COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
www.transportation.ky.gov/

Andy Beshear
GOVERNOR

Jim Gray
SECRETARY

August 15, 2022

CALL NO. 105
CONTRACT ID NO. 221042
ADDENDUM # 2

Subject: BREATHITT COUNTY, STP 0151(093)
Letting August 18, 2022

(1) Revised – Special Note – Pages 17-41 of 122 (Omit Page 42)
(2) Revised – Utility Note – Pages 83-85 of 122
(3) Revised – Proposal Bid Items – Pages 121-122 of 122
(4) Revised – Plan Sheets – R2, R2A, G02, G03, and G04

Proposal revisions are available at http://transportation.ky.gov/Construction-Procurement/.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Rachel Mills,

Rachel Mills

Rachel Mills, P.E.
Director
Division of Construction Procurement

RM:mr
Enclosures

Special Note for Steel Sheet Pile Cutoff Wall

KY Highway 15 – Panbowl Lake Dam (Item # 10-172.00)

1.0 DESCRIPTION

1.1 This work is for the construction of a permanent “Sheet Pile Cutoff Wall” that will serve as a seepage cutoff wall at the West Embankment of the Panbowl Lake Dam System. Use an approved Specialty Contractor that has the expertise and capability to complete the work required by this Special Note. Only Contractors pre-qualified by the Kentucky Department of Highways (the "Department”) as a Specialty Contractor for “Grouting for Ground Improvements” (Work Item I39) OR “Jet Grouting” (Work Item J20) may bid on this project as the prime contractor and perform the work required by this Special Note. Subsurface data from the geotechnical exploration(s) are included in the Construction Plans and this Special Note with Appendices. Rock cores are available for viewing at the Geotechnical Branch in Frankfort, 502-564-2374. Contractors must call a minimum of two (2) days in advance to schedule a viewing of rock cores. Project related information, including the Geotechnical Report(s), are accessible on the Department’s Construction Procurement webpage.

1.2 The prospective bidders are responsible to familiarize themselves with the available geotechnical data, which provides further information regarding the anticipated soil and bedrock conditions, that will affect the installation of the steel sheet pile cutoff wall. Failure to inspect the project site and view the available rock cores and geotechnical data will result in the forfeiture of the right to file a claim based on site conditions and may result in disqualification from the project.

2.0 SCOPE OF WORK

2.1 The contract item "Sheet Piling" includes furnishing materials, labor, tools, equipment, and other incidental items required for the construction and testing of permanent sheet piling as described herein. See the Construction Plans for an overview of the steel sheet pile cutoff wall.

2.2 Steel sheet pile cutoff wall construction includes predrilling the wall prior to pile installation; installing interlock sealant; installing piles; splicing pile sections (if required); providing, placing, and grouting the annular space created by predrilling; and removing damaged or non-conforming piles.

2.3 Refer to Figure 9-16 in the USACE Engineering Manual (EM) 1110-2-1901 "Seepage Analysis and Control for Dams" for the components of a sheet pile cutoff wall. Refer to USACE EM 1110-2-2504 “Design of Sheet Pile Walls” and FHWA NHI-99-025 “Earth Retaining Structures” for additional characteristics of sheet piling.

2.4 Sheet pile cutoff wall construction requires disturbing an existing embankment dam. ***Construction within and in the vicinity of embankment dams requires special***

care and effort compared to general construction. Special care is required to prevent damage, slope instability, and the creation of seepage pathways within the embankment. The Contractor should take this into account during bidding and should consult all requirements of this Special Note and the Construction Plans for details.

2.5 Subject to the requirements in the Construction Plans and this Special Note, select the installation method and equipment to meet the performance requirements specified herein.

2.6 In construction of the sheet pile cutoff wall, consider the potential risks involved due to slope failure and generation of seepage pathways. Embankment integrity, slope stability, wall alignment, and preservation of wall condition are the Contractor's responsibilities from the beginning of work until final acceptance. Damage to property (public or private) or to the wall itself during construction is the responsibility of the Contractor. Construct the sheet pile cutoff wall system to ensure that the wall system will function as intended.

2.7 The main body of this Special Note is general for permanent sheet piling. Refer to the Appendix or Appendices for any project specific requirements.

2.8 Construction Plans are defined as plans prepared by the Department and/or authorized representative containing the sheet pile wall profile and layout, details, subsurface data, etc., to be used by the Steel Sheet Pile Cutoff Wall Contractor to construct the wall. These plans are included in the Bid Proposal.

3.0 REFERENCES

The documents below apply to this work. Unless noted otherwise, use the current edition as of the letting date of this project.

1. Construction Plans and Plan Notes.
2. The "Kentucky Standard Specifications for Road and Bridge Construction", Current Edition with supplements. This document may be referred to as "Specifications" or "Standard Specifications" elsewhere in this Special Note.
3. The Department Manuals "Kentucky Methods", "List of Approved Materials", and "Field Sampling and Testing Practices".
4. American Society for Testing and Materials (ASTM) Standards, Current Edition.
5. American Association of State Highway and Transportation Officials (AASHTO) Standards, Current Edition.
6. FHWA Publication FHWA NHI-99-025, "Earth Retaining Structures" (NHI Course No. 13236 – Module 6), April 1999.
7. USACE EM 1110-2-1901, “Seepage Analysis and Control for Dams”, April 1993.
8. USACE EM 1110-2-2504, “Design of Sheet Pile Walls”, March 1994.
9. AASHTO Standard Specifications for Highway Bridges, Current Edition, with all interims.
10. AISC Steel Construction Manual for the design of structural hardware applies

if the design is not covered in the AASHTO Standard Specifications for Highway Bridges, Current Edition, with all interims.

4.0 EXPERIENCE REQUIREMENTS AND SUBMITTALS

Requirements for personnel experience and pre-construction submittals, **including submittal deadlines**, are in this section. Do not begin construction of the steel sheet pile cutoff wall, other than stockpiling of wall materials, until the Engineer receives and accepts all submittals required in this section. Additional submittals and records required during and after construction may be included in other sections of this Special Note. The use of electronic submittals (preferably in .pdf format) will expedite the approval process.

4.1 Personnel Experience Requirements: The Department considers a satisfactory record of experience in both permanent sheet piling serving as a hydraulic barrier and earthen embankment dam construction important to successfully complete this work. Use personnel meeting the requirements below on this project and submit one (1) electronic copy of all information necessary to verify that they meet the requirements. Submit this information no later than seven (7) calendar days after receiving Notice of Award. **Submit this information to Aric Skaggs at the following email address: aric.skaggs@ky.gov.** As a minimum, include the following for each project necessary to satisfy the requirements:

1. The names and current phone numbers of the Owner's representative(s) who can verify that the Contractor meets the requirements.
2. The dates of construction.
3. The type (temporary/permanent) of structure.
4. The sheet pile section.
5. The maximum pile penetration.
6. Subsurface and bearing conditions.

The Department will review the experience requirements and respond to the Contractor within fourteen (14) calendar days. Review and acceptance by the Engineer is for evidence of the required experience and does not in any way relieve the Contractor of full responsibility for the successful and satisfactory completion of the work.

4.1.1 Project Engineer Experience Requirements:
Use an engineer meeting the requirements below to have overall technical responsibility for sheet piling construction on this project. It is not necessary for the Project Engineer to be on-site daily. Consultants or manufacturers' representatives may not be used to satisfy these requirements. The requirements for the Project Engineer are:

a. Licensed Professional Engineer in the U.S.
b. A minimum of five (5) years design and/or construction experience on permanent steel sheet piling serving as a hydraulic barrier and/or other seepage cutoff walls, with experience on a minimum of five (5) projects of similar size and complexity, constructed in the past five (5) years.
c. An employee of the Steel Sheet Pile Cutoff Wall Contractor.

4.1.2 On-Site Supervisor Experience Requirements:
Use an on-site supervisor (project manager, superintendent, etc.) meeting the requirements below to be responsible for the daily sheet piling construction activities on this project. Consultants or manufacturers' representatives may not be used to satisfy the requirements of this section. The requirements for the On-Site Supervisor are:

a. A minimum of three (3) years construction experience on permanent steel sheet piling serving as a hydraulic barrier and/or other seepage cutoff walls, with experience on a minimum of three (3) projects of similar size and complexity, constructed in the past three (3) years.
b. An employee of the Steel Sheet Pile Cutoff Wall Contractor.

The On-Site Supervisor and the Project Engineer may be the same person if that person meets all the stated requirements. The Department will consider allowing a team of more than one supervisor to satisfy these requirements and perform the associated functions, subject to certain conditions at the discretion of the Engineer. The Department may consider related experience with other similar types of specialty construction.

4.1.3 The Engineer may suspend work on the wall if the Contractor substitutes unqualified and/or unapproved personnel or if the personnel are not performing the required duties. If work is suspended due to substitution of unqualified and/or unapproved personnel, the Contractor is fully liable for all costs resulting from the suspension of work. No adjustment in contract time resulting from this suspension of work will be allowed.

4.2 Construction and Materials Submittals: Submit six (6) hard copies or one (1) electronic copy of the following **no later than thirty (30) calendar days after receiving Notice to Begin Work.**

1. The proposed start date and proposed wall construction sequence and schedule including:
   a. Plan describing how surface water will be diverted, controlled and disposed of.
   b. Proposed methods for delivery, storage, and handling of sheet piling.
   c. Proposed sheeting installation plan, including the installation sequence, and sheet piling tip elevation of each pile section.
   d. Proposed plan to confirm sheet piles are seated on bedrock.
   e. Proposed methods and equipment for predrilling, including the type of equipment, manufacturer, and model number as well as the estimated elevations of the predrilling program.
   f. Proposed method and equipment for backfilling annular space created from the predrilling program, including batching and placing grout.
   g. Proposed method for installing the interlock sealant between pile sections.
   h. Proposed methods and equipment for installing and extracting the sheet piling, including the type of installation equipment, the manufacturer of the equipment, protection caps, leads, model number

and energy. The proposed methods should include measures to install sheet piling straight and plumb at the locations shown on the Construction Plans.

i. Proposed procedure of insufficient pile length including methods for pulling and reinstalling damaged or non-conforming sheet piling.

j. Information on provisions for working in the proximity of both overhead and underground facilities or utilities.

2. Certification of land surveyor to be utilized for specified portions of the sheet piling work.
3. Provide welding and steel plant certificates stating full compliance with the contract requirements.
4. Product technical data including:
   a. Acknowledgement that products submitted meet the requirements of standards referenced.
   b. Manufacturer's installation instructions.
5. Submit certified material test reports showing that sheet piles and appurtenant metal materials meet the specified requirements for each shipment and identified with specific lots prior to installing materials. Material test reports must meet the requirements of ASTM A6/A6M.
   a. Sheet piling and appurtenant materials must be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site.
   b. Testing of sheet piling for mechanical properties must be performed after the completion of all rolling and forming operations.
6. Submit shop drawings for the sheet piling showing fabricated section that include completed piling dimensions and details, as well as the installation sequence and location.
7. Grout submittal including:
   a. type of mixer;
   b. water/cement ratio;
   c. type of additives;
   d. type of cement;
   e. quantity of bentonite;
   f. mix design;
   g. design strength (*maximum* of 80 pounds per square inch (psi)); and
   h. mix verification testing.
8. Pile installation records as required by this Special Note, including a summary of location coordinates of in-place sheet piling.
9. Any other documentation required to verify that proposed construction procedures and materials fully comply with all requirements in the contract documents.

The Department will complete the review within fourteen (14) calendar days after receiving each submittal; the Department will not extend the specified completion date for this review period. Unacceptable methods or documentation, as judged by the Engineer, will be cause for withholding acceptance. The Contractor is fully liable for all costs resulting from acceptance being withheld; the Department will not extend the specified completion date as the result of not accepting the construction and materials submittals. Review and acceptance by the Engineer is for evidence

of work to be performed and does not in any way relieve the Contractor of full responsibility for the successful and satisfactory completion of the work.

4.3 Steel Sheet Pile Cutoff Wall Pre-Construction Meeting: A Pre-Construction Meeting to discuss the steel sheet pile cutoff wall construction will be required. This meeting will be held after all sheet pile wall submittals in Section 4.1 and 4.2 have been received, reviewed, and accepted by the Department, and at least ten (10) working days prior to the beginning of sheet pile wall construction. The purpose of the meeting is to discuss construction procedures, personnel, and equipment to be used. The following will be expected to attend:

- Representing the Contractor and Subcontractors - Contractor Representative, Project Engineer and On-Site Supervisor. Also, representatives of the Surveyor, if different than the Prime Contractor.
- Representing the Quality Control Team - QCP Manager and Lead Inspector as defined in Appendix C of this Special Note.
- Representing the Department – Section Engineer, Central Office Construction Engineer, Geotechnical Branch Representative, and others as deemed appropriate by the Section Engineer.

If the Contractor's key personnel change or if the Contractor proposes a significant revision to sheet piling construction procedures, additional Pre-Construction meetings may be required at the discretion of the Engineer.

5.0 MATERIALS

Provide materials conforming to the requirements below when the materials are required by this Special Note, the Construction (Contract) Plans, or elsewhere in the Contract Documents.

5.1 Sheet Piling:

1. Subject to compliance with this Special Note, the following manufacturers are acceptable:
   a. Sheet Piling:
      i. Skyline Steel Corporation.
      ii. Gerdau Ameristeel.
      iii. Or approved equal.
   b. Sheet Piling points:
      i. Associated Pile and Fitting Corporation.
      ii. Or approved equal.
2. PZ-35 or approved equal.
3. Hot-rolled steel section.
4. ASTM A328/A328M.
5. Piling sections shall be continuously interlocking.
6. Piling shall be reasonably free sliding to grade when threaded.
7. Provide standard handling hole approximately 4 IN from one end.

5.2 Corners, Tees, and Wyes:

1. As appropriate with ASTM A328/A328M piling.
2. Fabricated from matching pieces of sheet piling, ASTM A36/A36M plates or

angles, and ASTM F3125, Grade A325 high-strength bolts.

3. Bolts shall be furnished with washers.

5.3 Welding Electrodes:

1. AWS D1.1 and AWS D1.3, E70 electrode.

5.4 Interlock Sealant:

1. Subject to compliance with this Special Note, the interlock sealant shall meet the following:
   a. Hydrophilic waterstop (swells in contact with water).
   b. Tested and certified to prevent water from passing thru interlock joints under 5 bars (approximately 70 PSI) of pressure.
   c. Remains flexible at 41 DEGF.
   d. Remains bonded to sheet pile.
   e. Compatible with steel piling and to be placed in the female (socket) interlock along the full length of the sheet pile.
   f. Installed by the Manufacturer.

5.5 Grout:

1. A mixture of cement, water, bentonite, and air having a consistency which will flow under a very low head.
2. Type I cement conforming to Section 801 of the Standard Construction Specifications.
3. Use fine powdered (less than No. 200 sieve), high yielding sodium bentonite.
4. Use grout that has a maximum seven (7) day compressive strength of 80 pounds per square inch (psi) when tested using applicable portions of ASTM C 109.
5. Batched to following proportions:
   a. One (1) 94-lb bag of Type I Cement; to
   b. 25 lbs. powdered sodium bentonite; to
   c. 30 gallons of water.

5.6 Reinforced Concrete Load Distributor: A concrete load distributor is required along the entire length of the steel sheet pile cutoff wall, as shown in the Construction Plans. The load distributor will also serve as part of the roadbed. The concrete load distributor shall use materials meeting the following:

5.6.1 Cast-in-Place Concrete: Conform to Section 601.02 and 601.03 of the Standard Specifications for Class B concrete.

5.6.2 Reinforcing Steel: Epoxy coated No. 4 steel reinforcing bars at 12-inch by 12-inch centers conforming to Section 602 and 811 of the Standard Specifications.

5.7 Material Delivery, Handling, and Storage:

Comply with the Standard Specifications. Develop and submit plans for the delivery, storage, and handling of sheet piling at least 30 days prior to delivery of piles to the job site.

5.7.1 Delivery and Storage:

Materials delivered to the site must be new and undamaged and must be accompanied by certified test reports, as required by this Special Note. Provide the manufacturer's logo and mill identification mark on the sheet piling. Store sheet piling in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks; as a minimum, support on level blocks or racks spaced not more than 10 feet apart and not more than 2 feet from the ends. Storage of sheet piling should also facilitate required inspection activities.

Sheet piling must be transported and stored so that the interlock sealant does not come into contact with standing water. Standing water increases the risk of expansion of the product after polymerization and loss of adhesion to the steel.

5.7.2 Handling:

Lift piles to ensure that the maximum permissible curvature is not exceeded. Holes may be burned above the cutoff length for lifting piles into the leads as specified in this Special Note. If there is evidence of pile damage during driving due to the holes, the Engineer may restrict the burning of holes. Do not damage piles when dragging piles across the ground.

Inspect piles for excessive curvature and for damage before transporting them from the storage area to the driving area and immediately prior to placement in the driving leads. Curvature in the pile must be measured with the pile laying on a flat surface and is the distance between the pile at the mid-length of the pile and the flat surface. During the inspection for curvature, the piling may be laid in either a concave up or down position in accordance with the manufacturer’s storage recommendations for sheet piling with interlock sealant. Straightness of the sections of piles must conform to AWS D1.5M/D1.5, Section 3.5.1.1. Piles having excessive curvature will be rejected.

5.7.3 Damaged Piles:

Inspect each pile for straightness and structural damage before transporting them to the project site and immediately prior to placement in the driving leads. Piles which are damaged during delivery, storage, or handling to the extent they are rendered unsuitable for the work, in the opinion of the Engineer, will be rejected and removed from the project site, or may be repaired, if approved.

6.0 MATERIALS TESTING AND ACCEPTANCE

6.1 Materials Sampling and Testing will be in accordance with Section 106 of the Standard Specifications, the Department’s current "Kentucky Methods", the current "Manual of Field Sampling and Testing Practices", and other referenced documents.

6.2 Concrete and grout testing will be performed at the minimum frequencies indicated in the Manual of Field Sampling and Testing Practices or as necessary to determine the quality. The tests will be performed according to the procedures outlined by the applicable ASTM or Kentucky Method. Concrete compressive strength specimens will be cast and tested for compressive strength according to KM 64-305 and ASTM C 39, respectively. In cases of failures, the Department will evaluate concrete cylinder results according to KM 64-314 to determine whether in-place investigation may be necessary. Grout specimens will be tested for compressive strength according to ASTM C109.

6.3 Use only materials accepted by the Department before use. The Engineer may suspend work on the wall if the Contractor does not have acceptance of materials to be used and there is no other work on the wall that may be done. If work is suspended due to lack of material acceptance, the Contractor is fully liable for additional cost from the suspension of work. No additional contract time resulting from the suspension of work will be allowed.

6.4 Sheet piling and appurtenant materials must be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site. Testing of sheet piling for mechanical properties must be performed after the completion of all rolling and forming operations. Testing of sheet piling must meet the requirements of ASTM A6/A6M.

7.0 CONSTRUCTION

Construct the permanent sheet piling according to the Construction Plans, the Standard Specifications, and the requirements below in a manner that creates a hydraulic barrier through the embankment. In all cases, provide materials and personnel conforming to the Materials Section and Personnel Experience Requirements of this Special Note. Quality Control Plan personnel requirements are included in Appendix C of this Special Note.

7.1 Preconstruction Condition Survey:

1. The preconstruction condition survey will be performed by the Department's representative.

7.2 Vibration Control:

1. The Department’s representative will perform vibration monitoring during the pile installation operations.
2. Vibration monitoring will be performed by the Department using seismographs and geophones within 300 feet from the pile installation activity at locations identified by the Department’s representative.
3. Do not begin the pile installation before baseline readings of ambient vibrations are collected.
4. The vibration during the pile installation activities must be limited to a peak particle velocity of not more than 2 inches per seconds.
5. During pile installation activities, monitor the vibrations to ensure the limits are not exceeded.
6. If the limits are exceeded, cease the pile installation activity causing the

vibration until the Department's representative and the Engineer are on site to observe the structures nearest to the vibration monitor which has exceeded the limits. Submit an alternative installation method or plan for limiting vibration levels to the Engineer for review and approval before continuing to install sheet piling.

7. The Contractor is responsible for all damages resulting from the pile installation operations and must take whatever measures necessary to maintain peak particle velocity within the specified limit.

7.3 Preparation:

1. Do not begin sheet pile installation until the earthwork in the area where sheet piles are to be installed has been completed to the extent that grade elevation is as indicated on the details shown in Construction Plans.

7.4 Installation Records:

1. Maintain a pile record for each sheet pile installed.
2. Indicate on the installation record: installation dates and times, type and size of hammer, rate of operation, total driving time, dimensions of driving helmet and cap used, pile locations, tip elevations, ground elevations, cut-off elevations, and any reheading or cutting of piles. If sheet piles are installed using an impact hammer include the blows required per foot for each foot of penetration and the final driving resistance in blows for the final 6 inches.
3. Record any unusual problems during installation.
4. Submit complete records to Engineer.

7.5 Interlock Sealant:

1. Use the manufacturer's installation personnel to install interlock sealant before or after the sheet pilling is delivered to the site.
2. Apply the sealant under shelter if installed after the sheet piling is delivered to the site.
3. Install sealant in the female (socket) interlock along the full length of the sheet piling.
4. Place sealant in the trailing interlock end of a single sheet pile section. The trailing interlock end is defined as the interlock opposite of the driving direction.
5. Keep the sheet piling horizontal and the interlocks dry and free of grease during installation.
6. Cleaning the interlocks with compressed air, a steel wire brush or high-pressure water jet if necessary.
7. Block or clog the ends at the top and bottom using a mastic to prevent the sealant from flowing out of the ends of the sheet piling when the interlocks are filled.
8. Chamfer the leading interlock (side in direction of driving) on the top and the sealed trailing interlock cut on the toe.
9. A commercial soapy product may be used to lubricate the interlock sealant before driving. Spread the lubricant in the sealed interlock using a paintbrush or by any other means. Only lubricants recommended by the interlock manufacturer and approved by the Engineer shall be used.

7.6 Pile Length Markings:

1. Mark each pile prior to installing with horizontal lines at one-foot intervals. Mark the interval number on pile every 5 feet from pile tip.

7.7 Placement:

1. Any excavation required within the area where sheet pilings are to be installed must be completed prior to placing sheet pilings. Pilings properly placed and installed must be interlocked throughout their length with adjacent pilings to form a continuous diaphragm throughout the length or run of piling wall.
2. Install sheet piles straight and plumb and to the dimensions shown on the Construction Plans. Ensure that the wall is compatible with the horizontal and vertical alignment indicated in the Construction Plans.
3. Pilings must be carefully located as indicated on the Construction Plans. Pilings must be placed plumb with out-of-plumbness not exceeding 1/4 inch per foot of length and true to line. Place the pile so the face will not be more than 6 inches from vertical alignment at any point. Top of pile at elevation of cut-off must be within 1/2 inch horizontally and 2 inches vertically of the location indicated in the Construction Plans. Manipulation of piles to force them into position will not be permitted.
4. Check all piles for heave. Re-install all heaved piles to the required tip elevation at the top of bedrock.
5. Adequately support and hold sheet piles in correct vertical position during installation.
6. Provide temporary wales, templates, or guide structures to ensure that the pilings are placed and installed to the correct alignment. Use a system of structural framing sufficiently rigid to resist lateral and any driving forces and to adequately support the sheet piling until design tip elevation is achieved. Use two templates, at least, when placing each piling not less than 20 feet apart. Templates must not move when supporting sheet piling. Fit templates with wood blocking to bear against the web of each alternate sheet pile and hold the sheet pile at the design location alignment. Provide outer template straps or other restraints as necessary to prevent the sheets from warping or wandering from the alignment. Mark template for the location of the leading edge of each alternate sheet pile. If in view, also mark the second level to assure that the piles are vertical and in position. If two guide marks cannot be seen, other means must be used to keep the sheet pile vertical along its leading edge.

7.8 Sheet Pile Installation:

1. Use method to installing piling that will not cause damage to nearby buildings, structures, or embankments.
2. Hammers must be steam, air, or diesel drop, single-acting, double-acting, differential-acting, or vibratory type. The driving energy of the hammers must be as recommended by the manufacturer for the piling weights, conditions, and subsurface materials to be encountered.
3. Install piling to the top of bedrock. Each pile section must be seated individually on the rock surface. Estimated piling tip elevations are shown in the Construction Plans. Contact the Engineer should any pile section refuse

at elevations above the estimated tip elevations shown in the Construction Plans. Do not continue the installation of subsequent sheet piles until directed by the Engineer.

4. Sheet piles shall be installed as one continuous member unless splices are permitted by Engineer.
5. Install pilings with the proper size hammer and by approved methods so as not to subject the pilings to damage and to ensure proper interlocking throughout their lengths.
6. Complete installation of each sheet pile section in less than two hours after the piles contacts water (i.e., ground water).
7. Maintain hammers in proper alignment during driving operations by use of leads or guides attached to the hammer.
8. Caution must be taken in the sustained use of vibratory hammers when a hard driving condition is encountered to avoid interlock-melt or damages. Discontinue the use of vibratory hammers and impact hammers employed when the penetration rate due to vibratory loading is one foot or less per minute. Care must be taken that the temperature in the interlocks never exceeds 130°C (risk of damaging the seal) when using a vibratory hammer.
9. Employ a protecting cap in driving when using impact hammers to prevent damage to the tops of pilings.
10. Use cast steel shoe to prevent damage to the tip of the sheet piling.
11. Remove and replace pilings damaged during installation or driven out of interlock at the Contractor's expense.
12. Install pilings without the aid of a water jet.
13. Firmly seat the pile in place on bedrock by the application of a number of reduced energy hammer blows.
14. Take adequate precautions to ensure that pilings are installed plumb.
15. If an open socket is leading, the interlock shall be prepared in a manner that minimizes packing material into it and ease driving for the next sheet.
16. If at any time the forward or leading edge of the piling wall is found to be out-of-plumb in the plane of the wall, the piling being driven must be driven to the required depth and tapered pilings must be provided and driven to interlock with the out-of-plumb leading edge or other approved corrective measures must be taken to insure the plumbness of succeeding pilings.
17. Obstructions restricting installation of piling to the specified penetration must be removed or reduced by predrilling.
18. Pilings must extend up to the elevation indicated for the top of pilings.
19. A tolerance of 1 inch above the indicated top elevation will be permitted.
20. Predrilling of piles should be performed along the entire wall alignment.
21. Predrilling shall extend slightly into the bedrock surface, as directed by the Engineer. This will serve to provide a flat surface to better seat the sheet piles and will provide a better seal to prevent seepage. Changes in sheet pile and predrilling quantities resulting from this operation, will be reflected in the actual paid quantities.
22. Seat the pile tip on the bedrock surface after predrilling by driving the pile in accordance with this Special Note. The seating must not damage the pile and the pile interlocks.
23. Predrilling should be performed in a manner that eliminates obstruction including but not limited to boulders, rocks, rubble, existing foundations or timbers that may prevent the installation of piling to bedrock, threaten piling

damage or cause piling to drift from required location horizontally.

7.9 Cutting-Off and Splicing:

1. Obtain cut off elevations from the Construction Plans.
2. Provide additional length of piling sufficient to allow cutting off the top of the piling that may be damaged during installation and construction operations.
3. Pilings installed to the point where additional penetration cannot be attained and are extending above the required top elevation in excess of the specified tolerance must be cut off to the required elevation. Pilings driven below the required top elevation and pilings damaged by driving and cut off to permit further driving must be extended as required to reach the top elevation by splicing when directed at no additional cost.
4. If directed, pilings must be spliced as required to install them to depths greater than shown and extend them up to the required top elevation.
5. Pilings adjoining spliced pilings must be full length unless otherwise approved. Splices are not allowed in adjoining pilings.
6. Ends of pilings to be spliced must be squared before splicing to eliminate dips or camber.
7. Where splices are permitted, make splices by full penetration groove welding the entire cross-sectional area of the piles at the splice location.
8. Pilings must be spliced together with concentric alignment of the interlocks so that there are no discontinuities, dips or camber at the abutting interlocks.
9. Spliced pilings must be free sliding and able to obtain the maximum swing with contiguous pilings. Welding of splices must conform to the requirements of these Notes. Shop and field welding, qualification of welding procedures, welders, and welding operators must be in accordance with AWS D1.1/D1.1M.
10. Perform welding using operators who have passed the above referenced welding qualification tests during previous 12-month period prior to commencement of required welding.
11. The tops of pilings excessively battered during driving must be trimmed when directed. Piling cut-offs are the property of the Contractor and must be removed from the site.
12. Cut holes in pilings for bolts, rods, drains or utilities in a neat and workmanlike manner, as shown in the Construction Plans or as directed. Use a straight edge in cuts made by burning to avoid abrupt nicks. Bolt holes in piling must be drilled or may be burned and reamed by approved methods which will not damage the surrounding metal. Holes other than bolt holes must be reasonably smooth and the proper size for rods and other items to be inserted.

7.10 Pulling and Reinstallation:

1. Damaged piling includes but is not necessarily limited to sheet piles bent, buckled, cracked, with fabrication tolerances beyond those indicated in ASTM A328/A328M, or with any other defect, as determined by the Engineer, that would weaken the sheet pile.
2. Should any sheet pile, as determined by the Engineer, be damaged or otherwise not conform to these Notes, withdraw sheet pile and install another sheet pile in its place.

3. Provide pulling holes in pilings, as required.
4. Extractors must be of suitable type and size.
5. Care shall be exercised during pulling of pilings to avoid damaging piling interlocks and adjacent construction.
6. If adjacent permanent construction has been damaged during pulling, the Contractor will be required to repair this construction at no extra cost.
7. Pull pilings one sheet at a time.
8. Pilings fused together must be separated prior to pulling, unless the Contractor demonstrates, to the satisfaction of the Engineer, that the pilings cannot be separated.
9. The Contractor will not be paid for the removal of pilings damaged beyond structural use due to proper care not being exercised during pulling.
10. Any piling so pulled and found to be damaged, to the extent that its usefulness in the structure is impaired, must be removed and replaced at the Contractor's expense.
11. Pilings pulled and found to be in satisfactory condition as determined by the Engineer may be re-installed when directed by the Engineer.
12. If it is impossible to withdraw damaged or rejected sheet pile, install additional sheet piles at locations indicated by Engineer.

7.11 Sorting, Cleaning, Inventorying and Storing:

1. Pulled pilings must be sorted, cleaned, inventoried and stored by type into groups as:
   a. Piling usable without reconditioning.
   b. Piling requiring reconditioning.
   c. Piling damaged beyond structural use.

7.12 Damaged Piles:

1. Any pile damaged by reason of internal defects or by improper installation must be corrected by one of the following methods approved by the Engineer for the pile in question. These methods also apply to piles installed out of its proper location or out of plumb.
   a. The pile is withdrawn, if practicable, and replaced by a new and, if necessary, longer pile.
   b. One or more replacement piles are installed adjacent to the defective pile.

7.13 Inspection of Piling Installation:

1. Perform continuous inspection during pile installation.
2. Inspect all piles for compliance with tolerance requirements.
3. Inspect the interlocked joints of installed pilings extending above ground.
4. Pilings found to be out of interlock must be removed and replaced at the Contractor's expense.

7.14 Survey Data:

1. After the installation of each pile group is complete, submit an as-built survey showing actual location and top elevation of each pile.
2. Submit an as-built survey showing actual location and top elevation of each pile within 7 calendar days of completing the pile installation. Do not proceed

with placing roadway surface until the Engineer has reviewed the survey. Present a survey in such form that it gives deviation from plan location in two perpendicular directions and elevations of each pile to nearest half inch. Survey must be prepared and certified by a land surveyor licensed in the state of Kentucky.

7.15 Reinforced Concrete Load Distributor:

1. Construct the concrete load distributor in accordance with Section 601.03 of the Standard Specifications.
2. The load distributor must be constructed using cast-in-place concrete to a minimum thickness of 6-inches.
3. Reinforce the concrete slab with epoxy-coated No. 4 bars placed on 12-inch centers in both directions.
4. Place reinforcing bars in the middle of the concrete slab, ensuring that placement and vibration of concrete does not result in the migration of the reinforcement within the slab.
5. Provide a minimum of 2.5 inches of clear cover from the base and top surface of the concrete slab. Provide 3 inches of clear cover from each vertical face on the sides of the concrete slab.
6. Embed the top of the sheet piling a minimum of 2-inches into base of the concrete load distributor.

7.16 Site Drainage Control:

1. Provide positive control and discharge of all surface water that will affect construction.
2. Maintain all pipes or conduits used to control surface water during construction.
3. Repair damage caused by surface water at no additional cost. Upon substantial completion of the wall, remove surface water control pipes or conduits from the site. Alternatively, with the approval of the Engineer, pipes or conduits that are left in place, may be fully grouted and abandoned or left in a way that protects the structure and all adjacent facilities from migration of fines through the pipe or conduit and potential ground loss.

8.0 ACCEPTANCE REQUIREMENTS

8.1 Acceptance Criteria:

A sheet pile section is considered acceptable when the following criteria are met:

1. The section is installed to the top of bedrock near the elevations shown in the Construction Drawings.
2. The section satisfies the placement and installation criteria of Section 7.0 of this Special Note.
3. The section is not deemed damage by the Engineer as described in this Special Note.

8.2 Sheet Piling Rejection:

If sheet pile section does not satisfy the acceptance criterion outlined above, the Engineer will implement the procedures below.

1. The Engineer will evaluate the installation records and will reject installation methods and/or sheet pile sections that do not satisfy the requirements of this Special Note. Propose alternative methods and install replacement sheet piling as described by this Special Note. Install replacement sheet piling at no additional cost to the Department and with no extension of contract time.
2. Contractor modifications may include but are not limited to; additional predrilling prior to installing the sheet piles; increasing the pre-drillhole diameter to further remove potential obstructions; modifying the installation methods; or modifying the installation equipment. Any modifications to the installation method and/or equipment must be approved by the Engineer prior to implementing. The sheet pilling sections may not be shortened beyond the lengths shown in the Construction Plans.

9.0 RECORDS

Provide the Engineer with one (1) hard and one (1) electronic copy of the following final records:

1. As-built drawings showing:
   a. The actual location and orientation of the sheet piling, including deviation from specified tolerances and Contract location.
   b. The actual sheet piling tip and cutoff elevation for each individual section.
   c. The location of pile splices, where required.
   d. The diameter and the horizontal and vertical extents of predrilling.
   e. The locations of any instrumentation installed and any required instrumentation records.
   f. Finished ground line elevations along the wall alignment.
2. Post-Construction survey report.
3. Other records as required by Section 106 of the Standard Specifications.
4. Structural Steel records required by Section 607 of the Standard Specifications.
5. Construction Records including:
   a. Contractor's name.
   b. Pile hammer operator's name.
   c. Date and time of start and finish of installation.
   d. Installation difficulties.
   e. Damaged, pulled, and re-installed sheet piling sections.
   f. Groundwater conditions, if encountered during predrilling.
   g. Grouting records performed for predrilling including: date, time and method grout was placed; cement type; and volume of grout placed.

10.0 MEASUREMENT AND PAYMENT

10.1 The Department will pay for the accepted quantities of "Sheet Piling" at the contract unit bid price per "Square Foot" of sheet pile and will measure quantities as shown in the Construction Plans. This will constitute full compensation for all costs including materials, labor, tools, equipment, and other incidental items required for constructing the permanent steel sheet pile cutoff wall as described herein and shown in the Construction Plans. This may include but is not limited to the following items: installing piling, installing interlock sealant, splicing, cutoff, removing damaged piling, all required submittals and records, and other incidental items necessary to provide a complete permanent steel sheet pile cutoff wall. Earth moving, drainage, and any other earthwork necessary to complete these walls and not included in other bid items, is included as an incidental part of this work.

10.2 Additional areas of wall, required due to unforeseen foundation conditions or other reasons and approved in writing by the Engineer, will be paid at the contract unit prices. In the event a decrease in the area of a wall is required, subject to acceptance by the Department, payment will be reduced due to the decrease in the wall area or length.

10.3 The Department will pay for the reinforced concrete load distributor at the contract unit bid prices for “Concrete-Class B” and “Steel Reinforcement-Epoxy Coated” at the quantities shown in the Construction Plans. This will constitute full compensation for all costs including materials, labor, tools, equipment, and other incidental items required for constructing the reinforced concrete load distributor as described herein and shown in the Construction Plans.

10.4 All measurement will be based on plan dimensions or dimensions as ordered in writing.

10.5 Refer to an Appendix to this Special Note for Project Specific Measurement and Payment information.

Special Note for Steel Sheet Pile Cutoff Wall
Appendix A – Project Specific Requirements

KY Highway 15 – Panbowl Lake Dam (Item # 10-172.00)

A1.0 STEEL SHEET PILE CUTOFF WALL CONTRACTOR REQUIREMENTS

The requirements for the Steel Sheet Pile Cutoff Wall specialty contractor are below. Submit applicable documentation, including references, that the sheet pile cutoff wall specialty contractor is pre-qualified by the Department for "Grouting for Ground Improvements" (Work Item I39) OR “Jet Grouting” (Work Item J20).

A2.0

Section A2.0 not used.

A3.0 SUBSURFACE CONDITIONS

The boring logs from drilling performed in 2021 and 2022 are presented on the Soil Profile Sheets in the Construction Plans. Subsurface Conditions may vary between boring locations. Boulders and cobbles are known to be present within the dam embankment fill and will be encountered during sheet pile cutoff wall installation.

A4.0 ADDITIONAL CORE BORINGS

Perform additional core borings as directed by the Engineer where it is deemed that insufficient geotechnical data is available along the steel sheet pile cutoff wall. The Department was unable to perform core borings from the beginning of the wall at STA 124+53 to STA 125+38 due to the presence of energized overhead utility lines. The estimated bedrock surface shown in the Construction Plans is based on interpolation and/or extrapolation from available data which includes auger and SPT sampler refusal elevations. Coring was only performed in a select number of the borings along the sheet pile cutoff wall to confirm bedrock conditions. Additional core borings must be executed in accordance with the following criteria:

- Advance through the embankment fill using rotary drilling techniques;
- Do not advance through the embankment fill with the aid of water, air, or other downhole pressurized drilling techniques;
- Backfill the borings using the tremie method with a mixture of cement, bentonite, water, and sand that produces a maximum compressive strength (f'_c) of 80 pounds per square inch (psi);
- Do not leave the boring sidewalls unsupported at any time during drilling and/or backfilling operations. A boring is considered unsupported if any interval is not braced by either the backfill mix or drill tooling; and

- Conduct a 5-foot rock core run to confirm the presence of bedrock. Perform coring within temporary steel casing seated into the bedrock to develop a hydraulic seal.

A5.0 LOCATIONS OF EXISTING STRUCTURE UNITS

Approximate locations and elevations of the existing structures and pavement are provided in the Construction Plans. These locations are based on plans in the Department's archives. However, the Department does not guarantee the accuracy of these locations. Field verify the locations of existing structure units prior to installing sheet piling.

The existing highway plans are Drawing No. HES 15-1(14). Plans for information only are accessible on the Department's Construction Procurement webpage, along with other project related information including the Geotechnical and Hydrologic and Hydraulic (H&H) Report(s).

A6.0 STAGING AREA

The location selection for the construction staging area is the responsibility of the Contractor. This area shall be used for parking, equipment and material storage. If an on-site staging area is desired by the Contractor, written request to the Department shall be submitted describing the specific location of the proposed staging area. If on-site, the Contractor is responsible for any necessary signage, fencing, safety, sediment/erosion control, improvements, restorations, etc. in these areas.

A7.0 SHEET PILING PROTECTOR/SHOE

All sheet piling shall be installed with protective steel piling shoes as indicated on the Construction Plans. The piling shoes shall meet the material and installation requirements of this Special Note.

A8.0 PREDRILLING WITHIN EMBANKMENT DAMS

Predrilling is required to install the sheet piling to the top of bedrock elevations shown on the Construction Plans. Exercise extreme care while predrilling and backfilling within the embankment prior to the installation of the sheet piling. Predrilling shall be performed using rotary drilling techniques using soil and/or rock augers and core barrels. Under no circumstances shall predrilling be performed with the aid of water, air, or other downhole pressurized methods. Grout backfilling of the annular space created by predrilling shall be performed by the tremie method or other approved non-*pressurized* method. Predrilling holes shall not be left unsupported overnight and should be cased or grouted at the end of each workday. The cost of repairing any damage to the embankment or embankment slopes will be at the expense of the Contractor and with no extension of contract time.

The estimated bedrock elevations provided in the Construction Plans are based on the subsurface investigation performed in 2021 and 2022 as part of the Phase I and Phase II investigations, respectively. Variations in both the bedrock surface and distribution of

boulders may occur between boring locations. The Contractor is responsible for reviewing the subsurface investigation results provided in this Special Note and in the Construction Plans. The bedrock depths shown on the Plan are considered an estimate and will depend on the exact subsurface conditions along the sheet pile wall alignment.

A9.0 GROUNDWATER CONTROL

Groundwater measurements were collected during the Phase I subsurface investigation at the time of drilling and seven days after drilling in observations wells. It is unknown if the observations wells installed during the Phase I investigation are still functioning. Measured groundwater elevations within the borings at the time of drilling ranged from approximately 702 to 709 ft. Groundwater measurements taken approximately seven days after the completion of drilling within the observation wells ranged from approximately 704 to 710 ft. The groundwater elevation is expected to be greatly influenced by the water elevation in Panbowl Lake and the North Fork of the Kentucky River. The Contractor shall be prepared for encountering groundwater during predrilling and providing any necessary measures to control the groundwater.

A10.0 SITE INSPECTIONS

During construction, observe the conditions of the lakeside embankment slope daily for signs of ground movement or distress in the vicinity of the wall. Notify the Engineer immediately if signs of movements such as new cracks, sloughing, or increased size of old cracks are observed. If the Engineer determines that the movements exceed those anticipated for typical sheet piling construction and requires corrective action, immediately take corrective actions necessary to stop the movement or perform repairs at no additional cost to the Department.

A11.0 FIELD ADJUSTMENTS AND CONSTRUCTION TOLERANCES

Field adjustments of individual sheet locations may be necessary due to the existing structure units or other considerations. The Engineer shall be notified prior to making adjustments to the locations that exceed the specified tolerances. Sheet piling sections that deviate from the Construction Plans shall be approved by the Engineer prior to installation.

A12.0 PILE TEST PROGRAM

If pre-drilling is performed for all sheet pile sections, a pile test program will not be required. However, a pile test program shall be conducted along the wall alignment where predrilling is not performed. At a minimum, the test program shall consist of two adjacent production pile sections. The pile sections shall be installed separately to demonstrate proper interlocking along the length of the adjacent sections. The pile test program will confirm that the required pile tip elevations on bedrock can be achieved by the Contractor's approved installation methods and equipment without damaging the sheet pile sections. The Contractor shall submit an alternative installation method and/or equipment to the Engineer for review if the test program reveals the Contractor cannot properly install the sheet piles to the required tip elevation without the risk of damage.

A13.0 CONSTRUCTION SEQUENCE

The Contractor shall begin construction of the sheet pile cutoff wall at STA 129+75, designated in the Construction Plans as the end of the wall. Constructing the wall beginning at STA 129+75 provides additional time for the relocation of the overhead utility lines (to be performed by others) at the east end of the wall, designated as the beginning of the wall. This also provides additional time to perform supplemental core borings in this area.

A14.0 SUMMARY OF SPT SAMPLE AND CORE BORINGS

Eighteen Standard Penetration Test (SPT) sample borings and three SPT sample borings with rock coring were performed in May of 2022 along KY 15 at the West Embankment. An additional three SPT sample borings and two SPT sample boings with rock coring were performed in June of 2021 at the West Embankment as part of the Phase I investigation. SPT “N” values, auger refusal depths, and depths to bedrock confirmed by rock coring are provided in the table below. The Contractor shall use the information provided in the table below to verify the estimated bedrock line shown on the Construction Plans, as well as to identify appropriate methods for predrilling that meets the requirements of this Special Note.

Hole No.	North (Y)	East (X)	Elev. (Z)	SPT Sample [3]		Auger Refusal Depth (ft.)	Bedrock Depth (ft.)	Bedrock Core		
				Sample Depth (ft.)	SPT “N” Value			Sample Depth (ft.)	RQD (%)	REC (%)
B-101	3735232.2	5606132.5	740.15	50.5-50.8	50/0.3’	50.8	--	--	--	--
B-102	3735227.3	5606162.4	740.31	52.0-52.3	50/0.3’	52.3	--	--	--	--
B-103	3735224.2	5606182.1	740.44	52.5-52.7	50/0.2’	52.5	--	--	--	--
B-104	3735221.3	5606202.0	740.62	54.0-54.2	50/0.2’	54.2	--	--	--	--
B-105	3735218.6	5606221.8	740.88	54.0-54.1	50/0.1’	54.0	54.5	54.5-56.5	60	100
								56.5-58.5	75	95
								58.5-61.5	53	90
B-106	3735212.8	5606281.6	741.27	31.0-31.1	50/0.1’	31.0*	--	--	--	--
B-107	3735211.6	5606301.6	741.37	34.8-34.9	50/0.1’	34.8*	--	--	--	--
B-108	3735210.6	5606321.6	741.50	39.0-40.2	23-17-50/0.2’	39.0*	--[1]	40.5-41.5	0	30
								41.5-44.0	0	48
								44.0-46.5	0	44
B-109	3735208.9	5606361.6	741.76	21.8-21.9	50/0.1’	21.9*	--	--	--	--

Hole No.	North (Y)	East (X)	Elev. (Z)	SPT Sample [3]		Auger Refusal Depth (ft.)	Bedrock Depth (ft.)	Bedrock Core		
				Sample Depth (ft.)	SPT "N" Value			Sample Depth (ft.)	RQD (%)	REC (%)
B-110	3735208.2	5606381.6	741.91	54.5-54.6	50/0.1'	51.6	--	--	--	--
B-111	3735207.6	5606401.6	742.06	12.5-12.6	50/0.1'	12.6*	--	--	--	--
B-112	3735206.9	5606421.6	742.21	53.0-53.1	50/0.1'	53.1	--	--	--	--
B-113	3735206.2	5606441.6	742.36	--	--	53.0	53.0	54.0-57.0	47	97
								57.0-60.0	63	93
B-114	3735205.9	5606461.6	742.48	23.8-23.9	50/0.1'	23.8*	--	--	--	--
B-115	3735205.5	5606481.6	742.58	28.7-28.8	50/0.1'	28.7*	--	--	--	--
B-116	3735205.2	5606501.6	742.70	37.2-37.4	50/0.2'	37.4*	--	--	--	--
B-117	3735205.2	5606521.6	742.84	50.5-50.6	50/0.1'	50.5	--	--	--	--
B-118	3735205.2	5606561.7	743.07	33.0-33.1	50/0.1'	33.0*	--	--	--	--
B-119[2]	3735205.8	5606621.6	743.48	--	--	--	--	--	--	--
B-120[2]	3735205.4	5606641.7	743.70	--	--	--	--	--	--	--
B-121	3735216.4	5606691.7	743.24	5.5-5.5	50/0.0'	5.5	5.5	5.5-8.0	16	96
								8.0-11.0	30	30
								11.0-15.5	76	98
B-1	3735242.0	5606110.1	739.75	49.5-50.5	18-50/0.5'	50.5	50.5	50.5-55.5	10	74
B-2	3735152.1	5606246.3	735.79	40.5-41.6	18-3-50/0.1'	41.6*	--	--	--	--
B-3	3735207.1	5606347.7	741.64	54.5-54.6	50/0.1'	54.6*	--	--	--	--
B-4	3735260.5	5606414.4	720.59	24.5-25.7	19-20-50/0.2	25.7*	--	--	--	--
B-5	3735202.9	5606544.3	743.10	46.0-46.3	50/0.3'	46.3	46.3	46.3-51.3	40	92
Minimum						5.5	5.5		0	30
Average						39.9	35.1		36.2	75.9
Maximum						54.6	54.5		76	100

Notes:
(1) Bedrock not encountered. Refusal encountered on material interpreted as a boulder. Recovered rock core visually classified as boulder fill.
(2) B-119 and B-120 not performed due to overhead utilities.
(3) SPT samples shown for 2021 borings are those that experienced refusal at either boring termination or the top of bedrock.
* Interpreted as premature auger refusal.

A15.0 TOP OF BEDROCK ELEVATIONS

The Phase I and Phase II subsurface exploration for this project consisted of rock core borings (with varying quantities of soil sampling) and SPT sample borings performed to auger refusal. Sample locations and intervals are shown on the Driller's Subsurface Log in Appendix B. The embankment is known to be constructed of rock fill consisting of shot rock, boulders, cobbles, and varying amounts of rock fragments, as confirmed at select locations of the subsurface investigation. Therefore, the "auger refusal" depths associated with the SPT sample borings do not necessarily correspond to competent bedrock but could indicate the presence of very stiff soil, weathered bedrock, boulders, or rock remnants. The bedrock depths presented in A14.0 are based on the Geologist or Engineer's evaluation of rock core specimens obtained from the rock core borings.

As the result of energized overhead utility lines, the Department was not able to perform exploratory borings near the east end of the proposed sheet pile cutoff wall. The plot of "Assumed Rockline" shown in the Construction Plans is based on interpolation and/or extrapolation from available bedrock data including some refusal elevations from SPT borings. The plotted "Assumed Rockline" elevations shall be considered an estimate and the nature of the top of bedrock beyond and between boring locations will likely vary. As required by this Special Note, the sheet piles shall be installed to the top of bedrock and each pile section must be seated individually on the rock surface. The actual rockline may occur at elevations higher or lower than the assumed rockline shown in the Construction Plans. Preparations shall be made to account for variability in the rockline.

Despite efforts to define a reasonable top of bedrock elevation, it will be necessary to establish procedures to evaluate the encountered top of bedrock elevations during construction. Submit a plan and proposed criteria to confirm that bedrock has been encountered, rather than a boulder, when pre-drilling and installing sheet piles for the cutoff wall. The plan should include measures to ensure each pile section is seated individually on the bedrock surface. In developing these criteria, consider at least:

- known subsurface conditions;
- equipment being used;
- operator experience; and
- prior experience in similar subsurface conditions with boulders present.

The use of a single operator and an operator with experience installing sheet piles in similar subsurface conditions is important to the successful completion of this work.

A16.0 MEASUREMENT AND PAYMENT

A16.1 The Department will measure and pay for the accepted quantity of "Sheet Piling" as described in the Contract Plans, Section 10 of this Special Note, and below, at the Contract Unit Bid Price per Square Foot of sheet pile. The Department considers payment as full compensation for all costs and delays associated with sheet piling including but not limited to all materials, handling, storing, labor, equipment, tools, interlock sealant, and incidentals necessary to complete the work as necessary by this Special Note.

A16.2 Measurement of “Steel Piling” will be in projected square feet, to the nearest foot, from the pile tip to cut-off elevation and to the horizontal limits shown on the Construction Plans. Sheet piling extending above the cut-off elevation and beyond the horizontal limits shown on the Constructions Plans will be considered as waste. Payment will not be made for damaged or rejected sheet piling or sheet piling classified as waste by the Engineer. For sheet piling directed to be cut off before reaching the estimated tip elevation shown in the Construction Plans, the portion cut off will be measured for payment as the difference between the total length of piling shown on the plans for that location and the length of piling installed below the point of cut-off.

A16.3 The Department will measure and pay for the accepted quantity of "Pre-Drilling for Piles" as described in the Contract Plans and below at the Contract Unit Bid Price per Linear Foot of pre-drilling. The Department considers payment as full compensation for all costs and delays associated with pre-drilling including but not limited to all materials, labor, equipment, tools, and incidentals necessary to complete the work as necessary by this Special Note.

A16.4 Section A16.4 not used.

A16.5 The Department will measure and pay for the accepted quantity "Grout" as described in this Special Note at the Contract Unit Bid Price per Cubic yard of grout. The Department considers payment as full compensation for all costs and delays associated with the grouting required to backfill the annular space resulting from pre-drilling. This includes but is not limited to all materials, labor, equipment, tools, and incidentals necessary to complete the work as necessary by this Special Note.

A16.6 The Department will measure and pay for the accepted quantity of "Rock Soundings" and “Rock Coring” as described in the Contract Plans and below at the Contract Unit Bid Price per Linear Foot of sounding and/or coring. The Department considers payment as full compensation for all costs and delays associated with rock soundings and coring including but not limited to all materials, labor, equipment, tools, and incidentals necessary to complete the work as necessary by this Special Note.

A16.7 The “Sheet Piling”, “Grouting”, “Pre-Drilling for Piles”, “Rock Soundings”, and “Rock Corings” quantities shown in the Construction Plans are based on interpretations of existing subsurface data and horizontal projections of known bedrock surface and

boulder/obstruction fields. Variations in the elevation of the bedrock surface and boulder/obstruction fields may occur between boring and coring locations. The “Sheet Piling”, “Grouting”, “Pre-Drilling for Piles”, “Rock Soundings”, and “Rock Corings” quantities shown in the Construction Plans shall therefore be considered an estimate and may fluctuate based on the exact subsurface conditions along sheet pile cutoff wall.

A16.8 Adjustment of base bid unit quantities for “Sheet Piling”, “Grouting”, “Pre-Drilling for Piles”, “Rock Soundings”, and “Rock Corings” shall be made in accordance with contract unit prices. Adjustment will be made on the total square footage of sheet piling installed, not individual sheets. In the event a decrease in quantity of sheet pile, grout, rock soundings/corings, and/or pre-drilling is required, subject to acceptance by the Department, payment will be reduced in accordance with the contract unit prices. Additional areas of sheet piling, grout, rock soundings/corings, and/or pre-drilling required where the bedrock surface and boulder/obstruction fields differs from those shown in the Construction Plans or other unforeseen conditions, will be paid at the contract unit prices.

Code	Pay Item	Pay Unit
24787EN	Sheet Piling	Square Foot
08039	Pre-Drilling for Piles	Linear Foot
23911EC	Grout	Cubic Yard
20745ED	Rock Soundings	Linear Foot
20746ED	Rock Corings	Linear Foot

UTILITIES AND RAIL CERTIFICATION NOTE

Breathitt County
STP 0151(093)
FD52 013 0015 016-018
Mile point: 16.000 TO 18.000
Panbowl Lake drainage and safety improvements along KY 15.
ITEM NUMBER: 10-172.00 Parent Project 10-376

PROJECT NOTES ON UTILITIES

These Impact note are specifically intended the Sheet Wall Construction section not the project in its entirety. Any work pertaining to these utility facilities is defined in the bid package and is to be carried out as instructed by the Kentucky Transportation Cabinet. The contractor will be responsible for any coordination or adjustments that are discussed or quantified in the proposal.

NOTE: DO NOT DISTURB THE FOLLOWING FACILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

Kentucky Frontier Gas, LLC - Natural Gas

The Contractor is fully responsible for protection of all utilities listed above

THE FOLLOWING FACILITY OWNERS ARE RELOCATING/ADJUSTING THEIR FACILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

American Electric Power – Electric. Relocation Date Complete by 10/15/22

Thacker-Grigsby Telephone Company, Inc. – Telephone. Relocation Date Complete by 10/15/22

AT&T - KY – Telephone. Relocation Complete by 10/31/22

City of Jackson – Water. Relocation Complete by 9/30/22

UTILITIES AND RAIL CERTIFICATION NOTE

Breathitt County
STP 0151(093)
FD52 013 0015 016-018
Mile point: 16.000 TO 18.000
Panbowl Lake drainage and safety improvements along KY 15.
ITEM NUMBER: 10-172.00 Parent Project 10-376

THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE OWNER OR THEIR SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

Not Applicable

THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☒ **No Rail Involvement** ☐ **Rail Involved** ☐ **Rail Adjacent**

UTILITIES AND RAIL CERTIFICATION NOTE

Breathitt County
STP 0151(093)
FD52 013 0015 016-018
Mile point: 16.000 TO 18.000
Panbowl Lake drainage and safety improvements along KY 15.
ITEM NUMBER: 10-172.00 Parent Project 10-376

AREA FACILITY OWNER CONTACT LIST

Facility Owner	Address	Contact Name	Phone	Email
American Electric Power - Electric	12333 Kevin Avenue Ashland KY 41102	Ellis McKnight	6064361329	ermcknight@aep.com
AT&T - KY - Telephone	102 Walters Rd Pikeville KY 41501	Jack Salyer	6064249328	js2299@att.com
City of Jackson - Sewer	333 Broadway Jackson KY 41339	Laura Thomas	6066667069	angiecombs@setel.com
City of Jackson - Water	333 Broadway Jackson KY 41339	Laura Thomas	6066667069	angiecombs@setel.com
Kentucky Frontier Gas, LLC - Natural Gas	2963 Route 321 N. Prestonsburg KY 41653	Mike Harris	6068862431	hpowers@kyfrontiergas.com
Thacker-Grigsby Telephone Company, Inc. - Telephone	PO Box 789 Hindman KY 41822	Freddie Williams	6067859500	f.williams@tgtel.com

221042

PROPOSAL BID ITEMS

Report Date 8/15/22

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	533.00	TON		$	
0020	00100		ASPHALT SEAL AGGREGATE	5.00	TON		$	
0030	00103		ASPHALT SEAL COAT	.60	TON		$	
0040	00214		CL3 ASPH BASE 1.00D PG64-22	380.00	TON		$	
0050	00356		ASPHALT MATERIAL FOR TACK	4.10	TON		$	
0060	00388		CL3 ASPH SURF 0.38B PG64-22	710.00	TON		$	
0070	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
0080	02677		ASPHALT PAVE MILLING & TEXTURING	642.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0090	00071		CRUSHED AGGREGATE SIZE NO 57	279.00	TON		$	
0100	00078		CRUSHED AGGREGATE SIZE NO 2	1,342.00	TON		$	
0110	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	10.00	EACH		$	
0120	01984		DELINEATOR FOR BARRIER - WHITE	26.00	EACH		$	
0130	02014		BARRICADE-TYPE III	4.00	EACH		$	
0140	02159		TEMP DITCH	100.00	LF		$	
0150	02160		CLEAN TEMP DITCH	100.00	LF		$	
0160	02200		ROADWAY EXCAVATION	1,613.00	CUYD		$	
0170	02360		GUARDRAIL TERMINAL SECTION NO 1	1.00	EACH		$	
0180	02367		GUARDRAIL END TREATMENT TYPE 1	1.00	EACH		$	
0190	02381		REMOVE GUARDRAIL	527.00	LF		$	
0200	02555		CONCRETE-CLASS B	180.00	CUYD		$	
0210	02562		TEMPORARY SIGNS	300.00	SQFT		$	
0220	02572		QUALITY CONTROL	1.00	LS		$	
0230	02602		FABRIC-GEOTEXTILE CLASS 1	2,956.00	SQYD		$	
0240	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0250	02671		PORTABLE CHANGEABLE MESSAGE SIGN	4.00	EACH		$	
0260	02701		TEMP SILT FENCE	650.00	LF		$	
0270	02704		SILT TRAP TYPE B	2.00	EACH		$	
0280	02705		SILT TRAP TYPE C	4.00	EACH		$	
0290	02707		CLEAN SILT TRAP TYPE B	2.00	EACH		$	
0300	02708		CLEAN SILT TRAP TYPE C	4.00	EACH		$	
0310	02726		STAKING	1.00	LS		$	
0320	03171		CONCRETE BARRIER WALL TYPE 9T	486.00	LF		$	
0330	04953		TEMP RELOCATION OF SIGNAL HEAD	8.00	EACH		$	
0340	05950		EROSION CONTROL BLANKET	500.00	SQYD		$	
0350	05952		TEMP MULCH	500.00	SQYD		$	
0360	05953		TEMP SEEDING AND PROTECTION	30.00	SQYD		$	
0370	05963		INITIAL FERTILIZER	.10	TON		$	
0380	05964		MAINTENANCE FERTILIZER	.10	TON		$	
0390	05992		AGRICULTURAL LIMESTONE	.40	TON		$	
0400	06511		PAVE STRIPING-TEMP PAINT-6 IN	5,584.00	LF		$	
0410	06568		PAVE MARKING-THERMO STOP BAR-24IN	66.00	LF		$	

221042

PROPOSAL BID ITEMS

Report Date 8/15/22

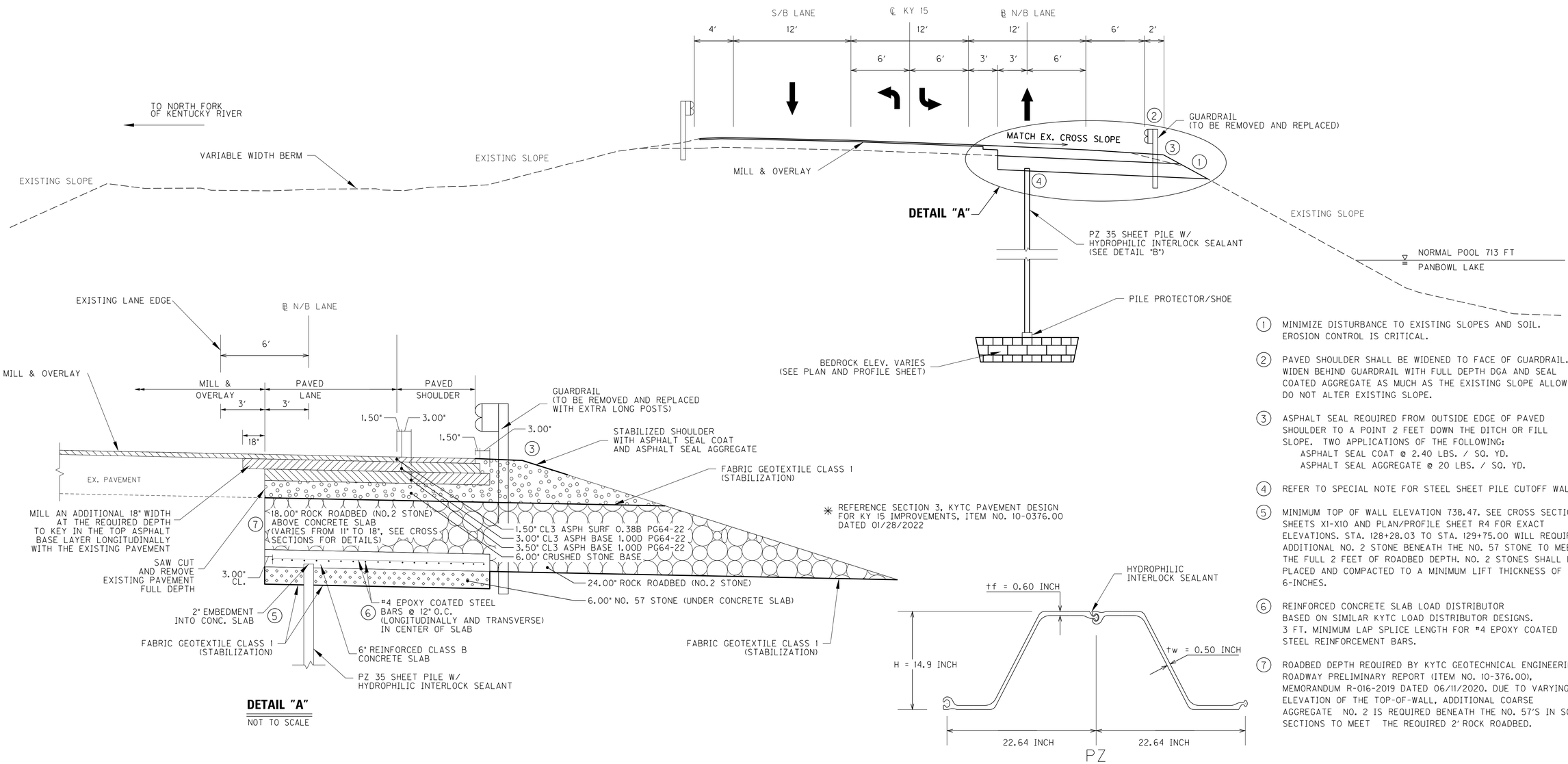
LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0420	06573		PAVE MARKING-THERMO STR ARROW	1.00	EACH		$	
0430	06574		PAVE MARKING-THERMO CURV ARROW	11.00	EACH		$	
0440	06593		PAVEMENT MARKER TYPE V-B Y/R	23.00	EACH		$	
0450	06610		INLAID PAVEMENT MARKER-MW	9.00	EACH		$	
0460	08039		PRE-DRILLING FOR PILES (REVISED 8/15/2022)	12,064.00	LF		$	
0470	08151		STEEL REINFORCEMENT-EPOXY COATED (REVISED 8/15/2022)	13,600.00	LB		$	
0480	08901		CRASH CUSHION TY VI CLASS BT TL2	2.00	EACH		$	
0490	20191ED		OBJECT MARKER TY 3	2.00	EACH		$	
0500	20430ED		SAW CUT	596.00	LF		$	
0510	20745ED		ROCK SOUNDINGS	120.00	LF		$	
0520	20746ED		ROCK CORINGS	15.00	LF		$	
0530	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	500.00	LF		$	
0540	22664EN		WATER BLASTING EXISTING STRIPE	2,500.00	LF		$	
0550	23261EC		PAVE MARK-THERMO-X-WALK-24 IN	101.00	LF		$	
0560	23911EC		GROUT (REVISED 8/15/2022)	1,403.00	CUYD		$	
0570	24189ER		DURABLE WATERBORNE MARKING-6 IN W	3,495.00	LF		$	
0580	24190ER		DURABLE WATERBORNE MARKING-6 IN Y	2,857.00	LF		$	
0600	24787EN		SHEET PILING	24,127.00	SQFT		$	
0610	24880EC		REMOVE PAVEMENT MARKER	22.00	EACH		$	

Section: 0003 - MOBILIZATION & DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0620	02568		MOBILIZATION	1.00	LS		$	
0630	02569		DEMOBILIZATION	1.00	LS		$	

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	R2

TYPICAL SECTIONS
KY 15 PANBOWL LAKE SHEET PILE CUTOFF WALL



DETAIL "A"
NOT TO SCALE

✳ REFERENCE SECTION 3, KYTC PAVEMENT DESIGN FOR KY 15 IMPROVEMENTS, ITEM NO. 10-0376.00 DATED 01/28/2022

PZ 35 HOT ROLLED SHEET PILE

DETAIL "B"
NOT TO SCALE

1. MINIMIZE DISTURBANCE TO EXISTING SLOPES AND SOIL. EROSION CONTROL IS CRITICAL.
2. PAVED SHOULDER SHALL BE WIDENED TO FACE OF GUARDRAIL. WIDEN BEHIND GUARDRAIL WITH FULL DEPTH DGA AND SEAL COATED AGGREGATE AS MUCH AS THE EXISTING SLOPE ALLOWS. DO NOT ALTER EXISTING SLOPE.
3. ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT 2 FEET DOWN THE DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING:
   ASPHALT SEAL COAT @ 2.40 LBS. / SQ. YD.
   ASPHALT SEAL AGGREGATE @ 20 LBS. / SQ. YD.
4. REFER TO SPECIAL NOTE FOR STEEL SHEET PILE CUTOFF WALL.
5. MINIMUM TOP OF WALL ELEVATION 738.47. SEE CROSS SECTION SHEETS X1-X10 AND PLAN/PROFILE SHEET R4 FOR EXACT ELEVATIONS. STA. 128+28.03 TO STA. 129+75.00 WILL REQUIRE ADDITIONAL NO. 2 STONE BENEATH THE NO. 57 STONE TO MEET THE FULL 2 FEET OF ROADBED DEPTH. NO. 2 STONES SHALL BE PLACED AND COMPACTED TO A MINIMUM LIFT THICKNESS OF 6-INCHES.
6. REINFORCED CONCRETE SLAB LOAD DISTRIBUTOR BASED ON SIMILAR KYTC LOAD DISTRIBUTOR DESIGNS. 3 FT. MINIMUM LAP SPLICE LENGTH FOR #4 EPOXY COATED STEEL REINFORCEMENT BARS.
7. ROADBED DEPTH REQUIRED BY KYTC GEOTECHNICAL ENGINEERING ROADWAY PRELIMINARY REPORT (ITEM NO. 10-376.00), MEMORANDUM R-016-2019 DATED 06/11/2020. DUE TO VARYING ELEVATION OF THE TOP-OF-WALL, ADDITIONAL COARSE AGGREGATE NO. 2 IS REQUIRED BENEATH THE NO. 57'S IN SOME SECTIONS TO MEET THE REQUIRED 2' ROCK ROADBED.

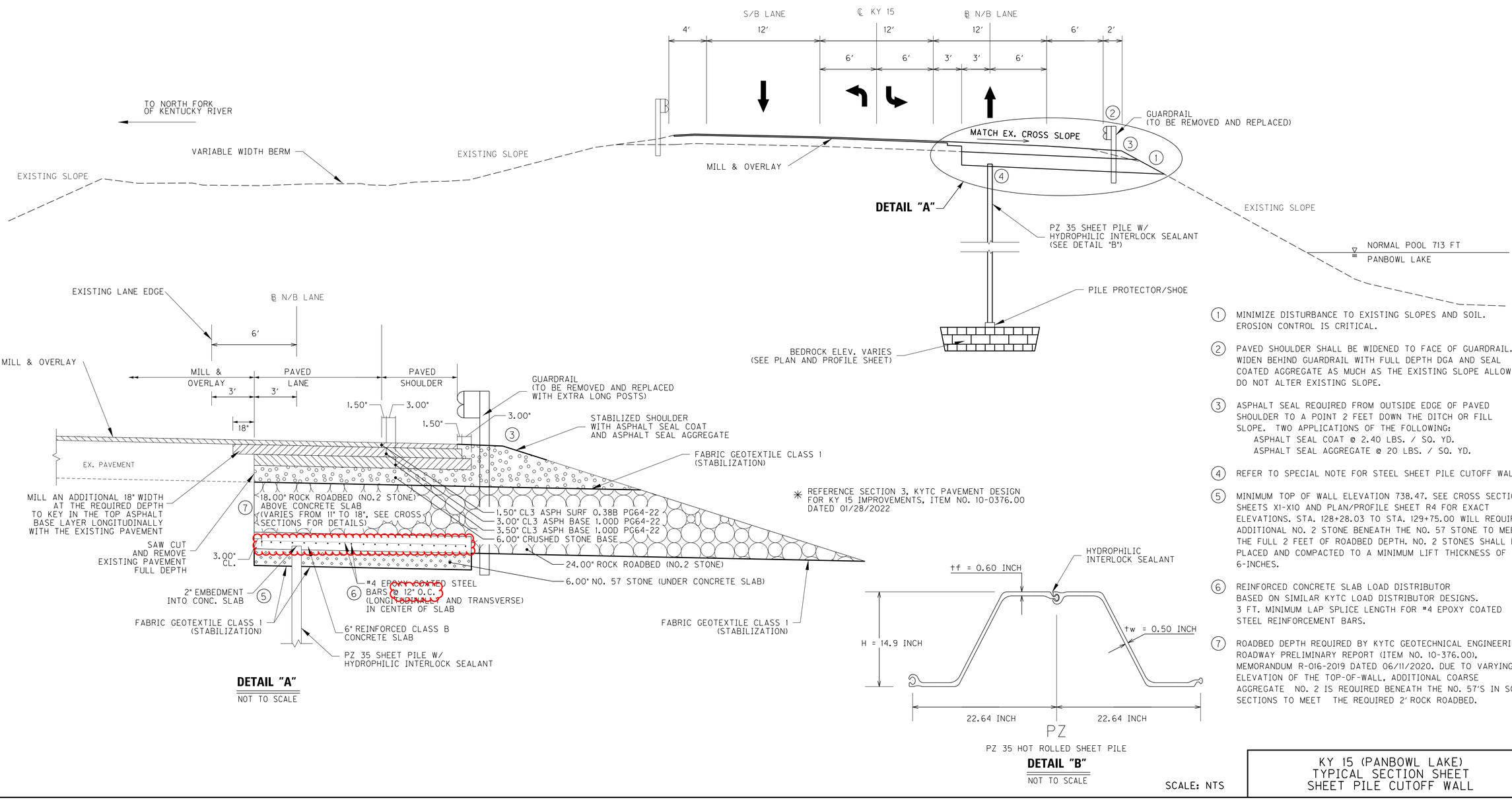
SCALE: NTS

KY 15 (PANBOWL LAKE)
TYPICAL SECTION SHEET
SHEET PILE CUTOFF WALL

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	R2

REVISED 08-11-2022

TYPICAL SECTIONS
KY 15 PANBOWL LAKE SHEET PILE CUTOFF WALL



DETAIL "A"

NOT TO SCALE

✳ REFERENCE SECTION 3, KYTC PAVEMENT DESIGN FOR KY 15 IMPROVEMENTS, ITEM NO. 10-0376.00 DATED 01/28/2022

PZ 35 HOT ROLLED SHEET PILE

DETAIL "B"

NOT TO SCALE

SCALE: NTS

1. MINIMIZE DISTURBANCE TO EXISTING SLOPES AND SOIL. EROSION CONTROL IS CRITICAL.
2. PAVED SHOULDER SHALL BE WIDENED TO FACE OF GUARDRAIL. WIDEN BEHIND GUARDRAIL WITH FULL DEPTH DGA AND SEAL COATED AGGREGATE AS MUCH AS THE EXISTING SLOPE ALLOWS. DO NOT ALTER EXISTING SLOPE.
3. ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT 2 FEET DOWN THE DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING:
   ASPHALT SEAL COAT @ 2.40 LBS. / SQ. YD.
   ASPHALT SEAL AGGREGATE @ 20 LBS. / SQ. YD.
4. REFER TO SPECIAL NOTE FOR STEEL SHEET PILE CUTOFF WALL.
5. MINIMUM TOP OF WALL ELEVATION 738.47. SEE CROSS SECTION SHEETS X1-X10 AND PLAN/PROFILE SHEET R4 FOR EXACT ELEVATIONS. STA. 128+28.03 TO STA. 129+75.00 WILL REQUIRE ADDITIONAL NO. 2 STONE BENEATH THE NO. 57 STONE TO MEET THE FULL 2 FEET OF ROADBED DEPTH. NO. 2 STONES SHALL BE PLACED AND COMPACTED TO A MINIMUM LIFT THICKNESS OF 6-INCHES.
6. REINFORCED CONCRETE SLAB LOAD DISTRIBUTOR BASED ON SIMILAR KYTC LOAD DISTRIBUTOR DESIGNS. 3 FT. MINIMUM LAP SPLICE LENGTH FOR #4 EPOXY COATED STEEL REINFORCEMENT BARS.
7. ROADBED DEPTH REQUIRED BY KYTC GEOTECHNICAL ENGINEERING ROADWAY PRELIMINARY REPORT (ITEM NO. 10-376.00), MEMORANDUM R-016-2019 DATED 06/11/2020. DUE TO VARYING ELEVATION OF THE TOP-OF-WALL, ADDITIONAL COARSE AGGREGATE NO. 2 IS REQUIRED BENEATH THE NO. 57'S IN SOME SECTIONS TO MEET THE REQUIRED 2' ROCK ROADBED.

KY 15 (PANBOWL LAKE)
TYPICAL SECTION SHEET
SHEET PILE CUTOFF WALL

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	R2A

GENERAL SUMMARY

ITEM CODE	ITEM	UNIT					TOTAL PROJECT
00071	CRUSHED AGGREGATE SIZE NO. 57 ⑩	TONS					279
00078	CRUSHED AGGREGATE SIZE NO. 2 ⑫	TONS					1,342
01982	DELINEATOR FOR GUARDRAIL M/W	EACH					10
01984	DELINEATORS FOR BARRIER - WHITE	EACH					26
02014	BARRICADE TYPE III	EACH					4
02159	TEMP DITCH ⑧	LF					100
02160	CLEAN TEMPORARY DITCH ⑧	LF					100
02200	ROADWAY EXCAVATION	CU YD					1,613
02360	GUARDRAIL TERMINAL SECTION TYPE 1	EACH					1
02367	GUARDRAIL END TREATMENT TYPE 1	EACH					1
02381	REMOVE GUARDRAIL	LF					527
02555	CONCRETE-CLASS B ⑪	CU YD					180
02562	TEMPORARY SIGNS	SQ FT					300
02568	MOBILIZATION (3%)	LS					1
02569	DEMOBILIZATION (1.5%)	LS					1
02572	QUALITY CONTROL	LS					1
02602	FABRIC-GEOTEXTILE CLASS 1 ⑨	SQ YD					2,956
02650	MAINTAIN & CONTROL TRAFFIC	LS					1
02671	PORTABLE CHANGEABLE MESSAGE SIGN	EACH					4
02701	TEMP SILT FENCE ⑧	LF					650
02704	SILT TRAP TYPE B ⑧	EACH					2
02705	SILT TRAP TYPE C ⑧	EACH					4
02707	CLEAN SILT TRAP TYPE B ⑧	EACH					2
02708	CLEAN SILT TRAP TYPE C ⑧	EACH					4
02726	STAKING	LS					1
03171	CONCRETE BARRIER WALL TYPE 9T ⑦	LF					486
04953	TEMP RELOCATION OF SIGNAL HEAD	EACH					8
05950	EROSION CONTROL BLANKET ⑧	SQ YD					500
05952	TEMP MULCH ⑧	SQ YD					500
05953	TEMP SEEDING AND PROTECTION ⑧	SQ YD					30
05963	INITIAL FERTILIZER ⑧	TON					0.1
05964	MAINTENANCE FERTILIZER ⑧	TON					0.1
05992	AGRICULTURAL LIMESTONE ⑧	TON					0.4
06511	PAVE STRIPING-TEMP PAINT-6IN	LF					5,584
06568	PAVE MARKING-THERMO STOP BAR-24IN	LF					66
06573	PAVE MARKING-THERMO STR ARROW	EACH					1
06574	PAVE MARKING-THERMO CURV ARROW	EACH					11
06593	INLAID PAVEMENT MARKER-BY	EACH					23
06610	INLAID PAVEMENT MARKER-MW	EACH					9
08039	PRE-DRILLING FOR PILES	LF					12,064
08151	STEEL REINFORCEMENT-EPOXY COATED	LB					13,600
08901	CRASH CUSHION TY VI CLASS BT TL2	EACH					2
20191ED	OBJECT MARKER TYPE 3	EA					2
20430ED	SAW CUT	LF					596
20745ED	ROCK SOUNDING	LF					120
20746ED	ROCK CORING	LF					15
21802EN	GUARDRAIL - STEEL W BEAM-S FACE (7 FT POST)	LF					500
22664EN	WATER BLASTING EXISTING STRIPE	LF					2,500
23261EC	PAVE MARK-THERMO-X-WALK-24 IN	LF					101
23911EC	GROUT	CU YD					1,403
24189ER	DURABLE WATERBORNE MARKING-6 IN W	LF					3,495
24190ER	DURABLE WATERBORNE MARKING-6 IN Y	LF					2,857
24787EN	SHEET PILING	SF					24,127
24880EC	REMOVE PAVEMENT MARKER	EA					22

NOTES

ALL ASPHALT MIXTURES SHALL BE ESTIMATED AT 110 LBS. PER SQ. YD. PER INCH OF DEPTH, UNLESS NOTED OTHERWISE.

① ESTIMATED AT 115 LBS. PER SQ. YD. PER INCH OF DEPTH.

② THIS INCLUDES FULL DEPTH DGA SHOULDER WEDGE

③ TWO APPLICATIONS PER PAVING AREA

④ ESTIMATED AT 20 LBS. PER SQ. YD. (SIZE NO. 8 OR 9 M)

⑤ ESTIMATED AT 2.4 LBS. PER SQ. YD.

⑥ ASPHALT MATERIAL FOR TACK SHALL BE APPLIED IN BETWEEN EACH LAYER OF ASPHALT. ESTIMATED @ 0.84 LBS PER SQ. YD.

⑦ TEMPORARY CONCRETE BARRIER BECOMES THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF PROJECT.

⑧ EROSION CONTROL QUANTITIES ARE BASED ON THE PROBABLE AMOUNT OF EROSION CONTROL FEATURES AS ESTIMATED BY THE DESIGNER.

⑨ FOR PLACEMENT UNDER THE 2 FT. ROCK ROADBED & GRANULAR EMBANKMENT

⑩ FOR THE 6" GRANULAR EMBANKMENT UNDER THE 6" CONCRETE SLAB

⑪ FOR THE 6" CONCRETE SLAB CAPPING THE SHEET PILE CUTOFF WALL

⑫ FOR THE ROCK ROADBED CONSTRUCTION

TOTAL PROJECT EARTHWORK

EXCAVATION		EMBANKMENT	
1,613	CY COMMON	866	CY ROCK ROADBED
		180	CY GRAN. EMB.
1,613	CY EXCAVATION	1,046	CY EMBANKMENT

PAVING AREAS

ITEM					TOTAL PROJECT
	SQUARE YARDS				
1.50" CL3 ASPH SURF 0.38B PG 64-22					8,612
3.00" CL3 ASPH BASE 1.00D PG 64-22					1103
3.50" CL3 ASPH BASE 1.00D PG 64-22					1031
6.00" CRUSHED STONE BASE					1050
ASPHALT SEAL AGGREGATE					248
ASPHALT SEAL COAT					248
ASPHALT MATERIAL FOR TACK					9715

PAVING SUMMARY

ITEM CODE	ITEM	UNIT					TOTAL PROJECT
3	CRUSHED STONE BASE ① ②	TON					533
100	ASPHALT SEAL AGGREGATE ③ ④	TON					5
103	ASPHALT SEAL COAT ③ ⑤	TON					0.6
214	CL3 ASPH BASE 1.00D PG 64-22	TON					380
356	ASPHALT MATERIAL FOR TACK ⑥	TON					4.1
388	CL3 ASPH SURF 0.38B PG 64-22	TON					710
2676	MOBILIZATION FOR MILL & TEXT	LS					1
2677	ASPHALT PAVE MILLING & TEXT	TON					642

IMPORTANT NOTE

ALL THE QUANTITIES SHOWN ON THESE PLANS ARE INTENDED FOR ESTIMATING PURPOSES ONLY. THE DESIGNER MAKES NO GUARANTEES ABOUT THE ACCURACY OF THESE QUANTITIES FOR CONSTRUCTION PURPOSES.

THE CONTRACTOR WILL BE PAID FOR THE QUANTITIES OF THE ACTUAL WORK PERFORMED.

KY 15 (PANBOWL LAKE)
QUANTITY SUMMARY
SHEET PILE CUTOFF WALL

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	R2A

REVISED 08-11-2022

GENERAL SUMMARY

ITEM CODE	ITEM	UNIT					TOTAL PROJECT
00071	CRUSHED AGGREGATE SIZE NO. 57 ⑩	TONS					279
00078	CRUSHED AGGREGATE SIZE NO. 2 ⑫	TONS					1,342
01982	DELINEATOR FOR GUARDRAIL M/W	EACH					10
01984	DELINEATORS FOR BARRIER - WHITE	EACH					26
02014	BARRICADE TYPE III	EACH					4
02159	TEMP DITCH ⑧	LF					100
02160	CLEAN TEMPORARY DITCH ⑧	LF					100
02200	ROADWAY EXCAVATION	CU YD					1,613
02360	GUARDRAIL TERMINAL SECTION TYPE 1	EACH					1
02367	GUARDRAIL END TREATMENT TYPE 1	EACH					1
02381	REMOVE GUARDRAIL	LF					527
02555	CONCRETE-CLASS B ⑪	CU YD					180
02562	TEMPORARY SIGNS	SQ FT					300
02568	MOBILIZATION (3%)	LS					1
02569	DEMOBILIZATION (1.5%)	LS					1
02572	QUALITY CONTROL	LS					1
02602	FABRIC-GEOTEXTILE CLASS 1 ⑨	SQ YD					2,956
02650	MAINTAIN & CONTROL TRAFFIC	LS					1
02671	PORTABLE CHANGEABLE MESSAGE SIGN	EACH					4
02701	TEMP SILT FENCE ⑧	LF					650
02704	SILT TRAP TYPE B ⑧	EACH					2
02705	SILT TRAP TYPE C ⑧	EACH					4
02707	CLEAN SILT TRAP TYPE B ⑧	EACH					2
02708	CLEAN SILT TRAP TYPE C ⑧	EACH					4
02726	STAKING	LS					1
03171	CONCRETE BARRIER WALL TYPE 9T ⑦	LF					486
04953	TEMP RELOCATION OF SIGNAL HEAD	EACH					8
05950	EROSION CONTROL BLANKET ⑧	SQ YD					500
05952	TEMP MULCH ⑧	SQ YD					500
05953	TEMP SEEDING AND PROTECTION ⑧	SQ YD					30
05963	INITIAL FERTILIZER ⑧	TON					0.1
05964	MAINTENANCE FERTILIZER ⑧	TON					0.1
05992	AGRICULTURAL LIMESTONE ⑧	TON					0.4
06511	PAVE STRIPING-TEMP PAINT-6IN	LF					5,584
06568	PAVE MARKING-THERMO STOP BAR-24IN	LF					66
06573	PAVE MARKING-THERMO STR ARROW	EACH					1
06574	PAVE MARKING-THERMO CURV ARROW	EACH					11
06593	INLAID PAVEMENT MARKER-BY	EACH					23
06610	INLAID PAVEMENT MARKER-MW	EACH					9
08039	PRE-DRILLING FOR PILES	LF					12,064
08151	STEEL REINFORCEMENT-EPOXY COATED	LB					13,600
08901	CRASH CUSHION TY VI CLASS BT TL2	EACH					2
20191ED	OBJECT MARKER TYPE 3	EA					2
20430ED	SAW CUT	LF					596
20745ED	ROCK SOUNDING	LF					120
20746ED	ROCK CORING	LF					15
21802EN	GUARDRAIL - STEEL W BEAM-S FACE (7 FT POST)	LF					500
22664EN	WATER BLASTING EXISTING STRIPE	LF					2,500
23261EC	PAVE MARK-THERMO-X-WALK-24 IN	LF					101
23911EC	GROUT	CU YD					1,403
24189ER	DURABLE WATERBORNE MARKING-6 IN W	LF					3,495
24190ER	DURABLE WATERBORNE MARKING-6 IN Y	LF					2,857
24787EN	SHEET PILING	SF					24,127
24880EC	REMOVE PAVEMENT MARKER	EA					22

NOTES

ALL ASPHALT MIXTURES SHALL BE ESTIMATED AT 110 LBS. PER SQ. YD. PER INCH OF DEPTH, UNLESS NOTED OTHERWISE.

① ESTIMATED AT 115 LBS. PER SQ. YD. PER INCH OF DEPTH.

② THIS INCLUDES FULL DEPTH DGA SHOULDER WEDGE

③ TWO APPLICATIONS PER PAVING AREA

④ ESTIMATED AT 20 LBS. PER SQ. YD. (SIZE NO. 8 OR 9 M)

⑤ ESTIMATED AT 2.4 LBS. PER SQ. YD.

⑥ ASPHALT MATERIAL FOR TACK SHALL BE APPLIED IN BETWEEN EACH LAYER OF ASPHALT. ESTIMATED @ 0.84 LBS PER SQ. YD.

⑦ TEMPORARY CONCRETE BARRIER BECOMES THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF PROJECT.

⑧ EROSION CONTROL QUANTITIES ARE BASED ON THE PROBABLE AMOUNT OF EROSION CONTROL FEATURES AS ESTIMATED BY THE DESIGNER.

⑨ FOR PLACEMENT UNDER THE 2 FT. ROCK ROADBED & GRANULAR EMBANKMENT

⑩ FOR THE 6" GRANULAR EMBANKMENT UNDER THE 6" CONCRETE SLAB

⑪ FOR THE 6" CONCRETE SLAB CAPPING THE SHEET PILE CUTOFF WALL

⑫ FOR THE ROCK ROADBED CONSTRUCTION

TOTAL PROJECT EARTHWORK

EXCAVATION		EMBANKMENT	
1,613	CY COMMON	866	CY ROCK ROADBED
		180	CY GRAN. EMB.
1,613	CY EXCAVATION	1,046	CY EMBANKMENT

PAVING AREAS

ITEM					TOTAL PROJECT
	SQUARE YARDS				
1.50" CL3 ASPH SURF 0.38B PG 64-22					8,612
3.00" CL3 ASPH BASE 1.00D PG 64-22					1103
3.50" CL3 ASPH BASE 1.00D PG 64-22					1031
6.00" CRUSHED STONE BASE					1050
ASPHALT SEAL AGGREGATE					248
ASPHALT SEAL COAT					248
ASPHALT MATERIAL FOR TACK					9715

PAVING SUMMARY

ITEM CODE	ITEM	UNIT					TOTAL PROJECT
3	CRUSHED STONE BASE ① ②	TON					533
100	ASPHALT SEAL AGGREGATE ③ ④	TON					5
103	ASPHALT SEAL COAT ③ ⑤	TON					0.6
214	CL3 ASPH BASE 1.00D PG 64-22	TON					380
356	ASPHALT MATERIAL FOR TACK ⑥	TON					4.1
388	CL3 ASPH SURF 0.38B PG 64-22	TON					710
2676	MOBILIZATION FOR MILL & TEXT	LS					1
2677	ASPHALT PAVE MILLING & TEXT	TON					642

IMPORTANT NOTE

ALL THE QUANTITIES SHOWN ON THESE PLANS ARE INTENDED FOR ESTIMATING PURPOSES ONLY. THE DESIGNER MAKES NO GUARANTEES ABOUT THE ACCURACY OF THESE QUANTITIES FOR CONSTRUCTION PURPOSES.

THE CONTRACTOR WILL BE PAID FOR THE QUANTITIES OF THE ACTUAL WORK PERFORMED.

KY 15 (PANBOWL LAKE)
QUANTITY SUMMARY
SHEET PILE CUTOFF WALL

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	G02

GEOTECHNICAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING ANY OPERATIONS NECESSARY TO EXCAVATE PAVEMENT, BASE MATERIAL, AND EMBANKMENT FILL IN THE DISTURBED LIMITS TO THE REQUIRED TYPICAL SECTION. BOULDERS, SHOT ROCK, AND ROCK FRAGMENTS MAY BE PRESENT AT THE BASE OF THE EXCAVATIONS REQUIRED TO ACHIEVE THE TYPICAL SECTION AND MAY RESULT IN AN UNEVEN SURFACE. THE CONTRACTOR SHALL BE PREPARED TO REMOVE AND/OR REDUCE BOULDERS/SHOT ROCK SUCH THAT A LEVEL BASE IS CREATED ACROSS THE EXCAVATED AREA. THESE OPERATIONS SHALL BE INCIDENTAL TO ROADWAY EXCAVATION. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THIS WORK.

2. EXCAVATED PAVEMENT, BASE MATERIAL, AND SUBGRADE SOILS/EMBANKMENT FILL SHALL NOT BE PLACED IN THE DISTURBED LIMITS EXCAVATION AND SHALL BE WASTED. NO DIRECT PAYMENT FOR HAULING, STOCKPILING, AND/OR DISPOSING OF EXCAVATED MATERIAL SHALL BE PERMITTED.

3. IN ACCORDANCE WITH SECTION 206 OF THE CURRENT STANDARD SPECIFICATIONS, THE MOISTURE CONTENT OF EMBANKMENT MATERIAL SHALL NOT VARY FROM THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE CURRENT VERSION OF KM 64-511 BY MORE THAN +2 PERCENT OR LESS THAN -2 PERCENT. THIS MOISTURE CONTENT REQUIREMENT SHALL HAVE EQUAL WEIGHT WITH THE DENSITY REQUIREMENT WHEN DETERMINING THE ACCEPTABILITY OF EMBANKMENT CONSTRUCTION.

4. ALL SOILS MAY REQUIRE MANIPULATION TO OBTAIN PROPER MOISTURE CONTENT PRIOR TO COMPACTION. DIRECT PAYMENT SHALL NOT BE PERMITTED FOR REHANDLING, HAULING, STOCKPILING, AND/OR MANIPULATING SOILS.

5. ANY SATURATED AND/OR SOFT SUBGRADE AREAS AFTER EXCAVATION SHALL BE DRAINED IF NECESSARY AND STABILIZED WITH KY COARSE AGGREGATE NO. 2 UNDERLAIN WITH FABRIC-GEOTEXTILE, CLASS 1 (STABILIZATION). A THICKNESS OF 2 FEET IS ESTIMATED FOR THIS TREATMENT. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

6. CONSTRUCT A 24-INCH ROCK ROADBED CONSISTING OF COARSE AGGREGATE NO. 2 IN ACCORDANCE WITH SECTION 805 OF THE CURRENT STANDARD SPECIFICATIONS. THE ROADBED SHALL BE UNDERLAIN WITH FABRIC-GEOTEXTILE, CLASS 1 (STABILIZATION) IN ACCORDANCE WITH SECTIONS 214 AND 843 OF THE CURRENT STANDARD SPECIFICATIONS. EXTEND THE ROADBED FROM THE EXCAVATION LIMITS TO THE SHOULDER AS SHOWN IN THE DETAILS AND TYPICAL SECTIONS. WHERE SOFT AND/OR WET SUBGRADE IS ENCOUNTERED, DURING CONSTRUCTION, THE THICKNESS OF THE ROCK ROADBED MAY NEED TO BE ADJUSTED (INCREASED) TO ALSO SERVE AS A WORKING PLATFORM FOR SUBGRADE STABILIZATION. THESE ADJUSTMENTS SHALL BE DIRECTED BY THE ENGINEER. WHERE INDICATED IN THE DETAILS AND TYPICAL SECTION, 6-INCHES OF THE ROCK ROADBED WILL BE REPLACED BY A REINFORCED CONCRETE SLAB. THE PRESENCE OF THE REINFORCED CONCRETE SLAB WILL REDUCE THE REQUIRED THICKNESS OF THE ROCK ROADBED TO 18-INCHES.

7. IF SINKHOLES AND/OR VOIDS ARE ENCOUNTERED DURING CONSTRUCTION, PLEASE CONTACT THE DEPARTMENTS GEOTECHNICAL BRANCH FOR MITIGATION PROCEDURES.

8. THE STEEL SHEET PILES SHALL BE INSTALLED TO BEDROCK IN ACCORDANCE WITH THE STEEL SHEET PILE CUTOFF WALL SPECIAL NOTE. FOR INFORMATION ONLY, THE REFUSAL AND/OR BEDROCK ELEVATIONS AT THE SPT AND CORE BORING LOCATIONS PERFORMED IN MAY 2022, AS WELL AS SAMPLE/CORES OBTAINED IN JUNE 2021, ARE PROVIDED IN THESE NOTES. REFUSAL MAY INDICATE THE PRESENCE OF VERY STIFF SOIL, WEATHERED BEDROCK, BOULDERS, ROCK REMNANTS OR COMPETENT BEDROCK.

9. PRE-DRILLING SHALL BE PERFORMED FOR ALL SHEET PILES IN ACCORDANCE WITH THE STEEL SHEET PILE CUTOFF WALL SPECIAL NOTE OR AS APPROVED BY THE ENGINEER. PRE-DRILLING IS LIKELY TO ENCOUNTER BOULDERS AND ROCK FRAGMENTS.

10. ADDITIONAL CORE BORINGS SHALL BE ADVANCED TO BETTER CHARACTERIZE THE BEDROCK SURFACE ALONG THE SHEET PILE CUTOFF WALL. CORE BORINGS SHALL BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE SPECIAL NOTE FOR STEEL SHEET PILE CUTOFF WALLS. THE DEPARTMENT'S GEOTECHNICAL BRANCH SHALL BE CONTACTED PRIOR TO PERFORMING ANY CORING TO APPROVE THE PROPOSED LOCATIONS. THE STATION LIMITS BELOW REPRESENT AREA(S) WHERE ADDITIONAL CORE BORINGS ARE WARRANTED AS BORINGS WERE NOT PREVIOUSLY ADVANCED IN THIS AREA DUE TO THE PRESENCE OF ENERGIZED OVERHEAD UTILITIES.

APPROXIMATE STATION LIMITS FOR ADDITIONAL CORE BORINGS

STATION 124+53 TO 125+38

SUMMARY OF BORINGS

BORING	STATE PLANE SINGLE ZONE COORDINATES			STATION•	OFFSET•	REFUSAL DEPTH (FT) ••	REFUSAL ELEV. (Z) ••	BEDROCK DEPTH (FT)	BEDROCK ELEV. (Z)
	NORTH (Y)	EAST (X)	ELEV. (Z)						
B-101	3735232.1817	5606132.5500	740.15	129+68.61	14.06 RT.	50.8	689.35	-	-
B-102	3735227.3334	5606162.3883	740.31	129+38.39	11.72 RT.	52.3	688.01	-	-
B-103	3735224.2375	5606182.1472	740.44	129+18.40	10.17 RT.	52.5	687.74	-	-
B-104	3735221.3119	5606201.9742	740.62	128+98.37	8.72 RT.	54.2	686.42	-	-
B-105	3735218.6051	5606221.7901	740.88	128+78.38	7.39 RT.	54.1	686.78	54.5	686.38
B-106	3735212.8368	5606281.6195	741.27	128+18.22	5.26 RT.	31.0	710.17	-	-
B-107	3735211.5577	5606301.6342	741.37	127+98.15	5.02 RT.	34.8	706.57	-	-
B-108	3735210.5877	5606321.6107	741.50	127+78.12	5.00 RT	39.0	702.50	-	-
B-109	3735208.8809	5606361.6076	741.76	127+38.05	4.93 RT.	21.9	719.86	-	-
B-110	3735208.2288	5606381.5969	741.91	127+18.03	4.96 RT.	51.6	690.31	-	-
B-111	3735207.5768	5606401.5863	742.06	126+98.00	4.91 RT.	12.6	729.46	-	-
B-112	3735206.9248	5606421.5757	742.21	126+77.98	4.77 RT.	53.1	689.11	-	-
B-113	3735206.2728	5606441.5649	742.36	126+57.97	4.54 RT.	53.0	689.36	54.0	688.36
B-114	3735205.8763	5606461.5913	742.48	126+37.92	4.48 RT.	23.8	718.68	-	-
B-115	3735205.5034	5606481.5878	742.58	126+17.90	4.36 RT.	28.7	713.88	-	-
B-116	3735205.2445	5606501.6176	742.70	125+97.85	4.26 RT.	37.4	705.30	-	-
B-117	3735205.1670	5606521.6174	742.84	125+77.83	4.25 RT.	50.5	692.34	-	-
B-118	3735205.2420	5606561.6501	743.07	125+37.76	4.21 RT.	33.0	710.07	-	-
B-121	3735216.3808	5606691.7290	743.24	124+07.23	12.54 RT.	5.5	737.74	5.5	737.74
B-1 (2021)	3735241.9686	5606110.1366	739.75	129+91.90	21.80' RT	50.5	689.25	50.5	689.25
B-2 (2021)	3735152.0679	5606246.2776	735.79	128+49.83	57.44' LT	41.6	694.19	-	-
B-3 (2021)	3735207.0666	5606347.6721	741.64	127+51.92	2.58' RT	54.6	687.04	-	-
B-4 (2021)	3735260.5292	5606414.4052	720.59	126+86.51	58.18' RT	25.7	694.89	-	-
B-5 (2021)	3735202.9841	5606544.4306	743.10	125+55.00	2.05' RT	46.3	696.80	46.3	696.80

• BORING LOCATIONS BASED ON SHEET PILE CUTOFF WALL ALIGNMENT

•• REFUSAL MAY INDICATE THE PRESENCE OF VERY STIFF SOIL, WEATHERED BEDROCK, BOULDERS, ROCK REMNANTS OR COMPETENT BEDROCK.

SCALE: N/A

KY 15 (PANBOWL LAKE)
GEOTECHNICAL NOTES

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	G02

REVISED 08-11-2022

GEOTECHNICAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING ANY OPERATIONS NECESSARY TO EXCAVATE PAVEMENT, BASE MATERIAL, AND EMBANKMENT FILL IN THE DISTURBED LIMITS TO THE REQUIRED TYPICAL SECTION. BOULDERS, SHOT ROCK, AND ROCK FRAGMENTS MAY BE PRESENT AT THE BASE OF THE EXCAVATIONS REQUIRED TO ACHIEVE THE TYPICAL SECTION AND MAY RESULT IN AN UNEVEN SURFACE. THE CONTRACTOR SHALL BE PREPARED TO REMOVE AND/OR REDUCE BOULDERS/SHOT ROCK SUCH THAT A LEVEL BASE IS CREATED ACROSS THE EXCAVATED AREA. THESE OPERATIONS SHALL BE INCIDENTAL TO ROADWAY EXCAVATION. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THIS WORK.

2. EXCAVATED PAVEMENT, BASE MATERIAL, AND SUBGRADE SOILS/EMBANKMENT FILL SHALL NOT BE PLACED IN THE DISTURBED LIMITS EXCAVATION AND SHALL BE WASTED. NO DIRECT PAYMENT FOR HAULING, STOCKPILING, AND/OR DISPOSING OF EXCAVATED MATERIAL SHALL BE PERMITTED.

3. IN ACCORDANCE WITH SECTION 206 OF THE CURRENT STANDARD SPECIFICATIONS, THE MOISTURE CONTENT OF EMBANKMENT MATERIAL SHALL NOT VARY FROM THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE CURRENT VERSION OF KM 64-511 BY MORE THAN +2 PERCENT OR LESS THAN -2 PERCENT. THIS MOISTURE CONTENT REQUIREMENT SHALL HAVE EQUAL WEIGHT WITH THE DENSITY REQUIREMENT WHEN DETERMINING THE ACCEPTABILITY OF EMBANKMENT CONSTRUCTION.

4. ALL SOILS MAY REQUIRE MANIPULATION TO OBTAIN PROPER MOISTURE CONTENT PRIOR TO COMPACTION. DIRECT PAYMENT SHALL NOT BE PERMITTED FOR REHANDLING, HAULING, STOCKPILING, AND/OR MANIPULATING SOILS.

5. ANY SATURATED AND/OR SOFT SUBGRADE AREAS AFTER EXCAVATION SHALL BE DRAINED IF NECESSARY AND STABILIZED WITH KY COARSE AGGREGATE NO. 2 UNDERLAIN WITH FABRIC-GEOTEXTILE, CLASS 1 (STABILIZATION). A THICKNESS OF 2 FEET IS ESTIMATED FOR THIS TREATMENT. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

6. CONSTRUCT A 24-INCH ROCK ROADBED CONSISTING OF COARSE AGGREGATE NO. 2 IN ACCORDANCE WITH SECTION 805 OF THE CURRENT STANDARD SPECIFICATIONS. THE ROADBED SHALL BE UNDERLAIN WITH FABRIC-GEOTEXTILE, CLASS 1 (STABILIZATION) IN ACCORDANCE WITH SECTIONS 214 AND 843 OF THE CURRENT STANDARD SPECIFICATIONS. EXTEND THE ROADBED FROM THE EXCAVATION LIMITS TO THE SHOULDER AS SHOWN IN THE DETAILS AND TYPICAL SECTIONS. WHERE SOFT AND/OR WET SUBGRADE IS ENCOUNTERED, DURING CONSTRUCTION, THE THICKNESS OF THE ROCK ROADBED MAY NEED TO BE ADJUSTED (INCREASED) TO ALSO SERVE AS A WORKING PLATFORM FOR SUBGRADE STABILIZATION. THESE ADJUSTMENTS SHALL BE DIRECTED BY THE ENGINEER. WHERE INDICATED IN THE DETAILS AND TYPICAL SECTION, 6-INCHES OF THE ROCK ROADBED WILL BE REPLACED BY A REINFORCED CONCRETE SLAB. THE PRESENCE OF THE REINFORCED CONCRETE SLAB WILL REDUCE THE REQUIRED THICKNESS OF THE ROCK ROADBED TO 18-INCHES.

7. IF SINKHOLES AND/OR VOIDS ARE ENCOUNTERED DURING CONSTRUCTION, PLEASE CONTACT THE DEPARTMENTS GEOTECHNICAL BRANCH FOR MITIGATION PROCEDURES.

8. THE STEEL SHEET PILES SHALL BE INSTALLED TO BEDROCK IN ACCORDANCE WITH THE STEEL SHEET PILE CUTOFF WALL SPECIAL NOTE. FOR INFORMATION ONLY, THE REFUSAL AND/OR BEDROCK ELEVATIONS AT THE SPT AND CORE BORING LOCATIONS PERFORMED IN MAY 2022, AS WELL AS SAMPLE/CORES OBTAINED IN JUNE 2021, ARE PROVIDED IN THESE NOTES. REFUSAL MAY INDICATE THE PRESENCE OF VERY STIFF SOIL, WEATHERED BEDROCK, BOULDERS, ROCK REMNANTS OR COMPETENT BEDROCK.

9. PRE-DRILLING SHALL BE PERFORMED FOR ALL SHEET PILES IN ACCORDANCE WITH THE STEEL SHEET PILE CUTOFF WALL SPECIAL NOTE OR AS APPROVED BY THE ENGINEER. PRE-DRILLING IS LIKELY TO ENCOUNTER BOULDERS AND ROCK FRAGMENTS.

10. ADDITIONAL CORE BORINGS SHALL BE ADVANCED TO BETTER CHARACTERIZE THE BEDROCK SURFACE ALONG THE SHEET PILE CUTOFF WALL. CORE BORINGS SHALL BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE SPECIAL NOTE FOR STEEL SHEET PILE CUTOFF WALLS. THE DEPARTMENT'S GEOTECHNICAL BRANCH SHALL BE CONTACTED PRIOR TO PERFORMING ANY CORING TO APPROVE THE PROPOSED LOCATIONS. THE STATION LIMITS BELOW REPRESENT AREA(S) WHERE ADDITIONAL CORE BORINGS ARE WARRANTED AS BORINGS WERE NOT PREVIOUSLY ADVANCED IN THIS AREA DUE TO THE PRESENCE OF ENERGIZED OVERHEAD UTILITIES.

APPROXIMATE STATION LIMITS FOR ADDITIONAL CORE BORINGS

STATION 124+53 TO 125+38

SUMMARY OF BORINGS

BORING	STATE PLANE SINGLE ZONE COORDINATES			STATION•	OFFSET•	REFUSAL DEPTH (FT) ••	REFUSAL ELEV. (Z) ••	BEDROCK DEPTH (FT)	BEDROCK ELEV. (Z)
	NORTH (Y)	EAST (X)	ELEV. (Z)						
B-101	3735232.1817	5606132.5500	740.15	129+68.61	14.06 RT.	50.8	689.35	-	-
B-102	3735227.3334	5606162.3883	740.31	129+38.39	11.72 RT.	52.3	688.01	-	-
B-103	3735224.2375	5606182.1472	740.44	129+18.40	10.17 RT.	52.5	687.74	-	-
B-104	3735221.3119	5606201.9742	740.62	128+98.37	8.72 RT.	54.2	686.42	-	-
B-105	3735218.6051	5606221.7901	740.88	128+78.38	7.39 RT.	54.1	686.78	54.5	686.38
B-106	3735212.8368	5606281.6195	741.27	128+18.22	5.26 RT.	31.0	710.17	-	-
B-107	3735211.5577	5606301.6342	741.37	127+98.15	5.02 RT.	34.8	706.57	-	-
B-108	3735210.5877	5606321.6107	741.50	127+78.12	5.00 RT	39.0	702.50	-	-
B-109	3735208.8809	5606361.6076	741.76	127+38.05	4.93 RT.	21.9	719.86	-	-
B-110	3735208.2288	5606381.5969	741.91	127+18.03	4.96 RT.	51.6	690.31	-	-
B-111	3735207.5768	5606401.5863	742.06	126+98.00	4.91 RT.	12.6	729.46	-	-
B-112	3735206.9248	5606421.5757	742.21	126+77.98	4.77 RT.	53.1	689.11	-	-
B-113	3735206.2728	5606441.5649	742.36	126+57.97	4.54 RT.	53.0	689.36	54.0	688.36
B-114	3735205.8763	5606461.5913	742.48	126+37.92	4.48 RT.	23.8	718.68	-	-
B-115	3735205.5034	5606481.5878	742.58	126+17.90	4.36 RT.	28.7	713.88	-	-
B-116	3735205.2445	5606501.6176	742.70	125+97.85	4.26 RT.	37.4	705.30	-	-
B-117	3735205.1670	5606521.6174	742.84	125+77.83	4.25 RT.	50.5	692.34	-	-
B-118	3735205.2420	5606561.6501	743.07	125+37.76	4.21 RT.	33.0	710.07	-	-
B-121	3735216.3808	5606691.7290	743.24	124+07.23	12.54 RT.	5.5	737.74	5.5	737.74
B-1 (2021)	3735241.9686	5606110.1366	739.75	129+91.90	21.80' RT	50.5	689.25	50.5	689.25
B-2 (2021)	3735152.0679	5606246.2776	735.79	128+49.83	57.44' LT	41.6	694.19	-	-
B-3 (2021)	3735207.0666	5606347.6721	741.64	127+51.92	2.58' RT	54.6	687.04	-	-
B-4 (2021)	3735260.5292	5606414.4052	720.59	126+86.51	58.18' RT	25.7	694.89	-	-
B-5 (2021)	3735202.9841	5606544.4306	743.10	125+55.00	2.05' RT	46.3	696.80	46.3	696.80

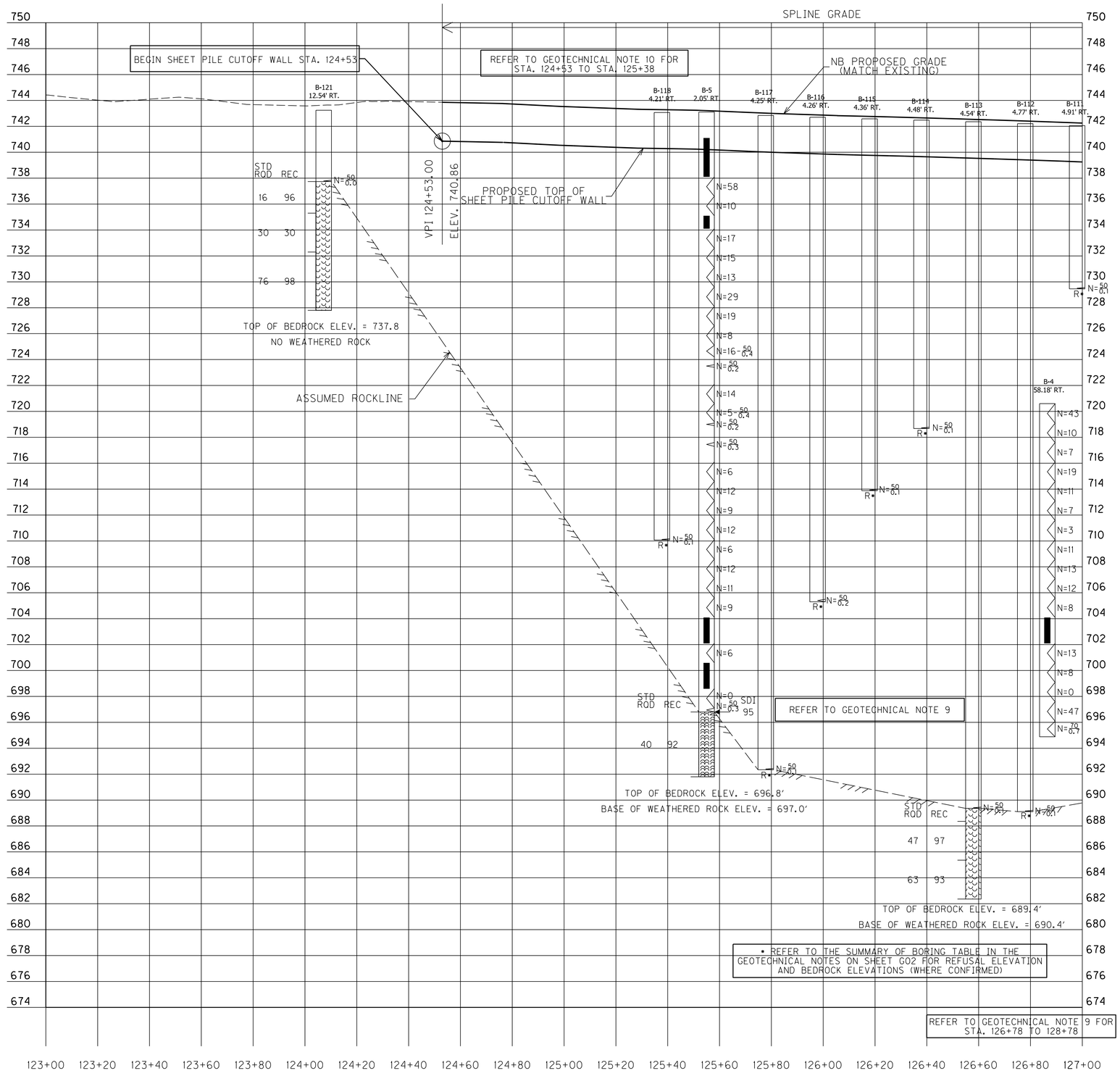
• BORING LOCATIONS BASED ON SHEET PILE CUTOFF WALL ALIGNMENT

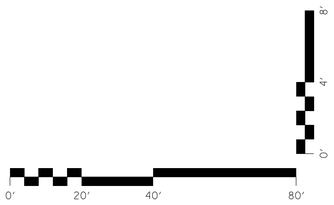
•• REFUSAL MAY INDICATE THE PRESENCE OF VERY STIFF SOIL, WEATHERED BEDROCK, BOULDERS, ROCK REMNANTS OR COMPETENT BEDROCK.

SCALE: N/A

KY 15 (PANBOWL LAKE)
GEOTECHNICAL NOTES

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	G03





DESIGNED BY: HDR Inc.
DATE SUBMITTED: 06/2022

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

BREATHITT

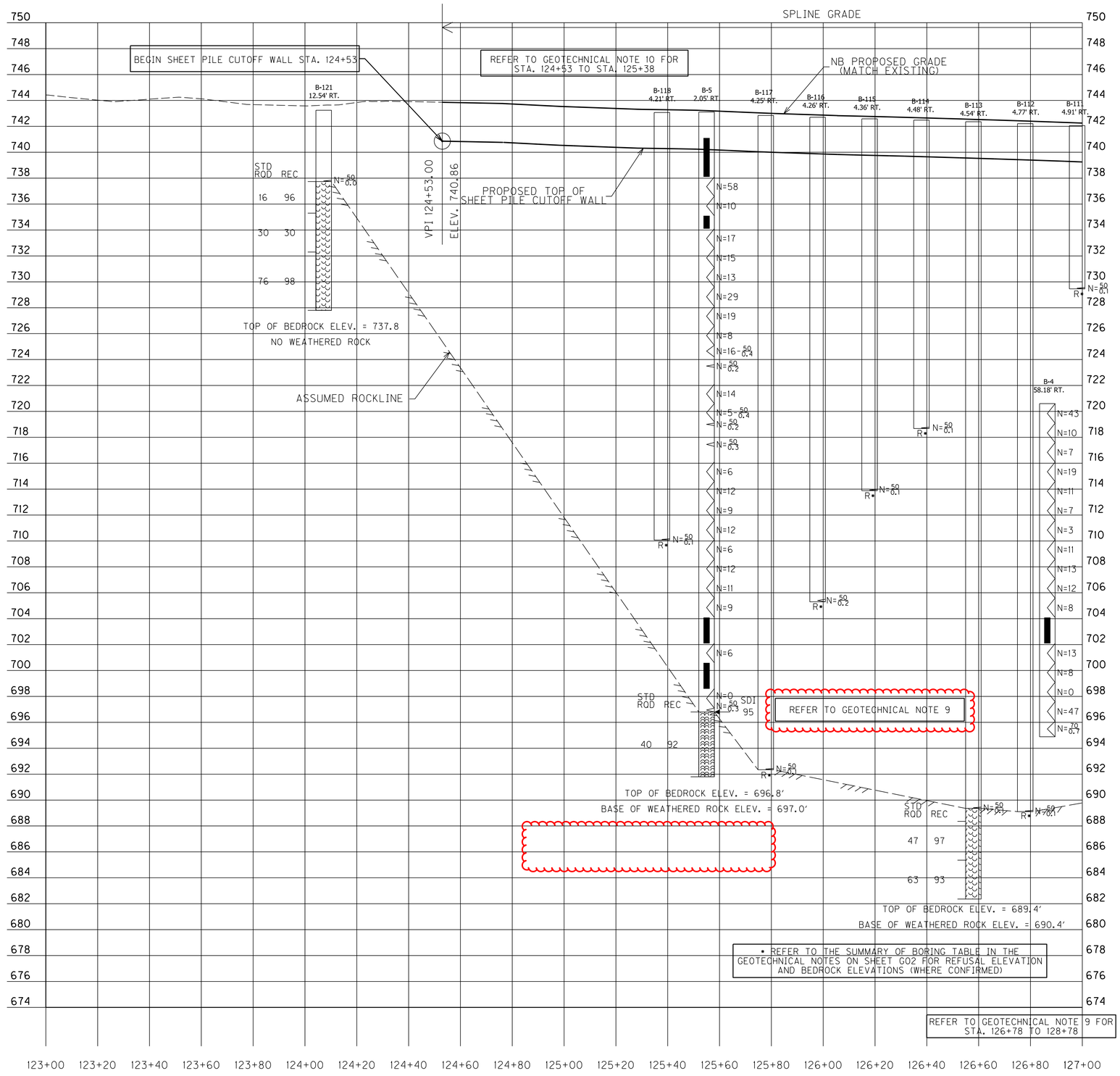
PROJECT NUMBERS: ITEM No. 10-172.00

KY 15 (PANBOWL LAKE)
SOIL PROFILE STA 123+00 TO STA. 127+00
SHEET PILE CUTOFF WALL

MicroStation v8.11.9.919 | E-SHEET NAME: | USER: RCAUDILL DATE PLOTTED: August 11, 2022 | FILE NAME: C:\PWWORKING\EAST01\D2610433\G00300GT.DGN

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	G03

REVISED 08-11-2022



DESIGNED BY: HDR Inc.

DATE SUBMITTED: 06/2022

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

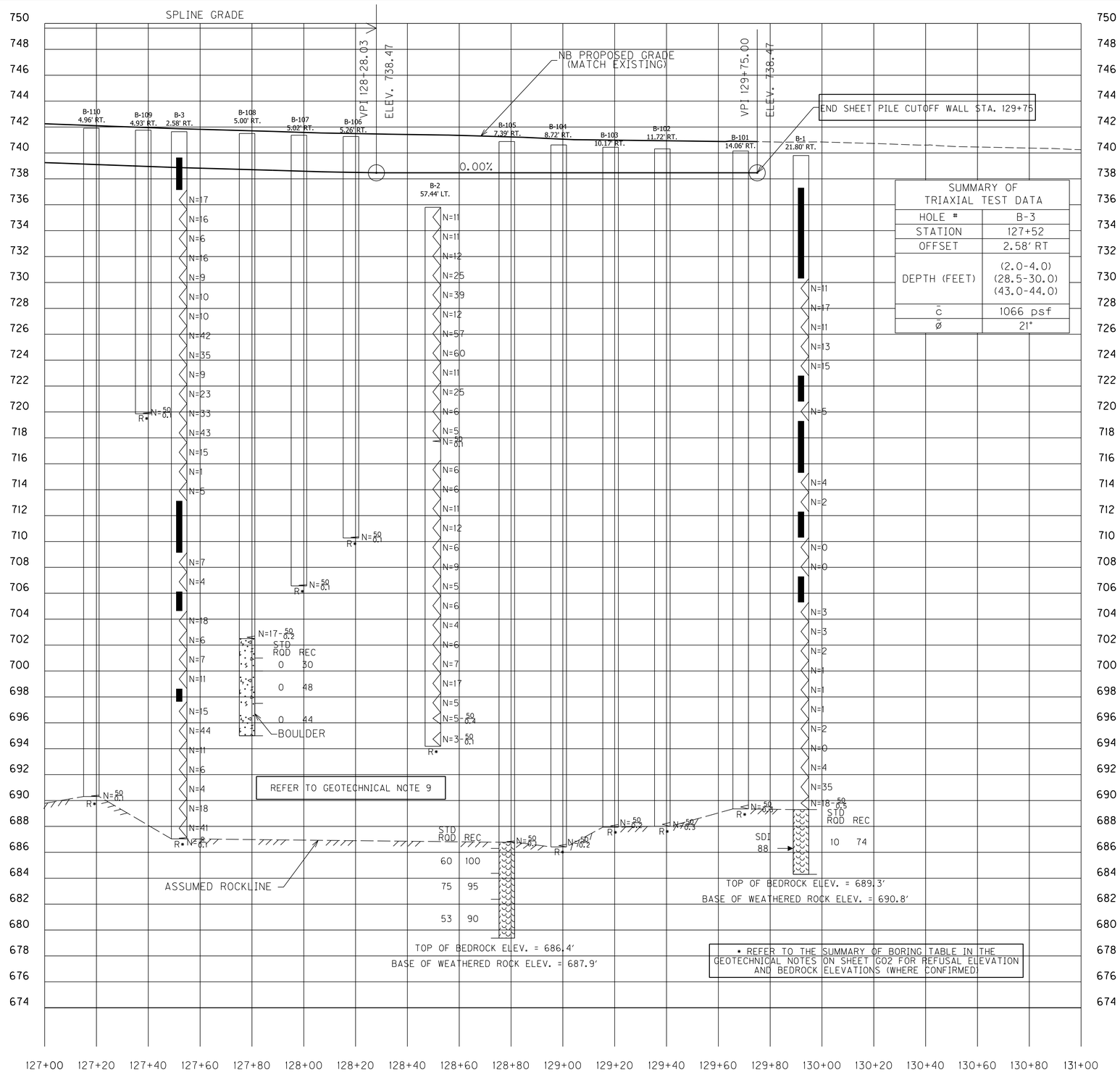
BREATHITT

PROJECT NUMBERS: ITEM No. 10-172.00

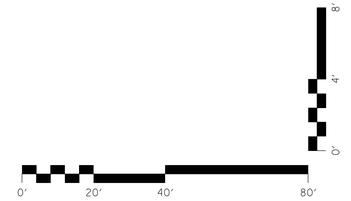
KY 15 (PANBOWL LAKE)
SOIL PROFILE STA 123+00 TO STA. 127+00
SHEET PILE CUTOFF WALL

MicroStation v8.11.9.919
E-SHEET NAME:
USER: RCAUDILL
DATE PLOTTED: August 11, 2022
FILE NAME: C:\PWWORKING\EASTO1\D2610433\G003000T.DGN

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	G04



SUMMARY OF TRIAXIAL TEST DATA	
HOLE #	B-3
STATION	127+52
OFFSET	2.58' RT
DEPTH (FEET)	(2.0-4.0) (28.5-30.0) (43.0-44.0)
$\bar{c}$	1066 psf
$\bar{\phi}$	21°



DESIGNED BY: HDR Inc.
DATE SUBMITTED: 06/2022

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

BREATHITT

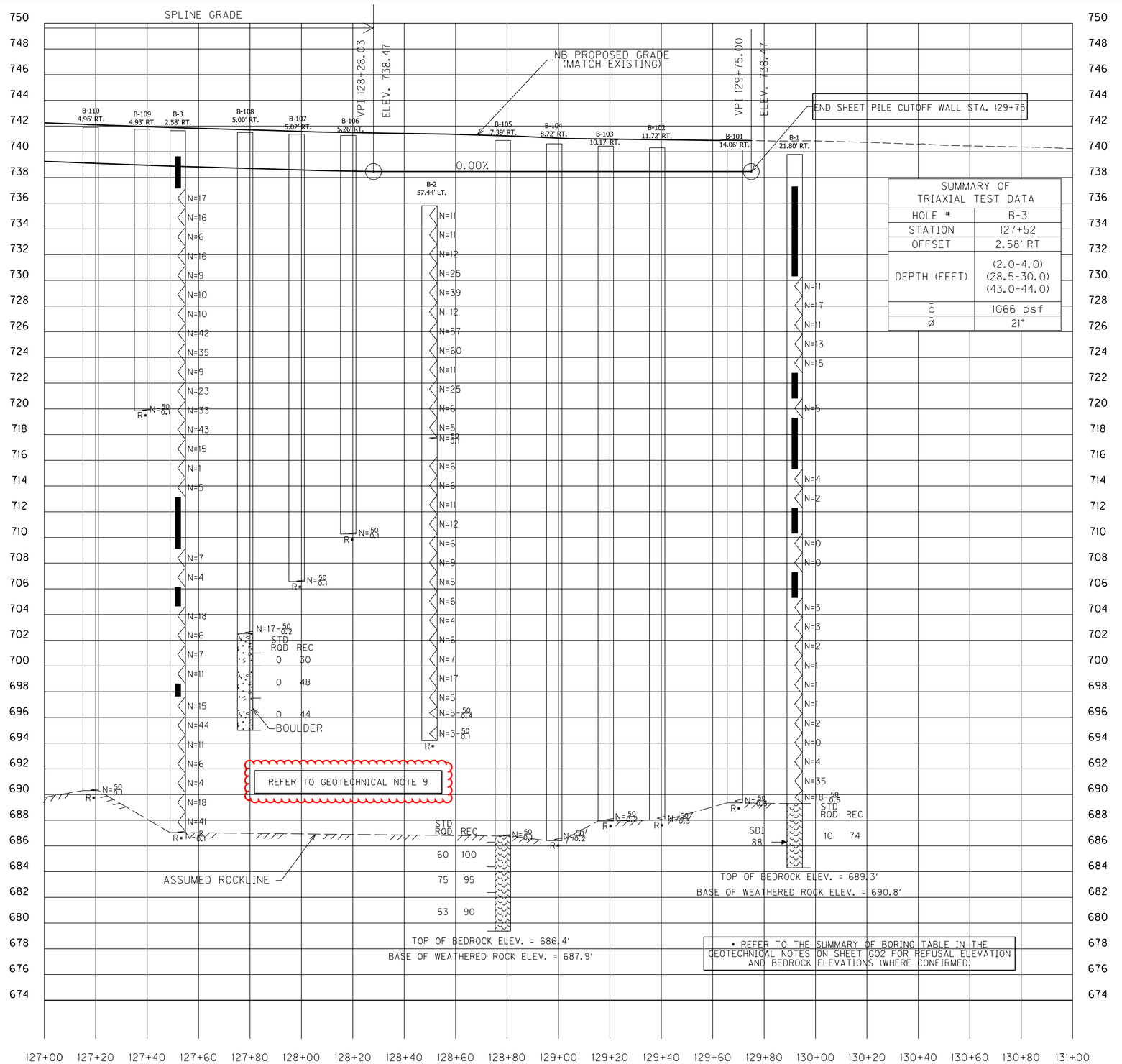
PROJECT NUMBERS: ITEM No. 10-172.00

KY 15 (PANBOWL LAKE)
SOIL PROFILE STA. 127+00 TO STA. 131+00
SHEET PILE CUTOFF WALL

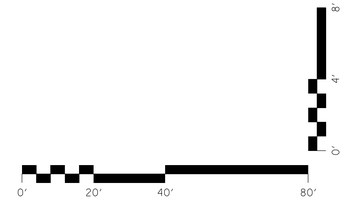
MicroStation v8.11.9.919 | E-SHEET NAME: | USER: RCAUDILL DATE PLOTTED: August 11, 2022 | FILE NAME: C:\PWWORKING\EAST01\D2610433\G004001.DGN

COUNTY OF	ITEM NO.	SHEET NO.
BREATHITT	10-172.00	G04

REVISED 08-11-2022



SUMMARY OF TRIAXIAL TEST DATA	
HOLE #	B-3
STATION	127+52
OFFSET	2.58' RT
DEPTH (FEET)	(2.0-4.0) (28.5-30.0) (43.0-44.0)
$\bar{c}$	1066 psf
$\bar{\phi}$	21°



DESIGNED BY: HDR Inc.

DATE SUBMITTED: 06/2022

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

BREATHITT

PROJECT NUMBERS: ITEM No. 10-172.00

KY 15 (PANBOWL LAKE)
SOIL PROFILE STA. 127+00 TO STA. 131+00
SHEET PILE CUTOFF WALL

MicroStation v8.11.9.919 | E-SHEET NAME: | USER: RCAUDILL DATE PLOTTED: August 11, 2022 | FILE NAME: C:\PWWORKING\EAST01\D2610433\G004001.DGN