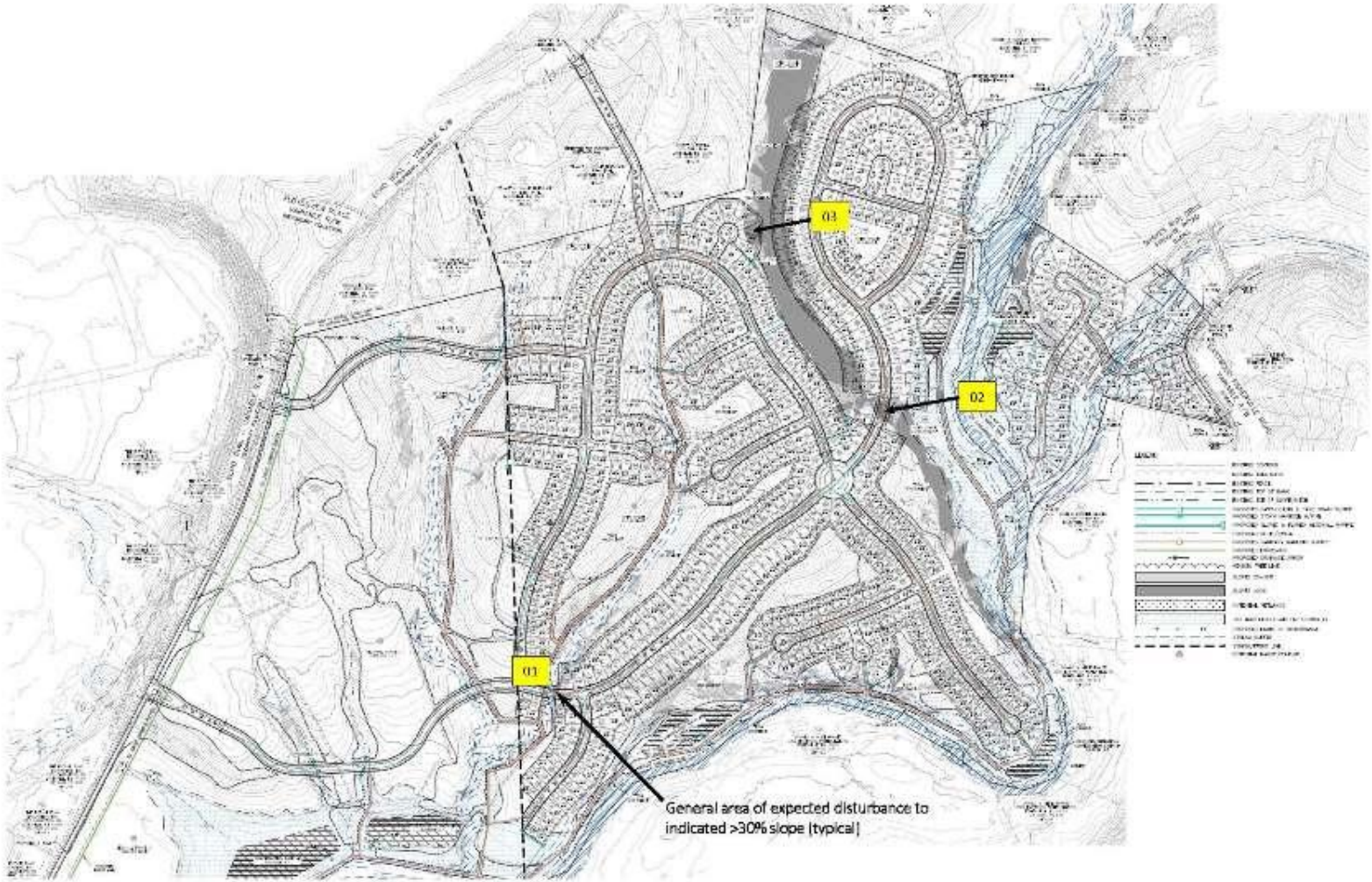


MINDEL SCOTT
OWNER/DEVELOPER
LONG RUN CREEK PROPERTIES, LLC
LOUISVILLE, KY 40299
PRELIMINARY SUBDIVISION (DEVELOPMENT POTENTIAL TRANSFER)
& FLOYDS FORK OVERLAY PLAN
ECHO TRAIL
2605 ECHO TRAIL, EASTWOOD FISHERVILLE ROAD
LOUISVILLE, KY 40245
LOCATION MAP
LEGEND
GENERAL NOTES
OVERALL SITE DATA
DIMENSIONAL STANDARDS
TREE CANOPY DATA
MAXIMUM BALANCE TRANSFER LOT CALCULATION
PROJECT #18SUBDIV1023
MSD WM # 9674
Vertical Scale: N/A
Horizontal Scale: 1"=200'
Date: 10/15/18
Sheet
1



Based on "Preliminary Subdivision (Development Potential Transfer) & Floyds Fork Overlay Plan, Echo Trail" prepared by Vince Scott dated 10/15/2018

Visual Slope Reconnaissance Plan
Proposed Echo Trail Subdivision
2635 Echo Trail
Louisville, Kentucky 40245
ECS Project No. 61-1892

ECS Southeast, LLP
752 Watterson Trail
Louisville, Kentucky 40299
(502) 499-7100

January 22, 2018

S. B. Rives
Long Run Creek Properties LLC
3911 Wilderness Trail
Louisville, Kentucky 40299
sevirb926@gmail.com

Subject: Geotechnical Slope Evaluation Report – Addendum 1
Proposed Echo Trail Subdivision
2605 Echo Trail, Eastwood Fisherville Road
Louisville, Kentucky 40245
ECS Project No. 61-1893

Dear Mr. Rives:

ECS Southeast, LLP (ECS) conducted an additional visual reconnaissance of six (6) areas of interest identified by Joel Dock at the proposed Echo Trail Subdivision. A visual reconnaissance of these areas was conducted on January 16, 2019. Photos of the conditions observed at these areas are shown below. The six additional areas are identified as areas 4 through 9 (areas 1 through 3 were addressed in our previous report dated 12/28/18) on the attached Visual Slope Reconnaissance Plan and included the following lots:

- Area 4: Lot 341 (20 – 30% slopes)
- Area 5: Lots 310 – 312 (20 – 30% slopes)
- Area 6: Lots 221 – 223 (20 – 30% slopes)
- Area 7: Lot 452 (20 – 30% slopes)
- Area 8: Lots 53 – 58 (> 30% slopes)
- Area 9: Lots 68 – 82 (> 30% slopes)

Visual Reconnaissance of Selected Slope Areas

Area 4: Lot 341

The slopes primarily were wooded with many small to large trees. Brush, vines, and other low vegetation also was present. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. Flag stones were observed along the bottom and banks of the small stream. Some indications of erosion were observed including occasional patches of bare soil and small gullies primarily along the small stream. No indications of large, wide-scale scale erosion were noted. No visual indications of slope instability were observed. In particular, none of the following were noted: unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas.


Typical slope at Area 04


Typical slope at Area 04

Area 5: Lots 310 – 312

The slopes primarily were wooded with many small to large trees. Brush, vines, and other low vegetation also was present. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. No indications of large, wide-scale scale erosion were noted. No visual indications of slope instability were observed. In particular, none of the following were noted: unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas.


Typical slope at Area 05


Typical slope at Area 05

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Area 6: Lots 221 – 223

The slopes primarily were wooded with many small to large trees. Brush, vines, and other low vegetation also was present. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. No indications of large, wide-scale scale erosion were noted. No visual indications of slope instability were observed. In particular, none of the following were noted: unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas.

Typical slope at Area 06

Typical slope at Area 06

Typical slope at Area 07

Typical slope at Area 07

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Area 7: Lot 452

The slopes primarily were wooded with many small to large trees. Dense brush, vines, and other low vegetation also was present. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. No indications of large, wide-scale scale erosion were noted. No visual indications of slope instability were observed. In particular, none of the following were noted: unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas.

Area 8: Lots 53 – 58

The slopes primarily were wooded with many small to large trees. Brush, vines, and other low vegetation also was present. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. Weathered rock appeared to be exposed along the access road located within the eastern half of Lot 54. Significant erosion was observed along the access road including erosion rills and gullies and several areas of exposed soil and weathered rock. No visual indications of slope instability were observed. In particular, none of the following were noted: unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas.

Typical slope at Area 08

Access road and erosion at Lot 54

Area 9: Lots 68 – 82

The slopes primarily were wooded with many small to large trees. Very dense brush, vines, and other low vegetation also was present across most of the area with only isolated areas where most of the ground surface was visible. No rock outcrops were observed along hillsides with the exception of occasional, small, isolated cobbles and boulders. Some indications of erosion were observed including occasional patches of bare soil and small gullies along the hillsides. No indications of large, wide-scale scale erosion were noted. No visual indications of slope instability (unusual tilting or fallen trees, tension cracks, scarps, displaced soil, or mounds of soil in lower areas) were observed over the majority of Area 9. However, a mound of soil was observed in the mid-slope area in Lot 68. In addition, a bent tree was observed in the area of the soil mound. Each are indicators of past slope instability. The soil mound was observed to be approximately 35 to 40 feet in length and less than 2 feet in height, traversing the lot primarily in the north-south direction.

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Typical slope at Area 09 (south)


Typical slope at Area 09 (central)


Typical slope at Area 09 (north)


Bent tree and soil mound along the slope at Lot 68

Conclusions

The erosion observed on the eastern half of Lot 54 appeared to be the result of the use of the area as an access road for farming operations and was likely the result of large equipment disturbing the surface and the lack of ground cover in the area. Restoration in the area of the access road can be achieved by: removing equipment traffic from the area, re-grading the area to remove deep erosion rills, and establishing a vegetative cover for erosion protection.

The observed indications of past slope instability on the western portion of Lot 68 appeared to be the result of slope movement that occurred several years prior to this site visit based the tilt and bow of a tree in the area of the mounded soil, the lack of any obvious tension cracks or scarps along the slope surface, and the presence of dense brush and other vegetation on the surface. The presence of very dense vegetation across most of Area 9 prevented a through observation

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of the slopes. While additional evidence of slope instability was not observed, it is possible that the dense ground cover obscured the presence of slope instability. Once areas where site disturbance for grading and/or utility installation have been cleared of dense vegetation, ECS should be retained to further evaluate those slopes. Significant disturbance of the steeper slopes along the western portions of Lots 68 – 82 should be avoided if possible. If large excavations or significant re-grading in those areas are to occur, ECS should be contacted for guidance.

Based on our review of the available reference information and on our past experience with construction under similar conditions in Jefferson County, our opinion is that the on-site slopes (excluding small, localized erosion features along swales and streams) in the observed areas (excluding Lot 68 mentioned above) were stable at the time of our reconnaissance.

The current, on-site slope stability likely is related to the following factors:

- Relatively thin depths of soil in slope areas
- Cohesive (clayey) soil matrix
- Rocky soil texture
- Limestone bedrock in many areas
- Numerous trees and other vegetation

Based on the conditions observed, our opinion is that additional geotechnical exploration/analyses including soil/rock test borings/coring, shear strength tests of soils, etc. are not required for the evaluated on-site slopes, provided that the planned subdivision configuration does not involve disturbance significantly greater that what was indicated on the Plan.

Several measures may be considered to help maintain the stability of the existing and planned slopes during construction of the new subdivision and over the life of the new homes. These measures include:

- Plan grading to minimize changes to existing topography along slopes.
- Minimize disturbance to slopes and vegetation outside new construction areas.
- Avoid significant transverse cuts along or at the toe of existing slopes.
- Avoid significant embankments along or at the crest of existing slopes.
- Maintain the following limits for new embankments without additional geotechnical exploration and analysis:
  - 3:1 (horizontal:vertical) or flatter slopes.
  - Properly strip all vegetation, topsoil, etc. where fill will be placed.
  - Construct embankments with controlled fill compacted to at least 98 percent standard Proctor maximum dry density and within 2 percent of the optimum moisture content.
  - Maximum fill embankment height – 5 feet.
  - Horizontally bench new fill into existing slopes.
- Maintain the following limits for new cuts in soil without additional geotechnical exploration and analysis:
  - 3:1 (horizontal:vertical) or flatter slopes.
  - Maximum cut height – 5 feet.
- Provide adequate erosion and surface water drainage control during construction and over the life of the subdivision.
- Establish permanent vegetative cover as soon as practical.

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We appreciate the opportunity to work with you on this project. If you have any questions about this evaluation, or if you need any further assistance, please call us at any time.

Cordially,
ECS Southeast, LLP

STATE OF KENTUCKY
JEREMY HUDSON
27664
LICENSED
PROFESSIONAL ENGINEER

Jeremy Hudson, P.E.
Senior Project Engineer

Michael C. Ronayne, P.E.
Chief Engineer

Attachments: Visual Slope Reconnaissance Plan

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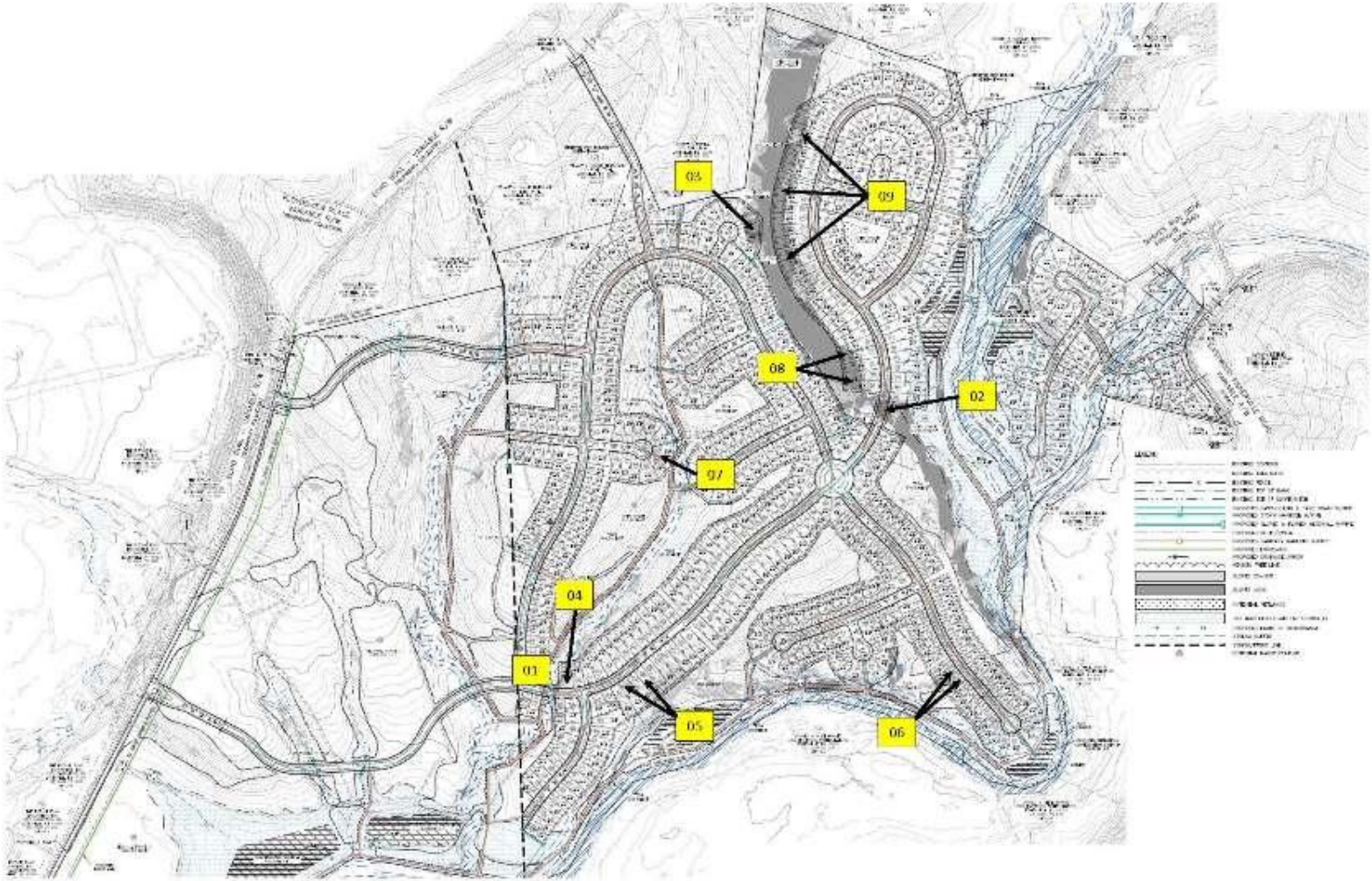


Based on "Preliminary Subdivision (Development Potential Transfer) & Floyds Fork Overlay Plan, Echo Trail" prepared by Mindel Scott and received 10/16/2018

Visual Slope Reconnaissance Plan
Proposed Echo Trail Subdivision
2606 Echo Trail
Louisville, Kentucky 40245
ECS Project No. 61-1893

ECS Southeast, LLP
762 Watterson Trail
Louisville, Kentucky 40299
(502) 499-7100

LDC Section 4.8.5 Wetlands Delineation & Protection Standards

A. Delineation of Wetland Boundaries.

1. Mapped Wetlands. Boundary delineation of wetlands shall be established using Hydric Soils as a preliminary indicator of wetlands that may meet jurisdictional requirements.
2. Disputed Wetlands. If a wetlands has not been mapped, or its boundaries not clearly established, or if either the County or Applicant dispute the existing boundaries, the Applicant shall retain a qualified person with demonstrated expertise in the field to delineate the boundaries of the wetland in keeping with the standards specified in The Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (January 1987). Subsequent revisions of the Delineation Manual shall not be incorporated into this delineation methodology.

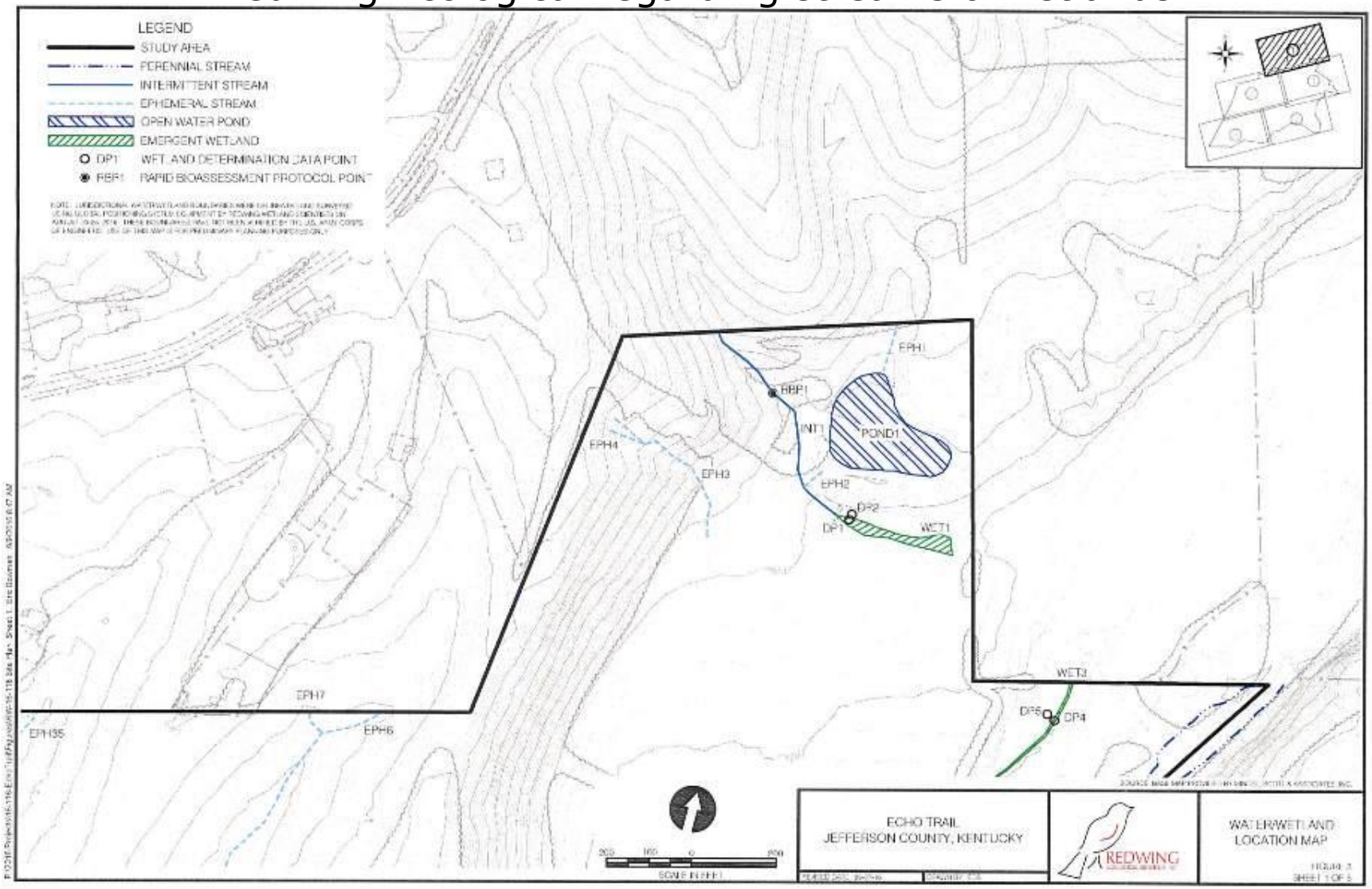
B. Compliance with Applicable Federal Wetlands Laws or Regulations

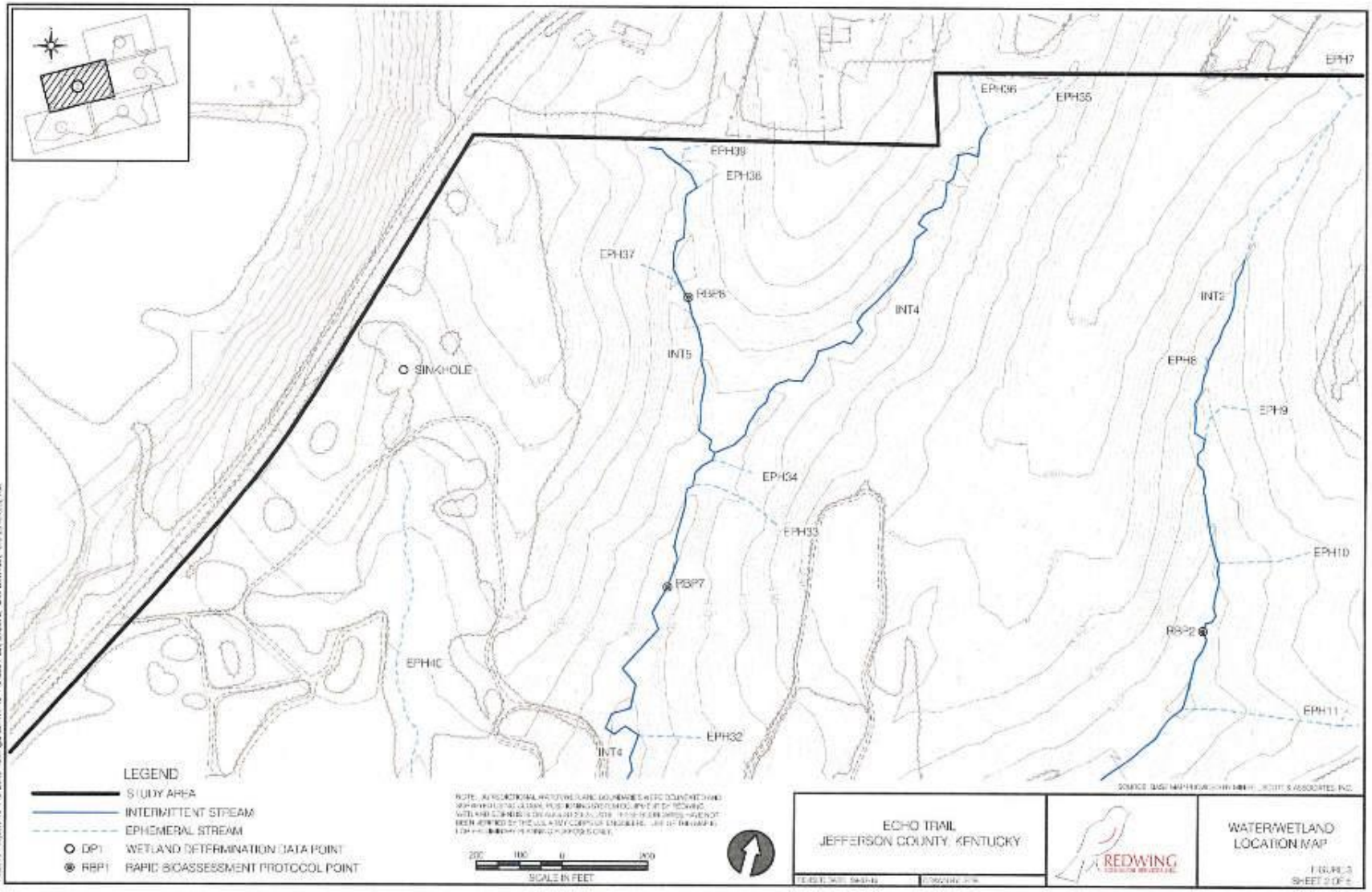
1. Prohibited Activities. No person shall engage in any activity that shall disturb, remove, fill, drain, dredge, clear, destroy, or alter any area, including vegetation, within a wetlands that falls in the jurisdiction of the federal government and its agencies, except as may be expressly allowed under applicable federal laws or regulations. Draining any wetland that falls in the jurisdiction of the federal government and its agencies is prohibited **except in keeping with the provisions of paragraph 2, below**.
2. Federal Approvals Prerequisite Louisville Metro or Local Regulatory Agency Approval. The **MSD shall not grant final approval** to any land disturbing activity, development, or subdivision in a wetlands that falls within the federal government's jurisdiction **until the Applicant demonstrates that all necessary federal approvals and permits have been obtained**.

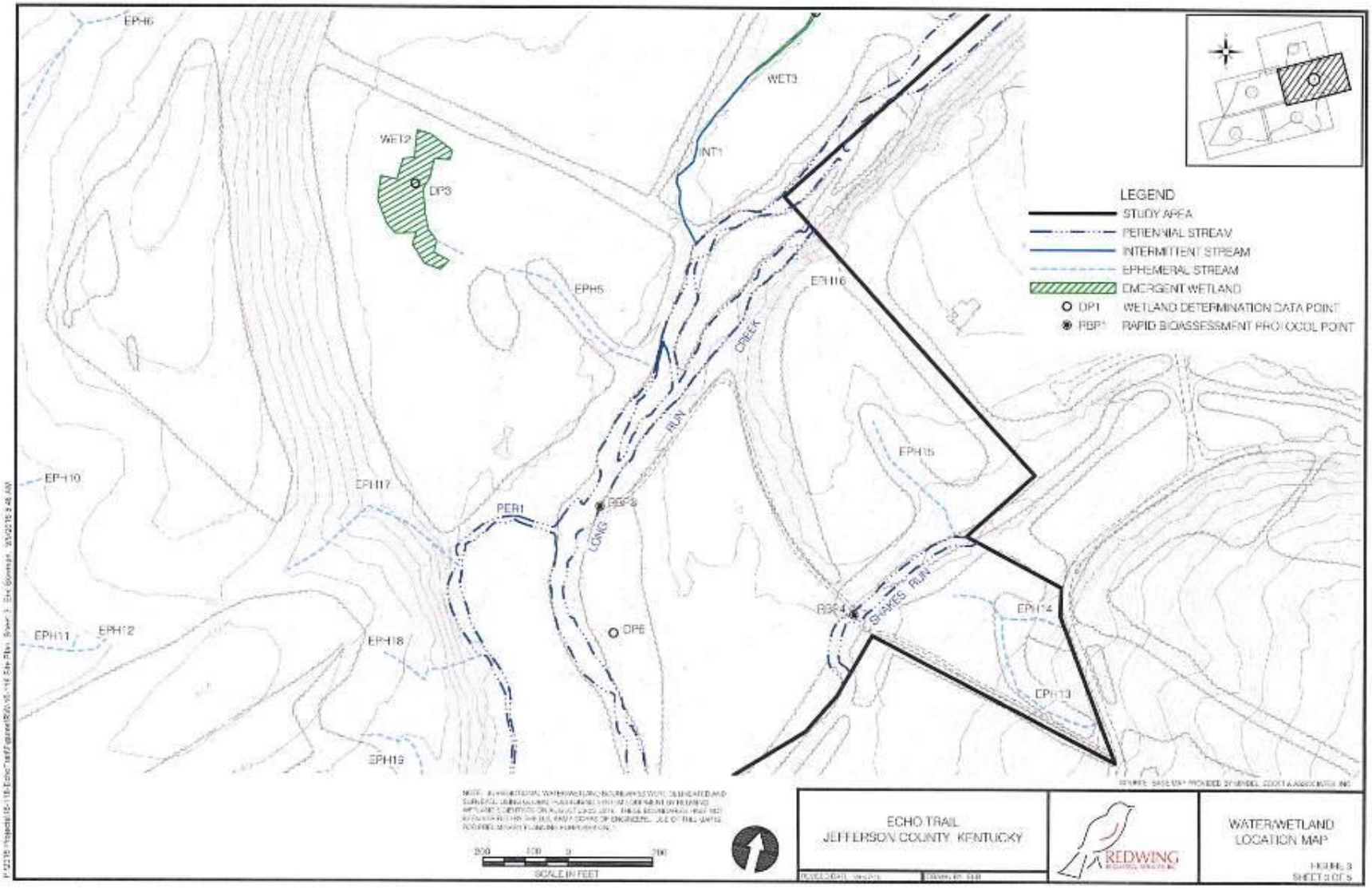
C. Wetland Buffer Width and Use Restrictions

1. Width
   Wetland buffer areas shall be at least 25 feet in width. The total width and design shall conform with USDA Natural Resources Conservation Service criteria, but shall not exceed 100 feet.
2. Permitted Uses and Activities
   Uses shall be as specified in section 4.8.6.

Delineation Study submitted to DPDS
Redwing Ecological regarding streams & wetlands




EPH7
EPH36
EPH35
EPH38
EPH36
EPH37
RBP6
INT4
INT2
INT5
SINKHOLE
EPH8
EPH9
EPH34
EPH33
EPH10
RBP7
RBP2
EPH1C
EPH11
EPH32
INT4
LEGEND
STUDY AREA
INTERMITTENT STREAM
EPHEMERAL STREAM
DP1 WETLAND DETERMINATION DATA POINT
RBP1 RAPID BIOASSESSMENT PROTOCOL POINT
SCALE IN FEET
ECHO TRAIL
JEFFERSON COUNTY, KENTUCKY
REDWING
WATER/WETLAND
LOCATION MAP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WET2
DP3
INT1
EPH5
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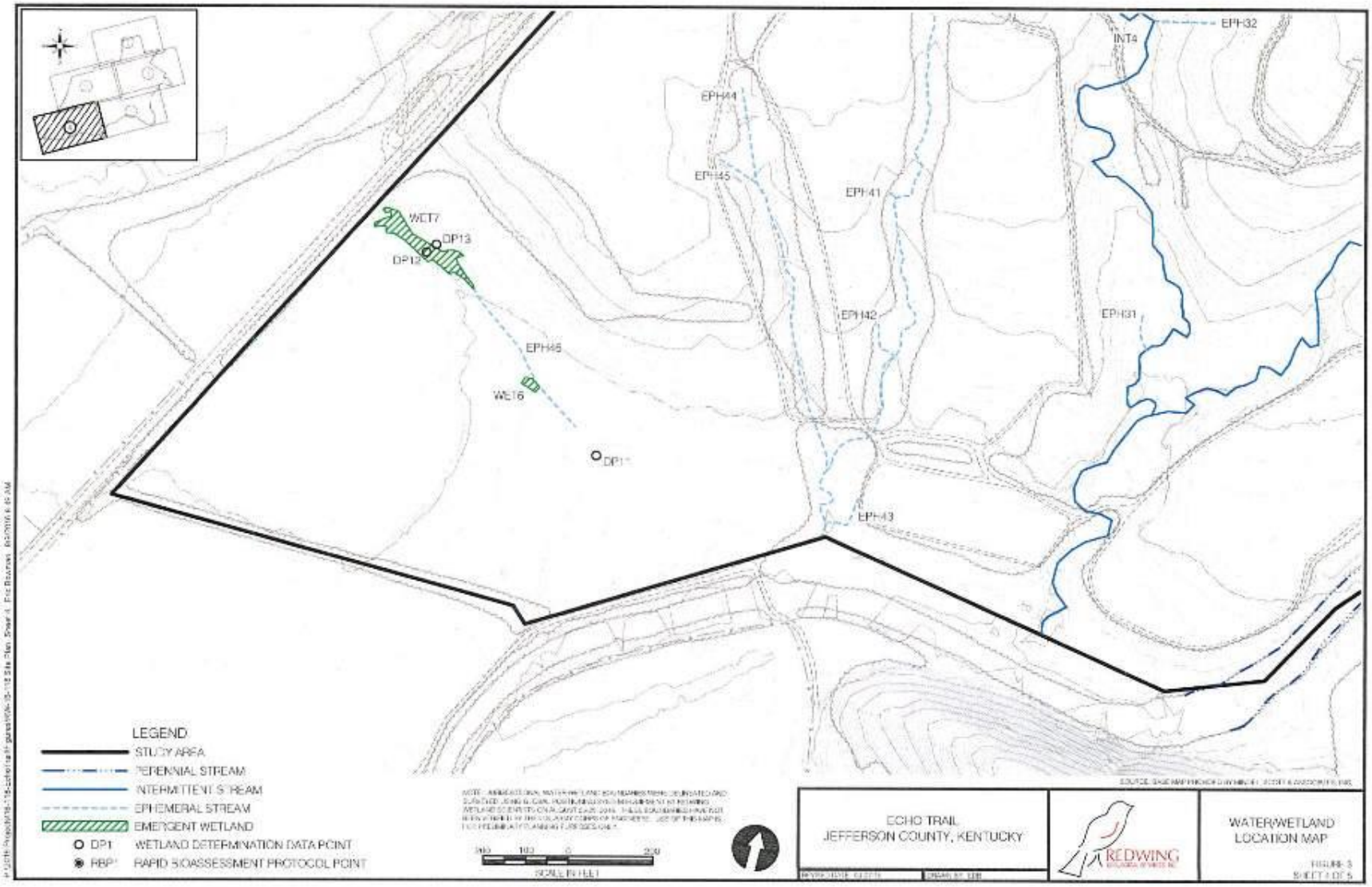
LEGEND
STUDY AREA
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
EMERGENT WETLAND
DP1 WETLAND DETERMINATION DATA POINT
RBP1 RAPID BIOASSESSMENT PROTOCOL POINT
CREEK
RUN
EPH15
EPH10
EPH17
PER1
RBP2
LONG
SHAKES RUN
RBP4
EPH14
EPH11
EPH12
EPH18
DP6
EPH13
EPH19
200 100 0 200
SCALE IN FEET
ECHO TRAIL
JEFFERSON COUNTY, KENTUCKY
REDWING
WATER/WETLAND
LOCATION MAP
FIGURE 3
SHEET 3 OF 5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EPH41
WET7
DP13
DP12
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EPH31
EPH46
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DP1
EPH43
LEGEND
STUDY AREA
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
EMERGENT WETLAND
DP1 WETLAND DETERMINATION DATA POINT
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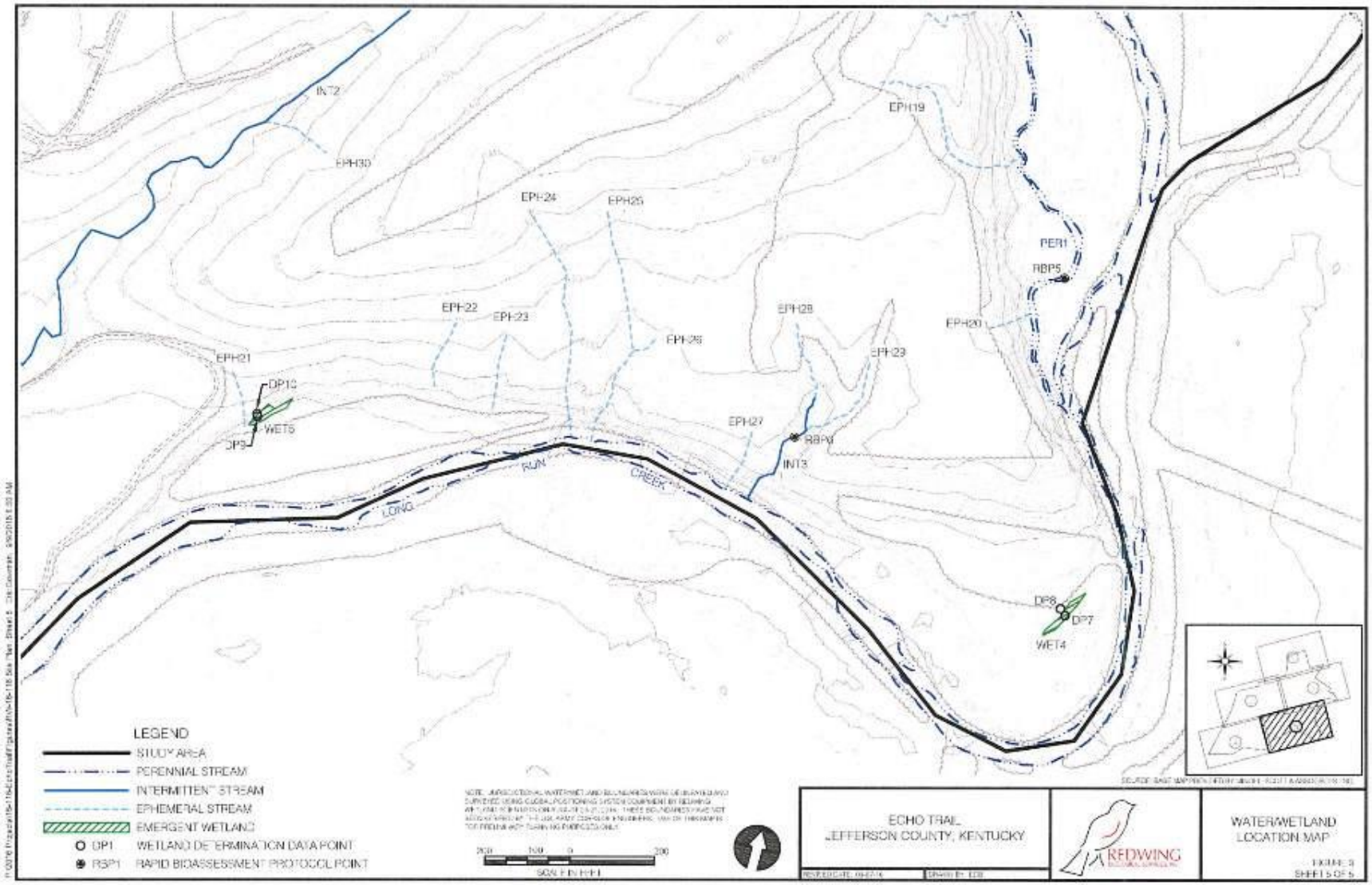
ECHO TRAIL
JEFFERSON COUNTY, KENTUCKY
REDWING
WATER/WETLAND
LOCATION MAP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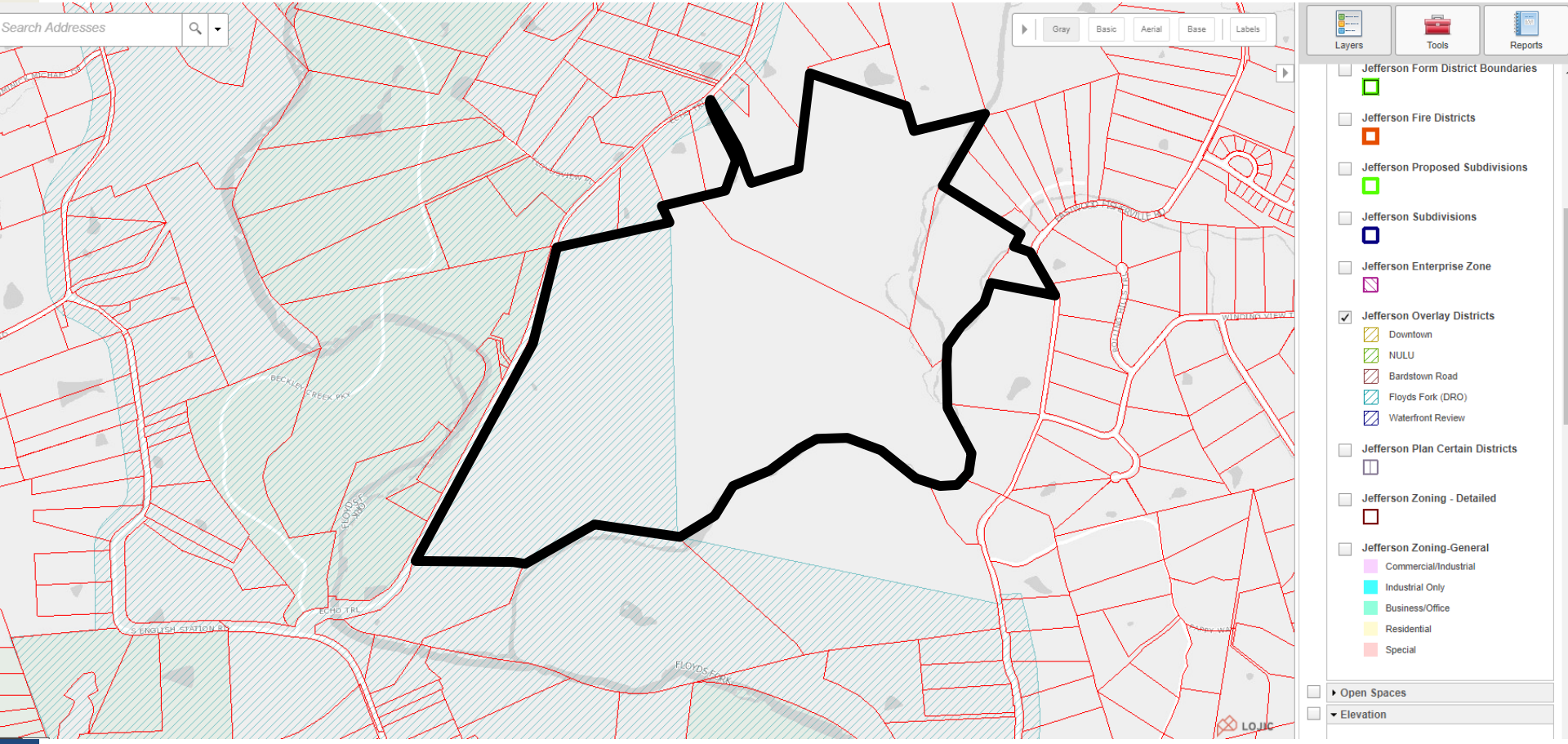
EPH21
DP10
WET5
DP9
EPH27
RBP4
INT3
LONG RUN CREEK
DP8
DP7
WET4
LEGEND
STUDY AREA
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
EMERGENT WETLAND
DP1 WETLAND DETERMINATION DATA POINT
RBP1 RAPID BIOASSESSMENT PROTOCOL POINT
200 100 0 200
SCALE IN FEET
ECHO TRAIL
JEFFERSON COUNTY, KENTUCKY
REDWING
WATER/WETLAND
LOCATION MAP
SHEET 5 OF 5



Area hatched in blue is w/in the Floyds Fork DRO

LDC Chapter 3 Part 1 Floyds Fork Special District

Part 1 Floyds Fork Special District

Reserved; until the community based planning process is complete and a Floyds Fork Special District regulation is adopted, the Development Review Overlay District (DRO), originally adopted in 1993, remains in effect.

Development Review Overlay District

A. General Regulations:

1. The Development Review Overlay District - DRO Definition and Purposes:

a. The Development Review District is an overlay shown on the zoning district maps. It constitutes a second level of development standards in addition to those specified by the underlying zoning district.

5. Submittal Requirements

Submittal materials required by this section will be only as detailed as necessary to determine environmental impacts, without creating needless expense for the applicant. Persons contemplating development within the DRO area are encouraged to schedule a pre-application meeting with Planning Commission staff to determine if the project will require review under this regulation, and to identify materials that will have to be submitted. A proposed district development plan in accordance with the provisions of Plan Certain (Chapter 11 Part 6), may be needed depending upon the scope of the proposal.

7. Guidelines for Approval:
Design guidelines and performance standards which address the characteristics of each Development Review Overlay District shall be prepared. The Planning Commission shall use these design guidelines to determine impact of a proposed development on the quality of the environment in the Development Review District.
The guidelines shall be enacted in ordinance by the legislative body, in conjunction with the amendment of the Zoning District Map to create each Development Review Overlay District.

8. Conditions of Approval
The plan will be reviewed to determine if negative impacts on the environment can be overcome, mitigated to a substantial degree or proven not to exist. Upon incorporation of any necessary mitigative measures, approval of the development or activity will be given, contingent upon meeting other appropriate regulations … .

9. Length of Plan Review Period
It is the Planning Commission's goal to work with applicants, so that delay is minimized. Within 30 business days after submittal of all materials required under paragraph 3, above, the Planning Commission or its designee will take action on a proposed development. For those proposals which are taken to public hearing, the plan review period will be extended to 60 business days. Failure of the Planning Commission its designee to act on an application within these plan review periods shall authorize the applicant to proceed in accordance with the plan as filed, subject to other applicable regulatory approval and permit, unless the review period is extended by agreement between the Planning Commission and the applicant.

Floyds Fork DRO Guidelines

The following section contains the Floyds Fork DRO Guidelines which were adopted in February 1993. Intent: The intent of the Floyds Fork Design Guidelines is to insure that new development within the Floyds Fork Corridor is designed to aid in restoring and maintaining excellent quality for land and water resources of the Floyds Fork Corridor. The design guidelines are also intended to complement the natural landscape in order to obtain an aesthetically pleasing, rural atmosphere.

Applicability: The following guidelines would apply to new development, including subdivisions, new construction, clearing and grading of land. Existing homes, farms and undeveloped property are not required to meet these standards. Before a building permit or subdivision is approved, the proposed plans would be reviewed for compliance with these standards. [Note: Environmental constraints referenced within these guidelines are shown in the Core Graphics Section of the Comprehensive Plan, copies of which are available at the Planning Commission].

1. Stream Corridors

   a. A buffer strip should be maintained a minimum of 100 feet wide on each side of Floyds Fork and a 50-foot wide strip on each side along tributaries shown on Map A. Steep slopes extending beyond the minimum buffer strip may necessitate a wider buffer. The buffer strip is to be measured from the ordinary high water mark. Riparian vegetation should be established, as necessary, and maintained along stream banks to stabilize the banks and protect water quality. Where a bank has been denuded of its vegetation through erosion, slope failure or similar occurrence, other vegetation such as KY-31 Fescue may be appropriate to quickly establish a vegetative cover. This should be considered however only as a temporary, interim solution. Selective removal of dying or diseased trees and shrubs within the buffer strip is permissible, provided that a live root system stays intact. Native plant material adequate for filtering surface drainage should be maintained within the buffer strip. [Note: Small lots within the buffer strip will not be prevented from developing.]

   b. Structures and impervious surfaces should be located at least 200 feet from each bank along Floyds Fork measured from the ordinary high water mark. In conjunction with the riparian vegetative buffer, this buffer protects the stream from adjacent development by filtering sediment, removing other pollution and reducing the force of runoff, In addition hazards from floods and erosion are reduced for development adjacent to the stream. [Note: Small lots within the buffer strip will not be prevented from developing.]

   c. Measures to avoid stream bank erosion are especially desirable; although limited grazing is beneficial to vegetation, excessive grazing of livestock near streams can be detrimental to vegetation and reduce the effectiveness of the buffer strip.

   d. In areas experiencing stream bank erosion, planting of native riparian vegetation is preferred. If this stabilization technique is determined to be inadequate by the agency responsible for drainage review, the preferred alternative is riprap that is installed in a manner that allows tree growth among the stones.

   e. Structures, impervious surfaces, septic systems and associated fill slopes should not be located within the floodplain. Stream crossings are an exception to this; crossings should be minimized and be aesthetically compatible with the natural values of the stream channel.

   f. Filling and excavation should not be permitted in the floodplain. Floodplains are recommended for agricultural and recreational use.

g. Modification of streams shown on Map A including stream relocation and channelization is strongly discouraged. Watercourse modification as a convenience for site design purposes is not appropriate. Removal of fallen trees, tree limbs, brush and similar debris that accumulate naturally in creek beds and impede stream flow is acceptable.

2. Trees and Vegetation

a. Existing wooded areas, in addition to the riparian buffer strip, should be retained wherever possible. Hillside vegetation in particular should be preserved.

b. Wooded areas shown on the development plan as being retained should be preserved and maintained in healthy condition. As trees die or are removed, replacements should be provided.

c. Grading and soil compaction by construction vehicles under the drip lines of trees and wooded areas intended to be retained should be minimized.

d. Where grading within wooded areas is necessary, disturbed areas should be seeded to a shade tolerant plant species and mulched with straw.

e. Proposed major subdivisions should indicate the limits of the site disturbance area for each lot being created. The site disturbance area should be shown in relation to environmental constraints: slopes over 20%, floodplains and wet soils.

f. Proposed major subdivisions should indicate existing wooded areas to be retained and to be removed. The location of existing trees exceeding 18" in diameter at a point 54" above the ground that would be removed should be shown on the plan.

g. Temporary protective fences should surround features to be preserved during the construction process. Features to be preserved shall be defined during the review process (e.g., trees, slopes, historical and archaeological sites).

3. Drainage and Water Quality

a. On site wastewater disposal systems should be located to minimize potential water pollution. Lateral fields should be sited at least 150 feet from the ordinary high water mark of a stream shown on Map A.

b. Areas identified as wetlands in studies approved by government agencies should be preserved in their natural state. Drainage, flooding patterns and any hydrologic system(s) needed to sustain the wetlands should not be altered. Existing vegetation and wildlife habitat should be preserved.

c. To avoid soil loss, property damage, pollution and cleanup costs, an erosion and sediment control plan should be submitted for major subdivisions and other developments with potentially significant water quality impacts. Guidelines found in the Soil Erosion and Sediment Control Practices Section of MSD's design manual currently in effect are to be used when preparing an erosion and sediment control plan. Additional information on this topic is available from Planning Commission staff.

d. Runoff from impervious surfaces should be conveyed in a manner that minimizes erosion. Natural stormwater channels are preferred over manmade materials such as conveyances constructed of concrete.

e. Adequate provision should be made to prevent any storm or surface water from damaging the cut face of any excavation or the sloping face of any fill. When necessary for protection of critical areas, diversion ditches or terraces should be provided.

f. Developers of major subdivisions should plant, water and maintain vegetative cover on graded slopes on each unsold property until all properties have been sold.

4. Hillsides

a. Design subdivisions and locate structures to preserve the natural character of the land to the greatest extent possible.

b. Areas with slopes of 20% or greater generally should not be disturbed.

c. Major subdivisions with developable lots or roadways situated on slopes of 33% or greater should be permitted only if a report prepared by a qualified geotechnical or soils engineer documents that the proposed design will not result in hazardous conditions and certifies work during construction.

d. Minimize cuts and fills. Necessary cuts, fills and ether earth modifications should be replanted with appropriate vegetation. Minimize the practice of terracing hillsides in order to provide additional building sites. Structural containment of slopes should be minimized; retaining walls exceeding six feet in height should be avoided.

5. Clustering of Residential Use

a. Site planning should create cluster patterns of new development whenever possible: building sites and land disturbance activity should be concentrated in portions of the site better suited for development, to minimize disruption of environmentally sensitive areas and to retain the corridor's rural character. Clustering allows significant portions of the site to remain undeveloped, while achieving an amount of development comparable to traditional site plans and reducing development costs.

b. Preservation of agricultural use, including pastures and sustained-yield wood lots, is encouraged.

> ***Note:*** *Cluster developments including lots less than 5 acres in size, with on-lot wastewater disposal, may be approved if designed in accordance with the DRO guidelines.*

6. Historic Elements

a. Where possible, preserve and retain historic elements and distinctive site features such as old buildings, cemeteries, archaeological sites, fence rows, walls and other significant signs of past land use, and as otherwise identified by the agency responsible for historic preservation.

7. Vistas and Appearance

Residential Development

a. New construction along designated scenic corridors (Map A) should preserve the area's rural appearance. In existing wooded areas a buffer area 60 feet in width and densely vegetated should be maintained, to create an effective visual barrier. Outside the wooded areas (agricultural or open lands), new development should provide a substantial setback from the roadway (400 feet minimum) with plantings to partially screen buildings (1 tree per 25 feet of building facade visible from the road). An alternative to the substantial setback is to create a 60- foot buffer thickly planted with fast growing native trees and shrubs. Residential developments having two or more dwellings per acre should provide the 60-foot buffer.

b. Placement of new homes within an existing wooded area, or along far edges of open fields adjacent to woodland; is encouraged (to reduce impact upon agriculture, to provide summer shade and shelter from wind and to enable new construction to be visually absorbed by natural

landscape features).

c. Creation of new driveways from designated scenic corridors should be minimized; common driveways and shared access points are encouraged. Where appropriate for the site's topography and traffic volumes gravel rather than paved drives are encouraged.

d. Signature entrances located along designated scenic corridors should not exceed six feet in height or 50 feet in total length (25 feet each side).

Non-Residential Development

e. New development should be setback a minimum of 50 feet from the right-of-way line of designated scenic corridors (Map A). This area is reserved to accommodate landscaping consistent with the "rural character" of the Floyds Fork corridor. When used in this context, development includes all buildings, signs, parking lots; service drives and access roads that parallel designated scenic corridors.

f. Landscaping in the 50 foot green space (1a. above) along designated scenic corridors should include earth berming (average height of three feet) and shrub masses to screen parking areas. Large deciduous trees, a minimum of one tree for every 50 feet of roadway frontage, should be planted in the green space. Existing trees should be retained whenever possible, both in the buffer area and within the area to be developed. Trees should be planted at least ten feet from the right-of-way.

g. Parking lots should be provided only at the side or rear of the buildings to reduce visual impact of the use while providing an appropriate level of visibility.

h. Buildings, parking lots, and other impervious surfaces should cover no more than 75 percent of each site. The remainder of the site should be planted and maintained with live vegetative cover so as to reduce visual impacts as well as drainage and run off problems.

i. Newly installed utility services should be underground and service structures should be screened as required by Chapter 10 of the Development Code.

j. Attached and monument type signs are preferred (see glossary for definition); pole signs should be avoided.

k. Permanent freestanding signs for property or business identification should not exceed six feet in height or sixty square feet in area. Attached signs are governed by size standards found in the Zoning District Regulations.

l. Billboards, off-premise advertising signs of any kind, banners, balloons, and pennants should not be visible from a scenic corridor.

All Development

m. Buildings should be planned and designed and vegetation should be managed to preserve and enhance scenic vistas along roadways shown on Map A.

n. The visual impact of new structures proposed for prominent hillsides visible from public facilities, scenic corridors and the stream itself should be minimized. Trees should be retained or planted to screen them or to create a filtered view of these structures (one tree per 25 feet of building facade length).

o. When it is necessary to use retaining walls, their height should be minimized. A series of smaller retaining walls is preferable to one large wall, provided that the series of walls can be built without excessive removal of vegetation during construction. Retaining walls faced with brick or

stone are preferable.

p. Hedges and fence rows (trees and shrubs growing along a fence) are the preferred means of property enclosure provided they do not obstruct scenic vistas. If chain link fencing is to be used, it should blend with its setting (painted or vinyl coated with dark colors such as black, green or brown). Unscreened galvanized chain link fencing is appropriate only for areas not visible from roads shown on Map A.

q. Parking areas, outbuildings, satellite dishes, and other less attractive aspects of a development should be screened from view. Where total screening is impractical, partial measures that lessen the full visual impact of development are recommended.

Diane Zimmerman P.E. Traffic Impact Study Levels of Service (LOS) at intersections of MPW & TP required study

	2018 Existing	2030 No Build	2030 Build	2018 Existing	2030 No Build	2030 Build
Taylorsville Road at Taylorsville Lake Road	C 32.5	D 45.3	D 48.2	B 18.8	E 55.2	E 55.0
Taylorsville Road (KY 148) Westbound	E 56.4	B 16.0	B 15.3	C 30.3	D 38.9	D 36.2
Taylorsville Lake Road Northbound	C 30.6	E 55.4	E 59.3	B 14.8	B 12.2	B 12.1
Taylorsville Lake Road Southbound	B 18.1	D 36.1	D 46.9	B 15.9	E 78.9	E 78.9
Taylorsville Road at S. English Station Road						
Taylorsville Road Eastbound	A 9.5	B 10.3	B 10.7	A 8.0	A 8.2	A 8.7
Taylorsville Road Westbound	A 7.3	A 7.5	A 7.5	A 7.5	A 7.6	A 7.6
S. English Station Road Northbound	C 24.1	E 36.1	E 48.9	C 21.7	D 32.8	F 77.5
S. English Station Road Southbound	B 11.5	B 12.6	C 15.3	B 11.2	C 16.5	E 36.5
S. English Station Road at Echo Trail	B 10.5	B 12.4	C 22.1	B 10.8	B 12.9	D 30.6
S. English Station Road Eastbound	A 8.0	A 8.3	B 10.3	B 12.0	B 14.9	E 45.7
S. English Station Road Westbound	B 11.3	B 13.8	D 25.6	A 8.5	A 9.1	B 14.4
Echo Trail Southbound	A 9.1	A 9.8	C 25.0	B 10.0	B 11.1	C 20.6

Two points regarding the Regulatory and Constitutional limits on the subjective application of off-site exactions in ministerial subdivision cases

1. OBJECTIVE STANDARD REQUIREMENT:

- LDC Sec. 7.3.10A sets an 18' minimum road width objective standard re: the primary means of access to a subdivision.
- An underpinning principle of all administrative law is that regulations must contain objective standards; subjective ones being illegal.
- The sentence 13 lines down from top of Sec. 7.3.10A **(specifying that "in addition to the roadway width, the Planning Commission may require other offsite improvements to correct conditions *that would impede the safe flow of traffic associated with the new subdivision*"**) was intended and understood at the time and until now to apply to other narrow road conditions, like a sudden drop-off or culvert alongside that 18' wide or widened road that may need to be improved.
- That language was never intended to subjectively require road improvements unrelated to the access road width or property frontage when all that was occurring was that land was being ministerially subdivided.

- In Snyder v Owensboro, 528 S.W.2d 663, 664 (Ky. 1975), Kentucky's highest court made clear the legal limits of regulatory authority in a mere subdivision case, to wit: "*KRS 100.281, specifies requirements for the contents of subdivision regulations. The statute plainly contemplates that specific standards shall be set forth, rather than mere broad generalizations with regard to health, safety, morals and general welfare…(emphasis added)*"
- The **bold type-faced and underlined** LDC Section 7.3.10A language on the previous page does not amount to a specific standard, but rather is a broad generalization with regard to safety, which Kentucky's highest court has said does not cut it.
- An R-4 Conservation Subdivision is entitled to the benefit of the zoning and subdivision regulations without any restrictions on development apart from what specific standards specifically require.

2. US SUPREME COURT EXACTIONS TEST:

- Under the US Supreme Court's enunciated two-pronged test for exactions, first an "*essential nexus*" must exist between the designated exaction and the reasonably determined impacts of a proposed development. Second, any exactions must be "*roughly proportional*" to the development's community and infrastructure impacts.
- In a ministerial subdivision case, under the US Supreme Court's "essential nexus"/"rough proportionality" test, a developer's obligations can **only** be extended, under the formulation of LDC Section 7.3.10A in combination with the Road System Develop Charge Ordinance, to the following: (a) dedication of additional right-of-way, (b) frontage improvements, (c) assurance of an 18-road access from the nearest arterial, and (d) payment of the road system development charge.
- All off-site exactions in a ministerial subdivision case, other than (a) – (c) above, which are objective standards, are to be paid for through the (d) road system development charge (also an objective standard), which was developed following thorough study of needed area road improvements with a *nexus* to anticipated residential developments, which road improvement costs were *roughly apportioned* among all subdivision developers in the area (thus the $1,000/sf lot fee).

IN CONCLUSION:

- In reviewing subdivision regulation requirements authorized by KRS 100.281 and considering holdings of both the Kentucky and US Supreme Courts, the Kentucky Court of Appeals has said in Lexington-Fayette Urban County Government v. Schneider, 849 S.W.2d 557 (1992),

  "While local governments barely have funds for street maintenance, much less construction, they nevertheless may not put unreasonable burdens on developers as a condition precedent to approval of a subdivision. It is one thing to require land dedication and street construction to collector street specifications, but quite another thing to require construction of an expensive public improvement of any type."

- That is really important language, especially as respects the ministerial review of subdivisions.

Proposed Additional Condition of Approval

- Developer shall have the option of constructing or to pay Metro Public Works to construct a left-turn lane in eastbound Taylorsville Road at its intersection with English Station Road, commencement of said construction to begin or payment to be made prior to the issuance of the ____ house building permit in this development. Construction plans for the design of these improvements shall be required to be provided by the developer prior to the Work Order for the first phase of development. Metro Public Works has agreed, as part of this condition of approval, to request the SDC Oversight Committee to designate this improvement a Road Project within the applicable Zone so that any costs associated with it will be eligible for an SDC credit. Developers shall be limited to ____ building permits until this road improvement is completed.