



Andy Beshear
Governor

Jamie Link
Secretary, Education and
Workforce Development Cabinet

Jason E. Glass, Ed.D.
Commissioner of Education and Chief Learner

KENTUCKY DEPARTMENT OF EDUCATION
300 Sower Boulevard • Frankfort, Kentucky 40601
Phone: (502) 564-3141 • www.education.ky.gov

September 25, 2023

Mr. Larry James, Superintendent
Martin County Schools
RT. 40 P.O. Box 366
Inez, KY 41224

RE: MARTIN COUNTY:

**Property Acquisition
Additional Holly Bush Site (approx. 150 acres)
Martin County HS Athletic Complex (DFP Priorities 5.1.a, c, d, and e) and
Future School (Not on current DFP)
KY 645 E
Inez, Kentucky 41224**

Dear Superintendent James:

Upon the board's written request to KDE on September 11, 2023, and pursuant to **702 KAR 4:050 Building sites: inspection, approval**, representatives of the district and the department met on September 21, 2023, to review the requirements of the regulation and to conduct a site inspection of the referenced property (satellite photo below).



The property consists of heavily forested ridges and valleys which were filled during the construction of KY 645 E.

Pursuant to **702 KAR 4:050**, tentative approval is hereby granted to the Martin County Board of Education to acquire the referenced site. For final approval, the following information shall be submitted to this office:

1. **Title Opinion** from an attorney which states that fee simple title to the property can be obtained by the local board.
 - A. The Title Opinion shall be for a minimum period of sixty (60) years.
 - B. If the mineral rights are not acquired, a forbearance agreement shall be required to ensure surface support.
2. **Commitment for Title Insurance.**
3. **Plat** by a professional land surveyor licensed in the Commonwealth of Kentucky. The plat shall:
 - A. Be sealed and signed by the surveyor of record.
 - B. Be current within twenty-four months of the proposed acquisition.
 - C. Identify the following:
 1. Property boundaries.
 2. Acreage.
 3. Access to a public right of way and identification of same.
 4. Easements: access easements and utility easements of any kind including natural gas and crude oil transmission lines. The property shall not have easements which traverse the site. Easements are allowable along the perimeter.
 - a. Commitments to relocate an easement from traversing the site to perimeter shall be considered.
 - D. Certify that property is above the 100-year flood plain as determined by the current FEMA map.
 1. Consideration may be given if filling of the site will bring the building floor level and appurtenances above the 100-year elevation.
4. **Utility Assurance Letters** from professional engineer and/or municipal government agency providing assurance of adequate site utilities to include the following:
 - A. **Water:** Adequate water supply for both domestic and fire suppression shall be available. This shall require both an adequate volume, flow and pressure.
 - B. **Power:** Adequate electrical service shall be available with normal voltages of 120V/240/v, and three (3) phase.
 - C. **Sanitary Sewage:** Either municipal sewer system shall be available or the site shall be equipped with a package sewage treatment plant with the effluent piped to an acceptable blue-line stream.
5. **Roadway Adequacy and Funding Commitment Letters:**
 - A. **Kentucky Transportation Cabinet (KYTC):**
 1. Confirming the adequacy of the state-maintained roadway network providing access to the site.
 2. Providing a funding commitment for any improvements required in the right of way of impacted state-maintained roadway.
6. **Potential Environmental or Safety Hazards Letter:** Letter from an architect or engineer regarding the presence of any potential environmental or safety hazards in the vicinity of the proposed site. Within the vicinity of a selected site, there shall not be any hazards to health or environment as so deemed by state agencies having jurisdiction. Examples include: airport - landing/takeoff corridor, airborne particulates; hazardous waste site affecting runoff and aquifer; manufacturing concerns; sewage treatment/water purification; chlorine presence; subsurface faults; unstable high-wall conditions of surrounding grounds.
7. **Schematic Site Plan:** providing the proposed location of the school, roadway ingress/egress, interior vehicular circulation, parking, required play areas, any extracurricular athletic fields or other proposed

development and demonstrating that car traffic will not stack on a public right of way at peak times of student drop off/pick up.

8. **Site Development Cost Analysis** as requested by KDE shall include but not be limited to the following:
- A. Geotechnical investigation (drilling a minimum of four (4) holes for subsurface conditions) or additional if required
 - B. Mass excavation including all earth and rock removal and fill. Cost to be informed by the geotechnical investigation.
 - C. Cost of bringing utilities to the site.
 - D. Cost of hazardous condition cleanup
 - E. Acquisition cost.
 - F. Percentage of site development cost and acquisition cost to maximum project budget.

The total of site development and acquisition costs in excess of ten (10) percent of the maximum budget for the project shall be approved by the Kentucky Board of Education.

10. **Appraisal** performed by a certified general real property appraiser commissioned by the district.
- a. The appraisal shall be performed or updated within twenty-four months of the proposed acquisition.
 - b. Should the district seek reimbursement of site acquisition costs from School Facility Construction Commission (SFCC) funds, the executive director of the SFCC shall be contacted for an appraiser to be named.
11. **Proposed Purchase Agreement:** The agreement shall identify the Martin County Board of Education as the buyer. The purchase price shall not exceed a de minimis amount of the fair market value established by the appraisal.

An option to purchase which in no way obligates the district may be executed to assure the availability of the site during this approval process.

The site shall have the approval of the chief state school officer prior to initiation of an application for approval of a construction project. No site preparation or construction shall take place prior to the time the proposed new school is a part of the facility plan.

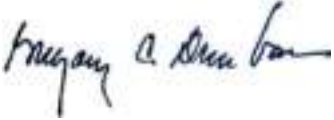
Please provide the above required items **individually as enumerated and titled above** for the selected (if more than one site was under consideration) site in FACPAC using the process outlined in the attachment. After completing the submission of these items, please contact Gary Leist Gary.Leist@education.ky.gov, your KDE project manager, to initiate KDE's review.

Upon evaluation of the submitted documentation, KDE will advise the district of any deficiencies that need to be addressed, provide final approval to acquire the property, or disapprove the acquisition. Should the site development costs plus the acquisition costs exceed ten (10) percent of the maximum budget for the project, we will advise you of additional steps required related to consideration by the Kentucky Board of Education. A disapproved site shall require the district to recommend another site for review.

If you have any questions about any of the above, please call us at (502) 564-4326.

Sincerely,

Superintendent Larry James
September 25, 2023
Page 4



Gregory C. Dunbar, AIA, Manager
District Facilities Branch
Division of District Support
GCD/GTL

Attachments: FACPAC Submittal Process
KYTC Road Adequacy Template

ec: Ricky Sizemore, KYTC
Chay Ritter, Gary Leist and Tanesha Keene, KDE
DFB Site Acquisition File/District Correspondence File



Certified General Real Property Appraiser

Dixon Nunnery Appraisal Service

35 College Lane
Prestonsburg, Kentucky 41653
(606)886-6464

NARRATIVE APPRAISAL REPORT

OF

MARTIN COUNTY BOARD OF EDUCATION
ATHLETIC FIELDS (BASEBALL & SOFTBALL)
KY. ROUTE 40: INEZ, KENTUCKY 41224

FOR

MARTIN COUNTY BOARD OF EDUCATION
7900 HIGHWAY 645
INEZ, KENTUCKY 41224

CERTIFICATION


I, the undersigned, do hereby certify that I have made a field inspection of the property herein appraised on October 11, 2023, and have made a field inspection of the comparable sales relied upon in making said appraisal, and neither my employment nor my compensation for making this appraisal are in any way contingent upon the value reported herein and that to the best of my knowledge and belief that statements contained in the appraisal report are true, and the information upon which the opinions expressed herein are based is correct, subject to the limiting conditions herein set forth.

That it is my opinion the fair market value of subject property as of October 11, 2023, the date of inspection is as follows:

Two Hundred Fifty Thousand Dollars

(\$250,000.)

10-27-23



Dixon Nunnery
Certified General Real Property
Appraiser

LIMITING CONDITIONS AND ASSUMPTIONS

The following underlying assumptions and conditions have been made:

1. That the title to the property is good and marketable.
2. That there are no encumbrances against the property that would in any way affect the valuation.
3. That no survey of this property has been made, and that I assume no responsibility in connection with such matter.
4. That information supplied by others is, to the best of my knowledge and belief, in conformity with the true facts, but no further liability can be assumed for their accuracy.
5. That no legal description has been furnished this appraiser and that I assume no responsibility with such matter.
6. That no one other than the appraiser signing this report prepared the analysis, conclusions and opinions concerning real estate that are set forth in this appraisal report.
7. All valuations in the report are applicable only under the stated program of highest and best use and are not necessarily applicable under other uses.
8. That any applicable sketches and photographs included in this report are only for the purpose of aiding the reader in visualizing the property.
9. The value estimated is based on the assumptions that the property is not negatively affected by the existence of hazardous substances or detrimental environmental conditions, unless otherwise stated in this report. The appraiser is not an expert in the identification of hazardous substances or detrimental environmental conditions.
10. That the following is an appraisal report.

APPRAISAL REPORT

Purpose of Appraisal

To determine a fair market value of certain real property owned by the Martin County Board of Education, Inez, Martin County, as of the date of inspection.

Property Description

Subject property is located on Ky. Rt. 40, within the city of Inez, Martin County, Kentucky.

Said property, by P.V.A., contains a total area of approximately 11.396 acres; consisting of 8.0+ acres utilized for baseball and softball fields, with the remaining acreage being rolling to steep hill woodland and slopes.

Direct access to the property is by bridge over Black Log Creek from Ky. Rt. 40. Public utilities are available to the property.

Improvements with the ball fields include dug outs; fencing; lights; concession stand with rest rooms; and parking.

Highest and Best Use

Recreational. Due to location, topography, and special purpose improvements to the property; said current use is considered the most reasonable and probable use that will support the highest present value in the market as of the date of appraisal.

Estimated Market Value

C.S. No. 1

Location:	Industrial Dr. Johnson Co., Ky.
Sale Date:	6-30-20 471/602
Sale Price:	\$530,000.
Land Size:	15.10 acres
Unit Value:	\$35,099. acre overall
Comment:	L-SR Development land
Market Analysis:	

Sale property superior as to overall location, market utility and demand of development land; but inferior as to land improvements. Therefore, indicating an overall net market adjustment of minus 15% or \$5,265. per acre overall. Also, sale property inferior due to contributing value of subject 3.396+ acres of hill woodland and slopes at an estimated \$500. per acre overall.

Indicated Value S.P.: Development Land-8.0+ acres @ 29,834. A.C.
= \$ 238,672.

Hillwood/Slopes: 3.396+ acres @ \$500. A.C.
= \$ 1,698.

Total: \$240,370.

Say: \$240,000.

C.S. No. 2

Location: Ky. Rt. 321, Johnson County, Ky.
Sale Date: 3-24-21 475/092
Sale Price: \$150,000.
Land Size: 3.50+ acres
Unit Value: \$42,857. acre overall
Comment: L-SR Development land along Ky. Rt. 321
Market Analysis:

Sale property superior as to location, market utility and demand; but inferior as to land improvements. Therefore, indicating a necessary net market adjustment of minus 25% or \$10,714. per acre overall. Also, sale property inferior due to contributing value of subject 3.396+ acres of hill woodland valued at \$500. per acre in the market.

Indicated Value S.P.: Development Land-8.0 acres @ \$32,143. ac.
=\$257,114.

Hill Wood/Slopes: 3.396 acres @ \$500.Ac.
=\$1,698.

Total:\$258,812.

Say: \$259,000.

C.S. No. 3

Location: Ky. Rt. 321. Industrial Dr, Johnson Co., Ky.
Sale Date: 2-7-11 427/39
Sale Price: \$247,000.
Land Size: 8.57 acres
Unit Value: \$28,821. acre overall
Comment: L-SR. Development Land

Market Analysis:

Sale property inferior due to time of sale and land improvements; but superior as to overall development potential. Therefore, indicating an overall net market adjustment of plus 10% or \$2,882 acre. Also, sale property inferior due to subject 3.396+ acres of hill woodland/slopes value at \$500. acre in the market.

Indicated Value S.P.: Developed Land -8.0+ acres @ 31,703 acre
= \$ 253,362.

Hill Woodland/Slopes-3.396 acres \$500.▼
\$ 1,698.

Total: \$ 255,060.

Say: \$ 255,000.

Market Correlation:

Analysis of the above listed market data taking into consideration overall market adjustments indicate subject property as a whole to have a correlated fair and marketable value of \$250,000.



Bobby E. Hale, Jr., PVA
32 East Main Street
P.O. Box 341
Inez, KY 41224
Office: (606) 298-2807



Martin County
Property Valuation Administration
Maps to be used for identification only
NOT for conveyance

Map Number: _____
1 inch = 160 feet
Print Date: 10/11/2023
Aerial Date: Winter 2012





Dixon Nunnery Appraisal Service



Certified General Real Property Appraiser

35 College Lane
Prestonsburg, Kentucky 41653
(606)886-6464

CERTIFICATION

November 8, 2023

Martin County Board of Education
7900 Highway 645
Inez, Kentucky 41224

Atten: Larry James, Superintendent

Re: Appraisal Certification
Martin County Economic Authority
Development Authority Property
Ky. Route 645
Inez, Kentucky 41224

I, the undersigned, do hereby certify that I have made a review of the appraisal submitted on May 29, 2020, to the Martin County Economic Authority, to determine if said property has appreciably increased in value from the original appraisal of \$1,200,000.

Based on an analysis of current market conditions and existing market data, subject property has not increased in overall value since the appraisal report of May 29, 2020, and that neither my employment nor my compensation for making this valuation are in any way contingent upon the opinion reported herein, and that to the best of my knowledge and belief the statement contained herein is true, and that the information upon which the opinion expressed herein is based is correct,

11.8-23



Dixon Nunnery
Certified General Appraiser

CERTIFICATION

I, the undersigned, do hereby certify that I have made a field inspection of the property herein appraised on May 29, 2020, and have made a field inspection of the comparable sales relied upon in making said appraisal, and neither my employment nor my compensation for making this appraisal are in any way contingent upon the value reported herein and that to the best of my knowledge and belief that statements contained in the appraisal report are true, and the information upon which the opinions expressed herein are based is correct, subject to the limiting conditions herein set forth.

That it is my opinion the fair market value of subject property as of May 29, 2020, the date of inspection is as follows:

One Million Two Hundred Thousand Dollars

(1,200,000.)

6.8.20


Dixon Rungery

LIMITING CONDITIONS AND ASSUMPTIONS

The following underlying assumptions and conditions have been made:

1. That the title to the property is good and marketable.
2. That there are no encumbrances against the property that would in any way affect the valuation.
3. That a survey of this property has been made, and that I assume no responsibility in connection with such matter.
4. That information supplied by others is, to the best of my knowledge and belief, in conformity with the true facts, but no further liability can be assumed for their accuracy.
5. That no legal description has been furnished this appraiser, and that I assume no responsibility with such matter.
6. That no one other than the appraiser signing this report prepared the analysis, conclusions and opinions concerning real estate that are set forth in this appraisal report.
7. All valuations in the report are applicable only under the stated program of highest and best use and are not necessarily applicable under other uses.
8. That any applicable sketches and photographs included in this report are only for the purpose of aiding the reader in visualizing the property.
9. The value estimated is based on the assumptions that the property is not negatively affected by the existence of hazardous substances or detrimental environmental conditions unless otherwise stated in this report. The appraiser is not an expert in the identification of hazardous substances or detrimental environmental conditions.
10. That this report is for surface rights only.
11. That this is an appraisal report.

APPRAISAL REPORT

Purpose of Appraisal

To estimate the fair market value of certain real property owned by the Martin County Economic Development Authority, Inez, Martin County, Kentucky.

Property Data

Subject property is located on a portion of newly constructed, four-laned, Ky. Rt. 645, within the Little Blacklog area near Inez, Martin County, Kentucky.

Said property by survey, contains a total area of approximately 147.90 acres; consisting of approximately 44 acres of level to slightly rolling engineered development land, and 103.90 acres of rolling to steep hill woodland. Direct access is by entrance off new Ky. Rt. 645.

The property is situated above the flood plain, is unimproved, and has no infrastructure in place. However city utilities are available.

Improvement Data

None. Vacant Land.

Highest and Best Use

Multi-purpose. Subject surface based on location and topography, is suitable for light commercial/industrial development, residential development, or special-purpose development.

Estimated Market Value

In determining a fair and marketable value for subject property as a whole, the summation approach to value has been considered, analyzing comparable market data applicable to subject 147.90 acres of L-R, development land, hill woodland, and hollow areas as one tract.

C.S. No. 1 (Development Land)

Highest and Best Use: Multi-purpose commercial.
Location: US 23, Harmon's Br. Pike County, Ky.
Sale Date: 11-10-17 1056/595
Land Size: 31.64 acres
Sale Price: \$1,500,000.
Unit Value: \$47,110. acre overall
Comments: L-SR. Development land direct
access to US 23.
Analysis: Sale property superior as to
overall location and market demand
by 35% or \$16,489. per acre within
the market; indicating an overall
adjusted unit value of \$30,621.
for subject development land.
Indicated Value S.P.: 44 acres @ \$30,621. per
acre = \$ 1,347,324.
Say * \$ 1,350,000.

C.S. No. 2

Highest and Best Use: Special-purpose/commercial
Location: US Hwy. 23/Lawrence County, Ky.
Sale Date: 11-26-12 310/725
Sale Price: \$400,000.
Land Size: 35.93 acres
Breakdown: Development Land - 20.0± acres
\$19,600. acre (Rd.)
Riverbank/overflow bottom/slopes,
15.93 acres @ \$500. ac.(Rd.)
Comments: Hwy. frontage & Good access.
Public water and electricity
available.
Analysis: Sale property inferior as to time
and overall market utility and
demand by an estimated 20% or
\$80,000. within the market.
Therefore indicating an adjusted
unit value of \$23,520. per acre
for development land and \$600.
per acre for residential land
which is similar in contributing
value to subject hill woodland
in the market.

Indicated Value S.P.:

Development Land - 44 acres
@ \$23,520 ac. = \$ 1,034,880.
Say: \$ 1,035,000.

(See attached Supporting Data)

Hill Woodland: 103.90 acres
@ \$600. ac. = \$ 62,340.
Total = \$ 1,097,220.
Say: \$ 1,100,000.

C.S. No. 3 (Development Land)

Highest and Best Use:

Multi-purpose-(Commercial/Residential)

Location:

Between Haunted Br. & Mays Br.
Prestonsburg, Ky.

Sale Date:

1-26-12 585/135

Sale Price:

\$350,000.

Land Size:

17.0+ acres

Unit Value:

\$20,588. acre overall

Comments:

Development land from surface
mining adjacent Stone Crest Golf
Course. No infrastructure. Public
utilities available.

Analysis:

Analysis indicates sale and subject
property sufficiently comparable
as to overall market utility and
demand with offsetting differences
within the market. Therefore, the
only difference is for size.

Indicated Value S.P.:

44 acres @ \$20,588. per acre
= \$ 905,872.

Estimated Value S.P.:

Hill woodland. 103.90 acres @
\$600. ac. = \$ 62,340.
Total: = \$968,212.
Say: = \$970,000.

Market Correlation:

Analysis of the above listed market data taking into consideration
current market conditions, utility and demand; subject
property as a whole, is estimated to have an overall correlated
market value of \$1,200,000.

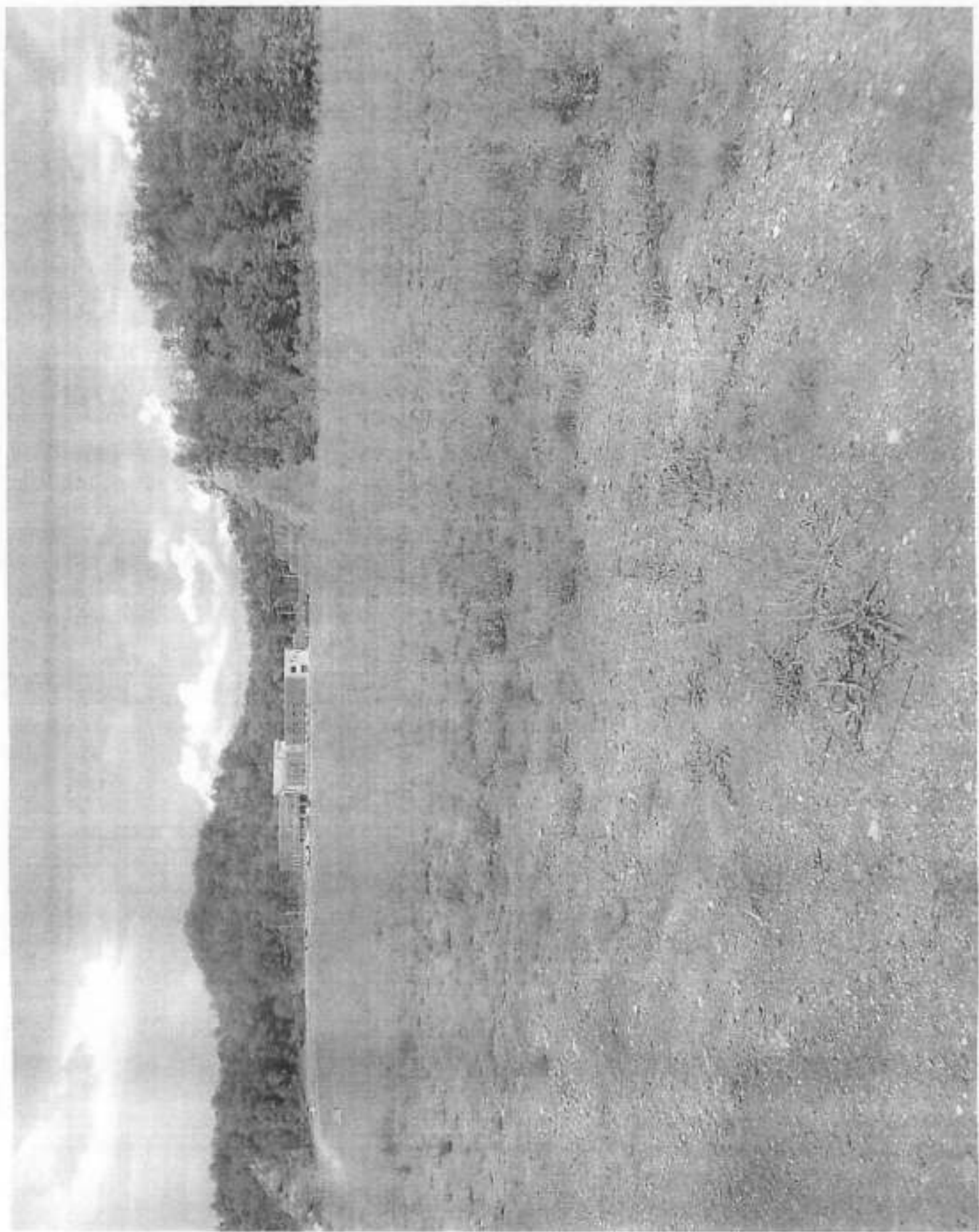
Supporting Market Data

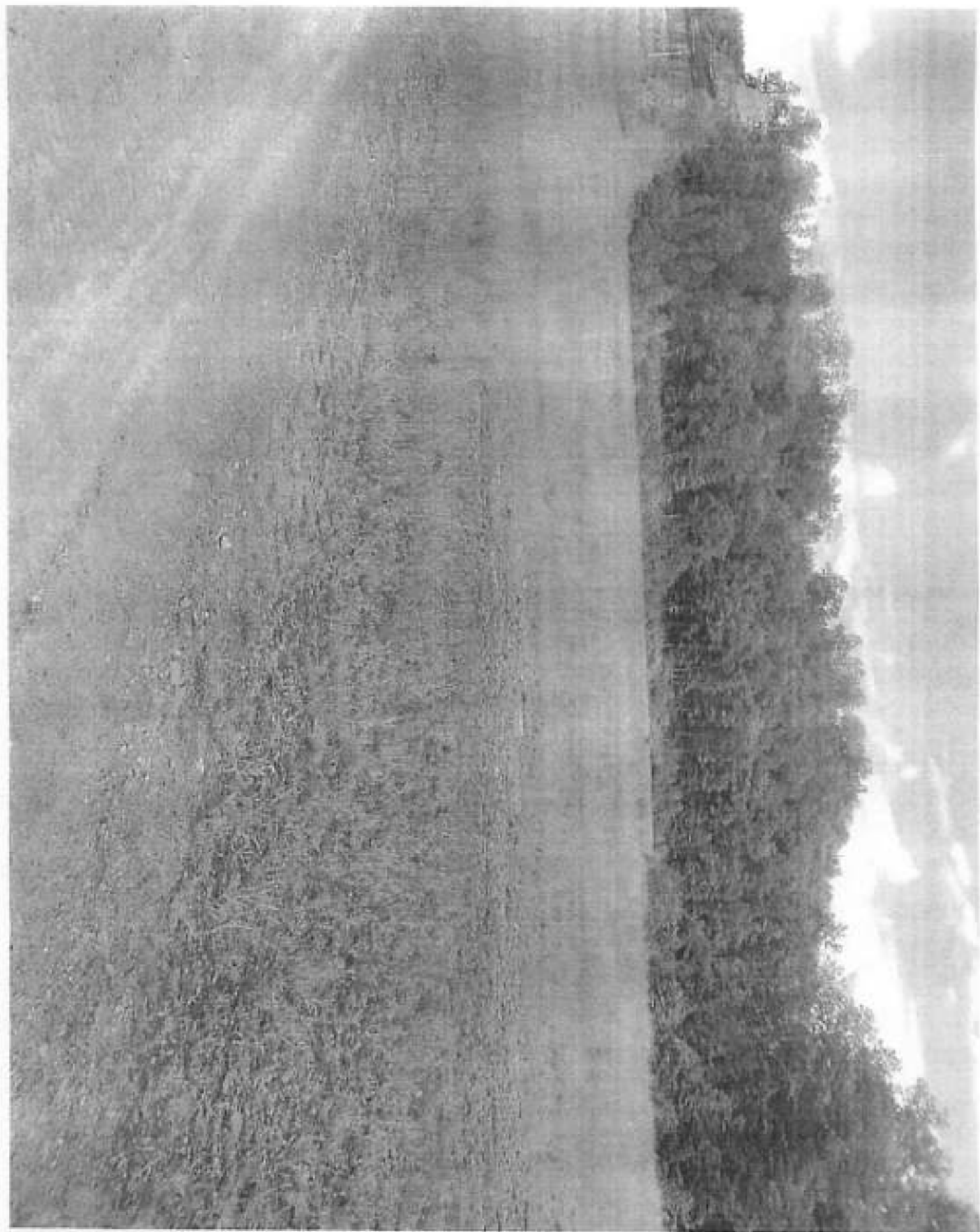
C.S. No. 1

Highest and Best Use:	Special purpose/Commercial
Location:	Ky. Rt. 114. Magoffin County, Ky.
Sale Date:	4-8-13 205/374
Sale Price:	\$1,000,000.
Land Size:	61.594 acres
Unit Value:	\$16,235. acre overall
Comments:	Consists of level to slightly rolling development land and rolling to steep hill woodland and hollow area. Good highway access. Utilities available to area. No infrastructure at date of sale. Purchased by Magoffin County Board of Education

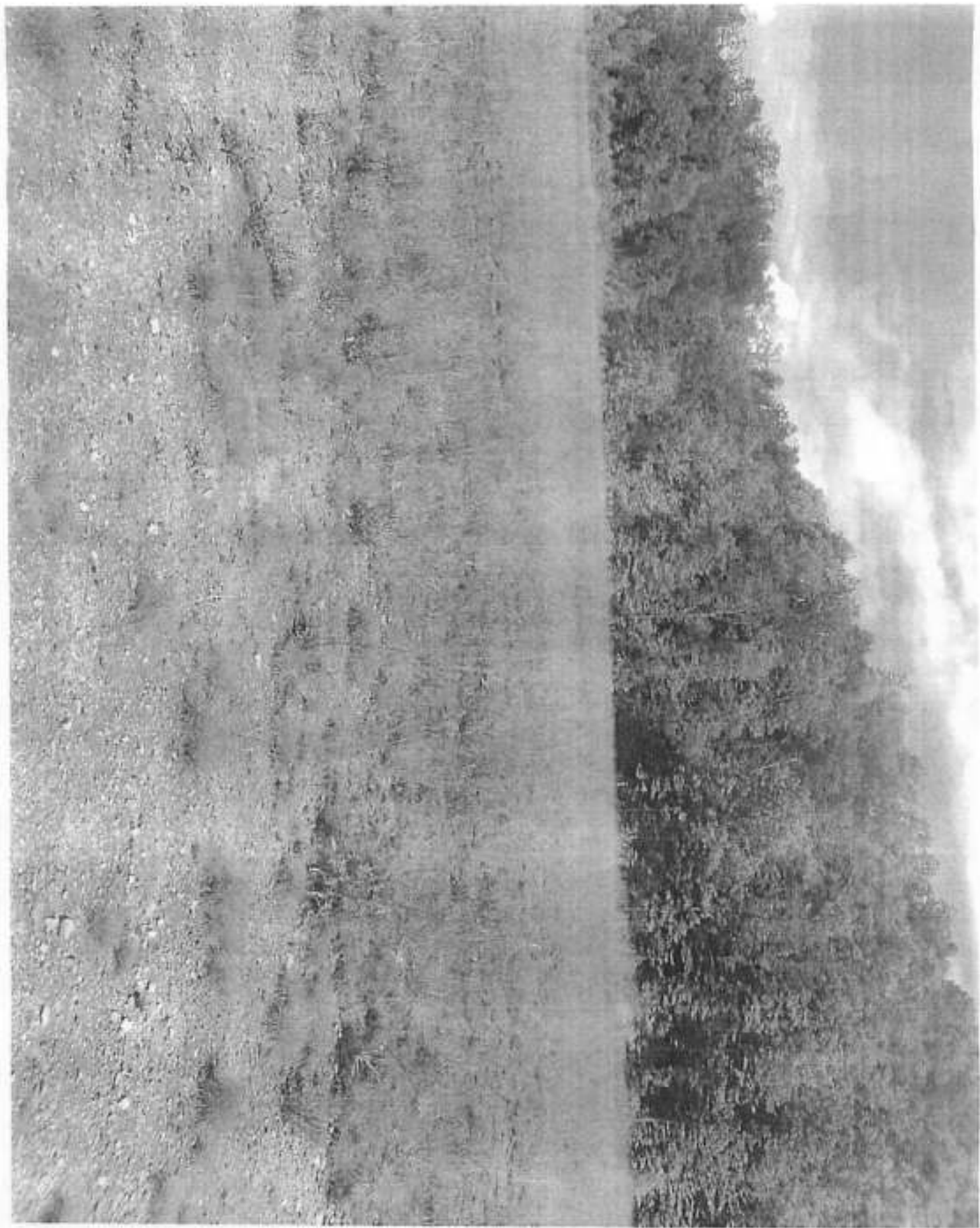
C.S. No. 2 (Unimproved Hill Woodland)

Location:	Ky. Rt. 325. Johnson Co., Ky.
Sale Date:	8-20-19
Sale Price:	\$ 58,000.
Land Size:	100 acres ±
Unit Value:	\$580. acre











Certified General Real Property Appraiser

Dixon Nursery Appraisal Service

35 College Lane
Prestonsburg, Kentucky 41653
(606) 886-6464

NARRATIVE APPRAISAL REPORT

OF

INEZ ELEMENTARY SCHOOL
179 EDEN LANE
INEZ, KENTUCKY 41224

FOR

MARTIN COUNTY BOARD OF EDUCATION
7900 HIGHWAY 645
INEZ, KENTUCKY 41224

CERTIFICATION


I, the undersigned, do hereby certify that I have made a field inspection of the property herein appraised on October 11, 2023, and have made a field inspection of the comparable sales relied upon in making said appraisal, and neither my employment nor my compensation for making this appraisal are in any way contingent upon the value reported herein and that to the best of my knowledge and belief that statements contained in the appraisal report are true and the information upon which the opinions expressed herein are based is correct, subject to the limiting conditions herein set forth.

That it is my opinion the fair market value of subject property as of October 11, 2023, the date of inspection is as follows:

Three Hundred Fifty Thousand Dollars

(\$350,000.)

10-27-23



Dixon Nunnery
Certified General Real
Property Appraiser

LIMITING CONDITIONS AND ASSUMPTIONS

The following underlying assumptions and conditions have been made:

1. That the title to the property is good and marketable.
2. That there are no encumbrances against the property that would in any way affect the valuation.
3. That no survey of this property has been made and that I assume no responsibility in connection with such matter.
4. That information supplied by others is, to the best of my knowledge and belief, in conformity with the true facts, but no further liability can be assumed for their accuracy.
5. That no legal description has been furnished this appraiser and that I assume no responsibility with such matter.
6. That no one other than the appraiser signing this report prepared the analysis, conclusions and opinions concerning real estate that are set forth in this appraisal report.
7. All valuations in the report are applicable only under the stated program of highest and best use and are not necessarily applicable under other uses.
8. That any applicable sketches and photographs included in this report are only for the purpose of aiding the reader in visualizing the property.
9. The value estimated is based on the assumptions that the property is not negatively affected by the existence of hazardous substances or detrimental environmental conditions unless otherwise stated in this report. The appraiser is not an expert in the identification of hazardous substances or detrimental environmental conditions.
10. That the following is an appraisal report.

APPRAISAL REPORT

Purpose of Appraisal

To estimate a fair market value "as is", of certain real property identified as the Inez Elementary School located just off Ky. Rt. 645, Inez, Martin County, Kentucky.

Property Description

Subject property is located just off Ky. Rt. 645, on Eden Lane. Said property contains a total area of approximately twenty-eight acres; consisting of a L-SR, improved school site and rolling to steep hill woodland. Direct access is by connector road from Ky. Rt. 645.

Special land improvements on the site consist of public utilities; paving; lighting; and playground.

subject elementary school is a one-story, detached, structure containing 46,789 sq.ft., consisting of classrooms; offices; bathrooms; lunchroom; kitchen; library; activities room; janitorial facilities and mechanical room.

The exterior of the building is masonry brick with rubber roofing and concrete foundation. The interior of the building is block and drywall partitions with drop ceilings, carpet and tile floors.

Heat pumps provide for heating and cooling throughout building. The building overall is outdated and in fair to average condition; having been built in 1984.

Highest and Best Use

Multi-purpose. Suitable as a school or additional multiple uses such as commercial; medical/rehab; industrial or recreational development.

Said uses in the opinion of this appraiser being consistent with uses applied to previous sales of school facilities; being the most reasonable and probable uses that will support the highest present value in the market as of the effective date of appraisal.

Estimated Market Data

In determining an estimated market value for subject property as a whole, this appraiser has gathered pertinent information relative to the property, and has gathered and analyzed available market data within similar market areas as said property. Said data includes office records; files; and comparable data assembled by this appraiser within the local market area.

C.S. No. 1

Location: Cardinal Lane, Inez, Ky.
Grantor: Martin Co. Board of Education
Grantee: Ruach Holdings
Sale Date: 4-13-21 203/169
Sale Price: \$700,000.
Land Size: 75.60+ acres
Improvement: Middle school building. 64,869 sq.ft. Masonary brick. Rubber roof. Classrooms; lunchroom/kitchen; library; gym; bathrooms; offices; and str. rooms. Overall quality and condition is fair to average, with some deferred maintenance to roof, fixtures, and interior finish.

Unit Value Overall: \$10.79 psf.
Market Analysis: Sale property superior as to overall size, location, market utility and demand; but inferior as to overall condition. Therefore, indicating a net market adjustment of minus 30% or \$3.24 psf. overall.

Indicated Value SP: 46,779 sq.ft. @ \$7.55 psf. - \$ 353,181.
Say: \$ 353,000.

C.S. No. 2

Location: 1825 Black Log Road, Ky. 40, Inez, Ky.
Grantor: Martin County Board of Education
Grantee: R & J Development Co.
Sale Date: 8-1-17 195/194
Sale Price: \$585,000.
Land size: 8.145 acres
Improvement: High school building. 51,290 sq.ft. Masonary brick, rubber roof. Consisting of classrooms; lunchroom/kitchen; library; bathrooms; offices; gym; storage and mechanical room, lobby.

Unit Value Overall: \$11.40 psf.

Market Analysis: Sale property superior as to overall location; development potential and demand. Therefore indicating a market adjustment of minus 35% or \$3.99 psf. overall.
Indicated Value S.P.: 46,779 sq.ft. @ \$7.41 psf. = \$ 346,632.
Say: \$ 347,000.

C.E. No. 3

Location: 1285 W. Hwy. 610, Virgie, Ky.
Grantor: Pike County Board of Education
Grantee: L. Highway Land Co.
Sale Date: 2014 1012/53
Sale Price: \$178,500.
Land Size: 3.84 acres
Improvement: High School building. 23,976.+ sq.ft. consisting of classrooms; offices; lunchroom/kitchen; bathrooms; auditorium; library; gym; storage and mechanical rooms.
Unit Value Overall: \$7.44 psf.
Market Analysis: Superior as to overall market utility. Said adjustments being offsetting. Therefore, indicating an overall unit value of \$7.44 psf.
Indicated Value S.P.: 46,779 sq.ft. @ \$7.44 psf. = \$348,035.
Say: \$348,000.

Market Correlation:

Analysis of the above listed market data, giving credence to all three sales; indicates subject property as a whole to have a correlated fair and marketable value of \$350,000.



Bobby E. Hale, Jr., PVA
 32 East Main Street
 P.O. Box 341
 Inez, KY 41224
 Office: (606) 298-2807



Martin County
Property Valuation Administration
 Maps to be used for identification only
 NOT for conveyance

Map Number: _____
 1 inch = 589 feet
 Print Date: 10/11/2023
 Aerial Date: Winter 2012















Certified General Real Property Appraiser

Dixon Nursery Appraisal Service

35 College Lane
Prestonsburg, Kentucky 41653
(606)886-6464

NARRATIVE APPRAISAL REPORT

OF

MARTIN COUNTY MIDDLE SCHOOL
130 MIDDLE SCHOOL ROAD
WARFIELD, KENTUCKY 41267

FOR

MARTIN COUNTY BOARD OF EDUCATION
7900 HIGHWAY 645
INEZ, KENTUCKY 41224

CERTIFICATION


I, the undersigned, do hereby certify that I have made a field inspection of the property herein appraised on October 11, 2023, and have made a field inspection of the comparable sales relied upon in making said appraisal, and neither my employment nor my compensation for making this appraisal are in any way contingent upon the value reported herein and that to the best of my knowledge and belief that statements contained in the appraisal report are true, and the information upon which the opinions expressed herein are based is correct, subject to the limiting conditions herein set forth.

That it is my opinion the fair market value of subject property as of October 11, 2023, the date of inspection is as follows:

Six Hundred Twenty Thousand Dollars

(\$620,000.)

10-27-23



Dixon Nunnery
Certified General Real
Property Appraiser

LIMITING CONDITIONS AND ASSUMPTIONS

The following underlying assumptions and conditions have been made:

1. That the title to the property is good and marketable.
2. That there are no encumbrances against the property that would in any way affect the valuation.
3. That a survey of this property has been made, and that I assume no responsibility in connection with such matter.
4. That information supplied by others, is to the best of my knowledge and belief, in conformity with the true facts, but no further liability can be assumed for their accuracy.
5. That a legal description has been furnished this appraiser and that I assume no responsibility with such matter.
6. That no one other than the appraiser signing this report prepared the analysis, conclusions and opinions concerning real estate that are set forth in this appraisal report.
7. All valuations in the report are applicable only under the stated program of highest and best use and are not necessarily applicable under other uses.
8. That any applicable sketches and photographs included in this report are only for the purpose of aiding the reader in visualizing the property.
9. The value estimated is based on the assumptions that the property is not negatively affected by the existence of hazardous substances or detrimental environmental conditions, unless otherwise stated in this report. The appraiser is not an expert in the identification of hazardous substances or detrimental environmental conditions.
10. That the following is an appraisal report.

APPRAISAL REPORT

Purpose of Appraisal

To estimate a fair market value "as is" of certain real property identified as the Martin County Middle School located on 130 Middle School Road, Warfield, Martin County, Kentucky.

Property Description

Subject property is located just off Ky. Route 40 E, within the community of Warfield, Kentucky.

Said property by deed and P.V.A. records contains a total area of approximately 100.76 acres; consisting of a level to sloping, improved, school site, and rolling to steep hill woodland and hollow areas.

Special land improvements on the site consist of public utilities, lighting and pavement.

Said middle school is a two-story, structure containing 69,828 sq.ft., consisting of classrooms; offices; multiple bathrooms; lunch room; kitchen; library; gym; locker room; lounge; janitorial facilities; and mechanical room.

The exterior of the building is masonry brick with concrete foundation/slab, and asphalt shingle roof. The interior of the building is concrete block and drywall partitions. Drop ceiling; vinyl and tile flooring. Heating is by hot water boiler and heat pumps. Energy source is natural gas and electricity. The building overall is in good condition being constructed in 1997, with minimal deferred maintenance observed.

Highest and Best Use

Multi-purpose. Suitable as a school or additional multiple use such as commercial, medical/rehab, industrial, or recreational development.

Said uses in the opinion of this appraiser being consistent with uses applied to previous sales of school facilities; being the most reasonable and probable uses that will support the highest present value in the market as of the effective date of appraisal.

Estimated Market Value

In determining an estimated market value for subject property as a whole, this appraiser has gathered pertinent information relative to the property, and has gathered and analyzed available market data within similar market areas as said property. Said data includes office records; files; and comparable data assembled by this appraiser within the local market area.

C.S. No. 1

Location: Cardinal Lane, Inez, Ky.
Grantor: Martin Co. Board of Education
Grantee: Ruach Holdings
Sale Date: 4-13-21 203/169
Sale Price: \$700,000.
Land: 75.60+ acres
Improvement: School building, 64,869 sq.ft. masonry brick, Rubber roof. Consists of classrooms; lunch room; kitchen; library; boys and girls bathroom facilities; offices; gym with locker rooms; storage; janitorial facilities; and mechanical room. Overall condition is average with some deferred maintenance to roof, fixtures, and interior finish.

Unit Value Overall: \$10.79 psf.
Market Analysis: Sale property superior as to location and development potential; but inferior as to overall size and condition of improvements. Therefore indicating an overall net market adjustment of minus 15% or \$1.62 psf.

Indicated Value S.P.: 69,828 sq.ft. @ \$9.17 psf. = \$640,322.
Say: \$ 640,000.

C.S. No. 2

Location: 1825 Black Log Road. Ky. Rt. 40, Inez, Ky.
Grantor: Martin Co. Board of Education
Grantee: R & J Development
Sale Date: B-1-17 195/194
Sale Price: \$585,000.
Land size: B.145 acres

Improvement: School building. 51,290+ sq.ft. Masonary brick. Rubber roof. Consisting classrooms; lunchroom; kitchen; library; boys and girls bathroom facilities; offices; gym with locker rooms; storage; janitorial; facilities, and mechanical room. Overall condition is average.

Unit Value Overall: \$11.40 psf.

Market Analysis: Sale property superior as to location and development potential; but inferior as to overall size and condition of improvements. Therefore indicating an overall net market adjustment of minus 20% or \$2.28 psf.

Indicated Value S.P.: 69,828 sq.ft. @ \$9.12 psf. = \$636,638.
 Say: \$636,000.

C.S. No. 3

Location: N. Lake Dr. Prestonsburg, Ky.

Grantor: Floyd County Board of Education

Grantee: Roland Gray

Sale Date: 12-5-11 583/722

Sale Price: \$500,000.

Land Size: 4.42 acres

Improvement: 2-S school buildings. 45,601 sq.ft. Basement 11,406 sq.ft. Masonary brick. Rubber roof. Consists of classrooms; lunchroom; bathroom facilities; offices; library; auditorium; storage; mechanical and janitorial rooms. Overall condition is fair.

Unit Value Overall: \$10.96 psf.

Market Analysis: Sale property superior as to location and development potential; but inferior as to overall size; quality and condition of improvements. Therefore, indicating an overall net market adjustment of minus 20% or \$2.19 psf.

Indicated Value S.P.: 69,828 sq.ft. @ \$8.77 psf. = \$612,391.
 Say: \$612,000.

Market Correlation:

Analysis of the above listed market data, giving credence to all three sales, indicates subject property as a whole to have a correlated fair and marketable value of \$620,000.



Bobby E. Hale, Jr., PVA
 32 East Main Street
 P.O. Box 341
 Inez, KY 41224
 Office: (606) 298-2807



Martin County
Property Valuation Administration
 Maps to be used for identification only
 NOT for conveyance

Map Number: _____
 1 inch = 698 feet
 Print Date: 10/11/2023
 Aerial Date: Winter 2012











AGREEMENT

THIS AGREEMENT made and entered into on this the _____ day of _____, 2023, by and between the **MARTIN COUNTY ECONOMIC DEVELOPMENT AUTHORITY**, a Kentucky Non-Profit Corporation, of P.O. Box 1735, Inez, Kentucky 41224 (hereinafter referred to as MCEDA), and the **MARTIN COUNTY BOARD OF EDUCATION**, a Board who has general control and management of the public schools in its District, of P.O. Box 366, Inez, Kentucky 41224 (hereinafter referred to as MCBOE).

WHEREAS, the MCEDA, a Kentucky non-profit corporation, organized and existing under the laws of the Commonwealth of Kentucky, is the owner of certain real property next adjacent to property owned by the MCBOE which is occupied by the Martin County High School and auxiliary structures.

WHEREAS, the MCBOE wishes to expand its educational footprint next adjacent to the Martin County High School and intends to construct one or more school facilities and buildings which will further the educational opportunities of the students of Martin County.

WHEREAS, the MCEDA supports furthering the educational opportunities of the students of Martin County, and believes the education of its students will improve opportunities for economic development.

WHEREFORE, conditioned upon KDE approval, and in consideration of the mutual covenants herein, the parties agree as follows:

1. That the MCEDA shall transfer and convey, by General Warranty Deed, the Deed to that certain real property (approximately 148.503 acres more or less) adjacent

to property that is currently owned by the MCBOE which is occupied by the Martin County High School and auxiliary structures to the MCBOE. The description of the property to be conveyed is appended hereto. *See Exhibit 1.*

The parties agree the fair market value of said property has been established by appraisal of Dixon Nunnery who previously appraised this property to have a fair market value of One Million Two Hundred Thousand Dollars (\$1,200,000.00).

2. That in consideration of the foregoing MCBOE agrees, contingent upon KDE approval to transfer and convey by general warranty deed district properties located at Inez Elementary School (*Facility Number 120*), Martin County Middle School (*Facility Number 330*) and the district's baseball and softball fields (*Part of Facility Number 250*) upon the district's decision and KDE approval to surplus each of these properties. *See Exhibit 2.* Once declared surplus the MCBOE will timely seek approval from KDE to convey these properties to MCEDA.

3. MCBOE's obligation is contingent upon final approval by the Kentucky Department of Education (KDE). It is understood and agreed that for final approval any requirements set forth by the Kentucky Department of Education, Division of District Support, District Facilities Branch must be met. Other contingencies may apply under other paragraphs of this agreement.

4. MCBOE and any if its employees, agents, engineers, contractors, and architects are granted the rights of ingress and egress to the property to perform all necessary procedures to obtain state approval for purchase including, but not limited to, site drilling and survey. MCBOE may arrange and pay for an inspection of the property.

MCBOE agrees that Buyer is not relying on any statement or representation by MCEDA except as expressly set forth in this agreement.

5. The parties agree that any modifications to this agreement shall be made in writing between the parties.

7. This Agreement contains the entire understanding of the parties. There are no representations, promises, warranties, covenants, or undertakings other than those expressly set forth herein.

8. The covenants and conditions herein contained shall apply to and bind the heirs, legal representatives, and assigns of the parties hereto, and all covenants are to be construed as conditions of this Agreement.

9. Should MCBOE decide, or KDE fails to approve, MCBOE at its option will either (1) convey the property back to MCEDA or (2) pay the lesser of 1.2 million or the current fair market value for the property contingent upon approval by KDE.

IN WITNESS WHEREOF, the parties herein have executed this Agreement on the day and year first above written.

**MARTIN COUNTY ECONOMIC
DEVELOPMENT AUTHORITY**

BY: _____

ITS: _____

**MARTIN COUNTY BOARD OF
EDUCATION**

BY: _____

ITS: _____

STATE OF KENTUCKY)

: sct.

COUNTY OF MARTIN)

The foregoing Instrument was sworn and subscribed to before me by Martin County Economic Development Authority by _____, its _____ this ____ day of _____, 2023.

My Commission Expires: _____.

NOTARY PUBLIC, STATE AT LARGE

STATE OF KENTUCKY)

: sct.

COUNTY OF MARTIN)

The foregoing Instrument was sworn and subscribed to before me by Martin Board of Education by _____, its _____ this ____ day of _____, 2023.

My Commission Expires: _____.

NOTARY PUBLIC, STATE AT LARGE

DATE

Mr. Joshua Rogers, P.E., Director
Division of Maintenance
200 Mero Street, 3rd Floor East
Frankfort, KY 40622

**RE: MARTIN COUNTY: Letter for Roadway Adequacy Property Acquisition
Additional Holly Bush Site (approx. 150 acres)
Martin County HS Athletic Complex
(DFP Priorities 5.1.a, c, d, and e) and
Future School (Not on current DFP)
KY 645 E
Inez, Kentucky 41224**

Dear Mr. Rogers:

Pursuant to **702 KAR 4:050 Building sites: inspection, approval**, the Martin County Board of Education requests a letter from the Kentucky Transportation Cabinet stating roadway adequacy for the state-maintained roadway network serving the referenced sites and a funding commitment for any improvements needed in the impacted rights of way. T

The site is a remaining portion of the Holly Bush site. Acquisition of a portion of this property was previously approved for the new Martin County High School by KDE and KBE in 2016. The site shares its southeast property line with the high school. It is located approximately three quarters of a mile northeast of the intersection of KY 40 and KY 645 E which currently dead ends at the entrance to the property.

Thank you for your assistance in this matter.

Sincerely,

Mr. Larry James, Superintendent
Martin County Schools

CC: Ricky Sizemore, KYTC
Gary Leist & Tanesha Keene, Kentucky Department of Education / District Facilities Branch



Andy Beshear
GOVERNOR

TRANSPORTATION CABINET

200 Mero Street
Frankfort, Kentucky 40601

Jim Gray
SECRETARY

January 18, 2024

Martin County School District
7900 Hwy 645
Inez, KY 41224
Attn: Larry James, Superintendent

Subject: Martin County Schools - Additional Hollybush Site
Future Elementary School
Roadway Adequacy
Martin County KY-645 MP 8.556

Dear Supt. James,

Per your request, the Kentucky Transportation Cabinet (KYTC) confirms road adequacy for KY-645 at this location. Proposed improvements to Hollybush Road shall be outside of KYTC right-of-way, so it is not necessary for the Cabinet to provide financial assistance for improvements at this time. KYTC concurs with the recommendation in the traffic impact study to stagger school times to help minimize overall impact to traffic on the nearby ramps.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joshua Rogers".

Joshua Rogers, P.E.
Director, Division of Maintenance

Cc: Jody Hunt, Kentucky Transportation Cabinet District 12
Greg Dunbar and Gary Leist, Kentucky Department of Education

Proposed Elementary School Traffic Impact Study Inez, KY

Prepared for

Martin County Schools

November 2023



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INTRODUCTION

This traffic study was undertaken to assess the traffic impact of a proposed development in Martin County, Kentucky, in the City of Inez. The development will be located along the west side of KY 645 adjacent to Martin County High School. The vicinity map (Map 1) displays the location of the proposed development and study area.



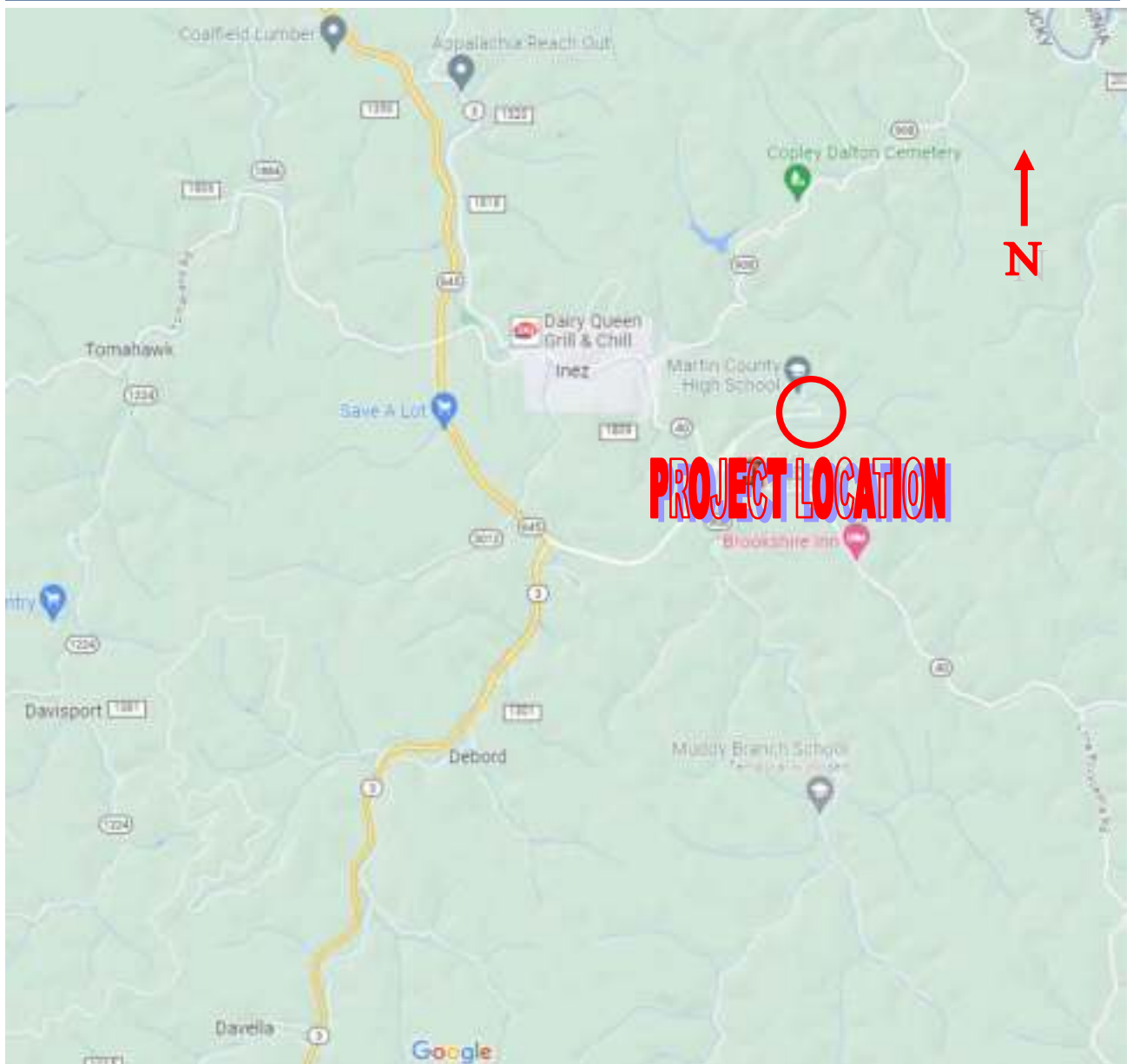
Intersection of KY 645E at Hollybush Road

The proposed development is a new elementary school. This traffic impact study included 3 existing intersections:

- The intersection of KY 645 at Hollybush Road
- The signalized intersection of KY 645 Northbound ramp at KY 40
- The two-way stop controlled intersection of KY 645 Southbound ramp at KY 40



Intersection of KY 645 Southbound Ramp at KY 40



Map 1. Vicinity Map

EXISTING CONDITIONS

Regional and Local Access

Blacklog Road (KY 40) and KY 645 will provide local and regional access to the proposed development. A brief description of the surrounding roadways follows:

Blacklog Road (KY 40) – Blacklog Road is a minor arterial that provides local and regional access to the proposed development. Blacklog Road generally runs in an east-west direction in the study area. Lane widths measure approximately 12 feet. In the vicinity of the project site, this road consists of one thru lane in each direction. The existing speed limit is posted at 35 mph.

KY 645 – KY 645 is a rural minor arterial that provides local and regional access to the proposed development. KY 645 generally runs in a north-south direction. Lane widths measure approximately 12 feet with a concrete median barrier separating the two directions. In the vicinity of the project site, this road consists of two thru lane in each direction. The current speed limit along KY 645 is 55 mph.

LEVEL OF SERVICE AND DELAY

Level of Service (LOS) was used as the measure of effectiveness for each lane and turning movement. According to the Highway Capacity Manual, the level of service is defined in terms of delay (See Tables 1 and 2). Delay results in driver discomfort, frustration, fuel consumption, and lost travel time. Delay is caused by a number of factors including traffic signal timing, geometrics, traffic congestion, and accidents at an intersection. Level of Service is based on a grade scale from A to F with A being excellent and F being failure. A Level of Service C is desirable, and D is acceptable in an urban setting.

Level of Service	Delay (Seconds per Vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Level of Service	Delay (Seconds per Vehicle)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Base Traffic Volumes (existing condition)

Manual traffic counts were taken at the following intersections from 6:30 AM to 9:00 AM and 2:15 PM to 6:30 PM on October 24, 2023:

- KY 645 and Hollybush Road
- KY 645 Southbound ramp and KY 40
- KY 645 Northbound ramp and KY 40

All traffic volumes can be found in the Appendix.

Background Traffic Volumes

The assumed completion date for the proposed development is during 2024. The KYTC historic traffic volumes along KY 645 (KYTC count station 080778) shows no growth in nine years between 2021 and 2012. Traffic counts along Blacklog Road (Count Station 080750) reveals that traffic along Blacklog Road has seen no growth in nine years between 2017 and 2008. The count performed in 2020 was not considered due to the effects of the COVID-19 pandemic.

METHODOLOGY

Level of Service, delay, and queue length were measures of effectiveness analyzed using the HCS2023 software.

Trips were generated for the proposed development and then distributed to the roadway system based on the existing traffic patterns and engineering judgment. For the analysis, the study uses traffic volumes from the current year, as well as a build out year. The assigned volumes from the proposed development and the background traffic volumes combined to produce the total proposed traffic volumes for existing and build out conditions. HCS2023 was used to analyze the roadway network for existing and proposed conditions in both the current year and build year (2024). The 2023/2024 background, level-of-service, and vehicle delay can be found in the Appendix along with 2024 no build (Fig 1) and 2024 build (Fig 6) traffic volumes.

TRIP GENERATION AND PROJECTED TRAFFIC VOLUMES

Trip estimates for the proposed development are based upon information provided in the *Trip Generation, 11th Edition*, a nationally recognized resource of trip generation rates published by the Institute of Transportation Engineers (ITE).

SITE TRIP GENERATION

The proposed site will consist of an elementary school. Table 3 provides the land use for the site, the ITE land use classification, average rates, and trips generated by the development. The approximate student count was provided by Martin County Schools.

Martin County Proposed Development Trip Generation Tables								
ITE			Average					
Code	Land Use	Student Count	Rate	AM Peak	In	%	Out	%
520	Elementary School	550	0.75	413	223	54%	190	46%
				413	223		190	
ITE			Average					
Code	Land Use	Student Count	Rate	PM Peak	In	%	Out	%
520	Elementary School	550	0.45	248	114	46%	134	54%
				248	114		134	

Table 3 - Trip Generation Table



Map 2. Development Location

TRIP DISTRIBUTION

The following is the distribution assumed for the proposed development.

Distribution

From the West via KY 40	(20%) AM,	30% PM
From the East via KY 40	(50%) AM,	55% PM
From the South via KY 645	(25%) AM,	10% PM
From the South via KY 908	(5%) AM,	5% PM

LEVEL OF SERVICE AND DELAY ANALYSIS

All intersection traffic volumes, vehicle delay, and level of service information can be found in the Appendix. The 2024 base traffic volume information will be the focus upon comparisons between the projected background traffic and the proposed traffic volumes. The 2024 No-Build volumes would exist on the roadway system in the absence of the proposed development and the 2024 Build Volumes are the volumes with the proposed development(s) included.

The No-Build Scenario analysis assumes that no proposed improvements to the roadway system have been implemented. This would be the case assuming the proposed development was not built.

INTERSECTION ANALYSIS

2024 No Build Analysis

The two-way stop controlled intersection of KY 645 southbound ramp at KY 40 has individual turning movements that operate as a LOS “F” during the peak hours. The southbound left movement operates as a LOS “F” during the AM and PM peak hours. All other movements operate as a LOS “B” or better during the AM and PM peak hours. The queue analysis determined that the southbound turn lane experiences the longest queue length.

The intersection of KY 645 southbound ramp and KY 40 was also analyzed as an all-way stop controlled intersection and as a signalized intersection. The all-way stop controlled intersection operates at a LOS “B” during the AM and PM peak hour. All individual movements operate at a LOS “B” or better during both peak hours. The queue analysis determined that the longest queue length during the AM and PM peak hours was 3 vehicles. The HCS analysis of the signalized intersection of KY 645 southbound ramps and KY 40 revealed that the intersection operates at a LOS “B” during both peak hours. All individual movements operate at a LOS “B” or better during the AM and PM peak hour. The eastbound movement during the PM peak hour has the longest queue length, 4 vehicles.

All movements at the intersection of KY 645 and Hollybush Road operate as a LOS “B” or better during the AM and PM peak hours. The queue analysis determined that the eastbound left turning lane has the longest queue, consisting of 3 vehicles.

The signalized intersection of KY 645 northbound ramp and KY 40 operates at a LOS “B” during both peak hours. All individual turning movements operate at a LOS “B” or better during the AM and PM peak hours.

2024 Build Analysis

The HCS analysis revealed that the LOS throughout the roadway network degraded in the 2024 build scenario due to the increase in traffic. The queue analysis shows that several movements have significant increases in queue lengths.

The individual movements of the two-way stop controlled intersection of KY 645 southbound ramp and KY 40 continue to operate at the same LOS with significant impact to delay. The southbound left turning movement continues to operate at a LOS “F” during both peak hours. The queue analysis determined that queue length increases by 18 vehicles during the AM peak hour and 13 vehicles during the PM peak hour.

If the intersection of KY 40 and the KY 645 southbound ramps were converted to an all-way stop controlled intersection then the intersection degrades from a LOS “B” to a LOS “C” during the AM and PM peak hours. The eastbound through, westbound left, and southbound left movements degrade from a LOS “B” to a LOS “C” during the AM and PM peak hours. The southbound right movement degrades from a LOS “A” to a LOS “B” during the AM and PM peak hour. The westbound through movement degrades from a LOS “B” to a LOS “C” during the PM peak hour. The southbound left and eastbound through movement had the largest queue length growth, resulting in 2 additional vehicles during both peak hours.

If the intersection of KY 40 and the southbound ramps were converted to a signalized intersection then the intersection continues to operate at a LOS “B” during both peak hours. The westbound left movement degrades from a LOS “A” to a LOS “B” during the AM and PM peak hour. The queue analysis revealed that the largest growth in queue length was during the AM peak hour and was 4 vehicles.

The analysis determined that all individual movements degrade at the intersection of KY 645 and Hollybush Road. The southbound right turning movement degrades from a LOS “B” to a LOS “C” during the AM and PM peak hours. The eastbound left movement degrades from a LOS “B” to a LOS “D” during the AM peak hour and from a LOS “A” to a LOS “B” during the PM peak hour. The eastbound left turn lane experiences the largest increase in queue length, 10 vehicles.

The signalized intersection of KY 645 northbound ramp and KY 40 continues to operate at a LOS “B” during AM and PM peak hours. No individual movements continue to operate at the same LOS as the no build condition. The eastbound and westbound through movements experience the largest increase in queue length during the AM peak hour, resulting in 2 additional vehicles.

The proposed intersection of Hollybush Road and the entrance into the elementary school was analyzed as a roundabout and a two-way stop controlled intersection. The roundabout operates at a LOS “B” during the AM peak and at a LOS “A” during the PM peak. All individual movements operate at a LOS “B” or better during the AM and PM

peak hours. The queue analysis revealed that the AM peak westbound movement had the longest queue length, consisting of 8 vehicles. The two-way stop controlled intersection analysis revealed that some individual movements operate at a LOS “F”. The southbound left movement operates at a LOS “F” during the AM peak hour. All movements operate at a LOS “D” or better during the PM peak hour. The AM peak southbound left movement has a queue length of 17 vehicles.

2024 NO BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	11/B											11/B	
SB Ramp @ KY 40 (TWSC)				9/A						67/F		10/B	
SB Ramp @ KY 40 (AWSC)			11/B	14/B	10/B					11/B		9/A	12/B
SB Ramp @ KY 40 (Signal)			15/B	9/A	5/A					17/B		16/B	10/B
NB Ramp @ KY 40	11/B	13/B		9/A	15/B		15/B	16/B					14/B
2024 BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	25/D											21/C	
SB Ramp @ KY 40 (TWSC)				9/A						530/F		10/B	
SB Ramp @ KY 40 (AWSC)			15/C	19/C	13/B					18/C		10/B	16/C
SB Ramp @ KY 40 (Signal)			20/B	11/B	6/A					19/B		16/B	15/B
NB Ramp @ KY 40	11/B	13/B		9/A	16/B		18/B	18/B					15/B
Hollybush Rd @ Entrance (TWSC)		10/B								150/F			
Hollybush Rd @ Entrance (Roundabout)			8/A			14/B						13/B	13/B

Table 4. 2024 AM Level of Service Summary

2024 NO BUILD (Delay in sec/LOS)													
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	9/A											13/B	
SB Ramp @ KY 40 (TWSC)				9/A						78/F		11/B	
SB Ramp @ KY 40 (AWSC)			13/B	14/B	14/B					12/B		10/A	13/B
SB Ramp @ KY 40 (Signal)			16/B	9/A	6/A					16/B		17/B	11/B
NB Ramp @ KY 40	11/B	12/B		9/A	14/B		14/B	17/B					14/B
2024 BUILD (Delay in sec/LOS)													
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	11/B											23/C	
SB Ramp @ KY 40 (TWSC)				9/A						416/F		12/B	
SB Ramp @ KY 40 (AWSC)			19/C	16/C	18/C					17/C		12/B	17/C
SB Ramp @ KY 40 (Signal)			19/B	11/B	7/A					19/B		17/B	14/B
NB Ramp @ KY 40	11/B	13/B		9/A	15/B		16/B	18/B					14/B
Hollybush Rd @ Entrance (TWSC)		8/A								29/D			
Hollybush Rd @ Entrance (Roundabout)			9/A			6/A						6/A	7/A

Table 5. 2024 PM Level of Service Summary

2024 NO BUILD (95th Percentile Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	3											2
SB Ramp @ KY 40 (TWSC)				1						4		0
SB Ramp @ KY 40 (AWSC)		1		3	1					1		0
SB Ramp @ KY 40 (Signal)		3		2	1					1		1
NB Ramp @ KY 40	0	1		1	4		2		2			
2024 BUILD (95th Percentile Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	13											8
SB Ramp @ KY 40 (TWSC)				1						22		0
SB Ramp @ KY 40 (AWSC)		3		4	2					3		1
SB Ramp @ KY 40 (Signal)		5		3	2					5		2
NB Ramp @ KY 40	0	3		1	6		3		3			
Hollybush Rd @ Entrance (TWSC)	0									17		
Hollybush Rd @ Entrance (Roundabout)			2			8						3

Table 6. 2024 AM Queue Summary

2024 NO BUILD (95th Percentile Queue in Veh/Lane)												
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	1											3
SB Ramp @ KY 40 (TWSC)				1						4		1
SB Ramp @ KY 40 (AWSC)		2		2	3					1		1
SB Ramp @ KY 40 (Signal)		4		2	2					2		2
NB Ramp @ KY 40	0	2		0	4		2		3			
2024 BUILD (95th Percentile Queue in Veh/Lane)												
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	2											9
SB Ramp @ KY 40 (TWSC)				1						17		1
SB Ramp @ KY 40 (AWSC)		4		3	4					3		1
SB Ramp @ KY 40 (Signal)		5		2	2					4		3
NB Ramp @ KY 40	0	3		0	5		2		3			
Hollybush Rd @ Entrance (TWSC)	0									5		
Hollybush Rd @ Entrance (Roundabout)			2			2						1

Table 7. 2024 PM Queue Summary

ADDITIONAL STUDY ITEMS**Turn Lane Analysis**

The proposed intersection of Hollybush Road and the elementary school entrance was analyzed to determine if a right turn lane along Hollybush Road was needed. The analysis did not reveal a need for the turn lane. The turn lane warrants can be found in the Appendix of this report. Although a right turn lane along Hollybush Road is not warranted, traffic will operate more efficiently with the turn lane as high school traffic will be less impacted by elementary school traffic.

Sight Distance Analysis

All approaches provide for adequate sight distance that exceeds the required AASHTO/KYTC standards for the sight distance along the analyzed routes at their existing design speeds. Vehicles entering the roadway can see adequate distance to enter the roadway safely, provided they are given appropriate gap spacing.

CONCLUSIONS AND RECOMMENDATIONS

KY 645 and KY 40 are corridors that will provide access to Martin County High School and the proposed elementary school. Hollybush Road currently has two lanes and directly enters the high school. With the addition of the elementary school, an entrance will be constructed connecting to Hollybush Road. This intersection of the new entrance and Hollybush Road will carry the existing high school traffic and the future trips for the elementary school.

Based on traffic analysis the roadway network experiences some degree of degrading with the addition of the elementary school. The intersection of KY 645 and Hollybush Road had movements degrade from a LOS “B” to a LOS “C” during the AM peak hour, but the intersection still operates at a desirable LOS. All other intersections continued to operate at the existing LOS with the addition of the elementary school.

The Hollybush Road and elementary school entrance intersection was analyzed as a two-way stop controlled intersection and as a roundabout using HCS. The AM peak LOS for the two-way stop controlled intersection operated at a lower LOS than the PM peak. The southbound left movement operates at a LOS “F” in the AM peak and at a LOS “C” in the PM peak. The roundabout analysis for the AM peak revealed that the intersection would operate at a LOS “B”. The PM peak would operate at a LOS “A”.

The intersection of KY 645 southbound ramp and KY 40 southbound left turning movement does not operate at an acceptable LOS. The HCS analysis of the intersection revealed that the southbound left movement currently operates at a LOS “F” during both peak hours and experiences significant degrading when the elementary school is complete. The intersection was analyzed as an all-way stop controlled intersection and as a signalized intersection and will operate under acceptable conditions, LOS “C” or better, for existing and build conditions, with either improvement options.

The turn lane analysis determined that no additional turn lanes are warranted and the sight distance analysis determined that traffic has adequate sight distance to safely enter the road at the design speed.

Based on the analysis it is recommended that the intersection of KY 40 and KY 645 southbound ramps be converted from a two-way stop controlled intersection to either an all-way stop controlled intersection or signalized intersection coordinated with the existing signal at the KY 645 northbound ramps. Additionally, it is recommended that consideration be given at the new access point along Hollybush Road to ensure traffic does not conflict between the high school and new elementary school. This can be accomplished through a roundabout/traffic circle, a traffic guard, or ensuring the start and end times for the schools do not overlap. A right turn lane along Hollybush Road will allow traffic to operate more efficiently, limiting the impact elementary school traffic will have on high school traffic. With these recommendations the roadway network will operate under acceptable conditions.



Map 3. Recommendation Locations

APPENDIX



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 1
 2024 NO BUILD
 (AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 2
 ENTERING TRIP DISTRIBUTION
 (AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 3
 EXITING TRIP DISTRIBUTION
 (AM) PM



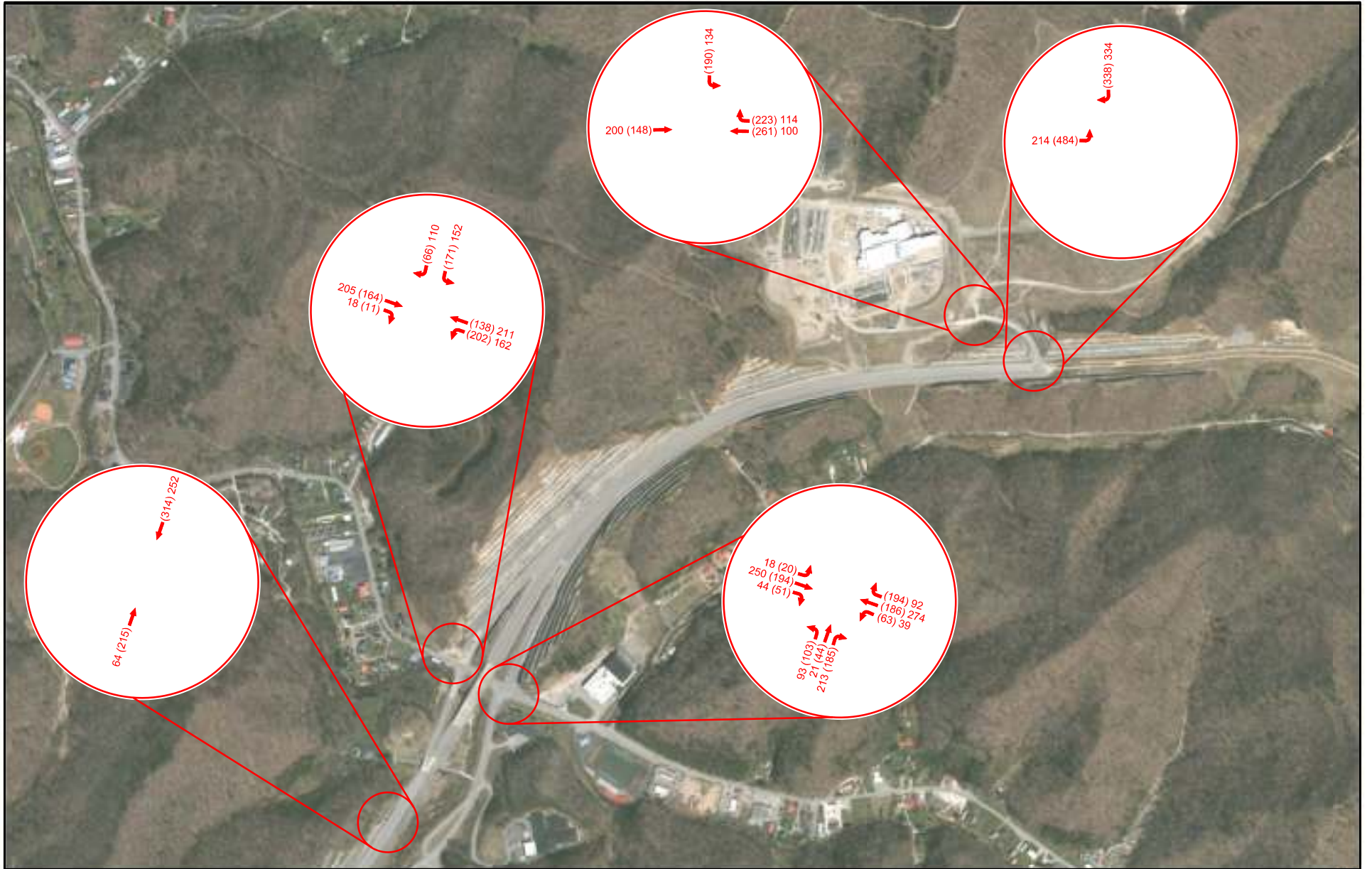
PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 4
 ENTERING TRIPS GENERATED
 (AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 5
 EXITING TRIPS GENERATED
 (AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 6
 2024 BUILD
 (AM) PM

Historical Traffic Volume Summary

Station Details:

Sta ID:	080750
Sta Type:	Classification
Map:	MapIt
District:	12
County:	Martin
Route:	080-KY-0040 -000
Route Desc:	KY-40

Begin MP:	11.90
Begin Desc:	KY 645
End Mp:	15.46
End Desc:	KY 2032
Impact Year:	
Year Added:	

Newest Count:

AADT:	5081
Year:	2020
% Single:	4.0510
% Combo:	2.0150
K Factor:	8.70
D Factor:	54

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year – year of significant change to traffic pattern within station segment

AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway

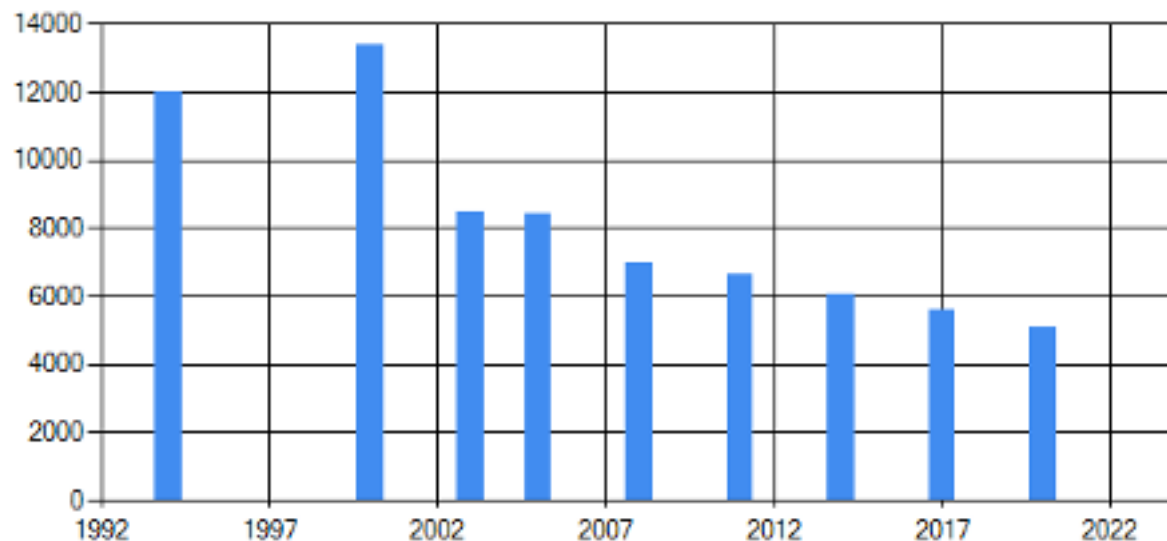
% Single – single unit truck volume as a percentage of the AADT

% Combo – combination truck volume as a percentage of the AADT

K Factor – peak hour volume as a percentage of the AADT

D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2023		2013		2003	8510
2022		2012		2002	
2021		2011	6640	2001	
2020	5081	2010		2000	13400
2019		2009		1999	
2018		2008	6990	1998	
2017	5585	2007		1997	
2016		2006		1996	
2015		2005	8420	1995	
2014	6077	2004		1994	12000



Historical Traffic Volume Summary

Station Details:

Sta ID:	080778
Sta Type:	Classification
Map:	MapIt
District:	12
County:	Martin
Route:	080-KY-0645 -000
Route Desc:	KY-645

Begin MP:	6.1050
Begin Desc:	KY 3 DEPARTURE
End Mp:	7.7580
End Desc:	END OF STATE MAINTENANCE
Impact Year:	
Year Added:	

Newest Count:

AA DT:	4537
Year:	2021
% Single:	1.8510
% Combo:	0.8780
K Factor:	11
D Factor:	55

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year – year of significant change to traffic pattern within station segment

AA DT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway

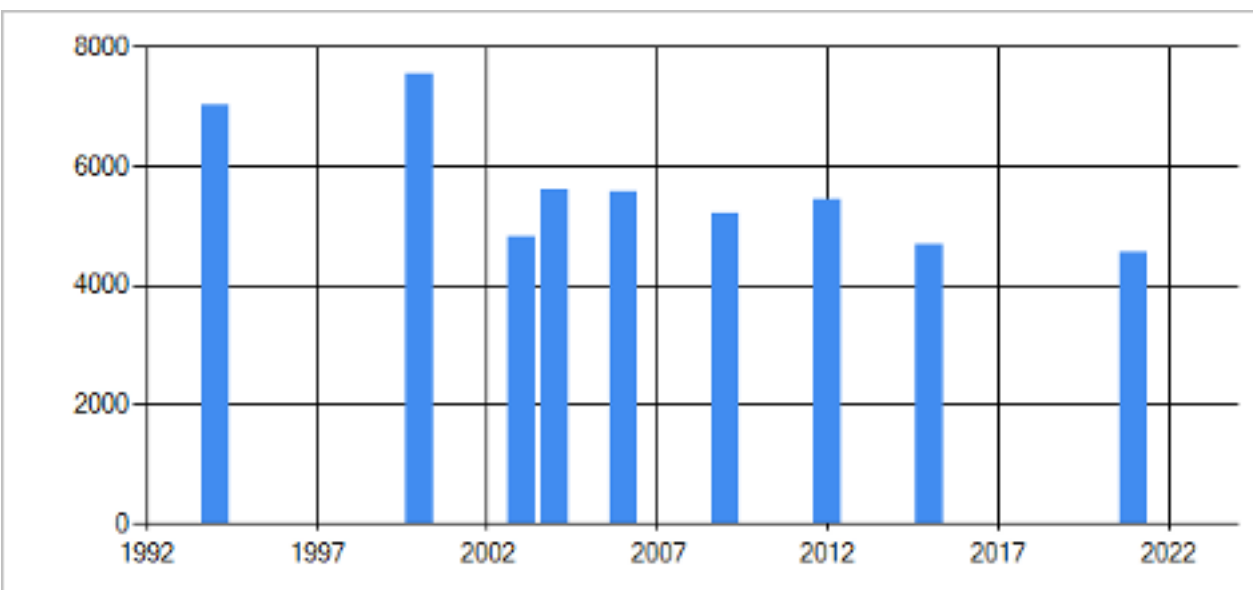
% Single – single unit truck volume as a percentage of the AA DT

% Combo – combination truck volume as a percentage of the AA DT

K Factor – peak hour volume as a percentage of the AA DT

D Factor – percentage of peak hour volume flowing in the peak direction

Year	AA DT	Year	AA DT	Year	AA DT
2023		2013		2003	4830
2022		2012	5431	2002	
2021	4537	2011		2001	
2020		2010		2000	7540
2019		2009	5220	1999	
2018		2008		1998	
2017		2007		1997	
2016		2006	5590	1996	
2015	4678	2005		1995	
2014		2004	5620	1994	7020

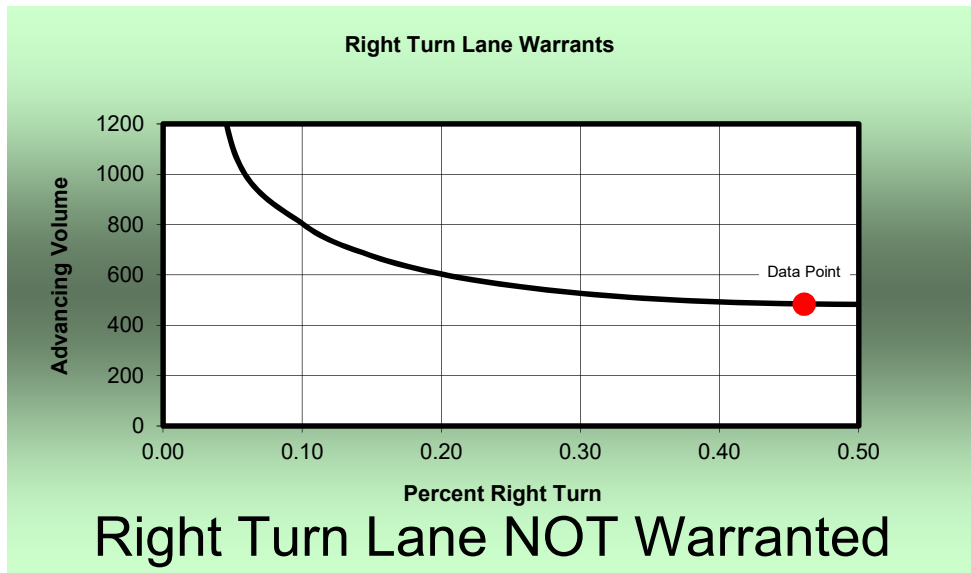


Right Turn Lane Warrants

Hollybush Rd; 2023 BUILD AM

Input Fields

Right Turn Volume (vph)	223	Speed Limit (mph)	35
Advancing Volume (vph)	484		



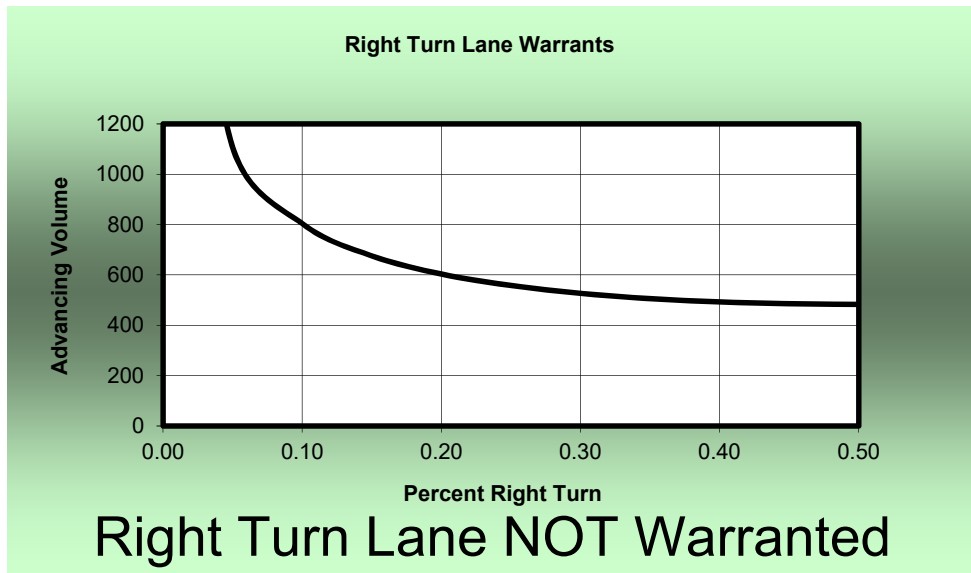
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Hollybush Rd; 2023 BUILD PM

Input Fields

Right Turn Volume (vph)	114	Speed Limit (mph)	35
Advancing Volume (vph)	214		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

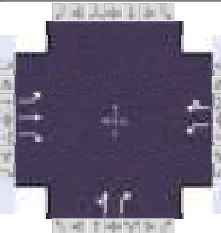
Yorkshire at RIRO: Right Turn Lane Length

Input Fields

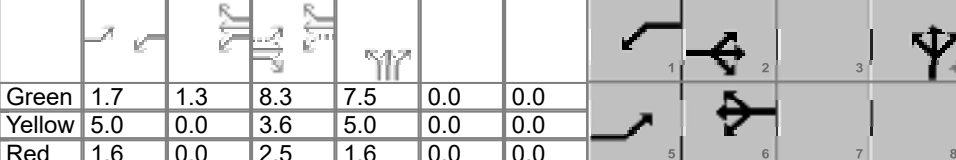
Turn Volume	223	Calculated Turn Lane Length (ft)	
Speed Limit	35	Desirable	225
Cycle Length	60	Minimum	200
<i>(Enter 0 for Uncontrolled, 60 for Stop Controlled)</i>			
Approach Percent Grade (G)	1		
Is this a Rural Arterial (Y or N)	N		

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.76	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 AM 2024 No Build.xus			
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	99	41	63	186	82	103	33	185			

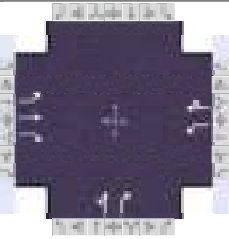
Signal Information														
Cycle, s	38.1	Reference Phase	2	Green	1.7	1.3	8.3	7.5	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	5.0	0.0	3.6	5.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.6	0.0	2.5	1.6	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.3	14.4	9.6	15.7		14.1		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.6	4.3	3.6		4.4		
Queue Clearance Time (g_s), s	2.4	4.3	3.3	8.4		6.1		
Green Extension Time (g_e), s	0.1	1.2	0.3	1.2		1.5		
Phase Call Probability	0.24	1.00	0.58	1.00		0.98		
Max Out Probability	0.00	0.00	0.00	0.01		0.00		

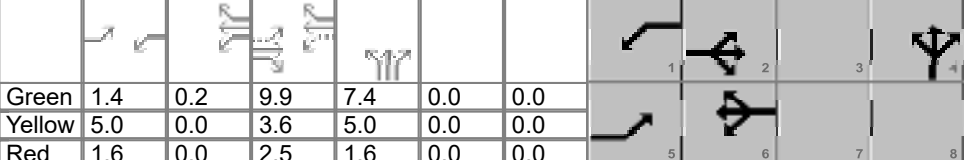
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	26	130	41	83	326			179	183			
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1776			1788	1547			
Queue Service Time (g_s), s	0.4	2.3		1.3	6.4			3.4	4.1			
Cycle Queue Clearance Time (g_c), s	0.4	2.3		1.3	6.4			3.4	4.1			
Green Ratio (g/C)	0.26	0.22		0.33	0.25			0.20	0.20			
Capacity (c), veh/h	305	405		581	448			352	304			
Volume-to-Capacity Ratio (X)	0.086	0.322		0.143	0.728			0.509	0.601			
Back of Queue (Q), ft/ln (95 th percentile)	6.1	35.3		16.9	98.7			55	60.5			
Back of Queue (Q), veh/ln (95 th percentile)	0.2	1.4		0.7	3.9			2.2	2.3			
Queue Storage Ratio (RQ) (95 th percentile)	0.08	0.00		0.09	0.00			0.00	0.60			
Uniform Delay (d_1), s/veh	11.2	12.5		9.2	13.1			13.7	14.0			
Incremental Delay (d_2), s/veh	0.1	0.3		0.1	1.7			1.2	2.1			
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0	0.0			
Control Delay (d), s/veh	11.3	12.9	0.0	9.3	14.8			14.9	16.0			
Level of Service (LOS)	B	B	A	A	B			B	B			
Approach Delay, s/veh / LOS	10.0		B	13.7		B	15.5		B	0.0		
Intersection Delay, s/veh / LOS	13.6						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.96		B	1.38		A	1.94		B	2.12		B
Bicycle LOS Score / LOS	0.81		A	1.16		A	1.08		A			

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.84	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 PM 2024 No Build.xus			
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	18	176	37	39	274	29	93	15	213			

Signal Information														
Cycle, s	38.3	Reference Phase	2	Green	1.4	0.2	9.9	7.4	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	5.0	0.0	3.6	5.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.6	0.0	2.5	1.6	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.0	16.0	8.2	16.2		14.0		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.5	4.3	3.5		4.5		
Queue Clearance Time (g_s), s	2.3	5.6	2.7	8.7		6.3		
Green Extension Time (g_e), s	0.1	1.5	0.2	1.4		1.3		
Phase Call Probability	0.20	1.00	0.39	1.00		0.97		
Max Out Probability	0.00	0.00	0.00	0.01		0.00		

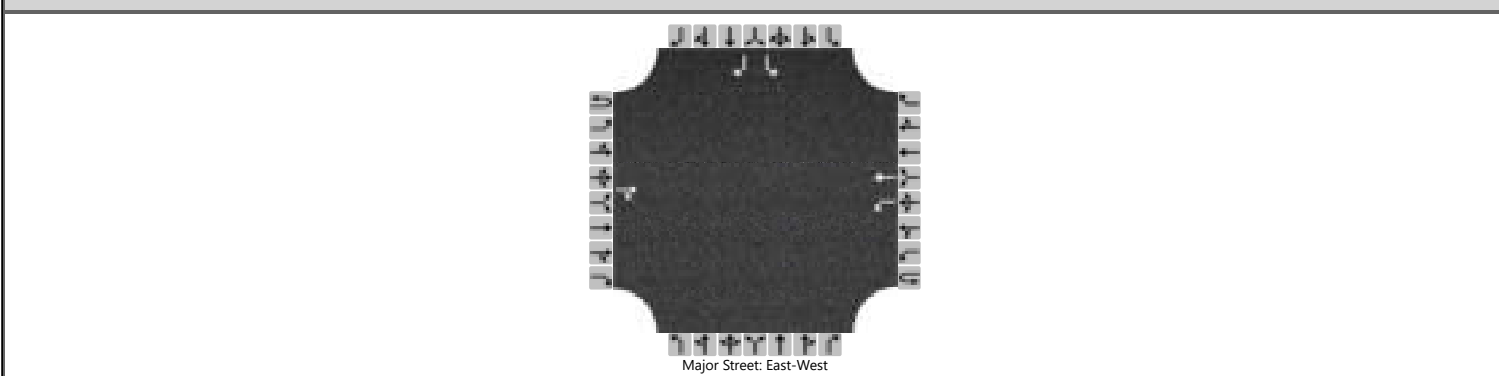
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	21	210	33	46	352			129	190			
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1831			1779	1547			
Queue Service Time (g_s), s	0.3	3.6		0.7	6.7			2.4	4.3			
Cycle Queue Clearance Time (g_c), s	0.3	3.6		0.7	6.7			2.4	4.3			
Green Ratio (g/C)	0.30	0.26		0.33	0.26			0.19	0.19			
Capacity (c), veh/h	296	481		508	485			346	301			
Volume-to-Capacity Ratio (X)	0.072	0.436		0.091	0.727			0.371	0.632			
Back of Queue (Q), ft/ln (95 th percentile)	4.6	55.1		9.3	104.9			38.2	64.8			
Back of Queue (Q), veh/ln (95 th percentile)	0.2	2.2		0.4	4.1			1.5	2.5			
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.00		0.05	0.00			0.00	0.65			
Uniform Delay (d_1), s/veh	10.6	11.9		9.0	12.8			13.4	14.2			
Incremental Delay (d_2), s/veh	0.1	0.5		0.1	1.6			0.7	2.4			
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0	0.0			
Control Delay (d), s/veh	10.7	12.3	0.0	9.1	14.4			14.1	16.6			
Level of Service (LOS)	B	B	A	A	B			B	B			
Approach Delay, s/veh / LOS	10.6		B	13.8		B	15.6		B	0.0		
Intersection Delay, s/veh / LOS	13.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.97	B	1.37	A	1.93	B	2.12	B
Bicycle LOS Score / LOS	0.92	A	1.15	A	1.01	A		

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	AM			Peak Hour Factor	0.63		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			120	11		202	138							66		28
Percent Heavy Vehicles (%)						3								2		7
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.13								7.12		6.27
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.23								3.52		3.36

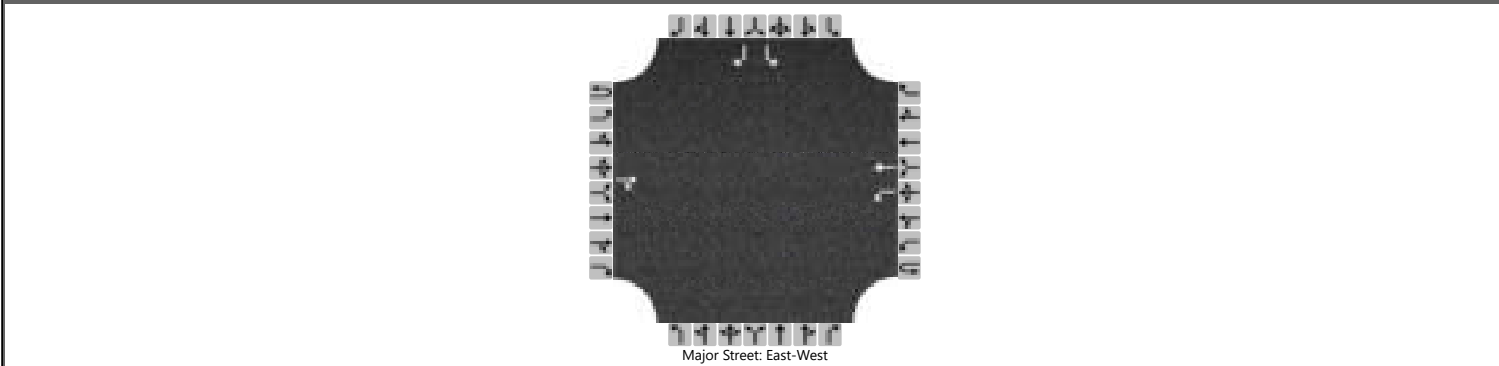
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						321								105		44
Capacity, c (veh/h)						1357								154		808
v/c Ratio						0.24								0.68		0.05
95% Queue Length, Q ₉₅ (veh)						0.9								3.9		0.2
Control Delay (s/veh)						8.5								67.2		9.7
Level of Service (LOS)						A								F		A
Approach Delay (s/veh)					5.0								50.1			
Approach LOS					A								F			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	PM			Peak Hour Factor	0.65		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			171	18		162	211							71		70
Percent Heavy Vehicles (%)						7								7		4
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

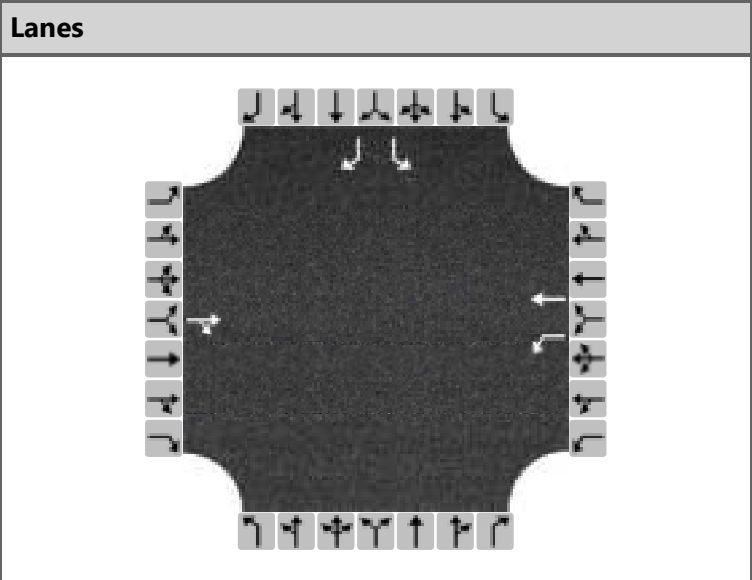
Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.17								7.17		6.24
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.26								3.56		3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						249								109		108
Capacity, c (veh/h)						1243								148		712
v/c Ratio						0.20								0.74		0.15
95% Queue Length, Q ₉₅ (veh)						0.7								4.4		0.5
Control Delay (s/veh)						8.6								77.6		11.0
Level of Service (LOS)						A								F		B
Approach Delay (s/veh)					3.7								44.5			
Approach LOS					A								E			

HCS All-Way Stop Control Report

General and Site Information	
Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	AM
Project Description	NO BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.63



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		120	11	202	138					66		28
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	208			321	219					105	44	
Percent Heavy Vehicles	0			3	1					2	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.185			0.285	0.195					0.093	0.040	
Final Departure Headway, h_d (s)	5.34			5.76	5.23					6.83	5.59	
Final Degree of Utilization, x	0.308			0.513	0.318					0.199	0.069	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	3.34			3.46	2.93					4.53	3.29	

Capacity, Delay and Level of Service

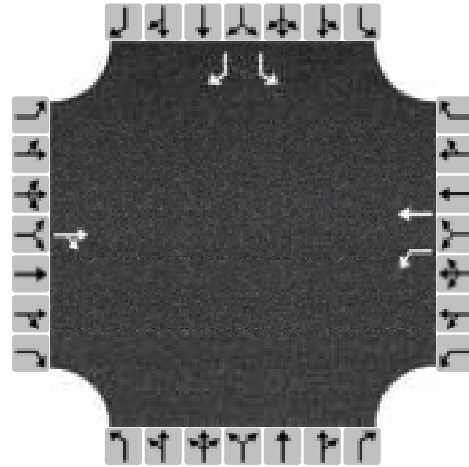
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	208			321	219					105	44	
Capacity (veh/h)	674			625	689					527	644	
95% Queue Length, Q_{95} (veh)	1.3			2.9	1.4					0.7	0.2	
Control Delay (s/veh)	10.7			14.4	10.3					11.2	8.7	
Level of Service, LOS	B			B	B					B	A	
Approach Delay (s/veh) LOS	10.7		B	12.7		B				10.5		B
Intersection Delay (s/veh) LOS	11.9						B					

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	PM
Project Description	NO BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.65

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		171	18	162	211					71		70
% Thrus in Shared Lane												

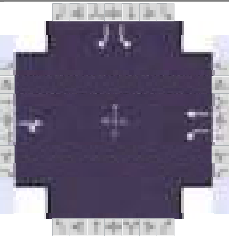
Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	291			249	325					109	108	
Percent Heavy Vehicles	0			7	1					7	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.258			0.222	0.289					0.097	0.096	
Final Departure Headway, h_d (s)	5.62			6.20	5.59					7.25	5.92	
Final Degree of Utilization, x	0.454			0.429	0.504					0.220	0.177	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	3.62			3.90	3.29					4.95	3.62	

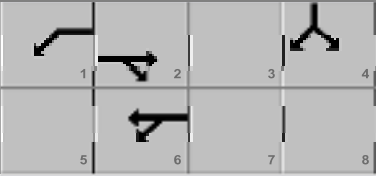
Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	291			249	325					109	108	
Capacity (veh/h)	640			581	644					496	608	
95% Queue Length, Q_{95} (veh)	2.4			2.1	2.8					0.8	0.6	
Control Delay (s/veh)	13.2			13.5	13.8					12.0	9.9	
Level of Service, LOS	B			B	B					B	A	
Approach Delay (s/veh) LOS	13.2		B	13.7		B				10.9		B
Intersection Delay (s/veh) LOS	13.0						B					

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.63	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ SB Ramp		File Name	SB Ramp @ KY 40 AM 2024 No Build.xus		
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		120	11	202	138					66		28

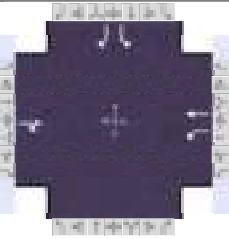
Signal Information														
Cycle, s	39.9	Reference Phase	2	Green	8.0	8.0	5.7	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		14.1	13.5	27.6				12.3
Change Period, ($Y+R_c$), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g_s), s		5.8	6.8	4.4				4.1
Green Extension Time (g_e), s		0.7	1.4	1.0				0.6
Phase Call Probability		1.00	0.97	1.00				0.81
Max Out Probability		0.00	0.00	0.00				0.00

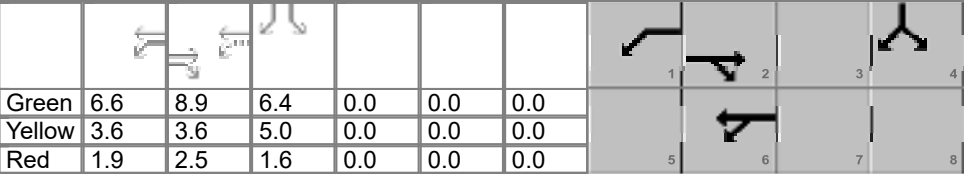
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		198		321	219					105		44
Adjusted Saturation Flow Rate (s), veh/h/ln		1872		1767	1885					1781		1522
Queue Service Time (g_s), s		3.8		4.8	2.4					2.1		1.0
Cycle Queue Clearance Time (g_c), s		3.8		4.8	2.4					2.1		1.0
Green Ratio (g/C)		0.20		0.45	0.54					0.14		0.14
Capacity (c), veh/h		375		659	1017					253		217
Volume-to-Capacity Ratio (X)		0.528		0.487	0.215					0.413		0.205
Back of Queue (Q), ft/ln (95 th percentile)		61.8		58.1	23.4					36.4		15.3
Back of Queue (Q), veh/ln (95 th percentile)		2.5		2.3	0.9					1.4		0.6
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.53	0.00					0.00		0.00
Uniform Delay (d_1), s/veh		14.3		7.9	4.8					15.6		15.1
Incremental Delay (d_2), s/veh		0.9		0.6	0.1					1.2		0.5
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		15.1		8.5	4.9					16.8		15.6
Level of Service (LOS)		B		A	A					B		B
Approach Delay, s/veh / LOS	15.1		B	7.0		A	0.0			16.4		B
Intersection Delay, s/veh / LOS	10.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.38	A	1.63	B	1.92	B	1.70	B
Bicycle LOS Score / LOS	0.81	A	1.38	A				F

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.65	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ SB Ramp		File Name	SB Ramp @ KY 40 PM 2024 No Build.xus		
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		171	18	162	211					71		70

Signal Information													
Cycle, s	40.1	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	6.6	8.9	6.4	0.0	0.0	0.0			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.6	3.6	5.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.9	2.5	1.6	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		15.0	12.1	27.1				13.0
Change Period, ($Y+R_c$), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g_s), s		7.5	5.9	6.0				4.5
Green Extension Time (g_e), s		1.4	1.0	1.5				0.9
Phase Call Probability		1.00	0.94	1.00				0.91
Max Out Probability		0.01	0.00	0.00				0.00

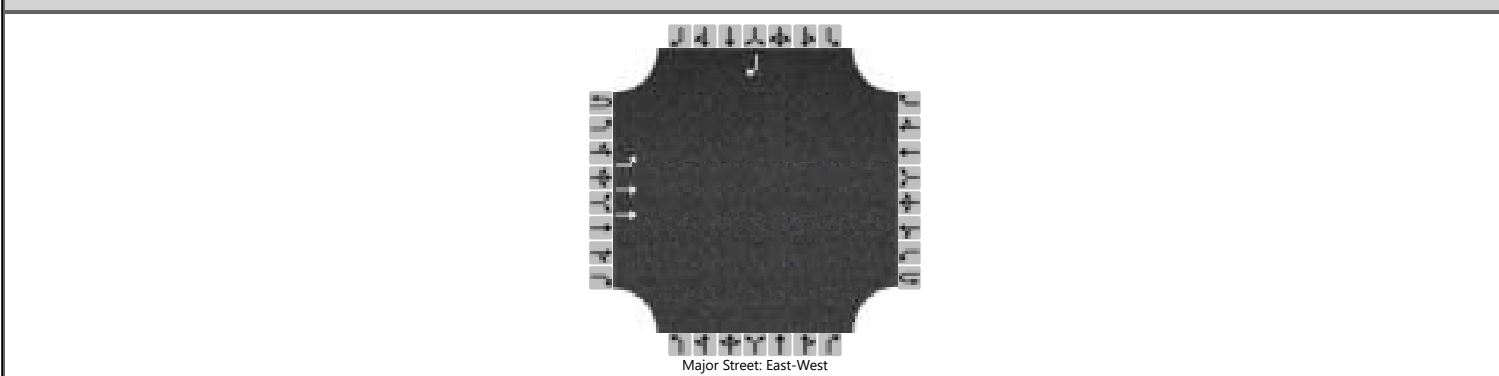
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		278		249	325					109		108
Adjusted Saturation Flow Rate (s), veh/h/ln		1867		1711	1885					1711		1560
Queue Service Time (g_s), s		5.5		3.9	4.0					2.3		2.5
Cycle Queue Clearance Time (g_c), s		5.5		3.9	4.0					2.3		2.5
Green Ratio (g/C)		0.22		0.44	0.52					0.16		0.16
Capacity (c), veh/h		416		552	988					273		249
Volume-to-Capacity Ratio (X)		0.670		0.452	0.329					0.401		0.433
Back of Queue (Q), ft/ln (95 th percentile)		89.8		48	40.6					38.5		37.8
Back of Queue (Q), veh/ln (95 th percentile)		3.6		1.8	1.6					1.5		1.5
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.44	0.00					0.00		0.00
Uniform Delay (d_1), s/veh		14.2		8.4	5.5					15.1		15.2
Incremental Delay (d_2), s/veh		1.4		0.6	0.1					1.0		1.3
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		15.6		9.0	5.6					16.2		16.5
Level of Service (LOS)		B		A	A					B		B
Approach Delay, s/veh / LOS	15.6		B	7.1		A	0.0			16.3		B
Intersection Delay, s/veh / LOS	11.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.38	A	1.63	B	1.92	B	1.70	B
Bicycle LOS Score / LOS	0.95	A	1.43	A				F

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	AM			Peak Hour Factor	0.48		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		261	0													148
Percent Heavy Vehicles (%)		3														2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.36															7.14
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.13															3.92

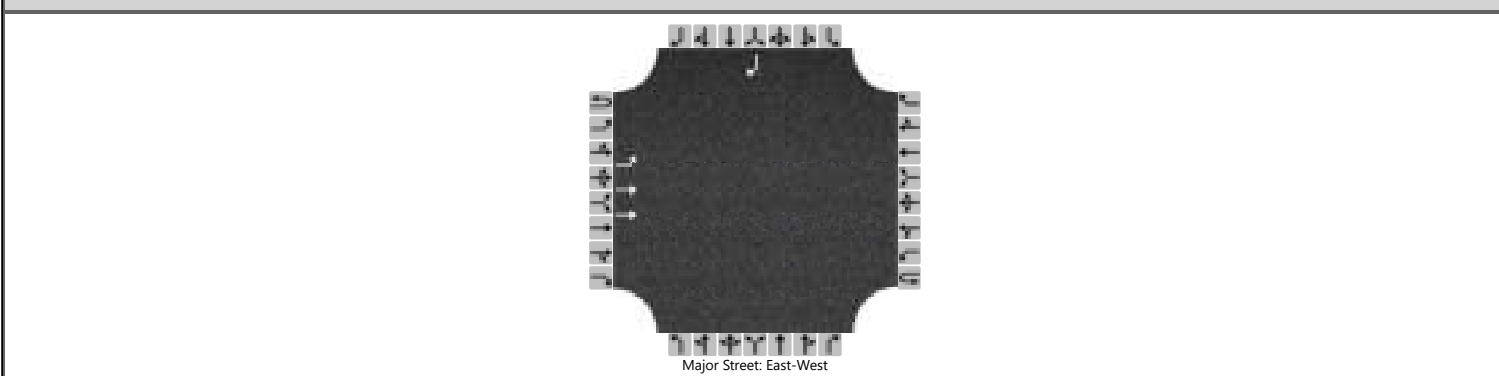
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		544															308
Capacity, c (veh/h)		1150															918
v/c Ratio		0.47															0.34
95% Queue Length, Q ₉₅ (veh)		2.6															1.5
Control Delay (s/veh)		10.9															10.9
Level of Service (LOS)		B															B
Approach Delay (s/veh)	10.9												10.9				
Approach LOS	B												B				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	PM			Peak Hour Factor	0.46		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		100	0													200
Percent Heavy Vehicles (%)		11														7
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

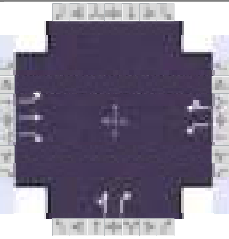
Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.52															7.24
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.21															3.97

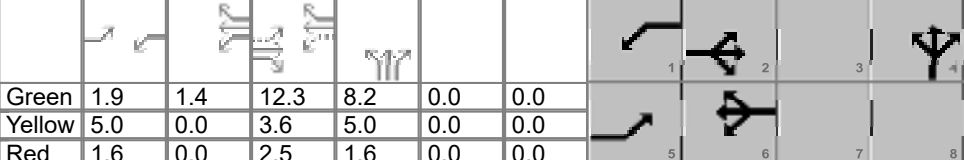
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		217															435
Capacity, c (veh/h)		1121															907
v/c Ratio		0.19															0.48
95% Queue Length, Q ₉₅ (veh)		0.7															2.6
Control Delay (s/veh)		9.0															12.6
Level of Service (LOS)		A															B
Approach Delay (s/veh)	9.0												12.6				
Approach LOS	A												B				

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.76	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1> 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 AM 2024 Build.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	194	51	63	186	194	103	44	185			

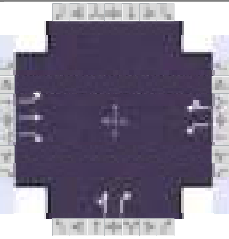
Signal Information																		
Cycle, s	43.1	Reference Phase	2	Green	1.9	1.4	12.3	8.2	0.0	0.0	Yellow	5.0	0.0	3.6	5.0	0.0	0.0	
Offset, s	0	Reference Point	End	Red	1.6	0.0	2.5	1.6	0.0	0.0	Uncoordinated	Yes	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.5	18.4	9.9	19.8		14.8		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.6	4.3	3.6		4.4		
Queue Clearance Time (g_s), s	2.4	6.9	3.3	12.0		6.7		
Green Extension Time (g_e), s	0.1	1.9	0.3	1.7		1.6		
Phase Call Probability	0.27	1.00	0.63	1.00		0.99		
Max Out Probability	0.00	0.02	0.00	0.11		0.00		

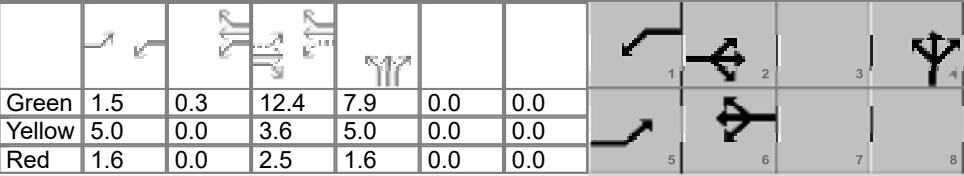
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	26	255	50	83	437			193	183			
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1719			1793	1547			
Queue Service Time (g_s), s	0.4	4.9		1.3	10.0			4.2	4.7			
Cycle Queue Clearance Time (g_c), s	0.4	4.9		1.3	10.0			4.2	4.7			
Green Ratio (g/C)	0.33	0.29		0.39	0.32			0.19	0.19			
Capacity (c), veh/h	287	530		542	548			341	294			
Volume-to-Capacity Ratio (X)	0.092	0.481		0.153	0.797			0.567	0.621			
Back of Queue (Q), ft/ln (95 th percentile)	6.4	77.9		17.7	151.2			72.9	72.6			
Back of Queue (Q), veh/ln (95 th percentile)	0.3	3.0		0.7	5.9			2.8	2.8			
Queue Storage Ratio (RQ) (95 th percentile)	0.09	0.00		0.10	0.00			0.00	0.73			
Uniform Delay (d_1), s/veh	11.2	12.8		8.8	13.4			15.9	16.1			
Incremental Delay (d_2), s/veh	0.1	0.5		0.1	2.0			1.6	2.3			
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0	0.0			
Control Delay (d), s/veh	11.3	13.3	0.0	8.9	15.5			17.5	18.4			
Level of Service (LOS)	B	B	A	A	B			B	B			
Approach Delay, s/veh / LOS	11.1		B	14.4		B	17.9		B	0.0		
Intersection Delay, s/veh / LOS	14.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	1.37	A	1.99	B	2.13	B
Bicycle LOS Score / LOS	1.03	A	1.35	A	1.11	A		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.84	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1> 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 PM 2024 Build.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	250	44	39	274	92	93	21	213			

Signal Information														
Cycle, s	41.4	Reference Phase	2	Green	1.5	0.3	12.4	7.9	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	5.0	0.0	3.6	5.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.6	0.0	2.5	1.6	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.1	18.5	8.4	18.8		14.5		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.6	4.3	3.6		4.5		
Queue Clearance Time (g_s), s	2.3	7.6	2.7	10.9		6.7		
Green Extension Time (g_e), s	0.1	1.9	0.2	1.7		1.4		
Phase Call Probability	0.22	1.00	0.41	1.00		0.98		
Max Out Probability	0.00	0.02	0.00	0.07		0.00		

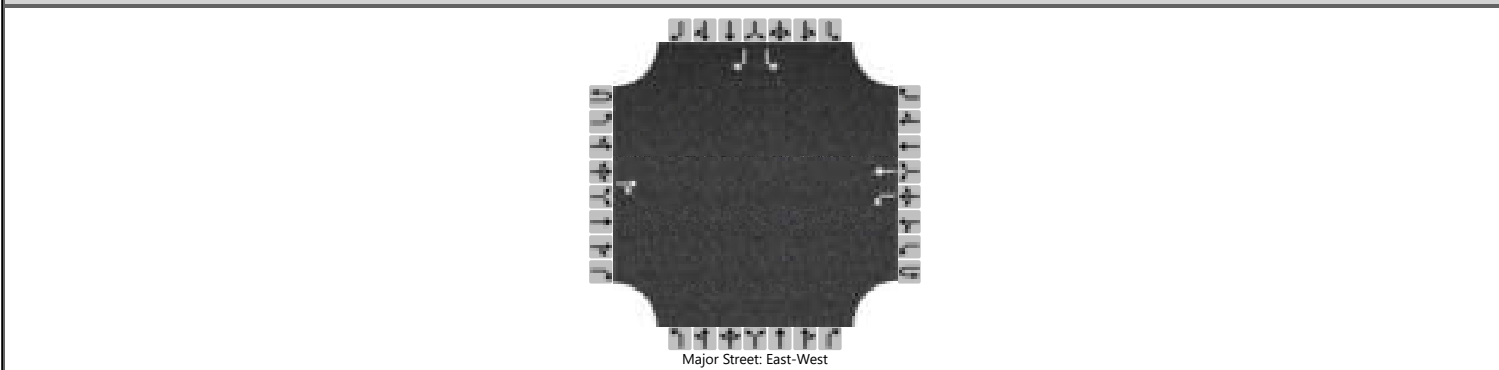
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	21	298	40	46	420		136	190				
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1784		1783	1547				
Queue Service Time (g_s), s	0.3	5.6		0.7	8.9		2.8	4.7				
Cycle Queue Clearance Time (g_c), s	0.3	5.6		0.7	8.9		2.8	4.7				
Green Ratio (g/C)	0.34	0.30		0.37	0.31		0.19	0.19				
Capacity (c), veh/h	285	555		477	546		341	296				
Volume-to-Capacity Ratio (X)	0.075	0.536		0.097	0.770		0.398	0.643				
Back of Queue (Q), ft/ln (95 th percentile)	4.8	85.4		9.6	135.9		45.6	72.6				
Back of Queue (Q), veh/ln (95 th percentile)	0.2	3.3		0.4	5.3		1.8	2.8				
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.00		0.05	0.00		0.00	0.73				
Uniform Delay (d_1), s/veh	10.6	12.1		8.8	13.1		14.7	15.5				
Incremental Delay (d_2), s/veh	0.1	0.6		0.1	1.7		0.8	2.5				
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0				
Control Delay (d), s/veh	10.7	12.7	0.0	8.9	14.8		15.5	18.0				
Level of Service (LOS)	B	B	A	A	B		B	B				
Approach Delay, s/veh / LOS	11.2		B	14.2		B	17.0		B	0.0		
Intersection Delay, s/veh / LOS	14.0						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.97		B	1.37		A	1.94		B	2.12		B
Bicycle LOS Score / LOS	1.08		A	1.26		A	1.03		A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	AM			Peak Hour Factor	0.63		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			164	11		202	138							171		66
Percent Heavy Vehicles (%)						3								2		7
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.13								7.12		6.27
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.23								3.52		3.36

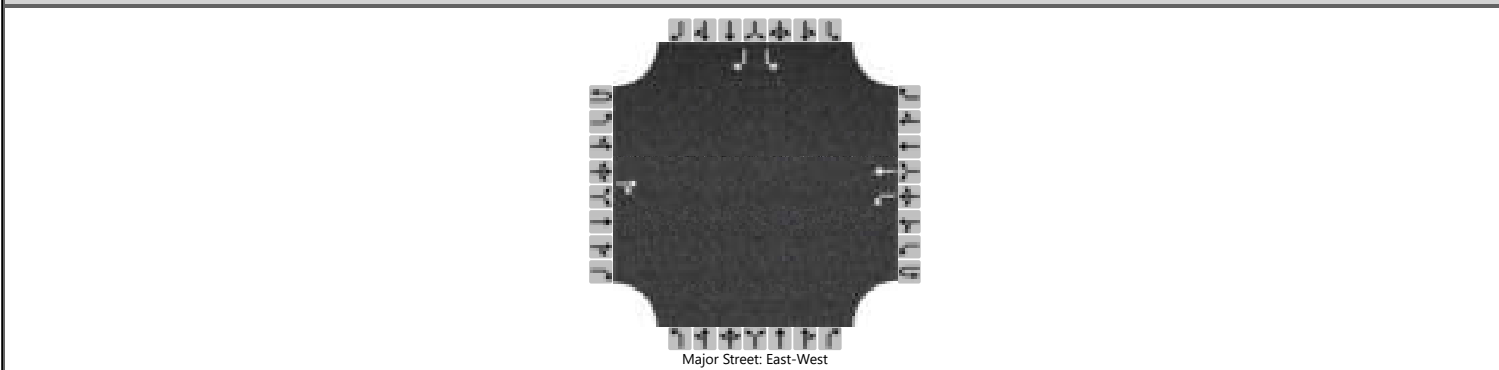
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						321								271		105
Capacity, c (veh/h)						1279								136		808
v/c Ratio						0.25								2.00		0.13
95% Queue Length, Q ₉₅ (veh)						1.0								21.7		0.4
Control Delay (s/veh)						8.8								529.8		10.1
Level of Service (LOS)						A								F		B
Approach Delay (s/veh)					5.2								385.1			
Approach LOS					A								F			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	PM			Peak Hour Factor	0.65		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			205	18		162	211							152		110
Percent Heavy Vehicles (%)						7								7		4
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.17								7.17		6.24
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.26								3.56		3.34

Delay, Queue Length, and Level of Service

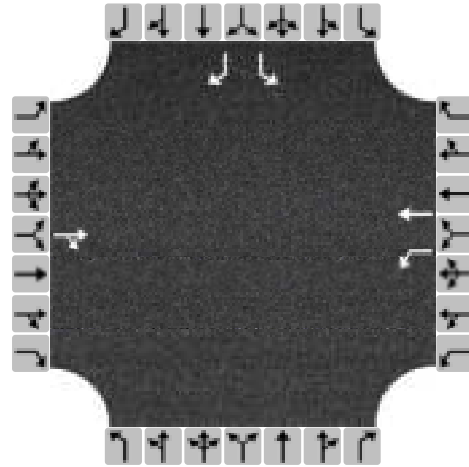
Flow Rate, v (veh/h)						249								234		169
Capacity, c (veh/h)						1189								135		712
v/c Ratio						0.21								1.73		0.24
95% Queue Length, Q ₉₅ (veh)						0.8								17.4		0.9
Control Delay (s/veh)						8.8								416.1		11.6
Level of Service (LOS)						A								F		B
Approach Delay (s/veh)					3.8								246.3			
Approach LOS					A								F			

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	AM
Project Description	BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.63

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		164	11	202	138					171		66
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	278			321	219					271	105	
Percent Heavy Vehicles	0			3	1					2	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.247			0.285	0.195					0.241	0.093	
Final Departure Headway, h_d (s)	6.29			6.79	6.25					7.27	6.02	
Final Degree of Utilization, x	0.485			0.605	0.380					0.548	0.175	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	4.29			4.49	3.95					4.97	3.72	

Capacity, Delay and Level of Service

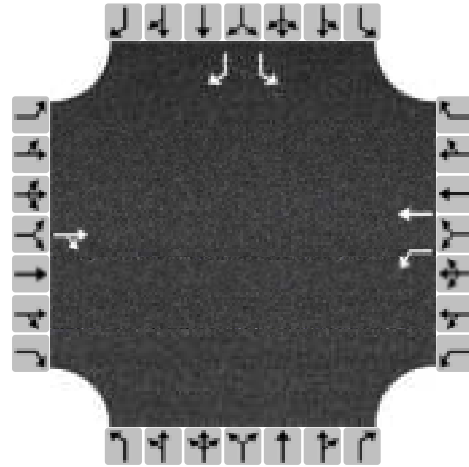
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	278			321	219					271	105	
Capacity (veh/h)	572			530	576					495	598	
95% Queue Length, Q_{95} (veh)	2.6			4.0	1.8					3.3	0.6	
Control Delay (s/veh)	15.1			19.4	12.7					18.4	10.0	
Level of Service, LOS	C			C	B					C	A	
Approach Delay (s/veh) LOS	15.1		C	16.7		C				16.1		C
Intersection Delay (s/veh) LOS	16.1						C					

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2023
Analysis Time Period (hrs)	0.25
Time Analyzed	PM
Project Description	NO BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.65

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		205	18	162	211					152		110
% Thrus in Shared Lane												

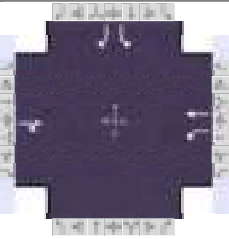
Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	343			249	325					234	169	
Percent Heavy Vehicles	0			7	1					7	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.305			0.222	0.289					0.208	0.150	
Final Departure Headway, h_d (s)	6.34			7.04	6.42					7.58	6.25	
Final Degree of Utilization, x	0.605			0.487	0.579					0.493	0.294	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	4.34			4.74	4.12					5.28	3.95	

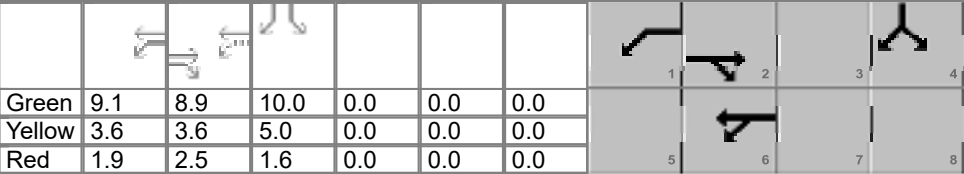
Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	343			249	325					234	169	
Capacity (veh/h)	567			512	560					475	576	
95% Queue Length, Q_{95} (veh)	4.0			2.6	3.7					2.7	1.2	
Control Delay (s/veh)	18.6			16.2	17.6					17.4	11.5	
Level of Service, LOS	C			C	C					C	B	
Approach Delay (s/veh) LOS	18.6		C	17.0		C				14.9		B
Intersection Delay (s/veh) LOS	16.8						C					

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.63	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ SB Ramp		File Name	SB Ramp @ KY 40 AM 2024 Build.xus		
Project Description	Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		164	11	202	138					171		66

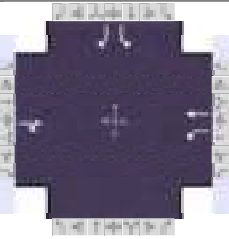
Signal Information														
Cycle, s	46.2	Reference Phase	2	Green	9.1	8.9	10.0	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		15.0	14.6	29.6				16.6
Change Period, ($Y+R_c$), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g_s), s		8.2	7.8	5.0				8.5
Green Extension Time (g_e), s		0.6	1.4	1.2				1.5
Phase Call Probability		1.00	0.98	1.00				0.99
Max Out Probability		0.01	0.00	0.00				0.00

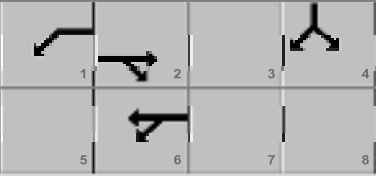
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		268		321	219					271		105
Adjusted Saturation Flow Rate (s), veh/h/ln		1875		1767	1885					1781		1522
Queue Service Time (g_s), s		6.2		5.8	3.0					6.5		2.7
Cycle Queue Clearance Time (g_c), s		6.2		5.8	3.0					6.5		2.7
Green Ratio (g/C)		0.19		0.43	0.51					0.22		0.22
Capacity (c), veh/h		362		568	958					387		331
Volume-to-Capacity Ratio (X)		0.742		0.565	0.229					0.701		0.316
Back of Queue (Q), ft/ln (95 th percentile)		113.3		82.1	37.2					114.4		39.8
Back of Queue (Q), veh/ln (95 th percentile)		4.5		3.2	1.5					4.5		1.5
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.75	0.00					0.00		0.00
Uniform Delay (d_1), s/veh		17.6		10.1	6.3					16.7		15.2
Incremental Delay (d_2), s/veh		2.3		1.0	0.1					2.5		0.6
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		19.9		11.1	6.4					19.2		15.8
Level of Service (LOS)		B		B	A					B		B
Approach Delay, s/veh / LOS	19.9		B	9.2		A	0.0			18.3		B
Intersection Delay, s/veh / LOS	14.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.39	A	1.64	B	1.92	B	1.71	B
Bicycle LOS Score / LOS	0.93	A	1.38	A				F

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.65	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ SB Ramp	File Name	SB Ramp @ KY 40 PM 2024 Build.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		205	18	162	211					152		110

Signal Information														
Cycle, s	44.9	Reference Phase	2	Green	7.1	10.3	9.3	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		16.4	12.6	29.0				15.9
Change Period, ($Y+R_c$), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g_s), s		9.5	6.4	6.6				7.6
Green Extension Time (g_e), s		0.8	1.0	1.6				1.7
Phase Call Probability		1.00	0.96	1.00				0.99
Max Out Probability		0.03	0.00	0.01				0.00

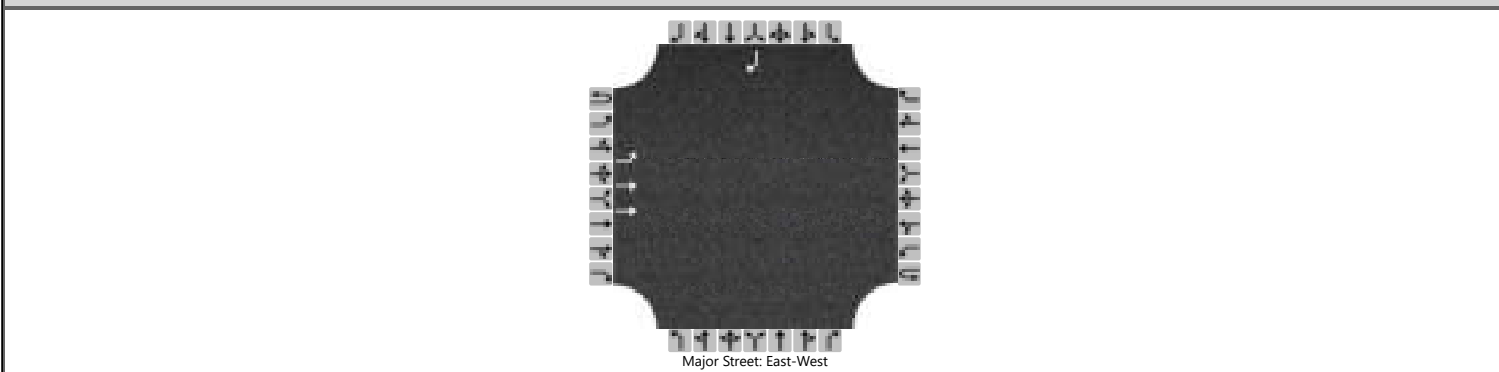
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		331		249	325					234		169
Adjusted Saturation Flow Rate (s), veh/h/ln		1870		1711	1885					1711		1560
Queue Service Time (g_s), s		7.5		4.4	4.6					5.6		4.3
Cycle Queue Clearance Time (g_c), s		7.5		4.4	4.6					5.6		4.3
Green Ratio (g/C)		0.23		0.43	0.51					0.21		0.21
Capacity (c), veh/h		428		495	961					356		324
Volume-to-Capacity Ratio (X)		0.772		0.503	0.338					0.658		0.522
Back of Queue (Q), ft/ln (95 th percentile)		130.8		60.2	55.4					97.9		65.7
Back of Queue (Q), veh/ln (95 th percentile)		5.2		2.3	2.2					3.7		2.5
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.55	0.00					0.00		0.00
Uniform Delay (d_1), s/veh		16.2		9.8	6.5					16.3		15.8
Incremental Delay (d_2), s/veh		2.2		0.9	0.2					2.2		1.4
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		18.5		10.7	6.7					18.6		17.2
Level of Service (LOS)		B		B	A					B		B
Approach Delay, s/veh / LOS	18.5		B	8.4		A	0.0			18.0		B
Intersection Delay, s/veh / LOS	13.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.38	A	1.64	B	1.92	B	1.71	B
Bicycle LOS Score / LOS	1.03	A	1.43	A				F

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	AM			Peak Hour Factor	0.48		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		484	0													338
Percent Heavy Vehicles (%)		3														2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.36															7.14
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.13															3.92

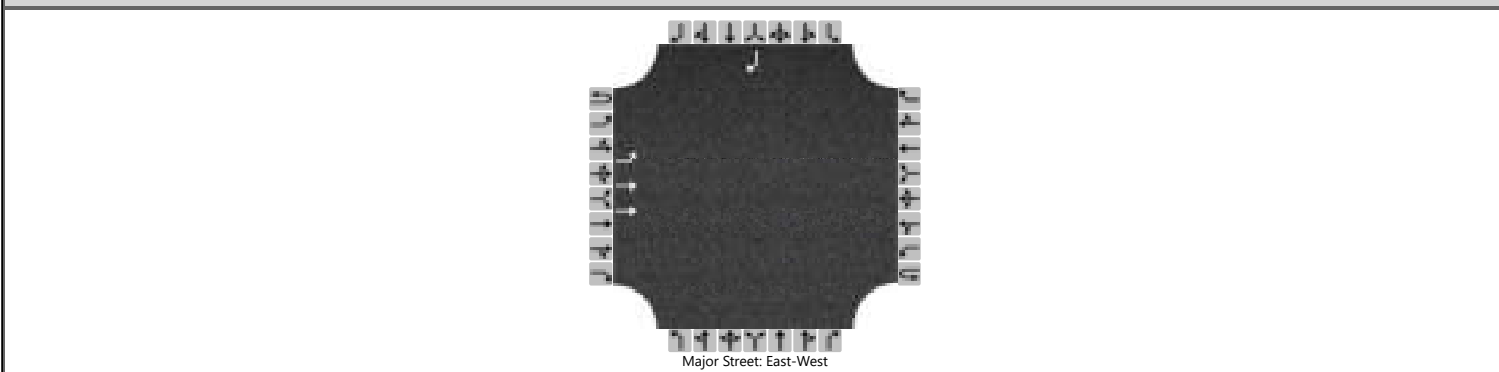
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1008															704
Capacity, c (veh/h)		1150															918
v/c Ratio		0.88															0.77
95% Queue Length, Q ₉₅ (veh)		12.5															7.7
Control Delay (s/veh)		25.2															20.5
Level of Service (LOS)		D															C
Approach Delay (s/veh)	25.2												20.5				
Approach LOS	D												C				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	PM			Peak Hour Factor	0.46		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		214	0													334
Percent Heavy Vehicles (%)		11														7
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.52															7.24
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.21															3.97

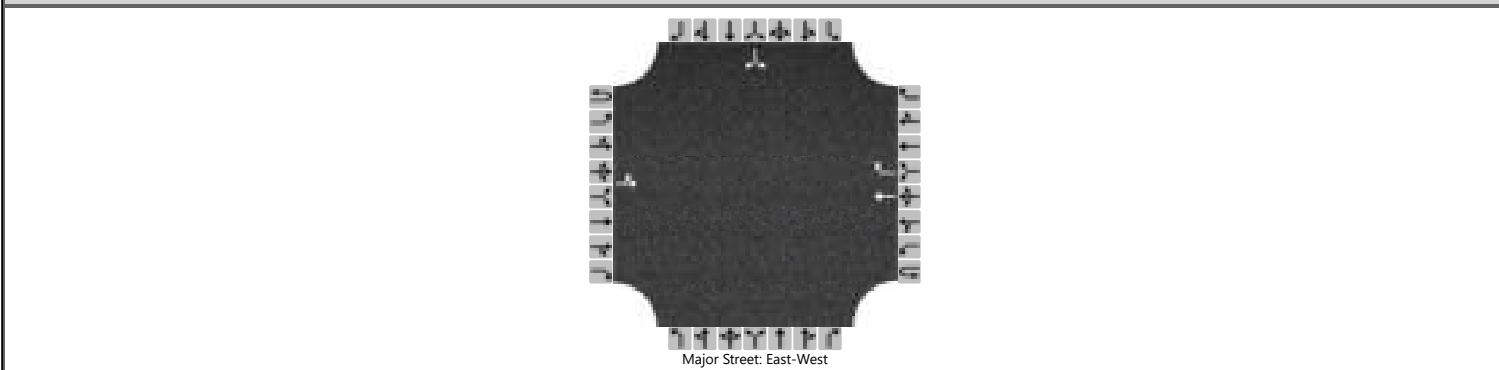
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		465															726
Capacity, c (veh/h)		1121															907
v/c Ratio		0.41															0.80
95% Queue Length, Q ₉₅ (veh)		2.1															8.7
Control Delay (s/veh)		10.5															22.8
Level of Service (LOS)		B															C
Approach Delay (s/veh)	10.5												22.8				
Approach LOS	B												C				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	AM			Peak Hour Factor	0.48		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		0	148				261	223						190		0
Percent Heavy Vehicles (%)		3												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized					No											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.52		3.32

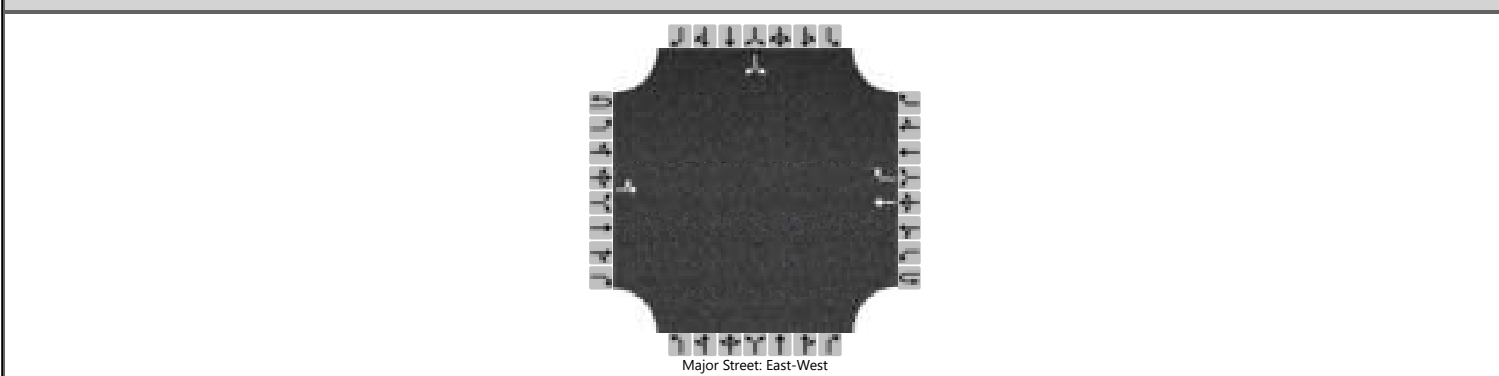
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0														396
Capacity, c (veh/h)		683														330
v/c Ratio		0.00														1.20
95% Queue Length, Q ₉₅ (veh)		0.0														17.0
Control Delay (s/veh)		10.3	0.0													149.8
Level of Service (LOS)		B	A													F
Approach Delay (s/veh)	0.0												149.8			
Approach LOS	A												F			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	PM			Peak Hour Factor	0.46		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		0	200				100	114						134		0
Percent Heavy Vehicles (%)		11												2		7
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized					No											
Median Type Storage	Undivided															


Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.21												6.42		6.27
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.30												3.52		3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													291	
Capacity, c (veh/h)		1051													432	
v/c Ratio		0.00													0.67	
95% Queue Length, Q ₉₅ (veh)		0.0													4.9	
Control Delay (s/veh)		8.4	0.0												28.9	
Level of Service (LOS)		A	A												D	
Approach Delay (s/veh)	0.0												28.9			
Approach LOS	A												D			

HCS Roundabouts Report

General Information				Site Information				
Analyst	BH				Intersection		Hollybush @ Entrance	
Agency or Co.	PEC				E/W Street Name		Hollybush	
Date Performed	11/1/2023				N/S Street Name		Entrance	
Analysis Year	2024				Analysis Time Period, hrs		0.25	
Time Analyzed	AM				Peak Hour Factor		0.48	
Project Description	BUILD				Jurisdiction			


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Lane Assignment	LT				TR				LR							
Volume (V), veh/h	0	0	148		0		261	223					0	190		0
Percent Heavy Vehicles, %	3	3	3		3		3	3					3	3		3
Flow Rate (V _{PCE}), pc/h	0	0	318		0		560	479					0	408		0
Right-Turn Bypass	None				None				None							
Conflicting Lanes	1				1				1							
Pedestrians Crossing, p/h	0				0				0							
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763						4.9763	
Follow-Up Headway, s		2.6087			2.6087						2.6087	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		318			1039						408	
Entry Volume, veh/h		309			1009						396	
Circulating Flow (v _c), pc/h	408			0			726			560		
Exiting Flow (v _e), pc/h	726			560			479			0		
Capacity (C _{PCE}), pc/h		910			1380						779	
Capacity (c), veh/h		884			1340						757	
v/c Ratio (x)		0.35			0.75						0.52	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.0			14.1						12.5	
Lane LOS		A			B						B	
95% Queue, veh		1.6			7.7						3.1	
Approach Delay, s/veh LOS	8.0 A			14.1 B			12.5 B					
Intersection Delay, s/veh LOS	12.6						B					

HCS Roundabouts Report

General Information				Site Information				
Analyst	BH				Intersection		Hollybush @ Entrance	
Agency or Co.	PEC				E/W Street Name		Hollybush	
Date Performed	11/1/2023				N/S Street Name		Entrance	
Analysis Year	2023				Analysis Time Period, hrs		0.25	
Time Analyzed	PM				Peak Hour Factor		0.46	
Project Description	BUILD				Jurisdiction			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Lane Assignment	LT				TR				LR							
Volume (V), veh/h	0	0	200		0		100	114					0	134		0
Percent Heavy Vehicles, %	3	3	3		3		3	3					3	3		3
Flow Rate (V _{PCE}), pc/h	0	0	448		0		224	255					0	300		0
Right-Turn Bypass	None				None				None							
Conflicting Lanes	1				1				1							
Pedestrians Crossing, p/h	0				0				0							
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763						4.9763	
Follow-Up Headway, s		2.6087			2.6087						2.6087	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		448			479						300	
Entry Volume, veh/h		435			465						291	
Circulating Flow (v _c), pc/h	300			0			748			224		
Exiting Flow (v _e), pc/h	748			224			255			0		
Capacity (C _{PCE}), pc/h		1016			1380						1098	
Capacity (c), veh/h		987			1340						1066	
v/c Ratio (x)		0.44			0.35						0.27	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.7			5.8						6.0	
Lane LOS		A			A						A	
95% Queue, veh		2.3			1.6						1.1	
Approach Delay, s/veh LOS	8.7 A			5.8 A						6.0 A		
Intersection Delay, s/veh LOS	6.9						A					

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

Default Comments
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File Name : NB Ramps AM Inez
Site Code : 00000000
Start Date : 10/24/2023
Page No : 1

Groups Printed- Unshifted - Bank 2

Start Time	645AM From North					40 From East					645AM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	0	0	0	0	0	22	3	0	25	25	0	5	0	30	0	5	0	0	5	60
06:45 AM	0	0	0	0	0	2	25	2	0	29	19	0	6	0	25	1	8	1	0	10	64
Total	0	0	0	0	0	2	47	5	0	54	44	0	11	0	55	1	13	1	0	15	124
07:00 AM	0	0	0	0	0	3	28	3	0	34	37	2	10	0	49	3	8	2	0	13	96
07:15 AM	0	0	0	0	0	12	47	9	0	68	38	3	13	0	54	7	27	4	0	38	160
07:30 AM	0	0	0	0	0	29	44	21	0	94	55	7	26	0	88	10	23	6	0	39	221
07:45 AM	0	0	0	0	0	33	53	17	0	103	40	21	46	0	107	17	31	10	0	58	268
Total	0	0	0	0	0	77	172	50	0	299	170	33	95	0	298	37	89	22	0	148	745
08:00 AM	0	0	0	0	0	8	42	16	0	66	52	2	18	0	72	7	18	0	0	25	163
08:15 AM	0	0	0	0	0	7	53	5	0	65	35	0	15	0	50	5	11	1	0	17	132
08:30 AM	0	0	0	0	0	1	46	3	0	50	32	2	12	0	46	4	17	1	0	22	118
08:45 AM	0	0	0	0	0	1	58	7	0	66	23	0	14	0	37	7	8	1	0	16	119
Total	0	0	0	0	0	17	199	31	0	247	142	4	59	0	205	23	54	3	0	80	532
*** BREAK ***																					
02:15 PM	0	0	0	0	0	2	41	7	0	50	30	0	13	0	43	6	37	1	0	44	137
02:30 PM	0	0	0	0	0	2	32	6	0	40	30	2	14	0	46	14	19	1	0	34	120
02:45 PM	0	0	0	0	0	6	50	13	0	69	29	0	10	0	39	6	28	5	0	39	147
Total	0	0	0	0	0	10	123	26	0	159	89	2	37	0	128	26	84	7	0	117	404
03:00 PM	0	0	0	0	0	12	52	12	0	76	64	9	37	0	110	7	28	7	0	42	228
03:15 PM	0	0	0	0	0	12	79	11	0	102	56	4	20	0	80	5	30	7	0	42	224
03:30 PM	0	0	0	0	0	5	80	10	0	95	47	2	19	0	68	18	83	3	0	104	267
03:45 PM	0	0	0	0	0	0	63	6	0	69	46	0	17	0	63	7	35	1	0	43	175
Total	0	0	0	0	0	29	274	39	0	342	213	15	93	0	321	37	176	18	0	231	894
04:00 PM	0	0	0	0	0	1	48	4	0	53	51	0	18	0	69	8	28	2	0	38	160

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

File Name : NB Ramps AM Inez
Site Code : 00000000
Start Date : 10/24/2023
Page No : 2

Groups Printed- Unshifted - Bank 2

Start Time	645AM From North					40 From East					645AM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:15 PM	0	0	0	0	0	6	54	12	0	72	43	1	23	1	68	8	32	4	0	44	184
04:30 PM	0	0	0	0	0	6	67	6	0	79	30	0	16	0	46	12	33	6	0	51	176
04:45 PM	0	0	0	0	0	4	55	14	0	73	44	1	16	0	61	8	31	1	0	40	174
Total	0	0	0	0	0	17	224	36	0	277	168	2	73	1	244	36	124	13	0	173	694
05:00 PM	0	0	0	0	0	5	55	8	0	68	56	0	16	0	72	10	26	2	0	38	178
05:15 PM	0	0	0	0	0	2	58	13	0	73	45	1	23	0	69	8	27	1	2	38	180
05:30 PM	0	0	0	0	0	1	67	14	0	82	40	0	7	0	47	6	29	1	0	36	165
05:45 PM	0	0	0	0	0	4	52	8	0	64	45	0	18	0	63	6	31	1	0	38	165
Total	0	0	0	0	0	12	232	43	0	287	186	1	64	0	251	30	113	5	2	150	688
06:00 PM	0	0	0	0	0	0	48	8	0	56	42	1	8	0	51	7	31	2	0	40	147
06:15 PM	0	0	0	0	0	1	47	9	0	57	33	1	17	0	51	5	40	1	0	46	154
Grand Total	0	0	0	0	0	165	1366	247	0	1778	1087	59	457	1	1604	202	724	72	2	1000	4382
Apprch %	0	0	0	0	0	9.3	76.8	13.9	0	1778	67.8	3.7	28.5	0.1	1604	20.2	72.4	7.2	0.2	1000	
Total %	0	0	0	0	0	3.8	31.2	5.6	0	40.6	24.8	1.3	10.4	0	36.6	4.6	16.5	1.6	0	22.8	
Unshifted	0	0	0	0	0	154	1336	242	0	1732	1046	56	438	1	1541	197	706	66	2	971	4244
% Unshifted	0	0	0	0	0	93.3	97.8	98	0	97.4	96.2	94.9	95.8	100	96.1	97.5	97.5	91.7	100	97.1	96.9
Bank 2	0	0	0	0	0	11	30	5	0	46	41	3	19	0	63	5	18	6	0	29	138
% Bank 2	0	0	0	0	0	6.7	2.2	2	0	2.6	3.8	5.1	4.2	0	3.9	2.5	2.5	8.3	0	2.9	3.1

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400 Shoppers Drive
Winchester, KY, 40391

File Name : NB Ramps AM Inez
Site Code : 00000000
Start Date : 10/24/2023
Page No : 3

Start Time	645AM From North					40 From East					645AM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	12	47	9	0	68	38	3	13	0	54	7	27	4	0	38	160
07:30 AM	0	0	0	0	0	29	44	21	0	94	55	7	26	0	88	10	23	6	0	39	221
07:45 AM	0	0	0	0	0	33	53	17	0	103	40	21	46	0	107	17	31	10	0	58	268
08:00 AM	0	0	0	0	0	8	42	16	0	66	52	2	18	0	72	7	18	0	0	25	163
Total Volume	0	0	0	0	0	82	186	63	0	331	185	33	103	0	321	41	99	20	0	160	812
% App. Total	0	0	0	0	0	24.8	56.2	19	0		57.6	10.3	32.1	0		25.6	61.9	12.5	0		
PHF	.000	.000	.000	.000	.000	.621	.877	.750	.000	.803	.841	.393	.560	.000	.750	.603	.798	.500	.000	.690	.757
Unshifted	0	0	0	0	0	79	181	61	0	321	176	32	101	0	309	40	96	20	0	156	786
% Unshifted	0	0	0	0	0	96.3	97.3	96.8	0	97.0	95.1	97.0	98.1	0	96.3	97.6	97.0	100	0	97.5	96.8
Bank 2	0	0	0	0	0	3	5	2	0	10	9	1	2	0	12	1	3	0	0	4	26
% Bank 2	0	0	0	0	0	3.7	2.7	3.2	0	3.0	4.9	3.0	1.9	0	3.7	2.4	3.0	0	0	2.5	3.2
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	0	0	0	0	12	52	12	0	76	64	9	37	0	110	7	28	7	0	42	228
03:15 PM	0	0	0	0	0	12	79	11	0	102	56	4	20	0	80	5	30	7	0	42	224
03:30 PM	0	0	0	0	0	5	80	10	0	95	47	2	19	0	68	18	83	3	0	104	267
03:45 PM	0	0	0	0	0	0	63	6	0	69	46	0	17	0	63	7	35	1	0	43	175
Total Volume	0	0	0	0	0	29	274	39	0	342	213	15	93	0	321	37	176	18	0	231	894
% App. Total	0	0	0	0	0	8.5	80.1	11.4	0		66.4	4.7	29	0		16	76.2	7.8	0		
PHF	.000	.000	.000	.000	.000	.604	.856	.813	.000	.838	.832	.417	.628	.000	.730	.514	.530	.643	.000	.555	.837
Unshifted	0	0	0	0	0	24	270	39	0	333	208	14	87	0	309	37	171	16	0	224	866
% Unshifted	0	0	0	0	0	82.8	98.5	100	0	97.4	97.7	93.3	93.5	0	96.3	100	97.2	88.9	0	97.0	96.9
Bank 2	0	0	0	0	0	5	4	0	0	9	5	1	6	0	12	0	5	2	0	7	28
% Bank 2	0	0	0	0	0	17.2	1.5	0	0	2.6	2.3	6.7	6.5	0	3.7	0	2.8	11.1	0	3.0	3.1

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File Name : SB Ramps INEZ
Site Code : 00000000
Start Date : 10/23/2023
Page No : 1

Groups Printed- Unshifted - Bank 2

Start Time	645PM From North					40 From East					645PM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	0	0	0	0	0	5	21	0	26	0	0	0	0	0	0	4	0	0	4	30
06:45 AM	0	0	0	0	0	0	10	17	0	27	0	0	0	0	0	2	9	0	0	11	38
Total	0	0	0	0	0	0	15	38	0	53	0	0	0	0	0	2	13	0	0	15	68
07:00 AM	0	0	0	0	0	0	8	33	0	41	0	0	0	0	0	1	13	0	0	14	55
07:15 AM	0	0	7	0	7	0	16	46	0	62	0	0	1	0	1	1	30	0	0	31	101
07:30 AM	4	0	14	0	18	0	27	49	0	76	0	0	0	0	0	3	31	0	0	34	128
07:45 AM	14	0	29	0	43	0	65	67	0	132	0	0	0	0	0	3	46	0	0	49	224
Total	18	0	50	0	68	0	116	195	0	311	0	0	1	0	1	8	120	0	0	128	508
08:00 AM	10	0	16	0	26	0	30	40	0	70	0	0	0	0	0	4	13	0	0	17	113
08:15 AM	1	0	1	0	2	0	35	32	0	67	0	0	0	0	0	4	15	0	0	19	88
08:30 AM	1	1	4	0	6	0	26	29	0	55	0	0	0	0	0	2	21	0	0	23	84
08:45 AM	0	0	2	0	2	0	34	37	0	71	0	0	0	0	0	3	15	0	0	18	91
Total	12	1	23	0	36	0	125	138	0	263	0	0	0	0	0	13	64	0	0	77	376
*** BREAK ***																					
02:00 PM	0	0	1	0	1	0	46	34	0	80	0	0	0	0	0	2	42	0	0	44	125
02:15 PM	1	0	2	0	3	0	24	35	0	59	0	0	0	0	0	0	44	0	0	44	106
02:30 PM	0	1	4	0	5	0	23	25	0	48	0	0	0	0	0	3	31	0	0	34	87
02:45 PM	1	0	2	0	3	0	29	31	0	60	0	0	0	0	0	9	39	0	0	48	111
Total	2	1	9	0	12	0	122	125	0	247	0	0	0	0	0	14	156	0	0	170	429
03:00 PM	3	0	2	0	5	0	49	41	0	90	0	0	0	0	0	6	40	0	0	46	141
03:15 PM	7	0	10	0	17	0	56	49	0	105	0	0	0	0	0	3	38	0	0	41	163
03:30 PM	57	0	56	0	113	0	52	45	0	97	0	0	0	0	0	5	54	0	0	59	269
03:45 PM	3	0	3	0	6	0	54	27	0	81	0	0	0	0	0	4	39	0	0	43	130
Total	70	0	71	0	141	0	211	162	0	373	0	0	0	0	0	18	171	0	0	189	703

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

File Name : SB Ramps INEZ
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Groups Printed- Unshifted - Bank 2

Start Time	645PM From North					40 From East					645PM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	0	2	0	2	0	30	37	0	67	0	0	0	0	0	6	42	0	0	48	117
04:15 PM	1	0	5	0	6	0	38	40	0	78	0	0	0	0	0	5	36	0	0	41	125
04:30 PM	1	0	6	0	7	0	40	43	0	83	0	0	0	0	0	8	48	0	0	56	146
04:45 PM	2	0	5	0	7	0	46	26	0	72	0	0	0	0	0	4	39	0	0	43	122
Total	4	0	18	0	22	0	154	146	0	300	0	0	0	0	0	23	165	0	0	188	510
05:00 PM	1	0	3	0	4	0	32	40	0	72	0	0	0	0	0	5	40	0	0	45	121
05:15 PM	1	0	2	0	3	0	40	42	0	82	0	0	0	0	0	4	37	0	0	41	126
05:30 PM	2	0	1	0	3	0	43	31	0	74	0	0	0	0	0	8	38	0	0	46	123
05:45 PM	0	0	2	0	2	0	39	36	0	75	0	0	1	0	1	2	39	0	0	41	119
Total	4	0	8	0	12	0	154	149	0	303	0	0	1	0	1	19	154	0	0	173	489
06:00 PM	3	0	4	0	7	0	32	27	0	59	0	0	0	0	0	6	40	0	0	46	112
06:15 PM	6	0	2	0	8	0	35	30	0	65	0	0	2	0	2	7	45	0	0	52	127
Grand Total	119	2	185	0	306	0	964	1010	0	1974	0	0	4	0	4	110	928	0	0	1038	3322
Apprch %	38.9	0.7	60.5	0		0	48.8	51.2	0		0	0	100	0		10.6	89.4	0	0		
Total %	3.6	0.1	5.6	0	9.2	0	29	30.4	0	59.4	0	0	0.1	0	0.1	3.3	27.9	0	0	31.2	
Unshifted	114	2	176	0	292	0	956	966	0	1922	0	0	4	0	4	109	912	0	0	1021	3239
% Unshifted	95.8	100	95.1	0	95.4	0	99.2	95.6	0	97.4	0	0	100	0	100	99.1	98.3	0	0	98.4	97.5
Bank 2	5	0	9	0	14	0	8	44	0	52	0	0	0	0	0	1	16	0	0	17	83
% Bank 2	4.2	0	4.9	0	4.6	0	0.8	4.4	0	2.6	0	0	0	0	0	0.9	1.7	0	0	1.6	2.5

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File Name : SB Ramps INEZ
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Start Time	645PM From North					40 From East					645PM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	7	0	7	0	16	46	0	62	0	0	1	0	1	1	30	0	0	31	101
07:30 AM	4	0	14	0	18	0	27	49	0	76	0	0	0	0	0	3	31	0	0	34	128
07:45 AM	14	0	29	0	43	0	65	67	0	132	0	0	0	0	0	3	46	0	0	49	224
08:00 AM	10	0	16	0	26	0	30	40	0	70	0	0	0	0	0	4	13	0	0	17	113
Total Volume	28	0	66	0	94	0	138	202	0	340	0	0	1	0	1	11	120	0	0	131	566
% App. Total	29.8	0	70.2	0		0	40.6	59.4	0		0	0	100	0		8.4	91.6	0	0		
PHF	.500	.000	.569	.000	.547	.000	.531	.754	.000	.644	.000	.000	.250	.000	.250	.688	.652	.000	.000	.668	.632
Unshifted	26	0	65	0	91	0	136	196	0	332	0	0	1	0	1	10	119	0	0	129	553
% Unshifted	92.9	0	98.5	0	96.8	0	98.6	97.0	0	97.6	0	0	100	0	100	90.9	99.2	0	0	98.5	97.7
Bank 2	2	0	1	0	3	0	2	6	0	8	0	0	0	0	0	1	1	0	0	2	13
% Bank 2	7.1	0	1.5	0	3.2	0	1.4	3.0	0	2.4	0	0	0	0	0	9.1	0.8	0	0	1.5	2.3
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	3	0	2	0	5	0	49	41	0	90	0	0	0	0	0	6	40	0	0	46	141
03:15 PM	7	0	10	0	17	0	56	49	0	105	0	0	0	0	0	3	38	0	0	41	163
03:30 PM	57	0	56	0	113	0	52	45	0	97	0	0	0	0	0	5	54	0	0	59	269
03:45 PM	3	0	3	0	6	0	54	27	0	81	0	0	0	0	0	4	39	0	0	43	130
Total Volume	70	0	71	0	141	0	211	162	0	373	0	0	0	0	0	18	171	0	0	189	703
% App. Total	49.6	0	50.4	0		0	56.6	43.4	0		0	0	0	0		9.5	90.5	0	0		
PHF	.307	.000	.317	.000	.312	.000	.942	.827	.000	.888	.000	.000	.000	.000	.000	.750	.792	.000	.000	.801	.653
Unshifted	67	0	66	0	133	0	210	151	0	361	0	0	0	0	0	18	169	0	0	187	681
% Unshifted	95.7	0	93.0	0	94.3	0	99.5	93.2	0	96.8	0	0	0	0	0	100	98.8	0	0	98.9	96.9
Bank 2	3	0	5	0	8	0	1	11	0	12	0	0	0	0	0	0	2	0	0	2	22
% Bank 2	4.3	0	7.0	0	5.7	0	0.5	6.8	0	3.2	0	0	0	0	0	0	1.2	0	0	1.1	3.1

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Site Code : 00000000
Start Date : 10/24/2023
Page No : 1

Groups Printed- Unshifted - Bank 2

Start Time	HOLAM From North					645 From East					HOLAM From South					645 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	6
07:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	9
07:15 AM	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	40	0	40	53
07:30 AM	37	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	65	0	65	102
07:45 AM	72	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	140	0	140	212
Total	124	0	0	0	124	0	0	0	0	0	0	0	0	0	0	0	0	252	0	252	376
08:00 AM	26	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	42
08:15 AM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	15
08:30 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	10
08:45 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	6
Total	40	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	33	0	33	73
*** BREAK ***																					
02:15 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	8
02:30 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	13
02:45 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	12
Total	14	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	33
03:00 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	50
03:15 PM	33	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	72
03:30 PM	145	0	0	0	145	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	164
03:45 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	14
Total	200	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	300
04:00 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	11

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Groups Printed- Unshifted - Bank 2

Start Time	HOLAM From North					645 From East					HOLAM From South					645 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:15 PM	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	20
04:30 PM	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	14	0	14	21
04:45 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	13	0	13	19
Total	27	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	44	0	44	71
05:00 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	10
05:15 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	8
05:30 PM	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	7
05:45 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	11
Total	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20	36
06:00 PM	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	17
06:15 PM	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	16
Grand Total	446	0	0	0	446	0	0	0	0	0	0	0	0	0	0	0	0	482	0	482	928
Apprch %	100	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		
Total %	48.1	0	0	0	48.1	0	0	0	0	0	0	0	0	0	0	0	0	51.9	0	51.9	
Unshifted	427	0	0	0	427	0	0	0	0	0	0	0	0	0	0	0	0	455	0	455	882
% Unshifted	95.7	0	0	0	95.7	0	0	0	0	0	0	0	0	0	0	0	0	94.4	0	94.4	95
Bank 2	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	27	0	27	46
% Bank 2	4.3	0	0	0	4.3	0	0	0	0	0	0	0	0	0	0	0	0	5.6	0	5.6	5

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File Name : High School Entrance Inez
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Start Time	HOLAM From North					645 From East					HOLAM From South					645 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	40	0	40	53
07:30 AM	37	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	65	0	65	102
07:45 AM	72	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	140	0	140	212
08:00 AM	26	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	42
Total Volume	148	0	0	0	148	0	0	0	0	0	0	0	0	0	0	0	0	261	0	261	409
% App. Total	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	
PHF	.514	.000	.000	.000	.514	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.466	.000	.466	.482
Unshifted	145	0	0	0	145	0	0	0	0	0	0	0	0	0	0	0	0	252	0	252	397
% Unshifted	98.0	0	0	0	98.0	0	0	0	0	0	0	0	0	0	0	0	0	96.6	0	96.6	97.1
Bank 2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	12
% Bank 2	2.0	0	0	0	2.0	0	0	0	0	0	0	0	0	0	0	0	0	3.4	0	3.4	2.9
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	50
03:15 PM	33	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	72
03:30 PM	145	0	0	0	145	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	164
03:45 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	14
Total Volume	200	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	300
% App. Total	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	
PHF	.345	.000	.000	.000	.345	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.641	.000	.641	.457
Unshifted	187	0	0	0	187	0	0	0	0	0	0	0	0	0	0	0	0	89	0	89	276
% Unshifted	93.5	0	0	0	93.5	0	0	0	0	0	0	0	0	0	0	0	0	89.0	0	89.0	92.0
Bank 2	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	24
% Bank 2	6.5	0	0	0	6.5	0	0	0	0	0	0	0	0	0	0	0	0	11.0	0	11.0	8.0



400 Shoppers Drive
P.O. Box 747
Winchester, KY 40392
859-744-1218

www.palmernet.com

Proposed Elementary School Traffic Impact Study Inez, KY

Prepared for

Martin County Schools

January 2024

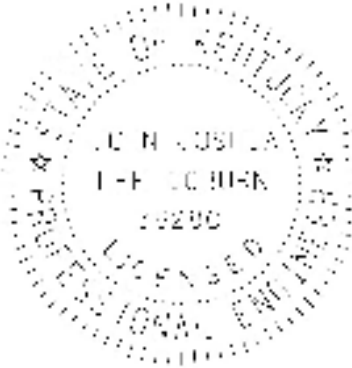


Traffic Impact Study Certification

I John Coburn certify that this Traffic Impact Study has been prepared under my direct supervision and that I am a Professional Engineer registered in the State of Kentucky and have successfully completed the Traffic Impact Study Requirements training course required by KYTC. Furthermore, I certify that this study has been completed in accordance with the KYTC Traffic Impact Study Requirements and in accordance with engineering standards of practice. The results presented have been determined to be accurate representations of existing and anticipated conditions based on the assumptions and methodologies presented in this report.



John Coburn
KY PE No. 36280



 College of Engineering <small>Kentucky Transportation Center</small>	TECHNOLOGY TRANSFER PROGRAM
TRAFFIC IMPACT STUDY COURSE Certificate of Completion (3.5 PDH)	
John Coburn KY PE License No. 36280	TIM THARPE Tim Tharpe, KYTC Director of Traffic Operations
Completed: 08/12/2022 Expires: 08/12/2026 Company: University of Kentucky	 Adam Kirk, Instructor
The official status of this certificate can be verified with the KYTC Division of Traffic Operations	

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Table 7 2024 PM Queue Summary	10

INTRODUCTION

This traffic study was undertaken to assess the traffic impact of a proposed development in Martin County, Kentucky, in the City of Inez. The development will be located along the west side of KY 645 adjacent to Martin County High School. The vicinity map (Map 1) displays the location of the proposed development and study area.



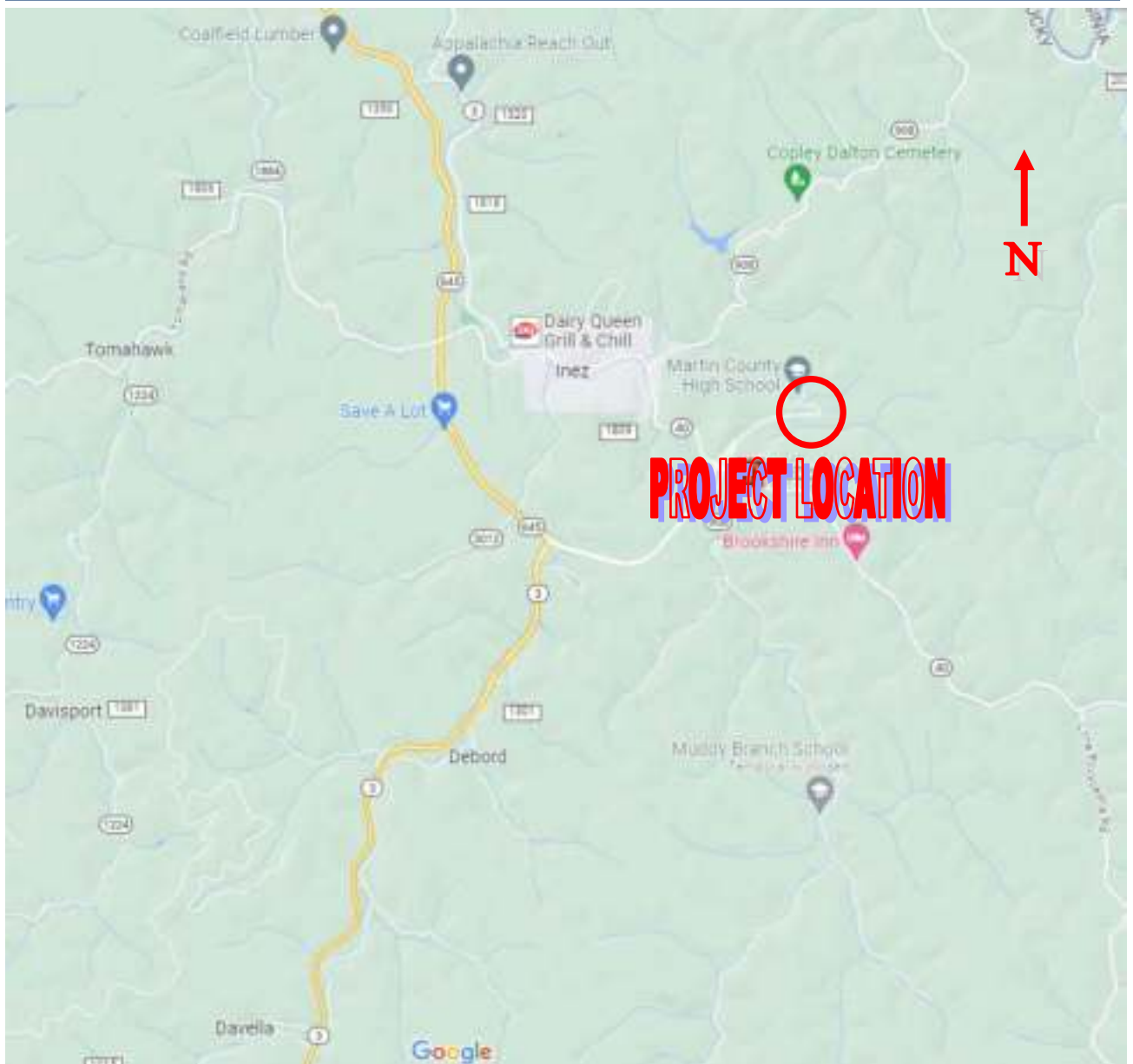
Intersection of KY 645E at Hollybush Road

The proposed development is a new elementary school. This traffic impact study included 3 existing intersections:

- The intersection of KY 645 at Hollybush Road
- The signalized intersection of KY 645 Northbound ramp at KY 40
- The two-way stop controlled intersection of KY 645 Southbound ramp at KY 40



Intersection of KY 645 Southbound Ramp at KY 40



Map 1. Vicinity Map

EXISTING CONDITIONS

Regional and Local Access

Blacklog Road (KY 40) and KY 645 will provide local and regional access to the proposed development. A brief description of the surrounding roadways follows:

Blacklog Road (KY 40) – Blacklog Road is a minor arterial that provides local and regional access to the proposed development. Blacklog Road generally runs in an east-west direction in the study area. Lane widths measure approximately 12 feet. In the vicinity of the project site, this road consists of one thru lane in each direction. The existing speed limit is posted at 35 mph.

KY 645 – KY 645 is a rural minor arterial that provides local and regional access to the proposed development. KY 645 generally runs in a north-south direction. Lane widths measure approximately 12 feet with a concrete median barrier separating the two directions. In the vicinity of the project site, this road consists of two thru lane in each direction. The current speed limit along KY 645 is 55 mph.

LEVEL OF SERVICE AND DELAY

Level of Service (LOS) was used as the measure of effectiveness for each lane and turning movement. According to the Highway Capacity Manual, the level of service is defined in terms of delay (See Tables 1 and 2). Delay results in driver discomfort, frustration, fuel consumption, and lost travel time. Delay is caused by a number of factors including traffic signal timing, geometrics, traffic congestion, and accidents at an intersection. Level of Service is based on a grade scale from A to F with A being excellent and F being failure. A Level of Service C is desirable, and D is acceptable in an urban setting.

Level of Service	Delay (Seconds per Vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Level of Service	Delay (Seconds per Vehicle)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Base Traffic Volumes (existing condition)

Manual traffic counts were taken at the following intersections from 6:30 AM to 9:00 AM and 2:15 PM to 6:30 PM on October 24, 2023:

- KY 645 and Hollybush Road
- KY 645 Southbound ramp and KY 40
- KY 645 Northbound ramp and KY 40

All traffic volumes can be found in the Appendix.

Background Traffic Volumes

The assumed completion date for the proposed development is during 2024. The KYTC historic traffic volumes along KY 645 (KYTC count station 080778) shows no growth in nine years between 2021 and 2012. Traffic counts along Blacklog Road (Count Station 080750) reveals that traffic along Blacklog Road has seen no growth in nine years between 2017 and 2008. The count performed in 2020 was not considered due to the effects of the COVID-19 pandemic.

METHODOLOGY

Level of Service, delay, and queue length were measures of effectiveness analyzed using the HCS2023 software.

Trips were generated for the proposed development and then distributed to the roadway system based on the existing traffic patterns and engineering judgment. For the analysis, the study uses traffic volumes from the current year, as well as a build out year. The assigned volumes from the proposed development and the background traffic volumes combined to produce the total proposed traffic volumes for existing and build out conditions. HCS2023 was used to analyze the roadway network for existing and proposed conditions in both the current year and build year (2024). The 2023/2024 background, level-of-service, and vehicle delay can be found in the Appendix along with 2024 no build (Fig 1) and 2024 build (Fig 6) traffic volumes.

TRIP GENERATION AND PROJECTED TRAFFIC VOLUMES

Trip estimates for the proposed development are based upon information provided in the *Trip Generation, 11th Edition*, a nationally recognized resource of trip generation rates published by the Institute of Transportation Engineers (ITE).

SITE TRIP GENERATION

The proposed site will consist of an elementary school. Table 3 provides the land use for the site, the ITE land use classification, average rates, and trips generated by the development. The approximate student count was provided by Martin County Schools.

Martin County Proposed Development Trip Generation Tables								
ITE			Average					
Code	Land Use	Student Count	Rate	AM Peak	In	%	Out	%
520	Elementary School	550	0.75	413	223	54%	190	46%
				413	223		190	
ITE			Average					
Code	Land Use	Student Count	Rate	PM Peak	In	%	Out	%
520	Elementary School	550	0.45	248	114	46%	134	54%
				248	114		134	

Table 3 - Trip Generation Table



Map 2. Development Location

TRIP DISTRIBUTION

The following is the distribution assumed for the proposed development.

Distribution

From the West via KY 40	(20%) AM,	30% PM
From the East via KY 40	(50%) AM,	55% PM
From the South via KY 645	(25%) AM,	10% PM
From the South via KY 908	(5%) AM,	5% PM

LEVEL OF SERVICE AND DELAY ANALYSIS

All intersection traffic volumes, vehicle delay, and level of service information can be found in the Appendix. The 2024 base traffic volume information will be the focus upon comparisons between the projected background traffic and the proposed traffic volumes. The 2024 No-Build volumes would exist on the roadway system in the absence of the proposed development and the 2024 Build Volumes are the volumes with the proposed development(s) included.

The No-Build Scenario analysis assumes that no proposed improvements to the roadway system have been implemented. This would be the case assuming the proposed development was not built.

INTERSECTION ANALYSIS

2024 No Build Analysis

The two-way stop controlled intersection of KY 645 southbound ramp at KY 40 has individual turning movements that operate as a LOS “F” during the peak hours. The southbound left movement operates as a LOS “F” during the AM and PM peak hours. All other movements operate as a LOS “B” or better during the AM and PM peak hours. The queue analysis determined that the southbound turn lane experiences the longest queue length.

The intersection of KY 645 southbound ramp and KY 40 was also analyzed as an all-way stop controlled intersection and as a signalized intersection. The all-way stop controlled intersection operates at a LOS “B” during the AM and PM peak hour. All individual movements operate at a LOS “B” or better during both peak hours. The queue analysis determined that the longest queue length during the AM and PM peak hours was 3 vehicles. The HCS analysis of the signalized intersection of KY 645 southbound ramps and KY 40 revealed that the intersection operates at a LOS “B” during both peak hours. All individual movements operate at a LOS “B” or better during the AM and PM peak hour. The eastbound movement during the PM peak hour has the longest queue length, 4 vehicles.

All movements at the intersection of KY 645 and Hollybush Road operate as a LOS “B” or better during the AM and PM peak hours. The queue analysis determined that the eastbound left turning lane has the longest queue, consisting of 3 vehicles.

The signalized intersection of KY 645 northbound ramp and KY 40 operates at a LOS “B” during both peak hours. All individual turning movements operate at a LOS “B” or better during the AM and PM peak hours.

2024 Build Analysis

The HCS analysis revealed that the LOS throughout the roadway network degraded in the 2024 build scenario due to the increase in traffic. The queue analysis shows that several movements have significant increases in queue lengths.

The individual movements of the two-way stop controlled intersection of KY 645 southbound ramp and KY 40 continue to operate at the same LOS with significant impact to delay. The southbound left turning movement continues to operate at a LOS “F” during both peak hours. The queue analysis determined that queue length increases by 18 vehicles during the AM peak hour and 13 vehicles during the PM peak hour.

If the intersection of KY 40 and the KY 645 southbound ramps were converted to an all-way stop controlled intersection then the intersection degrades from a LOS “B” to a LOS “C” during the AM and PM peak hours. The eastbound through, westbound left, and southbound left movements degrade from a LOS “B” to a LOS “C” during the AM and PM peak hours. The southbound right movement degrades from a LOS “A” to a LOS “B” during the AM and PM peak hour. The westbound through movement degrades from a LOS “B” to a LOS “C” during the PM peak hour. The southbound left and eastbound through movement had the largest queue length growth, resulting in 2 additional vehicles during both peak hours.

If the intersection of KY 40 and the southbound ramps were converted to a signalized intersection then the intersection continues to operate at a LOS “B” during both peak hours. The westbound left movement degrades from a LOS “A” to a LOS “B” during the AM and PM peak hour. The queue analysis revealed that the largest growth in queue length was during the AM peak hour and was 4 vehicles.

The analysis determined that all individual movements degrade at the intersection of KY 645 and Hollybush Road. The southbound right turning movement degrades from a LOS “B” to a LOS “C” during the AM and PM peak hours. The eastbound left movement degrades from a LOS “B” to a LOS “D” during the AM peak hour and from a LOS “A” to a LOS “B” during the PM peak hour. The eastbound left turn lane experiences the largest increase in queue length, 10 vehicles.

The signalized intersection of KY 645 northbound ramp and KY 40 continues to operate at a LOS “B” during AM and PM peak hours. No individual movements continue to operate at the same LOS as the no build condition. The eastbound and westbound through movements experience the largest increase in queue length during the AM peak hour, resulting in 2 additional vehicles.

The proposed intersection of Hollybush Road and the entrance into the elementary school was analyzed as a roundabout and a two-way stop controlled intersection. The roundabout operates at a LOS “B” during the AM peak and at a LOS “A” during the PM peak. All individual movements operate at a LOS “B” or better during the AM and PM

peak hours. The queue analysis revealed that the AM peak westbound movement had the longest queue length, consisting of 8 vehicles. The two-way stop controlled intersection analysis revealed that some individual movements operate at a LOS “F”. The southbound left movement operates at a LOS “F” during the AM peak hour. All movements operate at a LOS “D” or better during the PM peak hour. The AM peak southbound left movement has a queue length of 17 vehicles.

2024 NO BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	11/B											11/B	
SB Ramp @ KY 40 (TWSC)				9/A						67/F		10/B	
SB Ramp @ KY 40 (AWSC)			11/B	14/B	10/B					11/B		9/A	12/B
SB Ramp @ KY 40 (Signal)			15/B	9/A	5/A					17/B		16/B	10/B
NB Ramp @ KY 40	11/B	13/B		9/A	15/B		15/B	16/B					14/B
2024 BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	25/D											21/C	
SB Ramp @ KY 40 (TWSC)				9/A						530/F		10/B	
SB Ramp @ KY 40 (AWSC)			15/C	19/C	13/B					18/C		10/B	16/C
SB Ramp @ KY 40 (Signal)			20/B	11/B	6/A					19/B		16/B	15/B
NB Ramp @ KY 40	11/B	13/B		9/A	16/B		18/B	18/B					15/B
Hollybush Rd @ Entrance (TWSC)		10/B								150/F			
Hollybush Rd @ Entrance (Roundabout)			8/A			14/B						13/B	13/B

Table 4. 2024 AM Level of Service Summary

2024 NO BUILD (Delay in sec/LOS)													
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	9/A											13/B	
SB Ramp @ KY 40 (TWSC)				9/A						78/F		11/B	
SB Ramp @ KY 40 (AWSC)			13/B	14/B	14/B					12/B		10/A	13/B
SB Ramp @ KY 40 (Signal)			16/B	9/A	6/A					16/B		17/B	11/B
NB Ramp @ KY 40	11/B	12/B		9/A	14/B		14/B	17/B					14/B
2024 BUILD (Delay in sec/LOS)													
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
KY 645 @ Hollybush	11/B											23/C	
SB Ramp @ KY 40 (TWSC)				9/A						416/F		12/B	
SB Ramp @ KY 40 (AWSC)			19/C	16/C	18/C					17/C		12/B	17/C
SB Ramp @ KY 40 (Signal)			19/B	11/B	7/A					19/B		17/B	14/B
NB Ramp @ KY 40	11/B	13/B		9/A	15/B		16/B	18/B					14/B
Hollybush Rd @ Entrance (TWSC)		8/A								29/D			
Hollybush Rd @ Entrance (Roundabout)			9/A			6/A						6/A	7/A

Table 5. 2024 PM Level of Service Summary

2024 NO BUILD (95th Percentile Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	3											2
SB Ramp @ KY 40 (TWSC)				1						4		0
SB Ramp @ KY 40 (AWSC)		1		3	1					1		0
SB Ramp @ KY 40 (Signal)		3		2	1					1		1
NB Ramp @ KY 40	0	1		1	4		2		2			
2024 BUILD (95th Percentile Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	13											8
SB Ramp @ KY 40 (TWSC)				1						22		0
SB Ramp @ KY 40 (AWSC)		3		4	2					3		1
SB Ramp @ KY 40 (Signal)		5		3	2					5		2
NB Ramp @ KY 40	0	3		1	6		3		3			
Hollybush Rd @ Entrance (TWSC)	0									17		
Hollybush Rd @ Entrance (Roundabout)			2			8						3

Table 6. 2024 AM Queue Summary

2024 NO BUILD (95th Percentile Queue in Veh/Lane)												
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	1											3
SB Ramp @ KY 40 (TWSC)				1						4		1
SB Ramp @ KY 40 (AWSC)		2		2	3					1		1
SB Ramp @ KY 40 (Signal)		4		2	2					2		2
NB Ramp @ KY 40	0	2		0	4		2		3			
2024 BUILD (95th Percentile Queue in Veh/Lane)												
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
KY 645 @ Hollybush	2											9
SB Ramp @ KY 40 (TWSC)				1						17		1
SB Ramp @ KY 40 (AWSC)		4		3	4					3		1
SB Ramp @ KY 40 (Signal)		5		2	2					4		3
NB Ramp @ KY 40	0	3		0	5		2		3			
Hollybush Rd @ Entrance (TWSC)	0									5		
Hollybush Rd @ Entrance (Roundabout)			2			2						1

Table 7. 2024 PM Queue Summary

ADDITIONAL STUDY ITEMS**Turn Lane Analysis**

The proposed intersection of Hollybush Road and the elementary school entrance was analyzed to determine if a right turn lane along Hollybush Road was needed. The analysis did not reveal a need for the turn lane. The turn lane warrants can be found in the Appendix of this report. Although a right turn lane along Hollybush Road is not warranted, traffic will operate more efficiently with the turn lane as high school traffic will be less impacted by elementary school traffic.

Sight Distance Analysis

All approaches provide for adequate sight distance that exceeds the required AASHTO/KYTC standards for the sight distance along the analyzed routes at their existing design speeds. Vehicles entering the roadway can see adequate distance to enter the roadway safely, provided they are given appropriate gap spacing.

CONCLUSIONS AND RECOMMENDATIONS

KY 645 and KY 40 are corridors that will provide access to Martin County High School and the proposed elementary school. Hollybush Road currently has two lanes and directly enters the high school. With the addition of the elementary school, an entrance will be constructed connecting to Hollybush Road. This intersection of the new entrance and Hollybush Road will carry the existing high school traffic and the future trips for the elementary school.

Based on traffic analysis the roadway network experiences some degree of degrading with the addition of the elementary school. The intersection of KY 645 and Hollybush Road had movements degrade from a LOS “B” to a LOS “C” during the AM peak hour, but the intersection still operates at a desirable LOS. All other intersections continued to operate at the existing LOS with the addition of the elementary school.

The Hollybush Road and elementary school entrance intersection was analyzed as a two-way stop controlled intersection and as a roundabout using HCS. The AM peak LOS for the two-way stop controlled intersection operated at a lower LOS than the PM peak. The southbound left movement operates at a LOS “F” in the AM peak and at a LOS “C” in the PM peak. The roundabout analysis for the AM peak revealed that the intersection would operate at a LOS “B”. The PM peak would operate at a LOS “A”.

The intersection of KY 645 southbound ramp and KY 40 southbound left turning movement does not operate at an acceptable LOS. The HCS analysis of the intersection revealed that the southbound left movement currently operates at a LOS “F” during both peak hours and experiences significant degrading when the elementary school is complete. The intersection was analyzed as an all-way stop controlled intersection and as a signalized intersection and will operate under acceptable conditions, LOS “C” or better, for existing and build conditions, with either improvement options.

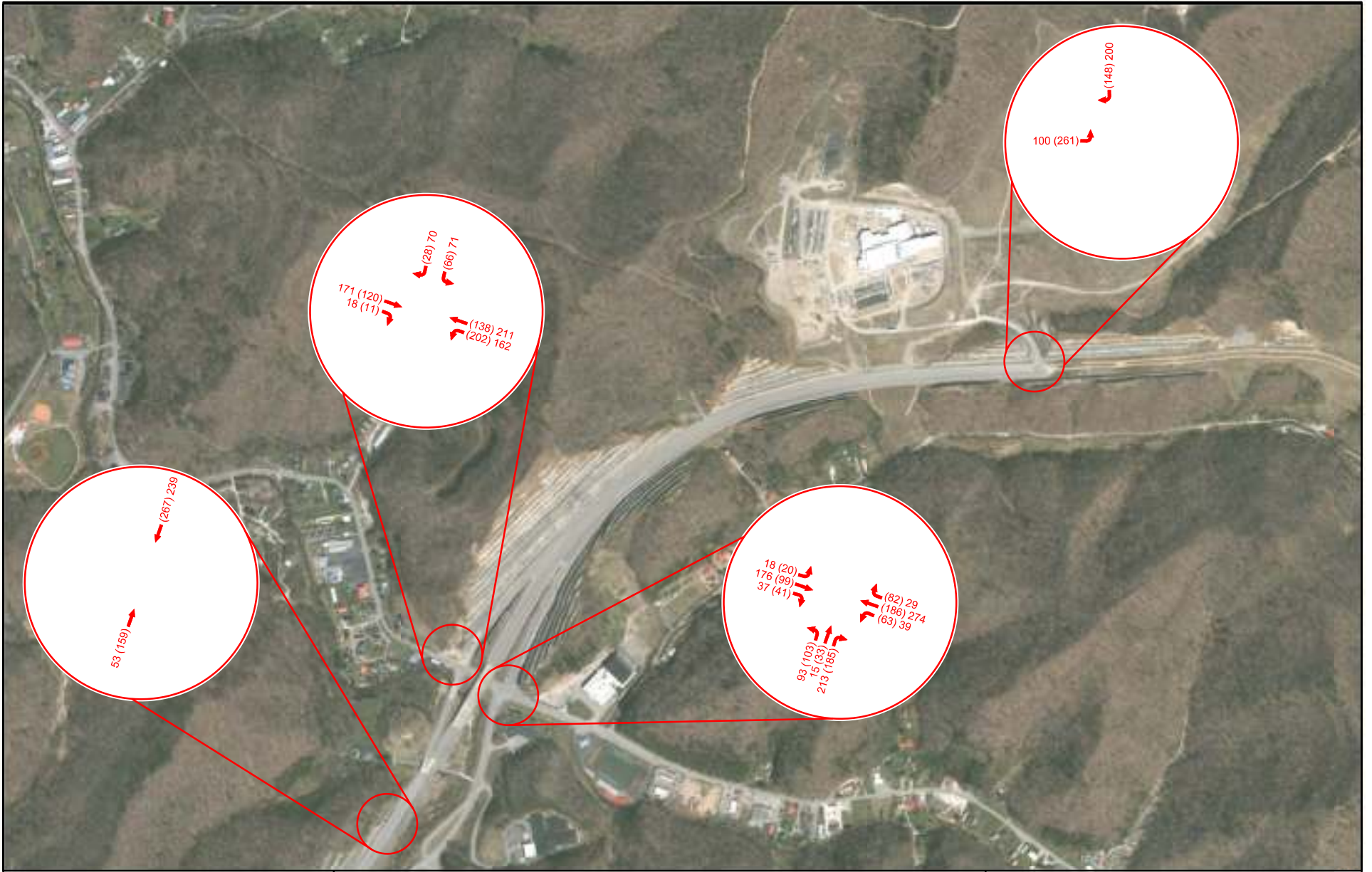
The turn lane analysis determined that no additional turn lanes are warranted and the sight distance analysis determined that traffic has adequate sight distance to safely enter the road at the design speed.

Based on the analysis it is recommended that the intersection of KY 40 and KY 645 southbound ramps be converted from a two-way stop controlled intersection to either an all-way stop controlled intersection or signalized intersection coordinated with the existing signal at the KY 645 northbound ramps. Additionally, it is recommended that consideration be given at the new access point along Hollybush Road to ensure traffic does not conflict between the high school and new elementary school. This can be accomplished through a roundabout/traffic circle, a traffic guard, or ensuring the start and end times for the schools do not overlap. A right turn lane along Hollybush Road will allow traffic to operate more efficiently, limiting the impact elementary school traffic will have on high school traffic. With these recommendations the roadway network will operate under acceptable conditions.



Map 3. Recommendation Locations

APPENDIX



PROPOSED DEVELOPMENT
MARTIN COUNTY SCHOOLS
INEZ, KENTUCKY

FIGURE 1
2024 NO BUILD
(AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 2
 ENTERING TRIP DISTRIBUTION
 (AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 3
 EXITING TRIP DISTRIBUTION
 (AM) PM



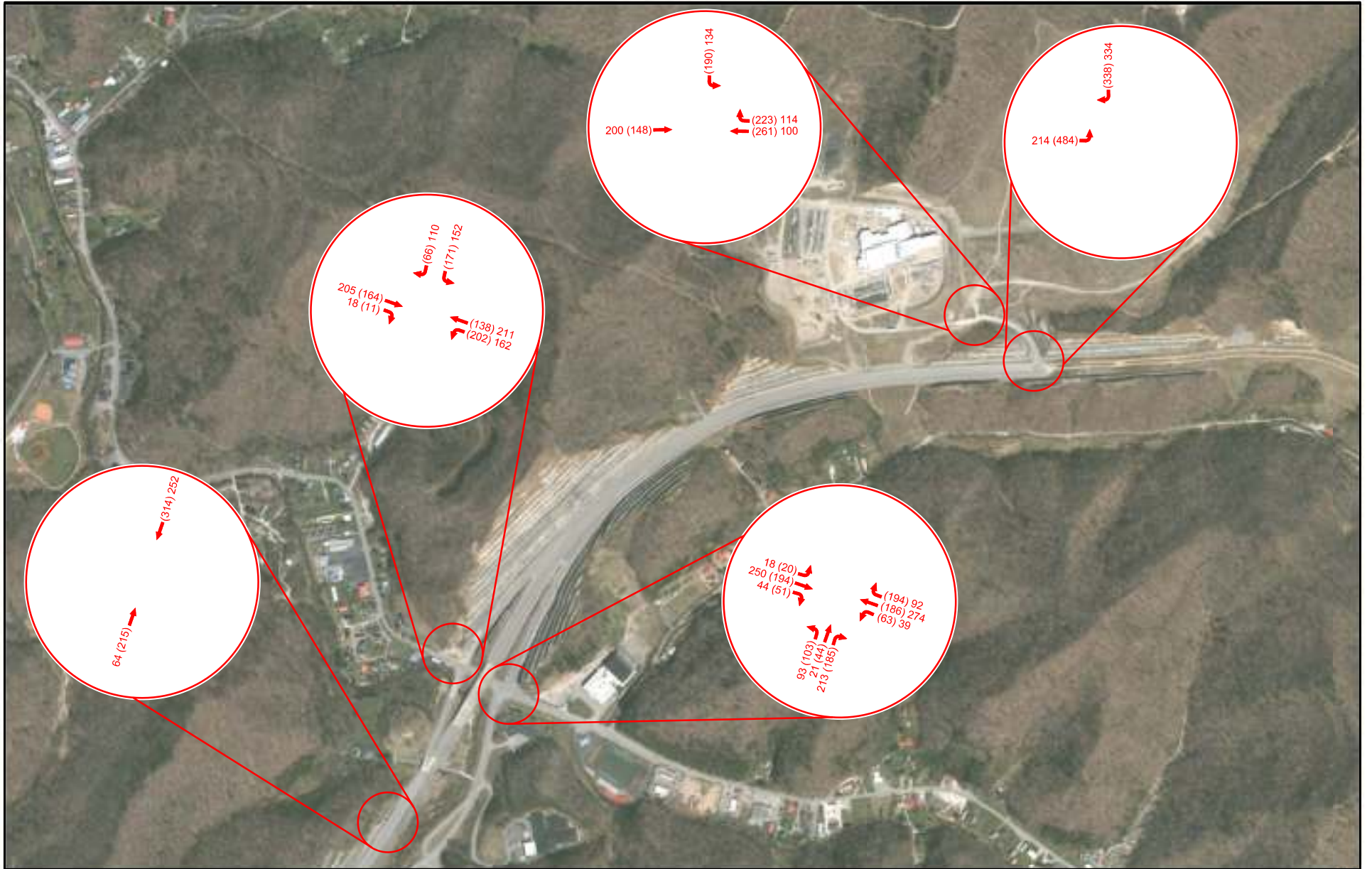
PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 4
 ENTERING TRIPS GENERATED
 (AM) PM



PROPOSED DEVELOPMENT
 MARTIN COUNTY SCHOOLS
 INEZ, KENTUCKY

FIGURE 5
 EXITING TRIPS GENERATED
 (AM) PM



PROPOSED DEVELOPMENT
MARTIN COUNTY SCHOOLS
INEZ, KENTUCKY

FIGURE 6
2024 BUILD
(AM) PM

Historical Traffic Volume Summary

Station Details:

Sta ID:	080750
Sta Type:	Classification
Map:	MapIt
District:	12
County:	Martin
Route:	080-KY-0040 -000
Route Desc:	KY-40

Begin MP:	11.90
Begin Desc:	KY 645
End Mp:	15.46
End Desc:	KY 2032
Impact Year:	
Year Added:	

Newest Count:

AADT:	5081
Year:	2020
% Single:	4.0510
% Combo:	2.0150
K Factor:	8.70
D Factor:	54

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year – year of significant change to traffic pattern within station segment

AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway

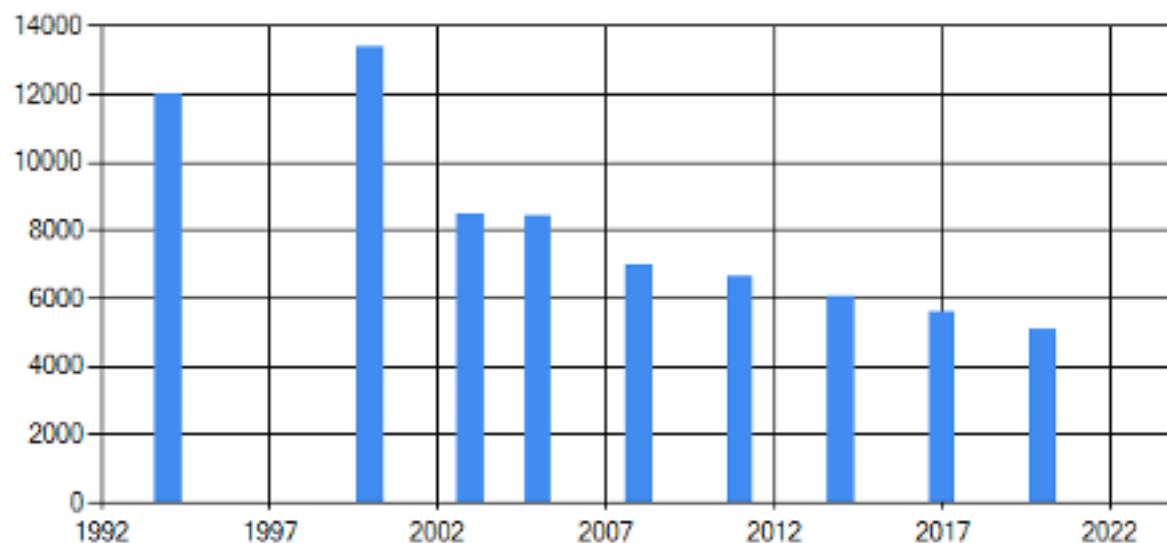
% Single – single unit truck volume as a percentage of the AADT

% Combo – combination truck volume as a percentage of the AADT

K Factor – peak hour volume as a percentage of the AADT

D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2023		2013		2003	8510
2022		2012		2002	
2021		2011	6640	2001	
2020	5081	2010		2000	13400
2019		2009		1999	
2018		2008	6990	1998	
2017	5585	2007		1997	
2016		2006		1996	
2015		2005	8420	1995	
2014	6077	2004		1994	12000



Historical Traffic Volume Summary

Station Details:

Sta ID:	080778
Sta Type:	Classification
Map:	MapIt
District:	12
County:	Martin
Route:	080-KY-0645 -000
Route Desc:	KY-645

Begin MP:	6.1050
Begin Desc:	KY 3 DEPARTURE
End Mp:	7.7580
End Desc:	END OF STATE MAINTENANCE
Impact Year:	
Year Added:	

Newest Count:

AA DT:	4537
Year:	2021
% Single:	1.8510
% Combo:	0.8780
K Factor:	11
D Factor:	55

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year – year of significant change to traffic pattern within station segment

AA DT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway

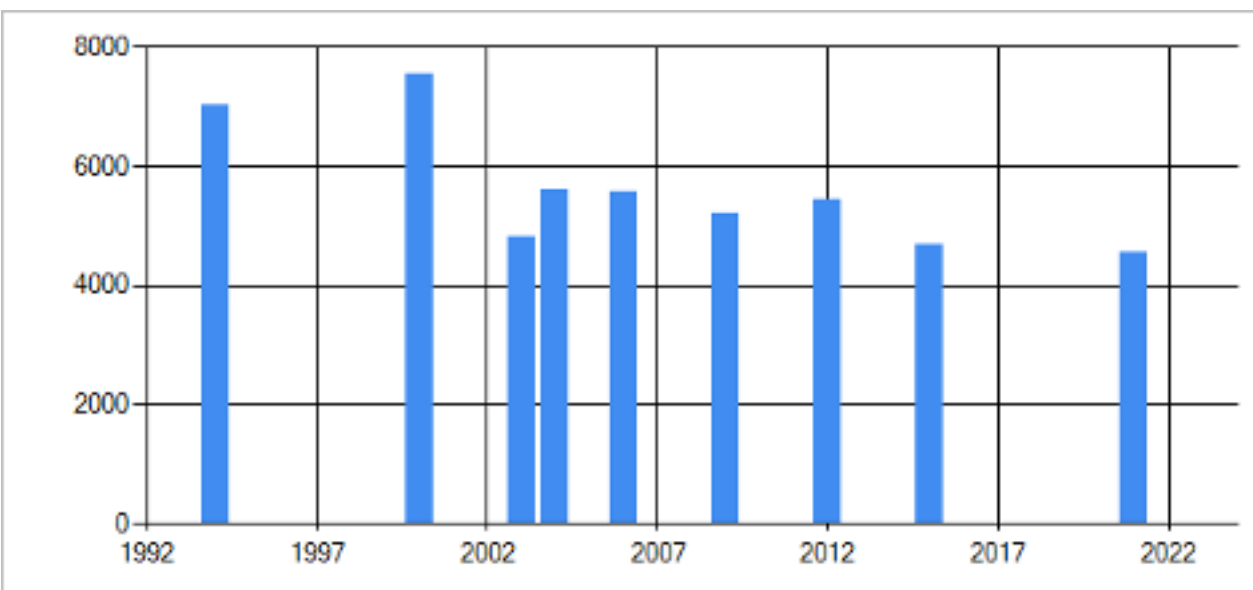
% Single – single unit truck volume as a percentage of the AA DT

% Combo – combination truck volume as a percentage of the AA DT

K Factor – peak hour volume as a percentage of the AA DT

D Factor – percentage of peak hour volume flowing in the peak direction

Year	AA DT	Year	AA DT	Year	AA DT
2023		2013		2003	4830
2022		2012	5431	2002	
2021	4537	2011		2001	
2020		2010		2000	7540
2019		2009	5220	1999	
2018		2008		1998	
2017		2007		1997	
2016		2006	5590	1996	
2015	4678	2005		1995	
2014		2004	5620	1994	7020

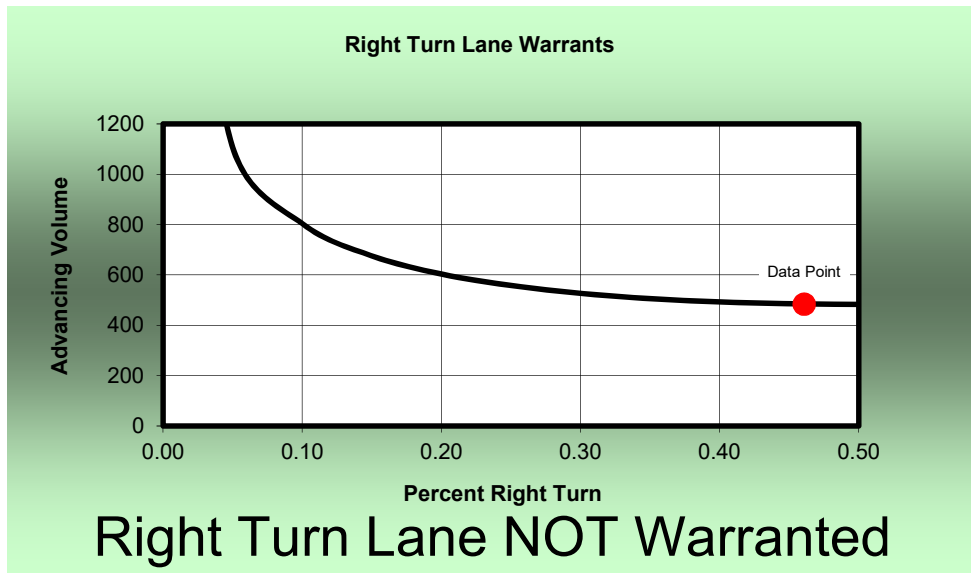


Right Turn Lane Warrants

Hollybush Rd; 2023 BUILD AM

Input Fields

Right Turn Volume (vph)	223	Speed Limit (mph)	35
Advancing Volume (vph)	484		



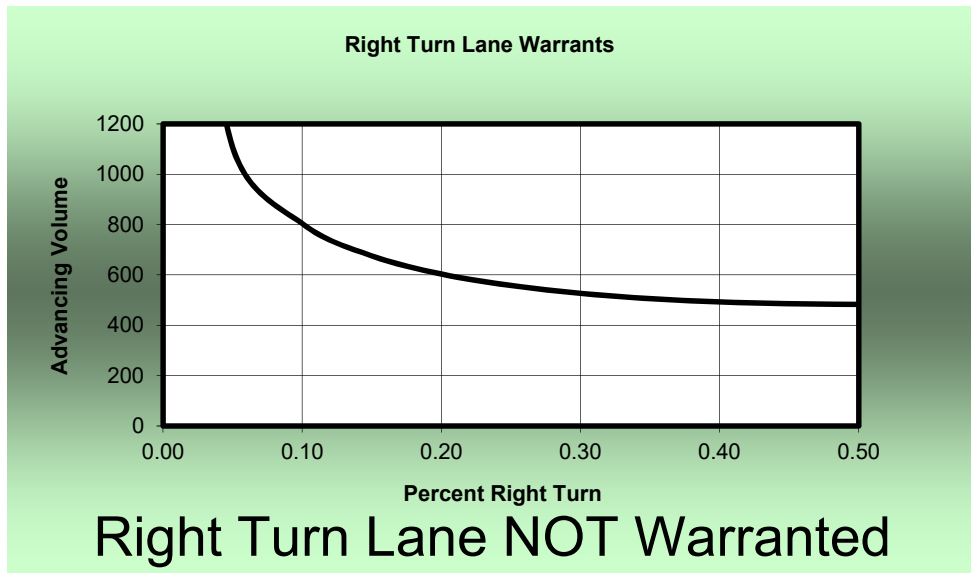
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Hollybush Rd; 2023 BUILD PM

Input Fields

Right Turn Volume (vph)	114	Speed Limit (mph)	35
Advancing Volume (vph)	214		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

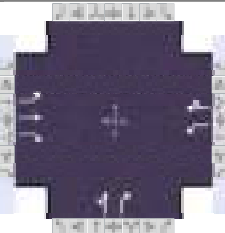
Yorkshire at RIRO: Right Turn Lane Length

Input Fields

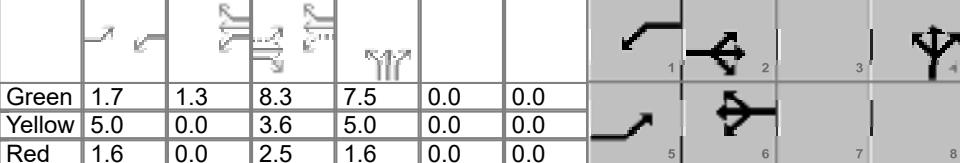
Turn Volume	223	Calculated Turn Lane Length (ft)	
Speed Limit	35	Desirable	225
Cycle Length	60	Minimum	200
<i>(Enter 0 for Uncontrolled, 60 for Stop Controlled)</i>			
Approach Percent Grade (G)	1		
Is this a Rural Arterial (Y or N)	N		

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.76	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 AM 2024 No Build.xus			
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	99	41	63	186	82	103	33	185			

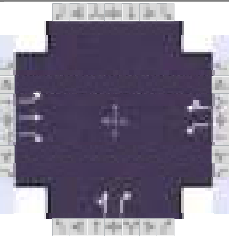
Signal Information														
Cycle, s	38.1	Reference Phase	2	Green	1.7	1.3	8.3	7.5	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	5.0	0.0	3.6	5.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.6	0.0	2.5	1.6	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.3	14.4	9.6	15.7		14.1		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.6	4.3	3.6		4.4		
Queue Clearance Time (g_s), s	2.4	4.3	3.3	8.4		6.1		
Green Extension Time (g_e), s	0.1	1.2	0.3	1.2		1.5		
Phase Call Probability	0.24	1.00	0.58	1.00		0.98		
Max Out Probability	0.00	0.00	0.00	0.01		0.00		

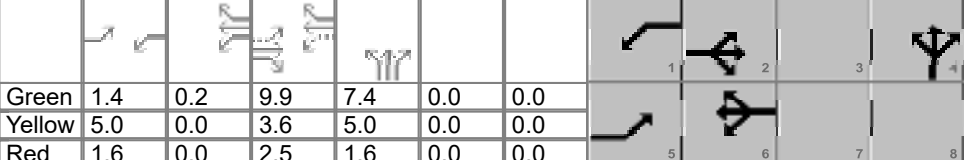
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	26	130	41	83	326			179	183			
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1776			1788	1547			
Queue Service Time (g_s), s	0.4	2.3		1.3	6.4			3.4	4.1			
Cycle Queue Clearance Time (g_c), s	0.4	2.3		1.3	6.4			3.4	4.1			
Green Ratio (g/C)	0.26	0.22		0.33	0.25			0.20	0.20			
Capacity (c), veh/h	305	405		581	448			352	304			
Volume-to-Capacity Ratio (X)	0.086	0.322		0.143	0.728			0.509	0.601			
Back of Queue (Q), ft/ln (95 th percentile)	6.1	35.3		16.9	98.7			55	60.5			
Back of Queue (Q), veh/ln (95 th percentile)	0.2	1.4		0.7	3.9			2.2	2.3			
Queue Storage Ratio (RQ) (95 th percentile)	0.08	0.00		0.09	0.00			0.00	0.60			
Uniform Delay (d_1), s/veh	11.2	12.5		9.2	13.1			13.7	14.0			
Incremental Delay (d_2), s/veh	0.1	0.3		0.1	1.7			1.2	2.1			
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0	0.0			
Control Delay (d), s/veh	11.3	12.9	0.0	9.3	14.8			14.9	16.0			
Level of Service (LOS)	B	B	A	A	B			B	B			
Approach Delay, s/veh / LOS	10.0		B	13.7		B	15.5		B	0.0		
Intersection Delay, s/veh / LOS	13.6						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.96		B	1.38		A	1.94		B	2.12		B
Bicycle LOS Score / LOS	0.81		A	1.16		A	1.08		A			

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.84	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 PM 2024 No Build.xus			
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	176	37	39	274	29	93	15	213			

Signal Information																								
Cycle, s	38.3	Reference Phase	2	Green	1.4	0.2	9.9	7.4	0.0	0.0	Yellow	5.0	0.0	3.6	5.0	0.0	0.0	Red	1.6	0.0	2.5	1.6	0.0	0.0
Offset, s	0	Reference Point	End																					
Uncoordinated	Yes	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.0	16.0	8.2	16.2		14.0		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.5	4.3	3.5		4.5		
Queue Clearance Time (g_s), s	2.3	5.6	2.7	8.7		6.3		
Green Extension Time (g_e), s	0.1	1.5	0.2	1.4		1.3		
Phase Call Probability	0.20	1.00	0.39	1.00		0.97		
Max Out Probability	0.00	0.00	0.00	0.01		0.00		

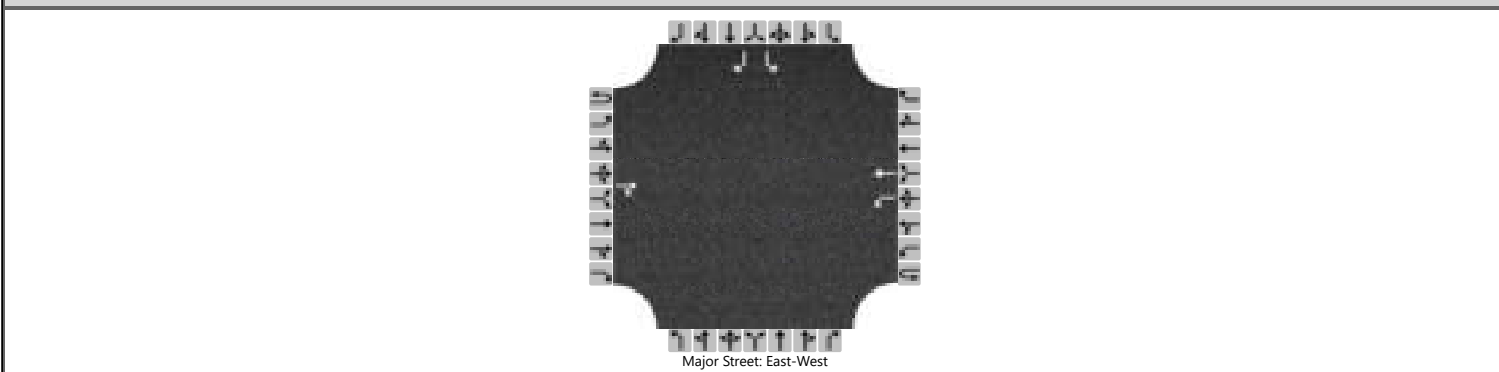
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	21	210	33	46	352			129	190			
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1831			1779	1547			
Queue Service Time (g_s), s	0.3	3.6		0.7	6.7			2.4	4.3			
Cycle Queue Clearance Time (g_c), s	0.3	3.6		0.7	6.7			2.4	4.3			
Green Ratio (g/C)	0.30	0.26		0.33	0.26			0.19	0.19			
Capacity (c), veh/h	296	481		508	485			346	301			
Volume-to-Capacity Ratio (X)	0.072	0.436		0.091	0.727			0.371	0.632			
Back of Queue (Q), ft/ln (95 th percentile)	4.6	55.1		9.3	104.9			38.2	64.8			
Back of Queue (Q), veh/ln (95 th percentile)	0.2	2.2		0.4	4.1			1.5	2.5			
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.00		0.05	0.00			0.00	0.65			
Uniform Delay (d_1), s/veh	10.6	11.9		9.0	12.8			13.4	14.2			
Incremental Delay (d_2), s/veh	0.1	0.5		0.1	1.6			0.7	2.4			
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0	0.0			
Control Delay (d), s/veh	10.7	12.3	0.0	9.1	14.4			14.1	16.6			
Level of Service (LOS)	B	B	A	A	B			B	B			
Approach Delay, s/veh / LOS	10.6		B	13.8		B	15.6		B	0.0		
Intersection Delay, s/veh / LOS	13.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.97	B	1.37	A	1.93	B	2.12	B
Bicycle LOS Score / LOS	0.92	A	1.15	A	1.01	A		

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	AM			Peak Hour Factor	0.63		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			120	11		202	138							66		28
Percent Heavy Vehicles (%)						3								2		7
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.13								7.12		6.27
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.23								3.52		3.36

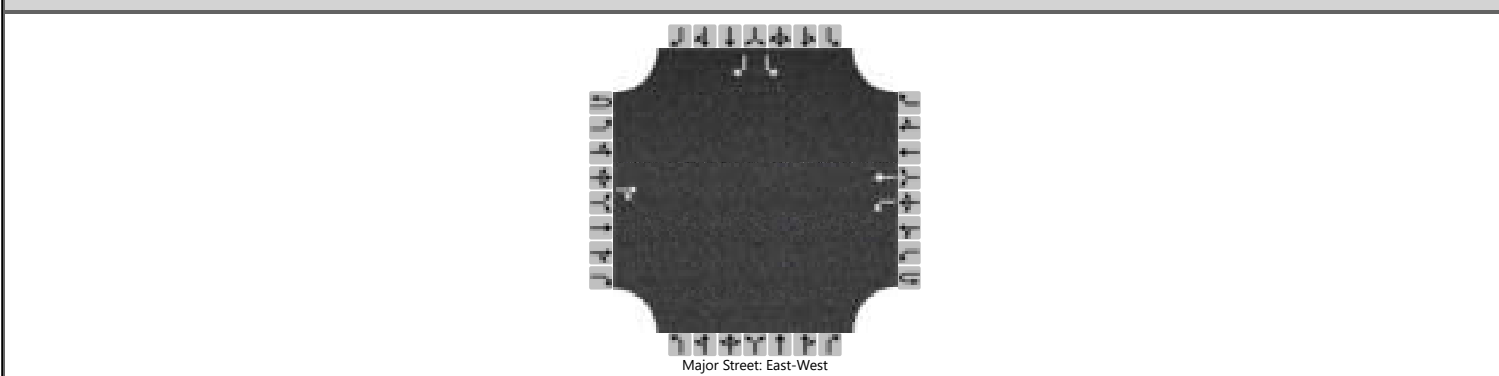
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						321								105		44
Capacity, c (veh/h)						1357								154		808
v/c Ratio						0.24								0.68		0.05
95% Queue Length, Q ₉₅ (veh)						0.9								3.9		0.2
Control Delay (s/veh)						8.5								67.2		9.7
Level of Service (LOS)						A								F		A
Approach Delay (s/veh)					5.0								50.1			
Approach LOS					A								F			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	PM			Peak Hour Factor	0.65		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			171	18		162	211							71		70
Percent Heavy Vehicles (%)						7								7		4
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.17								7.17		6.24
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.26								3.56		3.34

Delay, Queue Length, and Level of Service

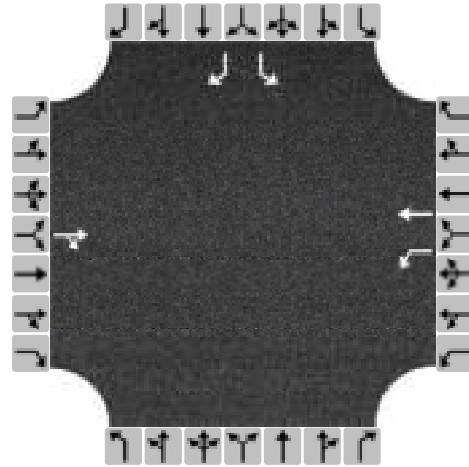
Flow Rate, v (veh/h)						249								109		108
Capacity, c (veh/h)						1243								148		712
v/c Ratio						0.20								0.74		0.15
95% Queue Length, Q ₉₅ (veh)						0.7								4.4		0.5
Control Delay (s/veh)						8.6								77.6		11.0
Level of Service (LOS)						A								F		B
Approach Delay (s/veh)					3.7								44.5			
Approach LOS					A								E			

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	AM
Project Description	NO BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.63

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		120	11	202	138					66		28
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	208			321	219					105	44	
Percent Heavy Vehicles	0			3	1					2	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.185			0.285	0.195					0.093	0.040	
Final Departure Headway, h_d (s)	5.34			5.76	5.23					6.83	5.59	
Final Degree of Utilization, x	0.308			0.513	0.318					0.199	0.069	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	3.34			3.46	2.93					4.53	3.29	

Capacity, Delay and Level of Service

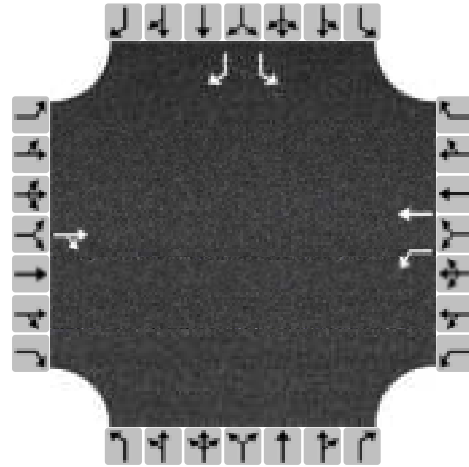
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	208			321	219					105	44	
Capacity (veh/h)	674			625	689					527	644	
95% Queue Length, Q_{95} (veh)	1.3			2.9	1.4					0.7	0.2	
Control Delay (s/veh)	10.7			14.4	10.3					11.2	8.7	
Level of Service, LOS	B			B	B					B	A	
Approach Delay (s/veh) LOS	10.7		B	12.7		B				10.5		B
Intersection Delay (s/veh) LOS	11.9						B					

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	PM
Project Description	NO BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.65

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		171	18	162	211					71		70
% Thrus in Shared Lane												

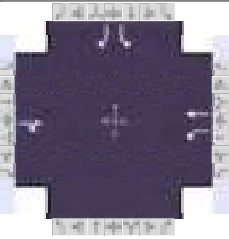
Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	291			249	325					109	108	
Percent Heavy Vehicles	0			7	1					7	0	
Initial Departure Headway, h _d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.258			0.222	0.289					0.097	0.096	
Final Departure Headway, h _d (s)	5.62			6.20	5.59					7.25	5.92	
Final Degree of Utilization, x	0.454			0.429	0.504					0.220	0.177	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t _s (s)	3.62			3.90	3.29					4.95	3.62	

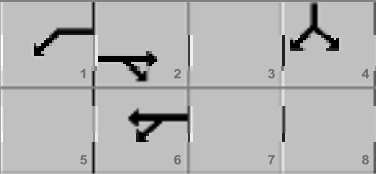
Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	291			249	325					109	108	
Capacity (veh/h)	640			581	644					496	608	
95% Queue Length, Q ₉₅ (veh)	2.4			2.1	2.8					0.8	0.6	
Control Delay (s/veh)	13.2			13.5	13.8					12.0	9.9	
Level of Service, LOS	B			B	B					B	A	
Approach Delay (s/veh) LOS	13.2		B	13.7		B				10.9		B
Intersection Delay (s/veh) LOS	13.0						B					

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.63	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ SB Ramp	File Name	SB Ramp @ KY 40 AM 2024 No Build.xus			
Project Description	No Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		120	11	202	138					66		28

Signal Information														
Cycle, s	39.9	Reference Phase	2	Green	8.0	8.0	5.7	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

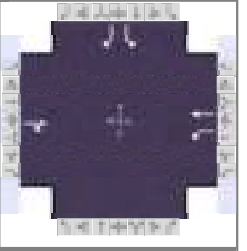
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		14.1	13.5	27.6				12.3
Change Period, ($Y+R_c$), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g_s), s		5.8	6.8	4.4				4.1
Green Extension Time (g_e), s		0.7	1.4	1.0				0.6
Phase Call Probability		1.00	0.97	1.00				0.81
Max Out Probability		0.00	0.00	0.00				0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		198		321	219					105		44
Adjusted Saturation Flow Rate (s), veh/h/ln		1872		1767	1885					1781		1522
Queue Service Time (g_s), s		3.8		4.8	2.4					2.1		1.0
Cycle Queue Clearance Time (g_c), s		3.8		4.8	2.4					2.1		1.0
Green Ratio (g/C)		0.20		0.45	0.54					0.14		0.14
Capacity (c), veh/h		375		659	1017					253		217
Volume-to-Capacity Ratio (X)		0.528		0.487	0.215					0.413		0.205
Back of Queue (Q), ft/ln (95 th percentile)		61.8		58.1	23.4					36.4		15.3
Back of Queue (Q), veh/ln (95 th percentile)		2.5		2.3	0.9					1.4		0.6
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.53	0.00					0.00		0.00
Uniform Delay (d_1), s/veh		14.3		7.9	4.8					15.6		15.1
Incremental Delay (d_2), s/veh		0.9		0.6	0.1					1.2		0.5
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		15.1		8.5	4.9					16.8		15.6
Level of Service (LOS)		B		A	A					B		B
Approach Delay, s/veh / LOS	15.1		B	7.0		A	0.0			16.4		B
Intersection Delay, s/veh / LOS	10.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.38	A	1.63	B	1.92	B	1.70	B
Bicycle LOS Score / LOS	0.81	A	1.38	A				F

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	PEC			Duration, h	0.250
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other
Jurisdiction		Time Period	PM	PHF	0.65
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00
Intersection	KY 40 @ SB Ramp	File Name	SB Ramp @ KY 40 PM 2024 No Build.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		171	18	162	211					71		70

Signal Information														
Cycle, s	40.1	Reference Phase	2	Green	6.6	8.9	6.4	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		15.0	12.1	27.1				13.0
Change Period, (Y+R _c), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g _s), s		7.5	5.9	6.0				4.5
Green Extension Time (g _e), s		1.4	1.0	1.5				0.9
Phase Call Probability		1.00	0.94	1.00				0.91
Max Out Probability		0.01	0.00	0.00				0.00

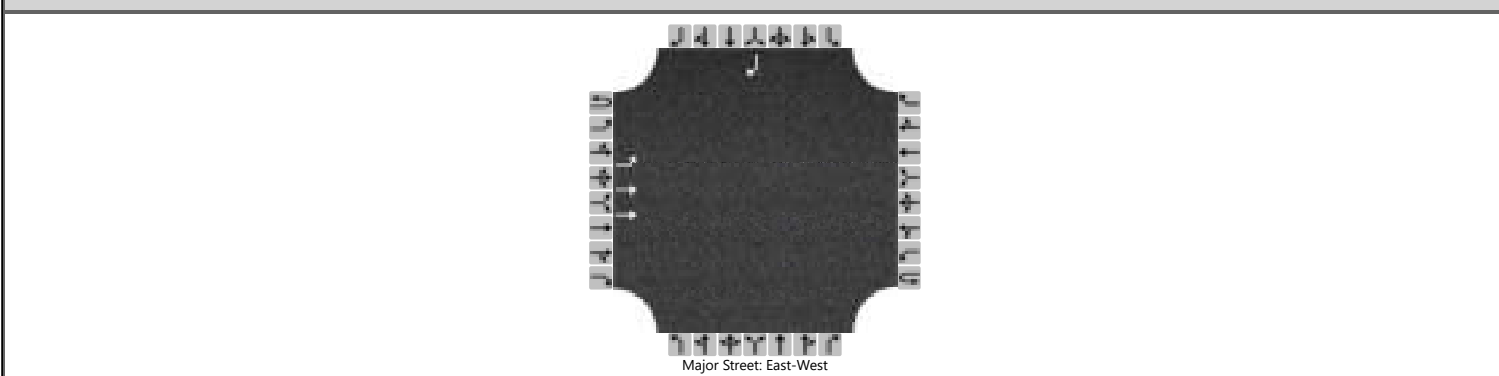
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		278		249	325					109		108
Adjusted Saturation Flow Rate (s), veh/h/ln		1867		1711	1885					1711		1560
Queue Service Time (g _s), s		5.5		3.9	4.0					2.3		2.5
Cycle Queue Clearance Time (g _c), s		5.5		3.9	4.0					2.3		2.5
Green Ratio (g/C)		0.22		0.44	0.52					0.16		0.16
Capacity (c), veh/h		416		552	988					273		249
Volume-to-Capacity Ratio (X)		0.670		0.452	0.329					0.401		0.433
Back of Queue (Q), ft/ln (95 th percentile)		89.8		48	40.6					38.5		37.8
Back of Queue (Q), veh/ln (95 th percentile)		3.6		1.8	1.6					1.5		1.5
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.44	0.00					0.00		0.00
Uniform Delay (d ₁), s/veh		14.2		8.4	5.5					15.1		15.2
Incremental Delay (d ₂), s/veh		1.4		0.6	0.1					1.0		1.3
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		15.6		9.0	5.6					16.2		16.5
Level of Service (LOS)		B		A	A					B		B
Approach Delay, s/veh / LOS	15.6		B	7.1		A	0.0			16.3		B
Intersection Delay, s/veh / LOS	11.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.38	A	1.63	B	1.92	B	1.70	B
Bicycle LOS Score / LOS	0.95	A	1.43	A				F

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	AM			Peak Hour Factor	0.48		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		261	0													148
Percent Heavy Vehicles (%)		3														2
Proportion Time Blocked																
Percent Grade (%)																0
Right Turn Channelized																No
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.36															7.14
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.13															3.92

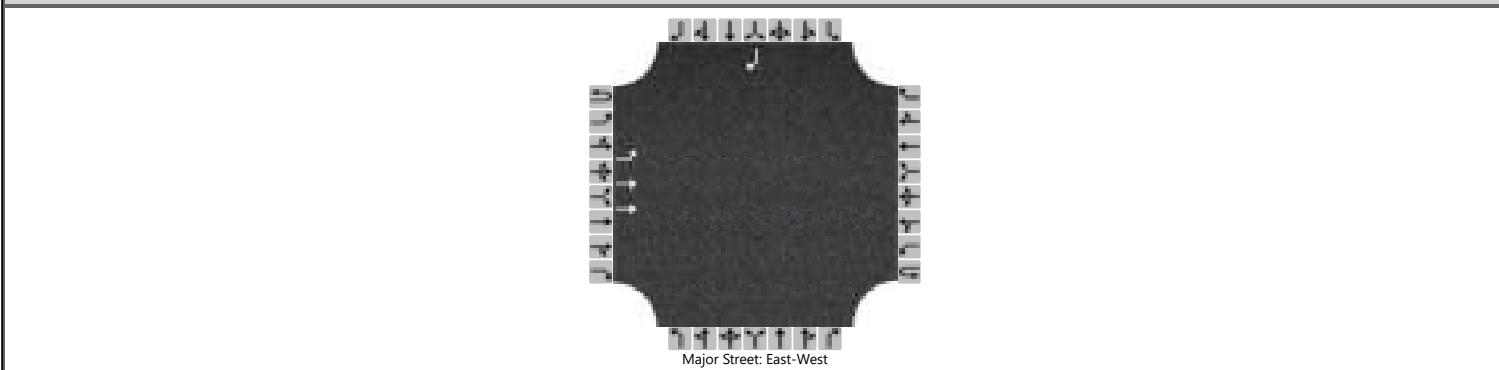
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		544															308	
Capacity, c (veh/h)		1150															918	
v/c Ratio		0.47															0.34	
95% Queue Length, Q ₉₅ (veh)		2.6															1.5	
Control Delay (s/veh)		10.9															10.9	
Level of Service (LOS)		B															B	
Approach Delay (s/veh)		10.9													10.9			
Approach LOS		B													B			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH	Intersection	KY 645 @ Hollybush				
Agency/Co.	PEC	Jurisdiction					
Date Performed	10/31/2023	East/West Street	KY 645				
Analysis Year	2024	North/South Street	Hollybush Rd				
Time Analyzed	PM	Peak Hour Factor	0.46				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		100	0													200
Percent Heavy Vehicles (%)		11														7
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

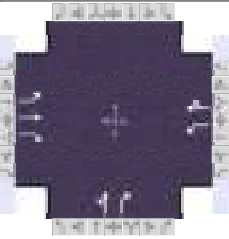
Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.52															7.24
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.21															3.97

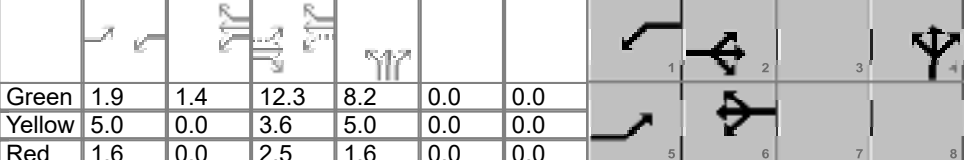
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		217															435
Capacity, c (veh/h)		1121															907
v/c Ratio		0.19															0.48
95% Queue Length, Q ₉₅ (veh)		0.7															2.6
Control Delay (s/veh)		9.0															12.6
Level of Service (LOS)		A															B
Approach Delay (s/veh)	9.0												12.6				
Approach LOS	A												B				

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	AM	PHF	0.76	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 AM 2024 Build.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	194	51	63	186	194	103	44	185			

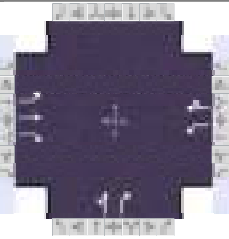
Signal Information																		
Cycle, s	43.1	Reference Phase	2	Green	1.9	1.4	12.3	8.2	0.0	0.0	Yellow	5.0	0.0	3.6	5.0	0.0	0.0	
Offset, s	0	Reference Point	End	Red	1.6	0.0	2.5	1.6	0.0	0.0	Uncoordinated	Yes	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.5	18.4	9.9	19.8		14.8		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.6	4.3	3.6		4.4		
Queue Clearance Time (g_s), s	2.4	6.9	3.3	12.0		6.7		
Green Extension Time (g_e), s	0.1	1.9	0.3	1.7		1.6		
Phase Call Probability	0.27	1.00	0.63	1.00		0.99		
Max Out Probability	0.00	0.02	0.00	0.11		0.00		

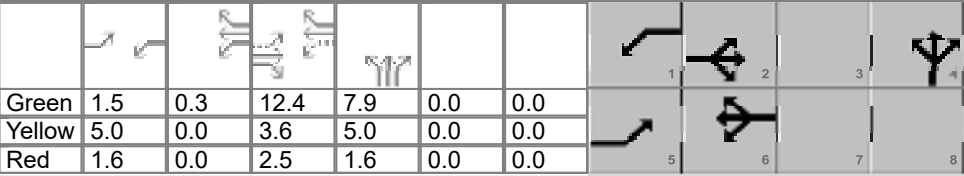
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	26	255	50	83	437			193	183			
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1719			1793	1547			
Queue Service Time (g_s), s	0.4	4.9		1.3	10.0			4.2	4.7			
Cycle Queue Clearance Time (g_c), s	0.4	4.9		1.3	10.0			4.2	4.7			
Green Ratio (g/C)	0.33	0.29		0.39	0.32			0.19	0.19			
Capacity (c), veh/h	287	530		542	548			341	294			
Volume-to-Capacity Ratio (X)	0.092	0.481		0.153	0.797			0.567	0.621			
Back of Queue (Q), ft/ln (95 th percentile)	6.4	77.9		17.7	151.2			72.9	72.6			
Back of Queue (Q), veh/ln (95 th percentile)	0.3	3.0		0.7	5.9			2.8	2.8			
Queue Storage Ratio (RQ) (95 th percentile)	0.09	0.00		0.10	0.00			0.00	0.73			
Uniform Delay (d_1), s/veh	11.2	12.8		8.8	13.4			15.9	16.1			
Incremental Delay (d_2), s/veh	0.1	0.5		0.1	2.0			1.6	2.3			
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0	0.0			
Control Delay (d), s/veh	11.3	13.3	0.0	8.9	15.5			17.5	18.4			
Level of Service (LOS)	B	B	A	A	B			B	B			
Approach Delay, s/veh / LOS	11.1	B		14.4	B		17.9	B		0.0		
Intersection Delay, s/veh / LOS	14.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	1.37	A	1.99	B	2.13	B
Bicycle LOS Score / LOS	1.03	A	1.35	A	1.11	A		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	Nov 1, 2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.84	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1> 7:00	
Intersection	KY 40 @ NB Ramp/KY...	File Name	NB Ramp @ KY 40 PM 2024 Build.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	250	44	39	274	92	93	21	213			

Signal Information														
Cycle, s	41.4	Reference Phase	2	Green	1.5	0.3	12.4	7.9	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	5.0	0.0	3.6	5.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.6	0.0	2.5	1.6	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		4		
Case Number	1.1	3.0	1.1	4.0		11.0		
Phase Duration, s	8.1	18.5	8.4	18.8		14.5		
Change Period, ($Y+R_c$), s	6.6	6.1	5.5	6.1		6.6		
Max Allow Headway (MAH), s	4.3	3.6	4.3	3.6		4.5		
Queue Clearance Time (g_s), s	2.3	7.6	2.7	10.9		6.7		
Green Extension Time (g_e), s	0.1	1.9	0.2	1.7		1.4		
Phase Call Probability	0.22	1.00	0.41	1.00		0.98		
Max Out Probability	0.00	0.02	0.00	0.07		0.00		

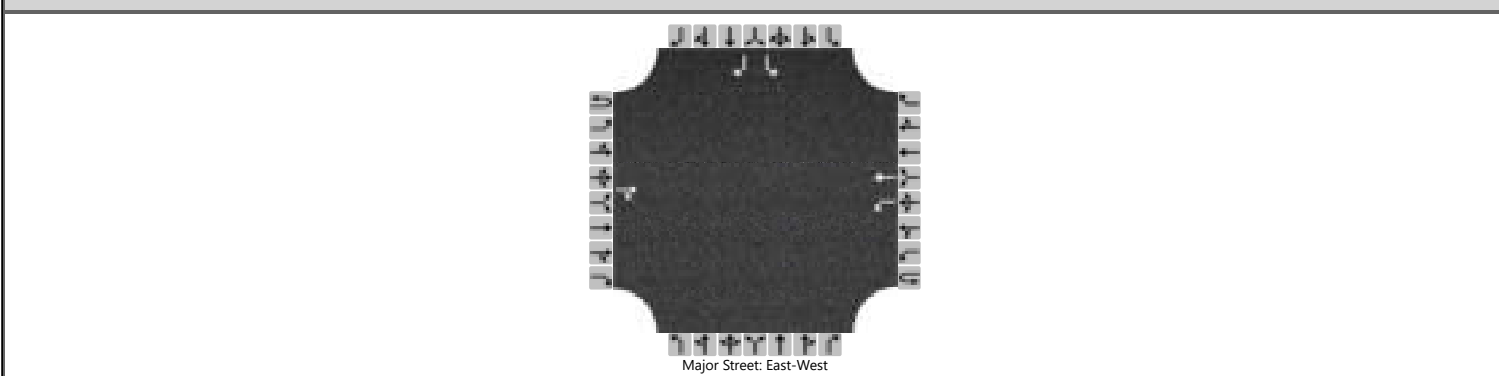
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	7	4	14			
Adjusted Flow Rate (v), veh/h	21	298	40	46	420		136	190				
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1856		1767	1784		1783	1547				
Queue Service Time (g_s), s	0.3	5.6		0.7	8.9		2.8	4.7				
Cycle Queue Clearance Time (g_c), s	0.3	5.6		0.7	8.9		2.8	4.7				
Green Ratio (g/C)	0.34	0.30		0.37	0.31		0.19	0.19				
Capacity (c), veh/h	285	555		477	546		341	296				
Volume-to-Capacity Ratio (X)	0.075	0.536		0.097	0.770		0.398	0.643				
Back of Queue (Q), ft/ln (95 th percentile)	4.8	85.4		9.6	135.9		45.6	72.6				
Back of Queue (Q), veh/ln (95 th percentile)	0.2	3.3		0.4	5.3		1.8	2.8				
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.00		0.05	0.00		0.00	0.73				
Uniform Delay (d_1), s/veh	10.6	12.1		8.8	13.1		14.7	15.5				
Incremental Delay (d_2), s/veh	0.1	0.6		0.1	1.7		0.8	2.5				
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0				
Control Delay (d), s/veh	10.7	12.7	0.0	8.9	14.8		15.5	18.0				
Level of Service (LOS)	B	B	A	A	B		B	B				
Approach Delay, s/veh / LOS	11.2		B	14.2		B	17.0		B	0.0		
Intersection Delay, s/veh / LOS	14.0						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.97		B	1.37		A	1.94		B	2.12		B
Bicycle LOS Score / LOS	1.08		A	1.26		A	1.03		A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	AM			Peak Hour Factor	0.63		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			164	11		202	138							171		66
Percent Heavy Vehicles (%)						3								2		7
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1									7.1		6.2
Critical Headway (sec)						4.13									7.12		6.27
Base Follow-Up Headway (sec)						2.2									3.5		3.3
Follow-Up Headway (sec)						2.23									3.52		3.36

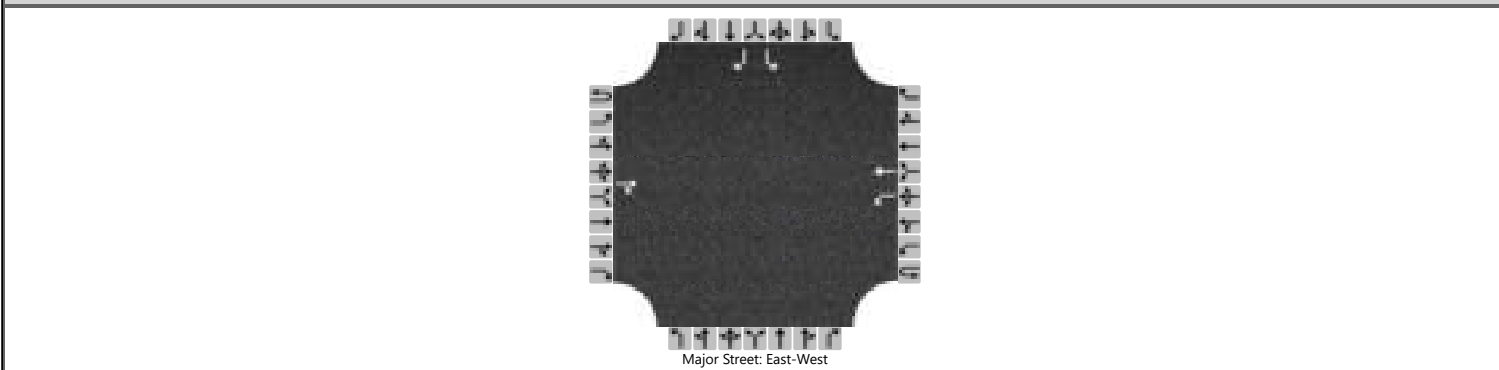
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						321									271		105
Capacity, c (veh/h)						1279									136		808
v/c Ratio						0.25									2.00		0.13
95% Queue Length, Q ₉₅ (veh)						1.0									21.7		0.4
Control Delay (s/veh)						8.8									529.8		10.1
Level of Service (LOS)						A									F		B
Approach Delay (s/veh)					5.2								385.1				
Approach LOS					A								F				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	SB RAMP @ KY 40		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 40		
Analysis Year	2024			North/South Street	KY 645 SB RAMP		
Time Analyzed	PM			Peak Hour Factor	0.65		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	0	0		1	0	1
Configuration				TR		L	T							L		R
Volume (veh/h)			205	18		162	211							152		110
Percent Heavy Vehicles (%)						7								7		4
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized														No		
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1								7.1		6.2
Critical Headway (sec)						4.17								7.17		6.24
Base Follow-Up Headway (sec)						2.2								3.5		3.3
Follow-Up Headway (sec)						2.26								3.56		3.34

Delay, Queue Length, and Level of Service

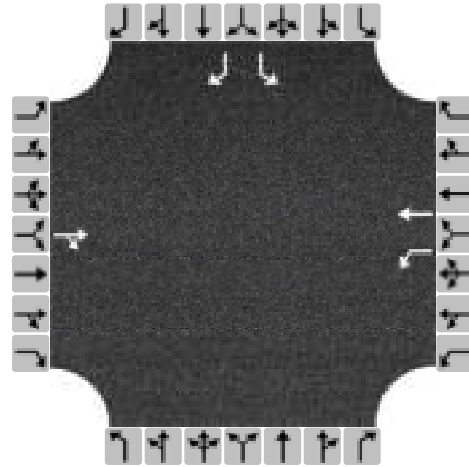
Flow Rate, v (veh/h)						249								234		169
Capacity, c (veh/h)						1189								135		712
v/c Ratio						0.21								1.73		0.24
95% Queue Length, Q ₉₅ (veh)						0.8								17.4		0.9
Control Delay (s/veh)						8.8								416.1		11.6
Level of Service (LOS)						A								F		B
Approach Delay (s/veh)					3.8								246.3			
Approach LOS					A								F			

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	AM
Project Description	BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.63

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		164	11	202	138					171		66
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	278			321	219					271	105	
Percent Heavy Vehicles	0			3	1					2	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.247			0.285	0.195					0.241	0.093	
Final Departure Headway, h_d (s)	6.29			6.79	6.25					7.27	6.02	
Final Degree of Utilization, x	0.485			0.605	0.380					0.548	0.175	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	4.29			4.49	3.95					4.97	3.72	

Capacity, Delay and Level of Service

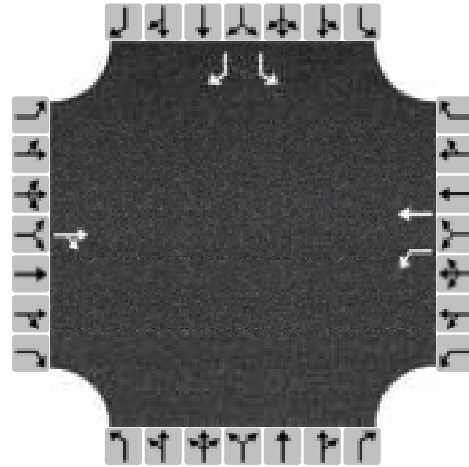
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	278			321	219					271	105	
Capacity (veh/h)	572			530	576					495	598	
95% Queue Length, Q_{95} (veh)	2.6			4.0	1.8					3.3	0.6	
Control Delay (s/veh)	15.1			19.4	12.7					18.4	10.0	
Level of Service, LOS	C			C	B					C	A	
Approach Delay (s/veh) LOS	15.1		C	16.7		C				16.1		C
Intersection Delay (s/veh) LOS	16.1						C					

HCS All-Way Stop Control Report

General and Site Information

Analyst	BH
Agency/Co.	PEC
Date Performed	11/9/2023
Analysis Year	2023
Analysis Time Period (hrs)	0.25
Time Analyzed	PM
Project Description	NO BUILD
Intersection	SB RAMP @ KY 40
Jurisdiction	
East/West Street	KY 40
North/South Street	SB RAMP
Peak Hour Factor	0.65

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)		205	18	162	211					152		110
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

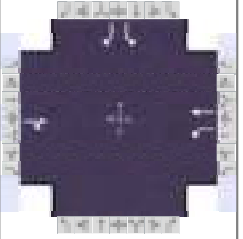
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	343			249	325					234	169	
Percent Heavy Vehicles	0			7	1					7	0	
Initial Departure Headway, h_d (s)	3.20			3.20	3.20					3.20	3.20	
Initial Degree of Utilization, x	0.305			0.222	0.289					0.208	0.150	
Final Departure Headway, h_d (s)	6.34			7.04	6.42					7.58	6.25	
Final Degree of Utilization, x	0.605			0.487	0.579					0.493	0.294	
Move-Up Time, m (s)	2.0			2.3	2.3					2.3	2.3	
Service Time, t_s (s)	4.34			4.74	4.12					5.28	3.95	

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	TR			L	T					L	R	
Flow Rate, v (veh/h)	343			249	325					234	169	
Capacity (veh/h)	567			512	560					475	576	
95% Queue Length, Q_{95} (veh)	4.0			2.6	3.7					2.7	1.2	
Control Delay (s/veh)	18.6			16.2	17.6					17.4	11.5	
Level of Service, LOS	C			C	C					C	B	
Approach Delay (s/veh) LOS	18.6		C	17.0		C				14.9		B
Intersection Delay (s/veh) LOS	16.8						C					

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	PEC			Duration, h	0.250
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other
Jurisdiction		Time Period	AM	PHF	0.63
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00
Intersection	KY 40 @ SB Ramp	File Name	SB Ramp @ KY 40 AM 2024 Build.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		164	11	202	138					171		66

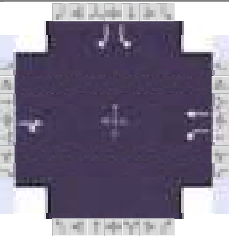
Signal Information														
Cycle, s	46.2	Reference Phase	2	Green	9.1	8.9	10.0	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		15.0	14.6	29.6				16.6
Change Period, (Y+R _c), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g _s), s		8.2	7.8	5.0				8.5
Green Extension Time (g _e), s		0.6	1.4	1.2				1.5
Phase Call Probability		1.00	0.98	1.00				0.99
Max Out Probability		0.01	0.00	0.00				0.00

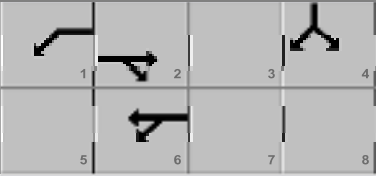
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		268		321	219					271		105
Adjusted Saturation Flow Rate (s), veh/h/ln		1875		1767	1885					1781		1522
Queue Service Time (g _s), s		6.2		5.8	3.0					6.5		2.7
Cycle Queue Clearance Time (g _c), s		6.2		5.8	3.0					6.5		2.7
Green Ratio (g/C)		0.19		0.43	0.51					0.22		0.22
Capacity (c), veh/h		362		568	958					387		331
Volume-to-Capacity Ratio (X)		0.742		0.565	0.229					0.701		0.316
Back of Queue (Q), ft/ln (95 th percentile)		113.3		82.1	37.2					114.4		39.8
Back of Queue (Q), veh/ln (95 th percentile)		4.5		3.2	1.5					4.5		1.5
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.75	0.00					0.00		0.00
Uniform Delay (d ₁), s/veh		17.6		10.1	6.3					16.7		15.2
Incremental Delay (d ₂), s/veh		2.3		1.0	0.1					2.5		0.6
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		19.9		11.1	6.4					19.2		15.8
Level of Service (LOS)		B		B	A					B		B
Approach Delay, s/veh / LOS	19.9		B	9.2		A	0.0			18.3		B
Intersection Delay, s/veh / LOS	14.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.39	A	1.64	B	1.92	B	1.71	B
Bicycle LOS Score / LOS	0.93	A	1.38	A				F

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	PEC			Duration, h	0.250	
Analyst	BH	Analysis Date	11/9/2023	Area Type	Other	
Jurisdiction		Time Period	PM	PHF	0.65	
Urban Street	KY 40	Analysis Year	2024	Analysis Period	1 > 7:00	
Intersection	KY 40 @ SB Ramp	File Name	SB Ramp @ KY 40 PM 2024 Build.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		205	18	162	211					152		110

Signal Information														
Cycle, s	44.9	Reference Phase	2	Green	7.1	10.3	9.3	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.6	3.6	5.0	0.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	1.9	2.5	1.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	1.0	4.0				9.0
Phase Duration, s		16.4	12.6	29.0				15.9
Change Period, (Y+R _c), s		6.1	5.5	6.1				6.6
Max Allow Headway (MAH), s		3.5	4.3	3.5				4.4
Queue Clearance Time (g _s), s		9.5	6.4	6.6				7.6
Green Extension Time (g _e), s		0.8	1.0	1.6				1.7
Phase Call Probability		1.00	0.96	1.00				0.99
Max Out Probability		0.03	0.00	0.01				0.00

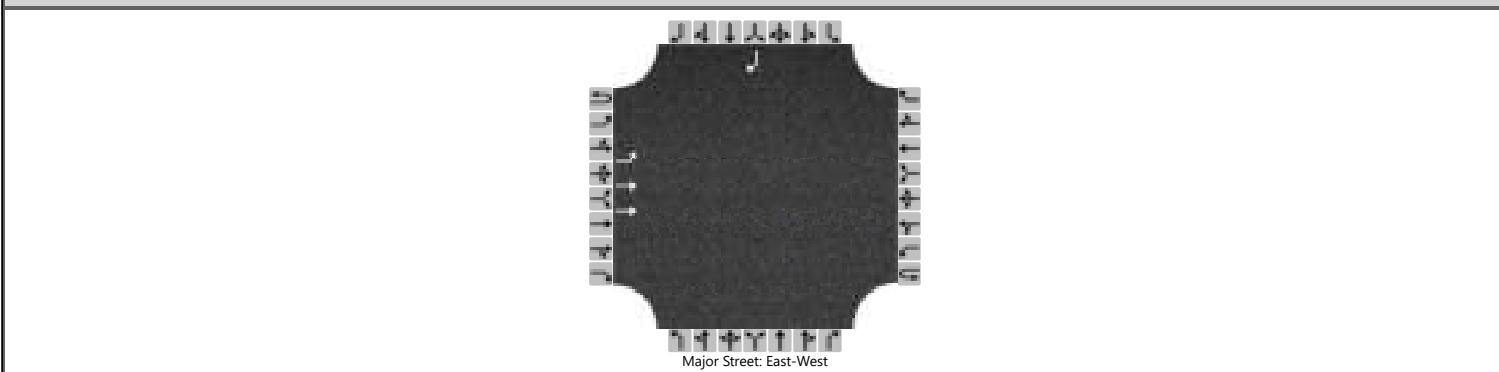
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7		14
Adjusted Flow Rate (v), veh/h		331		249	325					234		169
Adjusted Saturation Flow Rate (s), veh/h/ln		1870		1711	1885					1711		1560
Queue Service Time (g _s), s		7.5		4.4	4.6					5.6		4.3
Cycle Queue Clearance Time (g _c), s		7.5		4.4	4.6					5.6		4.3
Green Ratio (g/C)		0.23		0.43	0.51					0.21		0.21
Capacity (c), veh/h		428		495	961					356		324
Volume-to-Capacity Ratio (X)		0.772		0.503	0.338					0.658		0.522
Back of Queue (Q), ft/ln (95 th percentile)		130.8		60.2	55.4					97.9		65.7
Back of Queue (Q), veh/ln (95 th percentile)		5.2		2.3	2.2					3.7		2.5
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.55	0.00					0.00		0.00
Uniform Delay (d ₁), s/veh		16.2		9.8	6.5					16.3		15.8
Incremental Delay (d ₂), s/veh		2.2		0.9	0.2					2.2		1.4
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0					0.0		0.0
Control Delay (d), s/veh		18.5		10.7	6.7					18.6		17.2
Level of Service (LOS)		B		B	A					B		B
Approach Delay, s/veh / LOS	18.5		B	8.4		A	0.0			18.0		B
Intersection Delay, s/veh / LOS	13.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.38	A	1.64	B	1.92	B	1.71	B
Bicycle LOS Score / LOS	1.03	A	1.43	A				F

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	AM			Peak Hour Factor	0.48		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		484	0													338
Percent Heavy Vehicles (%)		3														2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.36															7.14
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.13															3.92

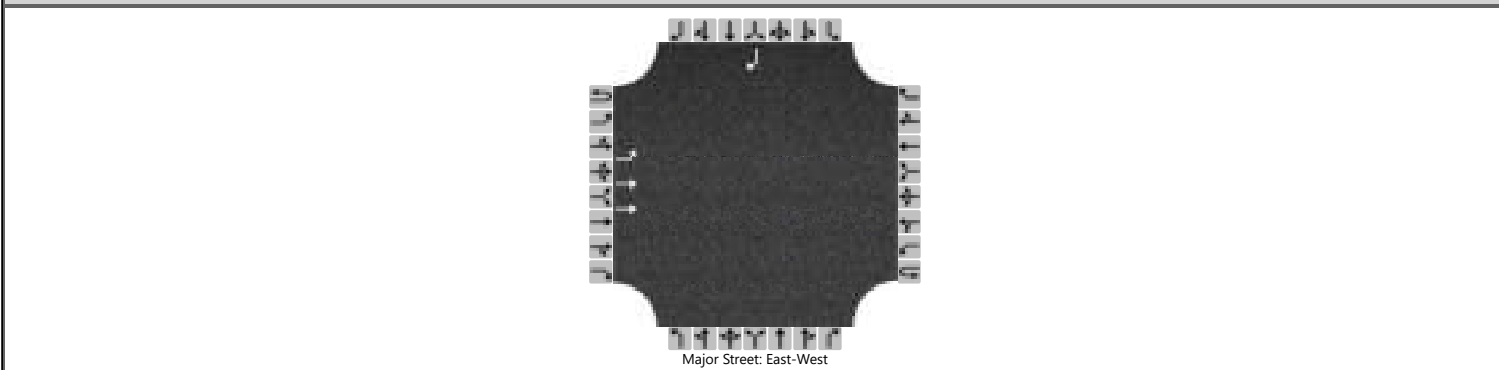
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1008															704
Capacity, c (veh/h)		1150															918
v/c Ratio		0.88															0.77
95% Queue Length, Q ₉₅ (veh)		12.5															7.7
Control Delay (s/veh)		25.2															20.5
Level of Service (LOS)		D															C
Approach Delay (s/veh)	25.2												20.5				
Approach LOS	D												C				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	PM			Peak Hour Factor	0.46		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	2	0	0	0	0	0		0	0	0		0	0	1
Configuration		L	T													R
Volume (veh/h)		214	0													334
Percent Heavy Vehicles (%)		11														7
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		5.3															7.1
Critical Headway (sec)		5.52															7.24
Base Follow-Up Headway (sec)		3.1															3.9
Follow-Up Headway (sec)		3.21															3.97

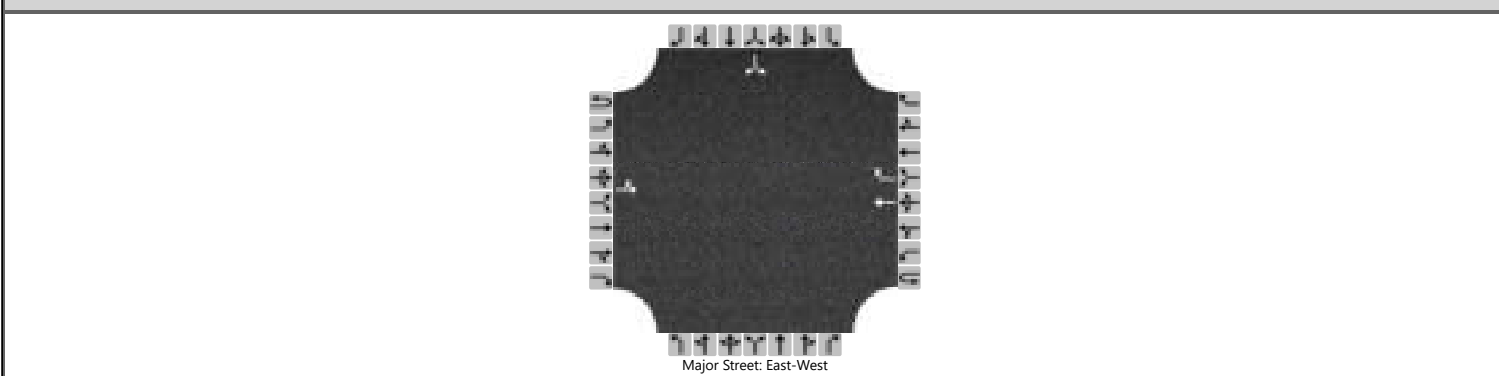
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		465															726
Capacity, c (veh/h)		1121															907
v/c Ratio		0.41															0.80
95% Queue Length, Q ₉₅ (veh)		2.1															8.7
Control Delay (s/veh)		10.5															22.8
Level of Service (LOS)		B															C
Approach Delay (s/veh)	10.5												22.8				
Approach LOS	B												C				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	AM			Peak Hour Factor	0.48		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	NO BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		0	148				261	223						190		0
Percent Heavy Vehicles (%)		3												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized					No											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.52		3.32

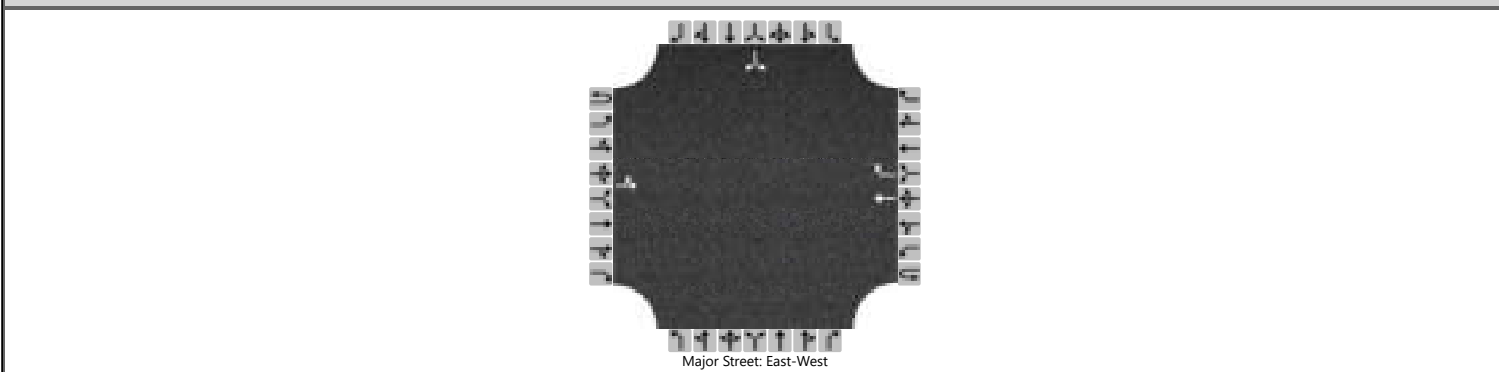
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0														396
Capacity, c (veh/h)		683														330
v/c Ratio		0.00														1.20
95% Queue Length, Q ₉₅ (veh)		0.0														17.0
Control Delay (s/veh)		10.3	0.0													149.8
Level of Service (LOS)		B	A													F
Approach Delay (s/veh)	0.0												149.8			
Approach LOS	A												F			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	BH			Intersection	KY 645 @ Hollybush		
Agency/Co.	PEC			Jurisdiction			
Date Performed	10/31/2023			East/West Street	KY 645		
Analysis Year	2024			North/South Street	Hollybush Rd		
Time Analyzed	PM			Peak Hour Factor	0.46		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		0	200				100	114						134		0
Percent Heavy Vehicles (%)		11												2		7
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized					No											
Median Type Storage	Undivided															


Critical and Follow-up Headways

Base Critical Headway (sec)		4.1													7.1		6.2
Critical Headway (sec)		4.21													6.42		6.27
Base Follow-Up Headway (sec)		2.2													3.5		3.3
Follow-Up Headway (sec)		2.30													3.52		3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0															291
Capacity, c (veh/h)		1051															432
v/c Ratio		0.00															0.67
95% Queue Length, Q ₉₅ (veh)		0.0															4.9
Control Delay (s/veh)		8.4	0.0														28.9
Level of Service (LOS)		A	A														D
Approach Delay (s/veh)	0.0												28.9				
Approach LOS	A												D				

HCS Roundabouts Report

General Information				Site Information				
Analyst	BH				Intersection		Hollybush @ Entrance	
Agency or Co.	PEC				E/W Street Name		Hollybush	
Date Performed	11/1/2023				N/S Street Name		Entrance	
Analysis Year	2024				Analysis Time Period, hrs		0.25	
Time Analyzed	AM				Peak Hour Factor		0.48	
Project Description	BUILD				Jurisdiction			


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Lane Assignment	LT				TR				LR							
Volume (V), veh/h	0	0	148		0		261	223					0	190		0
Percent Heavy Vehicles, %	3	3	3		3		3	3					3	3		3
Flow Rate (V _{PCE}), pc/h	0	0	318		0		560	479					0	408		0
Right-Turn Bypass	None				None				None							
Conflicting Lanes	1				1				1							
Pedestrians Crossing, p/h	0				0				0							
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763						4.9763	
Follow-Up Headway, s		2.6087			2.6087						2.6087	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		318			1039						408	
Entry Volume, veh/h		309			1009						396	
Circulating Flow (v _c), pc/h	408			0			726			560		
Exiting Flow (v _e), pc/h	726			560			479			0		
Capacity (C _{PCE}), pc/h		910			1380						779	
Capacity (c), veh/h		884			1340						757	
v/c Ratio (x)		0.35			0.75						0.52	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.0			14.1						12.5	
Lane LOS		A			B						B	
95% Queue, veh		1.6			7.7						3.1	
Approach Delay, s/veh LOS	8.0 A			14.1 B			12.5 B					
Intersection Delay, s/veh LOS	12.6						B					

HCS Roundabouts Report

General Information				Site Information				
Analyst	BH				Intersection		Hollybush @ Entrance	
Agency or Co.	PEC				E/W Street Name		Hollybush	
Date Performed	11/1/2023				N/S Street Name		Entrance	
Analysis Year	2023				Analysis Time Period, hrs		0.25	
Time Analyzed	PM				Peak Hour Factor		0.46	
Project Description	BUILD				Jurisdiction			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Lane Assignment	LT				TR				LR							
Volume (V), veh/h	0	0	200		0		100	114					0	134		0
Percent Heavy Vehicles, %	3	3	3		3		3	3					3	3		3
Flow Rate (V _{PCE}), pc/h	0	0	448		0		224	255					0	300		0
Right-Turn Bypass	None				None				None							
Conflicting Lanes	1				1				1							
Pedestrians Crossing, p/h	0				0				0							
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763						4.9763	
Follow-Up Headway, s		2.6087			2.6087						2.6087	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		448			479						300	
Entry Volume, veh/h		435			465						291	
Circulating Flow (v _c), pc/h	300			0			748			224		
Exiting Flow (v _e), pc/h	748			224			255			0		
Capacity (C _{PCE}), pc/h		1016			1380						1098	
Capacity (c), veh/h		987			1340						1066	
v/c Ratio (x)		0.44			0.35						0.27	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.7			5.8						6.0	
Lane LOS		A			A						A	
95% Queue, veh		2.3			1.6						1.1	
Approach Delay, s/veh LOS	8.7 A			5.8 A						6.0 A		
Intersection Delay, s/veh LOS	6.9									A		

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

Default Comments
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File Name : NB Ramps AM Inez
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Groups Printed- Unshifted - Bank 2

Start Time	645AM From North					40 From East					645AM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	0	0	0	0	0	22	3	0	25	25	0	5	0	30	0	5	0	0	5	60
06:45 AM	0	0	0	0	0	2	25	2	0	29	19	0	6	0	25	1	8	1	0	10	64
Total	0	0	0	0	0	2	47	5	0	54	44	0	11	0	55	1	13	1	0	15	124
07:00 AM	0	0	0	0	0	3	28	3	0	34	37	2	10	0	49	3	8	2	0	13	96
07:15 AM	0	0	0	0	0	12	47	9	0	68	38	3	13	0	54	7	27	4	0	38	160
07:30 AM	0	0	0	0	0	29	44	21	0	94	55	7	26	0	88	10	23	6	0	39	221
07:45 AM	0	0	0	0	0	33	53	17	0	103	40	21	46	0	107	17	31	10	0	58	268
Total	0	0	0	0	0	77	172	50	0	299	170	33	95	0	298	37	89	22	0	148	745
08:00 AM	0	0	0	0	0	8	42	16	0	66	52	2	18	0	72	7	18	0	0	25	163
08:15 AM	0	0	0	0	0	7	53	5	0	65	35	0	15	0	50	5	11	1	0	17	132
08:30 AM	0	0	0	0	0	1	46	3	0	50	32	2	12	0	46	4	17	1	0	22	118
08:45 AM	0	0	0	0	0	1	58	7	0	66	23	0	14	0	37	7	8	1	0	16	119
Total	0	0	0	0	0	17	199	31	0	247	142	4	59	0	205	23	54	3	0	80	532
*** BREAK ***																					
02:15 PM	0	0	0	0	0	2	41	7	0	50	30	0	13	0	43	6	37	1	0	44	137
02:30 PM	0	0	0	0	0	2	32	6	0	40	30	2	14	0	46	14	19	1	0	34	120
02:45 PM	0	0	0	0	0	6	50	13	0	69	29	0	10	0	39	6	28	5	0	39	147
Total	0	0	0	0	0	10	123	26	0	159	89	2	37	0	128	26	84	7	0	117	404
03:00 PM	0	0	0	0	0	12	52	12	0	76	64	9	37	0	110	7	28	7	0	42	228
03:15 PM	0	0	0	0	0	12	79	11	0	102	56	4	20	0	80	5	30	7	0	42	224
03:30 PM	0	0	0	0	0	5	80	10	0	95	47	2	19	0	68	18	83	3	0	104	267
03:45 PM	0	0	0	0	0	0	63	6	0	69	46	0	17	0	63	7	35	1	0	43	175
Total	0	0	0	0	0	29	274	39	0	342	213	15	93	0	321	37	176	18	0	231	894
04:00 PM	0	0	0	0	0	1	48	4	0	53	51	0	18	0	69	8	28	2	0	38	160

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

File Name : NB Ramps AM Inez
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Groups Printed- Unshifted - Bank 2

Start Time	645AM From North					40 From East					645AM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:15 PM	0	0	0	0	0	6	54	12	0	72	43	1	23	1	68	8	32	4	0	44	184
04:30 PM	0	0	0	0	0	6	67	6	0	79	30	0	16	0	46	12	33	6	0	51	176
04:45 PM	0	0	0	0	0	4	55	14	0	73	44	1	16	0	61	8	31	1	0	40	174
Total	0	0	0	0	0	17	224	36	0	277	168	2	73	1	244	36	124	13	0	173	694
05:00 PM	0	0	0	0	0	5	55	8	0	68	56	0	16	0	72	10	26	2	0	38	178
05:15 PM	0	0	0	0	0	2	58	13	0	73	45	1	23	0	69	8	27	1	2	38	180
05:30 PM	0	0	0	0	0	1	67	14	0	82	40	0	7	0	47	6	29	1	0	36	165
05:45 PM	0	0	0	0	0	4	52	8	0	64	45	0	18	0	63	6	31	1	0	38	165
Total	0	0	0	0	0	12	232	43	0	287	186	1	64	0	251	30	113	5	2	150	688
06:00 PM	0	0	0	0	0	0	48	8	0	56	42	1	8	0	51	7	31	2	0	40	147
06:15 PM	0	0	0	0	0	1	47	9	0	57	33	1	17	0	51	5	40	1	0	46	154
Grand Total	0	0	0	0	0	165	1366	247	0	1778	1087	59	457	1	1604	202	724	72	2	1000	4382
Apprch %	0	0	0	0	0	9.3	76.8	13.9	0	1778	67.8	3.7	28.5	0.1	1604	20.2	72.4	7.2	0.2	1000	
Total %	0	0	0	0	0	3.8	31.2	5.6	0	40.6	24.8	1.3	10.4	0	36.6	4.6	16.5	1.6	0	22.8	
Unshifted	0	0	0	0	0	154	1336	242	0	1732	1046	56	438	1	1541	197	706	66	2	971	4244
% Unshifted	0	0	0	0	0	93.3	97.8	98	0	97.4	96.2	94.9	95.8	100	96.1	97.5	97.5	91.7	100	97.1	96.9
Bank 2	0	0	0	0	0	11	30	5	0	46	41	3	19	0	63	5	18	6	0	29	138
% Bank 2	0	0	0	0	0	6.7	2.2	2	0	2.6	3.8	5.1	4.2	0	3.9	2.5	2.5	8.3	0	2.9	3.1

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

File Name : NB Ramps AM Inez
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Start Time	645AM From North					40 From East					645AM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	12	47	9	0	68	38	3	13	0	54	7	27	4	0	38	160
07:30 AM	0	0	0	0	0	29	44	21	0	94	55	7	26	0	88	10	23	6	0	39	221
07:45 AM	0	0	0	0	0	33	53	17	0	103	40	21	46	0	107	17	31	10	0	58	268
08:00 AM	0	0	0	0	0	8	42	16	0	66	52	2	18	0	72	7	18	0	0	25	163
Total Volume	0	0	0	0	0	82	186	63	0	331	185	33	103	0	321	41	99	20	0	160	812
% App. Total	0	0	0	0	0	24.8	56.2	19	0		57.6	10.3	32.1	0		25.6	61.9	12.5	0		
PHF	.000	.000	.000	.000	.000	.621	.877	.750	.000	.803	.841	.393	.560	.000	.750	.603	.798	.500	.000	.690	.757
Unshifted	0	0	0	0	0	79	181	61	0	321	176	32	101	0	309	40	96	20	0	156	786
% Unshifted	0	0	0	0	0	96.3	97.3	96.8	0	97.0	95.1	97.0	98.1	0	96.3	97.6	97.0	100	0	97.5	96.8
Bank 2	0	0	0	0	0	3	5	2	0	10	9	1	2	0	12	1	3	0	0	4	26
% Bank 2	0	0	0	0	0	3.7	2.7	3.2	0	3.0	4.9	3.0	1.9	0	3.7	2.4	3.0	0	0	2.5	3.2
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	0	0	0	0	12	52	12	0	76	64	9	37	0	110	7	28	7	0	42	228
03:15 PM	0	0	0	0	0	12	79	11	0	102	56	4	20	0	80	5	30	7	0	42	224
03:30 PM	0	0	0	0	0	5	80	10	0	95	47	2	19	0	68	18	83	3	0	104	267
03:45 PM	0	0	0	0	0	0	63	6	0	69	46	0	17	0	63	7	35	1	0	43	175
Total Volume	0	0	0	0	0	29	274	39	0	342	213	15	93	0	321	37	176	18	0	231	894
% App. Total	0	0	0	0	0	8.5	80.1	11.4	0		66.4	4.7	29	0		16	76.2	7.8	0		
PHF	.000	.000	.000	.000	.000	.604	.856	.813	.000	.838	.832	.417	.628	.000	.730	.514	.530	.643	.000	.555	.837
Unshifted	0	0	0	0	0	24	270	39	0	333	208	14	87	0	309	37	171	16	0	224	866
% Unshifted	0	0	0	0	0	82.8	98.5	100	0	97.4	97.7	93.3	93.5	0	96.3	100	97.2	88.9	0	97.0	96.9
Bank 2	0	0	0	0	0	5	4	0	0	9	5	1	6	0	12	0	5	2	0	7	28
% Bank 2	0	0	0	0	0	17.2	1.5	0	0	2.6	2.3	6.7	6.5	0	3.7	0	2.8	11.1	0	3.0	3.1

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

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Site Code : 00000000
Start Date : 10/23/2023
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Groups Printed- Unshifted - Bank 2

Start Time	645PM From North					40 From East					645PM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	0	0	0	0	0	5	21	0	26	0	0	0	0	0	0	4	0	0	4	30
06:45 AM	0	0	0	0	0	0	10	17	0	27	0	0	0	0	0	2	9	0	0	11	38
Total	0	0	0	0	0	0	15	38	0	53	0	0	0	0	0	2	13	0	0	15	68
07:00 AM	0	0	0	0	0	0	8	33	0	41	0	0	0	0	0	1	13	0	0	14	55
07:15 AM	0	0	7	0	7	0	16	46	0	62	0	0	1	0	1	1	30	0	0	31	101
07:30 AM	4	0	14	0	18	0	27	49	0	76	0	0	0	0	0	3	31	0	0	34	128
07:45 AM	14	0	29	0	43	0	65	67	0	132	0	0	0	0	0	3	46	0	0	49	224
Total	18	0	50	0	68	0	116	195	0	311	0	0	1	0	1	8	120	0	0	128	508
08:00 AM	10	0	16	0	26	0	30	40	0	70	0	0	0	0	0	4	13	0	0	17	113
08:15 AM	1	0	1	0	2	0	35	32	0	67	0	0	0	0	0	4	15	0	0	19	88
08:30 AM	1	1	4	0	6	0	26	29	0	55	0	0	0	0	0	2	21	0	0	23	84
08:45 AM	0	0	2	0	2	0	34	37	0	71	0	0	0	0	0	3	15	0	0	18	91
Total	12	1	23	0	36	0	125	138	0	263	0	0	0	0	0	13	64	0	0	77	376
*** BREAK ***																					
02:00 PM	0	0	1	0	1	0	46	34	0	80	0	0	0	0	0	2	42	0	0	44	125
02:15 PM	1	0	2	0	3	0	24	35	0	59	0	0	0	0	0	0	44	0	0	44	106
02:30 PM	0	1	4	0	5	0	23	25	0	48	0	0	0	0	0	3	31	0	0	34	87
02:45 PM	1	0	2	0	3	0	29	31	0	60	0	0	0	0	0	9	39	0	0	48	111
Total	2	1	9	0	12	0	122	125	0	247	0	0	0	0	0	14	156	0	0	170	429
03:00 PM	3	0	2	0	5	0	49	41	0	90	0	0	0	0	0	6	40	0	0	46	141
03:15 PM	7	0	10	0	17	0	56	49	0	105	0	0	0	0	0	3	38	0	0	41	163
03:30 PM	57	0	56	0	113	0	52	45	0	97	0	0	0	0	0	5	54	0	0	59	269
03:45 PM	3	0	3	0	6	0	54	27	0	81	0	0	0	0	0	4	39	0	0	43	130
Total	70	0	71	0	141	0	211	162	0	373	0	0	0	0	0	18	171	0	0	189	703

Palmer Engineering

400 Shoppers Drive
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Groups Printed- Unshifted - Bank 2

Start Time	645PM From North					40 From East					645PM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	0	2	0	2	0	30	37	0	67	0	0	0	0	0	6	42	0	0	48	117
04:15 PM	1	0	5	0	6	0	38	40	0	78	0	0	0	0	0	5	36	0	0	41	125
04:30 PM	1	0	6	0	7	0	40	43	0	83	0	0	0	0	0	8	48	0	0	56	146
04:45 PM	2	0	5	0	7	0	46	26	0	72	0	0	0	0	0	4	39	0	0	43	122
Total	4	0	18	0	22	0	154	146	0	300	0	0	0	0	0	23	165	0	0	188	510
05:00 PM	1	0	3	0	4	0	32	40	0	72	0	0	0	0	0	5	40	0	0	45	121
05:15 PM	1	0	2	0	3	0	40	42	0	82	0	0	0	0	0	4	37	0	0	41	126
05:30 PM	2	0	1	0	3	0	43	31	0	74	0	0	0	0	0	8	38	0	0	46	123
05:45 PM	0	0	2	0	2	0	39	36	0	75	0	0	1	0	1	2	39	0	0	41	119
Total	4	0	8	0	12	0	154	149	0	303	0	0	1	0	1	19	154	0	0	173	489
06:00 PM	3	0	4	0	7	0	32	27	0	59	0	0	0	0	0	6	40	0	0	46	112
06:15 PM	6	0	2	0	8	0	35	30	0	65	0	0	2	0	2	7	45	0	0	52	127
Grand Total	119	2	185	0	306	0	964	1010	0	1974	0	0	4	0	4	110	928	0	0	1038	3322
Apprch %	38.9	0.7	60.5	0		0	48.8	51.2	0		0	0	100	0		10.6	89.4	0	0		
Total %	3.6	0.1	5.6	0	9.2	0	29	30.4	0	59.4	0	0	0.1	0	0.1	3.3	27.9	0	0	31.2	
Unshifted	114	2	176	0	292	0	956	966	0	1922	0	0	4	0	4	109	912	0	0	1021	3239
% Unshifted	95.8	100	95.1	0	95.4	0	99.2	95.6	0	97.4	0	0	100	0	100	99.1	98.3	0	0	98.4	97.5
Bank 2	5	0	9	0	14	0	8	44	0	52	0	0	0	0	0	1	16	0	0	17	83
% Bank 2	4.2	0	4.9	0	4.6	0	0.8	4.4	0	2.6	0	0	0	0	0	0.9	1.7	0	0	1.6	2.5

Palmer Engineering

400 Shoppers Drive
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File Name : SB Ramps INEZ
Site Code : 00000000
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Start Time	645PM From North					40 From East					645PM From South					40 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	7	0	7	0	16	46	0	62	0	0	1	0	1	1	30	0	0	31	101
07:30 AM	4	0	14	0	18	0	27	49	0	76	0	0	0	0	0	3	31	0	0	34	128
07:45 AM	14	0	29	0	43	0	65	67	0	132	0	0	0	0	0	3	46	0	0	49	224
08:00 AM	10	0	16	0	26	0	30	40	0	70	0	0	0	0	0	4	13	0	0	17	113
Total Volume	28	0	66	0	94	0	138	202	0	340	0	0	1	0	1	11	120	0	0	131	566
% App. Total	29.8	0	70.2	0		0	40.6	59.4	0		0	0	100	0		8.4	91.6	0	0		
PHF	.500	.000	.569	.000	.547	.000	.531	.754	.000	.644	.000	.000	.250	.000	.250	.688	.652	.000	.000	.668	.632
Unshifted	26	0	65	0	91	0	136	196	0	332	0	0	1	0	1	10	119	0	0	129	553
% Unshifted	92.9	0	98.5	0	96.8	0	98.6	97.0	0	97.6	0	0	100	0	100	90.9	99.2	0	0	98.5	97.7
Bank 2	2	0	1	0	3	0	2	6	0	8	0	0	0	0	0	1	1	0	0	2	13
% Bank 2	7.1	0	1.5	0	3.2	0	1.4	3.0	0	2.4	0	0	0	0	0	9.1	0.8	0	0	1.5	2.3
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	3	0	2	0	5	0	49	41	0	90	0	0	0	0	0	6	40	0	0	46	141
03:15 PM	7	0	10	0	17	0	56	49	0	105	0	0	0	0	0	3	38	0	0	41	163
03:30 PM	57	0	56	0	113	0	52	45	0	97	0	0	0	0	0	5	54	0	0	59	269
03:45 PM	3	0	3	0	6	0	54	27	0	81	0	0	0	0	0	4	39	0	0	43	130
Total Volume	70	0	71	0	141	0	211	162	0	373	0	0	0	0	0	18	171	0	0	189	703
% App. Total	49.6	0	50.4	0		0	56.6	43.4	0		0	0	0	0		9.5	90.5	0	0		
PHF	.307	.000	.317	.000	.312	.000	.942	.827	.000	.888	.000	.000	.000	.000	.000	.750	.792	.000	.000	.801	.653
Unshifted	67	0	66	0	133	0	210	151	0	361	0	0	0	0	0	18	169	0	0	187	681
% Unshifted	95.7	0	93.0	0	94.3	0	99.5	93.2	0	96.8	0	0	0	0	0	100	98.8	0	0	98.9	96.9
Bank 2	3	0	5	0	8	0	1	11	0	12	0	0	0	0	0	0	2	0	0	2	22
% Bank 2	4.3	0	7.0	0	5.7	0	0.5	6.8	0	3.2	0	0	0	0	0	0	1.2	0	0	1.1	3.1

Palmer Engineering

400 Shoppers Drive
Winchester, KY, 40391

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
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File Name : High School Entrance Inez
Site Code : 00000000
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Groups Printed- Unshifted - Bank 2

Start Time	HOLAM From North					645 From East					HOLAM From South					645 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	6
07:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	9
07:15 AM	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	40	0	40	53
07:30 AM	37	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	65	0	65	102
07:45 AM	72	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	140	0	140	212
Total	124	0	0	0	124	0	0	0	0	0	0	0	0	0	0	0	0	252	0	252	376
08:00 AM	26	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	42
08:15 AM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	15
08:30 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	10
08:45 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	6
Total	40	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	33	0	33	73
*** BREAK ***																					
02:15 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	8
02:30 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	13
02:45 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	12
Total	14	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	33
03:00 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	50
03:15 PM	33	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	72
03:30 PM	145	0	0	0	145	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	164
03:45 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	14
Total	200	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	300
04:00 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	11

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400 Shoppers Drive
Winchester, KY, 40391

File Name : High School Entrance Inez
Site Code : 00000000
Start Date : 10/24/2023
Page No : 2

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Start Time	HOLAM From North					645 From East					HOLAM From South					645 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:15 PM	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	20
04:30 PM	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	14	0	14	21
04:45 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	13	0	13	19
Total	27	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	44	0	44	71
05:00 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	10
05:15 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	8
05:30 PM	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	7
05:45 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	11
Total	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20	36
06:00 PM	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	17
06:15 PM	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	16
Grand Total	446	0	0	0	446	0	0	0	0	0	0	0	0	0	0	0	0	482	0	482	928
Apprch %	100	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		
Total %	48.1	0	0	0	48.1	0	0	0	0	0	0	0	0	0	0	0	0	51.9	0	51.9	
Unshifted	427	0	0	0	427	0	0	0	0	0	0	0	0	0	0	0	0	455	0	455	882
% Unshifted	95.7	0	0	0	95.7	0	0	0	0	0	0	0	0	0	0	0	0	94.4	0	94.4	95
Bank 2	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	27	0	27	46
% Bank 2	4.3	0	0	0	4.3	0	0	0	0	0	0	0	0	0	0	0	0	5.6	0	5.6	5

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Start Time	HOLAM From North					645 From East					HOLAM From South					645 From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	40	0	40	53
07:30 AM	37	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	65	0	65	102
07:45 AM	72	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	140	0	140	212
08:00 AM	26	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	42
Total Volume	148	0	0	0	148	0	0	0	0	0	0	0	0	0	0	0	0	261	0	261	409
% App. Total	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	
PHF	.514	.000	.000	.000	.514	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.466	.000	.466	.482
Unshifted	145	0	0	0	145	0	0	0	0	0	0	0	0	0	0	0	0	252	0	252	397
% Unshifted	98.0	0	0	0	98.0	0	0	0	0	0	0	0	0	0	0	0	0	96.6	0	96.6	97.1
Bank 2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	12
% Bank 2	2.0	0	0	0	2.0	0	0	0	0	0	0	0	0	0	0	0	0	3.4	0	3.4	2.9
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	50
03:15 PM	33	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	72
03:30 PM	145	0	0	0	145	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	164
03:45 PM	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	14
Total Volume	200	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	300
% App. Total	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	
PHF	.345	.000	.000	.000	.345	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.641	.000	.641	.457
Unshifted	187	0	0	0	187	0	0	0	0	0	0	0	0	0	0	0	0	89	0	89	276
% Unshifted	93.5	0	0	0	93.5	0	0	0	0	0	0	0	0	0	0	0	0	89.0	0	89.0	92.0
Bank 2	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	24
% Bank 2	6.5	0	0	0	6.5	0	0	0	0	0	0	0	0	0	0	0	0	11.0	0	11.0	8.0



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Michael Mays

From: Leist, Gary - Division of District Support <gary.leist@education.ky.gov>
Sent: Monday, December 18, 2023 2:44 PM
To: Michael Mays
Cc: Randy Brookshire
Subject: RE: Martin County Property Acquisition

Follow Up Flag: Follow up
Flag Status: Completed

Categories: Filed by Newforma

You don't often get email from gary.leist@education.ky.gov. [Learn why this is important](#)

Dear Michael,

We can accept the existing geotechnical investigation for the property acquisition - with the condition that appropriate additional information be obtained and used to inform the design of the future project(s).

Let me know if you have any questions.

Gary

Gary Leist, AIA, LEED AP

Facilities Branch
Division of District Support
Office of Finance and Operations

Phone: (502) 564-4326 Ext. 4404
300 Sower Blvd. – 4th floor
Frankfort, KY 40601



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From: Michael Mays <mmays@RossTarrant.com>
Sent: Wednesday, December 13, 2023 4:12 PM
To: Leist, Gary - Division of District Support <gary.leist@education.ky.gov>
Cc: Randy Brookshire <rbrookshire@RossTarrant.com>
Subject: Martin County Property Acquisition

CAUTION: This email originated from outside of the Kentucky Department of Education, Kentucky K-12 schools, or Kentucky State Government. Do not click links, open attachments or forward unless you recognize the sender and know the content is safe.

Gary,

I am writing you about the Martin County Property Acquisition. We are requesting that the requirement for a geotechnical exploration (drilling a minimum of 4 holes for subsurface conditions) be removed from the documentation required for the Acquisition. This entire site where a new facility is being considered is a KYTC fill site. This is the same fill site that we constructed on for the adjacent Martin County High School. As such, the

School District and RTA are familiar with the subsurface conditions which may be encountered during the construction of a new facility. Also, the area being considered for a new facility has not been developed on since it was filled during the KYTC project. Based on our previous knowledge of this project site, we feel that we can still develop a Site Development Cost Analysis taking the existing subsurface conditions into account and can include that in the Acquisition documentation without the District having to pay for an additional geotechnical report. I have attached the KYTC fill plans from 2011 for the area as well as the previous geotechnical exploration performed for the High School project.

Please let me know if you have any questions or concerns.

Thanks

MICHAEL B. MAYS PE
associate | senior civil engineer

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p 859.254.4018 x1353 | www.rosstarrant.com | [facebook](https://www.facebook.com/rostantarchitects)

**Report of Geotechnical Exploration
New Martin County High School
Inez, Kentucky
S&ME Project No. 1183-15-118**



Prepared for:
Ross Tarrant Architects
101 Old Lafayette
Lexington, Kentucky 40502

Prepared by:
S&ME, Inc.
2020 Liberty Road, Ste 105
Lexington, KY 40505

April 19, 2016



April 19, 2016

Ross Tarrant Architects
101 Old Lafayette
Lexington, Kentucky 40502

Attention: Mr. Laith Ross, P.E., LEED AP

Reference: **Report of Geotechnical Exploration**
New Martin County High School
Inez, Kentucky
S&ME Project No. 1183-15-118

Dear Mr. Ross:

S&ME, Inc. has completed the geotechnical exploration for the new Martin County High School located on the north side of HY645 across from Abe Cabin Fork Road in Inez, Kentucky. The purpose of this exploration was to obtain subsurface data at the site pursuant to construction of a new high school campus. We conducted this project in general accordance with our proposal 11-1500233, dated December 4, 2015, as authorized by you. This report explains our understanding of the project, documents our findings, and presents our conclusions and engineering recommendations.

S&ME appreciates the opportunity to be of service to you on this project. We look forward to helping you through project completion. If you have any questions, please call.

Respectfully submitted,
S&ME, Inc.

Andrew M. Fiehler, P.E.
Project Geotechnical Engineer
Licensed Kentucky 23,977

Craig S. Lee, P.E.
Senior Geotechnical Engineer



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Appendices

Appendix I – Site Location Plan / Boring Location Plan

Appendix II – Test Boring Records

Appendix III – Laboratory Test Results



1.0 INTRODUCTION / BACKGROUND INFORMATION

S&ME, Inc. has completed the geotechnical exploration for the new Martin County High School located on the north side of Highway 645 across from Abe Cabin Fork Road in Inez, Kentucky. The purpose of this exploration was to obtain subsurface data at the site pursuant to construction of a new high school campus. We conducted this project in general accordance with our proposal 11-1500233, dated December 4, 2015, as authorized by Mr. Laith Ross. This report explains our understanding of the project, documents our findings, and presents our conclusions and engineering recommendations.

2.0 PROJECT INFORMATION

Currently the plan is to remove the top/end of the ridge to create a flat area to accommodate the school building. The building pad area will be over-excavated to an elevation of 867.0 feet and backfilled with crushed stone to the building subgrade elevation. The current planned finished floor elevation is 871.0 feet msl. The planned excavation will result in a rock cut (highwall) along the north boundary that is about 160 feet tall. The area around the ridge was recently filled with highway cut spoil generated during the extension of Highway 645 adjacent to the site. Mapping of the filled valley from before and after the filling indicates the depth of the spoil fill is up to 170 feet deep.

The building construction is currently divided into four portions: the base bid (main building footprint), Auditorium (Alternate #1), Gymnasium Support Spaces (Alternate #3), and the future Auto Tech Center (ATC). Alternate #2 is for interior fitting options of the auditorium. The base bid and auditorium portions of construction fit within the rock bench, however, the Auto Tech and Gym Support Spaces will extend beyond the bench and onto the waste fill. For example, the northwest corner of the Auto Tech area extends as far as 40 feet onto the waste fill.

Construction and planning considerations include providing an excavatable zone under the building for installing underground utilities, designing a safe and economical cut slope to reduce excavation and maximize usable area, providing uniform support for grade supported floor slabs, and designing adequate transitioning of foundations from the rock cut bench to the waste fill. The proposed building consists of one and two-story areas with load bearing masonry, ground supported slab on grade with elevated slabs for the second floor.

3.0 SITE GEOLOGY

The *Geologic Map of the Inez Quadrangle, Kentucky* (1963) published by the U.S. Geological Survey, indicates the site is underlain by the Breathitt Formation of the Middle Pennsylvanian Geologic Age. The Breathitt Formation is comprised of sandstone, siltstone, shale, limestone, coal and underclay. The sandstone is thin to very thick bedded, commonly crossbedded, medium grained and micaceous. The

shale is medium to dark gray, generally silty and micaceous, and is interbedded with medium gray siltstone.

The Upper Peach Orchard coal bed is mapped at an approximate elevation of 950 feet, which is near the middle elevation of the planned rock cut. The Upper Peach Orchard is noted as ranging from four to 10 feet thick and often occurs as split seams separated by shale or siltstone. Our rock coring encountered a four foot thick seam of coal within a horizon of shale at the approximate mapped elevation of the Upper Peach Orchard. An un-named coal bed is mapped at an approximate elevation of 800 feet which is approximately 70 feet below the planned floor elevation of the school and was beyond the limits of our coring.

We explored the refusal materials at this site using rock coring techniques in boring B-1, which was located at the top of the planned cut. The results of the rock coring confirmed the geologic mapping of the Breathitt Formation. The Test Boring records in Appendix II provide more detailed descriptions of the subsurface strata.

Regional dip at this site is to the north-northwest at about 60 feet per mile. The significance of the regional dip is that the dip generally corresponds to the direction of subsurface water flow.

4.0 EXPLORATION METHODS

The procedures used by S&ME for field and laboratory sampling and testing are in general accordance with ASTM procedures and established engineering practice. Appendix B contains brief descriptions of the procedures used in this exploration.

4.1 Field Exploration

S&ME drilled a total of five test borings for this project. The test borings were numbered B-1 through B-5. During drilling, Andrew Fiehler, P.E. and Cate Burton, G.I.T. of S&ME, Inc. were on-site to observe pertinent site features, surface indications of the site geology, and to direct the drilling operations. S&ME Professional Land Surveyor Alan Leake, P.L.S. established the boring locations using survey grade Global Positioning System (GPS) survey equipment. The boring locations are shown on Figure 2 in Appendix A. The boring locations were selected to correspond with the original building location. The boring locations were selected based on the original building layout. The boring locations noted on the *Boring Location Plan* are shown as-drilled relative to the revised building location.

The borings were advanced by a track mounted, Diedrich D-50 drill rig using casing advancer system. The casing advancer was advanced until at least five feet of consistent resistance was encountered to verify that bedrock was encountered. We obtained samples using a split-barrel sampler driven by an automatic hammer system in general accordance with ASTM D1586. The refusal materials were sampled using rock coring techniques in boring B-1 for the proposed rock cut analysis and design. The stratification lines

shown on the Test Boring Records in Appendix B represent the approximate boundaries between soil or rock types. The transitions may be more gradual than shown.

4.2 Laboratory Testing

The recovered samples were sealed in storage bags and returned to our laboratory. The samples were visually classified by Mr. Fiehler and Ms. Burton in general accordance with the Unified Soil Classification System (ASTM D2487). We performed a standard Proctor test and a California Bearing Ratio test on a representative composite bulk sample of the existing spoil fill. We also performed Slake Durability Index (SDI) testing of representative shale rock core samples. The laboratory data is included in Appendix C.

5.0 SUBSURFACE CONDITIONS

The following is a general description of the materials encountered in our borings. The individual boring logs are included in Appendix B.

Boring B-1 was advanced at the top of the proposed rock cut. Beneath about two feet of sand and weathered sandstone pieces, we encountered weathered sandstone to a depth of about six and a half feet. Beginning at a depth of six and a half feet we began rock coring and recovered sandstone, shale, coal, and underclay to a total depth of 165.5 feet. The majority of the recovered rock core consisted of sandstone, some with interbedded shale seams. A horizon of shale about 18 feet thick with a four foot thick coal bed was encountered from a depth of about 65 feet to 83 feet (elevations of 957.5 feet to 939.7 feet). Rock core recovery was over 95 percent with exception of two of the core runs in the shale and coal zone at 28 percent and 60 percent. Rock Quality Designations (RQD) of the recovered core varied from zero percent (in the poorest recovery core run) to 98 percent. The average RQD was about 75 percent. The recovered core often broke at the interbedded shale layers within the sandstone resulting in most of the lower measured RQD values.

Borings B-2 through B-5 were advanced in the existing spoil fill near the original building plan corners to evaluate the depth of spoil. The depth of the spoil fill at these boring locations ranged from about 80 feet at boring B-2 to about 12 feet at boring B-3. The spoil fill consisted of varying amounts and sizes of sandstone and shale fragments with sand and clay.

A composite bulk sample of the spoil fill described as a light brown to brown silty gravel with sand was subjected to standard Proctor and California Bearing Ratio (CBR) testing. The tested sample had a standard Proctor maximum dry density of 128.0 pounds per cubic foot (pcf) at an optimum moisture content of 9.3 percent. The CBR test of the tested sample indicated a corrected CBR value of 5.6 percent

For more detailed descriptions, please refer to our Test Boring Records in Appendix II and Laboratory Data in Appendix III.

A casing advancer was used to drill the borings. The casing advancer uses water to flush the cutting from the hole and cool the bit. Thus water level measurements from borings drilled with a casing advancer are not representative of the actual groundwater conditions. Please refer to the following section of this report titled *Water Management* for additional details. The borings were backfilled upon completion due to safety concerns.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Our conclusions and recommendations are based on the design information furnished to us, our understanding of the project, the data obtained from the previously described geotechnical exploration, and our past experience. They do not reflect variations in the subsurface conditions which may exist within the spoil fill between our borings and in unexplored areas of the site. If such variations become apparent during construction, it will be necessary for us to re-evaluate our conclusions and recommendations based upon on-site observation of the conditions.

GENERAL DISCUSSION

The proposed building (base bid) is almost completely situated on the excavated bedrock bench. The new pavement areas and athletic fields are over spoil fill placed during the construction of the new adjacent highway extension.

Development on any spoil fill site includes an inherent risk of unwanted settlement and associated building distress. The degree of risk is a function of the understanding of the subsurface conditions and the ability of the engineer to correctly model the site. The spoil should not be considered a foreign or problematic material in and of itself. It is a geomaterial, consisting of sandstone and degraded shale fragments and their derived soil-like materials. The most significant issues with this site are mass settlement potential, differential settlement potential and variable support of floor slabs, foundations and pavement. In deep fill sites, mass settlement of the fill material occurs over time. Generally, it is accepted that this initial consolidation takes about 7 to 10 years.

While the spoil fill will not significantly impact the base bid portion of the school structure, it could impact the Gymnasium Support spaces, the future ATC addition, planned pavement areas, and future buildings around the athletic fields. Our borings were located based on a previous configuration of the school. Along the initial western side of the gymnasium support spaces and the future ATC, borings B-2, B-3 and B-4 encountered spoil fill depths of about 80 feet, 12 feet and 21 feet, respectively. While the northwest corner (around B-2) requires only about three feet of additional fill to achieve the planned subgrade elevation, about 10 feet of fill is required near boring B-3 and about 30 feet of fill is required near boring B-4. The actual limits of the gymnasium support spaces and the ATC relative to the planned rock cut bench will determine if over-excavation of shallow foundations to expose intact bedrock or deep foundations will be required. Over-excavation and backfilling with lean concrete to the planned foundation elevation to depths of less than about 12 to 14 feet can typically be performed with

conventional excavation equipment. Where intact bedrock is deeper, a deep rock bearing foundation system such as Auger Cast Piles (ACP), micro-piles, or drilled shafts will be required.

7.0 RECOMMENDATIONS

The development of the site will consist of the construction/excavation of a rock cut high wall approximately 160 feet tall and placement of the excavated materials to the planned site grades. The following sections discuss our recommendations for the design and construction of the rock cut as well as site preparation, foundation design and construction, floor slab design and construction, and pavement design and construction.

7.1 Rock Cut Construction

We recommend the rock cut consist of the following profile:

- 3:1 H:V Overburden slope above bedrock at the top of the cut
- ½:1 slope from elevation 957 feet to top of bedrock which is at an elevation of 1020 feet at the crest but slopes downhill to the east and west
- 15 feet wide bench at the top of the shale (an elevation of 957 feet)
- ¾:1 slope from elevation 932 feet to 957 feet
- 15 feet wide bench at the top of the sandstone (an elevation of 932 feet)
- ¼:1 slope from elevation 932 feet to 900 feet
- 15 feet wide intermediate bench in the sandstone at an elevation of 900 feet
- ¼:1 slope from 900 feet to base of cut at 867 feet

A 5-foot tall rockfall catchment berm is recommended. We recommend that the berm consist of a 2:1 H:V or flatter slopes with a crest that is at least 2-feet wide. The top of the berm at the school side should be located a distance of 30 feet away from the base of the rock cut to catch loose rock pieces. A drawing showing the above described rock cut and catchment berm is included in the appendix.

S&ME performed rockfall simulation analyses using the Colorado Rockfall Simulation Program (CRSP Version 4.0) software. At the design section, a geologic cross section was developed based on the recovered rock core from boring B-1. The cut slope section was evaluated by simulating 1,000 rockfall events using an average rock size of three feet for both spherical and discoidal shaped rocks. We evaluated short-term (end-of-construction) and long-term conditions. In the long-term analyses we used a 3H:1V build-up of rock debris (from weathering) on the benches and at the toe of the cut slopes.

Without a catchment berm, our analysis indicates that rocks falling from the cut face “roll-out” as far as 60 feet from the base of the rock cut. Our analysis with the modeling of the above described catchment berm shows the berm stops rocks from passing the berm.

7.2 Site Preparation

Prior to beginning site preparation operations, remove the surface organic material (trees, grass and weeds). Organic material (organic content greater than 5 percent) should not be utilized as structural fill material.

The fill material required to construct the proposed site grades will be generated by the excavation/construction of the rock cut. The majority of the rock cut consists of durable sandstone; however, there is a zone of shale, clay and coal between elevations 932 feet and 957 feet that is non-durable. Durable and non-durable materials can both be used as fill on the site but they must be used in different areas as well as placed and compacted differently.

The current plan is to over-excavate the building pad to an elevation of 967 feet which is four feet below the planned finished floor elevation. The building pad will be backfilled with compacted structural fill to the planned subgrade elevation. According to the provided grading plan the pavement areas require about one foot to about 35 feet of new fill.

7.3 Structural Fill Placement

After the organic material has been stripped from the planned fill areas, the site may be brought to the design subgrade levels with structural fill. We expect that a significant percentage of the material removed during the rock cut construction will be greater than 12 inches in diameter. As such, either crushing of the material or removal of the larger pieces will likely be required and should be included in the project budget.

Within the building pad, the new structural fill consisting of durable sandstone should be placed in 16-inch lifts with a maximum particle size limited to 8-inches in any dimension. Crushing of the sandstone for use as structural fill in the building pad will likely be the most economical method for creating the recommended maximum particle size. Larger pieces should either be culled from the fill or broken down to the acceptable size. The top four feet of fill beneath pavement areas should be limited to a maximum particle size of 12 inches and placed in maximum loose lifts of 2 feet and compacted. This layer should include a blend of particle sizes to that voids between larger rocks are filled with smaller rock pieces. Rock pieces greater than 12 inches can be placed in deeper portions of the fill or non-structural areas such as lawns or out-slopes.

The non-durable shale component of the rock cut will degrade when exposed to water thus it should be placed in non-structural areas such as landscaping or lawn areas. The fill placement process for non-durable shale must accelerate this breakdown so that it does not occur after the fill is constructed, which leads to settlement. Any shale placed as fill should **not be placed as durable rock fill**. The shale

component of the fill will require successive wetting and mechanical breaking down of the material into the consistency of soil. The shale should be placed in maximum loose lifts of 8 inches and wetted to accelerate slaking. After wetting, disc the shale and compact with heavy compaction equipment. The *2012 Kentucky Transportation Cabinet Standard Specifications for Road and Bridge Construction* Section 206.03.02 D provides additional details for the placement of non-durable shale.

It has been our experience that rock fill is most adequately compacted by blading the lift into place, applying compactive effort with a CAT 825 or similar compactor, and finish rolling with a loaded scraper or haul truck. The compactor breaks down the material and seats the cobbles while the heavy rubber tired equipment provides the compaction. Adequacy of the compaction is determined by a trained eye of an experienced geotechnician with data provided by the nuclear density gauge. Our evaluation criteria consists of the following:

- Lift thickness
- Particle size and gradation of material
- Intensity and uniformity of compactive effort
- Response of the lift to construction traffic
- Moisture content
- Dry density

The dry density is the least important factor in assessing the adequacy of the compactive effort and approval of the shot rock fill. If the contractor uses the recommended equipment, conforms with the material specifications, applies a uniform effort over the entire fill lift, traverses over the fill lift under the normal course of placing subsequent material, and the moisture content is within an acceptable range, the fill performance should be acceptable regardless of the density values obtained in the field. Therefore, only highly trained and qualified personnel should monitor fill placement as they can evaluate the adequacy of the compactive effort.

During construction, particle size and standard Proctor testing of proposed borrow soil should be performed by S&ME for compliance with the project specifications before they are used as fill material. If soils are imported to the site, we recommend that the soils be tested for conformance with the project specifications before being transported to the site. Please realize that the laboratory conformance testing usually takes three to four business days to complete. Therefore, the Contractor should plan accordingly. We recommend that monitoring of fill placement be performed on a full-time basis by S&ME. Deleterious materials such as construction debris or organic material should be excluded from the new fill. Particles in excess of the specified gradation requirements should be excluded from the fill or crushed to specified sizes.

7.4 Foundation Recommendations

We recommend the shallow foundations bearing on intact sandstone be designed for a maximum allowable bearing pressure of 10,000 psf. We anticipate that the excavated intact sandstone bedrock surface will require isolated leveling during foundation construction. A layer of lean concrete can be used where greater than 4-inches is required to re-establish the bearing elevation. Where the bedrock surface is within 4-inches of the foundation elevation, we recommend using foundation concrete rather than lean concrete.

The majority of the base bid building foundations will bear at an elevation of 867.0 feet which is the planned elevation for the rock cut over-excavation. We expect that the foundations will likely have to be stepped down/over-excavated where the corners of the buildings extend beyond the original bedrock ontour of 867.0 feet. Where intact bedrock is at a lower elevation, the foundation excavation should be extended to expose intact bedrock. In these areas, the foundations can either be stepped down or backfilled with lean concrete to achieve the planned foundation elevation.

Our boring plan was developed based on the original building footprint. Since our exploration the building footprint has been revised. The result is that the bedrock elevation at the outer corners of the ATC and Gymnasium Support Spaces is unknown. It is possible that bedrock in these areas is deeper than can be excavated economically and safely. It may be more economical to construct a deep rock bearing foundation system such as Auger Cast Piles (ACP), micro-piles or drilled shafts at the outer limits of these planned areas. Prior to designing and constructing the Gymnasium Support Spaces and the ATC, we recommend additional drilling at the outer building limits to define the bedrock surface.

Table 1805.2.1 of the 2013 Kentucky Building Code indicates that a minimum frost protection depth of 33 inches below finished grade is required in Martin County, Kentucky; however, foundations bearing on intact bedrock do not require frost protection. We recommend shallow foundations have a minimum footing width of 24 inches. This dimension allows for hand cleaning of footing subgrades disturbed by the excavation process and the placement of reinforcing steel. The reinforcing steel should be clean and dry prior to concrete placement.

The current seismic design procedures outlined in the NEHRP (National Earthquake Hazard Reduction Program) guidelines mandate structural design loads to be based on the seismic coefficients of the site. Based on the results of our exploration and the geology of the area, we recommend **a site seismic classification of "B"** for this project site. This classification is further defined in Table 1613.5.2 in the 2013 Kentucky Building Code.

7.5 Floor Slab Recommendations

The floor slab subgrade will consist of controlled backfill placed on the over-excavated bedrock bench.

We recommend that control joints be placed in the slab around columns and along footing supported walls to reduce cracking due to shrinkage during curing. We suggest a layer of compacted dense graded aggregate (DGA) directly beneath the slab to enhance support and provide a working base for construction of the floor slab. The actual DGA thickness should be based on the floor slab design, but our experience suggests a minimum depth of 4 inches. The DGA should be moist, but not wet, as the concrete is placed to reduce curling of the slab as the concrete cures. We recommend that ACI 302.1R-96 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" be followed for design and placement of concrete floor slabs. A copy of ACI 302.1R-96 is included in the Appendix of this report for your use.

Between completion of grading and slab construction, floor slab subgrades are often disturbed by weather, footing and utility line installation, and other construction activities. For this reason, the subgrade should be evaluated by an S&ME engineer immediately prior to constructing the slab. If the subgrade is not evaluated by an S&ME engineer prior to concrete placement, S&ME must be held harmless for any claims due to poor performance of the floor slab.

7.6 Pavement Recommendations

Flexible Asphalt Pavement – In order for pavement to perform satisfactorily, the subgrade soils must have sufficient strength and be stable enough to avoid deterioration from construction traffic and support the paving equipment. In addition, the completed pavement section must resist freeze/thaw cycles and wheel loads from traffic. Generally, construction traffic loading is more severe than the traffic after construction.

The recommended pavement section given below is based on the assumption that the subgrade is prepared in accordance with the recommendations presented earlier in this report, and that any newly placed fill soils for the pavement subgrade have been compacted to at least 98 percent of the standard Proctor maximum dry density at moisture contents ranging from ± 3 percent of the soil's optimum moisture content as determined by the standard Proctor test.

Minimizing infiltration of water into the subgrade and rapid removal of subsurface water are essential for the successful long-term performance of the pavement. Both the subgrade and the pavement surface should have a minimum slope of one-quarter inch per foot to promote surface drainage. Edges of the pavement should provide a means of water outlet by extending the aggregate base course through to side ditches. Side ditches should be at least 2-feet below the pavement surface.

The materials should conform and be placed and compacted in accordance with the applicable sections of the Kentucky Transportation Cabinet (KTC) Standard Specifications for Road and Bridge Construction, latest edition.

We used the American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement Structures (1993) as a basis for our flexible pavement thickness analysis. The total



pavement thickness requirement is a function of the California Bearing Ratio (CBR). Laboratory testing results yielded a corrected CBR value of 5.6 percent. As such, we based our design on a CBR value of **5 percent**.

S&ME should be retained to test any soils to be placed as fill to determine if it meets the criteria set forth in this report. If testing of the soils indicates that the actual CBR value is less than 5 percent, S&ME must re-evaluate the following pavement thickness recommendations, and acknowledge any changes in writing.

The following pavement design recommendations are based on the assumptions of a 20 year service life, a CBR value of 5 percent, and 30,000 ESAL's for heavy duty pavement. If actual or anticipated traffic volumes exceed the 30,000 ESAL value used for this design, S&ME must re-evaluate the pavement thickness recommendations. The total pavement thickness requirement is obtained from the AASHTO nomograph in terms of a structural number (SN), a weighted sum of the pavement layer thicknesses accounting for their structural and drainage properties.

S&ME recommends that the pavement section (base stone and asphalt) be placed after the majority of the new building construction has been completed. S&ME recommends that both binder and surface mix asphalt be placed sequentially before traffic is allowed on the new pavement. S&ME recommends that the light duty pavement section be used for the student and faculty parking areas, and that the heavy duty pavement section be used for drive lanes, bus loops and access roads.

The following pavement thickness design recommendations, and the stabilization recommendations presented previously in this report will not provide a sufficient construction haul road design. Do not construct the pavement section until substantial completion of the new building construction. If construction sequencing requires that new pavement areas be constructed prior to substantial completion of the building, then contact S&ME and we can modify our pavement design recommendations to accommodate the construction traffic.

S&ME recommends the following flexible asphalt pavement sections for this project:

Flexible Asphalt Pavement

MATERIAL	LIGHT DUTY	HEAVY DUTY	KY TRANSPORTATION CABINET SPECIFICATION
Asphalt Surface Course	1-½ Inches	1-½ Inches	Section 400
Asphalt Binder Course	3 Inches	4 Inches	Section 400
Dense Graded Aggregate	6 Inches	8 inches	Section 303

Our pavement recommendations are based on the assumption that S&ME is retained to monitor the installation of the asphalt and base, check the installed thickness of the aggregate materials, and perform in-

place density tests. Asphalt placement should be monitored full-time to observe placement and compaction procedures. Asphalt samples should be collected periodically and tested for compliance with the project specifications.

Impervious Concrete Pavement - We recommend that in areas where heavy, concentrated loads (i.e. - dumpster area, entrances, etc.) are expected or in desired areas, a rigid (concrete) pavement section will be used. For dumpster areas, we recommend that rigid pavement be extended beyond the dumpster pad for the entire length of the garbage truck. The pavement subgrade should be stabilized in accordance with the recommendations for the asphalt paved areas, and the related recommendations in this report. We recommend that the concrete pavement be supported by at least a 6 inch layer of compacted DGA. The DGA should be compacted to a minimum of 98 percent of the standard Proctor maximum dry density. We recommend a minimum concrete section of 8 inches for this site. The concrete should be air-entrained and have a 28-day compressive strength of 4,000 psi. Joint spacing should be at a maximum spacing of 15 feet each way.

8.0 FOLLOW-UP SERVICES

Our services should not end with the submission of this geotechnical report. S&ME should be kept involved throughout the design and construction process to maintain continuity and to verify that our recommendations are properly interpreted and implemented. To achieve this, we should be retained to review project plans and specifications with the designers to see that our recommendations are fully incorporated. We also should be retained to monitor and test the site preparation, foundation and building construction. If we are not allowed the opportunity to continue our involvement on this project, we cannot be held responsible for the recommendations in this report.

This project will be governed by the 2013 Kentucky Building Code. Foundation construction will be a critical aspect of this project. Our familiarity with the site and with the foundation recommendations will make us a valuable part of your construction quality assurance team. In addition, a qualified engineering technician should observe and test all structural concrete and steel. Only experienced, qualified persons trained in geotechnical engineering and familiar with foundation construction should be allowed to monitor and test foundations. Normally, full-time monitoring of the site work and foundation installation is appropriate.

9.0 LIMITATIONS OF REPORT

This report has been prepared for the exclusive use of Ross Tarrant Architects for specific application to this project. Our conclusions and recommendations have been prepared using generally accepted standards of geotechnical engineering practice in the Commonwealth of Kentucky. No other warranty is expressed or implied. S&ME is not responsible for the conclusions, opinions, or recommendations of others based on this data.



Our conclusions and recommendations are based on the design information furnished to us, the data obtained from the geotechnical exploration, and our experience. They do not reflect variations in the subsurface conditions that are likely to exist between our borings, and in unexplored areas of the site due to the inherent variability of the subsurface conditions in this geologic region. If such variations are found during construction, re-evaluating our conclusions and recommendations will be necessary.

If changes are made in the overall design, elevations, structural loads, or location of the building and pavement areas, the recommendations contained in this report will not be considered valid unless our firm has reviewed the changes and modified or verified our recommendations in writing. You should retain S&ME to review the foundation plans and the applicable portions of the project specifications when the designers complete the design. This review will allow us to check whether these documents are consistent with the intent of our recommendations. The Test Boring Records present our interpretation of the subsurface conditions at specific boring locations at the time of our exploration. The stratification lines represent the approximate boundary between soil types. The actual transitions may be more gradual than implied.

For more information on the use and limitations of this report, please read the ASFE document that follows this page.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBC-Member geotechnical engineer for more information.



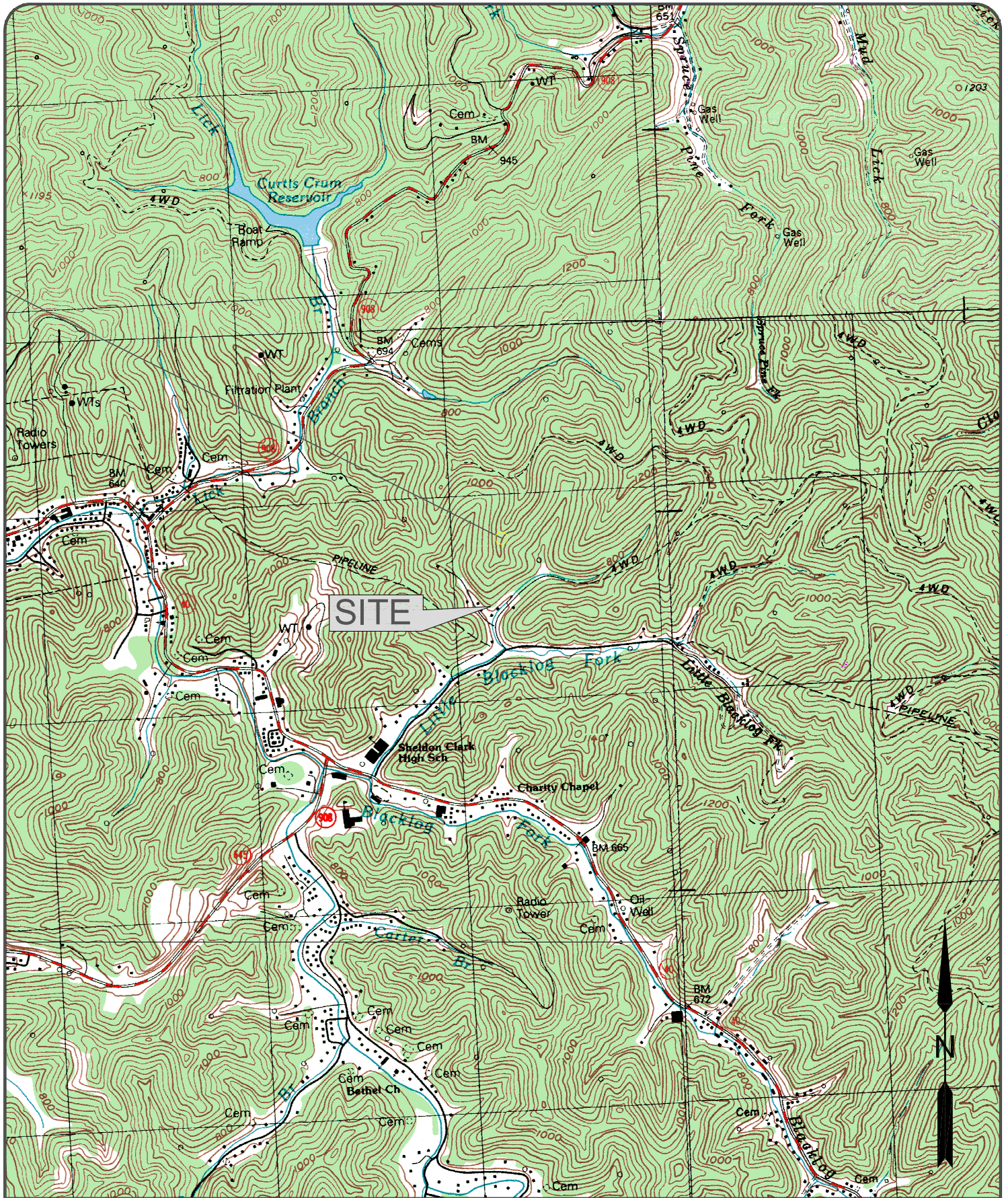
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Appendix I – Site Location Plan / Boring Location Plan

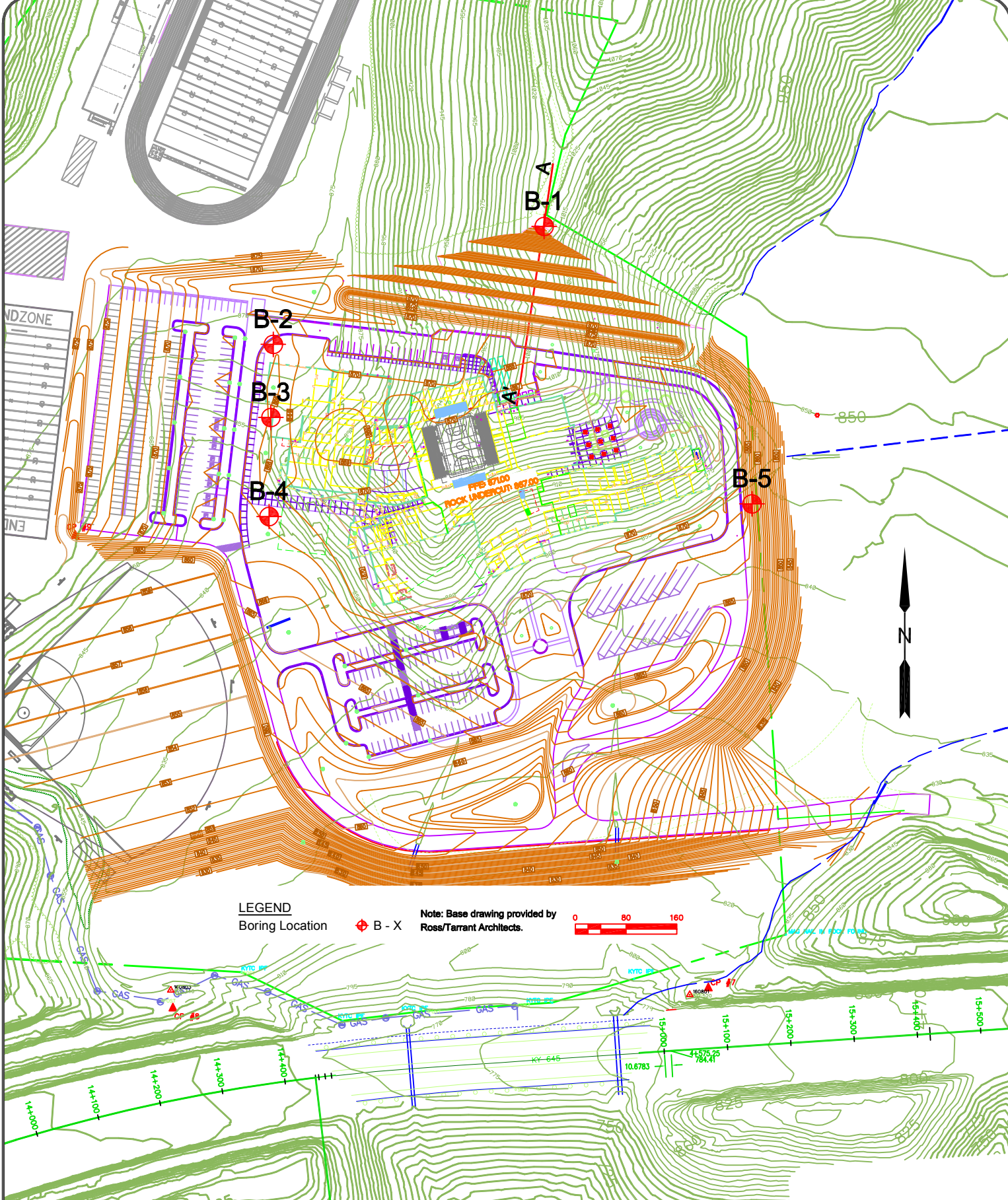


SCALE: 1" = 2000'
 DATE: 1/13/2016
 DRAWN BY: LHR
 PROJECT NO: 1183-15-118

S&ME
 WWW.SMEINC.COM
 2020 LIBERTY ROAD, SUITE 105
 LEXINGTON, KENTUCKY 40505
 PHONE: 859-293-5518

VICINITY MAP
MARTIN COUNTY HIGH SCHOOL
INEZ, KENTUCKY

FIGURE NO.
1



SCALE: 1" = 200'
 DATE: 1/13/2016
 DRAWN BY: LHR
 PROJECT NO: 1183-15-118



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 PHONE: 859-293-5518

**BORING LOCATION PLAN
 MARTIN COUNTY HIGH SCHOOL
 INEZ, KENTUCKY**

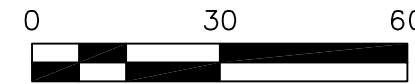
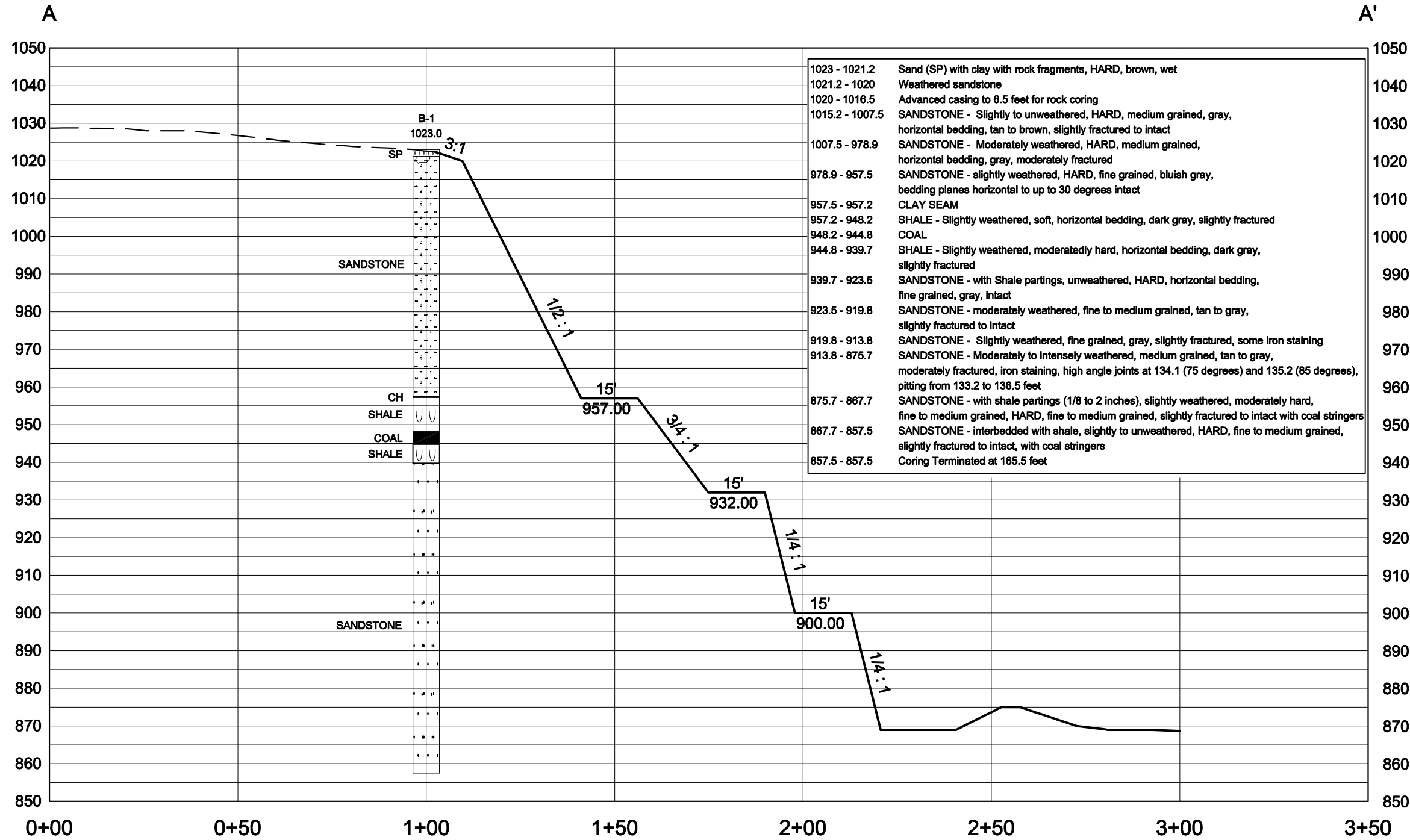
FIGURE NO.
2

**SITE PROFILE
MARTIN COUNTY HIGH SCHOOL
INEZ, KENTUCKY**



WWW.SMEINC.COM
2020 LIBERTY ROAD, SUITE 105
LEXINGTON, KENTUCKY 40505
PHONE: 859-293-5518

SCALE: 1" = 30'
DATE: 1/13/2016
DRAWN BY: LHR
PROJECT NO: 1183-15-118



Appendix II – Test Boring Records

TEST BORING RECORD LEGEND

FINE AND COARSE GRAINED SOIL INFORMATION

COARSE GRAINED SOILS (SANDS & GRAVELS)		FINE GRAINED SOILS (SILTS & CLAYS)			PARTICLE SIZE	
N	Relative Density	N	Consistency	Qu, KSF Estimated		
0-4	Very Loose	0-1	Very Soft	0-0.5	Boulders	Greater than 300 mm (12 in)
5-10	Loose	2-4	Soft	0.5-1	Cobbles	75 mm to 300 mm (3 to 12 in)
11-20	Firm	5-8	Firm	1-2	Gravel	4.74 mm to 75 mm (3/16 to 3 in)
21-30	Very Firm	9-15	Stiff	2-4	Coarse Sand	2 mm to 4.75 mm
31-50	Dense	16-30	Very Stiff	4-8	Medium Sand	0.425 mm to 2 mm
Over 50	Very Dense	Over 31	Hard	8+	Fine Sand	0.075 mm to 0.425 mm
					Silts & Clays	Less than 0.075 mm









































The **STANDARD PENETRATION TEST** as defined by ASTM D 1586 is a method to obtain a disturbed soil sample for examination and testing and to obtain relative density and consistency information. A standard 1.4-inch I.D./2-inch O.D. split-barrel sampler is driven three 6-inch increments with a 140 lb. hammer falling 30 inches. The hammer can either be of a trip, free-fall design, or actuated by a rope and cathead. The blow counts required to drive the sampler the final two increments are added together and designate the N-value defined in the above tables.

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)		ROCK HARDNESS	
Percent RQD	Quality		
0-25	Very Poor	Very Hard:	Rock can be broken by heavy hammer blows.
25-50	Poor	Hard:	Rock cannot be broken by thumb pressure, but can be broken by moderate hammer blows.
50-75	Fair	Moderately Hard:	Small pieces can be broken off along sharp edges by considerable hard thumb pressure; can be broken with light hammer blows.
75-90	Good	Soft:	Rock is coherent but breaks very easily with thumb pressure at sharp edges and crumbles with firm hand pressure.
90-100	Excellent	Very Soft:	Rock disintegrates or easily compresses when touched; can be hard to very hard soil.

$\text{Recovery} = \frac{\text{Length of Rock Core Recovered}}{\text{Length of Core Run}} \times 100$	$\text{RQD} = \frac{\text{Sum of 4 in. and longer Rock Pieces Recovered}}{\text{Length of Core Run}} \times 100$	63 REC NQ 43 RQD	Core Diameter Inches BQ 1-7/16 NQ 1-7/8 HQ 2-1/2
-------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------	------------------------	--------------------------------------------------------------

SYMBOLS

KEY TO MATERIAL TYPES				SOIL PROPERTY SYMBOLS	
	Topsoil		High Plasticity Inorganic Silt or Clay	N:	Standard Penetration, BPF
	Asphalt		Organic Silts/Clays	M:	Moisture Content, %
	Crushed Limestone		Well-Graded Gravel	LL:	Liquid Limit, %
	Fill Material		Poorly-Graded Gravel	PI:	Plasticity Index, %
	Shot-rock Fill		Silty Gravel	Qp:	Pocket Penetrometer Value, TSF
	Low Plasticity Inorganic Silt		Clayey Gravel	Qu:	Unconfined Compressive Strength Estimated Qu, TSF
	High Plasticity Inorganic Silt		Well-Graded Sand	γ_D :	Dry Unit Weight, PCF
	Low Plasticity Inorganic Clay		Poorly-Graded Sand	F:	Fines Content
	High Plasticity Inorganic Clay		Silty Sand	SAMPLING SYMBOLS	
	Low Plasticity Inorganic Silt or Clay		Clayey Sand		Undisturbed Sample
			Peat		No Sample Recovery
			Limestone		Split-Spoon Sample
			Sandstone		Water Level After Drilling
			Siltstone		Rock Core Sample
			Claystone		Extended Time Reading
			Weathered Rock		Auger or Bag Sample
			Dolomite		
			Granite		
			Gneiss		
			Schist		
			Amphibolite		
			Metagraywacke		
			Phyllite		



TEST BORING RECORD

BORING NO: **B-1**

PROJECT: New Martin County High School		JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY			
ELEVATION: 1,023.0		BORING STARTED: 12/17/2015	BORING COMPLETED: 12/21/2015
DRILLING METHOD: 4" HSA		RIG TYPE: D-50	HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used in rock coring.		BORING DIAMETER (IN): 4	SHEET 1 OF 3
Remarks:			

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)					BLOWS /6"				
									0	10	20	30	40		50			
	1023.0	0	Sand (SP) with clay with rock fragments, HARD, brown, wet			4												
	1021.2		Weathered sandstone															
	1020.0		Advanced casing to 6.5 feet for rock coring															
	1016.5	5	Sandstone - Moderately to intensely weathered, fine to medium grained, HARD, horizontal bedding, tan to brown, intensely fractured.			45/48	46											
		10	SANDSTONE - Slightly to unweathered, HARD, medium grained, gray, horizontal bedding, tan to brown, slightly fractured to intact			60/60	93											
	1007.5	15	SANDSTONE - Moderately weathered, HARD, medium grained, horizontal bedding, gray, moderately fractured			60/60	33											
		20				60/60	57											
		25				60/60	47											
		30				60/60	66											
		35				57/60	66											
		40				56/60	77											
	978.9	45	SANDSTONE - slightly weathered, HARD, fine grained, bluish gray, bedding planes horizontal to up to 30 degrees intact			59/60	53											
		50				59/60	95											
		55				55/60	80											
		60																

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-1**

PROJECT: New Martin County High School	JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY		
ELEVATION: 1,023.0	BORING STARTED: 12/17/2015	BORING COMPLETED: 12/21/2015
DRILLING METHOD: 4" HSA	RIG TYPE: D-50	HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used in rock coring.	BORING DIAMETER (IN): 4	SHEET 2 OF 3
Remarks:		

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)						BLOWS /6"
									0	10	20	30	40	50	
		60	SANDSTONE - slightly weathered, HARD, fine grained, bluish gray, bedding planes horizontal to up to 30 degrees intact(Continued)			17/60	0								
	957.5 957.2	65	CLAY SEAM												
		70	SHALE - Slightly weathered, soft, horizontal bedding, dark gray, slightly fractured			58/60	57								
		75	COAL			58/60	60								
	948.2	80	SHALE - Slightly weathered, moderately hard, horizontal bedding, dark gray, slightly fractured			48/60	47								
	944.8	85	SANDSTONE - with Shale partings, unweathered, HARD, horizontal bedding, fine grained, gray, intact			60/60	67								
	939.7	90				59/60	72								
		95				60/60	87								
		100	SANDSTONE - moderately weathered, fine to medium grained, tan to gray, slightly fractured to intact			60/60	88								
	923.5 919.8	105	SANDSTONE - Slightly weathered, fine grained, gray, slightly fractured, some iron staining			58/60	80								
		110	SANDSTONE - Moderately to intensely weathered, medium grained, tan to gray, moderately fractured, iron staining, high angle joints at 134.1 (75 degrees) and 135.2 (85 degrees), pitting from 133.2 to 136.5 feet			60/60	97								
	913.8	115				60/60	93								
		120													

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-1**

PROJECT: New Martin County High School		JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY			
ELEVATION: 1,023.0	BORING STARTED: 12/17/2015		BORING COMPLETED: 12/21/2015
DRILLING METHOD: 4" HSA	RIG TYPE: D-50		HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used in rock coring.		BORING DIAMETER (IN): 4	SHEET 3 OF 3

Remarks:

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)						BLOWS /6"																																													
									0	10	20	30	40	50																																														
		120	SANDSTONE - Moderately to intensely weathered, medium grained, tan to gray, moderately fractured, iron staining, high angle joints at 134.1 (75 degrees) and 135.2 (85 degrees), pitting from 133.2 to 136.5 feet(Continued)		59/60	98																																																					
		125														60/60	90																																											
		130																										60/60	92																															
		135																																					60/60	92																				
		140																																																56/60	60									
		145																																																										
875.7		150	60/60	95																																																								
		155												60/60	97																																													
867.7		160																							57/60	92																																		
		165																																		Coring Terminated at 165.5 feet																								
		170																																																										
		175																																																										
		180																																																										

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-2**

PROJECT: New Martin County High School		JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY			
ELEVATION: 868.0	BORING STARTED: 12/15/2015		BORING COMPLETED: 12/15/2016
DRILLING METHOD: 4" HSA	RIG TYPE: D-50		HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used to cool casing advancer bit.		BORING DIAMETER (IN): 4	SHEET 1 OF 2
Remarks:			

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)		BLOWS /6"		
									0	10 20 30 40 50			
	868.0	0	FILL - Sandstone fragments with clay and sand, sampled as HARD to STIFF soil, gray to brown, moist		▲	12					10 - 13 - 18		
		5				12							18 - 11 - 31
						1							50/1
		10				10							9 - 12 - 18
		15				13							9 - 10 - 11
		20				12							4 - 6 - 18
		25				0							50/0
		30				10							10 - 4 - 8
		35				12							11 - 12 - 25
		40				11							6 - 4 - 6
		45				10							21 - 11 - 14
		50				8							14 - 14 - 7
		55				12							3 - 3 - 15
		60				10							6 - 6 - 5

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-2**

PROJECT: New Martin County High School		JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY			
ELEVATION: 868.0	BORING STARTED: 12/15/2015		BORING COMPLETED: 12/15/2016
DRILLING METHOD: 4" HSA	RIG TYPE: D-50		HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used to cool casing advancer bit.		BORING DIAMETER (IN): 4	SHEET 2 OF 2
Remarks:			

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)					BLOWS /6"					
									0	10	20	30	40		50				
	808.0	60	SAND (SP) with clay, VERY DENSE to VERY FIRM, brown, wet (water used to cool casing advancer bit)		-	16								>>●	20 - 25 - 40				
		65																●	17 - 25 - 24
		70																●	7 - 8 - 15
	790.2	75	SHALE - degraded shale, sampled as HARD soil, gray, wet		-	3								●	50/3				
	784.4	80																●	50/1
		85	Boring terminated at 83.6 feet			1													
		90																	
		95																	
		100																	
		105																	
		110																	
		115																	
		120																	

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-3**

PROJECT: New Martin County High School		JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY			
ELEVATION: 857.1	BORING STARTED: 12/14/2015		BORING COMPLETED: 12/14/2016
DRILLING METHOD: 4" HSA	RIG TYPE: D-50		HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used to cool casing advancer bit.		BORING DIAMETER (IN): 4	SHEET 1 OF 1

Remarks:

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)					BLOWS /6"			
									0	10	20	30	40		50		
	857.1	0	FILL - Sandstone fragments with shale fragments, clay and sand, sampled as HARD to STIFF soil, gray to brown, moist		▲	12									5 - 18 - 50/2		
		5				8										5 - 8 - 10	
						1											50/2
		10				10											14 - 18 - 14
	845.6		Weathered Sandstone		▲	0									50/1		
		15															
	838.6	20	Boring terminated at 18.5 feet														
		25															
		30															
		35															
		40															
		45															
		50															
		55															
		60															

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-4**

PROJECT: New Martin County High School	JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY		
ELEVATION: 841.5	BORING STARTED: 12/14/2015	BORING COMPLETED: 12/14/2016
DRILLING METHOD: 4" HSA	RIG TYPE: D-50	HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used to cool casing advancer bit.	BORING DIAMETER (IN): 4	SHEET 1 OF 1
Remarks:		

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)					BLOWS /6"		
									0	10	20	30	40		50	
	841.5	0	FILL - Sandstone and shale fragments with clay and sand, sampled as HARD to STIFF soil, gray to brown, moist		-	-	-								18 - 11 - 11 17 - 18 - 15 5 - 5 - 7 7 - 8 - 18 5 - 5 - 5	
		5							8	14						
		10							10							
		15							11							
		20							10							
	820.0	20							Weathered Sandstone and shale		-	-	-			
		25	1													
		30	2													
	811.5	30	Boring terminated at 30.0 feet													
		35														
		40														
		45														
		50														
		55														
		60														

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16



TEST BORING RECORD

BORING NO: **B-5**

PROJECT: New Martin County High School	JOB NO: 1183-15-118	REPORT NO:
PROJECT LOCATION: Inez, KY		
ELEVATION: 843.4	BORING STARTED: 12/10/2015	BORING COMPLETED: 12/10/2016
DRILLING METHOD: 4" HSA	RIG TYPE: D-50	HAMMER: Automatic
GROUNDWATER (ft): N/A - Water used to cool casing advancer bit.	BORING DIAMETER (IN): 4	SHEET 1 OF 1
Remarks:		

Groundwater	ELEV. (FT.)	DEPTH (FT.)	MATERIAL DESCRIPTION	Lithology	Sample Type	Recovery (in)	RQD (%)	Qu	STANDARD PENETRATION RESISTANCE (N)					BLOWS /6"						
									0	10	20	30	40		50					
	843.4	0	FILL - Sandstone fragments with clay and sand, sampled as FIRM to VERY STIFF soil, gray to brown, moist		-	6									1 - 3 - 2					
		5																		4 - 7 - 34
																				6 - 4 - 2
		10																		6 - 9 - 9
		15																		6 - 11 - 6
	828.9	15	FILL - Clay with sandstone and shale fragments, sampled as VERY STIFF to HARD soil, brown, moist		-	8														
	826.9																			
	823.4	20	Weathered Shale Shale with coal lense		-	18									>> 14 - 16 - 35					
		25																		50/3
	819.6	25	Boring terminated at 23.8 feet		-	3														
		30																		
		35																		
		40																		
		45																		
		50																		
		55																		
		60																		

CRAIG2 1183-15-118.GPJ_QOR_CORP.GDT 4/19/16

FIELD TESTING PROCEDURES

Field Operations: The general field procedures employed by S&ME, Inc. are summarized in ASTM D 420 which is entitled "Investigating and Sampling Soils and Rocks for Engineering Purposes." This recommended practice lists recognized methods for determining soil and rock distribution and ground water conditions. These methods include geophysical and in situ methods as well as borings.

Borings are drilled to obtain subsurface samples using one of several alternate techniques depending upon the subsurface conditions. These techniques are:

- a. Continuous 2-1/2 or 3-1/4 inch I.D. hollow stem augers;
- b. Wash borings using roller cone or drag bits (mud or water);
- c. Continuous flight augers (ASTM D 1425).

These drilling methods are not capable of penetrating through material designated as "refusal materials." Refusal, thus indicated, may result from hard cemented soil, soft weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound continuous rock. Core drilling procedures are required to determine the character and continuity of refusal materials.

The subsurface conditions encountered during drilling are reported on a field test boring record by a field engineer who is on site to direct the drilling operations and log the recovered samples. The record contains information concerning the boring method, samples attempted and recovered, indications of the presence of various materials such as coarse gravel, cobbles, etc., and observations between samples. Therefore, these boring records contain both factual and interpretive information. The field boring records are on file in our office.

The soil and rock samples plus the field boring records are reviewed by a geotechnical engineer. The engineer classifies the soils in general accordance with the procedures outlined in ASTM D 2488 and prepares the final boring records that are the basis for all evaluations and recommendations.

The final boring records represent our interpretation of the contents of the field records based on the results of the engineering examinations and tests of the field samples. These records depict subsurface conditions at the specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the subsurface soil and ground water conditions at these boring locations. The lines designating the interface between soil or refusal materials on the records and on profiles represent approximate boundaries. The transition between materials may be gradual. The final boring records are included with this report. The detailed data collection methods used during this study are discussed on the following pages.

Soil Test Borings: Soil test borings were made at the site at locations shown on the attached Boring Plan. Soil sampling and penetration testing were performed in accordance with ASTM D 1586.

The borings were made by mechanically twisting a 5-5/8" outer diameter auger into the soil. At regular intervals, the drilling tools were removed and samples obtained with a standard 1.4 inch I.D., 2 inch O.D., split tube sampler. The sampler was first seated 6 inches to penetrate any loose cuttings, then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot was recorded and is designated the "penetration resistance".

Representative portions of the samples, thus obtained, were placed in glass jars and transported to the laboratory. In the laboratory, the samples were examined to verify the driller's field classifications. Test Boring Records are attached which graphically show the soil descriptions and penetration resistances.

Soil Auger Soundings: Soil auger soundings were made at the site at the locations shown on the attached Boring Location Plan. The soundings were performed by mechanically twisting a steel auger into the soil. However, unlike the soil test borings, a smaller diameter solid stem auger was used and no split-spoon samples were obtained. The driller provided a general description of the soil encountered by observing the soils brought to the surface by the twisting auger. The auger was advanced until refusal materials were encountered and the refusal depth was noted by the driller. The auger is then withdrawn and the depths to water or caved materials are then measured and recorded by the driller.

Soil auger soundings provide a rapid, economical method of obtaining the approximate bedrock depth, groundwater depth, and general soil conditions at locations where detailed soil testing and sampling is not required.

Water Level Readings: Water table readings are normally taken in conjunction with borings and are recorded on the "Test Boring Records". These readings indicate the approximate location of the hydrostatic water table at the time of our field investigation. Where impervious soils are encountered (clayey soils) the amount of water seepage into the boring is small, and it is generally not possible to establish the location of the hydrostatic water table through water level readings. The ground water table may also be dependent upon the amount of precipitation at the site during a particular period of time. Fluctuations in the water table should be expected with variations in precipitation, surface run-off, evaporation and other factors.

The time of boring water level reported on the boring records is determined by field crews as the drilling tools are advanced. The time of boring water level is detected by changes in the drilling rate, soil samples obtained, etc. Additional water table readings are generally obtained at least 24 hours after the borings are completed. The time lag of at least 24 hours is used to permit stabilization of the ground water table which has been disrupted by the drilling operations. The readings are taken by dropping a weighted line down the boring or using an electrical probe to detect the water level surface. Occasionally the borings will cave-in, preventing water level readings from being obtained or trapping drilling water above the caved-in zone. The cave-in depth is also measured and recorded on the boring records.

Appendix III – Laboratory Test Results

Lab Summary



S&ME, Inc - Lexington 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.: 1183-15-118 Report Date: 01/20/16

Project Name: New Martin County High School

Client Name: Ross-Tarrant Architects

Client Address: 101 Old Lafayette, Lexington, KY 40502

BORING NO.	SAMPLE DEPTH, FT.	SAMPLE TYPE	USCS	NATURAL MOISTURE CONTENT, %	ATT. LIMITS			MAX. DRY DENSITY PCF / OPTIMUM MOISTURE %	SLAKE DURABILITY INDEX, %	DESCRIPTION OF FRAGMENTS	JAR SLAKE READING
					L.L.	P.L.	P. I.				
B-1	68.0 - 69.0	CORE		4.1				96.4	I	6	
B-1	70.0 - 70.7	CORE		5.0				96.3	I	6	
B-1	71.5 - 72.0	CORE		1.6				91.5	II	4	
B-1	72.5 - 73.0	CORE		2.4				77.2	II	4	
B-1	78.1 - 79.0	CORE		2.6				80.5	II	4	
B-1	82.0 - 82.9	CORE		2.6				89.0	II	4	

Jacob Folsom
Technical Responsibility

Project Professional
Position

01/20/16
Date

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Moisture - Density Report

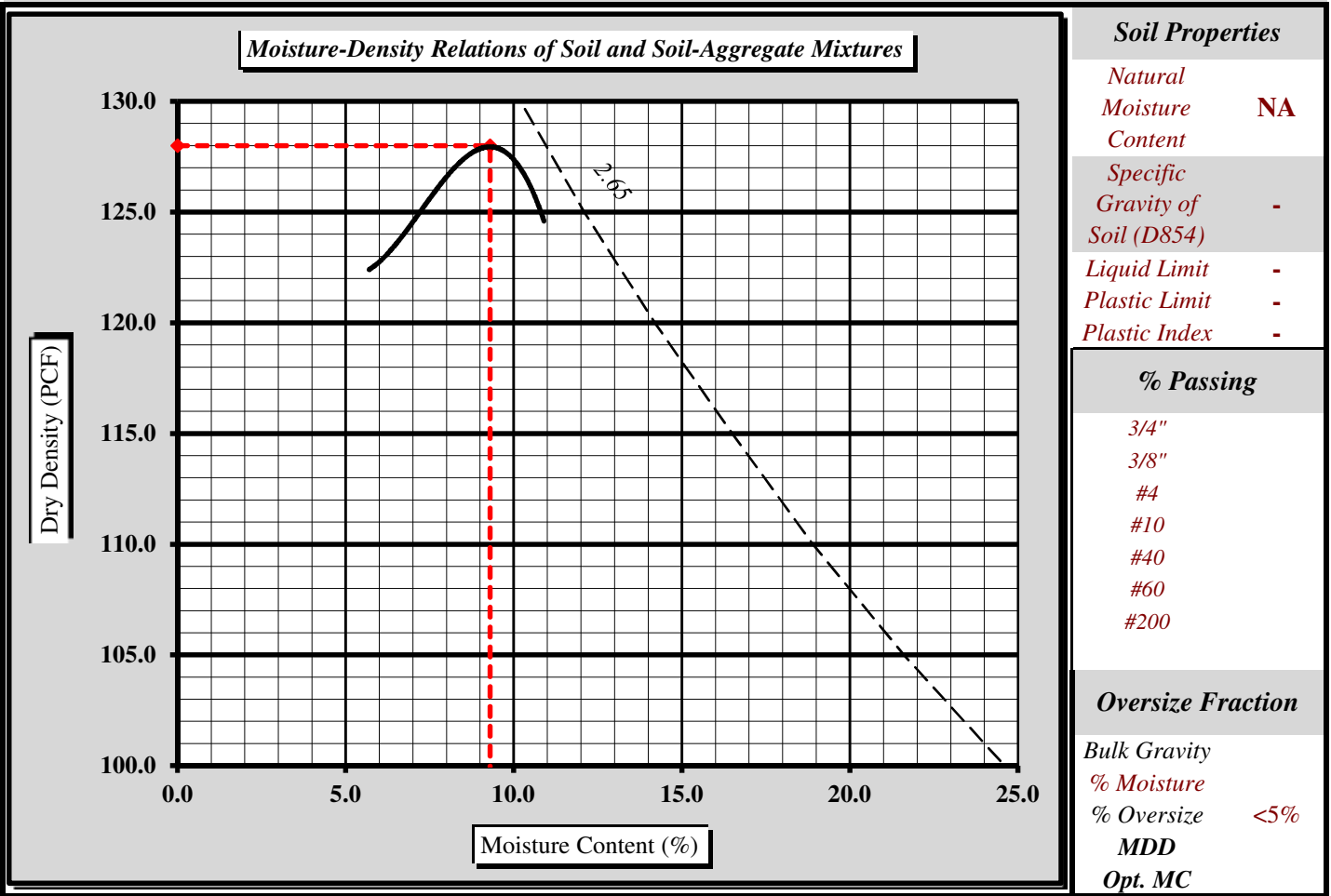


Quality Assurance

S&ME, Inc - Lexington 2020 Liberty Road, Suite 105, Lexington, KY 40505

S&ME Project #:	1183-15-118	Report Date:	01/14/16
Project Name:	New Martin County High School	Test Date(s):	01/13/16
Client Name:	Ross-Tarrant Architects		
Client Address:	101 Old Lafayette, Lexington, KY 40502		
Boring #:	-	Sample #:	P-1
		Sample Date:	January 2016
Location:	-	Offset:	-
		Depth (ft.):	-
Sample Description:	Brown Silty gravel with sand (visual-manual)		

Maximum Dry Density 128.0 PCF. Optimum Moisture Content 9.3%
AASHTO T99 -- AASHTO Method D



Moisture-Density Curve Displayed: Fine Fraction Corrected for Oversize Fraction (ASTM D 4718)
 Sieve Size used to separate the Oversize Fraction: #4 Sieve 3/8 inch Sieve 3/4 inch Sieve
 Mechanical Rammer Manual Rammer Moist Preparation Dry Preparation

References / Comments / Deviations:

- ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- AASHTO T 99: Moisture-Density Relations of Soil Using a 5.5 Lb. Rammer and a 12" Drop

Jacob Folsom
 Technical Responsibility

Signature on file
 Signature

Project Professional
 Position

1/20/2016
 Date

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**CBR (California Bearing Ratio) of Laboratory
Compacted Soil**

ASTM D 1883



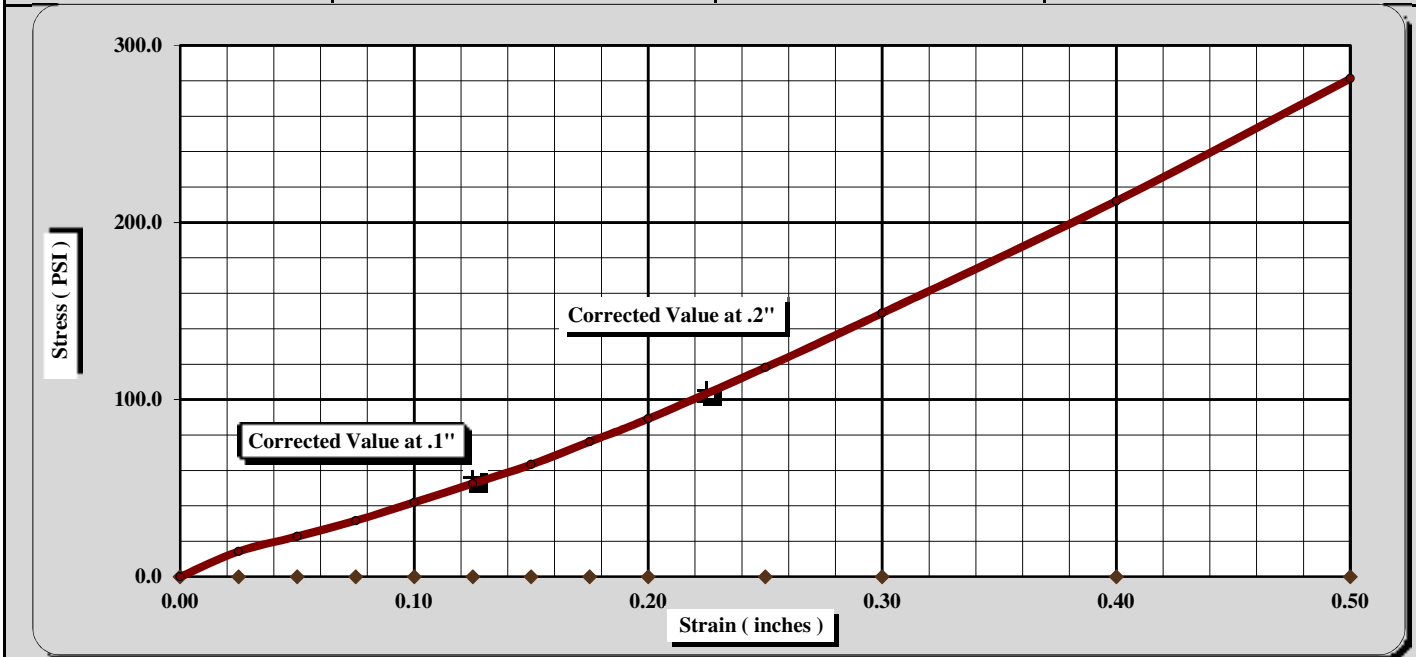
Quality Assurance

S&ME, Inc. - Lexington 2020 Liberty Road, Lexington, KY 40505

S&ME Project #:	1183-15-118	Report Date:	01/20/16
Project Name:	New Martin County High School	Test Date(s):	01/15/16 - 01/19/16
Client Name:	Ross-Tarrant Architects		
Client Address:	101 Old Lafayette, Lexington, KY 40502		
Boring #:	Sample #: P-1	Sample Date:	January 2016
Location:	Offset:	Depth (ft.):	-
Sample Description: Brown Silty gravel with sand (visual-manual)			

ASTM D 698 Method A	Maximum Dry Density:	128.0 PCF	Optimum Moisture Content:	9.3%
	Compaction Test performed on grading complying with CBR spec.		% Retained on the 3/4" sieve:	0.0%

Uncorrected CBR Values		Corrected CBR Values	
CBR at 0.1 in.	4.2	CBR at 0.1 in.	5.6
CBR at 0.2 in.	5.9	CBR at 0.2 in.	7.0



CBR Sample Preparation:

The entire gradation was used and compacted in a 6" CBR mold in accordance with ASTM D1883, Section 6.1.1

Before Soaking		After Soaking	
Compactive Effort (Blows per Layer)	27	Final Dry Density (PCF)	124.3
Initial Dry Density (PCF)	124.3	Average Final Moisture Content	10.6%
Moisture Content of the Compacted Specimen	10.2%	Moisture Content (top 1" after soaking)	10.9%
Percent Compaction	97.1%	Percent Swell	0.0%
Soak Time:	96 hrs.	Surcharge Weight	10.0
Liquid Limit	-	Surcharge Wt. per sq. Ft.	50.9
		Plastic Index	-
		Apparent Relative Density	2.650

Notes/Deviations/References:

Jacob Folsom
Technical Responsibility

Signature on file
Signature

Project Professional
Position

1/20/2016
Date

This report shall not be reproduced, except in full without the written approval of S&ME, Inc.

LABORATORY TESTING PROCEDURES

Soil Classification: Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply past experience to current problems. In our investigations, samples obtained during drilling operations are examined in our laboratory and visually classified by an engineer. The soils are classified according to consistency (based on number of blows from standard penetration tests), color and texture. These classification descriptions are included on our "Test Boring Records."

The classification system discussed above is primarily qualitative and for detailed soil classification two laboratory tests are necessary: grain size tests and plasticity tests. Using these test results the soil can be classified according to the AASHTO or Unified Classification Systems (ASTM D 2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior. The soil classification and physical properties obtained are presented in this report.

Compaction Tests: Compaction tests are run on representative soil samples to determine the dry density obtained by a uniform compactive effort at varying moisture contents. The results of the test are used to determine the moisture content and unit weight desired in the field for similar soils. Proper field compaction is necessary to decrease future settlements, increase the shear strength of the soil and decrease the permeability of the soil.

The two most commonly used compaction tests are the Standard Proctor test and the Modified Proctor test. They are performed in accordance with ASTM D 698 and D 1557, respectively. Generally, the Standard Proctor compaction test is run on samples from building or parking areas where small compaction equipment is anticipated. The Modified compaction test is generally performed for heavy structures, highways, and other areas where large compaction equipment is expected. In both tests a representative soil sample is placed in a mold and compacted with a compaction hammer. Both tests have four alternate methods.

Test	Method	Hammer Wt./Fall	Mold Diam.	Run on Matl. Finer Than	No. of Layers	No. of Blows/Layer
Standard	A	5.5 lb./12"	4"	No. 4 sieve	3	25
D 698	B	5.5 lb./12"	4"	3/8" sieve	3	25
	C	5.5 lb./12"	6"	3/4" sieve	3	56

Test	Method	Hammer Wt./Fall	Mold Diam.	Run on Matl. Finer Than	No. of Layers	No. of Blows/Layer
Modified	A	10 lb./18"	4"	No. 4 sieve	5	25
D 1557	B	10 lb./18"	4"	3/8" sieve	5	25
	C	10 lb./18"	6"	3/4" sieve	5	56

The moisture content and unit weight of each compacted sample is determined. Usually 4 to 5 such tests are run at different moisture contents. Test results are presented in the form of a dry unit weight versus moisture content curve. The compaction method used and any deviations from the recommended procedures are noted in this report.

Atterberg Limits: Portions of the samples are taken for Atterberg Limits testing to determine the plasticity characteristics of the soil. The plasticity index (PI) is the range of moisture content over which the soil deforms as a plastic material. It is bracketed by the liquid limit (LL) and the plastic limit (PL). The liquid limit is the moisture content at which the soil becomes sufficiently "wet" to flow as a heavy viscous fluid. The plastic limit is the lowest moisture content at which the soil is sufficiently plastic to be manually rolled into tiny threads. The liquid limit and plastic limit are determined in accordance with ASTM D 4318.

Moisture Content: The Moisture Content is determined according to ASTM D 2216.

ADDENDUM
GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION
(302.1R-96)
Vapor Retarder Location

The report of ACI Committee 302, "Guide for Concrete Floor and Slab Construction (ACI 302.1R-96)" states in section 4.1.5 that "if a vapor barrier or retarder is required due to local conditions, these products should be placed under a minimum of 4 in. (100 mm) of trimable, compactible, granular fill (not sand)." ACI Committee 302 on Construction of Concrete Floors, and Committee 360 on Design of Slabs on Ground have found examples where this approach may have contributed to floor covering problems.

Based on the review of the details of problem installations, it became clear that the fill course above the vapor retarder can take on water from rain, wet-curing, wet-grinding or cutting, and cleaning. Unable to drain, the wet or saturated fill provides an additional source of water that contributes to moisture-vapor emission rates from the slab well in excess of the 3 to 5 lb/1000 ft²/24 h (1.46 to 2.44 kg/100 m²/24 h) recommendation of the floor covering manufacturers.

As a result of these experiences, and the difficulty in adequately protecting the fill course from water during the construction process, caution is advised on the use of the granular fill layer when moisture-sensitive finishes are to be applied to the slab surface.

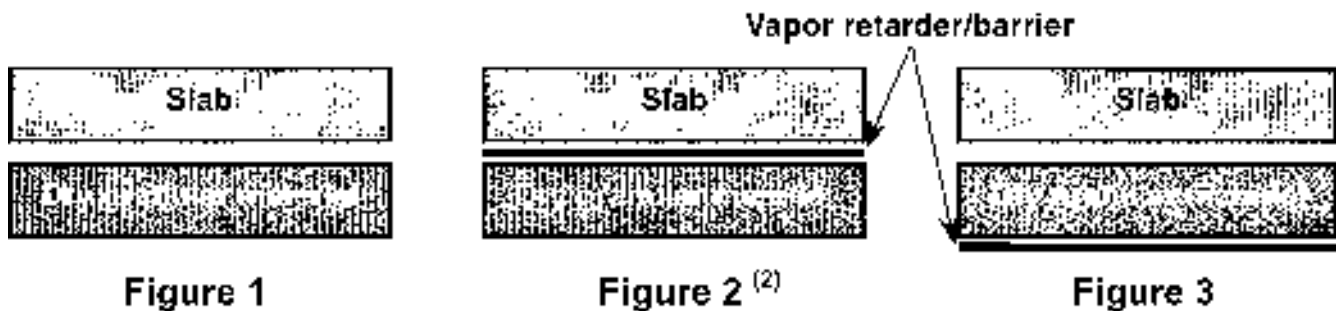
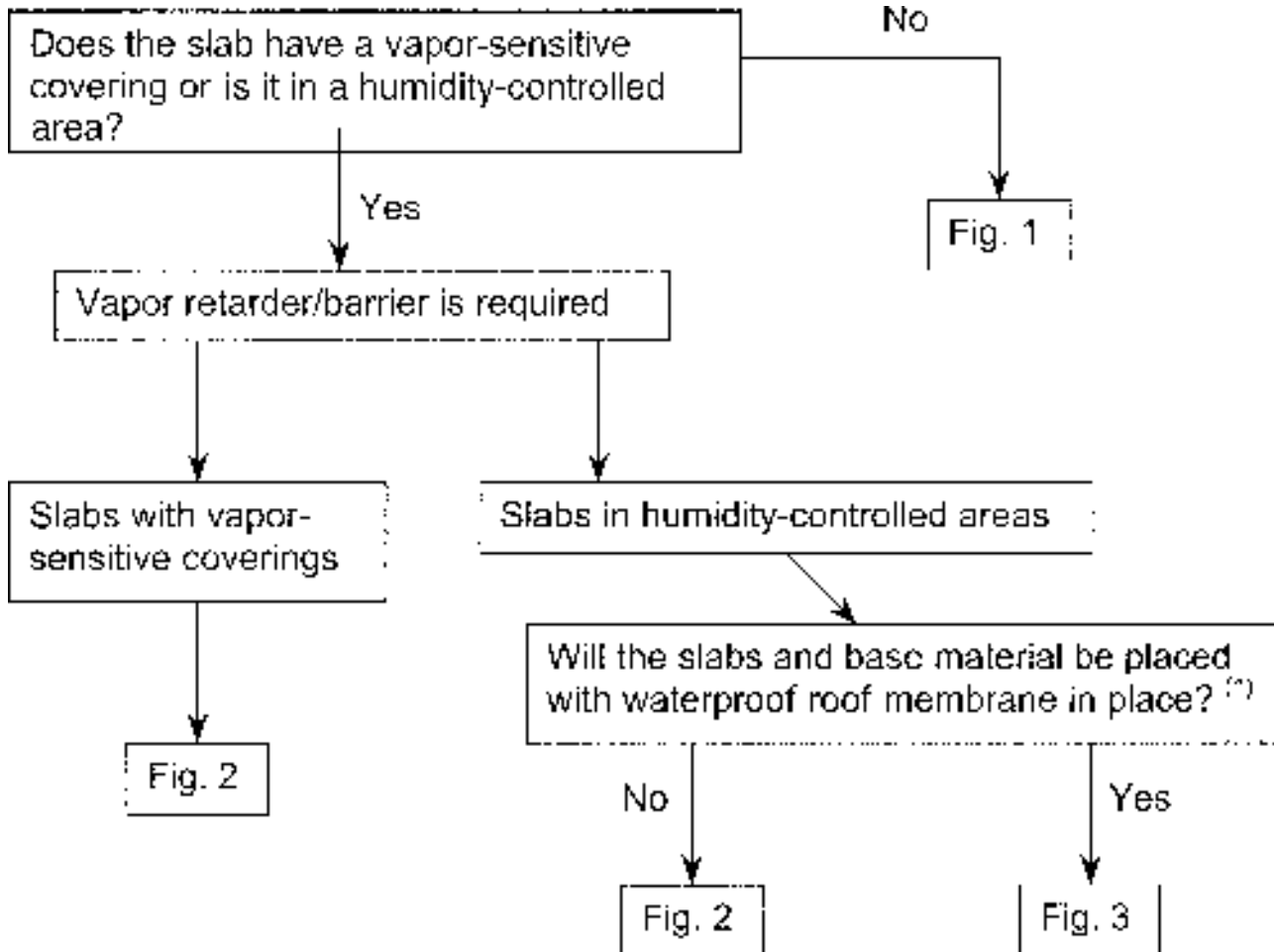
The committees believe that when the use of a vapor retarder or barrier is required, the decision whether to locate the retarder or barrier in direct contact with the slab or beneath a layer of granular fill should be made on a case-by-case basis.

Each proposed installation should be independently evaluated by considering the moisture sensitivity of subsequent floor finishes, anticipated project conditions and the potential effects of slab curling and cracking.

The following chart can be used to assist in deciding where to place the vapor retarder. The anticipated benefits and risks associated with the specified location of the vapor retarder should be reviewed with all appropriate parties before construction.

ADDENDUM
GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION
(302.1R-96)

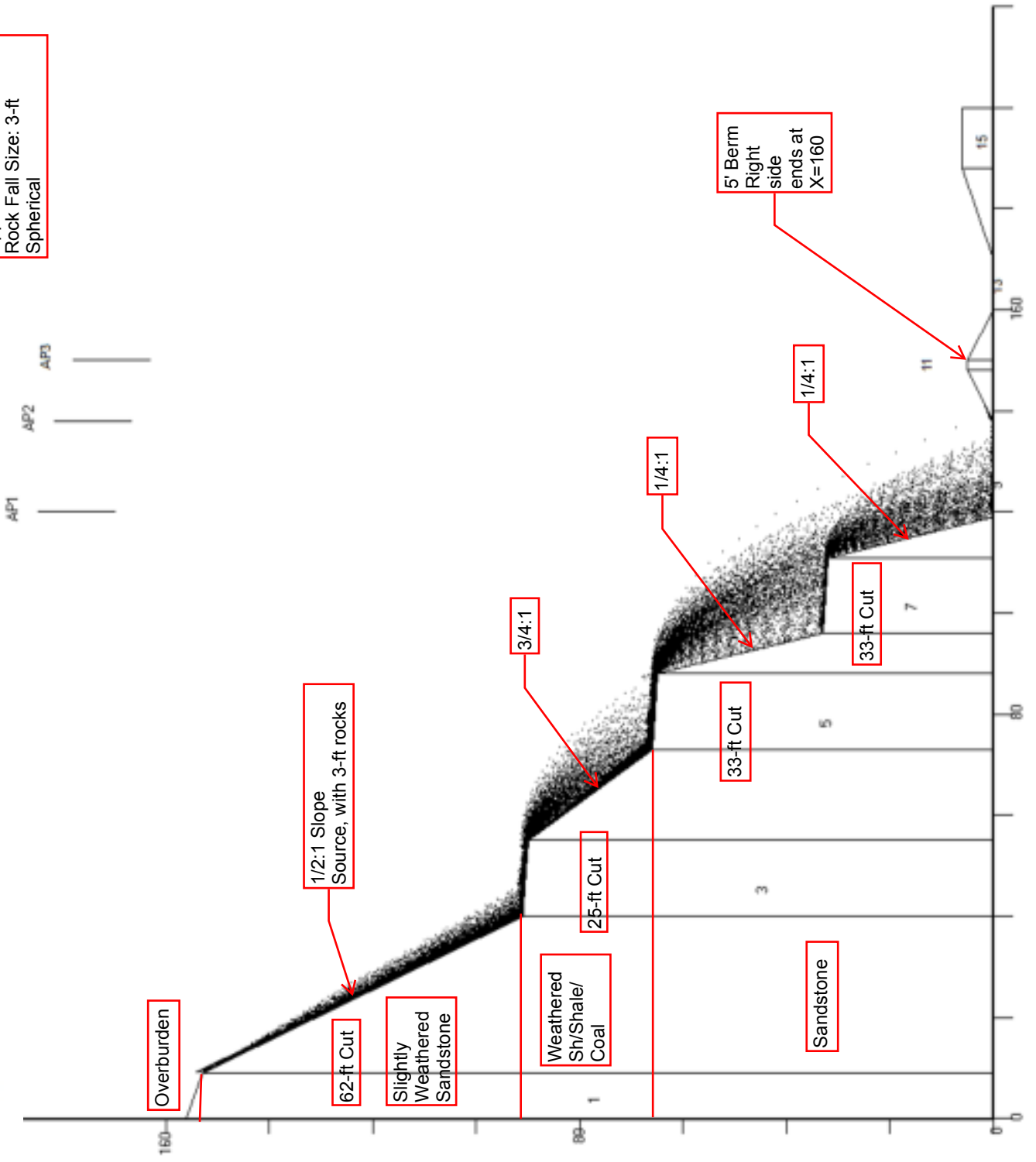
Flow Chart for Location of Vapor Retarder/Barrier



- (1) If granular material is subject to future moisture infiltration, use Fig. 2
- (2) If Fig. 2 is used, reduced joint spacing, a concrete with low shrinkage potential, or other measures to minimize slab curling will likely be required.



Martin Co. High School
CRSP
Short Term Case
Upper Sandstone Source
Rock Fall Size: 3-ft
Spherical



CRSP Input File -C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

Input File Specifications

Units of Measure: U.S.
Total Number of Cells: 15
Analysis Point 1 X-Coordinate: 120
Analysis Point 2 X-Coordinate: 138
Analysis Point 3 X-Coordinate: 150
Initial Y-Top Starting Zone Coordinate: 153
Initial Y-Base Starting Zone Coordinate: 91

Remarks:

Cell Data

Cell No.	S.R.	Tang. C.	Norm. C.	Begin X	Begin Y	End X	End Y
1	.5	.65	.2	0	156	9	153
2	.5	.9	.25	9	153	40	91
3	.5	.8	.2	40	91	55	90
4	.5	.8	.2	55	90	73	66
5	.5	.9	.25	73	66	88	65
6	.5	.9	.25	88	65	96	33
7	.5	.9	.25	96	33	111	32
8	.5	.9	.25	111	32	119	0
9	.5	.65	.2	119	0	138	0
10	.5	.65	.2	138	0	148	5
11	.5	.65	.2	148	5	150	5
12	.5	.65	.2	150	5	160	0
13	.5	.65	.2	160	0	170	0
14	.5	.65	.2	170	0	188	6
15	.5	.65	.2	188	6	200	6

CRSP Simulation Specifications: Used with
C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

Total Number of Rocks Simulated: 1000
Starting Velocity in X-Direction: 1 ft/sec
Starting Velocity in Y-Direction: -1 ft/sec
Starting Cell Number: 1
Ending Cell Number: 15
Rock Density: 150 lb/ft³
Rock Shape: Spherical
Diameter: 3 ft

CRSP Analysis Point 1 Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

Analysis Point 1: X = 120, Y = 0

Total Rocks Passing Analysis Point: 548

Cumulative Probability	Velocity (ft/sec)	Energy (ft-lb)	Bounce Ht. (ft)
50%	43.26	73589	8
75%	54.1	104158	11.43
90%	63.85	131653	14.51
95%	69.7	148160	16.36
98%	76.27	166686	18.43

Velocity (ft/sec)	Bounce Height (ft)	Kinetic Energy (ft-lb)
Maximum: 66.51	Maximum: 41.47	Maximum: 149254
Average: 43.26	Average: 13.67	Average: 73589
Minimum: 2.67	G. Mean: 8	Std. Dev.: 45274
Std. Dev.: 16.05	Std. Dev.: 5.07	

Remarks:

CRSP Analysis Point 2 Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

Analysis Point 2: X = 138, Y = 0

Total Rocks Passing Analysis Point: 66

Cumulative Probability	Velocity (ft/sec)	Energy (ft-lb)	Bounce Ht. (ft)
50%	8	4937	0.01
75%	13.26	17851	4.79
90%	17.99	29466	9.08
95%	20.83	36439	11.66
98%	24.02	44266	14.56

Velocity (ft/sec)	Bounce Height (ft)	Kinetic Energy (ft-lb)
Maximum: 67.34	Maximum: 4.08	Maximum: 157349
Average: 8	Average: .09	Average: 4937
Minimum: 3.13	G. Mean: .01	Std. Dev.: 19125
Std. Dev.: 7.79	Std. Dev.: 7.07	

Remarks:

CRSP Analysis Point 3 Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

Analysis Point 3: X = 150, Y = 5

NO ROCKS PAST ANALYSIS POINT 3

CRSP Data Collected at End of Each Cell - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

Velocity Units: ft/sec Bounce Height Units: ft

Cell #	Max. Vel.	Avg. Vel.	S.D. Vel.	Max. Bounce Ht.	Avg. Bounce Ht.	
1	No rocks		past end of cell			
2	60		35	11.68	11	2
3	28		13	5.05	1	0
4	43		34	4.07	18	3
5	48		15	4.61	1	0
6	57		27	4.97	32	23
7	51		24	18.19	22	2
8	65		43	13.89	43	16
9	67		8	7.79	4	0
10	No rocks		past end of cell			
11	No rocks		past end of cell			
12	No rocks		past end of cell			
13	No rocks		past end of cell			
14	No rocks		past end of cell			
15	No rocks		past end of cell			

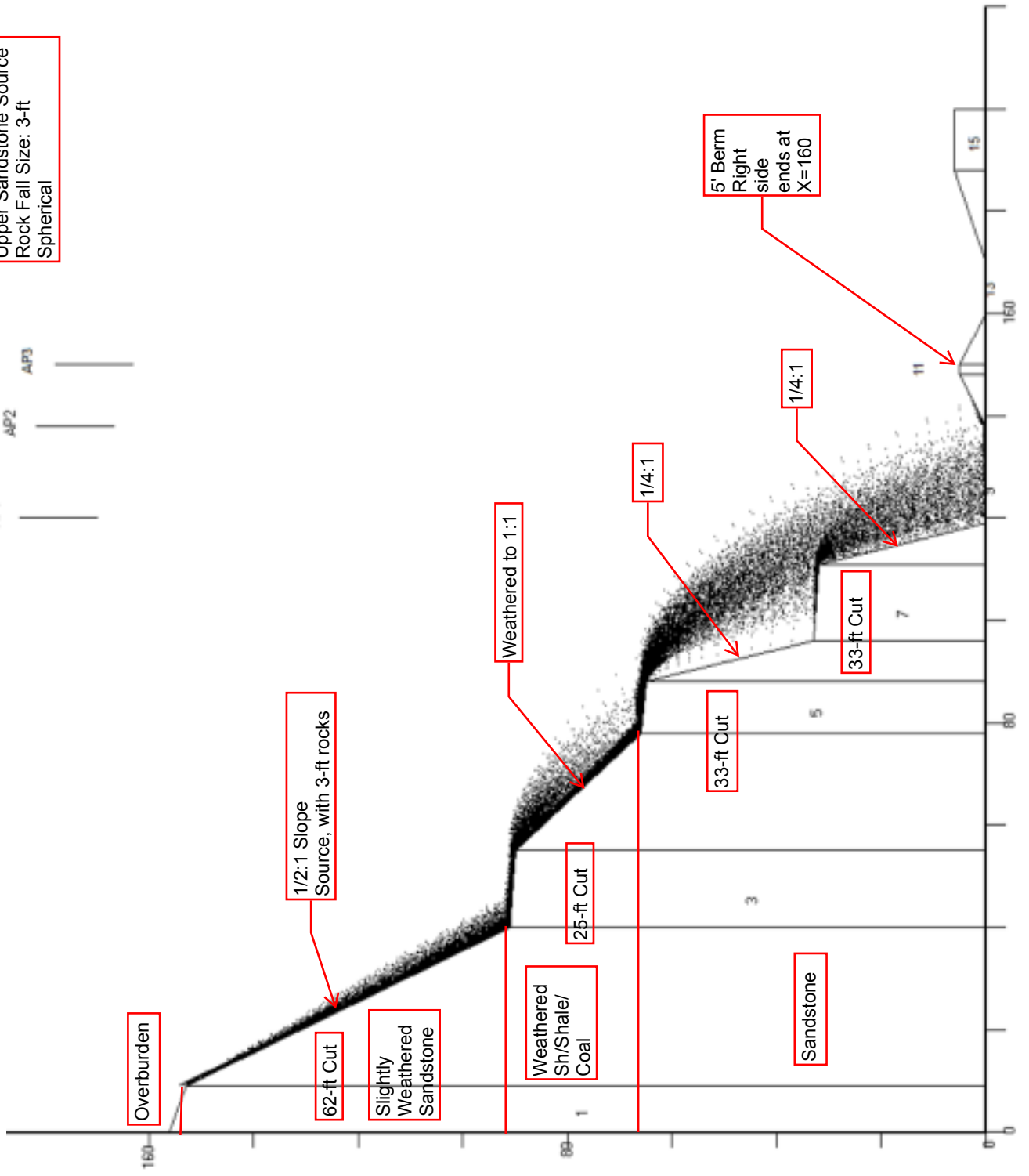
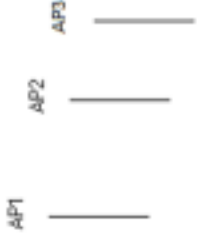
CRSP Rocks Stopped Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Short Term.doc

X Interval	Rocks Stopped
0 To 10 ft	1
10 To 20 ft	0
20 To 30 ft	0
30 To 40 ft	1
40 To 50 ft	157
50 To 60 ft	104
60 To 70 ft	0
70 To 80 ft	2
80 To 90 ft	24

90 To 100 ft	25
100 To 110 ft	106
110 To 120 ft	33
120 To 130 ft	318
130 To 140 ft	224
140 To 150 ft	5
150 To 160 ft	0
160 To 170 ft	0
170 To 180 ft	0
180 To 190 ft	0
190 To 200 ft	0



Martin Co. High School
CRSP
Long Term Case
Upper Sandstone Source
Rock Fall Size: 3-ft
Spherical



CRSP Input File -C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

Input File Specifications

Units of Measure: U.S.
Total Number of Cells: 15
Analysis Point 1 X-Coordinate: 120
Analysis Point 2 X-Coordinate: 138
Analysis Point 3 X-Coordinate: 150
Initial Y-Top Starting Zone Coordinate: 153
Initial Y-Base Starting Zone Coordinate: 91

Remarks:

Cell Data

Cell No.	S.R.	Tang. C.	Norm. C.	Begin X	Begin Y	End X	End Y
1	.5	.65	.2	0	156	9	153
2	.5	.9	.25	9	153	40	91
3	.5	.8	.2	40	91	55	90
4	.5	.8	.2	55	90	78	66
5	.5	.9	.25	78	66	88	65
6	.5	.9	.25	88	65	96	33
7	.5	.9	.25	96	33	111	32
8	.5	.9	.25	111	32	119	0
9	.5	.65	.2	119	0	138	0
10	.5	.65	.2	138	0	148	5
11	.5	.65	.2	148	5	150	5
12	.5	.65	.2	150	5	160	0
13	.5	.65	.2	160	0	170	0
14	.5	.65	.2	170	0	188	6
15	.5	.65	.2	188	6	200	6

CRSP Simulation Specifications: Used with
C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

Total Number of Rocks Simulated: 1000
Starting Velocity in X-Direction: 1 ft/sec
Starting Velocity in Y-Direction: -1 ft/sec
Starting Cell Number: 1
Ending Cell Number: 15
Rock Density: 150 lb/ft³
Rock Shape: Spherical
Diameter: 3 ft

CRSP Analysis Point 1 Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

Analysis Point 1: X = 120, Y = 0

Total Rocks Passing Analysis Point: 726

Cumulative Probability	Velocity (ft/sec)	Energy (ft-lb)	Bounce Ht. (ft)
50%	50.56	94473	15.94
75%	59.13	119790	17.89
90%	66.85	142562	19.63
95%	71.48	156233	20.68
98%	76.68	171576	21.85

Velocity (ft/sec)	Bounce Height (ft)	Kinetic Energy (ft-lb)
Maximum: 74.05	Maximum: 46.98	Maximum: 193448
Average: 50.56	Average: 20.39	Average: 94473
Minimum: 1.93	G. Mean: 15.94	Std. Dev.: 37495
Std. Dev.: 12.7	Std. Dev.: 2.87	

Remarks:

CRSP Analysis Point 2 Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

Analysis Point 2: X = 138, Y = 0

Total Rocks Passing Analysis Point: 243

Cumulative Probability	Velocity (ft/sec)	Energy (ft-lb)	Bounce Ht. (ft)
50%	13.4	16311	0.02
75%	24.36	44863	7.28
90%	34.21	70545	13.8
95%	40.12	85963	17.72
98%	46.76	103267	22.12

Velocity (ft/sec)	Bounce Height (ft)	Kinetic Energy (ft-lb)
Maximum: 70.04	Maximum: 14.32	Maximum: 170769
Average: 13.4	Average: .34	Average: 16311
Minimum: 2.22	G. Mean: .02	Std. Dev.: 42287
Std. Dev.: 16.23	Std. Dev.: 10.75	

Remarks:

CRSP Analysis Point 3 Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

Analysis Point 3: X = 150, Y = 5

NO ROCKS PAST ANALYSIS POINT 3

CRSP Data Collected at End of Each Cell - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

Velocity Units: ft/sec Bounce Height Units: ft

Cell #	Max. Vel.	Avg. Vel.	S.D. Vel.	Max. Bounce Ht.	Avg. Bounce Ht.	
1	No rocks	past end of cell				
2	57	35		11.54	11	2
3	31	13		5.3	1	0
4	46	32		4.11	16	1
5	49	20		4.13	7	0
6	57	26		3.77	33	27
7	66	36		15.28	25	7
8	73	49		12	48	22
9	70	13		16.23	14	0
10	No rocks	past end of cell				
11	No rocks	past end of cell				
12	No rocks	past end of cell				
13	No rocks	past end of cell				
14	No rocks	past end of cell				
15	No rocks	past end of cell				

CRSP Rocks Stopped Data - C:\Users\BDusina\Desktop\Martin Co\Martin Co-SS Source-No Berm-Rev2-Long Term.doc

X Interval	Rocks Stopped
0 To 10 ft	1
10 To 20 ft	0
20 To 30 ft	0
30 To 40 ft	0
40 To 50 ft	147
50 To 60 ft	86
60 To 70 ft	0
70 To 80 ft	0
80 To 90 ft	0

90 To	100 ft	1
100 To	110 ft	27
110 To	120 ft	12
120 To	130 ft	224
130 To	140 ft	436
140 To	150 ft	66
150 To	160 ft	0
160 To	170 ft	0
170 To	180 ft	0
180 To	190 ft	0
190 To	200 ft	0



April 26, 2016

Ross Tarrant Architects
101 Old Lafayette
Lexington, Kentucky 40502

Attention: Mr. Laith Ross, P.E., LEED AP

Reference: **Addendum to Report of Geotechnical Exploration
New Martin County High School**
Inez, Kentucky
S&ME Project No. 1183-15-118

Dear Mr. Ross:

S&ME, Inc. has completed the geotechnical exploration for the new Martin County High School and issued our report dated April 19, 2016. After issuance of the report, several requests for clarification and additional recommendations have been requested. This addendum addresses these questions and provides additional recommendations.

According to the provided grading plan the pavement areas require from one foot to about 35 feet of new fill. Outside the building footprint fill depths greater than four feet, constructed of durable sandstone, can be constructed in maximum lifts of 3 feet with a maximum particle dimension of 3 feet vertically and 4.5 feet horizontally. This approach is in line with the KYTC method for roadway embankment fill construction (Section 206.03.02 of the KYTC Standard Spec Book).

Non-durable shale placed as fill can be placed wherever in the mass fill works best with the grading operations. However, we recommend the non-durable shale be restricted to at least five feet, and preferably greater, below the planned pavement subgrade. The non-durable shale should not be placed beneath the planned building footprint or in future anticipated building footprints.

The non-durable shale component of the rock cut will degrade when exposed to water thus it should be placed in non-structural areas such as landscaping or lawn areas. The fill placement process for non-durable shale must accelerate this breakdown so that it does not occur after the fill is constructed, which leads to settlement. Any shale placed as fill should **not be placed as durable rock fill**. The shale component of the fill will require successive wetting and mechanical breaking down of the material into the consistency of soil. The shale should be placed in maximum loose lifts of 8 inches and wetted to accelerate slaking. After wetting, disc the shale and compact with heavy compaction equipment. The *2012 Kentucky Transportation Cabinet Standard Specifications for Road and Bridge Construction* Section 206.03.02 D provides additional details for the placement of non-durable shale. Consider placing the shale in larger areas where the earthwork equipment will work more efficiently rather than smaller pockets.

It has been our experience that durable rock fill is most adequately compacted by blading the lift into place, applying compactive effort with a CAT 825 or similar compactor, and finish rolling with a loaded

scraper or haul truck. The compactor breaks down the material and seats the cobbles while the heavy rubber tired equipment provides the compaction. Adequacy of the compaction is determined by a trained eye of an experienced geotechnician with data provided by the nuclear density gauge. Our evaluation criteria consists of the following:

- Lift thickness
- Particle size and gradation of material
- Intensity and uniformity of compactive effort
- Response of the lift to construction traffic
- Moisture content
- Dry density

The dry density (i.e. – percent compaction) is the least important factor in assessing the adequacy of the compactive effort and approval of the shot rock fill. If the contractor uses the recommended equipment, conforms with the material specifications, applies a uniform effort over the entire fill lift, traverses over the fill lift under the normal course of placing subsequent material, and the moisture content is within an acceptable range, the fill performance should be acceptable regardless of the density values obtained in the field. Therefore, only highly trained and qualified personnel should monitor fill placement as they can evaluate the adequacy of the compactive effort. Where density testing can be performed, we recommend the building pad and upper four feet of the pavement subgrade be compacted to at least 98 percent of the standard Proctor maximum dry density (MDD). The mass fill (deeper than four feet below pavement areas) should be compacted to at least 95 percent of the standard Proctor MDD. Landscaping areas outside of future anticipated development can be limited to 85 percent of the MDD.

We understand that the foundation excavations will be over-excavated to expose intact sandstone bedrock and backfilled with lean concrete to the planned foundation bearing elevation 869.0 feet (2-feet below the planned finished floor elevation). This approach is essentially the same as outlined in the original report and is acceptable to S&ME.

S&ME appreciates the opportunity to be of service to you on this project. We look forward to helping you through project completion. If you have any questions, please call.

Respectfully submitted,
S&ME, Inc.

A handwritten signature in blue ink, appearing to read "A. Fiehler".

Andrew M. Fiehler, P.E.
Project Geotechnical Engineer
Licensed Kentucky 23,977

A handwritten signature in blue ink, appearing to read "C. Lee".

Craig S. Lee, P.E.
Senior Geotechnical Engineer

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NAPTI	200		

ITEM NO. 12-154.04

NOTE

CONTRACTOR SHALL MAINTAIN ALL EXISTING DITCHES AND DRAINAGE CONTROL STRUCTURES. THE PHASED CONSTRUCTION OF THE CONTROLLED EMBANKMENT, POSITIVE DRAINAGE SHALL BE MAINTAINED. ALL DITCHES SHALL BE LINED WITH CLASS IV CANAL LINING (TYPE A) TO BE APPROXIMATELY 5:1 SIDE SLOPE.

SPECIAL NOTE

The placement of all controlled fill, embankment and bridge construction shall be constructed in accordance with Section 202 of the Standard Specifications for Road and Bridge Construction, current edition. The Holly Bush Control Embankment shall be constructed with fill and shall be lined with Class IV Canals Lining (Type A) in accordance with the Standard Specifications for Road and Bridge Construction, current edition. The contractor shall be responsible for the construction of the embankment and shall be responsible for the construction of the drainage blanket and shall be responsible for the construction of the drainage blanket and shall be responsible for the construction of the drainage blanket and shall be responsible for the construction of the drainage blanket.

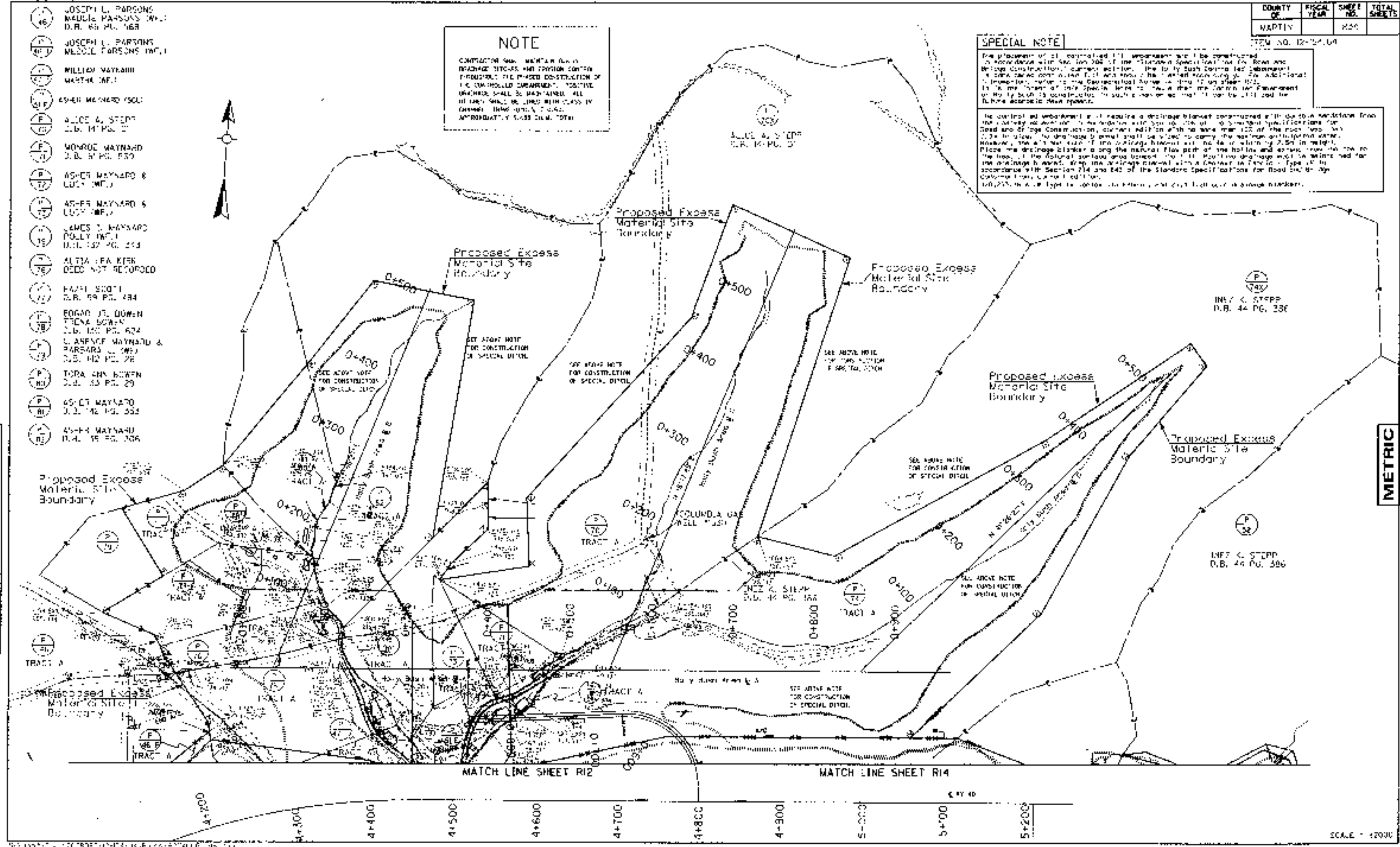
The contractor shall be responsible for the construction of the drainage blanket and shall be responsible for the construction of the drainage blanket and shall be responsible for the construction of the drainage blanket and shall be responsible for the construction of the drainage blanket.

- (16) JOSEPH L. PARSONS
MIDDLE PARSONS INC.
D.R. 68 PG. 168
- (17) JOSEPH L. PARSONS
MIDDLE PARSONS INC.
- (18) WILLIAM WAYNARD
WAYNARD INC.
- (19) 45-44 WAYNARD 500
- (20) ALICE A. STEPP
D.B. 44 PG. 30
- (21) MONROE WAYNARD
D.B. 5 PG. 550
- (22) ASHER WAYNARD 8
LUCK INC.
- (23) 45-45 WAYNARD 5
LUCK INC.
- (24) JAMES S. WAYNARD
POLLY INC.
D.R. 137 PG. 213
- (25) ALTA LFA KERN
DEED NOT RECORDED
- (26) HAZEL STOTT
D.R. 59 PG. 434
- (27) EGGAN J. DOWEN
TENA DOWEN
D.B. 100 PG. 624
- (28) L. ANNE WAYNARD &
PARSONS INC.
- (29) TORA ANN KORTEN
D.B. 53 PG. 29
- (30) 45-47 WAYNARD
D.B. 76 PG. 334
- (31) 45-44 WAYNARD
D.B. 15 PG. 306

DATE	DATE	DATE
PREPARED BY	CHECKED BY	APPROVED BY

DATE: 24-FEB-2011 14:34

6-43 PDR ML Sm



METRIC

PLAN SHEET Holly Bush Controlled Embankment

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MARTIN	2004	1052	289

CONTROLLED EMBANKMENT TOTALS

FOLLY BUSH CONTROLLED EMBANKMENT:

CLIPPING & STRIPPING 30,269 Linear ft.

CIAL EMBANKMENT 7,092,030 CIAL A.

For report contained within this block is for the entire Folly Bush Embankment project.

PREPARED BY _____ DATE _____

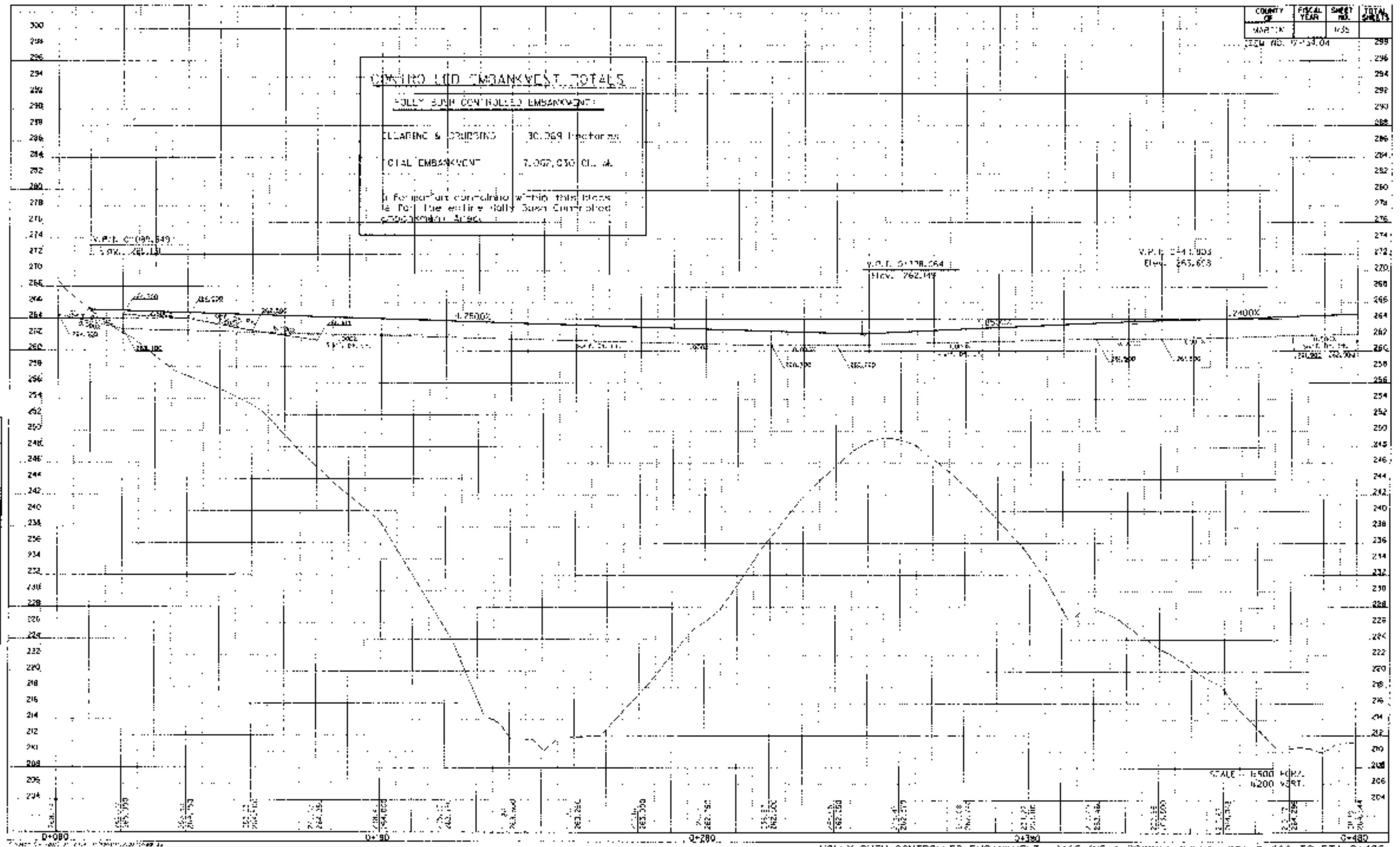
CHECKED BY _____ DATE _____

APPROVED BY _____ DATE _____

CONTRACT NO. 04-0000000000000000

DATE: FEB-2004

FORM NO. 48

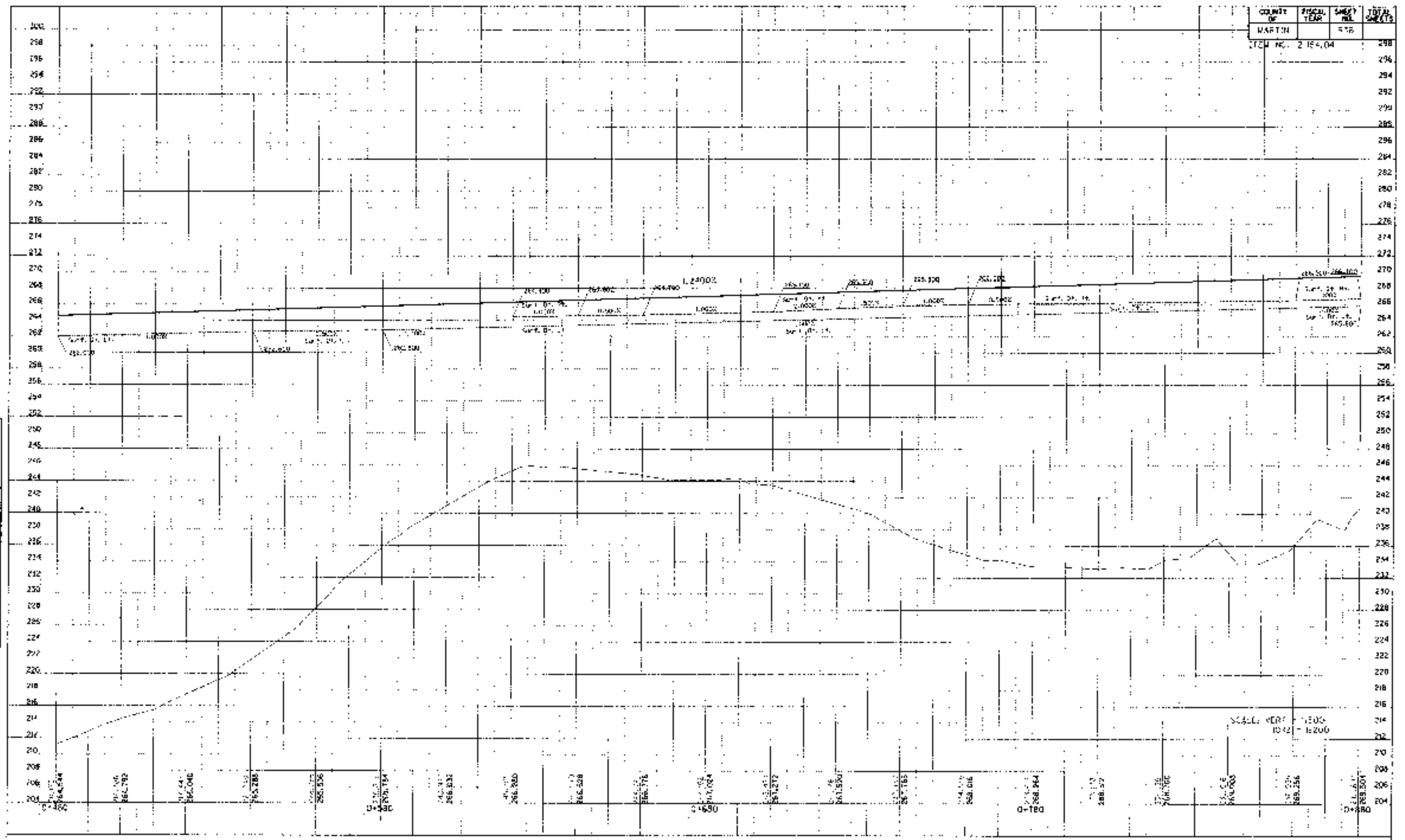


HOLLY BUSH CONTROLLED EMBANKMENT BASE (LINE A) PROFILE SHEET STA 0+080 TO STA 0+480

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MARTIN	2014-04	215	298

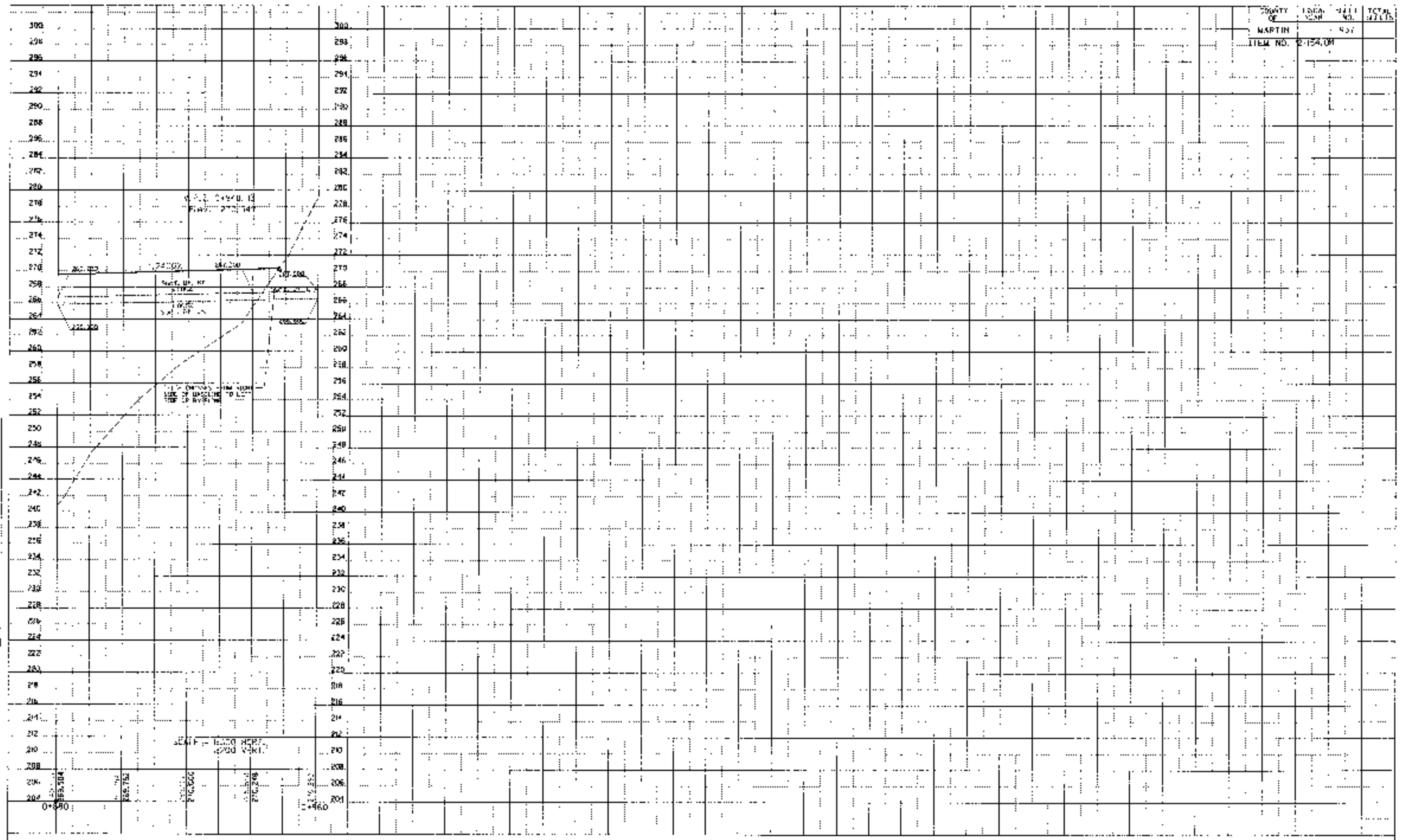
PREPARED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED BY _____ DATE _____

6-13
 104
 104



HOLLY BUSH CONTROLLED EMBANKMENT BASLINE A PROFILE SHEET STA. 0+480 TO STA. 0+880

COUNTY OF MARTIN
 LOCAL ORDER NO. 2-154,08
 SHEET NO. 457
 TOTAL SHEETS



DATE: 11/11/11
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SCALE: 1"=40'

HOLLY BUSH CONTROLLED EMBANKMENT BASELINE A PROFILE SHEET STA 0+800 TO STA 0+960

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASSACHUSETTS	2024	136	238

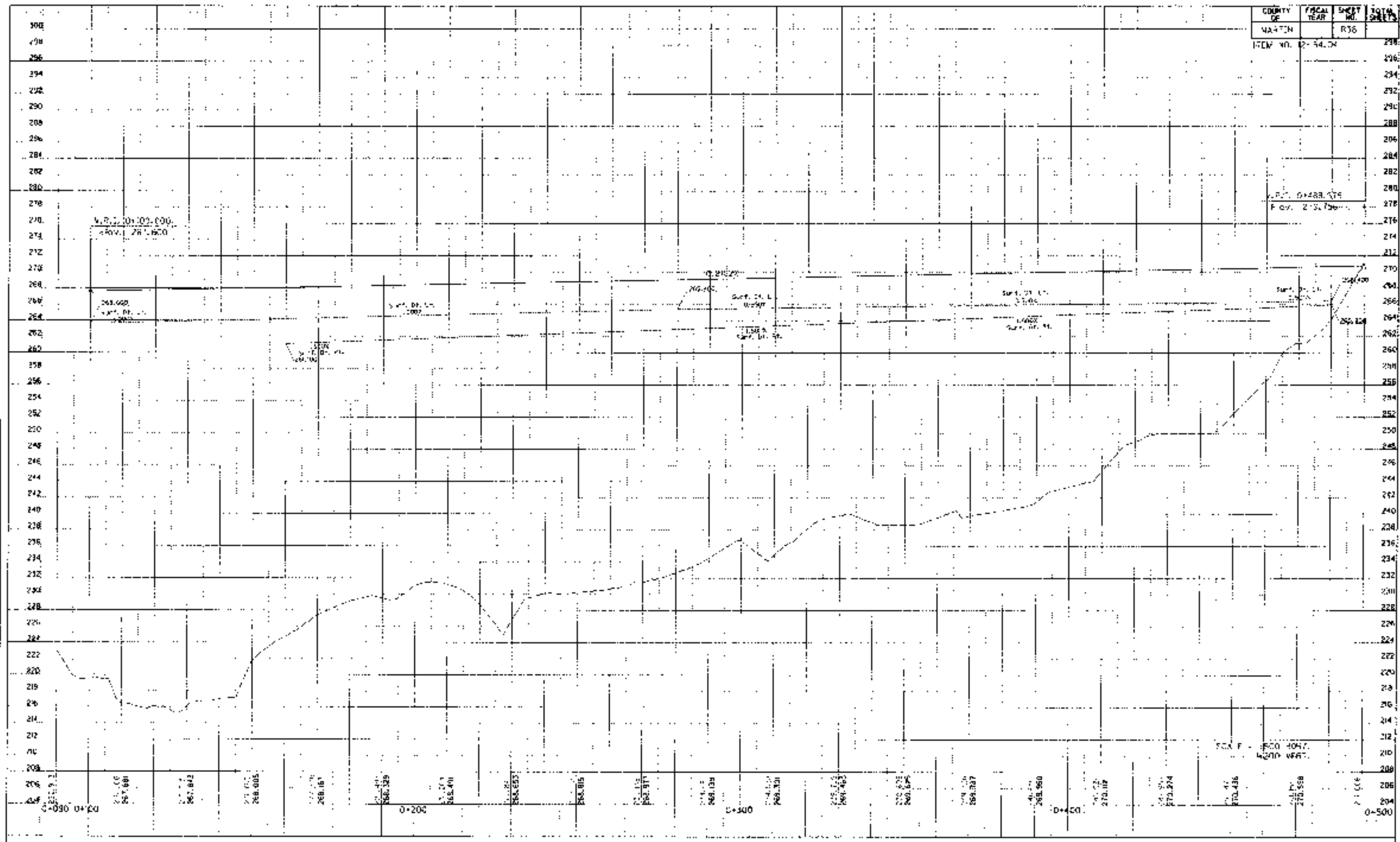
ITEM NO. 2-54.04

Proj. 0+488.075
Elev. 215.70

8-93
P&M ML-484

Prepared by: _____ DATE: _____
 Checked by: _____ DATE: _____
 Approved by: _____ DATE: _____

Call Library: 781-862-0000
 Call Home: 781-862-0000
 24-FEB-2021 1:41

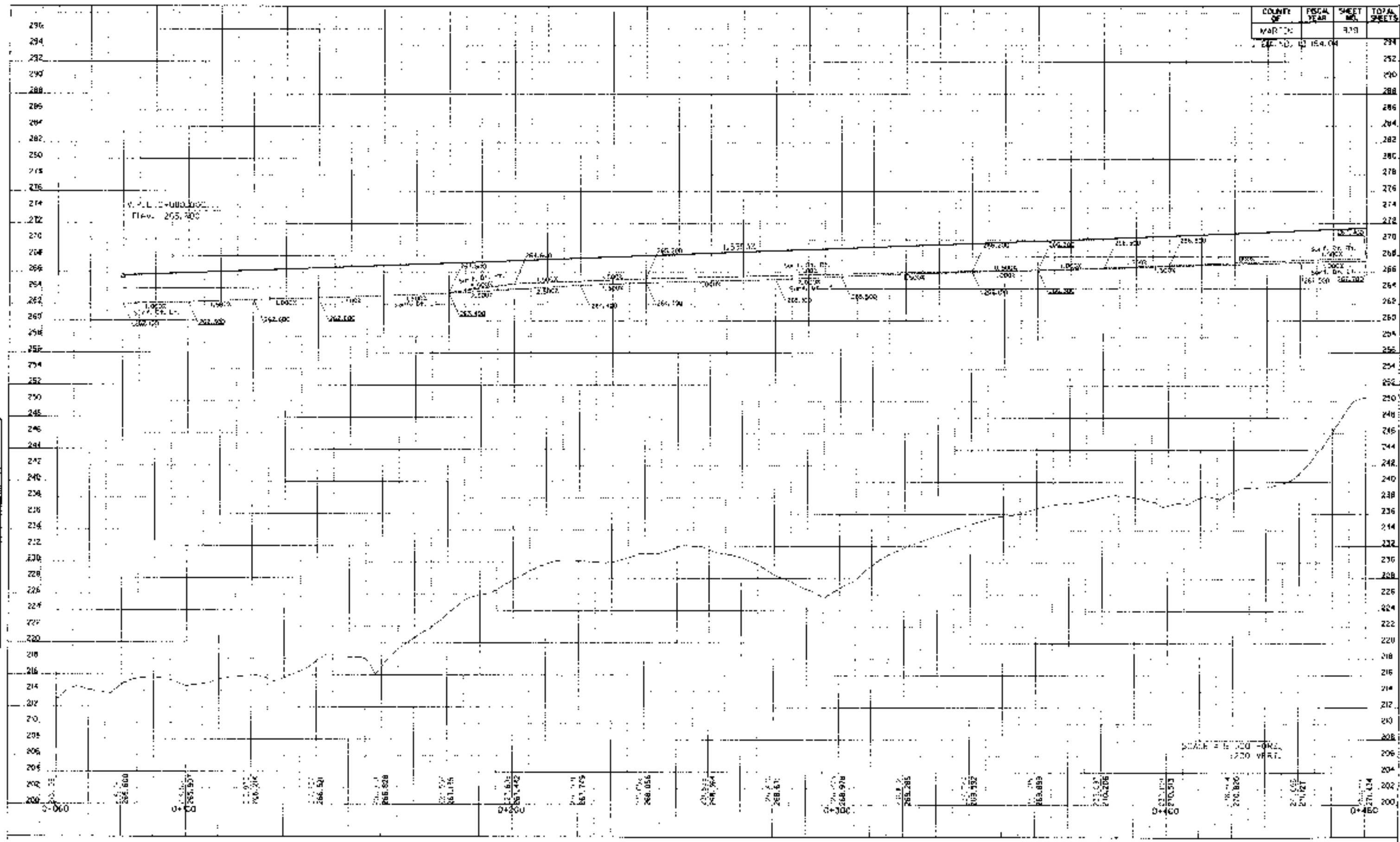


HOLLY BUSH CONTROLLED EMBANKMENT BASELINE B PROFILE SHEET STA 0+090 TO STA 0+500

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
WARTON	1954-55	339	339

PREPARED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED BY _____ DATE _____

Cap Library rechecked and
 Cal. No. 107
 211-1111-2111 1-1-42



HOLLY BUSH CONTROLLED EMBANKMENT BASELINE C PROFILE SHEET STA 0+060 TO STA 0+460

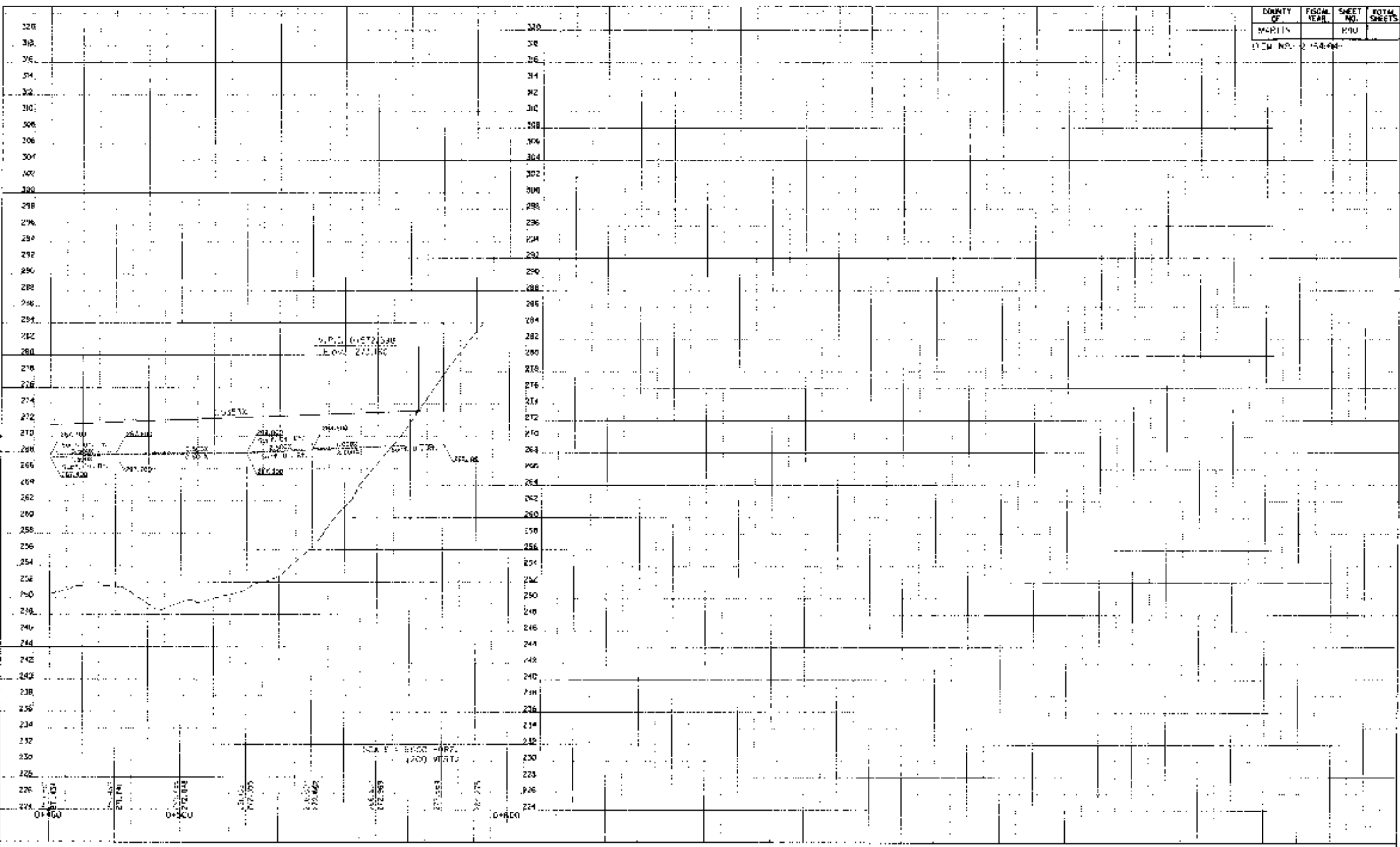
COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MARION		110	

ITEM NO. 2 154-94

PREPARED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED BY _____ DATE _____

ONE LIBRARY READING AND
 CALL NUMBER 107
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M-73
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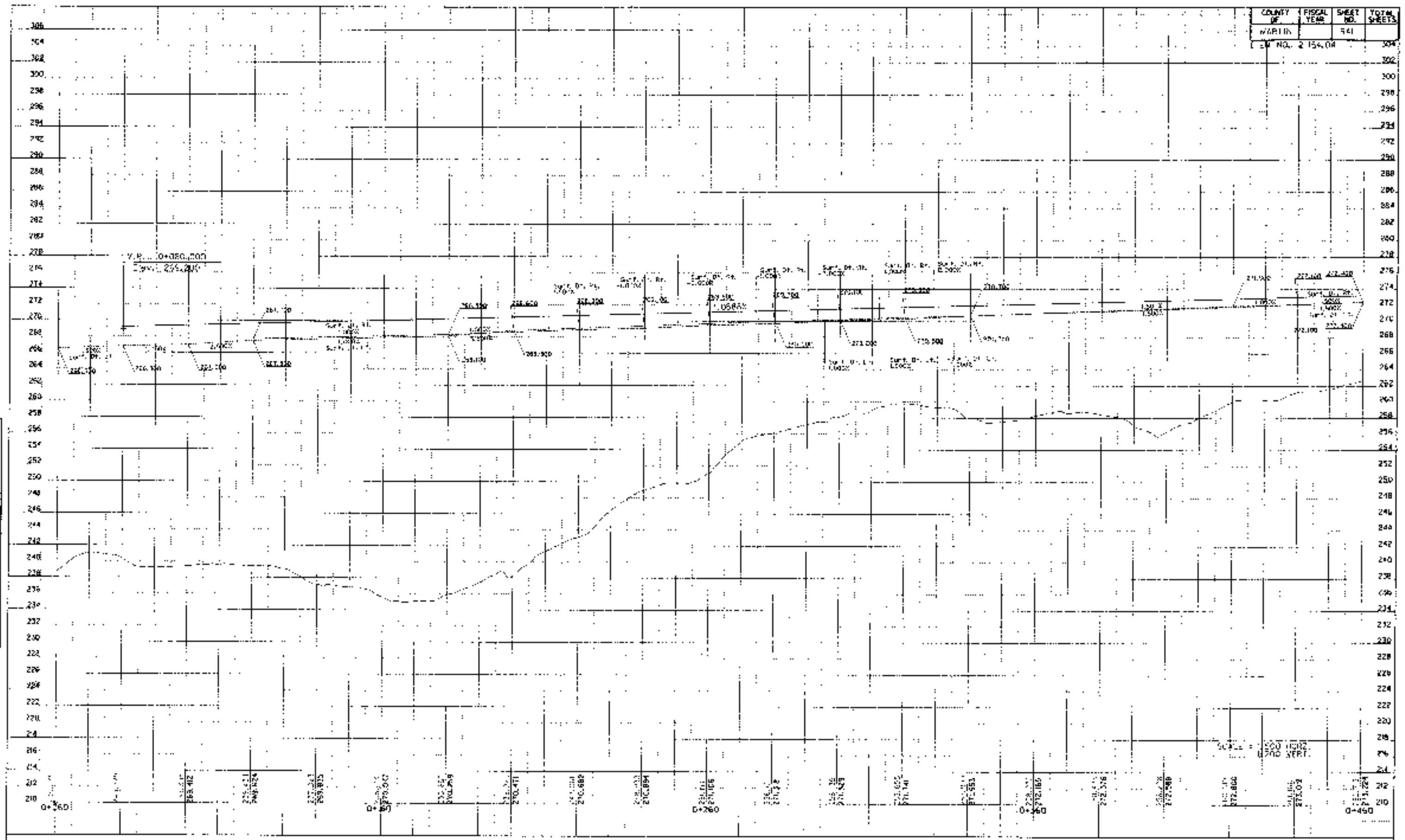


RIGHT BUSH CONTROLLED EMBANKMENT BASELINE C PROFILE SHEET STA 0+460 TO STA 0+600

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MARION	2015-04	541	504

PREPARED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED BY _____ DATE _____

CALL NUMBER: 800-456-1234
 DATE: 24-FEB-2011 14:42
 FROM: M.L. #10



HOLLY HUSII CONTROLLED EMBANKMENT BASELINE B PROFILE SHEET STA 0+000 TO STA 0+450

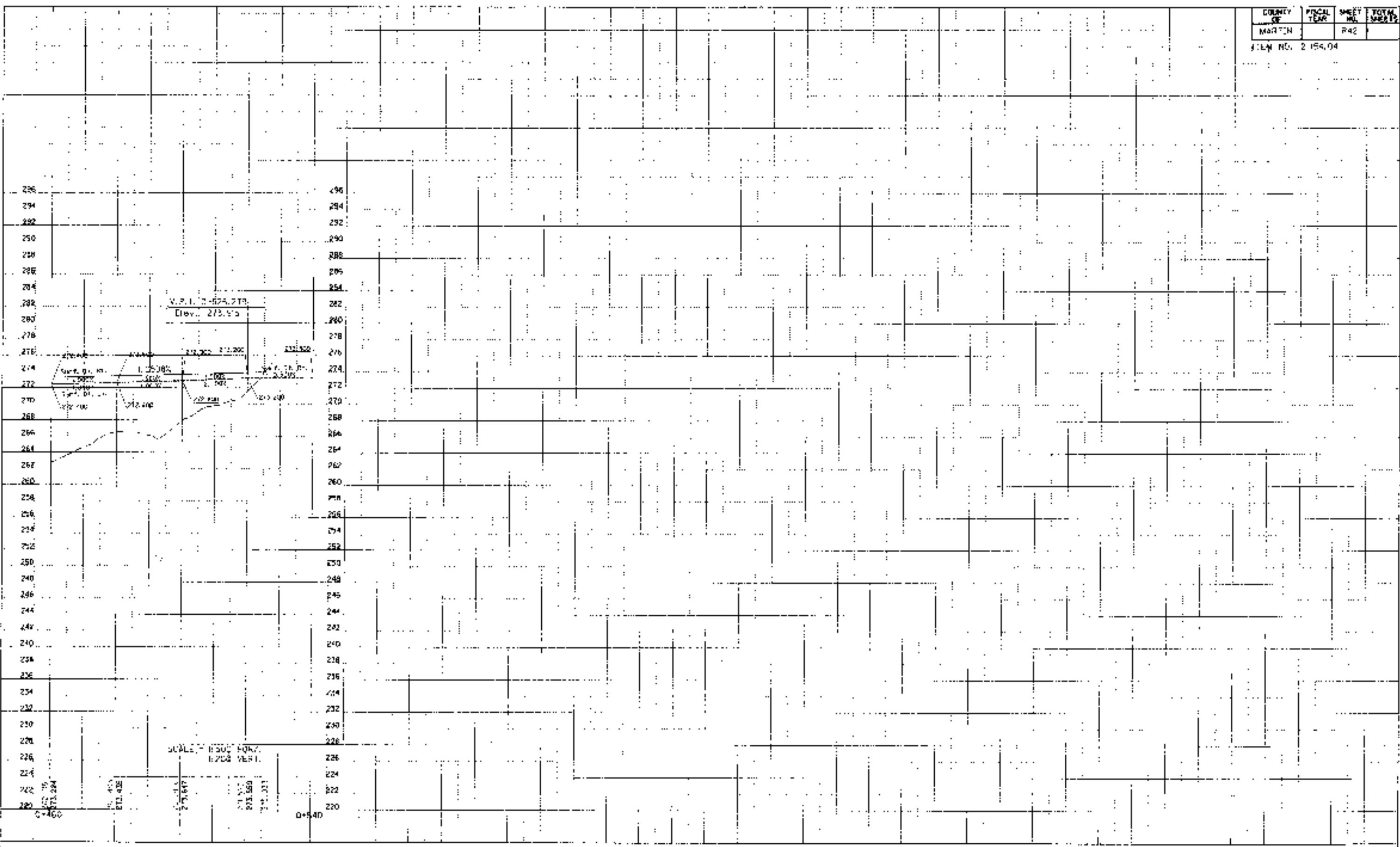
COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MARTIN		142	

PLAN NO. 2154.04

PREPARED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED BY _____ DATE _____

Cell No. 071, 4000000, 00
 Cal. Reg. No. 107
 21 FEB 2003 14143

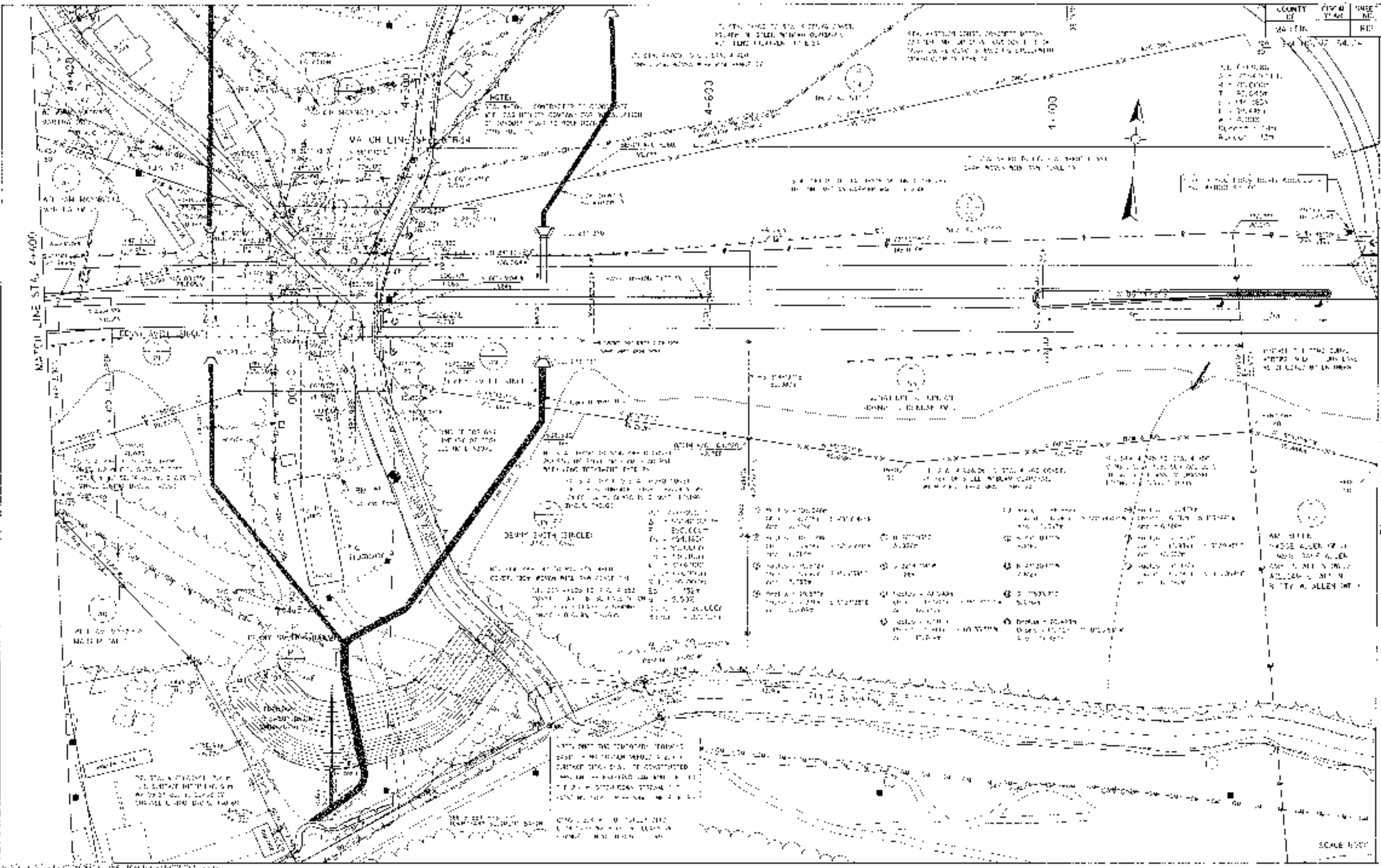
8-13
 FORM NO. 184



HOLLY BUSH CONTROLLED EMBANKMENT BASELINE PROFILE SHEET STA 0+460 TO STA 0+540

REVISION BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 APPROVED BY: _____ DATE: _____

CIVIL ENGINEER: _____
 C.E. No. _____
 STATE OF KY. _____
 EXPIRES: _____



COUNTY	PROJECT	SHEET	TOTAL
NO.	NO.	NO.	SHEETS
24	111	12	36

1. 100.00	100.00
2. 100.00	100.00
3. 100.00	100.00
4. 100.00	100.00
5. 100.00	100.00
6. 100.00	100.00
7. 100.00	100.00
8. 100.00	100.00
9. 100.00	100.00
10. 100.00	100.00

DEPT. SOUTH SINGLE

1. 100.00	100.00
2. 100.00	100.00
3. 100.00	100.00
4. 100.00	100.00
5. 100.00	100.00
6. 100.00	100.00
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8. 100.00	100.00
9. 100.00	100.00
10. 100.00	100.00

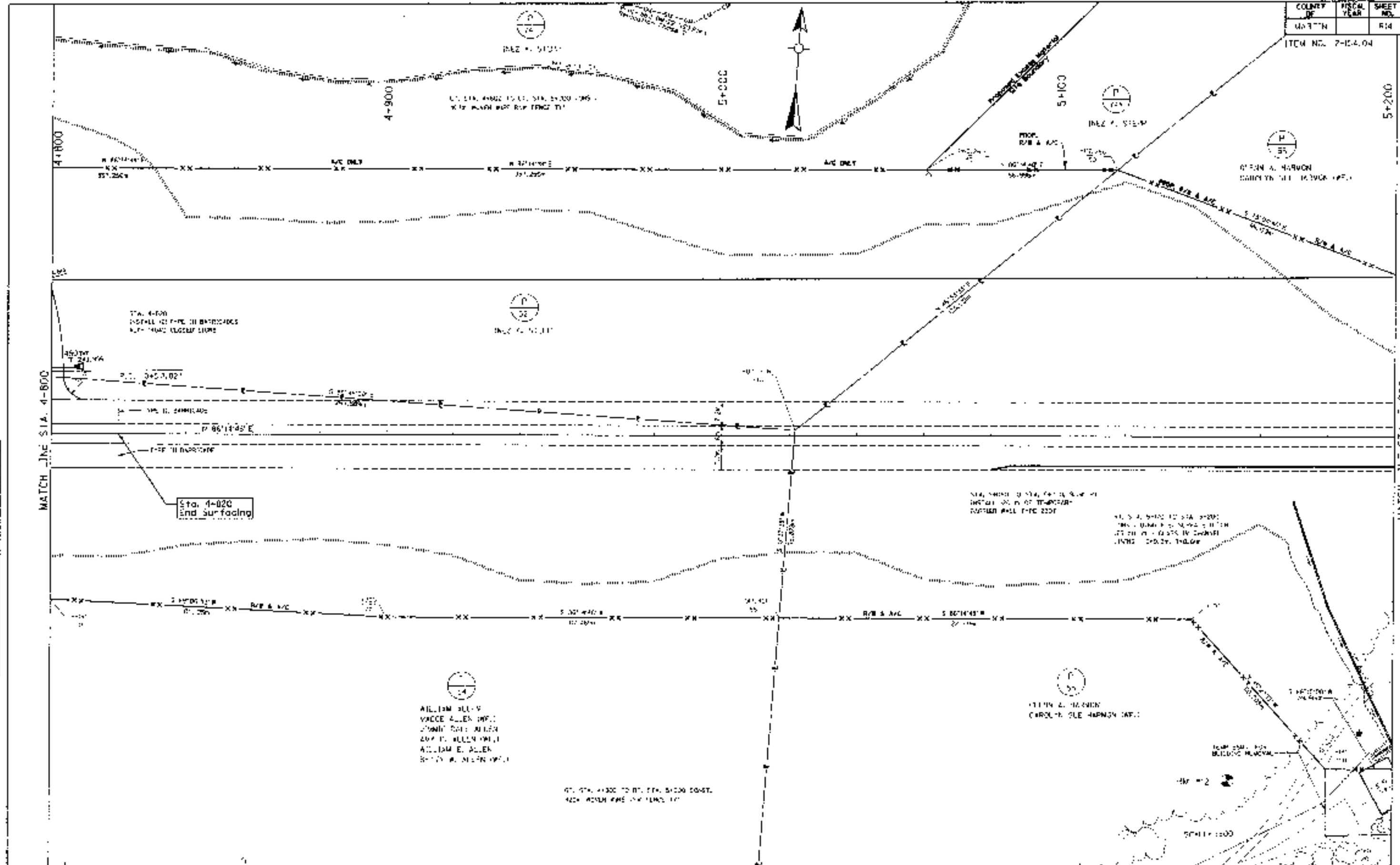
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4. 100.00	100.00	4. 100.00	100.00
5. 100.00	100.00	5. 100.00	100.00
6. 100.00	100.00	6. 100.00	100.00
7. 100.00	100.00	7. 100.00	100.00
8. 100.00	100.00	8. 100.00	100.00
9. 100.00	100.00	9. 100.00	100.00
10. 100.00	100.00	10. 100.00	100.00

MATCH LINE STA. 4+800

METRIC

COUNTY	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MADISON		814	

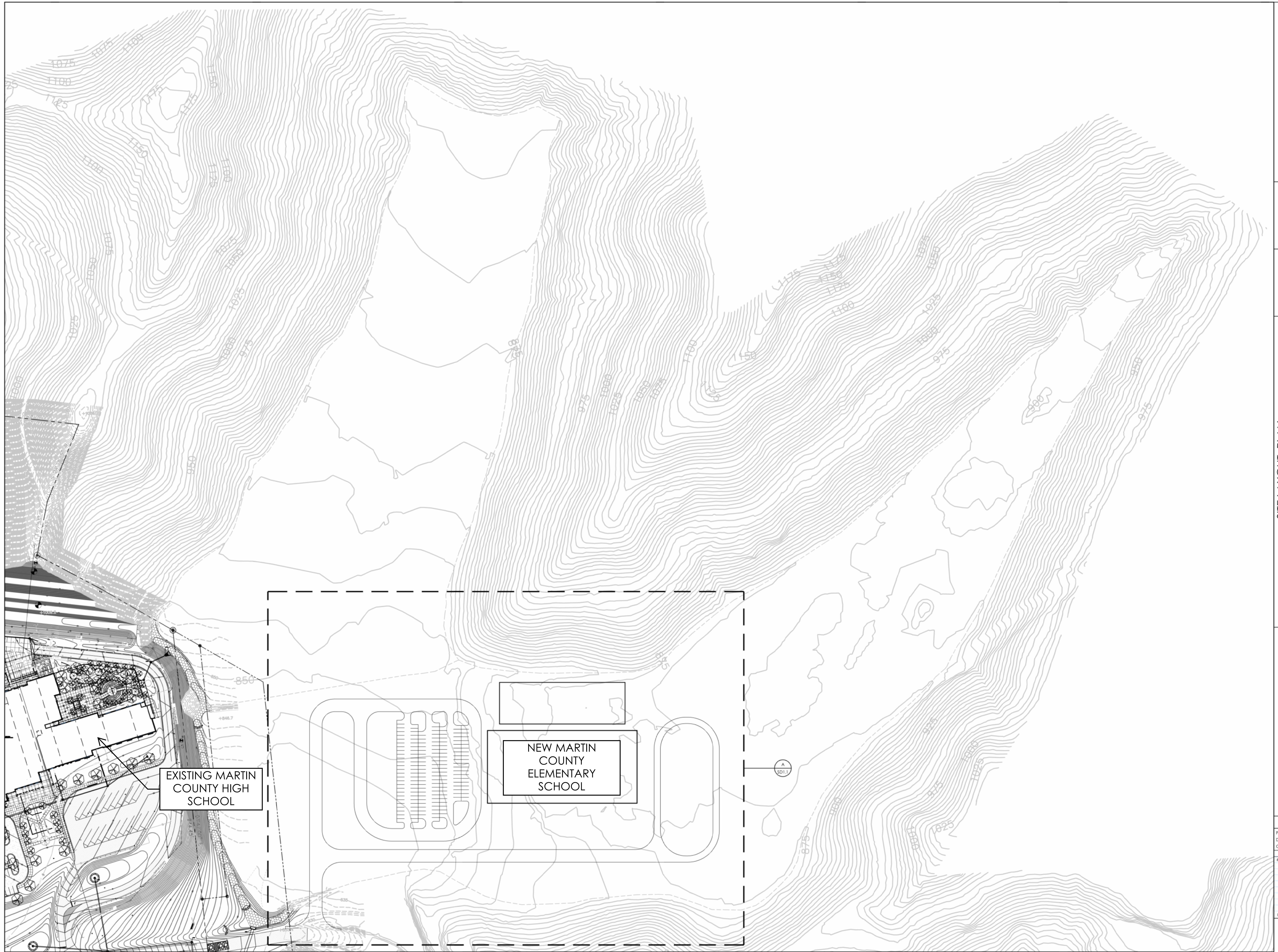
ITEM NO. 7-12.4.04



PREPARED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE

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 Date: 24-FEB-2011 14:22
 6-43
 Paper: 11x17

KY 40 PLAN SHEET - Sta. 4+800 to Sta. 5+200



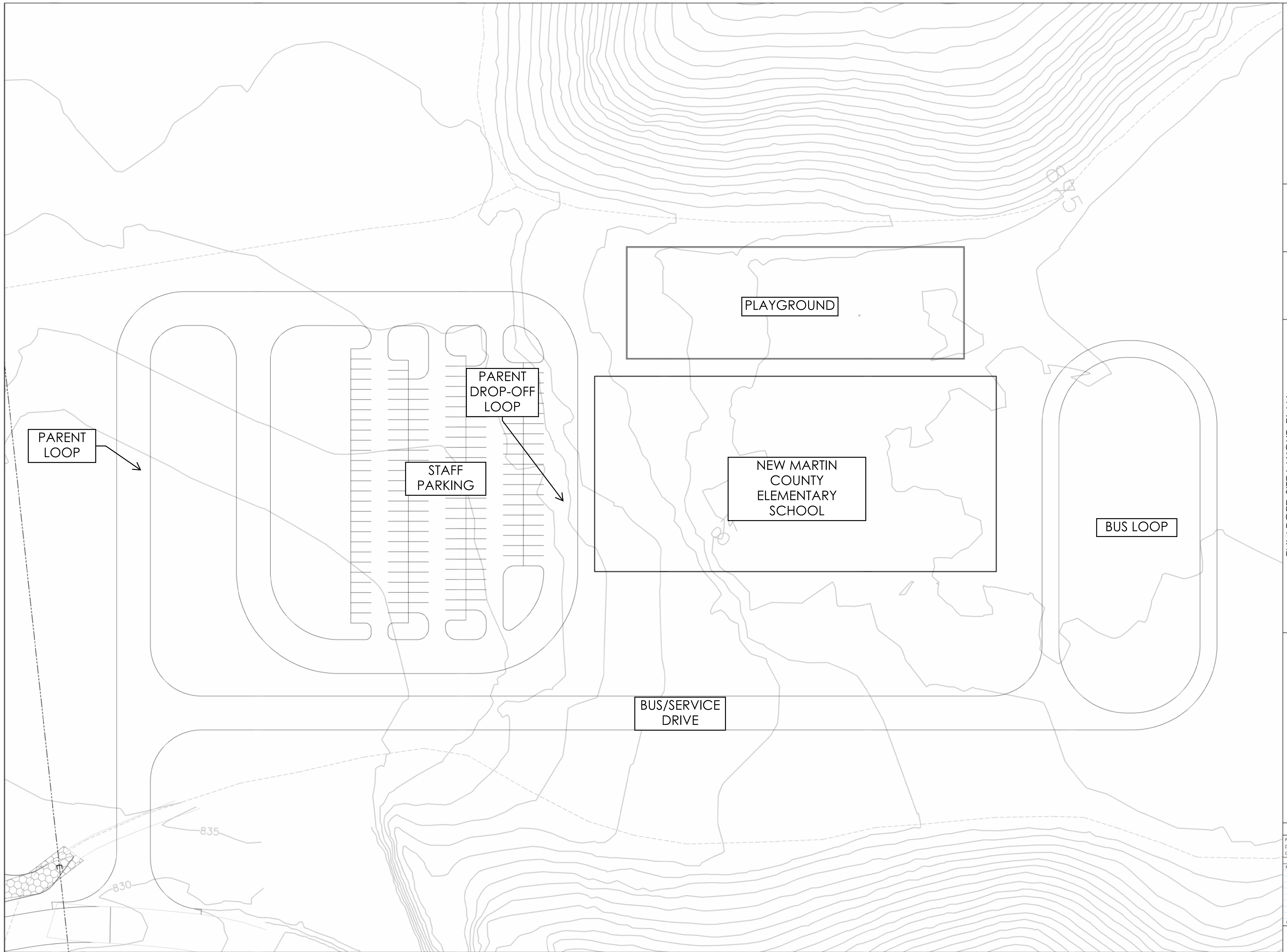
EXISTING MARTIN COUNTY HIGH SCHOOL

NEW MARTIN COUNTY ELEMENTARY SCHOOL

Project No: _____
 Drawn By: _____
 Checked By: _____

REVISIONS	
#	DESCRIPTION

COPYRIGHT © 2021
 SCHEMATIC DESIGN



Project No: _____
 Drawn By: _____
 Checked By: _____

REVISIONS	
#	DESCRIPTION

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 SCHEMATIC DESIGN



COMMITMENT FOR TITLE INSURANCE
ISSUED BY
COMMONWEALTH LAND TITLE INSURANCE COMPANY

NOTICE

IMPORTANT-READ CAREFULLY; THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACTIONAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and the Commitment Conditions, **Commonwealth Land Title Insurance Company, a Florida corporation** (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I-Requirements have not been met within 180 Days after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

COMMONWEALTH LAND TITLE INSURANCE COMPANY

By:

President

Attest:

Secretary

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by COMMONWEALTH LAND TITLE INSURANCE COMPANY. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

81C165B

ALTA Commitment for Title Insurance 8-1-16

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Commitment No.:

COMMITMENT CONDITIONS

1. **DEFINITIONS**
 - (a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.
 - (b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
 - (c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.
 - (d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
 - (e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
 - (f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.
 - (g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.
 - (h) "Title": The estate or interest described in Schedule A.
2. If all of the Schedule B, Part I-Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.
3. The Company's liability and obligation is limited by and this Commitment is not valid without:
 - (a) the Notice;
 - (b) the Commitment to Issue Policy;
 - (c) the Commitment Conditions;
 - (d) Schedule A;
 - (e) Schedule B, Part I-Requirements; and
 - (f) Schedule B, Part II-Exceptions; and
 - (g) a counter-signature by the Company or its issuing agent that may be in electronic form.
4. **COMPANY'S RIGHT TO AMEND**

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.
5. **LIMITATIONS OF LIABILITY**
 - (a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
 - (i) comply with the Schedule B, Part I-Requirements;
 - (ii) eliminate, with the Company's written consent, any Schedule B, Part II-Exceptions; or

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by: COMMONWEALTH LAND TITLE INSURANCE COMPANY. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

81C165B

ALTA Commitment for Title Insurance 8-1-16

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COMMITMENT CONDITIONS (Continued)

Commitment No.:

- (iii) acquire the Title or create the Mortgage covered by this Commitment.
- (b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
- (c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
- (d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
- (e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
- (f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I-Requirements have been met to the satisfaction of the Company.
- (g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

6. **LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT**

- (a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
- (b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
- (c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
- (d) The deletion or modification of any Schedule B, Part II-Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
- (e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
- (f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. **IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT**

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

8. **PRO-FORMA POLICY**

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

Commitment for Title Insurance – Schedule A

Issued by **Commonwealth Land Title Insurance Company**



Commonwealth Land Title Insurance Company
PO Box 45023
Jacksonville, FL 32232-5023

1. Effective Date: January 23, 2024

2. Policy or Policies to be issued:

a. Owner's Policy (6/17/06): Amount: \$TBD

Proposed Insured: Martin County Board of Education

b. Loan Policy (6/17/06): Amount: \$

Proposed Insured:

3. The estate or interest in the land described or referred to in this Commitment is Fee Simple

4. Title to the real estate or interest in the land is at the Effective Date vested in:

Current Owner: Martin County Economic Development Authority

Purchaser: Martin County Board of Education

Source Deed: A portion of Deed Book 194, Page 669

5. The land referred to in this Commitment is described as follows: See Exhibit 'A' attached hereto.

Countersigned:

A handwritten signature in black ink, appearing to be 'M.K. Sh'.

Authorized Officer or Agent

Schedule B - Section 1

The following requirements must be complied with prior to the policy or policies being issued:

1. Payment of the full consideration to, or for the account of, the grantors or mortgagors of the full consideration for the estate or interest to be insured.
2. Payment of all premiums and charges for the policy.
3. The company's receipt of written notification of anyone not referred to in this Commitment who will obtain an estate or interest in the land or make a mortgage thereon.
4. Instrument(s) creating the estate or interest to be insured must be approved, executed and duly recorded:

Deed of Conveyance being lodged of record conveying the interest of Martin County Economic Development Authority, in the subject tract to Martin County Board of Education.
5. All outstanding real estate taxes, water, sewer and other municipal assessments and charges to be paid at or prior to closing.
6. Satisfactory evidence should be had that improvements and/or repairs or alterations thereto are completed, that contractor, sub-contractors, labor and materialmen are all paid; and have released of record all liens or notice of intent to perfect a lien for labor or material

Schedule B - Section 2

Schedule B of the Policy or Policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company:

1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof, but prior to the date the proposed Insured acquires for value of record the estate or interest or Mortgage thereon covered by this Commitment.
2. STANDARD EXCEPTIONS:
 - A. Rights of the present tenants, lessees or parties in possession not shown by the public records.
 - B. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
3. Subject to the following conditions set out in the deed from the Commonwealth of Kentucky, Transportation Cabinet, Department of Highways to Martin County Fiscal Court, dated May 11, 2015, of record in Deed Book 189, Page 352:
 - a) This conveyance is subject to any and all utility or other easements of record in or upon the above-described property and to any and all rights of others recognized and/or permitted by the Grantor for the presence of utilities, (i.e. electric, gas, water, telephone, cable TV, etc.), in or upon the property, and in respect to such utility rights, where no easements exists, this conveyance is subject to the Grantee's agreement to dedicate or convey permanent easements to the owner(s) of said utilities for the perpetual maintenance thereof.
 - b) The erection of and/or maintenance of off-remise advertising devices, including but not necessarily limited to billboards, upon the above-described property is prohibited.
 - c) Should the property cease to be put to a public use by the Martin County Fiscal Court the property shall revert to the Commonwealth of Kentucky, for the use and benefit of the Transportation Cabinet, without monetary consideration.
 - d) Should the Grantee convey any portion of the herein-described property, for other than a public purpose, the fair market value of the property so conveyed will be paid to the Grantor.
 - e) The Grantee agrees to maintain the herein-described property, in good condition. The Grantor and the Grantee agree and understand that any needed infrastructure required to develop the herein-described property shall be the responsibility of the Grantee.
 - f) The Transportation Cabinet does not represent that the hereinbefore-described property is suitable for any specific use or purpose.
4. Subject to a right of way easement to Columbia Gas Transmission Corporation from Monroe and Pamela Maynard, dated November 14, 2002 of record in Deed Book 148, Page 301.
5. Subject to a right of way easement to Columbia Gas Transmission Corporation from Asher Maynard, divorced, dated May 2, 2002 of record in Deed Book 147, Page 294.
6. Subject to a right of way easement to Columbia Gas Transmission Corporation from Ollie Maynard Sturgill, dated November 14, 2002 of record in Deed Book 148, Page 311.
7. Subject to a right of way easement to Columbia Gas Transmission Corporation from Rhodine and James Martin, dated November 14, 2002 of record in Deed Book 148, Page 306.
8. Subject to a right of way easement to Columbia Gas Transmission Corporation from Lucky and Lydia Maynard, dated November 26, 2002, recorded in Deed Book 148, Page 296.
9. Subject to a right of way easement to Columbia Gas Transmission Corporation from James Maynard and Polly Maynard, dated August 18, 1988, of record in Deed Book 105, Page 700.
10. Subject to a right of way easement to Kentucky Power Company from Asher and Lucy Maynard, dated August 7, 1980 of record in Deed Book 88, Page 443.
11. Subject to a right of way easement to Kentucky Power Company from Jonathan S. Duncan and Bonnie J. Duncan dated June 12, 1985 of record in Deed Book 98, Page 237.
12. Subject to any easements, encroachments, rights of way, or other findings found on that map of the subject

property dated October 31-2023-November 8, 2023 as prepared by Bocook Engineering, Inc.

13. Subject to the provision in that deed of conveyance from Jay Kirk to Mark Maynard and Virgie Maynard, dated August 28, 1963, of Deed Book 60, Page 521 wherein the Grantor reserved the right to use a road on the property being conveyed.

11. Subject to a deed from William V. Ratcliff, et al to Jay Kirk dated February 5, 1946, of record in Deed Book 44, Page 107 wherein all mineral rights were reserved.

NOTE: AN OWNER'S POLICY ISSUED IN CONNECTION WITH THIS COMMITMENT WILL CONTAIN THE FOLLOWING PRE-PRINTED EXCEPTIONS:

1. Rights or claims of parties other than Insured in actual possession of any or all of the property.

American Land Title Association Commitment
Schedule B - Section 2

Exhibit A

Being a tract of land lying in eastern Martin County beginning approximately 1,000 meters (3,280.83 feet) northeast of the intersection of old KY 40 and new KY 40 on the Blacklog Fork and being more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an "iron pin set" is a set 5/8" diameter iron re-bar eighteen (18") in length, with a yellow plastic cap stamped "LS 2830". Unless stated otherwise, any monument referred to herein as an "iron pin found" is a found 5/8" diameter re-bar with an aluminum cap stamped "Bocook Engineering, Inc.". All bearings and coordinates stated herein are referred to the Kentucky South Zone, NAD 88 grid North.

Beginning at a KYTC right of way monument set in the south property line of KYTC; having coordinates of N 2,213,083.02, E 2,575,475.67; and being 25.579 meters (83.92 feet) left of KY 40 at Station 4+419.778;

thence, with the south property of KYTC line North 64 Degrees 18 Minutes 32 Seconds West a distance of 53.840 meters (176.64 feet) to a KYTC right of way monument set in the south property line 54.819 (179.85 feet) meters left of KY 40 at Station 4+376.554;

thence, with the south property line of KYTC North 86 Degrees 41 Minutes 16 Seconds West a distance of 32.920 meters (108.01 feet) to a KYTC right of way monument found in the south property line 62.202 meters (204.07 feet) left of KY 40 at Station 4+346.537;

thence with the south property line of KYTC North 86 Degrees 43 Minutes 01 Seconds West a distance of 138.346 meters (453.89 feet) to a KYTC right of way monument found in the south property line, a corner common to Joseph L. Parsons (DB 65 PG 352) 105.018 meters (344.54 feet) left of KY 40 at Station 4+226.634;

thence, with the southwest property line of KYTC and Parsons North 12 Degrees 27 Minutes 29 Seconds West a distance of 10.541 meters (34.58 feet) to a KYTC right of way monument found in the southwest property line 115.497 meters (378.92 feet) left of KY 40 at Station 4+227.649;

thence, with the southwest property line of KYTC and Parsons North 12 Degrees 24 Minutes 29 Seconds West a distance of 10.816 meters (35.49 feet) to a KYTC right of way monument found in the southwest property line 126.249 meters (414.20 feet) left of KY 40 at Station 4+228.676;

thence, with the southwest property line of KYTC and Parsons North 37 Degrees 29 Minutes 39 Seconds West a distance of 73.397 meters (240.80 feet) to a KYTC right of way monument found in the southwest property line 195.962 meters (642.91 feet) left of KY 40 at Station 4+209.363;

thence, with the southwest property line of KYTC and Parsons North 37 Degrees 20 Minutes 21 Seconds West a distance of 28.182 meters (92.46 feet) to a KYTC right of way monument found in the southwest property line 222.882 meters (731.23 feet) left of KY 40 at Station 4+202.673;

thence, with the southwest property line of KYTC and Parsons North 25 Degrees 43 Minutes 05 Seconds West a distance of 10.227 meters (33.55 feet) to a KYTC right of way monument found in the southwest property line 233.064 meters (764.64 feet) left of KY 40 at Station 4+201.923;

thence, with the southwest property line of KYTC and Parsons North 31 Degrees 46 Minutes 03 Seconds West a distance of 15.807 meters (51.86 feet) to a KYTC right of

way monument found in the southwest property line 248566 meters (815.46 feet) left of KY 40 at Station 4+199.513;

thence, with the southwest property line of KYTC and Parsons North 70 Degrees 26 Minutes 43 Seconds West a distance of 70.464 meters (231.18 feet) to a KYTC right of way monument found in the southwest property line 295.244 meters (968.64 feet) left of KY 40 at Station 4+ 159.508;

thence, with the southwest property line of KYTC North 63 Degrees 12 Minutes 37 Seconds West a distance of 89.919 meters (295.01 feet) to an iron pin set in the west property corner, a corner common to Joseph L. Parsons (DB 65 PG 352) and Warren G. Cassidy (DB 47 PG 195), 365.552 meters (1199.30 feet) left of KY 40 at Station 4+119.121;

thence, with the northwest property line of KYTC and Cassidy North 11 Degrees 59 Minutes 32 Seconds East a distance of 93.876 meters (307.99 feet) to an iron pin set in the northwest property line of KYTC 412.377 meters (1352.93 feet) left of KY 40 at Station 4+174.962;

thence, with the northwest property line of KYTC and Cassidy North 70 Degrees 11 Minutes 03 Seconds East a distance of 41.584 meters (136.43 feet) to a KYTC right of way monument found in the northwest property line of KYTC 411.315 meters (1349.44 feet) left of KY 40 at Station 4+202.966;

thence, with the northwest property line of KYTC and Cassidy North 69 Degrees 59 Minutes 42 Seconds East a distance of 80.668 meters (264.66 feet) to a KYTC right of way monument found in the northwest property line of KYTC (413.428 meters (1356.37 feet) left of KY 40 at Station 4+257.273;

thence, with the northwest property line of KYTC and Cassidy North 52 Degrees 28 Minutes 23 Seconds East a distance of 57.178 meters (187.59 feet) to a KYTC right of way monument found in the northwest property line of KYTC, a corner common to Warren G. Cassidy (DB 47 PG 195) and Tara Ann Bowen (DB 133 PG 29), 434.892 meters (1426.79 feet) left of KY 40 at Station 4+292.631;

thence, with the northwest property line of KYTC and Bowen North 35 Degrees 06 Minutes 21 Seconds East a distance of 162.097 meters (531.81 feet) to a KYTC right of way monument found in the northwest property line of KYTC, a corner common to Tara Ann Bowen (DB 133 PG 29) and Asher Maynard (DB 139 PG 306), 545.823 meters (1790.74 feet) left of KY 40 at Station 4+367.674;

thence, with the northwest property line of KYTC and Maynard North 34 Degrees 04 Minutes 30 Seconds East a distance of 132.349 meters (434.22 feet) to a KYTC right of way monument found in the northwest property line of KYTC 644.881 meters (2115.73 feet) left of KY 40 at Station 4+419.935;

thence, with the northwest property line of KYTC and Maynard South 82 Degrees 52 Minutes 39 Seconds East a distance of 125.339 meters (411.22 feet) to a KYTC right of way monument found in the northwest property line 619.934 meters (2033.88 feet) left of KY 40 at Station 4+519.931;

thence, with the northwest property line of KYTC and Maynard South 5 Degrees 25 Minutes 59 Seconds West a distance of 299.335 meters (982.07 feet) to a KYTC right of way monument found in the northwest property line 324.459 meters (1064.49 feet) left of KY 40 at Station 4+473.074;

thence, with the northwest property line of KYTC and Maynard North 52 Degrees 42 Minutes 53 Seconds East a distance of 80.159 meters (26299 feet) to a KYTC right of way monument found in the northwest property line 168.718 meters (120969 feet) left of KY 40 at Station 4+538.966;

thence, with the northwest property line of KYTC and Maynard North 4 Degrees 44 Minutes 59 Seconds West a distance of 24491 meters (80.35 feet) to a KYTC right of way monument found in the northwest property line 393.205 meters left (1290.03 feet) of KY 40 at Station 4+538.542;

thence, with the northwest property line of KYTC and Maynard North 13 Degrees 07 Minutes 08 Seconds East a distance of 51.548 meters (169.12 feet) to an iron pin set in the northwest property line 442.535 meters (1451.87 feet) left of KY 40 at Station 4+553.503;

thence, with the northwest property line of KYTC and Maynard North 24 Degrees 32 Minutes 09 Seconds East a distance of 60.400 meters (198.16 feet) to an iron pin found in the northwest property line 495.721 meters (1626.36 feet) left of KY 40 at Station 4+582.128;

thence, with the northwest property line of KYTC and Maynard North 28 Degrees 28 Minutes 19 Seconds East a distance of 42.349 meters (138.94 feet) to an iron pin found in the northwest property line 531.547 meters (1743.90 feet) left of KY 40 at Station 4+604.711;

thence, with the northwest property line of KYTC and Maynard North 35 Degrees 47 Minutes 01 Seconds East a distance of 42.772 meters (140.33 feet) to an iron pin set in the northwest property line 564.533 meters (1852.12 feet) left of KY 40 at Station 4+631.939;

thence, with the northwest property line of KYTC and Maynard North 25 Degrees 27 Minutes 29 Seconds East a distance of 65.826 meters (215.96 feet) to a mag nail set in the northwest property line 621.967 meters (2040.81 feet) left of K Y 40 at Station 4+664.064;

thence, with the northwest property line of KYTC and Maynard North 8 Degrees 51 Minutes 11 Seconds East a distance of 47.251 meters (155.02 feet) to an iron pin found in the northwest property line 668.099 meters (2191.90 feet) left of KY 40 at Station 4+674.376;

thence, with the northwest property line of KYTC and Maynard North 6 Degrees 27 Minutes 21 Seconds West a distance of 48.197 meters (158.13 feet) to an iron pin set in the northwest property line, a corner common to Asher Maynard (DB 139 PG 306) and Stella Horn (DB 68 PG 996) 716.242 meters (2349.85 feet) left of KY 40 at Station 4+672.104;

thence, with the northwest property line of KYTC and Horn North 26 Degrees 38 Minutes 02 Seconds East a distance of 68.153 meters (223.60 feet) to a mag nail set in the northwest property line 775.032 meters (2542.72 feet) left of KY 40 at Station 4+706.578;

thence, with the northwest property line of KYTC and Horn North 26 Degrees 13 Minutes 27 Seconds East a distance of 51.699 meters (169.62 feet) to a pk nail found in the northwest property line 819.816 meters (2689.65 feet) left of KY 40 at Station 4+732.410;

thence, with the northwest property line of KYTC and Horn North 27 Degrees 26 Minutes 27 Seconds East a distance of 65.920 meters (216.27 feet) to a mag nail set in the northwest property line 876.204 meters (2874.65 feet) left of KY 40 at Station 4+766.553;

thence, with the northwest property line of KYTC and Horn North 46 Degrees 56 Minutes 48 Seconds East a distance of 70.277 meters (230.57 feet) to an iron pin found in the north property line 920.717 meters (3020.69 feet) left of K Y 40 at Station 4+820.936;

thence, with the north property line of KYTC and Horn North 68 Degrees 48 Minutes 47 Seconds East a distance of 54.157 meters (177.68 feet) to an iron pin found in the north property line 936.942 meters (3073.92 feet) left of KY 40 at Station 4+872.605;

thence, with the north property line of KYTC and Horn South 72 Degrees 20 Minutes 20 Seconds East a distance of 55.695 meters (182.73 feet) to an iron pin found in the north property line 916.607 meters (3007.20 feet) left of KY 40 at Station 4+924.455;

thence, with the north property line of KYTC and Horn South 82 Degrees 52 Minutes 18 Seconds East a distance of 36.481 meters (119.69 feet) to an iron pin found in the north property line 909.721 meters (2984.61 feet) left of KY 40 at Station 4+960.280;

thence, with the north property line of KYTC and Horn North 74 Degrees 49 Minutes 03 Seconds East a distance of 63.067 meters (206.98 feet) to an iron pin found in the north property line, a corner common to KYTC, Stella Horn (DB 68 PO 996) and John R. Horn (DB 55 PG 268) 922.221 meters (3025.62 feet) left of KY 40 at Station 5+022.116;

thence, with the northeast property line of KYTC and Horn South 43 Degrees 31 Minutes 51 Seconds East a distance of 49.728 meters (163.15 feet) to an iron pin found in the northeast property line 884.004 meters (2900.24 feet) left of KY 40 at Station 5+053.933;

thence, with the northeast property line of KYTC and Horn South 29 Degrees 34 Minutes 53 Seconds East a distance of 65.792 meters (215.47 feet) to an iron pin set in the northeast property line 806.782 meters (2646.89 feet) left of KY 40 at Station 5+091.310;

thence, with the northeast property line of KYTC and Horn South 38 Degrees 15 Minutes 41 Seconds East a distance of 64.300 meters (210.96 feet) to a mag nail set in

the northeast property line 753.796 meters (2473.05 feet) left of KY 40 at Station 5+127.736;

thence, with the northeast property line of KYTC and Horn South 42 Degrees 44 Minutes 29 Seconds East a distance of 48.442 meters (158.93 feet) to an iron pin found in the northeast property line 716.143 meters (2349.52 feet) left of KY 40 at Station 5+158.215;

thence, with the northeast property line of KYTC and Horn South 56 Degrees 39 Minutes 50 Seconds East a distance of 46.371 meters (152.14 feet) to an iron pin found in the northeast property line 688.179 meters (2257.78 feet) left of KY 40 at Station 5+195.205;

thence, with the northeast property line of KYTC and Horn North 65 Degrees 53 Minutes 24 Seconds East a distance of 67.926 meters (222.85 feet) to an iron pin set in the northeast property line 712.065 meters (2336.14 feet) left of KY 40 at Station 5+248.482;

thence, with the northeast property line of KYTC and Horn North 48 Degrees 50 Minutes 20 Seconds East a distance of 33.489 meters (109.87 feet) to an iron pin set in the northeast property line 732.983 meters (2404.77 feet) left of KY 40 at Station 5+264.002;

thence, with the northeast property line of KYTC and Horn North 63 Degrees 56 Minutes 58 Seconds East a distance of 40.846 meters (134.01 feet) to a mag nail set in the northeast property line a corner common to KYTC, John R. Horn (DB 55 PG 268) and Rosa James Heirs (DB 82 PG 645) 750.030 meters (2460.70 feet) left of KY 40 at Station 5+282.833;

thence, with the northeast property line of KYTC and James Heirs South 79 Degrees 31 Minutes 56 Seconds East a distance of 70.888 meters (232.57 feet) to an iron pin set in the northeast property line 738.182 meters (2421.83 feet) left of KY 40 at Station 5+312.650;

thence, with the northeast property line of KYTC and James Heirs North 84 Degrees 00 Minutes 36 Seconds East a distance of 102.562 meters (336.49 feet) to an iron pin set in the northeast property line 757.294 meters (2484.53 feet) left of KY 40 at Station 5+353.041;

thence, with the northeast property line of KYTC and James Heirs North 82 Degrees 28 Minutes 17 Seconds East a distance of 43.375 meters (142.31 feet) to an iron pin set in the northeast property line 768.910 meters (2522.64 feet) left of KY 40 at Station 5+369.585;

thence, with the northeast property line of KYTC and James Heirs North 74 Degrees 42 Minutes 31 Seconds East a distance of 29.416 meters (96.51 feet) to an iron pin set in the northeast property line 781.269 meters (2563.19 feet) left of KY 40 at Station 5+380.053;

thence, with the northeast property line of KYTC and James Heirs South 71 Degrees 46 Minutes 32 Seconds East a distance of 59.283 meters (194.50 feet) to an iron pin set in the east property line 774.295 meters (2540.31 feet) left of KY 40 at Station 5+403.092;

thence, with the east property line of KYTC and James Heirs South 5 Degrees 51 Minutes 24 Seconds East a distance of 164.916 meters (541.06 feet) to an iron pin set in the east property line, a corner common to Rosa James Heirs (DB 82 PG 645) and Inez K. Step (DB 44 PG 386) 619.279 meters (2031.73 feet) left of KY 40 at Station 5+426.656;

thence, with the southeast property line of KYTC and Step South 46 Degrees 59 Minutes 10 Seconds West a distance of 117.432 meters (385.27 feet) to an iron pin set in the southeast property line 520.992 meters (1709.27 feet) left of KY 40 at Station 5+396.593;

thence, with the southeast property line of KYTC and Step South 40 Degrees 35 Minutes 30 Seconds West a distance of 56.309 meters (184.74 feet) to an iron pin set in the southeast property line 471.901 meters (1548.21 feet) left of KY 40 at Station 5+382.748;

thence, with the southeast property line of KYTC and Step South 34 Degrees 59 Minutes 05 Seconds West a distance of 40.875 meters (134.10 feet) to an iron pin set in the southeast property line 434.868 meters (1426.71 feet) left of KY 40 at Station 5+373.673;

thence, with the southeast property line of KYTC and Step South 48 Degrees 57 Minutes 37 Seconds West a distance of 76.715 meters (251.69 feet) to an iron pin set in the southeast property line 377.068 meters (1237.08 feet) left of KY 40 at Station 5+345.816;

thence, with the southeast property line of KYTC and Step South 34 Degrees 11 Minutes 17 Seconds West a distance of 52.087 meters (170.89 feet) to an iron pin set in the southeast property line 331.421 meters (1087.33 feet) left of KY 40 at Station 5+331.127;

thence, with the southeast property line of KYTC and Step South 19 Degrees 38 Minutes 45 Seconds West a distance of 45.701 meters (149.94 feet) to an iron pin set in the southeast property line 287.388 meters (942.86 feet) left of KY 40 at Station 5+323.566;

thence, with the southeast property line of KYTC and Step South 30 Degrees 00 Minutes 24 Seconds West a distance of 38.164 meters (125.21 feet) to a mag nail set in the southeast property line 253.373 meters (831.27 feet) left of KY 40 at Station 5+312.331;

thence, with the southeast property line of KYTC and Step South 17 Degrees 45 Minutes 24 Seconds West a distance of 78.885 meters (258.81 feet) to an iron pin set in the south property line, a corner common to KYTC, Inez K. Step (DB 44 PG 386) and Glen A. Harmon (DB 72 PG 60) 177.628 meters (582.76 feet) left of KY 40 at Station 5+296.781;

thence, with the south property line of KYTC and Hannon South 71 Degrees 14 Minutes 33 Seconds West a distance of 20.677 meters (67.84 feet) to a mag nail set in the southeast property line 171.003 meters (561.03 feet) left of KY 40 at Station 5+281.552;

thence, with the south property line of KYTC and Harmon South 68 Degrees 03 Minutes 52 Seconds West a distance of 112.260 meters (368.31 feet) to an iron pin set in the south property line 134.521 meters (441.34 feet) left of K Y 40 at Station 5+183.778;

thence, with the south property line of KYTC and Harmon South 46 Degrees 56 Minutes 54 Seconds West a distance of 86.061 meters (282.35 feet) to a KYTC right of way monument found in the south property line, a corner common to K YTC and Glen A. Harmon (DB 72 PG 80) 80.014 meters (262.51 feet) left of KY 40 at Station 5+117.179;

thence, with the south property line of KYTC South 86 Degrees 14 Minutes 05 Seconds West a distance of 357.245 meters (1172.06 feet) to a KYTC right of way monument found in the south property line 79.940 meters (262.27 feet) left of KY 40 at Station 4+759.934;

thence, with the south property line of KYTC South 73 Degrees 46 Minutes 31 Seconds West a distance of 204.749 meters (671.75 feet) to a KYTC right of way monument found in the south property line 35.724 meters (117.20 feet) left of KY 40 at Station 4+560.016;

thence, with the south property line of KYTC South 73 Degrees 49 Minutes 02 Seconds West a distance of 40.961 meters (134.39 feet) to a KYTC right of way monument found in the south property line 26.908 meters (88.12 feet) left of KY 40 at Station 4+520.015;

thence, with the south property line of KYTC South 86 Degrees 10 Minutes 00 Seconds West a distance of 60.012 meters (196.89 feet) to a KYTC right of way monument found in the south property line 26.909 meters (88.28 feet) left of K Y 40 at Station 4+460.203;

thence, with the south property line of KYTC South 83 Degrees 15 Minutes 13 Seconds West a distance of 41.192 meters (135.14 feet) to a KYTC right of way monument set in the south property line 25.579 meters (83.92 feet) left of KY 40 at Station 4+419.778 and the POINT OF BEGINNING.

The above described parcel contains 83.213 hectares (832.129 sq. m.); 205.62 acres (8,956,926 sq. ft.) more or less, according to a survey by Luther A. Miracle. PLS #2830, with DLZ Kentucky, Inc., on December 5, 2014.

All according to a plat attached hereto.

This being the same property conveyed to Martin County Economic Development Authority by deed from Martin County Fiscal Court, dated May 25, 2017 of record in Deed Book 194, Page 669.

**THERE IS EXCLUDED AND NOT CONVEYED HEREIN THE FOLLOWING
TWO (2) DESCRIBED TRACTS OR PARCELS OF LAND MORE PARTICULARLY
BOUNDED AND DESCRIBED AS FOLLOWS:**

TRACT NUMBER 1

All monuments referred to herein as an "IPCS GPS" is a rebar and cap stamped "Bocook Engineering, Inc. PLS 2217", using GPS equipment and all monuments referred to herein as an "IPCS" is a rebar and cap stamped "Bocook Engineering, Inc. PLS 2217" using conventional equipment. Bearing and coordinate stated herein refer to the Kentucky State Plane South Zone NAD 27.

Lying in the Holly Bush Excess Material Site of the Kentucky Department of Transportation at Inez, Kentucky on the north side of KY Rt. 645. Being a portion of the property as described in Deed Book 189, Page 352 recorded in the office of the Martin County Clerk Office at Inez, KY.

Beginning at a IPCF at a common corner of Martin County Board of Education with a Northerly coordinate 573695.4307 and Easterly coordinate 2935684.5911, Latitude 37 51' 54.10" and Longitude 82 30' 29.36"; Thence, leaving the common line of Martin County Board of Education and severing the property S 57 44' 14" E a distance of 74.21' to an IPCS stamped 9299-1;
Thence, S 03 47' 00" E a distance of 297.74' to an IPCS GPS stamped 9299-2;
Thence, S 03 47' 00" E a distance of 302.26' to an PK NAIL & TAG GPS stamped 9299-3;
Thence, S 86 13' 00" W a distance of 60.00' to an IPCS GPS stamped 9299-4;
Thence, N 03 47' 00" W a distance of 295.90' to an IPCS GPS stamped 9299-5;
Thence, N 03 47' 00" W a distance of 347.77' to the point of beginning

Containing 37,310 Square Feet, 0.857 Acres more or less. Subject to any and all right of way, easements, reservations, restrictions and conveyances of record.

Being the same property conveyed to Martin County Board of Education by Martin County Fiscal Court by deed dated June 23, 2016 and recorded in Deed Book 192, page 491, in the Office of the Martin County Court Clerk.

Holly Bush Property Site

The following is the description of the proposed conveyance of property to the Martin County School Board, located on Holly Bush of Little Blacklog Fork of the Blacklog Fork of Coldwater Creek of Martin County, Kentucky and being a part of that property conveyed by the Kentucky Department of Transportation to the Martin County Fiscal Court as recorded in Deed Book 189, Page 352, in the Office of the Martin County Clerk.

Beginning on a metal disk marked KYTC RW (found), said disk having a value of N 572,617.04 E 2,935,047.77 as referenced to the Kentucky South Zone NAD 27 coordinate system and said disk being in the permanent right of way of KY State Route 40 and in the south property line 25.579 meters (83.92 feet) left of KY 40 at Station 4+419.778 and the said monument being identified as KYTC (set), the point of beginning of the survey on that plat prepared by DLZ entitled "Plat of Rural Land Survey" dated December 05, 2014; thence with the right of way N 64 17' 46" W a distance of 176.64' to a metal disk marked KYTC RW (found); thence N 86 40' 31" W a distance of 108.00' to a metal disk marked KYTC RW (found); thence N 86 42' 16" W a distance of 453.88' to a metal disk marked KYTC RW (found); thence N 12 26' 44" W a distance of 34.58' to a metal disk marked KYTC RW (found); thence N 12 23' 44" W a distance of 35.48' to a metal disk marked KYTC RW (found); thence N 37 28' 54" W a distance of 240.80' to a metal disk marked KYTC RW (found); thence N 37 19' 36" W a distance of 92.46' to a metal disk marked KYTC RW (found); thence N 25 42' 20" W a distance of 33.55' to a metal disk marked KYTC RW (found); thence N 31 45' 18" W a distance of 51.86' to a metal disk marked KYTC RW (found); thence N 70 25' 57" W a distance of 231.17' to a disk marked KYTC RW (found); thence N 63 11' 52" W a distance of 295.00' to an iron pin with plastic cap marked "LS 2830" (found); thence N 36 00' 18" E a distance of 307.98' to an iron pin with plastic cap marked "LS 2830" (found); thence N 70 11' 48" E a distance of 136.43' to a metal disk marked KYTC RW (found); thence N 70 00' 27" E a distance of 264.65' to a metal disk marked KYTC RW (found); thence N 52 29' 08" E a distance of 187.59' to a metal disk marked KYTC RW (found); thence N 35 07' 06" E a distance of 531.80' to a metal disk marked KYTC RW (found); thence N 34 05' 15" E a distance of 434.20' to a metal disk marked KYTC RW (found); thence S 82 51' 54" E a distance of 411.21' to a metal disk marked KYTC RW (found); thence S 05 26' 44" W a distance of 982.04' to a metal disk marked KYTC RW (found); thence N 52 43' 39" E a distance of 262.98' to a metal disk marked

KYTC RW (found); thence N 04 44'14" W a distance of 80.35' to a metal disk marked KYTC RW (found); thence N 13 07' 53" E a distance of 39.45' to a 1/2" X 18" metal rebar with cap marked PLS 2879 (set); thence S 59 36' 06" E a distance of 174.06' to a metal disk marked KYTC RW, (found); thence S 57 44'16" E a distance of 194.92' to a 1/2" X 18" metal rebar with cap marked PLS 2879 (set); thence S 03 47' 00" E a distance of 944.45' to a 1/2" X 18" metal rebar with cap marked PLS 2879 (set); thence S 73 47' 16" W a distance of 249.33' to a metal disk marked KYTC RW (found); thence S 73 49' 47" W a distance of 134.38' to a metal disk marked KYTC RW (found); thence S 86 10' 45" W a distance of 196.88' to a metal disk marked KYTC RW (found); thence S 83 15' 58" W a distance of 135.14' to the point of beginning, containing an area of 56.26 acres more or less.

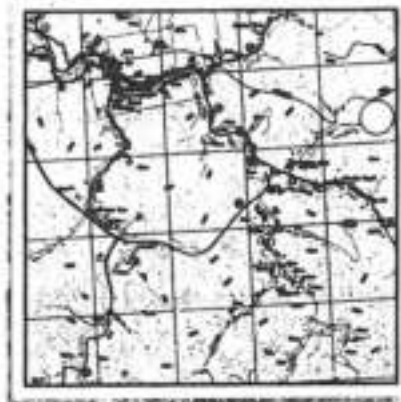
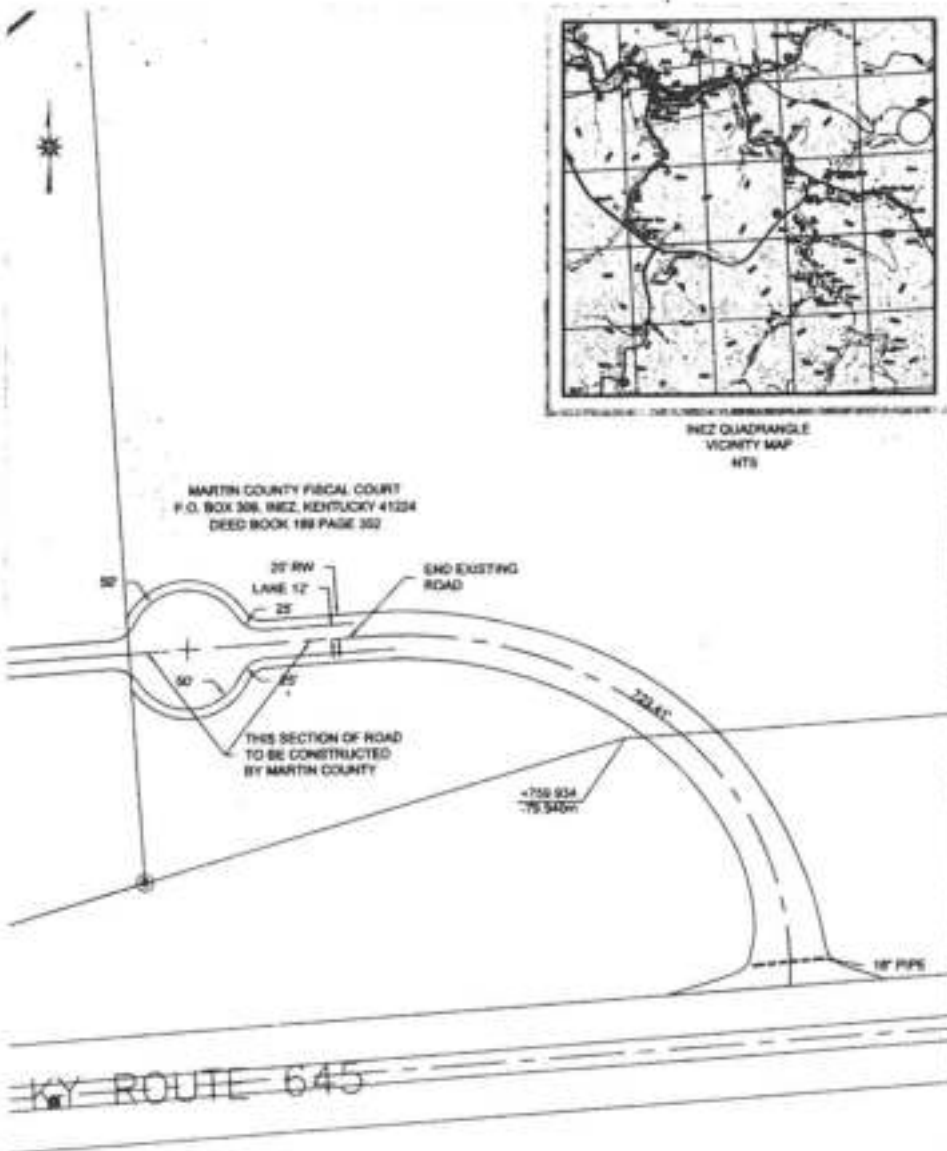
Being same property conveyed to Martin County Board of Education from the Martin County Fiscal Court by deed dated May 2, 2016, in Deed Book 192, page 161, in the office of the Martin County Court Clerk.

THERE IS EXCEPTED OUT OF THE DEED TO MARTIN COUNTY ECONOMIC DEVELOPMENT AUTHORITY THE FOLLOWING DESCRIBED THIRTY (30) FT. EASEMENT WHICH WILL BECOME A COUNTY ROAD.

Following is the description of a thirty (30') foot wide nonexclusive easement, said easement line lying fifteen feet on each side of the below described center line.

Beginning on a point in the property line and in the center of the access road to the Holly Bush site above described, said point having a value of N 572,874.29 E 2,936,203.03 as referenced to the Kentucky South Zone NAD 27 coordinate system and said point being in the permanent right of way of KY State Route 40 and lying N 86 14' 50" W a distance of 50.63' of a monument identified as KYTC (set), said monument being 79.940 meters left of KY 40 at Station 4+759.934 and the said monument being identified on that plat prepared by DLZ entitled "Plat of Rural Land Survey" dated December 05, 2014; thence with the curve turning to the left with an arc length of 236.22', with a radius of 295.28', with a chord bearing of N 70 16'10" W, with a chord length of 229.97' to a point; thence S 86 14' 48" W a distance of 252.25' to a point in the property line above described.

The above property description is based on Survey Prepared by Ronnie Warrix, P. L. S. 2879, Dated 05-13-15, R & J Development Company, LLC., DATE OF FIELD SURVEY 05-01-2015.



NEZ QUADRANGLE
VICINITY MAP
HTS

LEGEND

- PROPOSED COUNTY ROAD
- EXISTING COUNTY ROAD
- EXISTING STATE ROAD
- EXISTING PRIVATE ROAD
- EXISTING RAILROAD
- EXISTING POWER LINE
- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING CABLE LINE
- EXISTING TELEPHONE LINE
- EXISTING FENCE LINE
- EXISTING EASEMENT
- EXISTING RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPERTY



TOTAL ROAD LENGTH = 723.41 OR .137 MILES

303 KY OLD MIDDLE FORK ROAD WEX, KY 41224 (606) 853-0242	
MARTIN COUNTY FISCAL COURT P.O. BOX 478 WEX KY 41224	
DRAWING SHOWING PROPOSED COUNTY ROAD LOCATED ON HOLLY BUSH OF LITTLE BLACK OAK FURN	
DATE:	BY:
NO. OF SHEETS:	TITLE:
DATE:	SCALE:
BY:	CHECKED:
DATE:	DATE:

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Rachel W. Kennedy
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Fax (606) 437-7894
www.thompsonkennedypllc.com

January 23, 2024

Martin County Board of Education
P.O. Box 366
Inez, KY 41224
Attn: Jonathan Shaw

Re: TITLE EXAMINATION
Current Owner: Martin County Economic Development Authority
Purchaser: Martin County Board of Education
Source Deed: A portion of Deed Book 194, Page 669
Address:

Dear Jonathan:

Pursuant to your request, I have examined the records of the Office of the Martin County Court Clerk. From my examination of said records and assuming the validity and regularity of all court proceedings and documents of record, I am of the opinion that the subject property is free and clear of all encumbrances subject to the exceptions below as of January 23, 2024 at 8:00 AM:

1. The Martin County Board of Education may obtain a fee simple title to the surface tract with a deed of conveyance from the current owner which is currently Martin County Economic Development Authority. A forbearance agreement will be needed for the mineral rights.
2. Subject to any and all errors or omissions in the indices of the Offices of the Martin County Court Clerk.
3. Subject to any defects that a personal inspection or survey of the premises might disclose.

4. Subject to any easements, whether or not of record.
5. This report is limited in time for sixty years (60) through January 23, 2024 at 8:00AM.
6. Miscellaneous records not considered.
7. Subject to the following conditions set out in the deed from the Commonwealth of Kentucky, Transportation Cabinet, Department of Highways to Martin County Fiscal Court, dated May 11, 2015, of record in Deed Book 189, Page 352:
 - a) This conveyance is subject to any and all utility or other easements of record in or upon the above-described property and to any and all rights of others recognized and/or permitted by the Grantor for the presence of utilities, (i.e. electric, gas, water, telephone, cable TV, etc.), in or upon the property, and in respect to such utility rights, where no easements exists, this conveyance is subject to the Grantee's agreement to dedicate or convey permanent easements to the owner(s) of said utilities for the perpetual maintenance thereof.
 - b) The erection of and/or maintenance of off-remise advertising devises, including but not necessarily limited to billboards, upon the above-described property is prohibited.
 - c) Should the property cease to be put to a public use by the Martin County Fiscal Court the property shall revert to the Commonwealth of Kentucky, for the use and benefit of the Transportation Cabinet, without monetary consideration.
 - d) Should the Grantee convey any portion of the herein-described property, for other than a public purpose, the fair market value of the property so conveyed will be paid to the Grantor.
 - e) The Grantee agrees to maintain the herein-described property, in good condition. The Grantor and the Grantee agree and understand that any needed infrastructure required to develop the herein-described property shall be the responsibility of the Grantee.
 - f) The Transportation Cabinet does not represent that the hereinbefore-described property is suitable for any specific use or purpose.
8. Subject to a right of way easement to Columbia Gas Transmission Corporation from Monroe and Pamela Maynard, dated November 14, 2002 of record in Deed Book 148, Page 301.
9. Subject to a right of way easement to Columbia Gas Transmission Corporation from Asher Maynard, divorced, dated May 2, 2002 of record in Deed Book 147,

Page 294.

10. Subject to a right of way easement to Columbia Gas Transmission Corporation from Ollie Maynard Sturgill, dated November 14, 2002 of record in Deed Book 148, Page 311.
11. Subject to a right of way easement to Columbia Gas Transmission Corporation from Rhodine and James Martin, dated November 14, 2002 of record in Deed Book 148, Page 306.
12. Subject to a right of way easement to Columbia Gas Transmission Corporation from Lucky and Lydia Maynard, dated November 26, 2002, recorded in Deed Book 148, Page 296.
13. Subject to a right of way easement to Columbia Gas Transmission Corporation from James Maynard and Polly Maynard, dated August 18, 1988, of record in Deed Book 105, Page 700.
14. Subject to a right of way easement to Kentucky Power Company from Asher and Lucy Maynard, dated August 7, 1980 of record in Deed Book 88, Page 443.
15. Subject to a right of way easement to Kentucky Power Company from Jonathan S. Duncan and Bonnie J. Duncan dated June 12, 1985 of record in Deed Book 98, Page 237.
16. Subject to any easements, encroachments, rights of way, or other findings found on that map of the subject property dated October 31-2023-November 6, 2023 as prepared by Bocook Engineering, Inc.
17. Subject to a Deed of Conveyance being lodged of record conveying the interest of Martin County Economic Development Authority, in the subject tract to Martin County Board of Education.
18. Subject to the provision in that deed of conveyance from Jay Kirk to Mark Maynard and Virgie Maynard, dated August 28, 1963, of Deed Book 60, Page 521 wherein the Grantor reserved the right to use a road on the property being conveyed.
19. Subject to a deed from William V. Ratcliff, et al to Jay Kirk dated February 5, 1946, of record in Deed Book 44, Page 107 wherein all mineral rights were reserved.

This title report is intended solely for the use of Martin County Board of Education and should not be relied upon by any other person or for any other purpose. If you need anything further regarding this matter, please do not hesitate to contact me.

Yours truly,

THOMPSON & KENNEDY PLLC

BY: Max Thompson
MAX K. THOMPSON

APPENDIX 1

Minutes of the Martin
County Board of Education
Special Meeting dated
August 14, 2015

APPENDIX 2

Commissioner's Deed dated
March 2, 2015

FILED 3/2/15 AK
ENTERED
JACK H. HORN, CLERK
MARTIN CIRCUIT & DISTRICT

MASTER COMMISSIONER'S DEED

WHEREAS, in the action of the Martin County Circuit Court, Civil Action File No. 2007-CI-0000211, styled Commonwealth of Kentucky, Transportation Cabinet, Department of Highways, Frankfort, Kentucky 40622, Plaintiff vs. Lexington Coal Company, LLC, 400 West Market Street, Suite 1800, Louisville, KY 40202; Dr. Larry Bruce Mills, 5680 W. Sunset Road, Tucson, AZ 85743; Kathleen Cornette, 3320 Timberland #134, Harvey, LA 70058; James D. Hatfield and wife, Linda H. Hatfield, 1419 Vidot Ct., Ft. Wright, KY 41011-2777; Marie Payne Worden, 205 Normandie Drive, Boone Terre, MO 63628; Norval Ray Payne, 211 First Street, Apt. 30, Leasburg, MO 65355; James Millard Payne, 755 Decluc Road, Cuba, MO 65453; Wilda Eva Payne, 6000 Colony Church Road, Farmington, MO 63640; Leonard Carl Boyer, 1158 Black Oak, Farmington, MO 63640; Leonard Carl Boyer II, 4330 Canterbury Walks Road, Duluth, GA 30097; John Daniel Boyer, 5077 First Avenue, Bay St. Louis, MS 39520; Harvey Glen Payne, 5977 Genevieve Church Road, Farmington, MO 63640; Robert Eugene Payne, 6000 Colony Church Road, Farmington, MO 63640; Gertrude Hayes Iseli and husband, James W. Iseli, 1630 Jackson Road, Columbus, OH 43223; Omeda Burgess and her husband, William G. Burgess, 3938 Sunny Manor Circle, Milton, FL 32583; Jack H. Horn and wife, Gladys C. Horn, P.O. Box 324, Inez, KY 41224; Richard Preece and wife, Carolyn Sue Preece, 5329 Colby Road, Winchester, KY 40391; Carolyn P. Horn, P.O. Box 476, Inez, KY 41224; James A. Preece and wife, Carol Jean Preece, 2363 Lower Twin Branch, Denver, KY 41222; Melanie Preece, Guardian of James A. Preece and wife, Carol Jean Preece, 2363 Lower Twin Branch, Denver, KY 41222; Geneva P. Stepp and husband, Granville Stepp, 1080 Gulley Road, Howell, MI 48843; Peggy Kirk, P.O. Box 365, Inez, KY 41224; Joanne Duncan and husband, Mike Duncan, P.O. Box 365, Inez, KY 41224; Betty Powell Estate by and through Darla Penix and husband, Charles Penix, 13400 Scioto Darby Road, Orient, OH 43146; Grover Powell, 13400 Scioto

Darby Road, Orient, OH 43146; William Abrams, 12310 Graham Drive, Orient, OH 43146; Ruby Brown and husband, Keith K. Brown, 4127 Fuller Lane, Bridgeton, MO 63044-3430; Linda Coon and husband, George W. Coon Sr., P.O. Box 201, Louisville, OH 44641; William C. Conroy, 1965 Charleston House Way 3206, Holly Hill, FL 32117; Wayne A. Conroy, 461 Airport Road, Ormond Beach, FL 32174; Barbara S. Knapp, 438 SW Bryon Ct., Ft. White, FL 32038; Eugene Arnett and wife, Sharkey Arnett, 2802 Lime Kiln Lane, Louisville, KY 40222; Lionel Stepp, Trustee of the Estate of Inez Stepp, and wife, Donna S. Stepp, 3359 Claydor Drive, Dayton, OH 4543; David Cecil Stepp by Lionel K. Stepp as Guardian for David Cecil Stepp, 3359 Claydor Drive, Dayton, OH 45431; James H. Stepp; James H. Stepp, Jr. and wife, Deanna Stepp, 1004 Meadowrun Court, Salem, VA 24153; David Wayne Stepp, 83C McKenzie Road, Thealka, KY 41240; Cynthia Inez Webb, 1483 Old Linwood Road, Lexington, NC 27292; Wendy Stepp, 1483 Old Linwood Road, Lexington, NC 27292; Anthony Kirk and wife, Louise Kirk, 13273 State Route 243, Chesapeake, OH 45619; Maxine Beasley, Executor of the Elizabeth K. Lutzkus Allsman Estate, 16742 Reichel Rd. S.E., Ranier, WA 98576; Bryan Powell, 60 Private Drive, #411, Ironton, OH 45638; Carolyn Sue Kirk, 3105 HWY 34 South, Greenville, TX 75402; David Kirk Kavanaugh and wife, Mikiko Suzuki, 1719 Dogwood Drive, Alexandria, VA 22302; J.D. Kirk Jr.; Phillip Kirk and wife, Linda Kirk, 5444 E. 19th Street, Tulsa, OK 74137; Gary Kirk and wife, Monika Kirk, 9700 NW 48th Street, Sunrise, FL 33321; W.E. Ratliff; William D. Kelly, 85 Beach Creek Road, Whitehall, OH 43213; Elizabeth Porter, 511 Ridge Boulevard, South Daytona, FL 32019; Roscoe James; Thomas E. James; Lucy Anderson; James D. James, 1136 Rumsey Road, Columbus, OH 43207; Dixie Parks, 3909 E. Kossuth Street, Columbus, OH 43206; O.B. Bucklen and wife, Margaret Bucklen, 2414 Littlecote Lane, Richmond, VA 23235; Joe Ramsey, 282 Circle Drive, Whitesburg, KY 41858; J.D. James and wife, Patricia James, 5300 N. Ocean Shore Blvd., Palm Coast, FL 32137; International Coal Group Natural Resources, LLC and/or Lexington Coal Company, 421 West Main Street, Frankfort, KY

40601; Jenny Duvall and husband, Scott Duvall, 4541 Farmersville Road, Summerville, GA 30747; Elizabeth Quattrocchi, Legatee of Glima Ratcliff; Julia Quattrocchi, Legatee of Glima Ratcliff; Mary Kay Hance, Legatee of Glima Ratcliff; Eugene B. Arnett, Jr. Revocable trust, Sharkey U. Arnett, Trustee for Eugene B. Arnett, Jr.; Rosemary Porter, Legatee of Dixie Parks, deceased; Audry James, Legatee of Rosa James; Audry James, Legatee of Goldie Kirk, deceased; Lavonne Williamson, Legatee of Dr. James F. Williamson, deceased; Mary Jo Holloway, Legatee of Russell Williamson, deceased; Mary Ellen Rice, Legatee of Charles Lacy Rice, deceased, who was a Legatee of Verlie Collier, deceased; Charles Lacy Rice III and wife, Jackie Rice, Legatee of Charles Lacy Rice, deceased; Miriam Grata Kanegae and husband, Timothy Kanegae, Legatee of Charles Lacy Rice, deceased; Mark H. Rice and wife, Julie Rice, Legatee of Charles Lacy Rice, deceased; Edward Rice and wife, LeAnn Rice, Legatee of Charles Lacy Rice; Robert Alden Williamson, Legatee of Russell Williamson, deceased; Marie Williamson, Legatee of Robert L. Williamson, deceased; James Russell Williamson, Legatee of Russell Williamson, deceased, and residual Legatee of Robert L. Williamson, deceased; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of J.D. Kirk, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through J.D. Kirk or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of W.E. Ratliff, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through W.E. Ratliff or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of D.E. Wheeler and Carman Wheeler, if any, and also being such

persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through D.E. Wheeler and Carman Wheeler or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Imogene Kirk Mills, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Imogene Kirk Mills or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Thelma K. Kelly, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Thelma K. Kelly or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Sabre L. Adams, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Sabre L. Adams or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Roscoe James, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Roscoe James or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Thomas E. James, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Thomas

E. James or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Lucy Anderson, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Lucy Anderson or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of J.D. Kirk, Jr. and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through J.D. Kirk, Jr. or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of William K. Kelley, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through William K. Kelley or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Elizabeth Porter, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Elizabeth Porter or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of James D. James, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through James D. James or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown

Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Dixie Parks, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Dixie Parks or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; and Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Joe Ramsey, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Joe Ramsey or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Norval Ray Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Norval Ray Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of James Millard Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through James Millard Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Wilda Eva Payne, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Wilda Eva Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Leonard Carl Boyer, and his unknown spouse, if any,

and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Leonard Carl Boyer or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Leonard Carl Boyer II, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Leonard Carl Boyer II or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of John Daniel Boyer, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through John Daniel Boyer or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Harvey Glen Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Harvey Glen Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Robert Eugene Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Robert Eugene Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; and Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Charles Pennix, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an

interest in the property sought to be condemned herein under or through Charles Pennix or any of the
aforementioned unknown individuals or otherwise address unknown, non-existent and/or
unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees,
Successors and/or assigns, if any, of James H. Stepp, and his unknown spouse, if any, and also
being such persons, if any, entitled to and/or claiming an interest in the property sought to be
condemned herein under or through James H. Stepp or any of the aforementioned unknown
individuals or otherwise address unknown, non-existent and/or unascertainable; and Unknown
Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any,
of David Wayne Stepp, and his unknown spouse, if any, and also being such persons, if any, entitled
to and/or claiming an interest in the property sought to be condemned herein under or through David
Wayne Stepp or any of the aforementioned unknown individuals or otherwise address unknown,
non-existent and/or unascertainable, of the Partial Agreed Order and Judgment(s) and Agreed Order
and Judgment(s) entered in the Martin County Circuit Court Clerk's Office ordering payment of
Two Million Eight Hundred Thousand Dollars (\$2,800,000.00) to the Defendants, pursuant to the
aforesaid Orders entered in the Martin County Circuit Court Clerk's Office as just compensation for
the property condemned in said action; pursuant to the aforesaid Order entered on the 5th day of
May 2010 in the Martin County Circuit Court Clerk's Office as just compensation for the property
condemned in said action; pursuant to the aforesaid Order entered on the 9th day of June 2010 in the
Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said
action; pursuant to the aforesaid Order entered on the 2nd day of July 2010 in the Martin County
Circuit Court Clerk's Office as just compensation for the property condemned in said action;
pursuant to the aforesaid Order entered on the 22nd day of July 2010 in the Martin County Circuit
Court Clerk's Office as just compensation for the property condemned in said action; pursuant to the
aforesaid Order entered on the 26th day of August 2010 in the Martin County Circuit Court Clerk's

Office as just compensation for the property condemned in said action; pursuant to the aforesaid Order entered on the 26th day of August 2010 in the Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said action; pursuant to the aforesaid Order entered on the 2nd day of August 2010 in the Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said action; pursuant to the aforesaid Order entered on the 17th day of August 2010 in the Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said action; pursuant to the aforesaid Order entered on the 15th day of February 2011 in the Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said action; pursuant to the aforesaid Order entered on the 27th day of June 2012; pursuant to the aforesaid Order entered on the 5th day of July 2012 in the Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said action in the Martin County Circuit Court Clerk's Office as just compensation for the property condemned in said action; and,

FURTHERMORE, the Grantors grant and convey to the Grantee a lien on the following property pursuant to the terms of all of the Partial Agreed Order and Judgment (s) and Agreed Order Judgment(s) of Settlement. By the terms of the above-mentioned Partial Agreed Order(s) and Judgment(s) and Agreed Order and Judgment(s), the Grantors agree to pay the Cabinet Fifty Cents (\$.50) cents a ton for any coal from the remainder of or outside the tract designated as M-9 as shown on the right of way plans. The "Sterilized or Isolated Reserves" are comprised of the following seams of coal: (i) in the seam commonly known as Kitanning seam all of which is within the area shown on the map as Exhibit 1; (ii) in the seam commonly known as the 5 Block seam of Parcel M-9 in the area shown on the map attached hereto as Exhibit 2; (iii) in the seam commonly known as the Clarion Seam, M-9, all of which is within the area shown on the map attached hereto as Exhibit 3;

(iv) in the seam commonly known as the Stockton Seam of M-9, all of which is within the area shown on the map attached hereto as Exhibit 4; (v) in the seam commonly known as the Coalburg Seam of Parcel M-9, all of which is within the area shown on the map attached hereto as Exhibit 5; and (vi) in the seam commonly known as the Upper Whitesburg Seam, all of which is within the area shown on the map attached hereto as Exhibit 6. The Grantors agree that no effort shall be made to mine any of the Sterilized or Isolated Reserves prior to the completion of the Highway, and that, in the event any of the Sterilized or Isolated Reserves are mined at any time after the completion of the Highway, the Grantors shall notify the Chief District Engineer, Transportation Cabinet, 109 Loraine Street, Pikeville, KY 41501, as well as the Office of Mine Safety and Licensing that the Department has an interest in same and the coal company, Lexington Coal Company and/or International Coal Group Natural Resources, LLC, the Grantors, shall immediately pay the Department Fifty Cents (\$.50) per ton for each ton of Sterilized or Isolated Reserves mined, removed and sold from the premises at anytime. In the event of any failure of the Grantors and/or coal companies to abide by this condition the Cabinet shall stop any mining of the sterilized or isolated coal pursuant to this Court Order and be paid for any mined coal as previously noted. The aforementioned property is reflected in attached exhibits as agreed to by the previously mentioned Court Order and contain the above source of title.

WHEREAS, in said the Agreed Order and Judgment(s) and Partial Agreed Order and Judgment(s) of Settlement, the Master Commissioner of the Martin County Circuit Court was directed to execute a Deed of Conveyance to the Commonwealth of Kentucky, Transportation Cabinet, Department of Highways; and,

WHEREAS, the aforesaid consideration has been paid;

NOW, THEREFORE, THIS DEED made and entered into this 25th day of February 2015, by and between Brian Cumbo, Master Commissioner of the Martin County Circuit Court, for and on behalf of the above named Defendants and the Commonwealth Of Kentucky for the use and benefit of the Transportation Cabinet, Department Of Highways, acting in its official capacity, Grantee;

WITNESSETH:

That for and in consideration of the premises, the Grantors have bargained and sold, and do hereby grant and convey, unto the Grantee, its successor(s) and assigns(s), forever, the following property and property rights in connection with the highway known as KY 40 (Inez-Warfield-Kernit Road), State Project No. FD04 C080 5365703R.

Parcel M-09
J.D. Kirk (Heirs)
G.D. Maynard (Heirs)

Being a mineral tract lying in eastern Martin County beginning approximately 1.0 kilometers (0.62 miles) northeast of the intersection of old KY 40 and new KY 40 on the Little Blacklog Fork, and being more particularly described as follows:

Beginning at a point in the proposed right of way line and mineral property line 53.782 meters (176.44 feet) left of KY 40 at Station 4+050.838

thence with the proposed right of way line North 9 Degrees 37 Minutes 31 Seconds West a distance of 28.020 meters (91.92 feet) to a point in the proposed right of way line 80.000 meters (262.46 feet) left of KY 40 at Station 4+060.000

thence with the proposed right of way line North 36 Degrees 15 Minutes 32 Seconds East a distance of 24.165 meters (79.28 feet) to a point in the proposed right of way line 90.000 meters (295.275 feet) left of KY 40 at Station 4+080.000

thence with the proposed right of way line North 74 Degrees 49 Minutes 14 Seconds East a distance of 22.618 meters (74.2 feet) to a point in the

proposed right of way line 85.000 meters (278.87 feet) left of KY 40 at Station 4+100.000

thence with the proposed right of way line North 88 Degrees 52 Minutes 44 Seconds East a distance of 30.714 meters (100.76 feet) to a point in the proposed right of way line 71.87 meters (235.8 feet) left of KY 40 at Station 4+125.424

thence with the proposed right of way line North 46 Degrees 49 Minutes 34 Seconds East a distance of 121.633 meters (399.05 feet) to a point in the proposed right of way line 115.659 meters (379.45 feet) left of KY 40 at Station 4+227.715

thence with the proposed right of way line North 12 Degrees 21 Minutes 19 Seconds West a distance of 10.802 meters (35.43 feet) to a point in the proposed right of way line 126.397 meters (414.68 feet) left of KY 40 at Station 4+228.750

thence with the proposed right of way line North 37 Degrees 28 Minutes 58 Seconds West a distance of 101.581 meters (333.27 feet) to a point in the proposed right of way line 223.014 meters (731.67 feet) left of KY 40 at Station 4+202.701

thence with the proposed right of way line North 25 Degrees 34 Minutes 16 Seconds West a distance of 10.249 meters (33.62 feet) to a point in the proposed right of way line 233.221 meters (765.15 feet) left of KY 40 at Station 4+201.969

thence with the proposed right of way line North 31 Degrees 36 Minutes 03 Seconds West a distance of 15.897 meters (52.155 feet) to a point in the proposed right of way line 248.820 meters (816.33 feet) left of KY 40 at Station 4+199.581

thence with the proposed right of way line North 70 Degrees 39 Minutes 10 Seconds West a distance of 70.539 meters (231.42 feet) to a point in the proposed right of way line 295.356 meters (969.01 feet) left of KY 40 at Station 4+159.413

thence with the proposed right of way line North 54 Degrees 55 Minutes 20 Seconds East a distance of 87.653 meters (287.57 feet) to a point in the proposed right of way line 316.451 meters (1038.22 feet) left of KY 40 at Station 4+221.991

thence with the proposed right of way line North 35 Degrees 36 Minutes 02 Seconds West a distance of 98.788 meters (324.1 feet) to a point in the proposed right of way line 411.460 meters (1349.932 feet) left of KY 40 at Station 4+203.031

thence with the proposed right of way line North 69 Degrees 59 Minutes 12 Seconds East a distance of 80.656 meters (264.61 feet) to a point in the proposed right of way line 413.590 meters (1356.92 feet) left of KY 40 at Station 4+257.323

thence with the proposed right of way line North 52 Degrees 29 Minutes 43 Seconds East a distance of 57.177 meters (187.58 feet) to a point in the proposed right of way line 435.036 meters (1427.281 feet) left of KY 40 at Station 4+292.681

thence with the proposed right of way line North 35 Degrees 06 Minutes 40 Seconds East a distance of 162.080 meters (531.75 feet) to a point in the proposed right of way line 545.951 meters (1791.17 feet) left of KY 40 at Station 4+367.711

thence with the proposed right of way line North 34 Degrees 05 Minutes 45 Seconds East a distance of 132.375 meters (434.3 feet) to a point in the proposed right of way line 645.000 meters (2116.13 feet) left of KY 40 at Station 4+420.000

thence with the proposed right of way line South 82 Degrees 50 Minutes 55 Seconds East a distance of 125.312 meters (411.12 feet) to a point in the proposed right of way line 620.000 meters (2034.11 feet) left of KY 40 at Station 4+520.000

thence with the proposed right of way line South 5 Degrees 26 Minutes 07 Seconds West a distance of 299.281 meters (981.89 feet) to a point in the proposed right of way line 324.581 meters (1064.89 feet) left of KY 40 at Station 4+473.131

thence with the proposed right of way line North 40 Degrees 13 Minutes 40 Seconds East a distance of 95.612 meters (313.68 feet) to a point in the proposed right of way line 393.359 meters (1290.54 feet) left of KY 40 at Station 4+538.606

thence with the proposed right of way line South 4 Degrees 42 Minutes 19 Seconds East a distance of 57.810 meters (189.66 feet) to a point in the proposed right of way line 335.557 meters (1100.9 feet) left of KY 40 at Station 4+539.566

thence with the proposed right of way line South 42 Degrees 16 Minutes 25 Seconds West a distance of 61.020 meters (200.19 feet) to a point in the proposed right of way line 293.190 meters (961.90 feet) left of KY 40 at Station 4+495.652

thence with the proposed right of way line South 31 Degrees 06 Minutes 31 Seconds West a distance of 25.180 meters (82.61 feet) to a point in the proposed right of way line 272.534 meters (894.13 feet) left of KY 40 at Station 4+481.535

thence with the proposed right of way line North 77 Degrees 07 Minutes 08 Seconds East a distance of 110.137 meters (361.34 feet) to a point in the proposed right of way line 290.000 meters (951.44 feet) left of KY 40 at Station 4+590.000

thence with the proposed right of way line North 6 Degrees 26 Minutes 52 Seconds West a distance of 85.094 meters (279.17 feet) to a point in the proposed right of way line 375.000 meters (1230.31 feet) left of KY 40 at Station 4+586.000

thence with the proposed right of way line North 37 Degrees 44 Minutes 15 Seconds East a distance of 300.376 meters (985.48 feet) to a point in the proposed right of way line 600.000 meters (1968.5 feet) left of KY 40 at Station 4+785.000

thence with the proposed right of way line North 15 Degrees 54 Minutes 02 Seconds East a distance of 148.661 meters (487.732 feet) to a point in the proposed right of way line 740.000 meters (2427.81 feet) left of KY 40 at Station 4+835.000

thence with the proposed right of way line South 69 Degrees 36 Minutes 28 Seconds East a distance of 158.902 meters (521.331 feet) to a point in the proposed right of way line 675.000 meters (2214.56 feet) left of KY 40 at Station 4+980.000

thence with the proposed right of way line South 13 Degrees 55 Minutes 40 Seconds West a distance of 363.505 meters (1192.59 feet) to a point in the proposed right of way line 328.668 meters (1078.30 feet) left of KY 40 at Station 4+869.598

thence with the proposed right of way line South 79 Degrees 49 Minutes 16 Seconds East a distance of 98.295 meters (322.48 feet) to a point in the proposed right of way line 305.000 meters (1000.65 feet) left of KY 40 at Station 4+965.000

- thence with the proposed right of way line North 56 Degrees 42 Minutes 04 Seconds East a distance of 295.176 meters (968.42 feet) to a point in the proposed right of way line 450.561 meters (1478.21 feet) left of KY 40 at Station 5+221.311
- thence with the proposed right of way line North 51 Degrees 42 Minutes 48 Seconds East a distance of 213.042 meters (698.95 feet) to a point in the proposed right of way line 581.000 meters (1906.16 feet) left of KY 40 at Station 5+323.000
- thence with the proposed right of way line South 38 Degrees 59 Minutes 51 Seconds East a distance of 34.314 meters (112.57 feet) to a point in the proposed right of way line 556.000 meters (1824.14 feet) left of KY 40 at Station 5+334.000
- thence with the proposed right of way line South 36 Degrees 08 Minutes 15 Seconds West a distance of 145.777 meters (478.27 feet) to a point in the proposed right of way line 434.453 meters (1425.36 feet) left of KY 40 at Station 5+293.050
- thence with the proposed right of way line South 24 Degrees 28 Minutes 54 Seconds West a distance of 222.985 meters (731.57 feet) to a point in the proposed right of way line 235.000 meters (770.99 feet) left of KY 40 at Station 5+218.000
- thence with the proposed right of way line South 41 Degrees 46 Minutes 10 Seconds West a distance of 221.229 meters (721.81 feet) to a point in the proposed right of way line and access control line 80.000 meters (262.46 feet) left of KY 40 at Station 5+060.261
- thence with the access control line and proposed right of way line North 86 Degrees 14 Minutes 48 Seconds East a distance of 56.996 meters (186.99 feet) to a point in the access control line and proposed right of way line 80.000 meters (262.46 feet) left of KY 40 at Station 5+117.257
- thence with the access control line and proposed right of way line South 73 Degrees 04 Minutes 39 Seconds East a distance of 99.128 meters (325.22 feet) to a point in the access control line and proposed right of way line 45.000 meters (147.63 feet) left of KY 40 at Station 5+210.000
- thence with the access control line and proposed right of way line North 87 Degrees 11 Minutes 47 Seconds East a distance of 72.234 meters (236.98 feet) to a point in the access control line and proposed right of way line 45.000 meters (147.63 feet) left of KY 40 at Station 5+280.000

thence with the proposed right of way line South 83 Degrees 44 Minutes 39 Seconds East a distance of 27.398 meters (89.88 feet) to a point in the proposed right of way line 42.151 meters (138.29 feet) left of KY 40 at Station 5+305.360

thence with the proposed right of way line North 22 Degrees 02 Minutes 38 Seconds East a distance of 24.320 meters (79.78 feet) to a point in the proposed right of way line 65.000 meters (213.25 feet) left of KY 40 at Station 5+312.881

thence with the proposed right of way line North 78 Degrees 40 Minutes 27 Seconds East a distance of 27.612 meters (90.59 feet) to a point in the proposed right of way line 72.206 meters (236.89 feet) left of KY 40 at Station 5+336.323

thence with the proposed right of way line South 72 Degrees 53 Minutes 43 Seconds East a distance of 39.917 meters (130.96 feet) to a point in the proposed right of way line 65.281 meters (214.17 feet) left of KY 40 at Station 5+370.891

thence with the proposed right of way line South 37 Degrees 26 Minutes 15 Seconds East a distance of 8.256 meters (27.08 feet) to a point in the proposed right of way line 59.634 meters (195.64 feet) left of KY 40 at Station 5+376.245

thence with the proposed right of way line South 47 Degrees 20 Minutes 27 Seconds East a distance of 22.738 meters (74.59 feet) to a point in the proposed right of way line 47.601 meters (156.17 feet) left of KY 40 at Station 5+393.671

thence with the proposed right of way line North 57 Degrees 50 Minutes 34 Seconds East a distance of 101.530 meters (333.10 feet) to a point in the proposed right of way line 122.281 meters (401.18 feet) left of KY 40 at Station 5+452.621

thence with the proposed right of way line South 79 Degrees 00 Minutes 40 Seconds East a distance of 33.286 meters (109.20 feet) to a point in the proposed right of way line 127.481 meters (418.24 feet) left of KY 40 at Station 5+478.931

thence with the proposed right of way line South 21 Degrees 11 Minutes 24 Seconds East a distance of 128.613 meters (421.95 feet) to a point in the access control line and proposed right of way line 40.000 meters (131.23 feet) left of KY 40 at Station 5+560.000

thence with the access control line and proposed right of way line South 82
 Degrees 33 Minutes 25 Seconds East a distance of 50.693 meters (166.31
 feet) to a point in the access control line and proposed right of way line
 62.000 meters (203.41 feet) left of KY 40 at Station 5+601.525

thence with the access control line and proposed right of way line South 54
 Degrees 38 Minutes 35 Seconds East a distance of 133.797 meters (438.96
 feet) to a point in the access control line and proposed right of way line
 70.000 meters (229.65 feet) left of KY 40 at Station 5+730.320

thence with the access control line and proposed right of way line South 30
 Degrees 32 Minutes 17 Seconds East a distance of 74.029 meters (242.87
 feet) to a point in the access control line and proposed right of way line
 45.053 meters (147.81 feet) left of KY 40 at Station 5+800.018

thence with the access control line and proposed right of way line South 39
 Degrees 51 Minutes 13 Seconds West a distance of 11.843 meters (38.85
 feet) to a point in the access control line and proposed right of way line
 33.209 meters (108.95 feet) left of KY 40 at Station 5+800.000

thence with the access control line and proposed right of way line South 86
 Degrees 24 Minutes 22 Seconds East a distance of 123.879 meters (406.42
 feet) to a point in the access control line and proposed right of way line
 106.327 meters (348.84 feet) left of KY 40 at Station 5+900.000

thence with the access control line and proposed right of way line South 35
 Degrees 03 Minutes 50 Seconds East a distance of 12.837 meters (42.11 feet)
 to a point in the access control line and proposed right of way line 102.968
 meters (337.82 feet) left of KY 40 at Station 5+912.389

thence with the access control line and proposed right of way line South 21
 Degrees 01 Minutes 25 Seconds West a distance of 23.680 meters (77.69
 feet) to a point in the access control line and proposed right of way line
 80.544 meters (264.25 feet) left of KY 40 at Station 5+919.998

thence with the access control line and proposed right of way line South 1
 Degrees 31 Minutes 33 Seconds East a distance of 60.616 meters (198.87
 feet) to a point in the access control line and proposed right of way line
 35.000 meters (114.82 feet) left of KY 40 at Station 5+960.000

thence with the access control line and proposed right of way line South 82
 Degrees 14 Minutes 17 Seconds East a distance of 47.170 meters (154.75
 feet) to a point in the access control line and proposed right of way line
 60.000 meters (196.85 feet) left of KY 40 at Station 6+000.000

thence with the access control line and proposed right of way line South 66 Degrees 55 Minutes 55 Seconds East a distance of 104.404 meters (342.53 feet) to a point in the access control line and proposed right of way line 90.000 meters (295.27 feet) left of KY 40 at Station 6+100.000

thence with the proposed right of way line South 70 Degrees 49 Minutes 20 Seconds East a distance of 143.531 meters (470.9 feet) to a point in the proposed right of way line 130.000 meters (426.50 feet) left of KY 40 at Station 6+270.000

thence with the proposed right of way line South 54 Degrees 03 Minutes 20 Seconds East a distance of 87.133 meters (285.86 feet) to a point in the access control line, proposed right of way line and mineral property line 100.000 meters (328.08 feet) left of KY 40 at Station 6+385.987

thence with the mineral property line South 18 Degrees 11 Minutes 42 Seconds East a distance of 56.241 meters (184.5 feet) to a point in the mineral property line 48.506 meters (159.14 feet) left of KY 40 at Station 6+413.930

thence with the mineral property line South 10 Degrees 07 Minutes 24 Seconds East a distance of 29.129 meters (95.56 feet) to a point in the mineral property line 20.141 meters (66.07 feet) left of KY 40 at Station 6+421.194

thence with the mineral property line South 19 Degrees 24 Minutes 16 Seconds East a distance of 29.148 meters (95.62 feet) to a point in the mineral property line 7.048 meters (23.12 feet) right of KY 40 at Station 6+431.885

thence with the mineral property line South 19 Degrees 47 Minutes 33 Seconds East a distance of 31.608 meters (103.7 feet) to a point in the mineral property line 36.750 meters (120.57 feet) right of KY 40 at Station 6+442.133

thence with the mineral property line South 35 Degrees 05 Minutes 04 Seconds East a distance of 33.508 meters (109.93 feet) to a point in the mineral property line 64.738 meters (212.39 feet) right of KY 40 at Station 6+458.469

thence with the mineral property line South 26 Degrees 24 Minutes 35 Seconds East a distance of 14.629 meters (47.99 feet) to a point in the access control line, proposed right of way line and mineral property line 78.188 meters (256.52 feet) right of KY 40 at Station 6+463.342

thence with the access control line and proposed right of way line South 62 Degrees 20 Minutes 19 Seconds West a distance of 4.400 meters (14.43 feet) to a point in the access control line and proposed right of way line 80.000 meters (262.46 feet) right of KY 40 at Station 6+460.000

thence with the access control line and proposed right of way line North 81 Degrees 20 Minutes 16 Seconds West a distance of 95.547 meters (313.47 feet) to a point in the access control line and proposed right of way line 70.000 meters (229.65 feet) right of KY 40 at Station 6+380.000

thence with the access control line and proposed right of way line North 64 Degrees 27 Minutes 41 Seconds West a distance of 116.583 meters (382.48 feet) to a point in the access control line and proposed right of way line 50.000 meters (164.04 feet) right of KY 40 at Station 6+280.000

thence with the access control line and proposed right of way line North 65 Degrees 00 Minutes 31 Seconds West a distance of 135.531 meters (444.65 feet) to a point in the access control line and proposed right of way line 65.000 meters (213.25 feet) right of KY 40 at Station 6+160.000

thence with the access control line and proposed right of way line North 52 Degrees 47 Minutes 03 Seconds West a distance of 121.832 meters (399.71 feet) to a point in the access control line and proposed right of way line 70.000 meters (229.65 feet) right of KY 40 at Station 6+040.000

thence with the access control line and proposed right of way line North 36 Degrees 11 Minutes 47 Seconds West a distance of 103.077 meters (338.17 feet) to a point in the access control line and proposed right of way line 45.000 meters (147.63 feet) right of KY 40 at Station 5+940.000

thence with the access control line and proposed right of way line South 84 Degrees 46 Minutes 03 Seconds West a distance of 16.727 meters (54.87 feet) to a point in the access control line, proposed right of way line and mineral property line 56.828 meters (186.44 feet) right of KY 40 at Station 5+928.172

thence with the mineral property line North 21 Degrees 18 Minutes 36 Seconds West a distance of 25.034 meters (82.13 feet) to a in the mineral property line point 44.721 meters (146.72 feet) right of KY 40 at Station 5+906.260

thence with the mineral property line North 43 Degrees 08 Minutes 41 Seconds West a distance of 52.277 meters (171.51 feet) to a point in the

mineral property line 38.270 meters (125.55 feet) right of KY 40 at Station 5+854.382

thence with the mineral property line North 54 Degrees 31 Minutes 17 Seconds West a distance of 61.082 meters (200.39 feet) to a point in the access control line, proposed property line and mineral property line 42.838 meters (140.54 feet) right of KY 40 at Station 5+793.471

thence with the access control line and proposed right of way line North 22 Degrees 00 Minutes 14 Seconds East a distance of 11.382 meters (37.34 feet) to a point in the access control line and proposed right of way line 32.000 meters (104.98 feet) right of KY 40 at Station 5+790.000

thence with the access control line and proposed right of way line North 57 Degrees 21 Minutes 27 Seconds West a distance of 40.310 meters (132.25 feet) to a point in the access control line and proposed right of way line 37.000 meters (121.39 feet) right of KY 40 at Station 5+750.000

thence with the access control line and proposed right of way line North 37 Degrees 05 Minutes 56 Seconds West a distance of 30.806 meters (101.06 feet) to a point in the access control line and proposed right of way line 30.000 meters (98.425 feet) right of KY 40 at Station 5+720.000

thence with the access control line and proposed right of way line South 69 Degrees 02 Minutes 42 Seconds West a distance of 21.959 meters (72.04 feet) to a point in the access control line, proposed right of way line and mineral property line 49.153 meters (161.26 feet) right of KY 40 at Station 5+709.261

thence with the mineral property line North 54 Degrees 31 Minutes 17 Seconds West a distance of 78.392 meters (257.19 feet) to a point in the access control line, proposed right of way line and mineral property line 54.405 meters (178.49 feet) right of KY 40 at Station 5+629.236

thence with the access control line and proposed right of way line North 6 Degrees 26 Minutes 06 Seconds East a distance of 16.816 meters (55.17 feet) to a point in the access control line and proposed right of way line 40.000 meters (131.23 feet) right of KY 40 at Station 5+620.000

thence with the access control line and proposed right of way line North 55 Degrees 51 Minutes 34 Seconds West a distance of 55.524 meters (182.16 feet) to a point in the access control line and proposed right of way line 40.000 meters (131.23 feet) right of KY 40 at Station 5+560.000

thence with the access control line and proposed right of way line South 68 Degrees 16 Minutes 39 Seconds West a distance of 15.947 meters (52.31 feet) to a point in the access control line, proposed right of way line and mineral property line 52.545 meters (172.39 feet) right of KY 40 at Station 5+549.149

thence with the mineral property line North 54 Degrees 31 Minutes 17 Seconds West a distance of 182.279 meters (598.02 feet) to a point in the mineral property line 0.355 meters (1.16 feet) left of KY 40 at Station 5+363.762

thence with the mineral property line North 90 Degrees 00 Minutes 00 Seconds West a distance of 9.533 meters (31.27 feet) to a point in the mineral property line 0.929 meters (3.04 feet) right of KY 40 at Station 5+354.311

thence with the mineral property line North 0 Degrees 00 Minutes 00 Seconds East a distance of 13.112 meters (43.01 feet) to a point in the mineral property line 12.082 meters (39.63 feet) left of KY 40 at Station 5+352.706

thence with the mineral property line South 86 Degrees 54 Minutes 55 Seconds West a distance of 327.243 meters (1073.63 feet) to a point in the mineral property line 6.128 meters (20.10 feet) left of KY 40 at Station 5+027.176

thence with the mineral property line South 86 Degrees 54 Minutes 55 Seconds West a distance of 56.677 meters (184.94 feet) to a point in the mineral property line 6.790 meters (22.27 feet) left of KY 40 at Station 4+970.503

thence with the mineral property line South 3 Degrees 57 Minutes 49 Seconds East a distance of 61.845 meters (202.9 feet) to a point in the access control line, proposed right of way line and mineral property line 55.055 meters (180.62 feet) right of KY 40 at Station 4+970.730

thence with the access control line and proposed right of way line South 86 Degrees 17 Minutes 30 Seconds West a distance of 70.729 meters (232.05 feet) to a point in the access control line and proposed right of way line 55.000 meters (180.44 feet) right of KY 40 at Station 4+900.000

thence with the access control line and proposed right of way line South 89 Degrees 06 Minutes 32 Seconds West a distance of 100.125 meters (328.49 feet) to a point in the access control line and proposed right of way line 50.000 meters (164.04 feet) right of KY 40 at Station 4+800.000

thence with the access control line and proposed right of way line North 78 Degrees 50 Minutes 06 Seconds West a distance of 38.844 meters (127.44 feet) to a point in the access control line and proposed right of way line point 40.000 meters (131.23 feet) right of KY 40 at Station 4+762.467

thence with the access control line and proposed right of way line South 80 Degrees 40 Minutes 22 Seconds West a distance of 102.953 meters (337.77 feet) to a point in the access control line and proposed right of way line 50.000 meters (164.04 feet) right of KY 40 at Station 4+660.000

thence with the access control line and proposed right of way line North 85 Degrees 13 Minutes 23 Seconds West a distance of 48.618 meters (159.5 feet) to a point in the access control line and proposed right of way line 42.787 meters (140.37 feet) right of KY 40 at Station 4+611.921

thence with the proposed right of way line South 3 Degrees 45 Minutes 42 Seconds East a distance of 63.330 meters (207.77 feet) to a point in the proposed right of way line and mineral property line 106.118 meters (348.15 feet) right of KY 40 at Station 4+611.930

thence with the mineral property line South 86 Degrees 50 Minutes 44 Seconds West a distance of 59.785 meters (196.14 feet) to a point in the mineral property line 105.493 meters (346.1 feet) right of KY 40 at Station 4+552.148

thence with the mineral property line North 15 Degrees 07 Minutes 12 Seconds East a distance of 44.164 meters (144.89 feet) to a point in the mineral property line 63.703 meters (208.99 feet) right of KY 40 at Station 4+566.435

thence with the mineral property line South 88 Degrees 23 Minutes 56 Seconds West a distance of 525.845 meters (1725.21 feet) to a point in the proposed right of way line and mineral property line 53.782 meters (176.44 feet) left of KY 40 at Station 4+050.838 and the POINT OF BEGINNING.

The above described parcel contains 72.482 hectares (724822 sq. meters), (179.107 acres, 7,801,888 sq. ft.)

It is understood between the parties hereto and made a covenant herein that the above described property is conveyed in fee simple.

The above-described mineral tract (a solid mineral, excluding oil and gas), being a portion of the same tract originally conveyed to Isaac Maynard and Aaron Stepp by John Sloan and Malinda Sloan, his wife, by Deed dated

November 21, 1905, and recorded in Deed Book C, page 184, and by another Deed to Alwilda Kirk Allen, et al from Mahala Kirk, widow, by Deed dated September 21, 1935, and recorded in Deed Book 37, page 102, in the Office of the Martin County Court Clerk. Furthermore, the Defendants herein acquired or may have acquired their interests in the aforesaid tract as shown by the following Deeds and/or Wills or Affidavits of Descent recorded in the Office of the Martin County Court Clerk: Deed Book 39, page 280; Deed Book 27, page 249; Deed Book 29, page 382; Deed Book 31, page 125; Deed Book 31, page 274; Deed Book 97, page 421; Will Book 2, page 364; Deed Book 101, page 296; Deed Book 97, page 469; Deed Book 97, page 506; Deed Book 37, page 102; Deed Book 36, page 310; Deed Book 39, page 49; Deed Book 23, page 467; Deed Book 99, page 657; Deed Book 78, page 43; Deed Book 130, page 163; Deed Book 80, page 428; Deed Book 102, page 351; Deed Book 93, page 314; Deed Book 82, page 465; Will Book 2, page 343; Deed Book 79, page 101; Deed Book 90, page 252; Deed Book 108, page 29; Deed Book 39, page 281; Deed Book 55, page 574; Deed Book 47, page 350; Deed Book 81, page 382; Deed Book 61, page 522; Deed Book 67, page 866; Deed Book 39, page 193; Civil Order Book 14, page 15; Deed Book 40, page 384; Deed Book 45, page 529; Deed Book 45, page 531; Deed Book 48, page 324; Deed Book 49, page 145; Deed Book 67, page 866; Deed Book 61, page 524; Deed Book 49, page 143; Deed Book 49, page 145; Deed Book 46, page 501; and Deed Book 64, page 524.

Less the mineral one hundred and fifty feet (150') or more, measured vertically, below either the natural contour of the existing surface of the Mineral Premises or the final Highway sub grade, whichever is lower in elevation, provided, however, that in mining the coal hereby reserved under the Highway, coal pillars shall be left in place which provide a factor of safety against crushing of no less than 2.0, as determined by engineering practices in the coal industry and/or pursuant to the requirements of the Office of Mine Safety and Licensing (previously known as the Department of Mines and Minerals).

This proposed public highway improvement for which the above-described property is being acquired is identified as KY 40 (Inez-Warfield-Kermit Road), State Project No. FD04 C080 5365703R, the plans for which are on file in the office of the Transportation Cabinet in Frankfort, Kentucky. The acquisition of the right of way of this project was authorized by the Transportation Cabinet by Official Order No. 99997. Access on this project shall be allowed where specifically shown on the aforesaid plans or as otherwise permitted by law and/or a Transportation Cabinet permit, as required to be set forth in Section 6 of the Kentucky Administrative Regulations 603 KAR 5:120.

TO HAVE AND TO HOLD said property unto the Grantee, its successor(s) and assign(s), with all the rights and privileges thereunto belonging with the covenants of General Warranty.

IN TESTIMONY WHEREOF, the Grantors have executed this Deed on the 25 day of Feb 2015.

Grantor:

Brian Cumbo

Brian Cumbo
Master Commissioner
Martin County Circuit Court

Examined and Approved in
Martin County Circuit Court this
27 day of February 2015.

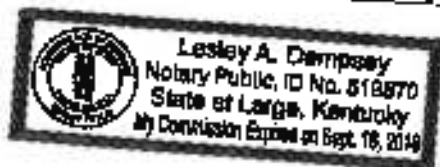
John David Ruster
Judge, Martin County Circuit Court

CERTIFICATE OF ACKNOWLEDGMENT

Commonwealth of Kentucky
County of Martin

The Master Commissioner of the Martin County Circuit Court produced the foregoing deed of conveyance to the Commonwealth of Kentucky for the use and benefit of the Transportation Cabinet, Department of Highways, which was examined and approved by the Court, and the said Commissioner acknowledged same to be his true act and deed; wherefore, the same was ordered to be and is hereby certified to the proper office for record.

This the 25th day of February 2015.



Lesley A. Dempsey
Notary Public, State at Large
My Commission Expires: 9-18-18

CLERK'S RECORDING CERTIFICATE

Commonwealth of Kentucky
County of Martin

I, the undersigned Clerk of the county in and for the County and State aforesaid, certify that the foregoing Master Commissioner's Deed from Lexington Coal Company; Dr. Larry Bruce Mills; James D. Hatfield and wife, Linda H. Hatfield; Norval Ray Payne, Legatee of Marie Payne Worden; James Millard Payne, Legatee of Marie Payne Worden, deceased; Wilda Eva Payne, Legatee of Marie Payne Worden, deceased; Leonard Carl Boyer, Legatee of Marie Payne Worden, deceased; Leonard Carol Boyer, Legatee of Marie Payne Worden, deceased; Leonard Carl Boyer II; John Daniel Boyer, Legatee of Marie Payne Worden, deceased; Harvey Glen Payne, Legatee of Marie Payne Worden; Robert Eugene Payne, Legatee of Marie Payne Worden; Gertrude Hayes Iseli and husband, James W. Iseli; Omeda Burgess and husband, William G. Burgess; Jack H. Horn and wife, Gladys C. Horn; Richard Preece and wife, Carolyn Sue Preece; Carolyn P. Horn; James A. Preece and wife, Carol Jean Preece; Melanie Preece, Guardian of James A. Preece and wife, Carol Jean Preece; Geneva P. Stepp and husband, Granville Stepp; Peggy Kirk; Joanne Duncan and husband, Mike Duncan; Betty Powell Estate by and through Darla Penix and husband, Charles Penix; Elizabeth Quattrocchi, Legatee of Glima Ratchiff; Julia Quattrocchi, Legatee of Glima Ratchiff; Mary Kay Hanke, Legatee of Glima Ratchiff; Grover Powell; William Abrams; Ruby Brown and husband, Keith K. Brown; Linda Coon and husband, George W. Coon Sr.; William C. Conroy; Wayne A. Conroy; Barbara S. Knapp; Eugene B. Arnett, Jr. Revocable trust, Sharkey U. Arnett, Trustee for Eugene B. Arnett, Jr.; Lionel Stepp, Trustee for the Estate of Inez Stepp, and wife, Donna S. Stepp; James H. Stepp; James H. Stepp, Jr. and wife, Deanna Stepp; Cynthia Inez Webb; Wendy Stepp; Lionel Stepp as Guardian for David Cecil Stepp; David Wayne Stepp; Anthony Kirk and wife, Louise Kirk; Maxine Beasley, Executor of the Elizabeth K. Lutzkus Allsman Estate; Bryan Powell; Carolyn Sue Kirk; David Kirk Kavanaugh and wife, Mikiko Suzuki; J.D. Kirk Jr.; Phillip Kirk and wife, Linda Kirk; Gary Kirk and wife, Monika Kirk; W.E. Ratliff; William D. Kelly; Elizabeth Porter; Roscoe James; Lucy Anderson; James D. James; Dixie Parks; O.B. Bucklen and wife, Margaret Bucklen; Joe Ramsey; J.D. James and wife, Patricia James; International Coal Group Natural Resources, LLC; Jenny Duvall and husband, Scott Duvall; Rosemary Porter, Legatee of Dixie Parks, deceased; Audry James, Legatee of Rosa James; Audry James, Legatee of Goldie Kirk,

deceased; Lavonne Williamson, Legatee of Dr. James F. Williamson, deceased; Mary Jo Holloway, Legatee of Russell Williamson, deceased; Mary Ellen Rice, Legatee of Charles Lacy Rice, deceased, who was a Legatee of Verlie Collier, deceased; Charles Lacy Rice III and wife, Jackie Rice, Legatee of Charles Lacy Rice, deceased; Miriam Greta Kanegae and husband, Timothy Kanegae, Legatee of Charles Lacy Rice, deceased; Mark H. Rice and wife, Julie Rice, Legatee of Charles Lacy Rice, deceased; Edward Rice and wife, LeAnn Rice, Legatee of Charles Lacy Rice; Robert Alden Williamson, Legatee of Russell Williamson, deceased, and residual Legatee of Robert L. Williamson, deceased; James Russell Williamson, Legatee of Russell Williamson, deceased, and residual Legatee of Robert L. Williamson, deceased; and David S. Miranda, Jr. and wife, Mary Jane Miranda, Legatee of Mary Ratliff; Audry James, Legatee of Rosa James and Goldie Kirk; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of J.D. Kirk, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through J.D. Kirk or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of W.E. Ratliff, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through W.E. Ratliff or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of D.E. Wheeler and Carman Wheeler, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through D.E. Wheeler and Carman Wheeler or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Imogene Kirk Mills, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Imogene Kirk Mills or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Thelma K. Kelly, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Thelma

K. Kelly or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Sabre L. Adams, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Sabre L. Adams or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Roscoe James, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Roscoe James or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Thomas E. James, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Thomas E. James or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Lucy Anderson, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Lucy Anderson or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of J.D. Kirk, Jr. and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through J.D. Kirk, Jr. or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of William K. Kelley, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through William K. Kelley or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Elizabeth Porter, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to

be condemned herein under or through Elizabeth Porter or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of James D. James, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through James D. James or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Dixie Parks, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Dixie Parks or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; and Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Joe Ramsey, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Joe Ramsey or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Norval Ray Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Norval Ray Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of James Millard Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through James Millard Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Wilda Eva Payne, and her unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Wilda Eva Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Leonard Carl Boyer, and his unknown spouse, if any, and also

being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Leonard Carl Boyer or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Leonard Carl Boyer II, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Leonard Carl Boyer II or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of John Daniel Boyer, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through John Daniel Boyer or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Harvey Glen Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Harvey Glen Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Robert Eugene Payne, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Robert Eugene Payne or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; and Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of Charles Pennix, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through Charles Pennix or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; Unknown Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of James H. Stepp, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through James H. Stepp or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable; and Unknown

Defendants, being the unknown heirs at law, Grantees, Devisees, Successors and/or assigns, if any, of David Wayne Stepp, and his unknown spouse, if any, and also being such persons, if any, entitled to and/or claiming an interest in the property sought to be condemned herein under or through David Wayne Stepp or any of the aforementioned unknown individuals or otherwise address unknown, non-existent and/or unascertainable, to the Commonwealth of Kentucky for the use and benefit of the Transportation Cabinet, Department of Highways, was lodged for record in my office on this ___ day of _____ 2015, and has been duly recorded in Deed Book ____, Page ____.

Witness my hand on this ___ day of _____ 2015.

Martin County Clerk

By: _____

Prepared By:
William Fogle

Hon. William Fogle
Transportation Cabinet
200 Mero Street
Frankfort, KY 40622
(502) 564-7650

APPENDIX 3

Deed from Commonwealth
of Kentucky, Transportation
Cabinet, to the Martin
County Fiscal Court dated
May 11, 2015

DEED OF CONVEYANCE

THIS DEED OF CONVEYANCE made and entered into this 11 day of May, 2015, by and between the COMMONWEALTH OF KENTUCKY, by Lori H. Flanery, Secretary of the Finance and Administration Cabinet, 702 Capital Ave., Frankfort, Kentucky 40601, on behalf of the TRANSPORTATION CABINET, Department of Highways, 200 Metro Street, Frankfort, Kentucky 40622, Grantor, and the MARTIN COUNTY FISCAL COURT, P.O. Box 309, Inez, Kentucky 41224, the Grantee, (whose in-care-of tax mailing address for the current tax year is P.O. Box 309, Inez, Kentucky 41224).

WITNESSETH:

WHEREAS, the Finance and Administration Cabinet, pursuant to the provisions of KRS Chapters 45A and 56, has found that the hereinafter described real estate could be used more suitably by the Grantee to facilitate a needed public use in the Appalachian region and a potential acceptable site for a new public school facility; and

WHEREAS, said Cabinet has determined that this is in the best interests of the Commonwealth of Kentucky that said property be conveyed to the Grantee for no monetary consideration, so long as the property is utilized for public use; and

NOW THEREFORE, for and in consideration of the above premises, and for no monetary consideration, the Grantor does hereby grant and convey unto the Grantee, its successors and assigns forever, subject to the hereinafter described conditions, all rights, title and interest in and to the surface only of the following described property located in Martin County, Kentucky and being more particularly described as follows:

Martin County
FD04 C088 5365783R
KY 40 (Inez-Warfield-Karmult Road)
Holly Bush Express Material Site

Being a tract of land lying in eastern Martin County beginning approximately 1,000 meters (3,280.83 feet) northeast of the intersection of old KY 40 and new KY 40 on the Blacklog Fork, and being more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an "iron pin set" is a set 5/8" diameter iron re-bar eighteen (18") in length, with a yellow plastic cap stamped "LS 2830". Unless stated otherwise, any monument referred to herein as an "iron pin

found" is a found 5/8" diameter re-bar with an aluminum cap stamped "Boocook Engineering, Inc". All bearings and coordinates stated herein are referred to the Kentucky South Zone, NAD83 grid North.

Beginning at a KYTC right of way monument set in the south property line of KYTC; having coordinates of N 2,213,083.02, E 2,575,475.67; and being 25.579 meters (83.92 feet) left of KY 40 at Station 4+419.778;

thence, with the south property of KYTC line North 64 Degrees 18 Minutes 32 Seconds West a distance of 53.840 meters (176.64 feet) to a KYTC right of way monument set in the south property line 54.819 (179.85 feet) meters left of KY 40 at Station 4+376.554;

thence, with the south property line of KYTC North 86 Degrees 41 Minutes 16 Seconds West a distance of 32.920 meters (108.01 feet) to a KYTC right of way monument found in the south property line 62.202 meters (204.07 feet) left of KY 40 at Station 4+346.537;

thence, with the south property line of KYTC North 86 Degrees 43 Minutes 01 Seconds West a distance of 138.346 meters (453.89 feet) to a KYTC right of way monument found in the south property line, a corner common to Joseph L. Parsons (DB 65 PG 352) 103.018 meters (344.54 feet) left of KY 40 at Station 4+226.634;

thence, with the southwest property line of KYTC and Parsons North 12 Degrees 27 Minutes 29 Seconds West a distance of 10.541 meters (34.58 feet) to a KYTC right of way monument found in the southwest property line 115.497 meters (378.92 feet) left of KY 40 at Station 4+227.649;

thence, with the southwest property line of KYTC and Parsons North 12 Degrees 24 Minutes 29 Seconds West a distance of 10.816 meters (35.49 feet) to a KYTC right of way monument found in the southwest property line 126.249 meters (414.20 feet) left of KY 40 at Station 4+228.676;

thence, with the southwest property line of KYTC and Parsons North 37 Degrees 29 Minutes 39 Seconds West a distance of 73.397 meters (240.80 feet) to a KYTC right of way monument found in the southwest property line 195.962 meters (642.91 feet) left of KY 40 at Station 4+209.363;

thence, with the southwest property line of KYTC and Parsons North 37 Degrees 20 Minutes 21 Seconds West a distance of 28.182 meters (92.46 feet) to a KYTC right of way monument found in the southwest property line 222.882 meters (731.23 feet) left of KY 40 at Station 4+202.673;

thence, with the southwest property line of KYTC and Parsons North 25 Degrees 43 Minutes 05 Seconds West a distance of 10.227 meters (33.55 feet) to a KYTC right of way monument found in the southwest property line 233.064 meters (764.64 feet) left of KY 40 at Station 4+201.923;

thence, with the southwest property line of KYTC and Parsons North 31 Degrees 46 Minutes 03 Seconds West a distance of 15.807 meters (51.86 feet) to a KYTC right of

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way monument found in the southwest property line 248.566 meters (815.46 feet) left of KY 40 at Station 4+199.513;

thence, with the southwest property line of KYTC and Parsons North 70 Degrees 26 Minutes 43 Seconds West a distance of 70.464 meters (231.18 feet) to a KYTC right of way monument found in the southwest property line 295.244 meters (968.64 feet) left of KY 40 at Station 4+159.508;

thence, with the southwest property line of KYTC North 63 Degrees 12 Minutes 37 Seconds West a distance of 89.919 meters (295.01 feet) to an iron pin set in the west property corner, a corner common to Joseph L. Parsons (DB 65 PG 352) and Warren G. Cassidy (DB 47 PG 195), 365.552 meters (1199.30 feet) left of KY 40 at Station 4+119.121;

thence, with the northwest property line of KYTC and Cassidy North 35 Degrees 59 Minutes 32 Seconds East a distance of 93.876 meters (307.99 feet) to an iron pin set in the northwest property line of KYTC 412.377 meters (1352.93 feet) left of KY 40 at Station 4+174.962;

thence, with the northwest property line of KYTC and Cassidy North 70 Degrees 11 Minutes 03 Seconds East a distance of 41.584 meters (136.43 feet) to a KYTC right of way monument found in the northwest property line of KYTC 411.315 meters (1349.44 feet) left of KY 40 at Station 4+202.966;

thence, with the northwest property line of KYTC and Cassidy North 69 Degrees 59 Minutes 42 Seconds East a distance of 80.668 meters (264.66 feet) to a KYTC right of way monument found in the northwest property line of KYTC 413.428 meters (1356.37 feet) left of KY 40 at Station 4+257.273;

thence, with the northwest property line of KYTC and Cassidy North 52 Degrees 28 Minutes 23 Seconds East a distance of 57.178 meters (187.59 feet) to a KYTC right of way monument found in the northwest property line of KYTC, a corner common to Warren G. Cassidy (DB 47 PG 195) and Tara Ann Bowen (DB 133 PG 29), 434.892 meters (1426.79 feet) left of KY 40 at Station 4+292.631;

thence, with the northwest property line of KYTC and Bowen North 35 Degrees 06 Minutes 21 Seconds East a distance of 162.097 meters (531.81 feet) to a KYTC right of way monument found in the northwest property line of KYTC, a corner common to Tara Ann Bowen (DB 133 PG 29) and Asher Maynard (DB 139 PG 306), 545.823 meters (1790.74 feet) left of KY 40 at Station 4+367.674;

thence, with the northwest property line of KYTC and Maynard North 34 Degrees 04 Minutes 30 Seconds East a distance of 132.349 meters (434.23 feet) to a KYTC right of way monument found in the northwest property line of KYTC 644.881 meters (2115.73 feet) left of KY 40 at Station 4+419.935;

thence, with the northwest property line of KYTC and Maynard South 82 Degrees 52 Minutes 39 Seconds East a distance of 125.339 meters (411.22 feet) to a KYTC right of way monument found in the northwest property line 619.934 meters (2033.88 feet) left of KY 40 at Station 4+519.937;

thence, with the northwest property line of KYTC and Maynard South 5 Degrees 25 Minutes 59 Seconds West a distance of 299.335 meters (982.07 feet) to a KYTC right of way monument found to the northwest property line 324.459 meters (1064.49 feet) left of KY 40 at Station 4+473.074;

thence, with the northwest property line of KYTC and Maynard North 52 Degrees 42 Minutes 53 Seconds East a distance of 80.159 meters (262.99 feet) to a KYTC right of way monument found in the northwest property line 368.718 meters (1209.69 feet) left of KY 40 at Station 4+538.968;

thence, with the northwest property line of KYTC and Maynard North 4 Degrees 44 Minutes 59 Seconds West a distance of 24.491 meters (80.35 feet) to a KYTC right of way monument found in the northwest property line 393.205 meters left (1290.03 feet) of KY 40 at Station 4+538.542;

thence, with the northwest property line of KYTC and Maynard North 13 Degrees 07 Minutes 08 Seconds East a distance of 51.548 meters (169.12 feet) to an iron pin set in the northwest property line 442.535 meters (1451.87 feet) left of KY 40 at Station 4+553.503;

thence, with the northwest property line of KYTC and Maynard North 24 Degrees 32 Minutes 09 Seconds East a distance of 60.400 meters (198.16 feet) to an iron pin found in the northwest property line 495.721 meters (1626.36 feet) left of KY 40 at Station 4+582.128;

thence, with the northwest property line of KYTC and Maynard North 28 Degrees 28 Minutes 19 Seconds East a distance of 42.349 meters (138.94 feet) to an iron pin found in the northwest property line 531.547 meters (1743.90 feet) left of KY 40 at Station 4+604.711;

thence, with the northwest property line of KYTC and Maynard North 35 Degrees 47 Minutes 01 Seconds East a distance of 42.772 meters (140.33 feet) to an iron pin set in the northwest property line 564.533 meters (1852.12 feet) left of KY 40 at Station 4+631.939;

thence, with the northwest property line of KYTC and Maynard North 25 Degrees 27 Minutes 29 Seconds East a distance of 65.826 meters (215.96 feet) to a ring nail set in the northwest property line 621.987 meters (2040.61 feet) left of KY 40 at Station 4+664.064;

thence, with the northwest property line of KYTC and Maynard North 8 Degrees 51 Minutes 11 Seconds East a distance of 47.251 meters (155.02 feet) to an iron pin found in the northwest property line 668.099 meters (2191.90 feet) left of KY 40 at Station 4+674.376;

thence, with the northwest property line of KYTC and Maynard North 6 Degrees 27 Minutes 21 Seconds West a distance of 48.197 meters (158.13 feet) to an iron pin set in the northwest property line, a corner common to Asher Maynard (DB 139 PG 306) and Stella Horn (DB 68 PG 996) 716.242 meters (2349.85 feet) left of KY 40 at Station 4+672.104;

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thence, with the northwest property line of KYTC and Horn North 26 Degrees 38 Minutes 02 Seconds East a distance of 68.153 meters (223.60 feet) to a mag nail set in the northwest property line 775.032 meters (2542.72 feet) left of KY 40 at Station 4+706.578;

thence, with the northwest property line of KYTC and Horn North 26 Degrees 13 Minutes 27 Seconds East a distance of 51.699 meters (169.62 feet) to a pk nail found in the northwest property line 819.816 meters (2689.65 feet) left of KY 40 at Station 4+732.410;

thence, with the northwest property line of KYTC and Horn North 27 Degrees 26 Minutes 27 Seconds East a distance of 65.920 meters (216.27 feet) to a mag nail set in the northwest property line 876.204 meters (2874.65 feet) left of KY 40 at Station 4+766.553;

thence, with the northwest property line of KYTC and Horn North 46 Degrees 56 Minutes 48 Seconds East a distance of 70.277 meters (230.57 feet) to an iron pin found in the north property line 920.717 meters (3020.69 feet) left of KY 40 at Station 4+820.936;

thence, with the north property line of KYTC and Horn North 68 Degrees 48 Minutes 47 Seconds East a distance of 54.157 meters (177.68 feet) to an iron pin found in the north property line 936.942 meters (3073.92 feet) left of KY 40 at Station 4+872.605;

thence, with the north property line of KYTC and Horn South 72 Degrees 20 Minutes 20 Seconds East a distance of 55.695 meters (182.73 feet) to an iron pin found in the north property line 916.607 meters (3007.20 feet) left of KY 40 at Station 4+924.453;

thence, with the north property line of KYTC and Horn South 82 Degrees 52 Minutes 18 Seconds East a distance of 36.481 meters (119.69 feet) to an iron pin found in the north property line 909.721 meters (2984.61 feet) left of KY 40 at Station 4+960.280;

thence, with the north property line of KYTC and Horn North 74 Degrees 49 Minutes 03 Seconds East a distance of 63.087 meters (206.98 feet) to an iron pin found in the north property line, a corner common to KYTC, Stella Horn (DB 68 PG 996) and John R. Horn (DB 55 PG 268) 922.221 meters (3025.62 feet) left of KY 40 at Station 5+022.116;

thence, with the northeast property line of KYTC and Horn South 43 Degrees 31 Minutes 51 Seconds East a distance of 49.728 meters (163.15 feet) to an iron pin found in the northeast property line 884.004 meters (2900.24 feet) left of KY 40 at Station 5+053.933;

thence, with the northeast property line of KYTC and Horn South 29 Degrees 34 Minutes 53 Seconds East a distance of 85.792 meters (281.47 feet) to an iron pin set in the northeast property line 806.782 meters (2646.89 feet) left of KY 40 at Station 5+091.310;

thence, with the northeast property line of KYTC and Horn South 38 Degrees 15 Minutes 41 Seconds East a distance of 64.300 meters (210.96 feet) to a mag nail set in

the northeast property line 753.796 meters (2473.05 feet) left of KY 40 at Station 5+127.738;

thence, with the northeast property line of KYTC and Horn South 42 Degrees 44 Minutes 29 Seconds East a distance of 48.442 meters (158.93 feet) to an iron pin found in the northeast property line 716.143 meters (2349.52 feet) left of KY 40 at Station 5+158.215;

thence, with the northeast property line of KYTC and Horn South 56 Degrees 39 Minutes 50 Seconds East a distance of 46.371 meters (152.14 feet) to an iron pin found in the northeast property line 688.179 meters (2257.78 feet) left of KY 40 at Station 5+195.205;

thence, with the northeast property line of KYTC and Horn North 65 Degrees 53 Minutes 24 Seconds East a distance of 67.926 meters (222.85 feet) to an iron pin set in the northeast property line 712.065 meters (2336.14 feet) left of KY 40 at Station 5+248.482;

thence, with the northeast property line of KYTC and Horn North 48 Degrees 50 Minutes 20 Seconds East a distance of 33.489 meters (109.87 feet) to an iron pin set in the northeast property line 732.983 meters (2404.77 feet) left of KY 40 at Station 5+264.002;

thence, with the northeast property line of KYTC and Horn North 63 Degrees 56 Minutes 58 Seconds East a distance of 40.846 meters (134.01 feet) to a mag nail set in the northeast property line, a corner common to KYTC, John R. Horn (DB 55 PG 268) and Rosa James Heirs (DB 82 PG 645) 750.030 meters (2460.70 feet) left of KY 40 at Station 5+282.833;

thence, with the northeast property line of KYTC and James Heirs South 79 Degrees 31 Minutes 56 Seconds East a distance of 70.888 meters (232.57 feet) to an iron pin set in the northeast property line 738.182 meters (2421.83 feet) left of KY 40 at Station 5+312.650;

thence, with the northeast property line of KYTC and James Heirs North 84 Degrees 00 Minutes 36 Seconds East a distance of 102.562 meters (336.49 feet) to an iron pin set in the northeast property line 757.294 meters (2484.53 feet) left of KY 40 at Station 5+353.041;

thence, with the northeast property line of KYTC and James Heirs North 82 Degrees 28 Minutes 17 Seconds East a distance of 43.375 meters (142.31 feet) to an iron pin set in the northeast property line 768.910 meters (2522.64 feet) left of KY 40 at Station 5+369.585;

thence, with the northeast property line of KYTC and James Heirs North 74 Degrees 42 Minutes 31 Seconds East a distance of 29.416 meters (96.51 feet) to an iron pin set in the northeast property line 781.269 meters (2563.19 feet) left of KY 40 at Station 5+380.053;

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thence, with the northeast property line of KYTC and James Heirs South 71 Degrees 46 Minutes 32 Seconds East a distance of 59.283 meters (194.50 feet) to an iron pin set in the east property line 774.295 meters (2540.31 feet) left of KY 40 at Station 5+403.092;

thence, with the east property line of KYTC and James Heirs South 5 Degrees 51 Minutes 24 Seconds East a distance of 164.916 meters (541.06 feet) to an iron pin set in the east property line, a corner common to Rosa James Heirs (DB 82 PG 645) and Inez K. Step (DB 44 PG 386) 619.279 meters (2031.73 feet) left of KY 40 at Station 5+426.656;

thence, with the southeast property line of KYTC and Step South 46 Degrees 59 Minutes 10 Seconds West a distance of 117.432 meters (385.27 feet) to an iron pin set in the southeast property line 520.992 meters (1709.27 feet) left of KY 40 at Station 5+396.593;

thence, with the southeast property line of KYTC and Step South 40 Degrees 35 Minutes 30 Seconds West a distance of 56.309 meters (184.74 feet) to an iron pin set in the southeast property line 471.901 meters (1548.21 feet) left of KY 40 at Station 5+382.748;

thence, with the southeast property line of KYTC and Step South 34 Degrees 59 Minutes 05 Seconds West a distance of 40.875 meters (134.10 feet) to an iron pin set in the southeast property line 434.868 meters (1426.71 feet) left of KY 40 at Station 5+373.673;

thence, with the southeast property line of KYTC and Step South 48 Degrees 57 Minutes 37 Seconds West a distance of 76.715 meters (251.69 feet) to an iron pin set in the southeast property line 377.068 meters (1237.08 feet) left of KY 40 at Station 5+345.816;

thence, with the southeast property line of KYTC and Step South 34 Degrees 11 Minutes 17 Seconds West a distance of 52.087 meters (170.89 feet) to an iron pin set in the southeast property line 331.421 meters (1087.33 feet) left of KY 40 at Station 5+331.127;

thence, with the southeast property line of KYTC and Step South 19 Degrees 38 Minutes 45 Seconds West a distance of 45.701 meters (149.94 feet) to an iron pin set in the southeast property line 287.388 meters (942.86 feet) left of KY 40 at Station 5+323.566;

thence, with the southeast property line of KYTC and Step South 30 Degrees 00 Minutes 24 Seconds West a distance of 38.164 meters (125.21 feet) to a mag nail set in the southeast property line 233.373 meters (831.27 feet) left of KY 40 at Station 5+312.331;

thence, with the southeast property line of KYTC and Step South 17 Degrees 45 Minutes 24 Seconds West a distance of 78.885 meters (258.81 feet) to an iron pin set in the south property line, a corner common to KYTC, Inez K. Step (DB 44 PG 386) and Glen A. Harmon (DB 72 PG 80) 177.628 meters (582.76 feet) left of KY 40 at Station 5+296.781;

MARTIN COUNTY
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thence, with the south property line of KYTC and Harmon South 71 Degrees 14 Minutes 33 Seconds West a distance of 20.877 meters (67.84 feet) to a mag nail set in the southeast property line 171.003 meters (561.03 feet) left of KY 40 at Station 5+281.552;

thence, with the south property line of KYTC and Harmon South 68 Degrees 03 Minutes 52 Seconds West a distance of 112.260 meters (368.31 feet) to an iron pin set in the south property line 134.521 meters (441.34 feet) left of KY 40 at Station 5+183.778;

thence, with the south property line of KYTC and Harmon South 46 Degrees 56 Minutes 54 Seconds West a distance of 86.061 meters (282.35 feet) to a KYTC right of way monument found in the south property line, a corner common to KYTC and Glen A. Harmon (DB 72 PG 80) 80.014 meters (262.51 feet) left of KY 40 at Station 5+117.179;

thence, with the south property line of KYTC South 86 Degrees 14 Minutes 05 Seconds West a distance of 337.245 meters (1107.86 feet) to a KYTC right of way monument found in the south property line 79.940 meters (262.27 feet) left of KY 40 at Station 4+759.934;

thence, with the south property line of KYTC South 73 Degrees 46 Minutes 31 Seconds West a distance of 204.749 meters (671.75 feet) to a KYTC right of way monument found in the south property line 35.724 meters (117.20 feet) left of KY 40 at Station 4+560.016;

thence, with the south property line of KYTC South 73 Degrees 49 Minutes 02 Seconds West a distance of 40.961 meters (134.39 feet) to a KYTC right of way monument found in the south property line 26.908 meters (88.12 feet) left of KY 40 at Station 4+520.015;

thence, with the south property line of KYTC South 86 Degrees 10 Minutes 00 Seconds West a distance of 60.012 meters (196.89 feet) to a KYTC right of way monument found in the south property line 26.909 meters (88.28 feet) left of KY 40 at Station 4+460.203;

thence, with the south property line of KYTC South 83 Degrees 15 Minutes 13 Seconds West a distance of 41.192 meters (135.14 feet) to a KYTC right of way monument set in the south property line 25.579 meters (83.92 feet) left of KY 40 at Station 4+419.778 and the POINT OF BEGINNING.

The above described parcel contains 83.213 hectares (832,129 sq. m.); 205.62 acres (8,956,926 sq. ft.) more or less, according to a survey by Luther A. Miracle, PLS #2830, with DLZ Kentucky, Inc., on December 5, 2014.

All according to a plat attached hereto.

Being a part of the same property acquired by the Commonwealth of Kentucky for the use and benefit of the Transportation Cabinet, Department of Highways, from William

Maynard and Martha A. Maynard, husband and wife, by deed dated May 17, 2001 and being of record in Deed Book 143, Page 167, and from Inez K. Stepp, widow, by deed dated May 24, 2001 and being of record in Deed Book 144, Page 688, and from Ollie Sturgill (aka Ollie Maynard) and Jennings Sturgill, wife and husband, by deed dated May 24, 2003 and being of record in Deed Book 150, Page 496, and from James I. Maynard and Polly Maynard, husband and wife, by deed dated May 30, 2003 and being of record in Deed Book 150, Page 654, and from Edgar Bowen, Jr. and Teresa Bowen, husband and wife, by deed dated May 30, 2003 and being of record in Deed Book 150, Page 659, and from Asher Maynard, single, by deed dated April 9, 2003 and being of record in Deed Book 150, Page 563, and from Altha Lea Kirk, single, by deed dated May 30, 2003 and being of record in Deed Book 150, Page 503, and from Edgar Bowen, Jr. and Teresa Bowen, husband and wife, by deed dated May 30, 2003 and being of record in Deed Book 150, Page 663, and from Asher Maynard, single, by deed dated April 9, 2003 and being of record in Deed Book 150, Page 567, and from Asher Maynard, single, and Lucy Maynard Kirk and James Kirk, husband and wife, by deed dated May 12, 2003 and being of record in Deed Book 150, Page 555, and from Asher Maynard, single, and Lucy Maynard Kirk and James Kirk, husband and wife, by deed dated May 12, 2003 and being of record in Deed Book 150, Page 559, and from John Stepp and Alice A. Stepp, husband and wife, by deed dated November 29, 2010 and being of record in Deed Book 176, Page 571, and from Inez K. Stepp, widow, by deed dated April 4, 2003 and being of record in Deed Book 150, Page 198, and from Hazel Scott and William Scott, wife and husband, by deed dated May 30, 2003 and being of record in Deed Book 150, Page 507, and from Asher Maynard, single, by deed dated April 24, 2001 and being of record in Deed Book 142, Page 390, and from Tom Ann Kirk Bowen, single, by deed dated May 30, 2003 and being of record in Deed Book 150, Page 511, and from Asher Maynard, single, by deed dated April 9, 2003 and being of record in Deed Book 150, Page 205, and from Lexington Coal Company, LLC, et al, by Master Commissioner's Deed dated February 25, 2015 and being of record in Deed Book 189, Page 96, and from Lionel K. Stepp, Executor and Trustee for the Estate of Inez K. Stepp, by Master Commissioner's Deed dated February 24, 2014 and being of record in Deed Book 189, Page 86, and from Jonathan S. Duncan and Bonnie J. Duncan, husband and wife, by deed dated April 24, 2001 and being of record in Deed Book 144, Page 651 and from Joseph L. Parsons and Medgie Ann Parsons, husband and wife, by deed dated June 4, 2001 and being of record in Deed Book 144, Page 647 and from Joseph L. Parsons and Medgie Ann Parsons, husband and wife, by deed dated October 20, 2003 and being of record in Deed Book 152, Page 451 and from Joseph L. Parsons and Medgie Ann Parsons, husband and wife, by deed dated May 28, 2003 and being of record in Deed Book 150, Page 650 and from William Maynard Estate, et al, by Master Commissioner's Deed dated February 13, 2008 and being of record in Deed Book 167, Page 394, all duly recorded in the office of the Martin County Clerk, Inez, Kentucky.

IT IS AGREED AND UNDERSTOOD that the previously described property is conveyed subject to the following conditions:

1. This conveyance is subject to any and all utility or other easements of record in or upon the above-described property and to any and all rights of others recognized and/or permitted by the Grantor for the presence of utilities, (i.e. electric, gas, water, telephone, cable TV, etc.), in or upon the property, and in respect to such utility rights, where no easement exists.

this conveyance is subject to the Grantee's agreement to dedicate or convey permanent easements to the owner(s) of said utilities for the perpetual maintenance thereof.

2. The erection of and/or maintenance of off-premise advertising devices, including but not necessarily limited to billboards, upon the above-described property is prohibited.

3. Should the property cease to be put to a public use by the Martin County Fiscal Court, the property shall revert to the Commonwealth of Kentucky, for the use and benefit of the Transportation Cabinet, without monetary consideration.

4. Should the Grantee convey any portion of the herein-described property, for other than a public purpose, the fair market value of the property so conveyed will be paid to the Grantor.

5. The Grantee agrees to maintain the herein-described property, in good condition. The Grantor and the Grantee agree and understand that any needed infrastructure required to develop the herein-described property shall be the responsibility of the Grantee.

6. The Transportation Cabinet does not represent that the hereinbefore described property is suitable for any specific use or purpose.

TO HAVE AND TO HOLD unto the Grantee, the Martin County Fiscal Court, its successors and assigns forever, in fee simple with a covenant of Special Warranty.

CONSIDERATION CERTIFICATE OF GRANTOR

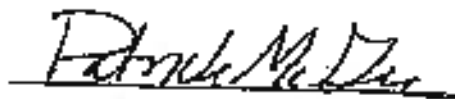
The Grantor herein, hereby certifies that this property, which has a fair market value of \$734,900.00 is conveyed for no monetary consideration, as set forth hereinabove.

IN TESTIMONY WHEREOF, the Commonwealth of Kentucky has executed this Deed of Conveyance by Lori H. Flanery, Secretary of the Finance and Administration Cabinet of the Commonwealth of Kentucky, this the day and date first hereinabove written.

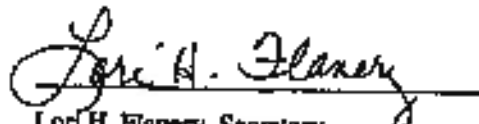
GRANTOR

Approved as to form and legality:

Commonwealth of Kentucky, by:



Attorney
Finance and Administration Cabinet



Lori H. Flanery, Secretary
Finance and Administration Cabinet

Examined:

This deed of conveyance is hereby approved:

Mike Alexander
Counsel to Governor

Steven L. Beshear
Steven L. Beshear, Governor
Commonwealth of Kentucky

CERTIFICATE OF ACKNOWLEDGMENT

**COMMONWEALTH OF KENTUCKY
COUNTY OF FRANKLIN**

The foregoing Deed of Conveyance from the Commonwealth of Kentucky to the Martin County Fiscal Court, including the Consideration Certificate of Grantor, was acknowledged and sworn before me this 4th day of May, 2015 by Lori H. Flanery, Secretary of the Finance and Administration Cabinet of the Commonwealth of Kentucky, on behalf of the Commonwealth of Kentucky.

Debra Rodgers
Notary Public, State at Large 486794

My Commission expires: April 5, 2017

CONSIDERATION CERTIFICATE OF GRANTEE

The undersigned Grantee herein, hereby certifies that this property, which has a fair market value of \$734,900.00 is conveyed for no monetary consideration, as set forth hereinabove.

In witness whereof, the undersigned has executed this Consideration Certificate this 11 day of MAY, 2015.

GRANTEE

Martin County Fiscal Court, by:

Kelly Callahan

Kelly Callahan, Judge Executive

CERTIFICATE OF ACKNOWLEDGMENT

COMMONWEALTH OF KENTUCKY

COUNTY OF Martin

The foregoing Consideration Certificate of Grantee was acknowledged and sworn before me this 1th day of May, 2015, by Kelly Callahan, Kelly Callahan for and on behalf of the Martin County Fiscal Court.

Justin Dean Reicher

Notary Public, State at Large

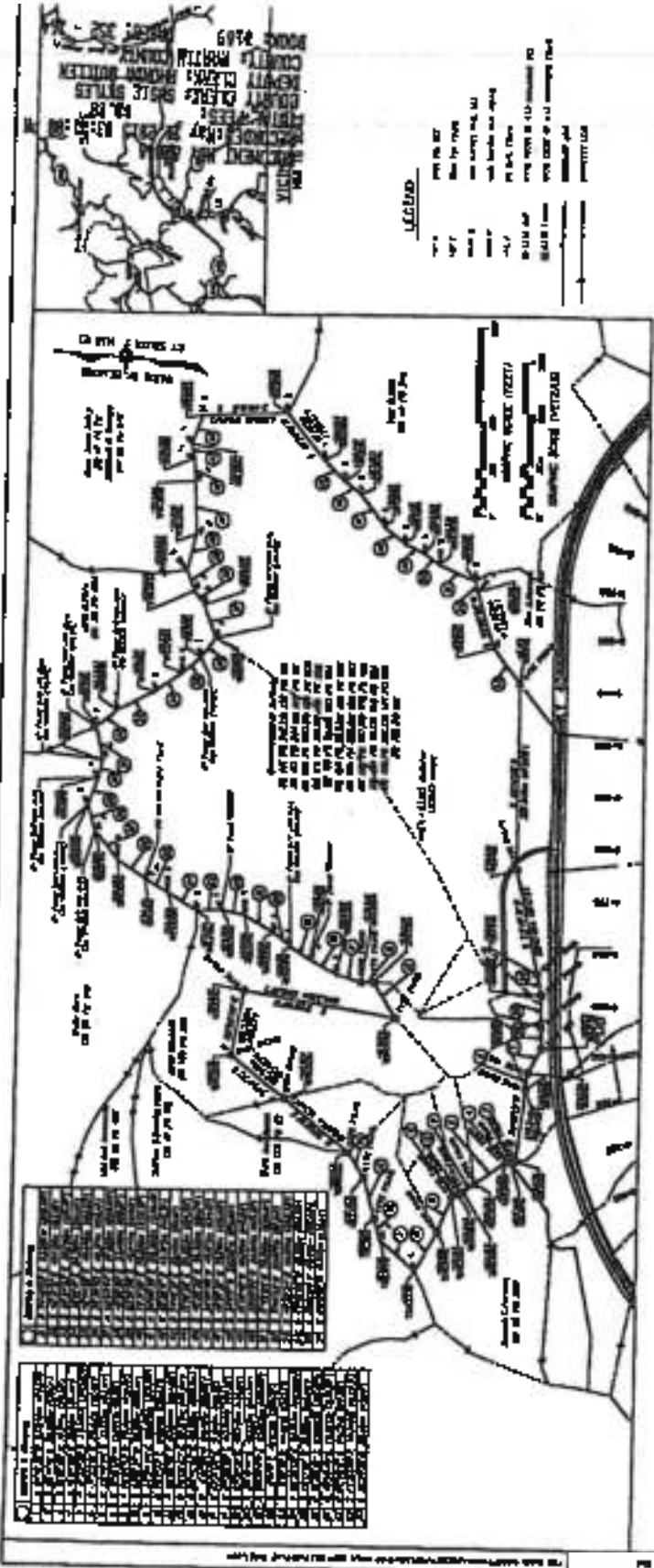
My Commission expires: September 30th 2017

This document prepared by:

Will Fogle

Will Fogle, Attorney
Transportation Cabinet
Office of Legal Services
200 Main Street
Frankfort, KY 40622
(502) 364-7650

MARTIN COUNTY
 D189 PG364



REFERENCE BEARING
 The bearing of the line between the two corners of the 1/4 section 36 is as follows:

SURVEY CLASSIFICATION
 This survey is a rural land survey as defined in the laws of this State, and is subject to the provisions of the laws of this State relating to such surveys.

STATEMENT ON PROGRESS & MEASUREMENTS
 The survey was conducted in accordance with the laws of this State, and the results are as follows:

EXPLANATIONS TO SURVEY
 This survey is subject to the laws of this State, and the results are as follows:

PLANNED FUTURE STATEMENT
 This survey is subject to the laws of this State, and the results are as follows:

REMARKS
 This survey is subject to the laws of this State, and the results are as follows:

Original Stamped
 and Signed

LAND SURVEYORS CERTIFICATE
 I, the undersigned, being a duly licensed land surveyor in the State of North Carolina, do hereby certify that the foregoing is a true and correct copy of the original of the above survey as the same appears in my records, and that the same has been compared with the original and found correct.

PVA PARCEL ID: 474

PLAT OF RURAL LAND SURVEY

Surveyor's Name: **MARY ELIZABETH**

County: **MARTIN COUNTY**

State: **NORTH CAROLINA**

Year: **1914**

PLAT OF RURAL LAND SURVEY

APPENDIX 4

Plat and description of the
Martin County Fiscal Court
property to be conveyed to
the Martin County Board of
Education

Description of the proposed conveyance of property to the Martin County School Board, located on Hollybush of Little Blacklog Fork of the Blacklog Fork of Coldwater Creek of Martin County, Kentucky and being a part of that property conveyed by the Kentucky Department of Transportation to the Martin County Fiscal Court as recorded in Deed Book 189 Page 352 in the Office of the Martin County Clerk.

Beginning on a metal disk marked KYTC RW (found), said disk having a value of N 572,617.04 E 2,935,947.77 as referenced to the Kentucky South Zone NAD 27 coordinate system and said disk being in the permanent right of way of KY State Route 40 and in the south property line 25.579 meters (83.92 feet) left of KY 40 at Station 4+419.778 and the said monument being identified as KYTC (set), the point of beginning of the survey on that plat prepared by DCS entitled "Plat of Rural Land Survey" dated December 05, 2014; thence with the right of way N 64°17'46" W a distance of 176.04' to a metal disk marked KYTC RW (found); thence N 86°42'31" W a distance of 108.00' to a metal disk marked KYTC RW (found); thence N 86°42'16" W a distance of 453.88' to a metal disk marked KYTC RW (found); thence N 12°26'44" W a distance of 34.58' to a metal disk marked KYTC RW (found); thence N 12°23'44" W a distance of 35.48' to a metal disk marked KYTC RW (found); thence N 37°28'54" W a distance of 240.80' to a metal disk marked KYTC RW (found); thence N 37°19'36" W a distance of 92.46' to a metal disk marked KYTC RW (found); thence N 75°42'20" W a distance of 33.55' to a metal disk marked KYTC RW (found); thence N 31°45'18" W a distance of 51.86' to a metal disk marked KYTC RW (found); thence N 70°25'57" W a distance of 231.17' to a metal disk marked KYTC RW (found); thence N 63°11'52" W a distance of 295.00' to an iron pin with plastic cap marked "LS 2830" (found); thence N 36°00'18" E a distance of 307.98' to an iron pin with plastic cap marked "LS 2830" (found); thence N 70°11'48" E a distance of 136.43' to a metal disk marked KYTC RW (found); thence N 70°00'27" E a distance of 264.53' to a metal disk marked KYTC RW (found); thence N 52°23'03" E a distance of 187.59' to a metal disk marked KYTC RW (found); thence N 35°07'06" E a distance of 531.80' to a metal disk marked KYTC RW (found); thence N 34°03'15" E a distance of 434.20' to a metal disk marked KYTC RW (found); thence S 82°31'54" E a distance of 411.21' to a metal disk marked KYTC RW (found); thence S 05°26'44" W a distance of 982.04' to a metal disk marked KYTC RW (found); thence N 52°43'39" E a distance of 262.98' to a metal disk marked KYTC RW (found); thence N 04°44'14" W a distance of 80.35' to a metal disk marked KYTC RW (found); thence N 13°07'53" E a distance of 39.45' to a 4" X 18" metal rebar with cap marked PLS 2879 (set); thence S 53°36'06" E a distance of 174.06' to a metal disk marked KYTC RW (found); thence S 57°41'16" E a distance of 194.92' to a 4" X 18" metal rebar with cap marked PLS 2879 (set); thence S 03°47'00" E a distance of 944.45' to a 6" X 18" metal rebar with cap marked PLS 2879 (set); thence S 73°47'16" W a distance of 249.33' to a metal disk marked KYTC RW (found); thence S 73°49'47" W a distance of 134.35' to a metal disk marked KYTC RW (found); thence S 86°19'45" W a distance of 196.88' to a metal disk marked KYTC RW (found); thence S 83°15'58" W a distance of 135.14' to the point of beginning containing an area of 56.26 acres more or less.

Description of a thirty (30') foot wide non-exclusive easement, said easement line lying fifteen feet on each side of the below described centerline.

Beginning on a point in the property line and in the center of the access road to the Hollybush site above described, said point having a value of

N 172,874.79 E 2,936,203.03 as referenced to the Kentucky South Zone NAD 27 coordinate system and said point being in the permanent right of way of KY State Route 40 and lying N 86°14'50" W a distance of 50.53' of a monument identified as XYTC (a.e.l.), said monument being 79.940 meters left of KY 40 at Station 4+759.954 and the said monument being identified on that plat prepared by DLZ entitled "Plan of Rural Land Survey" dated December 05, 2014; thence with the curve turning to the left with an arc length of 236.22', with a radius of 295.28', with a chord bearing of N 73°16'10" W, with a chord length of 229.97' to a point; thence S 86°14'48" W a distance of 252.25' to a point in the property line above described.

Ronnie Marris

RONNIE MARRIS, P.L.S. 2879
DATE 05-13-15
K & J Development Company LLC
DATE OF FIELD SURVEY 05-01-2015

APPENDIX 5

Asher Maynard Deed to the
Martin County Fiscal Court
dated August 4, 2015

DEED

THIS DEED OF CONVEYANCE made and entered into on this 4th day of August, 2015, by and between **ASHER MAYNARD**, single, of P. O. Box 1741, Inez, Kentucky 41224, party of the first part. AND **MARTIN COUNTY FISCAL COURT**, a political subdivision of the Commonwealth of Kentucky, of P. O. Box 308, Inez, Kentucky 41224, party of the second part.

WITNESSETH: That for and in consideration of the sum **Five Thousand (\$6,000.00) Dollars**, cash in hand paid, and other good and valuable considerations, the receipt of which is hereby acknowledged, the said party of the first part has this day bargained and sold and does hereby bargain, sell and convey to the party of the second part, its heirs and assigns, the following described property, situated in Martin County, Kentucky and more particularly bounded and described as follows:

Description of a part of the property of Asher Maynard, as recorded in Deed Book 139 Page 306 in the Office of the Martin County Clerk and located on Hollybush of Little Blacklog Fork of the Blacklog Fork of Coldwater Creek of Martin County, Kentucky.

Beginning on a metal disk marked KYTC RW (found), said disk having a value of N 573,608.80 E 2,935,158.04 as referenced to the Kentucky South Zone NAD 27 coordinate system and said disk being 324.459 meters (1064.48 feet) left of KY 40 at Station 4+473.074 and the said monument being identified as KYTC SET "Kentucky Right of Way Monument Set" on that plat prepared by DLZ entitled "Plat of Rural Land Survey" dated December 05, 2014 and a corner to the property of the Martin County Fiscal Court; thence with the property line of Asher Maynard and the Martin County Fiscal Court N 05° 26' 44" E a distance of 628.08' to a 1/2" X 18" metal rebar with cap marked PLS

MARTIN COUNTY
D190 PG129

2879 (set); thence leaving the property line of the Martin County Fiscal Court and into the property of Asher Maynard with this line of new division S 81°10' 34" E a distance of 286.94' to a 1/2" X 1/8" metal rebar with cap marked PLS 2879 (set), said rebar being a corner to the property of the Martin County Fiscal Court and on the center of the point; thence down the point with the line of Asher Maynard and the Martin County Fiscal Court S 24°32' 58" W a distance of 198.16' to an iron pin with plastic cap marked "LS 2830" (found); thence continuing with the line of Asher Maynard and the Martin County Fiscal Court S 13°07' 53" W a distance of 129.67' to a 1/2" X 1/8" metal rebar with cap marked PLS 2879 (set); thence continuing S 13°07' 53" W a distance of 39.45' to a metal disk marked KYTC RW (found); thence S 04°44' 14" E a distance of 80.36' to a metal disk marked KYTC RW (found); thence leaving the point S 52°43' 39" W a distance of 252.98' to a metal disk marked KYTC RW (found), said disk being the point of beginning containing 2.52 acres more or less.

Being a portion of the same property conveyed to Asher Maynard by deed recorded in Deed Book 139, page 306, in the office of the Martin County Court Clerk.

The above described property is conveyed subject to the following restrictions:

- (a) That the property be referred to as "Holly Bush" when naming the road and/or site naming and
- (b) That the property must be used for a school site or for a public purpose for the citizens of Martin County.

The above described real property is conveyed subject to all valid and existing restrictions, easements, covenants, limitations, reservations and conditions as may appear in the record chain of title thereto.

TO HAVE AND TO HOLD the above-described real property together with all of the rights, privileges, appurtenances and improvements thereunto belonging unto

the party of the second part, its heirs and assigns forever, with covenant of GENERAL WARRANTY.

IN TESTIMONY WHEREOF, the party of the first part has hereunto subscribed his name the day and year first above written.


ASHER MAYNARD


COMMONWEALTH OF KENTUCKY)

ACKNOWLEDGMENT

COUNTY OF MARTIN)

I, Kraig Grayson, a Notary Public in and for the County and State aforesaid do hereby certify the foregoing Deed of Conveyance was produced, acknowledged and sworn to before me by ASHER MAYNARD same to be his voluntary act and deed this 4th day of August, 2015.

My Commission expires 3/16/17


NOTARY PUBLIC

CONSIDERATION CERTIFICATE

The Grantor and Grantee do hereby certify pursuant to KRS chapter 362, the fair market value of the property herein conveyed is \$5,000.00 and we understand that falsification of the stated value is a Class D felony, subject to one to five years imprisonment and fines up to \$10,000.00.

This the 4th day of August, 2015.

GRANTOR:

Asher Maynard
ASHER MAYNARD

GRANTEE:

MARTIN COUNTY FISCAL COURT

BY *Kelly Callahan*
KELLY CALLAHAN, MARTIN
COUNTY JUDGE-EXECUTIVE

ATTESTED:

BY *Rhonda Quillen*
RHONDA QUILLEN,
MARTIN COUNTY COURT CLERK

COMMONWEALTH OF KENTUCKY)

ACKNOWLEDGMENT

COUNTY OF MARTIN)

I, *Kraig Grayson*, a Notary Public in and for the County and

State aforesaid do hereby certify the foregoing Consideration Certificate was produced, acknowledged and sworn to before me by ASHER MAYNARD, Grantor, who acknowledged same to be true this *4th* day of August, 2015.

My Commission expires 3/16/17


NOTARY PUBLIC

COMMONWEALTH OF KENTUCKY)
ACKNOWLEDGMENT
COUNTY OF MARTIN)

I, Kristy Crayson, a Notary Public in and for the County and State
aforesaid do hereby certify that the foregoing Consideration Certificate was produced,
acknowledged and sworn to before me by **KELLY CALLAHAM, MARTIN COUNTY**
JUDGE- EXECUTIVE, Grantee, who acknowledged same to be true this 4th day of
August, 2015.

My Commission expires 3/16/17


NOTARY PUBLIC

COMMONWEALTH OF KENTUCKY)
ACKNOWLEDGMENT
COUNTY OF MARTIN)

I, Kraig Grayson, a Notary Public in and for the County and State
aforesaid do hereby certify that the foregoing Consideration Certificate was produced,
acknowledged and sworn to before me by **RHONDA QUILLEN, MARTIN COUNTY
COURT CLERK**, Grantee, who acknowledged same to be true this 4th day of August,
2015.

My Commission expires 2/16/17

Kraig Grayson
NOTARY PUBLIC

SINCE NO ABSTRACT OR TITLE CHECK WAS MADE, THE UNDERSIGNED
ATTORNEY HAS NO OPINIONS TO THE VALIDITY OF THE TITLE TO THE HEREIN
ABOVE DESCRIBED PROPERTY.

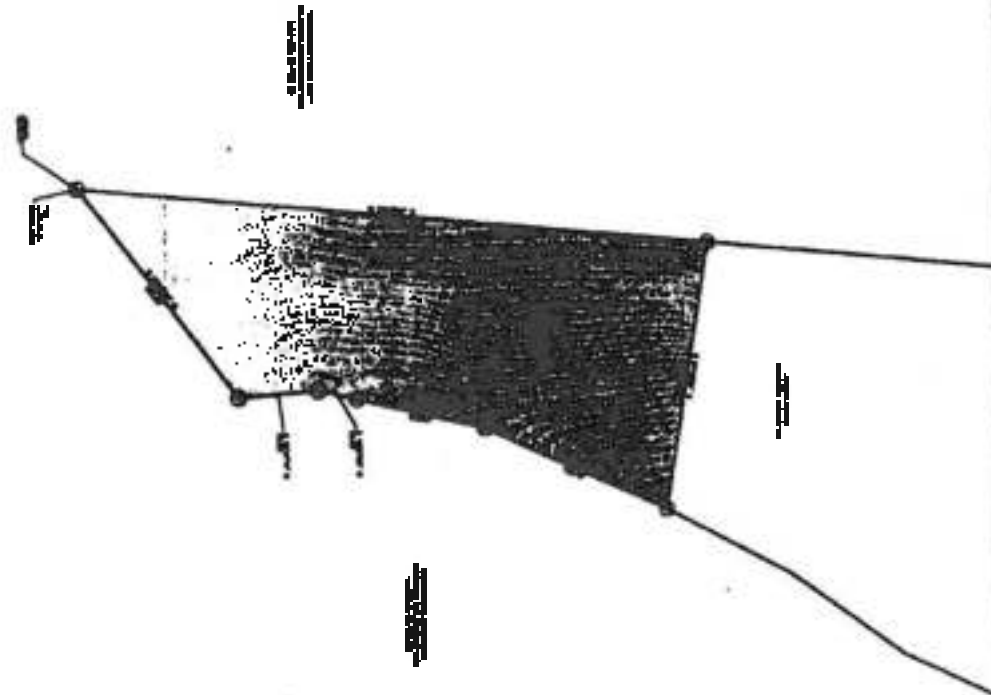
THIS INSTRUMENT PREPARED BY:

Kennis Maynard
KENNIS MAYNARD
MARTIN COUNTY ATTORNEY
P. O. BOX 414
INEZ, KENTUCKY 41224
TELEPHONE: 606-298-2816

MARTIN COUNTY
D190 PG134

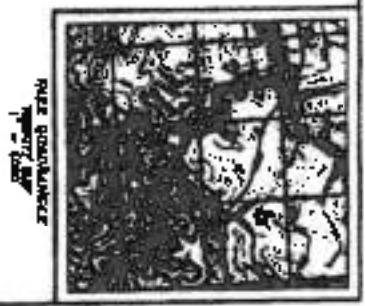
LEGEND

—	Section Boundary
—	County Boundary
—	Water
—	Forest
—	Other



[Signature]	
DATE	TIME

MADE FOR D190
COUNTY CLERK
COUNTY CLERK BRUCE SKYLES
COUNTY CLERK ANTHONY BUDLEN
COUNTY CLERK
80316 0128 PAGES 128 - 134



APPENDIX 6

Draft Deed from Martin
County Fiscal Court to
Martin County Board of
Education

DEED

THIS DEED OF CONVEYANCE made and entered into on this ____ day of August, 2015, by and between **MARTIN COUNTY FISCAL COURT**, of P. O. Box 309, Inez, Kentucky 41224, party of the first part, **AND MARTIN COUNTY BOARD OF EDUCATION**, of P. O. Box 309, Inez, Kentucky 41224, party of the second part.

WITNESSETH: That for and in consideration of the sum **Five Thousand (\$5,000.00) Dollars**, cash in hand paid, and other good and valuable considerations, the receipt of which is hereby acknowledged, the said party of the first part has this day bargained and sold and does hereby bargain, sell and convey to the party of the second part, its heirs and assigns, the following described property, situated in Martin County, Kentucky and more particularly bounded and described as follows:

Description of a part of the property of Asher Maynard, as recorded in Deed Book 139 Page 306 in the Office of the Martin County Clerk and located on Hollybush of Little Blackdog Fork of the Blackdog Fork of Coldwater Creek of Martin County, Kentucky,

Beginning on a metal disk marked KYTC RW (found), said disk having a value of N 573,609.80 E 2,935,158.04 as referenced to the Kentucky South Zone NAD 27 coordinate system and said disk being 324.459 meters (1064.49 feet) left of KY 40 at Station 4+473.074 and the said monument being identified as KYTC SET "Kentucky Right of Way Monument Set" on that plat prepared by DLZ entitled "Plat of Rural Land Survey" dated December 05, 2014 and a corner to the property of the Martin County Fiscal Court; thence with the property line of Asher Maynard and the Martin County Fiscal Court N 05° 26'

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

44" E a distance of 628.06' to a 1/2" X 18" metal rebar with cap marked PLS 2879 (set); thence leaving the property line of the Martin County Fiscal Court and into the property of Asher Maynard with this line of new division S 81° 10' 34" E a distance of 266.94' to a 1/2" X 18" metal rebar with cap marked PLS 2879 (set), said rebar being a corner to the property of the Martin County Fiscal Court and on the center of the point; thence down the point with the line of Asher Maynard and the Martin County Fiscal Court S 24° 32' 55" W a distance of 198.16' to an iron pin with plastic cap marked "LS 2830" (found); thence continuing with the line of Asher Maynard and the Martin County Fiscal Court S 13° 07' 53" W a distance of 129.67' to a 1/2" X 18" metal rebar with cap marked PLS 2879 (set); thence continuing S 13° 07' 53" W a distance of 145' to a metal disk marked KYTC RW (found); thence S 04° 44' 14" E a distance of 80.35' to a metal disk marked KYTC RW (found); thence leaving the point S 43° 39" W a distance of 262.88' to a metal disk marked KYTC RW (found), said disk being the point of beginning containing 2.52 acres more or less.

Being the same property conveyed to the Martin County Fiscal Court by Asher Maynard by deed dated August 11, 2015 and recorded in Deed Book 190, page 128, in the office of the Martin County Clerk.

The above described property is conveyed subject to the following restrictions:

- (a) That the property be referred to as "Holly Bush" when naming the road and/or site naming and
- (b) That the property must be used for a school site or for a public purpose for the citizens of Martin County.

The above described real property is conveyed subject to all valid and existing restrictions, easements, covenants, limitations, reservations and conditions as may appear in the record chain of title thereto.

TO HAVE AND TO HOLD the above-described real property together with all of the rights, privileges, appurtenances and improvements thereunto belonging unto

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

the party of the second part, its heirs and assigns forever, with covenant of GENERAL WARRANTY.

IN TESTIMONY WHEREOF, the party of the first part has hereunto subscribed its name the day and year first above written.

MARTIN COUNTY FISCAL COURT

ATTESTED:

BY _____
KELLY CALLAHAM, MARTIN COUNTY JUDGE-EXECUTIVE

RHONDA QUILLEN, MARTIN COUNTY FISCAL COURT CLERK

COMMONWEALTH OF KENTUCKY)
COUNTY OF MARTIN)

ACKNOWLEDGMENT

I, _____, a Notary Public in and for the County and State aforesaid do hereby certify the foregoing Deed of Conveyance was produced, acknowledged and sworn to before me by **MARTIN COUNTY FISCAL COURT BY KELLY CALLAHAM, MARTIN COUNTY JUDGE-EXECUTIVE**, same to be his voluntary act and deed this ____ day of August, 2015.

My Commission expires _____

NOTARY PUBLIC

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

COMMONWEALTH OF KENTUCKY }

ACKNOWLEDGMENT

COUNTY OF MARTIN }

I, _____, a Notary Public in and for the County and State aforesaid do hereby certify that the foregoing Deed of Conveyance was produced, acknowledged and sworn to before me by **RHONDA GUILLEN, MARTIN COUNTY FISCAL COURT CLERK**, same to be her voluntary deed this ____ day of August, 2015.

My Commission expires _____

NOTARY PUBLIC

CONSIDERATION CERTIFICATE

The Grantor and Grantee do hereby certify pursuant to KRS chapter 382, the fair market value of the property herein conveyed is \$5,000.00 and we understand that falsification of the stated value is a Class D felony, subject to one to five years imprisonment and fines up to \$10,000.00.

This the ____ day of August, 2015.

GRANTOR:

GRANTEE:

MARTIN COUNTY FISCAL COURT

MARTIN COUNTY BOARD OF EDUCATION

BY _____
KELLY CALLAHAM, MARTIN COUNTY JUDGE EXECUTIVE

BY _____
J. D. GOBLE, SUPERINTENDENT

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

ATTESTED:

BY _____
**RHONDA QUILLEN, MARTIN
COUNTY FISCAL COURT CLERK**

COMMONWEALTH OF KENTUCKY)
COUNTY OF MARTIN}

ACKNOWLEDGMENT

I, _____, a Notary Public in and for the County and
State aforesaid do hereby certify that the foregoing Consideration Certificate was produced,
acknowledged and sworn to before me by **MARTIN COUNTY FISCAL COURT,**
BY KELLY CALLAHAN, MARTIN COUNTY JUDGE-EXECUTIVE, Grantor, who
acknowledged same to be true this _____ day of August, 2015.

My Commission expires _____.

NOTARY PUBLIC

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

COMMONWEALTH OF KENTUCKY }

ACKNOWLEDGMENT

COUNTY OF MARTIN }

I, _____, a Notary Public in and for the County and State
aforesaid do hereby certify that the foregoing Consideration Certificate was produced,
acknowledged and sworn to before me by **RHONDA QUILLEN, MARTIN COUNTY
FISCAL COURT CLERK**, Grantor, who acknowledged same to be true this ____ day of
August, 2015.

My Commission expires _____

NOTARY PUBLIC

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

COMMONWEALTH OF KENTUCKY }
ACKNOWLEDGMENT
COUNTY OF MARTIN }

I, _____, a Notary Public in and for the County and State
aforesaid do hereby certify that the foregoing Consideration Certificate was produced,
acknowledged and sworn to before me by **MARTIN COUNTY BOARD OF
EDUCATION BY J. D. GOBLE, SUPERINTENDENT** grantee, who acknowledged
same to be true this ___ day of August, 2015.

My Commission expires _____

NOTARY PUBLIC

SINCE NO ABSTRACT OR TITLE CURATIVE WAS MADE, THE UNDERSIGNED
ATTORNEY HAS NO OPINIONS TO THE VALIDITY OF THE TITLE TO THE HEREIN
ABOVE DESCRIBED PROPERTY.

THIS INSTRUMENT PREPARED BY:

KENNIS MAYNARD
MARTIN COUNTY ATTORNEY
P. O. BOX 414
INEZ, KENTUCKY 41224
TELEPHONE: 606-298-2815

PENDING FISCAL COURT APPROVAL

PENDING FISCAL COURT APPROVAL

APPENDIX 7

405 KAR 8:030

Kentucky Administrative Regulations Unnumbered

Title 405, Energy and Environment Cabinet Department for Natural Resources

Chapter 8, Permits

405 Ky. Admin. Regs. 8:030

405 KAR 8:030. Surface coal mining permits

Section 1. General. (1) This administrative regulation applies to any person who applies for a permit to conduct surface mining activities.

(2) The requirements set forth in this administrative regulation specifically for applications for permits to conduct surface mining activities are in addition to the requirements applicable to all applications for permits to conduct surface coal mining and reclamation operations as set forth in 405 KAR 8:010.

(3) This administrative regulation sets forth information required to be contained in each application for a permit to conduct surface mining activities, including:

(a) Legal, financial, compliance, and related information;

(b) Environmental resources information; and

(c) Mining and reclamation plan information.

Section 2. Identification of Interests. (1) An application shall contain the following information, except that the submission of a Social Security number shall be voluntary:

(a) A statement identifying if the applicant is a corporation, partnership, single proprietorship, association, or other business entity;

(b) The name, address, telephone number and, as applicable, Social Security number, and employer identification number of the:

1. Applicant;
2. Applicant's resident agent; and
3. Person who will pay the abandoned mine land reclamation fee;

(c) For each person who owns or controls the applicant

1. The person's name, address, Social Security number, and employer identification number;
2. The person's ownership or control relationship to the applicant, including percentage of ownership and location in organizational structure;
3. The title of the person's position, date position was assumed, and when submitted under 405 KAR 8:010, Section 18(5) date of departure from the position;
4. Each additional name and identifying number, including employer identification number, federal or state permit number, and MSHA number with date of issuance, under which the person owns or controls, or previously owned or controlled, a surface coal mining and reclamation operation in the United States within the five (5) years preceding the date of the application; and
5. The application number or other identifier of, and the regulatory authority for, any other pending surface coal mining operation permit application filed by the person in any state in the United States;

(d) For any surface coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant, the operation's:

1. Name, address, identifying numbers, including employer identification number, federal or state permit number, and MSHA number, the date of issuance of the MSHA number, and the regulatory authority; and
2. Ownership or control relationship to the applicant, including percentage of ownership and location in organizational structure;

(e) The names and addresses of:

1. Every legal or equitable owner of record of the property to be mined;
2. The holders of record of any leasehold interest in the property to be mined; and
3. Any purchaser of record, under a real estate contract, of the property to be mined;

(f) The names and addresses of the owners of record of all surface and subsurface areas contiguous to any part of the proposed permit area;

(g) The name of the proposed mine and all MSIA identification numbers that have been assigned for the mine and all mine associated structures that require MSIA approval;

(h) Proof, such as a power of attorney or a resolution of the board of directors, that the individual signing the application has the power to represent the applicant in the permit matter; and

(i) A statement of all lands, interests in lands, options, or pending bids on interests held or made by the applicant for lands that are contiguous to the area to be covered by the permit.

(2) After an applicant has been notified that his or her application has been approved, but before the permit is issued, the applicant shall, as applicable, update, correct, or indicate that no change has occurred in the information previously submitted under subsection (1)(a) through (d) of this section.

(3) The permittee shall, in writing, inform the cabinet of any change of the permittee's address immediately if changed at any point prior to final bond release.

(4) The permittee shall submit updates of the information established in paragraphs (a) through (c) of this subsection in writing to the cabinet within thirty (30) days of the effective date of any change. An update shall be submitted for any changes that occur at any point prior to final bond release. Failure to submit updated information shall constitute a violation of KRS Chapter 350 only upon the permittee's refusal or failure to timely submit the information to the cabinet upon request. After the permittee's refusal or failure to timely submit the information to the cabinet upon request, the cabinet may suspend the permit after opportunity for hearing pending compliance with this subsection.

(a) The names and addresses of every officer, partner, director, or person performing a function similar to a director of the permittee;

(b) The names and addresses of principal shareholders; and

(c) If the permittee or other persons specified in this subsection are subject to any of the provisions of KRS 350.130(3).

Section 3. Violation Information. (1) Each application shall contain:

1. Had a coal mining permit of the United States or any state suspended or revoked in the five (5) years preceding the date of submission of the application; or

2. Forfeited a coal mining performance bond or similar security deposited in lieu of bond;

(b) If any suspension, revocation, or forfeiture as established in paragraph (a) of this subsection has occurred, a statement of the facts involved, including:

1. Identification number and date of issuance of the permit, and date and amount of bond or similar security;

2. Identification of the authority that suspended or revoked the permit or forfeited the bond and the stated reasons for that action;

3. The current status of the permit, bond, or similar security involved;

4. The date, location, and type of any administrative or judicial proceedings initiated concerning the suspension, revocation, or forfeiture; and

5. The current status of these proceedings; and

(c) For any violation of a provision of SMCRA, federal regulations enacted pursuant to SMCRA, KRS Chapter 350 and administrative regulations adopted pursuant thereto, any other state's laws or regulations under SMCRA, any federal law, rule, or regulation pertaining to air or water environmental protection, or any Kentucky or other state's law, rule, or regulation enacted pursuant to federal law, rule, or regulation pertaining to air or water environmental protection incurred in connection with any surface coal mining operation, a list of all violation notices received by the applicant during the three (3) year period preceding the application date, and a list of all unabated cessation orders and unabated air and water quality violation notices received prior to the date of the application by any surface coal mining and reclamation operation owned or controlled by either the applicant or by any person who owns or controls the applicant. For each violation notice or cessation order reported, the lists shall include the following information, as applicable:

1. Any identifying numbers for the operation, including the federal or state permit number and MSHA number; the dates of issuance of the violation notice and MSHA number; the name of the person to whom the violation notice was issued; and the name of the issuing regulatory authority, department, or agency;

2. A brief description of the particular violation alleged in the notice;

3. The final resolution of each violation notice, if any; and

4. For each violation notice that has not been finally resolved:

a. The date, location, and type of any administrative or judicial proceedings initiated concerning the violation, including proceedings initiated by any person identified in this subsection to obtain administrative or judicial review of the violation;

b. The current status of the proceedings and of the violation notice; and

c. The actions, if any, taken or being taken by any person identified in this subsection to abate the violation.

(2) After an applicant has been notified that his or her application has been approved, but before the permit is issued, if necessary, the applicant shall update the application to indicate what change, if any, has occurred in the information previously submitted under subsection (1) of this section.

(3) Upon request by a small operator, the cabinet shall provide to the small operator, with regard to persons under subsection (1) of this section who are identified by the small operator, the compliance information required by this section regarding

suspension and revocation of permits and forfeiture of bonds under KRS Chapter 350, and information pertaining to violations of KRS Chapter 350 and administrative regulations promulgated thereunder.

Section 4. Right of Entry and Right to Surface Mine. (1) Each application shall contain a description of the documents upon which the applicant bases his or her legal right to enter and begin surface mining activities in the permit area and if that right is the subject of pending litigation. The description shall identify those documents by type and date of execution, identify the specific lands to which the document pertains, and explain the legal rights claimed by the applicant.

(2) If the private mineral estate to be mined has been severed from the private surface estate, the application shall contain:

(a) A copy of the written consent of the surface owner for the extraction of coal by surface mining methods;

(b) A copy of the conveyance that expressly grants or reserves the right to extract coal by surface mining methods; or

(c) If the conveyance does not expressly grant the right to extract the coal by surface mining methods, documentation that under applicable state law, the applicant has the legal authority to extract coal by those methods.

(3) Nothing in this section shall be construed to authorize the cabinet to adjudicate property rights disputes.

Section 5. Relationship to Areas Designated Unsuitable for Mining. (1) Each application shall contain a statement of available information identifying if the proposed permit area is within an area designated unsuitable for surface mining activities under 405 KAR Chapter 24 or under study for designation in an administrative proceeding under that chapter.

(2) If an applicant claims the exemption in 405 KAR 8:010, Section 14(4)(b), the application shall contain information supporting the applicant's assertion that the applicant made substantial legal and financial commitments before January 4, 1977, concerning the proposed surface mining activities.

(3) If an applicant proposes to conduct surface mining activities within 300 feet of an occupied dwelling, the application shall contain the waiver of the owner of the dwelling as required in 405 KAR 24:040, Section 2(5)

(4) If the applicant proposes to conduct surface mining activities within 100 feet of a public road, the requirements of 405 KAR 24:040, Section 2(6) shall be met.

Section 6. Permit Term Information. (1) Each application shall state the anticipated or actual starting and termination date of

each phase of the surface mining activities and the anticipated number of acres of land to be affected for each phase of mining and over the total life of the permit.

(2) If the applicant proposes to conduct the surface mining activities in excess of five (5) years, the application shall contain the information needed for the showing required under 405 KAR 8:010, Section 17(1).

Section 7. Personal Injury and Property Damage Insurance Information. Each permit application shall contain a certificate of liability insurance according to 405 KAR 10:030, Section 4.

Section 8. Identification of Other Licenses and Permits. Each application shall contain a list of all other licenses and permits needed by the applicant to conduct the proposed surface mining activities. This list shall identify each license and permit by:

(1) Type of permit or license;

(2) Name and address of issuing authority;

(3) Identification numbers of applications for those permits or licenses or, if issued, the identification numbers of the permits or licenses; and

(4) If a decision has been made, the date of approval or disapproval by each issuing authority.

Section 9. Identification of Location of Public Office for Filing of Application. Each application shall identify, by name and address, the appropriate regional office of the cabinet where the applicant will file a copy of the entire application for public inspection under 405 KAR 8:010, Section 8(8).

Section 10. Newspaper Advertisement and Proof of Publication. A copy of the newspaper advertisement of the application for a permit, major revision, amendment, transfer, or renewal of a permit and proof of publication of the advertisement, which is acceptable to the cabinet, shall be filed with the cabinet and made a part of the application, not later than fifteen (15) days after the last date of publication required under 405 KAR 8:010, Section 8(2).

Section 11. Environmental Resources Information. (1) Each permit application shall include a description of the existing environmental resources within the proposed permit area and adjacent areas as required by Sections 11 through 23 of this administrative regulation. The description required by this administrative regulation may, where appropriate, be based upon published texts or other public documents together with reasonable extrapolations from specific data available from existing permit areas or other appropriate areas.

(2)(a) Each application shall describe and identify the nature of cultural, historic, and archaeological resources listed or eligible for listing on the National Register of Historic Places and known archaeological sites within the proposed permit area and adjacent areas. The description shall be based on all available information, including information from the state Historic Preservation Officer and from local archaeological, historical, and cultural preservation agencies.

(b) According to historical databases, the cabinet may require the applicant to identify and evaluate important historic and archaeological resources that may be eligible for listing on the National Register of Historic Places, through collection of additional information, field investigations, or other appropriate analyses.

Section 12. General Requirements for Baseline Geologic and Hydrologic Information. (1) The application shall contain baseline geologic and hydrologic information that has been collected, analyzed, and submitted in the detail and manner sufficient to:

(a) Identify and describe protective measures pursuant to Section 32(1) of this administrative regulation that will be implemented during the mining and reclamation process to assure protection of the hydrologic balance or to demonstrate that protection of the hydrologic balance can be assured without the design and installation of protective measures, and to design necessary protective measures pursuant to Section 32(2) of this administrative regulation;

(b) Determine the probable hydrologic consequences of the mining and reclamation operations upon the hydrologic balance in the permit area and adjacent area pursuant to Section 32(3) of this administrative regulation so that an assessment can be made by the cabinet pursuant to 405 KAR 8:010, Section 14(3) of the probable cumulative impacts of all anticipated mining on the hydrologic balance in the cumulative impact area;

(c) Determine pursuant to 405 KAR 8:010, Section 14(2) and (3) if reclamation as required by 405 KAR can be accomplished and if the proposed operation has been designed to prevent material damage to the hydrologic balance; and

(d) Design surface and groundwater monitoring systems pursuant to Section 32(4) of this administrative regulation for the during-mining and postmining time period which, together with the baseline data collected under Sections 14(1) and 15(1) of this administrative regulation, shall demonstrate if the mining operation is meeting applicable effluent limitations and stream standards and protecting the hydrologic balance.

(2)(a) Geologic and hydrologic information pertaining to the area outside the permit and adjacent area but within the cumulative impact assessment area shall be provided to the applicant by the cabinet if this information is:

1. Needed in preparing the cumulative impact assessment; and

2. Available from an appropriate federal or state agency.

(b) If this information is needed by the cabinet for conducting the cumulative impact assessment and is not available from a federal or state agency, the applicant may gather and submit this information to the cabinet as part of the permit application.

(3) Interpolation, modeling, correlation, or other statistical methods, and other data extrapolation techniques may be used if the applicant can demonstrate that the data extrapolation techniques are valid and that information obtained through the techniques meets the requirements of subsection (1) of this section.

(4) Water quality analysis and sampling required by this chapter shall be conducted according to:

(a) Standard Methods for the Examination of Water and Wastewater (14th Edition); or

(b) 40 C.F.R. Parts 136 and 434.

Section 13. Baseline Geologic Information. (1) The application shall contain baseline geologic information collected from the permit area that shall meet the requirements of Section 12(1) of this administrative regulation and shall include at a minimum:

(a) The results of samples obtained from continuous cores; drill cuttings; channel cuttings from fresh, unweathered, rock outcrops; or other rock or soil material which has been collected using acceptable sampling techniques.

1. The vertical extent of sampling shall include those strata from the surface down to and including the stratum immediately below the lowest coal seam to be mined.

2. Where aquifers located within the permit area underlie the lowest coal seam to be mined and these aquifers may be adversely affected by the mining operation, the vertical extent of sampling shall also include those strata from the lowest coal seam to be mined down to and including the aquifers.

3. The area and vertical density of sampling shall, at a minimum, be sufficient to determine the distribution of strata that have a potential to produce acid drainage and to determine the area and vertical extent of aquifers that may be adversely affected.

4. If the vertical extent, and the area and vertical density of sampling specified in subparagraphs 1 through 3 of this paragraph are not sufficient to locate suitable strata for use as a topsoil substitute, or for other required design or analysis, additional

sampling shall be conducted as necessary to furnish adequate geologic information;

(b) Chemical analyses including maximum potential acidity and neutralization potential of each overburden stratum and the stratum immediately below the lowest coal seam to be mined, to identify those strata which have a potential to produce acid or toxic drainage; and

(c) Chemical analyses of the coal seam to be mined to determine the potential to produce acid or toxic drainage, including the parameters of total sulfur and pyritic sulfur; except that the cabinet shall not require an analysis for pyritic sulfur if the applicant can demonstrate that an analysis for total sulfur provides adequate information to assure protection of the hydrologic balance.

(2) Collection of geologic information from the permit area as required in this subsection may be waived in whole or in part if:

1. The applicant can demonstrate through geologic correlation or other procedures that information collected from outside the permit area is representative of the permit area and is sufficient to meet the requirements of Section 12(1) of this administrative regulation; or

2. Other information equivalent to that required by this subsection is available to the cabinet and is made a part of the permit application; and

3. The cabinet provides a written statement granting a waiver.

(3) The application shall contain a description of the geology of the proposed permit area and adjacent area that shall meet the requirements of Section 12(1) of this administrative regulation and be based on the information required in subsection (1) of this section or other appropriate geologic information. The description shall include, at a minimum, geologic logs, cross-sections, fence diagrams, or other appropriate illustrations and written descriptions depicting:

(a) Within the permit area:

1. The structural geology and lithology of overburden strata and the stratum immediately below the lowest coal seam to be mined;

2. The thickness and chemical characteristics of each overburden stratum and the stratum immediately below the lowest coal seam to be mined; and

3. Where aquifers may be adversely affected by the mining operation, the structural geology, lithology, thickness, and area extent of the aquifers; and structural geology and lithology of strata, and thickness of each stratum, from the surface down to the aquifers; and

(b) Within the adjacent area, the approximate area extent and approximate thickness of aquifers that may be adversely affected by the mining operation.

(4) If necessary to assure adequate reclamation and protection of the hydrologic balance, the cabinet shall require geologic information and description in addition to that required by subsections (1) and (2) of this section including leaching tests of material from strata that may be disturbed by the operation to determine the potential for the operation to produce drainage with elevated levels of acidity, sulfate, and total dissolved solids, and the collection of information to greater depths within the proposed permit area or the collection of information for areas outside the proposed permit area.

Section 14. Baseline Groundwater Information. (1) The application shall contain baseline groundwater information for the permit area and adjacent area that shall be collected and submitted in a manner adequate to meet the requirements of Section 12(1) of this administrative regulation.

(2) Groundwater information shall include an inventory of wells, springs, underground mines, or other similar groundwater supply facilities currently being used, have been used in the past, or have a potential to be used for domestic, agricultural, industrial, or other beneficial purpose. The inventory shall include the location, ownership, type of usage, and if possible, other relevant information such as the depth and diameter of wells and approximate rate of usage, pumpage, or discharge from wells, springs, and other groundwater supply facilities.

(3) Groundwater information shall include seasonal groundwater quantity and quality data collected from monitoring wells, springs, underground mines, or other appropriate groundwater monitoring facilities, at a sufficient number of monitoring locations with adequate area distribution to meet the requirements of Section 12(1) of this administrative regulation. Seasonal groundwater quantity and quality data shall be provided for each water transmitting zone above, and potentially impacted water transmitting zone below, the lowest coal seam to be mined including at a minimum:

(a) Groundwater levels; and

(b) Total dissolved solids, or specific conductance corrected to twenty-five (25) degrees C, pH, dissolved iron, dissolved manganese, acidity, alkalinity, and sulfate. For data collected prior to August 13, 1985, total iron and total manganese may be substituted for dissolved iron and dissolved manganese.

(4) The groundwater information described in subsection (3) of this section shall be required in whole or in part for coal seams if the coal seams to be mined are serving as water supply sources or are otherwise significant in protecting the hydrologic balance.

(5) If additional information is needed to assess the need for protective measures, to design protective measures, to determine the probable hydrologic consequences of mining, or to conduct the cumulative impact assessment, the cabinet shall require groundwater information in addition to that described in subsections (2), (3), and (4) of this section including information pertaining to aquifer storage, yield, discharge, recharge capacity, and additional water quality parameters.

Section 15. Baseline Surface Water Information. (1) The application shall contain baseline surface water information for the permit area and adjacent area that shall be collected and submitted in a manner adequate to meet the requirements of Section 12(1) of this administrative regulation.

(2) Surface water information shall include an inventory of all streams, lakes, impoundments, or other surface water bodies in the permit and adjacent area that are currently being used for domestic, agricultural, industrial, or other beneficial purpose. The inventory shall include the name of the surface water body being used as a water supply source; the location, drainage area, ownership, and type of usage for the withdrawal; and if possible other relevant information such as the rate of withdrawal and seasonal variation.

(3) Surface water information shall include:

(a) The name, location, and ownership if appropriate, of all streams, lakes, impoundments, and other surface water bodies that receive run-off from watersheds that will be disturbed by the operation; and

(b) The location and description of any existing facilities located in watersheds that will be disturbed by the mining operation and may contribute to surface water pollution, such as existing or abandoned mining operations, oil wells, logging operations, or other similar facilities, including the location of any discharges that may be flowing from the facilities.

(4) Surface water information shall include seasonal quantity and quality data collected from a sufficient number of watersheds that will be disturbed by the operation with adequate area distribution to meet the requirements of Section 12(1) of this administrative regulation and include at a minimum:

(a) Flow rates; and

(b) Total dissolved solids, or specific conductance corrected to twenty-five (25) degrees C, total suspended solids, pH, total iron, total manganese, acidity, alkalinity, and sulfate.

(5) If additional information is needed to assess the need for protective measures, to design protective measures, to determine the probable hydrologic consequences of mining, or to conduct the cumulative impact assessment, the cabinet shall require surface water information in addition to that established in subsections (2), (3), and (4) of this section, including information pertaining to flood flows and additional water quality parameters.

Section 16. Alternative Water Supply Information. If the determination of probable hydrologic consequences required under Section 32 of this administrative regulation indicates that the proposed surface mining activities may proximately result in contamination, diminution, or interruption of an underground or surface source of water within the proposed permit area or adjacent area used for domestic, agricultural, industrial, or other legitimate use, then the application shall identify and describe the adequacy and suitability of the alternative sources of water supply that could be developed for existing premining uses and approved postmining land uses.

Section 17. Climatological Information. (1) Upon cabinet request, the application shall contain a statement of the climatological factors that are representative of the proposed permit area, including:

- (a) The average seasonal precipitation;
- (b) The average direction and velocity of prevailing winds; and
- (c) Seasonal temperature ranges.

(2) The cabinet shall request additional data if necessary to ensure compliance with the requirements of this chapter.

Section 18. Soil Resources Information. (1) If soil survey information for the proposed permit area is available from SCS, the application shall include this information as a part of the description of premining land use capability and productivity required by Section 22(1)(b) of this administrative regulation.

(2) Where the applicant proposes to use selected overburden materials as a supplement or substitute for topsoil, the application shall provide results of analyses, trials, and tests as required under 405 KAR 16.050, Section 2(5).

Section 19. Vegetation Information. (1) The permit application shall contain a map that delineates existing vegetative types and a description of the plant communities within the proposed permit area and within any proposed reference area. This description shall include information adequate to predict the potential for reestablishing vegetation.

(2) If a map or aerial photograph is required, sufficient adjacent areas shall be included to allow evaluation of vegetation as important habitat for fish and wildlife.

Section 20. Fish and Wildlife Resources Information. (1) Each application shall include fish and wildlife resource information for the permit area and adjacent area. The scope and level of detail for this information shall be determined by the cabinet in consultation with the Kentucky Department of Fish and Wildlife Resources and the U.S. Department of the Interior, Fish and Wildlife Service, and shall be sufficient to design the protection and enhancement plan required under Section 36 of this administrative regulation.

(2) Site-specific resource information necessary to address the respective species or habitats shall be required if the permit area or adjacent area is likely to include:

(a) Listed or proposed endangered or threatened species of plants or animals or their critical habitats listed by the Secretary of the Interior under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1544), or those species or habitats protected by similar state statutes;

(b) Habitats of unusually high value for fish and wildlife such as important streams, wetlands, riparian areas, cliffs supporting raptors, areas offering special shelter or protection, migration routes, or reproduction and wintering areas; or

(c) Other species or habitats identified through agency consultation as requiring special protection under state or federal law.

(3) Wetland delineations shall be conducted in accordance with:

(a) The Corps of Engineers Wetlands Delineation Manual;

(b) U. S. Army Corps of Engineers Regulatory Guidance Letter No. 90-7;

(c) National Lists of Plant Species that Occur in Wetlands and Biological Reports and Summary; and

(d) List of Hydric Soils of the United States, All Kentucky Counties.

(4) Upon request, the cabinet shall provide the resource information required under this section to the U.S. Department of the Interior, Fish and Wildlife Service regional or field office for their review. This information shall be provided within ten (10) days of receipt of the request from the Service.

(5)(a) Fish and wildlife resource information shall be required for amendments and revisions that:

1. Propose extension into a wetland;
2. Propose significant disturbance in a new watershed in which the permit area or adjacent area includes an important stream;
3. Seek to obtain a stream buffer zone variance under 405 KAR 16:060, Section 11, or seek to modify an existing stream buffer zone variance;
4. Propose extension of the permit boundary that involves a new surface disturbance of five (5) acres or more; or
5. Involve new permit or adjacent areas likely to contain, or that could reasonably be expected to contain, a state or federal endangered or threatened species or its critical habitat.

(b) For other amendments and revisions, a determination of if fish and wildlife information is necessary, and the scope of information needed, shall be made on a case-by-case basis in consultation with Kentucky Department of Fish and Wildlife Resources and U.S. Fish and Wildlife.

(6) This section shall apply to applications for permits, amendments and revisions submitted to the cabinet on or after November 17, 1992.

Section 21. Prime Farmland Investigation. (1) The applicant shall before making application investigate the proposed permit area to determine if lands within the area may be prime farmland.

(2) Land shall not be considered prime farmland if the applicant can demonstrate one (1) of the following:

(a) The land has not been historically used as cropland;

(b) The slope of the land is ten (10) percent or greater;

(c) Other relevant factors exist, which would preclude the soils from being defined as prime farmland according to 7

C.F.R. 657, such as a very rocky surface, or the land is flooded during the growing season more often than once in two (2) years, and the flooding has reduced crop yields; or

(d) On the basis of a soil survey of lands within the permit area, there are no soil map units that have been designated prime farmland by the U.S. SCS,

(3) If the investigation establishes that the lands are not prime farmland, the applicant shall submit with the permit application a request for a negative determination and results of the investigation that show that the land for which the negative determination is being sought meets one (1) of the criteria of subsection (2) of this section.

(4) If the investigation indicates that lands within the proposed permit area may be prime farmlands, the applicant shall contact the U.S. SCS to determine if a soil survey exists for those lands and if the applicable soil map units have been designated as prime farmlands. If no soil survey has been made for the lands within the proposed permit area, the applicant shall request the SCS to conduct a soil survey.

(a) If a soil survey of lands within the proposed permit area contains soil map units designated as prime farmlands, the applicant shall submit an application, in accordance with 405 KAR 8:050, Section 3 for the designated land.

(b) If a soil survey for lands within the proposed permit area contains no soil map units designated as prime farmland after review by the U.S. SCS, the applicant shall submit with the permit application a request for negative determination under subsection (2)(d) of this section for the nondesignated land.

(5) The cabinet shall decide to grant or deny a negative determination based upon documentation provided by the applicant and any other pertinent information, such as cropping history, available to the cabinet from other sources.

(6) The cabinet shall consult with the SCS in deciding on a request for negative determination under subsection (2)(c) of this section.

(7) The cabinet shall examine any records on crop history available from the Agriculture Stabilization and Conservation Service when deciding on a request for negative determination under subsection (2)(a) of this section.

Section 22. Land-use Information. (1) The application shall contain a statement of the condition, capability, and productivity of the land within the proposed permit area, including:

(a) A map and supporting narrative of the uses of the land existing when the application is filed. If the prevailing use of the land was changed within five (5) years before the date of application, the historic use of the land shall also be

described; and

(b) A narrative of land use capability and productivity, which analyzes the land-use description in conjunction with other environmental resources information required under this administrative regulation. The narrative shall provide analysis of:

1. The capability of the land before any mining to support a variety of uses, giving consideration to soil and foundation characteristics, topography, vegetative cover, and the hydrology of the proposed permit area; and

2. The productivity of the proposed permit area before mining, expressed as average yield of food, fiber, forage, or wood products from the lands obtained under high levels of management. The productivity shall be determined by yield data or estimates for similar sites based on current data from the U.S. Department of Agriculture, state agricultural universities, or appropriate state natural resource or agricultural agencies.

(2) The application shall state if the proposed permit area has been previously mined, and, if so and, if available, the:

(a) Type of mining method used;

(b) Coal seams or other mineral strata mined;

(c) Extent of coal or other minerals removed;

(d) Approximate dates of past mining; and

(e) Uses of the land preceding mining.

(3) The application shall contain a description of the existing land uses and local government land use classifications, if any, of the proposed permit area and adjacent areas.

(4) The application shall contain a description identifying the extent to which cities, towns, and municipalities, or parts thereof, are located within the proposed permit area.

Section 23. Maps and Drawings. (1) The permit application shall include a map or maps showing:

- (a) The boundaries of all subareas proposed to be affected over the estimated total life of the proposed surface mining activities, with a description of the size, sequence, and timing of the surface mining operations for which it is anticipated that additional permits will be sought;

- (b) Any land within the proposed permit area and adjacent area within the boundaries of any units of the National System of Trails or the Wild and Scenic Rivers System, including study rivers designated under Section 5(a) of the Wild and Scenic Rivers Act (16 U.S.C. 1276(a)), or which is within the boundaries of a wild river established pursuant to KRS Chapter 146;

- (c) The boundaries of any public park and locations of any cultural or historical resources listed on or eligible for listing on the National Register of Historic Places and known archaeological sites within the permit area and adjacent areas;

- (d) The locations of water supply intakes for current users of surface water within a hydrologic area defined by the cabinet, and those surface waters that will receive discharges from affected areas in the proposed permit area;

- (e) All boundaries of lands and names of present owners of record of those lands, both surface and subsurface, included in or contiguous to the permit area;

- (f) The boundaries of land within the proposed permit area upon which the applicant has the legal right to enter and begin surface mining activities;

- (g) The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including major electric transmission lines, pipelines, and agricultural drainage tile fields;

- (h) The location and boundaries of any proposed reference areas for determining the success of revegetation for the permit area;

- (i) The location of all buildings on and within 1,000 feet of the proposed permit area, with identification of the current use of the buildings;

- (j) Each public road located in or within 100 feet of the proposed permit area;

(k) Each cemetery that is located in or within 100 feet of the proposed permit area; and

(l) Other relevant information required by 30 C.F.R. 779.24(l).

(2) The application shall include drawings, cross sections, and maps showing:

(a) Elevations and locations of test borings and core samplings;

(b) Elevations and locations of monitoring stations or other sampling points in the permit area and adjacent areas used to gather data on water quality and quantity, fish and wildlife, and air quality, if required, in preparation of the application, or which will be used for this data gathering during the term of the permit;

(c) Nature, depth, and thickness of the coal seams to be mined, any coal or rider seams above the seam to be mined, each stratum of the overburden, and the stratum immediately below the lowest coal seam to be mined, for the permit area;

(d) All coal crop lines and the strike and dip of the coal to be mined within the proposed permit area;

(e) Location and extent of known workings of active, inactive, or abandoned underground mines, including mine openings to the surface within the proposed permit area and adjacent areas;

(f) Location and extent of subsurface water, if encountered, within the proposed permit area or adjacent areas;

(g) Location of surface water bodies such as streams, lakes, ponds, springs, constructed or natural drainage patterns, and irrigation ditches within the proposed permit area and adjacent areas;

(h) Location and extent of existing or previously surface-mined areas within the proposed permit area;

(i) Location, and depth if available, of gas and oil wells within the proposed permit area and water wells in the permit area and adjacent areas;

(j) Location and dimensions of existing areas of spoil, waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area; and

(k) Sufficient slope measurements to adequately represent the existing land surface configuration of the proposed permit area, measured and recorded according to the requirements established in subparagraphs 1. through 3. of this paragraph.

1. Each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area to be disturbed or, if impractical, at locations and in a manner sufficient to demonstrate that the surface coal mining and reclamation operations, as required by KRS Chapter 350 and 405 KAR Chapters 7 through 24, can be feasibly accomplished in accordance with the mining and reclamation plan.

2. Where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance representative of the prevailing configuration of the land.

3. Slope measurements shall take in account natural variations in slope, to provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed.

(3) The permit application shall include the map information specified in Sections 22(1)(a), 24(3), 24(4)(e), 24(4)(h), 27(1), 28(1), 31, 32, 33, 34, and 38 of this administrative regulation, and 405 KAR 8:010, Section 5(6).

(4) Maps, drawings, and cross-sections included in a permit application that are required by this section shall be prepared by or under the direction of and certified by a qualified registered professional engineer, and shall be updated as required by the cabinet if there is a material change. The qualified registered professional engineer shall not be required to certify true ownership of property.

Section 24. Mining and Reclamation Plan; General Requirements. (1) Each application shall contain a detailed mining and reclamation plan (MRP) for the proposed permit area as set forth in this section through Section 38 of this administrative regulation, showing how the applicant will comply with KRS Chapter 350 and 405 KAR Chapters 16 through 20.

(2) Each application shall contain a description of the mining operations proposed to be conducted within the proposed permit area, including, at a minimum a narrative:

(a) Description of the type and method of coal mining procedures and proposed engineering techniques, anticipated annual and total production of coal, by tonnage, and the major equipment to be used for all aspects of those operations; and

(b) Explaining the construction, modification, use, maintenance, and removal of the following facilities (unless retention of the facilities is to be approved as necessary for postmining land use as specified in 405 KAR 16:210):

1. Dams, embankments, and other impoundments;
2. Overburden and topsoil handling and storage areas and structures;
3. Coal removal, handling, storage, cleaning, and transportation areas and structures;
4. Spoil, coal processing waste, and noncoal waste removal, handling, storage, transportation, and disposal areas and structures;
5. Mine facilities; and
6. Water and air pollution control facilities.

(3) Each application shall contain plans and maps of the proposed permit area and adjacent areas pursuant to paragraphs (a) through (c) of this subsection.

(a) The plans and maps shall show the lands proposed to be affected throughout the operation and any change in a facility or feature to be caused by the proposed operations, if the facility or feature was shown under Section 23 of this administrative regulation.

(b) The following shall be shown for the proposed permit area:

1. Buildings, utility corridors, and facilities to be used;
2. The area of land to be affected within the proposed permit area, according to the sequence of mining and reclamation;
3. Each area of land for which a performance bond or other equivalent guarantee will be posted under 405 KAR Chapter 10;
4. Each coal storage, cleaning, and loading area;

5. Each topsoil, spoil, coal waste, and noncoal waste storage area;
6. Each water diversion, collection, conveyance, treatment, storage, and discharge facility to be used;
7. Each air pollution collection and control facility;
8. Each source of waste and each waste disposal facility relating to coal processing or pollution control;
9. Each facility to be used to protect and enhance fish and wildlife and related environmental values;
10. Each explosive storage and handling facility; and
11. Location of each sedimentation pond, permanent water impoundment, coal processing waste bank, and coal processing waste dam and embankment, in accordance with Section 34 of this administrative regulation, and fill area for the disposal of excess spoil in accordance with Section 27 of this administrative regulation.

(c) Plans, maps, and drawings required under this section shall be prepared by, or under the direction of, and certified by a qualified registered professional engineer.

(4) Each plan shall contain the following information for the proposed permit area:

(a) A projected timetable for the completion of each major step in the mining and reclamation plan;

(b) A detailed estimate of the cost of reclamation of the proposed operations required to be covered by a performance bond under 405 KAR Chapter 10, with supporting calculations for the estimates;

(c) A plan for backfilling, soil stabilization, compacting, and grading, with contour maps or cross-sections that show the anticipated final surface configuration of the proposed permit area, in accordance with 405 KAR 16:190;

(d) A plan for removal, storage, and redistribution of topsoil, subsoil, and other material to meet the requirements of 405 KAR 16:050 including a demonstration of suitability of any proposed topsoil substitutes or supplements;

(e) A plan for revegetation as required in 405 KAR 16:200, including descriptions of the: schedule of revegetation; species and amounts per acre of seeds and seedlings to be used; methods to be used in planting and seeding; mulching techniques; irrigation, if appropriate; pest and disease control measures, if any; and measures proposed to be used to determine the success of revegetation as required in 405 KAR 16:200, Section 6; and a soil testing plan for evaluation of the results of topsoil handling and reclamation procedures related to revegetation;

(f) A description of the measures to be used to maximize the use and conservation of the coal resource as required in 405 KAR 16:010, Section 2;

(g) A description of measures to be employed to ensure that all debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard are disposed of in accordance with 405 KAR 16:150 and 16:190, Section 3, and a description of the contingency plans that have been developed to preclude sustained combustion of the materials;

(h) A description, including appropriate maps and drawings, of the measures to be used to seal or manage mine openings, and to plug, case, or manage exploration holes, other bore holes, wells, and other openings within the proposed permit area, in accordance with 405 KAR 16:040; and

(i) A description of steps to be taken to comply with the requirements of the Clean Air Act (42 U.S.C. Chapter 85), the Clean Water Act (33 U.S.C. Chapter 26), and other applicable air and water quality laws and regulations and health and safety standards. This description shall, at a minimum, consist of identification of permits or approvals required by these laws and regulations which the applicant either has obtained, has applied for, or intends to apply for.

Section 25, MRP; Existing Structures. (1) Each application shall contain a description of each existing structure proposed to be used in connection with or to facilitate the surface coal mining and reclamation operation. The description shall include:

(a) Location;

(b) Plans of the structure that describe the structure's current condition;

(c) Approximate dates on which construction of the existing structure was begun and completed; and

(d) A showing, including relevant monitoring data or other evidence, of if the structure meets the performance standards of 405 KAR Chapters 16 through 20 or, if the structure does not meet those performance standards, a showing of if the

structure meets the performance standards of the interim performance standards of 405 KAR Chapter 1.

(2) Each application shall contain a compliance plan for each existing structure proposed to be modified or reconstructed for use in connection with or to facilitate the surface coal mining and reclamation operation. The compliance plan shall include:

(a) Design specifications for the modification or reconstruction of the structure to meet the performance standards of 405 KAR Chapters 16 through 20;

(b) A construction schedule that shows dates for beginning and completing interim steps and final reconstruction;

(c) Provisions for monitoring the structure to ensure that the performance standards of 405 KAR Chapters 16 through 20 are met; and

(d) A showing that the risk of harm to the environment or to public health or safety will not be significant during the period of modification or reconstruction.

Section 26. MRP; Blasting. (1) Each application shall contain a blasting plan for the proposed permit area explaining how the applicant intends to comply with the requirements of 405 KAR 16:120. This plan shall include, at a minimum, information setting forth the limitations the permittee shall meet with regard to:

(a) Ground vibration and airblast;

(b) The bases for the ground vibration and airblast limitations; and

(c) The methods to be applied in controlling the adverse effects of blasting operations

(2) Each application shall contain a description of the systems to be used to monitor compliance with the standards for ground vibration and airblast including identification of the types, capabilities, and sensitivities of blast monitoring equipment and identification of the monitoring procedures and locations.

(3) Blasting operations within 500 feet of active underground mines shall require approval of the cabinet, MSHA, and the Office of Mine Safety and Licensing.

Section 27. MRP; Disposal of Excess Spoil. (1) Each application shall contain descriptions, including appropriate maps and cross-section drawings, of the proposed disposal site and design of the spoil disposal structures according to 405 KAR 16:130. These plans shall describe the geotechnical investigation, design, construction, operation, maintenance, and removal if appropriate, of the site and structures.

(2) Each application shall contain the results of a geotechnical investigation of the proposed disposal site, including:

- (a) The character of bedrock and any adverse geologic conditions in the disposal area;
- (b) A survey identifying all springs, seepage, and groundwater flow observed or anticipated during wet periods in the area of the disposal site;
- (c) An assessment of the potential effects of subsidence of the subsurface strata due to past and future mining operations;
- (d) A technical description of the rock materials to be utilized in the construction of those disposal structures containing rock chimney cores or underlain by a rock drainage blanket; and
- (e) A stability analysis including strength parameters, pore pressures, and long-term seepage conditions. These data shall be accompanied by a description of all engineering design assumptions and calculations and the alternatives considered in selecting the specific design specifications and methods.

(3) If, under 405 KAR 16:130, Section 1(4), rock toe buttresses or key way cuts are required, the application shall include:

- (a) The number, location, and depth of borings or test pits that shall be determined with respect to the size of the spoil disposal structure and subsurface conditions; and
- (b) Engineering specifications utilized to design the rock toe buttresses or key way cuts that shall be determined in accordance with subsection (2)(e) of this section.

Section 28. MRP; Transportation Facilities. (1) Each application shall contain a transportation facilities plan including a description of each road, conveyor, or rail system to be constructed, used, or maintained within the proposed permit area. The description shall include a map, appropriate cross-sections, and:

- (a) Specifications for each road width, road gradient, road surface, road cut, fill embankment, culvert, bridge, drainage ditch, and drainage structure;
- (b) A report of appropriate geotechnical analysis, if approval of the cabinet is required for alternative specifications, or for steep cut slopes under 405 KAR 16:220;
- (c) A description of measures to be taken to obtain approval of the cabinet for alteration or relocation of a natural drainageway under 405 KAR 16:220; and
- (d) A description of measures, other than use of a rock headwall, to be taken to protect the inlet end of a ditch relief culvert, for approval by the cabinet under 405 KAR 16:220.

(2) Each plan shall contain a general description of each road, conveyor, or rail system to be constructed, used, or maintained within the proposed permit area.

Section 29. MRP; Surface Mining Near Underground Mining. For surface mining activities within the proposed permit area to be conducted within 500 feet of an underground mine, the application shall describe the measures to be used to comply with 405 KAR 16:010, Section 3.

Section 30. MRP; Protection of Public Parks and Historic Places. (1) For any publicly-owned parks or any places listed on the National Register of Historic Places that may be adversely affected by the proposed operations, each plan shall describe the measures to be used to prevent adverse impact or, if valid existing rights exist or joint agency approval is to be obtained under 405 KAR 24:040, Section 2(4), to minimize adverse impacts.

(2) The cabinet may, pursuant to 30 C.F.R. 780.31, require the applicant to protect historic or archaeological properties listed or eligible for listing on the National Register of Historic Places through appropriate mitigation and treatment measures. These measures need not be completed prior to permit issuance, but shall be completed before the properties are affected by surface mining activities.

Section 31. MRP; Protection of Public Roads. Each application shall describe, with appropriate maps and drawings, the measures to be used to ensure that the interests of the public and landowners affected are protected if, under 405 KAR 24:040, Section 2(6), the applicant seeks to have the cabinet approve:

- (1) Conducting the proposed surface mining activities within 100 feet of the right-of-way line of any public road, except where mine access or haul roads join that right-of-way; or

(2) Relocating a public road.

Section 32, MRP; Protection of the Hydrologic Balance. (1) Each application shall contain a description, as set forth in this subsection, of the measures to be taken to minimize disturbances to the hydrologic balance within the permit area and adjacent area and to prevent material damage to the hydrologic balance outside the permit area.

(a) The description shall be based upon the baseline geologic, hydrologic, and other information required by Sections 12 through 16 of this administrative regulation and other appropriate information, shall be specific to local hydrologic conditions.

(b) The description shall identify the protective measures to be taken to enable the operation to meet, at a minimum, each of the hydrologic requirements referenced in this paragraph, or shall demonstrate that protective measures are not necessary for the operation to:

1. Meet applicable water quality statutes, administrative regulations, standards, and effluent limitations as required by 405 KAR 16:060, Section 1(3);
2. Avoid acid or toxic drainage as required by 405 KAR 16:060, Sections 4, 5, and 6;
3. Control the discharge of sediment to streams located outside the permit area as required by 405 KAR 16:060, Section 2;
4. Control the drainage and discharge of water within the permit area as required by 405 KAR 16:060, Sections 1(4), 3, 9, and 12, and 405 KAR 16:080;
5. Restore the approximate premining recharge capacity of the permit area as required by 405 KAR 16:060, Section 5; and
6. Protect or replace the water supply of present users as required by 405 KAR 16:060, Section 8.

(c) The cabinet may require that the description include protective measures in addition to those identified under paragraph (b) of this subsection, if additional measures are needed to protect the hydrologic balance in accordance with 405 KAR 16:060.

(2) Each application shall include the design of any necessary protective measures identified under subsection (1) of this section. The design shall be prepared in a manner and detail acceptable to the cabinet including, as appropriate, calculations,

maps, drawings, and written explanations as necessary to document the design.

(3) Each application shall include a determination of the probable hydrologic consequences of the mining and reclamation operations for the permit area and adjacent area.

(a) The determination shall be based upon the baseline geologic, hydrologic, and other information required by Sections 12 through 16 of this administrative regulation and other appropriate information, and may include information statistically representative of the site.

(b) The determination shall be completed according to the parameters and in the detail necessary to enable the applicant to prepare a cumulative impact assessment, and shall take into account the anticipated effects of protective measures required by this chapter.

(c) For surface water systems, the determination shall, at a minimum, include probable impacts on:

1. Peak discharge rates, emphasizing the potential for flooding;
2. Settleable solids at peak discharge;
3. Low-flow discharge rates, emphasizing the potential for water supply diminution;
4. Suspended solids at low flow; and
5. pH, at low flow, emphasizing the potential for acid drainage conditions, including depressed levels of alkalinity and elevated levels of iron, manganese, acidity, sulfate, and total dissolved solids or specific conductance, which are generally associated with acid drainage conditions.

(d) For groundwater systems, the determination shall, at a minimum, include probable impacts on:

1. Water quantity, emphasizing water levels and the potential for water supply diminution for existing users, and dewatering of aquifers that are not currently being used for water supply but have the potential to be developed as a water supply source; and

2. pH, emphasizing the potential for acid drainage conditions, including depressed levels of alkalinity and elevated levels of iron, manganese, acidity, sulfate, and total dissolved solids or specific conductance, which are generally associated with acid drainage conditions.

(e) The determination shall include a finding on if the proposed surface mining activities may proximately result in contamination, diminution, or interruption of an underground or surface source of water within the permit area or adjacent areas that is used for domestic, agricultural, industrial, or other legitimate use upon application.

(f) An application for a major revision to a permit shall be reviewed by the cabinet to determine if a new or updated determination of the probable hydrologic consequences shall be required.

(4)(a) The application shall include a plan for the collection, recording, and reporting of groundwater and surface water quantity and quality data to monitor the effects of the mining and reclamation operations on the hydrologic balance, according to 405 KAR 16:110.

(b) The monitoring plan shall be based on the geologic and hydrologic baseline information, the mining and reclamation plan, and the determination of probable hydrologic consequences; and shall:

1. Identify the quantity and quality parameters to be monitored, sampling frequency, and monitoring site locations; and
2. Describe how the data may be used to determine the impacts of the operation on the hydrologic balance.

(5) An application for a major revision to a permit shall be reviewed by the cabinet to determine if a new or updated cumulative hydrologic impact assessment shall be made.

Section 33. MRP; Diversions. Each application shall contain descriptions, including maps and cross-sections, of stream channel diversions and other diversions to be constructed within the proposed permit area to achieve compliance with 405 KAR 16:080.

Section 34. MRP; Impoundments and Embankments. (1) General. Each application shall include detailed design plans for each proposed sedimentation pond, water impoundment, and coal mine waste bank, dam, or embankment within the proposed permit area. Each plan shall:

(a) Be prepared by, or under the direction of, and certified by a qualified registered professional engineer;

(b) Contain a description, map, and appropriate cross-sections and drawings of the structure and its location;

(c) Contain all hydrologic and geologic information and computations necessary to demonstrate compliance with the design and performance standards of 405 KAR Chapter 16 and all information utilized by the applicant to determine the probable hydrologic consequences of the mining operations under Section 32(3) of this administrative regulation;

(d) Contain an assessment of the potential effect on the structure from subsidence of the subsurface strata resulting from past underground mining operations if underground mining has occurred;

(e) Include any geotechnical investigation, design, and construction requirements for the structure;

(f) Describe the operation and maintenance requirements for each structure; and

(g) Describe the timetable and plans to remove each structure, if appropriate.

(2) Sedimentation ponds. Sedimentation ponds, whether temporary or permanent, shall be designed in compliance with the requirements of 405 KAR 16:090 and 16:100.

(3) Permanent and temporary impoundments. Permanent and temporary impoundments shall be designed to comply with the requirements of 405 KAR 16:100. Each plan for an impoundment meeting the size or other criteria of MSHA, 30 C.F.R. 77.216(u), shall comply with the requirements of 30 C.F.R. 77.216-1 and 77.216-2. The plan required to be submitted to the district manager of MSHA under 30 C.F.R. 77.216 shall be submitted to the cabinet as part of the permit application. After the plan has been approved by MSHA, the applicant shall submit to the cabinet a copy of the final approved plan, a copy of all correspondence from MSHA regarding the plan, a copy of any technical support documents requested by MSHA during its review, and a notarized statement by the applicant that the copy submitted to the cabinet is a complete and correct copy of the final plan approved by MSHA.

(4) Coal mine waste banks. Coal mine waste banks shall be designed to comply with the requirements of 405 KAR 16:140.

(5) Coal mine waste dams and embankments. Coal mine waste dams and embankments shall be designed to comply with the requirements of 405 KAR 16:100 and 16:160. The plan for an impounding structure that is required to be submitted to the district manager of MSHA under 30 C.F.R. 77.216 shall be submitted to the cabinet as part of the permit application. After the plan has been approved by MSHA, the applicant shall submit to the cabinet a copy of the final approved plan, a copy of all correspondence from MSHA regarding the plan, a copy of any technical support documents requested by MSHA during its review, and a notarized statement by the applicant that the copy submitted to the cabinet is a complete and correct copy of the final plan approved by MSHA. Each plan shall comply with the requirements of MSHA, 30 C.F.R. 77.216-1 and 77.216-2, and shall contain the results of a geotechnical investigation of the proposed dam or embankment foundation area, to determine the structural competence of the foundation that will support the proposed dam or embankment structure and the

impounded material. The geotechnical investigation shall be planned and supervised by an engineer or engineering geologist, according to:

(a) The number, location, and depth of borings and test pits determined using current prudent engineering practice for the size of the dam or embankment, quantity of material to be impounded, and subsurface conditions;

(b) The character of the overburden and bedrock, the proposed abutment sites, and any adverse geotechnical conditions that may affect the particular dam, embankment, or reservoir site;

(c) All springs, seepage, and groundwater flow observed or anticipated during wet periods in the area of the proposed dam or embankment shall be identified on each plan; and

(d) Consideration of the possibility of mud flows, rock-debris falls, or other landslides into the dam, embankment, or impounded material.

(6) If the structure is Class B-moderate hazard or Class C-high hazard under 405 KAR 7:040, Section 5, and 401 KAR 4:030, or if the structure meets the size or other criteria of MSHA, 30 C.F.R. 77.216(a), each plan under subsections (2), (3), and (5) of this section shall include a stability analysis of the structure. The stability analysis shall include strength parameters, pore pressures, and long-term seepage conditions. The plan shall also contain a description of each engineering design assumption and calculation with a discussion of each alternative considered in selecting the specific design parameters and construction methods.

Section 35. MRP; Air Pollution Control. For all surface mining activity, the application shall contain an air pollution control plan that includes:

(1) An air quality monitoring program, if required by the cabinet, to provide sufficient data to evaluate the effectiveness of the fugitive dust control practices under subsection (2) of this section to comply with applicable federal and state air quality standards; and

(2) A plan for fugitive dust control practices, as required under 405 KAR 16:170.

Section 36. MRP; Fish and Wildlife Protection and Enhancement. (1) Each application shall include a description of how, to the extent possible using the best technology currently available, the permittee will minimize disturbances and adverse impacts on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, during the surface coal mining and reclamation operations, and how enhancement of these resources will be achieved as practicable.

(2) This description shall:

(a) Apply, at a minimum, to species and habitats identified under Section 20 of this administrative regulation;

(b) Include protective measures that will be used during the active mining phase of operation. Protective measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, and the monitoring of surface water quality and quantity; and

(c) Include enhancement measures that will be used during the reclamation and postmining phase of operation to develop aquatic and terrestrial habitat. Enhancement measures may include restoration of streams and other wetlands, retention of ponds and impoundments, establishment of vegetation for wildlife food and cover, and the replacement of perches and nest boxes. If the plan does not include enhancement measures, a statement shall be given explaining why enhancement is not practicable.

(3) Upon request, the cabinet shall provide the protection and enhancement plan required under this section to the U.S. Department of the Interior, Fish and Wildlife Service regional or field office for their review. This information shall be provided within ten (10) days of receipt of the request from the Service.

(4)(a) A fish and wildlife protection and enhancement plan shall be required for amendments and revisions that:

1. Propose extension into a wetland;
2. Propose significant disturbance in a new watershed in which the permit area or adjacent area includes an important stream;
3. Seek to obtain a stream buffer zone variance under 405 KAR 16:060, Section 11, or seek to modify an existing stream buffer zone variance;
4. Propose extension of the permit boundary that involves a new surface disturbance of five (5) acres or more; or
5. Involve new permit or adjacent areas likely to contain, or that could reasonably be expected to contain, a state or federal endangered or threatened species or its critical habitat.

(b) For other amendments and revisions, a determination of if a protection and enhancement plan is necessary shall be made on a case-by-case basis in consultation with Kentucky Department of Fish and Wildlife Resources and U.S. Fish

and Wildlife.

(5) This section shall apply to applications for permits, amendments and revisions submitted to the cabinet on or after November 17, 1992.

Section 37. MRP; Postmining Land Use. (1) Each plan shall contain a description of the proposed land use or uses following reclamation of the land within the proposed permit area, including:

(a) A discussion of the utility and capacity of the reclaimed land to support a variety of alternative uses, and the relationship of the proposed use to existing land use policies and plans;

(b) A discussion of how the proposed postmining land use is to be achieved and the necessary support activities that may be needed to achieve the proposed land use, including management practices to be conducted during the liability period for the commercial forest land, cropland (including hayland), and pastureland land uses;

(c) If a land use different from the premining land use is proposed, all supporting documentation required for approval of the proposed alternative use under 405 KAR 16:210;

(d) A discussion of the consideration that has been given to making all of the proposed surface mining activities consistent with surface owner plans and applicable state and local land use plans and programs; and

(e) A copy of the comments concerning the proposed use from the legal or equitable owner of record of the surface of the proposed permit area and the state and local government agencies, if any, which would have to initiate, implement, approve, or authorize the proposed use of the land following reclamation.

(2) Approval of the initial postmining land use plan pursuant to this section, shall not preclude subsequent consideration and approval of a revised postmining land use plan in accordance with the applicable requirements of 405 KAR Chapters 7 through 24.

Section 38. Incorporation by Reference. (1) The following material is incorporated by reference:

(a) "Standard Methods for the Examination of Water and Wastewater" (14th Edition, 1975), American Public Health Association, American Water Works Association, and Water Pollution Control Federation;

(b) "Corps of Engineers Wetlands Delineation Manual" (January, 1987 Edition), U. S. Army Corps of Engineers;

(c) "U. S. Army Corps of Engineers Regulatory Guidance Letter No. 90-7" (September 26, 1990), U. S. Army Corps of Engineers;

(d) "National Lists of Plant Species that Occur in Wetlands and Biological Reports and Summary" (May, 1988 Edition), Fish and Wildlife Service, U. S. Department of the Interior; and

(e) "List of Hydric Soils of the United States, All Kentucky Counties" (December, 1991 Edition), Soil Conservation Service, U. S. Department of Agriculture;

(2) This material may be inspected, copied, or obtained at the Department for Natural Resources, #2 Hudson Hollow, Frankfort, Kentucky 40601, Monday through Friday, 8 a.m. to 4:30 p.m.

Credits

Adopted effective January 6, 1983; Amended effective April 23, 1984; Amended August 13, 1985; Amended effective February 4, 1986; Amended effective June 28, 1989; Amended effective May 22, 1991; Amended effective June 24, 1992; Amended effective June 10, 1998; effective August 09, 2007; Amended effective January 5, 2015.

Current with amendments included in the Administrative Register of Kentucky, Volume 42, Number 2, dated August 1, 2015.

405 Ky. Admin. Regs. 8:030, 405 KY ADC 8:030

End of Document

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MARTIN COUNTY BOARD OF EDUCATION

P.O. Box 366 • Inez, Kentucky 41224
Phone (606) 298-3572 • Fax (606) 298-3732

Julia D. Gable -- Superintendent
Kathleen Price -- Chairperson
Lois Walker -- Vice Chairperson

Roger Harless -- Board Member
Mickey McCoy -- Board Member
Gary Ball -- Board Member

REQUEST FOR WAIVER

To: Kentucky Department of Education
From: Board of Education of Martin County, Kentucky
Re: Request for waiver of the requirements contained in 702 KAR 4:050, Section 4, Subsection (4) (a) which mandate the Board to either acquire by condemnation or purchase or obtain a forbearance agreement from the owner of the coal beneath the surface of the proposed site for Sheldon Clark High School.

Pursuant to KRS 156.160(2)(a), and during a special meeting held on August 14, 2015, the Board of Education of Martin County, Kentucky, voted to request a waiver of the requirements contained in 702 KAR 4:050, Section 4, Subsection (4) (a) which otherwise mandate the Board to acquire title to the coal underlying the surface of the proposed school site for New Martin County High School or, in the alternative, obtain a forbearance agreement from the owners of said coal minerals. A copy of the minutes from the August 14, 2015 meeting of the Martin County Board of Education as well as an affidavit from Board Secretary, Carolyn Sweeney, and Board Order No. 1238 are attached hereto collectively as Appendix 1.

The proposed site for construction of New Martin County High School is located on Hollybush of Little Black Log Fork of Coldwater Creek in Martin County, Kentucky. The site is adjacent to Kentucky Route 645 in Inez, Kentucky and contains approximately fifty-six (56) acres. By way of background, the Commonwealth of Kentucky, Transportation Cabinet, Department of Highways, obtained a Commissioner's Deed to a portion of the aforementioned school site through a condemnation action filed in Martin Circuit Court and identified as Civil Action No. 07-CI-00211. That condemnation proceeding was filed against one hundred twenty-six (126) defendants who, at that time, constituted the record owners of the surface and mineral estates encompassed by a portion of the proposed school site. A copy of that Commissioner's Deed is attached hereto as Appendix 2.

By deed dated May 11, 2015 and recorded in Deed Book 189, Page 352, in the records of the Martin County Clerk's Office, the Commonwealth of Kentucky conveyed a portion of the condemned property to the Martin County Fiscal Court. That deed is attached hereto as Appendix 3. The Martin County Board of Education has been advised by the Martin County Fiscal Court that a deed has been prepared which conveys to the Board the property which will make up the above-referenced school site. Please see the plat and description of the Martin County Fiscal Court property to be conveyed to the Martin County Board of Education which is attached hereto as Appendix 4.

As set forth in the enclosed report of Mr. Ronnie Warrix, PLS, the portion of the school site previously obtained via condemnation by the Commonwealth of Kentucky will provide the Martin County Board of Education with fee simple title to all of the surface and mineral estates except for the coal below one-hundred fifty feet (150') of the surface estate. The remaining portion of the proposed school site was conveyed by Asher Maynard to the Martin County Fiscal Court via deed of conveyance dated August 4, 2015 and recorded in Deed Book 190, Page 128, in the Martin County Clerk's Office. A copy of that deed is attached hereto as Appendix 5. The proposed deed from the Martin County Fiscal Court conveying the Asher Maynard property to the Martin County Board of Education is attached hereto as Appendix 6.

In accordance with KRS 162.010, title to real property obtained by a board of education must be in fee simple. 702 KAR 4:050, Section 4, Subsection (4) (a), requires that "[a] fee simple title shall be received by local board in accordance with KRS 162.010 and certificate of title insurance provided. Should the mineral rights not be acquired, it shall require a forbearance agreement to ensure surface support." The Martin County Board of Education requests a waiver of the requirement to obtain either title to the coal below one hundred fifty feet (150') of the property previously condemned by the Commonwealth of Kentucky or, in the alternative, a forbearance agreement from the one hundred twenty-six (126) individuals who own the coal below one hundred fifty feet (150') of the subject property. This request for waiver is based upon the following circumstances and considerations:

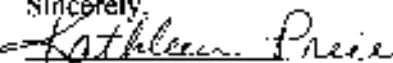
1. The Board employed R&J Development Company, LLC for the purpose of evaluating the potential and/or feasibility of extracting the coal lying below one hundred fifty feet (150') of the property previously condemned by the Commonwealth of Kentucky. Mr. Ronnie Warrix, PLC, of R&J Development Company has determined that the coal underlying the subject property below the level of one hundred fifty feet (150') is neither mineable nor merchantable. As a result, Mr. Warrix concluded that there is no risk of subsidence or other impact upon facilities to be constructed upon the proposed school site.
2. Core samples were taken from the proposed school site using standard core drilling techniques which retrieved core samples from a depth of eight hundred one and nine tenths feet (801.9'). Mr. Warrix advised that the core drilling was sited at an elevation to obtain lithologies that that could not be readily observed in the highwalls created by the Kentucky State Route 40 excavations.
3. Mr. Warrix further advised that the above-referenced core drilling revealed that no economically viable seams of coal were located on the proposed school site. He concluded that, due to the size and depth of the coal deposits located below one hundred fifty feet (150') of the proposed school site, extraction of those coal reserves is doubtful.
4. Administrative regulations promulgated by the Energy and Environment Cabinet govern the issuance of surface mining permits. Particularly, 405 KAR 8:030, Section 4, expressly provides that, where the mineral estate to be mined has been severed from the private surface estate, the mining permit application must contain written consent of the surface owner for the extraction of coal by surface mining methods. A copy of 405 KAR

8:030 is attached hereto as Appendix 7. Pursuant to the Commissioner's Deed attached hereto as Appendix 2, the coal lying below one hundred fifty feet (150') of the proposed school site has been severed. Thus, the Board will be the fee owner of the surface estate and the mineral estates within one hundred fifty feet (150') of the surface, and the one hundred twenty-six (126) individuals who were parties-defendant to the above-referenced condemnation action will retain ownership of the remaining coal deposits below that depth.

5. The identifiable defendants named in the Commissioner's Deed attached hereto as Appendix 2 are residents of various states within this nation, so obtaining a forbearance agreement from each of those individuals will be time consuming, impractical, and unworkable, if not impossible.
6. A portion of the defendants identified in the above-referenced Commissioner's Deed are unknown heirs of various individuals who had an ownership interest in the property condemned by the Commonwealth of Kentucky and who are presently deceased. Identification of those unknown heirs for the purpose of obtaining a forbearance agreement will, likewise, be time consuming, impractical, and unworkable, if not impossible.
7. There is no assurance that a forbearance agreement can be obtained from the one hundred twenty-six (126) owners of the coal underlying the proposed school site based upon the breadth and, in several instances, the lack of identification of those individuals owning an interest therein.
8. In seeking this waiver, the Martin County Board of Education seeks to avoid a prolonged delay of the New Martin County High School construction project as well as the filing of a costly condemnation proceeding and any unnecessary payments for coal which not mineable or merchantable.

The coal deposits referenced herein are the only known mineral rights to exist below one hundred fifty feet (150') of the property previously condemned by the Commonwealth of Kentucky. Based upon the forgoing circumstances and considerations, the Martin County Board of Education respectfully requests that the Kentucky Department of Education waive the regulatory requirement that the coal underlying the proposed school site be acquired by condemnation or, in the alternative, that a forbearance agreement be obtained with respect to the coal on the above-referenced tract to be conveyed to the Martin County Board of Education.

Sincerely,

 _____

Kathleen Price

Martin County Board of Education Chairman



J.D. Gobler

Interim Superintendent of Martin County Schools



June 04, 2015

R & J DEVELOPMENT COMPANY LLC
203 OLD MIDDLE FORK ROAD
INEZ, KY 41224

RE: Martin County High School - Request for waiver of forbearance agreement

Dear Sir:

On behalf of the Martin County Fiscal Court and the Martin County Board of Education, we hereby request a waiver of a forbearance agreement for the subject proposed Martin County High School.

We believe that the attached study will completely support the absolute lack of need for the subject agreement.

Sincerely

A handwritten signature in blue ink that reads 'Ronnie Warrix'.

Ronnie Warrix, PLS
R & J Development Company LLC

Xc: James H. Booth
Ernie R. Morgan
File



Proposed Martin County High School - Request for Waiver of Forbearance Agreement

Introduction

This report presents the results and finding of our examination of certain coal resources underlying the proposed project and how these resources may affect the construction of the proposed Martin County High School.

The specific type of construction of the Martin County High School nor the exact location of building/sports facilities has been determined, as it is not material to the intent and purpose of this document, which is to evaluate the potential of underlying coal reserves and to conclude the way forward toward the construction of the project.

The proposed location of the Martin County High School is located in Hollybush of Little Black Log Fork of Coldwater Creek, Martin County, Kentucky. Specifically the site is located on the north side of KY 40's extension to Warfield, KY and will be approximately 1000 feet north of that road at 37° 51' 52" North Latitude and 82° 30' 35" West Longitude. A site vicinity map is included in this report in Appendix A.

The surface property has been conveyed by the Commonwealth of Kentucky to the Martin County Fiscal Court by Deed Book 189 Page 352. A copy of that deed is included in this report in Appendix B. The Martin County Fiscal Court will convey a portion of that property to the Martin County Board of Education for the school site. The mineral ownership partially belongs to the Commonwealth of Kentucky by Master Commissioner's deed as recorded in Deed Book 189 Page 96 and by deed as recorded in Deed Book 189 Page 106 in the Office of the Martin County Clerk and is known as Parcel M-9. A copy of that deed is included in this report in Appendix C.

Scope of report

This scope of this report addresses that part of the coal resource, within the Mineral Premises Parcel M-9 which was not purchased, but was reserved by the grantor and would underly the proposed school site and its ancillary facilities. The property within this scope will include that portion of the property that the Martin County Fiscal Court will convey to the Martin County Board of Education and that portion of the property that Asher Maynard will convey to the Martin County Board of Education and will be required for the school and to be later conveyed. That resource is stated as being "less the mineral one hundred and fifty feet (150') or more, measured vertically, below either the natural contour of the existing surface of the Mineral Premises or the final Highway sub grade, whichever is lower provided however, that in mining the coal hereby reserved under the Highway, coal pillars shall be left in place which provide a factor of safety against crushing of no less than 2.0" This coal resource, due to its depth beneath the surface and its thickness, **WILL NEVER BE EXPLOITED, AS THERE IS NO MINEABLE COAL**

UNDERNEATH THE 150' DEPTH OF THIS REPORT AND THUS WILL NEVER HAVE A POTENTIAL SUBSIDENCE OR OTHER IMPACT UPON THE FACILITIES, in my opinion.

Local Geology

The predominant lithology underlying the site was deposited during the Pennsylvanian Geologic Period and consist of cyclic sequences of sandstone, shale and coal as shown on a drawing entitled Geology of the Inez, Quadrangle, KY GQ-226 by William F. Outerbridge 1963. Additional resources were also consulted including the information contained in the University of Kentucky Kentucky Geologic Map Information Service web site.

Field Work

Insufficient data was available from the previously cited available maps, to indicate what coal resources might exist within the scope of this report, therefore core hole HB-001-2015 was drilled on the site and coal cores were recovered. A log and graphic representation of that coring is attached as Appendix D. The coring was done by a truck mounted rig using standard coring methods and drilled to a depth of 801.9 feet beginning at elevation 839.15 MSL. The coring was sited at an elevation to drill those lithology's that could not be readily observed in the highwalls created in the KY 40 excavations and was drilled to intercept the zone within the scope of this report. Coal were boxed for analysis. The analysis of each is provided in Appendix E.

Discussion and Conclusion

No seams of coal were found that are economically viable in the present market conditions with existing technology. Due to the size and depth of the deposits these resources may never be of consequence. The question of whether any extraction of those reserves will ever be attempted, with a negative effect on the school, is a remote and doubtful proposition.

Further regulatory protections make it unlikely that subsidence damage would ever occur, as specific engineering guide lines exist for mining under structures. A copy of 405 KAR 18_210. Subsidence Control is provided in Appendix F.

The creation of a forbearance agreement, given the number of parties involved, would be a very difficult and time consuming task and would surely set back any advancement of the project by a number of years. The Parcel M-9 purchase was by condemnation and court order. Multiple parties, legatees and unknown defendants were involved in the M-9 purchase, doubtless requiring much effort and expense, which perhaps explains why the property was taken by condemnation and court order. The same process would be required to construct a forbearance agreement, and perhaps would be worse as each party would have to be signatory to the agreement, unless ordered by the court. A forbearance agreement would slow the process to a crawl, adding considerable time and expense to the project.

Other options to consider are that The Martin County Fiscal Court or the Martin County Board of Education could condemn the remainder of the mineral estate within their area. The basic ground work would be the same as the original condemnation order for Parcel M-9. A rewording of the language within the original condemnation document and new description of the boundary would affect the change. The consideration for the condemned property would probably be small, as very little coal is beneath the property.

Another option might be a contingent forbearance agreement waiver, whereby the waiver would stipulate that the Martin County Board of Education could continue its construction, contingent either a concluded forbearance agreement or condemnation of the required mineral estate.

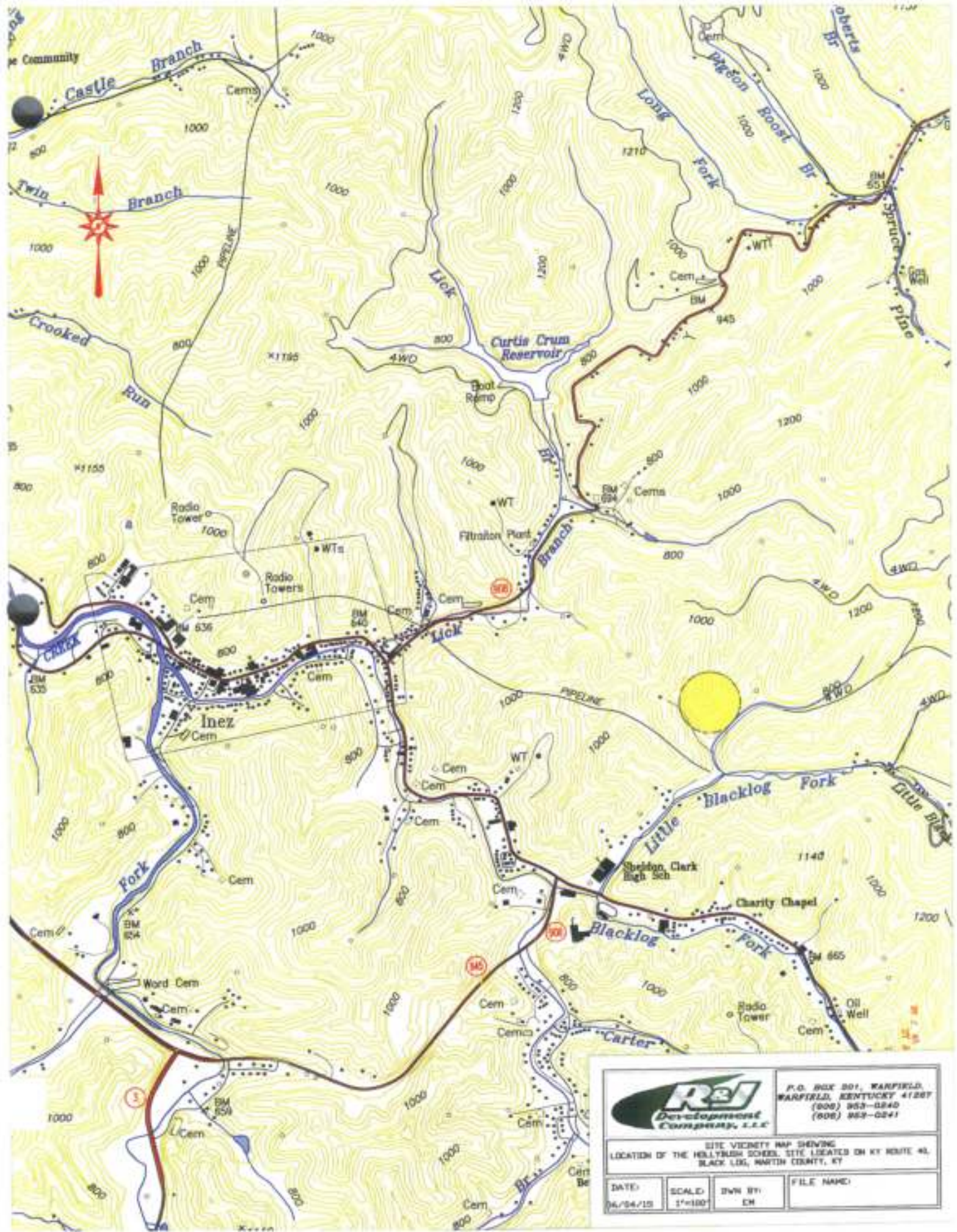
To recapitulate, no minable reserves are present. Regulatory protections make it unlikely that subsidence damage would ever occur. A forbearance agreement would slow the process to a crawl, adding considerable time and expense to the project.

Therefore a forbearance agreement is without justification and would be of null affect.

We, hereby, request a waiver of the requirement of a forbearance agreement for the reasons given.



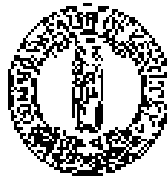
Appendix A – Site Vicinity Map



		P.O. BOX 301, WARFIELD, WARFIELD, KENTUCKY 41287 (606) 953-0240 (606) 953-0241	
		SITE VICINITY MAP SHOWING LOCATION OF THE HELLBUSH SCHOOL SITE LOCATED ON KY ROUTE 43, BLACK LOG, MARTIN COUNTY, KY	
DATE:	SCALE:	DWN BY:	FILE NAME:
06/04/15	1"=100'	CM	



Appendix B – Deed of Surface DB 189 PG 352



Steven L. Beshar
Governor

Stephen L. Pruitt, Ph.D.
Commissioner of Education

**EDUCATION AND WORKFORCE DEVELOPMENT CABINET
DEPARTMENT OF EDUCATION**

Capital Plaza Tower • 500 Mare Street • Frankfort, Kentucky 40601
Phone: (502) 584-4770 • www.education.ky.gov

October 30, 2015

Mr. John D. Goble, Superintendent
Martin County Public Schools
PO Box 9695
Inez, KY 41224

RE: Martin County – Waiver Request to Requirement for Forbearance Agreement

Dear Supt. Goble:

On October 6, 2015 the Kentucky Board of Education approved the request by the Martin County Board of Education to waive the 702 KAR 4:050 requirement for a forbearance agreement in the absence of acquisition of mineral rights. In this specific case, the waiver relates to the mineral rights at a depth beyond 150' below the surface of the property.

In the event you need additional information, please contact the District Facilities Branch, Division of District Support (502) 564-4326.

Sincerely,

Gregory C. Dunbar, ATA, Manager
District Facilities Branch
Division of District Support

CONTACT

Electronic CC: Donna Duncan, DDS
Denise Hartsfield, DDS
Calleen Yeti, DDS
Mary Ann Miller, KDR
Susan Palmer, KDR
DFF/Correspondence Files



February 19, 2024

Attn: Mr. Larry James
Martin County Schools

Re: Property Acquisition- High School Adjacent Site
Utility Availability Investigation

Dear Mr. James:

CMTA is pleased to provide the following survey of utility available for the potential school site currently under consideration by Martin County Schools. We have reached out to relevant utilities and reviewed available utility data for the area. The following is a brief summary of the available utilities at the site.

WATER:

Utility Company: Martin County Water District

Summary: An existing 8" main waterline owned by the Martin County Water is fed from the water tower located up the hill from the project site and was installed to serve the high school and future development along the highway. There will be a tap fee to cover the cost of the new meter. Estimated cost for this fee is \$10,000. The installation of the water line itself will be the responsibility of the new school contractor.

SEWER:

Utility Company: Martin County Sanitation

Summary: The only available sanitary service is a force main out at the main road which is routed down to a main pump station in Inez which does have adequate capacity. The Utility company will require further investigation to determine the proper location for the new school to connect to the existing but the most likely tie in point is in front of the existing high school. A sanitary life station (pump) will be required to serve any new facility on the site and it will pump to the existing force main with the connection point to be determined. All of this work would be included in the bid documents and there is not an additional tap fee or cost for offsite utilities.

NATURAL GAS:

Utility Company: Not Available

Summary: There is not natural gas available near the site but it is not expected to be needed. The high school design did not include natural gas.

POWER:

Utility Company: AEP

Summary: 3 phase power is available through the property from the existing high school electrical service. A new building transformer will be required. There is not an expected additional cost for the additional service.

DATA/INTERNET:

Utility Company: Windstream

Summary: Fiber is available on the adjacent high school campus and this service can be extended to the new property.

Please advise if you have any questions about the above information.

Sincerely,



Chris Reeves, P.E.
Mechanical Engineer

March 7th, 2024

TO: Mr. Larry James
Superintendent
Martin County Schools

FROM: Michael B. Mays, PE
RossTarrant Architects, Inc.

RE: Martin County Property Acquisition
Inez, Kentucky
RTA 23053

Dear Mr. Martin,

As required by the KDE Site Acquisition Guidelines, I have observed the property located off of Highway KY645 E and adjacent to the existing Martin County High School Campus in Inez Kentucky. While performing the site observation, I did not note anything that would be considered an unusual environmental hazard; however, the site visit consisted of strictly a visual observation and does not account for air, waterborne, subsurface pollutants or hazards. The property is a former KYTC fill site that was filled during the construction of highway KY 645 E. There are large generally flay open areas which are the previous fill areas and a large portion of the property remains heavily wooded and undeveloped.

The only potential safety hazards that were observed on the property are:

- Steep slopes and wooded areas are present.
- ATV trails are present on site through the steep slopes and wooded areas.
- A high wall that was constructed as part of the High School Project.
 - The high wall is fenced off at the base of the wall.

Sincerely,

Michael B. Mays, PE
Civil Engineer

END OF MEMORANDUM

/mm

Enclosures

c: Randy S. Brookshire, AIA, LEED AP
Remington A. Bard, Associate AIA, LEED Green Associate
File 23053-1A
ME240307-PropertyAcquisition-23053

April 10, 2024

TO: Mr. Larry James
Superintendent
Martin County Schools

FROM: Michael B. Mays, PE
RossTarrant Architects, Inc.

RE: Martin County Property Acquisition
Inez, Kentucky
RTA 23053

Dear Mr. Martin,

As required by the KDE Site Acquisition Guidelines, I have prepared a cost analysis for the subject site as follows:

- | | |
|---------------------------------------------------------------------------------------|-----------------------------------------|
| 1. Preliminary Geotechnical Investigation: | \$0.00 (Waived by KDE) |
| 2. Mass Excavation for earth and rock removal and fill: | \$2,880,000 |
| a. Undercut and replace 15-feet under building footprint – 50,000 C.Y. @ \$18.00/C.Y. | |
| b. Mass site grading – 110,000 C.Y. @ \$18.00/C.Y. | |
| 3. Cost of bringing Utilities to the site. | \$10,000 (See utility letter from CMTA) |
| 4. Cost of hazardous condition cleanup: | \$0.00 (None present) |
| 5. Acquisition Cost: | \$0.00 (Property Swap) |

Total Site Development Cost = \$2,890,000

The maximum project budget for a new Martin County Elementary School is proposed to be \$30,000,000.00

This makes the percentage of site development cost and acquisition cost 9.63% of the maximum budget for the project, which is less than the KDE required 10%.

Sincerely,

Michael B. Mays, PE
Civil Engineer

END OF MEMORANDUM

/mm

Enclosures

c: Randy S. Brookshire, AIA, LEED AP
Remington A. Bard, Associate AIA, LEED Green Associate
File 23053-1A
ME240410-Cost Analysis-23053