BEST COAL, INC.
NARLEY MINE / P-3850
REVISION R-8 AREA

ATTACHMENT IV-C-2
TOPSOIL VARIANCE
EXTENSION

SUBMITTED BY:
PERC ENGINEERING CO., INC.
P.O. BOX 1712
JASPER, ALABAMA 35502-1712

May 10, 2012

Subject: Findings on Request for Extension of Topsoil Variance
Best Coal Inc., Narley Mine P3850 R-8

Best Coal Inc.
2361 Cumberland Lake Drive
Pinson, AL 35126

Dear Sirs:

I have reviewed the request for an extension of the topsoil variance to add 94 mining acres to the permit and hereby approve the topsoil variance extension. The terms and conditions on the extension will be the same as on the original variance.

Findings:

1. The area to be added consists exclusively of Montevallo-Nauvoo Association steep soil. This soil is thin and of poor quality and is approved for substitution in the original variance. The steepness of the site makes salvaging A horizon material nearly impossible, leaving only a friable subsoil.

2. The pre and post mining slopes of this site are steep and friable soils on the reconstructed slopes would be very prone to mass erosion.

3. The application demonstrates that overburden material is as good or better than the native soil in many categories, and is less susceptible to erosion with. This overburden material also has a long history of successful revegetation. It appears that overburden is the best available material.

Sincerely,

Bill Kitchens

cc: Tim Thomas, PERC; P-3850 R-8 file

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ABSTRACT

Mining by the surface method has occurred on the Mary Lee Group by pre-law operators in the past in the Mt. Olive area. In most instances where pre-law operators regraded overburden, it was without regard for existing topsoils. Also, even though in many instances pre-law operators didn't revegetate, natural revegetation occurred on sites within and adjacent to the proposed permit with surprising success. This fact contributed to the Regulatory Authority granting initial topsoil variances to regulated mine sites adjacent to this proposed site (the M S & R Equipment Co., Inc - Merritt Rogers Mine, P-3546, and P-3445, and the original Narley Mine). Revegetation success at these sites are largely due to a consistent lithology of Mary Lee Coal Group overburden which consists of shale and some sandstone, which, when mixed during mining, results in a medium which is favorable for both pine tree and ground cover growth. When taking into consideration the fact that 1) the majority of the proposed revision area is occupied by the soil: Montevallo-Nauvoo Association, steep, which has been shown in prior applications to be of poor quality and, 2) A significant amount of area within the proposed revision area has very steep slopes, it will be shown in this application that heterogeneous overburden at this site is superior to the native topsoils as a medium for post mine revegetation and that reclamation in the revision area will be similar to that of the original permit area.

SITE CONSIDERATIONS

The Revision R-8 Area at the Best Coal, Inc. - Narley Mine site is located in part of Section 24, Township 15 South, Range 3 West, Jefferson County Alabama as seen from the Brookside, Alabama USGS 7.5 minute quadrangle. The proposed revision area will occupy 95 acres of which 94 is bonded as mining area.

The attached soil map shows the previously permitted mine site, the Revision R-8 Area (Topsoil Variance Area), drill hole locations, soil types within and adjacent to the revision area, previously mined areas that lack topsoil, and topsoil and overburden collection sites. Soils present within and adjacent to the proposed revision area are as follows:

Map Symbol	Soil Name
29	Montevallo-Nauvoo association, steep
31	Nauvoo fine sandy loam, 8-15 percent slopes
35	Palmerdale complex, steep

Note: Soil 31 is not present within the proposed R-8 permit area.

LAND USE

The premining land use for mining area within the revision area is undeveloped timberland. The post mining landuse for mining area within the proposed revision area is undeveloped lands. Post mining revegetation consists of perennial grasses.

TOPSOIL DESCRIPTIONS

The following descriptions are for soils delineated within the Narley Mine Revision R-8 Area as shown above. Soils information (including soil descriptions) for the permit, revision, and adjacent areas were taken from the "Soil Survey of Jefferson County, Alabama" that was issued in August of 1982.

29-Montevallo-Nauvoo association, steep

This map unit consists of soils on strongly dissected areas of sandstone and shale plateaus in the northern and western parts of the county. Extensive surface and deep mining of coal occur in this area. The underlying layers of sandstone, siltstone, shale, and coal are nearly level. The ridges are underlain by sandstone, and the side slopes are underlain by shale and siltstone. The soils are in a regular pattern closely related to landscape position and underlying parent material. Areas of this map unit are large. Slope are from 6 - 55 percent.

Montevallo soils, on the steep sides of ridges, make up about 40 percent of the map unit. Typically, the surface layer is very dark gray shaly silt loam and dark grayish brown shaly silt loam about 6 inches thick. The subsoil is yellowish brown very shaly silt loam about 10 inches thick. The underlying material is weathered siltstone and shale. The slope of Montevallo soils in this map unit is generally more than 15 percent.

Nauvoo soils, on ridgetops and ridge sides, make up about 25 percent of most areas. Typically, the surface layer is dark grayish brown fine sandy loam about 6 inches thick. The subsoil is about 36 inches thick. The upper 6 inches is yellowish brown fine sandy loam, and the lower 30 inches is yellowish red clay loam. The underlying material is soft, highly weathered sandstone. The slope of Nauvoo soils in this map unit is generally 6 to 15 percent.

The available water capacity is very low for Montevallo soils and moderate for Nauvoo soils. In most years, there are periods in which soil moisture is not adequate for optimum plant growth. These periods are longer for Montevallo soils. Both soils are moderately permeable and have a low shrink-swell potential. Surface runoff is rapid for Montevallo soils and moderately rapid for Nauvoo soils. If these soils do not have a plant cover, sheet and rill erosion is a very severe hazard for Montevallo soils and a severe hazard for Nauvoo soils. The surface layer of both soils is strongly acid to very strongly acid. Nauvoo

soils can be tilled within a wide range in moisture content.

Minor soils in this association are Allen, Docena, Gorgas, Holston, State, Sullivan, and Townley soils. Also some areas have sandstone bedrock outcrop, and a few areas have been surface mined for coal. Allen and Holston soils are on fans, foot slopes, and toe slopes. Docena, State, and Sullivan soils are in depressions, drainageways, and on flood plains. Gorgas soils are on side slopes. Townley soils, the most extensive of the minor soils, are on ridgetops and upper sides of ridges; slope ranges from 10 to 25 percent. These minor soils and Rock outcrop make about 35 percent of the map unit. The soils of this map unit are used primarily for woodland. Many small areas have been altered by surface mining of coal. A few small areas are used for cultivated crops and pasture.

Montevallo soils are not suited to cultivated crops, pasture, or hay because of steep slopes, the hazard of erosion, and shallow soil depth. Areas of Nauvoo soils and the minor Townley soils are suited to these uses, but they are limited by slope and the hazard of erosion. Areas of these soils are generally long and narrow, small, and poorly accessible.

The soils of this map unit are suited to woodland use. Suitable species, productivity potential, and management problems are variable.

Montevallo soils are suited to coniferous trees, and the potential productivity is moderate. However, the steep slopes and shallow soil depth are limitations. During wet seasons, windthrow of trees is a moderate hazard. Constructing and maintaining roads for logging, loading areas, and fire lanes is difficult on these soils. Poor harvesting techniques can cause severe erosion.

Nauvoo soils are well suited to coniferous and deciduous tress, and the potential productivity is moderate to high. There are no significant management concerns. These soils are well suited to constructing and maintaining roads for logging, loading areas, and fire lanes. If grading is necessary for loading areas, stockpiling of the surface layer material and respreading it after harvest will help vegetation restoration.

Montevallo soils are not favorable for residential and industrial uses because of steep slopes and shallow soil depth. Septic tank effluent may flow out to the surface because of pressure caused by elevation difference, or it may flow laterally or downslope through rock cracks, and then surface around residential units at a lower elevation. Plant growth is difficult to maintain on the steep, shallow Montevallo soils. Extensive excavation is needed to prepare dwelling sites on these soils, and potential soil loss is severe. Nauvoo soils are favorable for residential and industrial uses, but slope is a limitation. Also, areas of Nauvoo soils and the included Townley soils are generally long and narrow and

are poorly accessible.

The soils of this map unit are suited to most low traffic recreation uses. Nauvoo soils are better suited to most recreation facilities than Montevallo soils.

A few sites are suitable for pond construction. Many areas of Montevallo soils have suitably shaped basins. However, these soils are shallow in depth and have poor reservoir basins. In such basins, excessive seepage may occur through rock cracks and old root channels. Also, suitable soil material for dams is not available.

Surface and subsurface mining of coal is extensive in many areas of these soils. Reclaiming these soils after surface mining operations is difficult because of the remaining steep slopes, the droughty nature of rock spoil, and the wide variation of reaction. Grading and reapplying topsoil will help reduce these problems. Most of the needed topsoil can be stockpiled on site before mining. Montevallo soils are a poor source of topsoil because they are shallow and have steep slopes. A much thicker layer of topsoil can be obtained from some minor soils, primarily Nauvoo, Allen, and Holston soils. The loamy subsoil of these soils can be modified for suitable rooting medium by applying lime and fertilizer and by minimizing tillage.

The Montevallo soils are in capability subclass VIIe and in woodland ordination group 4d. The Nauvoo soils are in capability subclass IVe and in Woodland ordination group 2o.

35-Palmerdale complex, steep

This complex consists of steep, somewhat excessively drained Palmerdale soils and other soils on surface mining spoil piles. The sediment-producing slope and highwalls have convex slopes. The sediment-receiving benches, drainageways, and basins have concave slopes. Slope ranges from 15 to 60 percent in most areas. Areas are 40 to 1,000 or more acres and irregular in shape. The areas of Palmerdale soils and other soils in this complex are so intricately mixed, or so small, that mapping them separately was not practical.

Palmerdale soils and similar soils make up about 70 percent of the map unit. Typically, Palmerdale soils are more than 60 inches thick. The soil is dark gray very shaly silt loam. In places, soils are similar to Palmerdale soils except that they are medium acid to moderately alkaline, or they have slopes of less than 15 percent. Other soils on benches, in drainageways, and in basins make up about 20 percent of the map unit. These soils are more than 60 inches thick. Typically, they have a silt loam surface layer about 10 inches thick. The underlying material is very shaly silt loam. The available water capacity for Palmerdale soils is low. There are lengthy periods in which soil moisture is not

adequate for optimum plant growth. Palmerdale soils are moderately rapidly permeable and have a low shrink-swell potential. These soils are subject to subsidence. Surface runoff is very rapid. The hazard of rill and channel erosion is very severe. The surface layer is strongly acid in Palmerdale soils and medium acid to moderately alkaline in soils similar to Palmerdale soils.

Included in mapping are areas of Montevallo, Nauvoo, and Townley soils. The included soils and areas of escarpments, highwalls, and bedrock outcrop make up about 10 percent of the map unit. The soils are not suited to cultivated crops, pasture, and have because of steep slopes, fragments on the surface, and the droughty nature of the soils. Present land use of these soils is oriented primarily towards reclamation and establishment of trees. Reclaiming Palmerdale soils is difficult because of steep slopes, the hazard of erosion, droughtiness, and the acidity of the soil. In addition, north facing slopes are subject to soil freezing to a depth of several inches and "frost heave" during thawing. Some of the problems of reclamation can be minimized by applying topsoil from other soils and adding lime and fertilizer. The information in table 12 should be used to locate sources of topsoil.

Palmerdale soils are suited to coniferous and deciduous trees; the potential productivity is moderate. Coniferous trees are generally favorable trees establish on these soils. Management concerns include a severe erosion hazard,

a severe equipment use limitation, and a severe seedling mortality rate. Some areas are not accessible because of slope gradients and the location of highwalls. Other soils on benches and toe slopes and in basins and drainageways have a higher potential productivity than Palmerdale soils. The alkaline soils are poorly suited to most trees, especially pines. The soils of this map unit are in capability subclass VIIs and in woodland ordination group 3x.

GEOLOGIC DESCRIPTION

Geologic description of the Narley permit area was by qualified personnel of PERC Engineering Co., Inc. from drill holes within and adjacent to the revision area and is as follows:

"According to the 'Depositional Settings of the Pottsville Formation in the Black Warrior Basin', the area added by Revision R-8 is structurally located within the Warrior Coal Basin. The strata which underlies and outcrops in this region is similar to the original permit area and is of the Pottsville Formation of the Pennsylvanian Age. The Warrior Basin is the southern most of a series of Pennsylvanian basins of the Appalachian Plateau. The Pottsville Formation in this area consists of thin to thick bedded sandstones, siltstones, shales, clays, and coal seams. Structurally, the Warrior Basin is formed by a large gentle syncline that extends from north-central Mississippi in the west to north-central

Alabama in the east. The syncline is tilted southwestward with a regional dip of 30 to 200 feet per mile. Toward the interior of the Warrior Basin, the regional southwest dip of Pottsville strata is modified by a series of three synclines and two anticlines. Of these, the major structures are the Warrior and Coalburg synclines, and the Sequatchie anticline. The fold axes are parallel to the Appalachian system in a northeast-southwest direction and plunge to the southwest with the regional dip.

Locally, the strata which outcrops in the immediate vicinity of the Revision R-8 Area includes shales, sandstones, underclays, and coal seams associated with the Mary Lee Coal Group. According to 'Depositional Settings of the Pottsville Formation in the Black Warrior Basin', the Mary Lee Group lies approximately 40 to 130 feet above the Black Creek Coal Group and from 140 to 400 feet below the Pratt Coal Group.

The target seams at this facility are the New Castle, Mary Lee, and Blue Creek Seams of the Mary Lee Coal Group. The New Castle Seam is approximately 1.0 ft. thick within the proposed revision area. The Mary Lee Seam has an upper and lower split. The upper bench of the Mary Lee Seam is approximately 6 inches thick and the lower bench is approximately 2.4 ft. thick within the proposed revision area. The Blue Creek Seam is approximately 1 ft. thick within the proposed revision area. The thickness of the coal seams was derived from

measurements taken in the field.

This site is located on a north-south trending ridge whose relief is approximately 120 ft. above the receiving streams. The overburden above the New Castle Seam reaches a maximum thickness of approximately 125 ft. within the revision area and consists of, in descending order, unconsolidated surface material approximately 5 ft. thick, followed by medium hard gray shale approximately 15 ft. thick, followed by an interval of hard gray shale approximately 50 ft. thick, followed by an interval of very fine grained sandstone approximately 5 ft. thick, followed by another hard gray shale interval approximately 50 ft. thick, followed by the New Castle Seam which is approximately 12 inches thick. The innerburden between the New Castle and Mary Lee Seams is approximately 44 ft. thick (at BCNR4DH3) and consists of an interval of dark gray shale approximately 9 ft. thick, followed by an interval of sandstone approximately 5 ft. thick, followed by an interval of sandstone and shale approximately 5 ft. thick, followed by an interval of shale approximately 5 ft. thick, followed by an interval of sandstone and shale approximately 20 ft. thick, followed by the Mary Lee Seam, which as stated above, is split into an upper and lower bench. The upper bench of the Mary Lee Seam is approximately 6 inches thick and the lower bench is approximately 29 ft. thick. The innerburden between the Mary Lee and Blue Creek Seams is approximately 15 ft. thick (at BCNR4DH3) and consists of an interval of dark

gray shale. The Blue Creek Seam is approximately 12 inches thick and is underlain by an interval of dark gray shale approximately 5 ft. thick. The above description is a result of site-specific drilling within the proposed revision area but is typical in nature and the intervals described above may vary in thickness or content depending upon their location within the Revision R-8 Area.

The total sulfur content of the New Castle Seam within the Revision R-8 Area was analyzed as 0.69 percent. The total sulfur content of the upper bench of the Mary Lee Seam within the Revision R-8 Area was analyzed as 4.21 percent. The total sulfur content of the lower bench of the Mary Lee Seam within the Revision R-8 Area was analyzed as 0.76 percent. The total sulfur content of the Blue Creek Seam within the Revision R-8 Area was analyzed as 0.57 percent. As stated above, sulfur analysis was conducted by Central Testing Laboratory.

No intervals were tested as being potentially acid-forming in drill holes BCNR4DH1 and BCNR4DH3. Due to the fact that all overburden at this site does not occupy similar areas, intervals shown in the overburden analyses which are located in the upper portions of the drill logs occupy a smaller volume than intervals which are located closer to the bottom, consequently, their acid-base accounts do not contribute as substantially to the overall chemistry of the overburden. In an attempt to more accurately describe the acid-base potential

of the overburden at the Narley mine site, a spreadsheet which was developed at the Pennsylvania Dept. of Environmental Resources, Bureau of Mining and Reclamation was employed. This spreadsheet not only takes into account the volume occupied by each interval tested, but also the amount of coal lost into the spoil. The results of this method from drill holes BCNR4DH1 and BCNR4DH3 (as shown in the attached Volumetric Overburden Calculation Sheets) are favorable: overburden at the Revision R-8 Area of the Narley Mine contains an average of 17.77 (tons CaCO3/1000 tons overburden) excess neutralization potential."

SAMPLING TECHNICS

Information utilized to describe the orientation, lithology, and geochemistry of the Narley Mine Revision R-8 Area includes Drill Holes BCNR4DH1 and BCNR4DH3 drilled by personnel of Best Coal, Inc. on July 25, 2008 and September 11, 2008 (respectively) utilizing a Drilltech D45K air rotary drill utilizing a 6 and 3/4 inch bit. Samples were collected every five ft. or change in lithology by qualified personnel of PERC Engineering Co., Inc. and analyzed for pH & neutralization potential by the PERC Engineering Laboratory according to ASTM Standards. Sulfur analysis was conducted by Central Testing Laboratory. The lithology of this drill hole was described by qualified personnel from PERC Engineering Co., Inc..

Soil and overburden samples were taken at locations in the attached soil map by qualified personnel of PERC Engineering in March of 2012. Three samples of soil number 29 were collected along with four samples of heterogeneous overburden from newly mined areas within the Narley permit. Each sample was selected as the most representative of the area in both texture and vegetative cover (which reflects chemical suitability). Samples were taken by digging a cylindrical to slightly conical shaped hole 6-8 inches deep with a spade. All contents of this section are included in the sample. Soil samples taken lack vegetative and other organic cover so they will more accurately reflect topsoil that is cleaned of vegetative cover and stockpiled for soil redistribution. Sieve analysis was conducted on oven-dried samples by PERC Engineering Co., Inc. to determine coarse fragment and soil percentages. Results of this analysis is in Appendix 2. The minus 2mm (or soil) fraction of all samples were then sent to Auburn University Soil Testing Laboratory for the following analyses: Soil fertility, pH, recommendations for post mining revegetation, % sand, silt, and clay, available water capacity, and ppm of nitrate nitrogen in the soil. Results of this analysis are given in Appendix 3. Note: available water capacity (AWC) conducted by Auburn University Testing Laboratory is determined on only the soil (-2mm) fraction of the sample obtained in the field. To obtain the "Total" available water capacity, the AWC will be added to the available water capacities of the larger coarse fragments as shown in Appendix 4.

Senders sample designations listed in Appendix 3 are as follows:

7970 - Soil S29R8-1	7973 - Overburden OBR8-1
7971 - Soil S29R8-2	7974 - Overburden OBR8-2
7972 - Soil S29R8-3	7975 - Overburden OBR8-3
	7976 - Overburden OBR8-4

OVERBURDEN VS TOPSOIL COMPARISON

Cumulative results from Appendices 2 & 3 are as follows:

	SOIL (AVE.):	OVERBURDEN (AVE.):
pH	4.93	6.55
	Fertility ratings for P, K, & Mg:	
Phosphorus	67	75
Potassium	160	252
Magnesium	317	698
	Recommendations for Limestone, N, P_2O5, K_2O:	
Limestone (Tons/Acre)	1.33	0.25
N (Lbs./Acre)	60	60
P_2O5 (Lbs./Acre)	27	30
K_2O (Lbs./Acre)	27	13

	SOIL (AVE.):	OVERBURDEN (AVE.):
Sulfur (percent)	0.0223	0.1965
Maximum Potential Acidity*	0.6969	6.1406
Neutralizing Potential*	0.5000	6.3175
Acid-Base Account*	-0.1969	+0.1769
Percent Organic Matter	1.50	7.25
Nitrate Nitrogen (ppm)	2.10	4.45
Sand Percentage	51.67	63.75
Silt Percentage	27.17	16.88
Clay Percentage	21.16	19.37
Available Water Capacity (In. H_2O/In. Soil)	0.1133	0.0950
Course Fragment Percentage	64.66	62.48
Soil Percentage	35.34	37.52

	SOIL (AVE.):	OVERBURDEN (AVE.):
"Total" Available H_2O Capacity (in. H_2O/in. soil)	0.0896	0.0766
Soil Erodibility Factor "K"	.25	.20

*Tons CaCo3 Equivalent/1000 tons material

The above comparison resulting from physical and chemical analysis conducted on topsoil and overburden samples taken at locations indicated on the attached soils map reveal that overburden at the proposed Revision R-8 Area within the Narley Mine is equal to or more suitable for sustaining revegetation and is the best available to support revegetation and therefore satisfies the criteria set forth in 880-X-10C-.08-(5).

The pH of the overburden samples were much closer to an optimum pH for the proposed post mining revegetation than the native soil samples. Auburn Soil Testing Laboratory uses a target pH of 6.5 for this type of vegetation as the optimum value. The topsoil samples were analyzed having an median pH of 4.93 S.U., which is classified as "very strongly acid" by the USDA Soil Conservation Service while the heterogeneous overburden samples were analyzed having an median pH of 6.55 S.U., which is classified as "slightly

acid". As a result, the Auburn Soil Testing Laboratory recommends 1.08 tons per acre more lime on native topsoils than on the overburden sampled.

Overburden at the Narley Mine was also shown to be more fertile than the native topsoils. Overburden was rated higher in the macronutrient categories: magnesium, and potassium while the native soils were rated higher in phosphorus. As a result, Auburn University's Soil Testing Laboratory reported that the native topsoils require an average of 11 lbs/acre additional nutrients.

The acid-base accounts of the two media were close to zero, and neither represented a danger of being forming acid, however, the heterogeneous overburden had a positive acid-base account while the acid-base account of the native topsoils were negative. Also, overburden contained an average of more organic matter and nitrate nitrogen than the native topsoils.

Textural analysis, performed by the PERC Engineering Laboratory revealed that the native topsoil samples contained approximately the same amount of soil and coarse fragments as the overburden samples. It may seem counter intuitive that the amount of soil and coarse fragments in the native topsoil and the heterogeneous overburden are similar, however there are two reasons for this fact: 1) there is a significant amount of shale in the Mary Lee overburden, and 2) the soil sampled is of low quality. In this case, the heterogeneous

overburden was found to have a higher percentage of sand than the native topsoil samples, and less silt and clay. The result was that the available water capacity of the SOIL SIZED material in the soil was greater. However, when the total available water capacity for both media was calculated as shown in Appendix 4, the total available water capacity of the heterogeneous overburden was very close to the total available water capacity of the native topsoils (0.0766 in/in versus 0.0896 in/in). A difference of only *13 thousandths* of an inch per inch exists. When considering that the thickness of the revegetation media is only 6 inches, a difference of less than 8 hundredths inches of water exists and would not be considered significant.

It should also be stated that the overburden collected for this report was taken from 'fresh', or newly mined spoil from the current operation. This spoil has not had time to sufficiently weather while the native soil is essentially completely weathered. Spoil samples from the original topsoil variance were collected from older spoil and therefore had a higher total available water capacity. Given time, the spoil produced at this mine site will continue to weather, and increase its total available water capacity. It should also be noted that during periods of low or no rainfall, the amount of soil moisture in the root zone of the plants has a direct affect on whether or not the plant survives. However, during drought conditions, *water that is available to plants is most usually found deeper in the root zone than six inches*. It is plant water found much deeper in the root zone

that will allow the revegetation to survive during times of drought.

Also, one of the most important parameters to consider in determining the best available plant medium to use at this site is erodibility. This is due to the steep pre-mine (and post mine) slope conditions. As is typical for comparisons between topsoils and overburden materials, regraded topsoils exhibit a greater tendency to erode than regraded overburden, especially in steeper slope areas, due to the fact that 'new' overburden typically contains more coarse fragments which resists rainfall impact and erosion due to overland flow. Many of these coarse fragments will eventually break down into soil sized material, adding to the soil percentage, while 'protecting' the mixture from erosion in the early stages of reclamation in outslope areas where slopes are steeper. Also, not including ridge tops, the pre and post mine slopes within the permit area, especially in areas not previously disturbed, range from moderate to severe which would also increase the possibility of erosion. The heterogeneous overburden is clearly superior in this parameter, and as such, is the best available material for revegetation at this site. It doesn't matter what the total available water capacity of the native soils are if they erode downslope into the sediment basins. The above information suggests that the overburden at the Narley Mine, particularly the Revision R-8 Area is more suitable for post mining revegetation than the native topsoils and therefore satisfies the criteria set forth in 880-X-10C-.08-(5).

PROPOSED VARIANCE AREA VS. ADJACENT SITE SIMILARITIES

As stated previously, several surface mining operations (including pre-law and regulated sites) exist in the Narley area. Most of these operations recover coal from the Mary Lee Coal Group. Revegetation success at this site is largely due to a consistent lithology of shale and some sandstone, which, when mixed during mining, results in a medium which is favorable for both pine tree and ground cover growth. As proof of the consistency of the Mary Lee overburden, compare descriptions of overburden collected from the Revision R-8 Area to the original Narley Mine (in the original Topsoil Variance on file at ASMC). Lithologies from both sources show the presence of sandstone but also shale. The chemistries of the these sites are also very similar. All have low sulfur values, and similar acid-base accounts. In addition, they will also have similar maximum highwall heights, and both areas contain similar soil types (Ie, 'Montevallo-Nauvoo Association, steep') which has been shown in prior applications to be of poor quality.

RESULTS AND CONCLUSIONS

The conclusion of all the data represented in this report is that the overburden is physically and chemically superior or equal to the topsoil in a majority of the parameters tested and is therefore the preferred medium in which to conduct

revegetation operations, but is also very similar to material ALREADY used for revegetation at this mine site where reclamation success has been documented. The heterogenous overburden at the Narley Mine was observed to be similar to or superior to the native topsoils in the following parameters: pH, fertility, liming rate, neutralization potential, acid-base account, organic matter content, nitrate nitrogen content, and soil erodibility. The fact that the topsoil variance area is proposed adjacent to an area with documented revegetation success, with the same seams targeted, where the overburden has been demonstrated as being both physically and chemically similar, suggests that the reclamation success at the Revision R-8 Area will be as successful as the original Narley Mine site.

REDISTRIBUTION PLAN

The mining method used at the Narley Mine is a Dozer/Loader operation. Overburden will be rough graded by Caterpillar type dozers. Once overburden has been rough graded, farm-type tractors will be used to disc the overburden to its final contour, decrease compaction, and increase the mechanical breakage of the surface layer. At this time the following criteria will be used to evaluate the textural quality of the graded overburden:

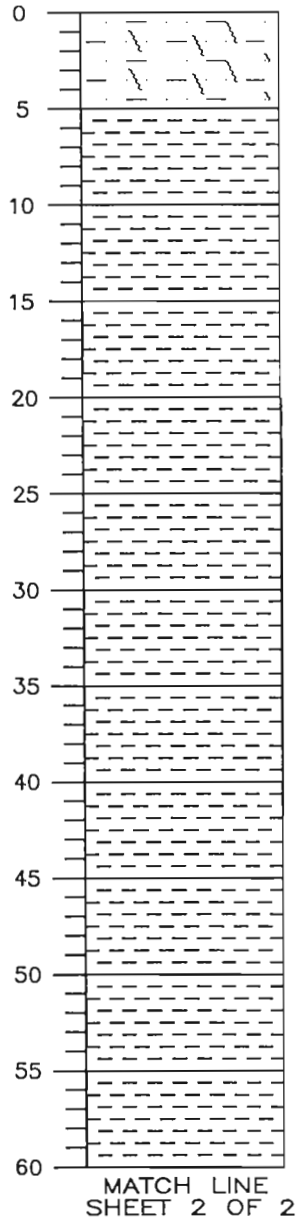
a) Rocks of a size greater than 10" shall not exceed 10% by weight of the substitute material.

b) The substitute material shall not contain more than 15% by weight of materials between 10 and 3 inches in size.

c) The substitute material shall not contain more than 50% by weight of materials between 3 and .75 inches in size.

d) At least 30% by weight of the substitute material shall be of a size less than 2 millimeters.

If this criteria is not met, Best Coal, Inc. shall redisc the overburden and resample. If increasing the mechanical breakage will not enhance the texture of the graded overburden to a satisfactory level, additional soil sized material will be hauled and spread on site or rocks will be recovered from the surface and buried until the above criteria is achieved. The final texture samples taken shall be sent to the Auburn University Soil Laboratory where the following tests shall be conducted: %sand, silt, & clay, textural classification, pH, total sulfur, acid-base account, fertility ratings for phosphorus, potassium, and magnesium, and amendment recommendations for post mining revegetation for limestone, nitrogen, P_2O and K_2O. Results of this analysis will be used to determine the amount of soil amendments, if any, to be applied to the plant medium. Any toxic forming materials encountered will be removed or covered with 4 feet of non-toxic non-acid forming material. Approved seed mixtures will be planted and hay used as mulch will be blown upon the seeded overburden according to ASMC guidelines. The above reclamation procedures will be conducted by track equipment, where feasible, and all traffic except pond monitoring vehicles and reseeding equipment shall be prohibited from reclaimed areas to reduce compaction. The preceding report suggests that the post mining productivity of the Narley Mine will be enhanced by the utilization of overburden for a plant growth medium in conjunction with the above stated reclamation procedures.



INTERVAL:	DESCRIPTION:
0–5	Surface material
5–10	SHALE, gray, medium hard
10–15	SHALE, gray, medium hard
15–20	SHALE, gray, medium hard
20–25	SHALE, gray, hard
25–30	SHALE, gray, hard
30–35	SHALE, gray, hard
35–40	SHALE, gray, hard
40–45	SHALE, dark gray, hard
45–50	SHALE, gray, hard
50–55	SHALE, gray, hard
55–60	SHALE, gray, hard

SHEET 1 OF 2

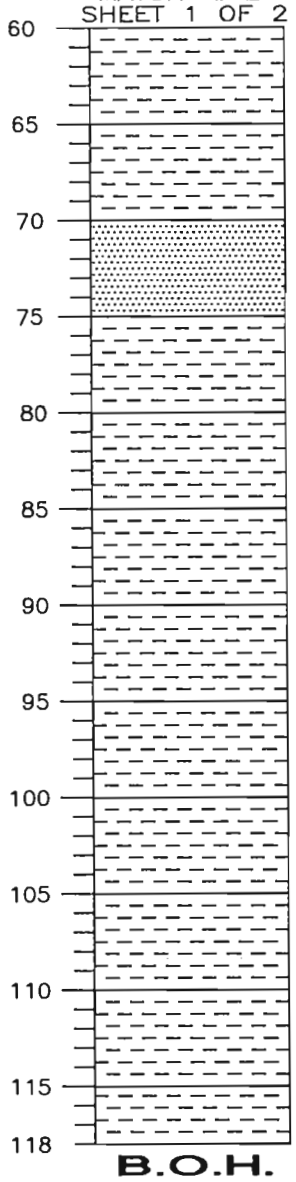
DRILL: DRILLTECH 45K
DRILL BIT SIZE 6 3/4"

PERC ENGINEERING CO. INC.

Best Coal
Narley Mine
Revision R-4
Lithologic Description for
BCNR4DH1

DRAWN BY: K.E.S. DWG. NAME: BCNMR4DH–1	DATE: 11/13/08
APPROVED BY: A.P.H.	SCALE: 1" = 10' vertical

\\Perc600\perc_cad\KEP\APH\BCNMR4DH-1.dwg 11/13/08 12:47



INTERVAL:	DESCRIPTION:
60–65	SHALE, gray, hard
65–70	SHALE, gray, hard
70–75	SANDSTONE, very fine grained, gray, hard
75–80	SHALE, gray, hard
80–85	SHALE, gray, hard
85–90	SHALE, gray, hard
90–95	SHALE, gray, hard
95–100	SHALE, gray, hard
100–105	SHALE, gray, hard
105–110	SHALE, gray, hard
110–115	SHALE, gray, hard
115–118	SHALE, gray, hard

SHEET 2 OF 2

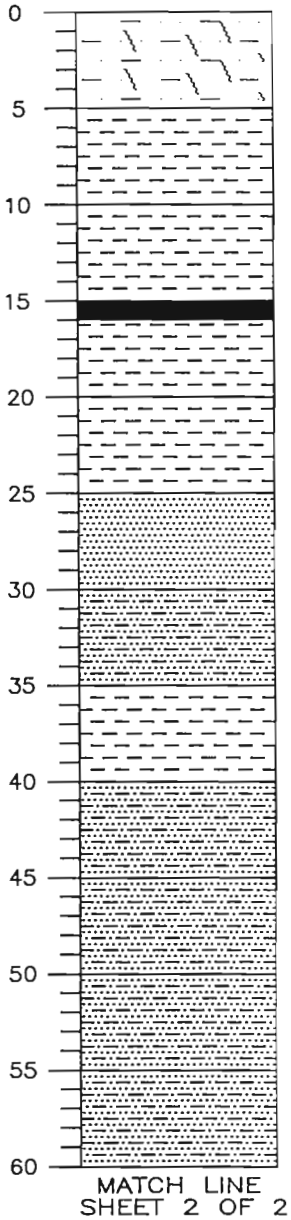
DRILL: DRILLTECH 45K
DRILL BIT SIZE 6 3/4"

PERC ENGINEERING CO. INC.

Best Coal
Narley Mine
Revision R-4
Lithologic Description for
BCNR4DH1

DRAWN BY: K.E.S. DWG. NAME: BCNMR4DH-1	DATE: 11/13/08
APPROVED BY: A.P.H.	SCALE: 1" = 10' vertical

\\Perc600\perc_co\KEP\APH\BCNMR4DH-1.dwg 11/13/08 12:47



INTERVAL:	DESCRIPTION:
0 – 5	Surface material
5 – 10	SHALE, weathered, brown, soft
10–15	SHALE, weathered, gray, soft
15–16	Coal (New Castle)
16–20	SHALE, gray, soft (contaminated w/COAL)
20–25	SHALE, gray, soft to medium hard
25–30	SANDSTONE, very fine grained, gray, hard
30–35	SANDSTONE, very fine grained, gray, hard & SHALE, gray
35–40	SHALE, gray, hard
40–45	SANDSTONE, very fine grained, gray, hard & SHALE, gray
45–50	SANDSTONE, very fine grained, gray, hard & SHALE, gray
50–55	SANDSTONE, very fine grained, gray, hard & SHALE, gray
55–60	SANDSTONE, very fine grained, gray, hard & SHALE, gray

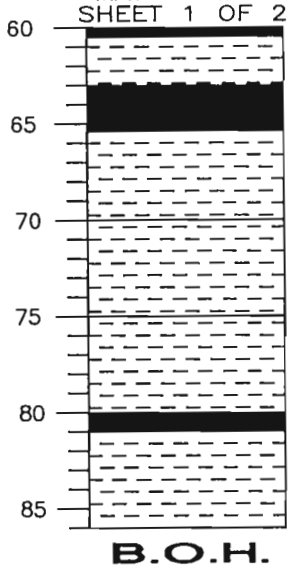
SHEET 1 OF 2
DRILL: DRILLTECH 45K
DRILL BIT SIZE 6 3/4"

PERC ENGINEERING CO., INC.

Best Coal
Narley Mine
Revision R-4
Lithologic Description for
BCNR4DH3

DRAWN BY: K.E.S. DWG. NAME: BCNMR4DH-3	DATE: 11/13/08
APPROVED BY: A.P.H.	SCALE: 1" = 10' vertical

\\Perc600\perc_cad\KEP\APH\BCNMR4DH-3.dwg 11/18/08 16:55



INTERVAL:	DESCRIPTION:
60–60.5	COAL (Mary Lee marker)
60.5–63	SHALE, gray, soft (contaminated w/COAL)
63–65.4	COAL (Mary Lee)
65.4–70	SHALE, gray, hard
70–75	SHALE, gray, hard
75–80	SHALE, gray, hard
80–81	COAL (Blue Creek)
81–86	SHALE, gray, medium hard (contaminated w/COAL)

SHEET 2 OF 2

DRILL: DRILLTECH 45K
DRILL BIT SIZE 6 3/4"

PERC ENGINEERING CO, INC.

Best Coal
Narley Mine
Revision R-4
Lithologic Description for
BCNR4DH3

DRAWN BY: K.E.S. DWG. NAME: BCNMR4DH-3	DATE: 11/13/08
APPROVED BY: A.P.H.	SCALE: 1" = 10' vertical

\\Perc600\perc_coal\KEP\APH\BCNMR4DH-3.dwg 11/18/08 16:55

APPENDIX 1

PERC
ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Best Coal Inc.

MINE NAME: Narley Mine R-4

DRILL HOLE: BCNR4DH1

COLLECTED BY: JC

DATE COLLECTED: 07/25/2008

ANALYZED BY: BS

DATE ANALYZED: 09/02/2008

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	5.00	4.710	0.050	1.563	1.250	-0.313	N
5.00	10.00	6.860	0.200	6.250	16.250	10.000	N
10.00	15.00	7.230	0.200	6.250	20.000	13.750	N
15.00	20.00	6.820	0.180	5.625	17.500	11.875	N
20.00	25.00	7.230	0.180	5.625	20.500	14.875	N
25.00	30.00	7.560	0.320	10.000	36.900	26.900	N
30.00	35.00	7.770	0.220	6.875	41.900	35.025	N
35.00	40.00	7.560	0.260	8.125	21.250	13.125	N
40.00	45.00	7.830	0.230	7.188	21.250	14.063	N
45.00	50.00	7.650	0.210	6.563	16.250	9.688	N
50.00	55.00	7.880	0.230	7.188	37.500	30.313	N
55.00	60.00	7.600	0.220	6.875	20.000	13.125	N
60.00	65.00	7.890	0.200	6.250	20.000	13.750	N
65.00	70.00	7.750	0.250	7.813	21.250	13.438	N
70.00	75.00	8.190	0.210	6.563	36.900	30.338	N
75.00	80.00	8.440	0.230	7.188	21.250	14.063	N
80.00	85.00	8.650	0.240	7.500	23.100	15.600	N
85.00	90.00	8.600	0.210	6.563	23.100	16.538	N
90.00	95.00	8.970	0.230	7.188	62.500	55.313	N
95.00	100.00	8.610	0.230	7.188	32.500	25.313	N
100.00	105.00	8.980	0.450	14.063	17.500	3.438	N
105.00	110.00	8.890	0.380	0.625	18.750	17.125	N
110.00	115.00	9.090	0.330	10.313	18.750	8.438	N
115.00	118.00	8.970	0.220	6.875	25.000	18.125	N
**AVERAGE		6.070	0.237	7.405	24.625	17.220	N

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

APPENDIX 1

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Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
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Web Address: www.percengineering.com

COMPANY NAME: Best Coal Inc.

MINE NAME: Narley Mine R-4

DRILL HOLE: BCNR4DH3

COLLECTED BY: SWR

DATE COLLECTED: 09/11/2008

ANALYZED BY: BS

DATE ANALYZED: 09/12/2008

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	5.00	5.350	0.050	1.563	3.750	2.188	N
5.00	10.00	5.540	0.190	5.938	2.500	-3.438	N
10.00	15.00	9.670	0.110	3.438	28.750	25.313	N
15.00	16.00 COAL		0.690	21.563 COAL	COAL		***
16.00	20.00	10.080	0.100	3.125	11.250	8.125	N
20.00	25.00	9.770	0.080	2.500	27.500	25.000	N
25.00	30.00	10.010	0.080	2.500	20.000	17.500	N
30.00	35.00	9.950	0.080	2.500	22.500	20.000	N
35.00	40.00	7.230	0.080	2.500	22.500	20.000	N
40.00	45.00	7.750	0.100	3.125	20.000	16.875	N
45.00	50.00	8.020	0.060	1.875	18.750	16.875	N
50.00	55.00	8.020	0.060	1.875	20.000	18.125	N
55.00	60.00	7.980	0.080	2.500	22.500	20.000	N
60.00	60.50 COAL		4.210	131.563 COAL	COAL		***
60.50	63.00	8.200	0.460	14.375	13.750	-0.625	N
63.00	65.40 COAL		0.760	23.750 COAL	COAL		***
65.40	70.00	8.980	0.200	6.250	50.000	43.750	N
70.00	75.00	8.910	0.250	7.813	23.750	15.938	N
75.00	80.00	8.530	0.090	2.813	20.000	17.188	N
80.00	81.00 COAL		0.570	17.813 COAL	COAL		***
81.00	86.00	8.900	0.870	27.188	17.500	-9.688	Y
**AVERAGE		6.309	0.119	3.704	20.655	16.951	N

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR: BEST COAL INC

PERMIT NO: NARLEY R-4 DRILL HOLE: BCNR4DH1

COUNTY:

THRESHOLD VALUES:	SULFUR 0	NP 0.00	FIZZ 0

NUMBER OF INTERVALS: 24 (enter; Alt A; 1)A15..A
2)A15..A 1

CLAY	CL	3450	
SHALE	SH	3700	
SILTSTONE	ST	3750	ALK ADD(tns/ac CaCO3):
SANDSTONE	SS	3670	COAL SEAMS:
LIMESTONE	LS	3670	STATE PLANE ZONE:
COAL	CO	1800	FEET (NORTH/SOUTH):
CARBONOLITH	CB	2580	FEET (EAST/WEST):
OTHER	OT	3670	SURFACE ELEV. (FT):

BOTTOM DEPTH (FT)	THICKNESS FEET	ROCK TYPE	FIZZ RATING	SULFUR %	NP	DEFICIENCY /EXCESS	ACREAGE	UNIT WT TONS/AC-FT	FRACTION SPOILED	TONS MPA	TONS NP	NET NP (TONS)	TONS OF OVERBURDEN
5.00	5.00	OT	0	0.050	1.25	-0.31	1.00	3670	1.00	28.67	22.94	-5.73	18350
10.00	5.00	SH	0	0.200	16.25	10.00	3.48	3700	1.00	402.24	1045.82	643.58	64358
15.00	5.00	SH	0	0.200	20.00	13.75	5.13	3700	1.00	593.31	1898.60	1305.29	94930
20.00	5.00	SH	0	0.180	17.50	11.88	6.78	3700	1.00	705.95	2196.29	1490.34	125502
25.00	5.00	SH	0	0.180	20.50	14.88	8.44	3700	1.00	877.92	3199.52	2321.60	156074
30.00	5.00	SH	0	0.320	36.90	26.90	10.09	3700	1.00	1866.46	6887.24	5020.78	186646
35.00	5.00	SH	0	0.220	41.90	35.03	11.74	3700	1.00	1493.38	9101.44	7608.07	217218
40.00	5.00	SH	0	0.260	21.25	13.13	13.39	3700	1.00	2013.30	5265.54	3252.25	247790
45.00	5.00	SH	0	0.230	21.25	14.06	15.05	3700	1.00	2000.73	5915.20	3914.47	278362
50.00	5.00	SH	0	0.210	16.25	9.69	16.70	3700	1.00	2027.38	5020.18	2992.80	308934
55.00	5.00	SH	0	0.230	37.50	30.31	18.35	3700	1.00	2440.20	12731.49	10291.29	339506
60.00	5.00	SH	0	0.220	20.00	13.13	20.00	3700	1.00	2544.29	7401.57	4857.28	370078
65.00	5.00	SH	0	0.200	20.00	13.75	21.66	3700	1.00	2504.07	8013.01	5508.94	400650
70.00	5.00	SH	0	0.250	21.25	13.44	23.31	3700	1.00	3368.93	9163.48	5794.55	431222
75.00	5.00	SS	0	0.210	36.90	30.34	24.96	3670	1.00	3005.95	16902.05	13896.10	458050
80.00	5.00	SH	0	0.230	21.25	14.06	26.61	3700	1.00	3538.88	10462.79	6923.90	492367
85.00	5.00	SH	0	0.240	23.10	15.60	28.27	3700	1.00	3922.04	12079.88	8157.84	522939
90.00	5.00	SH	0	0.210	23.10	16.54	29.92	3700	1.00	3632.41	12786.09	9153.68	553511
95.00	5.00	SH	0	0.230	62.50	55.31	31.57	3700	1.00	4198.09	36505.16	32307.07	584083
100.00	5.00	SH	0	0.230	32.50	25.31	33.22	3700	1.00	4417.83	19976.28	15558.45	614655
105.00	5.00	SH	0	0.450	17.50	3.44	34.88	3700	1.00	9073.50	11291.47	2217.97	645227
110.00	5.00	SH	0	0.380	18.75	6.88	36.53	3700	1.00	8025.11	12671.23	4646.12	675799
115.00	5.00	SH	0	0.330	18.75	8.44	38.18	3700	1.00	7284.45	13244.45	5960.00	706371
118.00	3.00	SH	0	0.220	25.00	18.13	40.00	3700	1.00	3052.50	11100.00	8047.50	444000
										73017.59	234881.72	161864.13	8936623

TOTAL OVERBURDEN VOL.(ACRE-FT):	2416	TOTAL (TONS):	
PERCENT SANDSTONE:	5%	TOTAL (TONS/THOUSAND):	8.17 26.28 18.11
NP/MPA RATIO:	3.22		
TONS/ACRE REQUIRED (1:1):	4047 EXCESS		

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR: BEST COAL INC
PERMIT NO: NARLEY R-4 DRILL HOLE: BCNR4DH3
COUNTY:

THRESHOLD VALUES: SULFUR 0, NP 0.00, FIZZ 0
NUMBER OF INTERVALS: 20 (enter; Alt A; 1)A15..A 2)A15..A 1

CLAY	CL	3450
SHALE	SH	3700
SILTSTONE	ST	3750 ALK ADD(tns/ac CaCO3):
SANDSTONE	SS	3670 COAL SEAMS:
LIMESTONE	LS	3670 STATE PLANE ZONE:
COAL	CO	1800 FEET (NORTH/SOUTH):
CARBONOLITH	CB	2580 FEET (EAST/WEST):
OTHER	OT	3670 SURFACE ELEV. (FT):

BOTTOM DEPTH (FT)	THICKNESS FEET	ROCK TYPE	FIZZ RATING	SULFUR %	NP	DEFICIENCY /EXCESS	ACREAGE	UNIT WT TONS/AC-FT	FRACTION SPOILED	TONS MPA	TONS NP	NET NP (TONS)	TONS OF OVERBURDEN
5.00	5.00	OT	0	0.050	3.75	2.19	40.00	3670	1.00	1146.88	2752.50	1605.63	734000
10.00	5.00	SH	0	0.190	2.50	-3.44	42.13	3700	1.00	4627.68	1948.50	-2679.18	779398
15.00	5.00	SH	0	0.110	28.75	25.31	43.55	3700	1.00	2769.47	23162.83	20393.36	805664
16.00	1.00	CO	0	0.690	0.00	-21.56	44.40	1800	0.05	86.17	0.00	-86.17	3996
20.00	4.00	SH	0	0.100	11.25	8.13	45.11	3700	1.00	2086.39	7511.00	5424.61	667644
25.00	5.00	SH	0	0.080	27.50	25.00	46.39	3700	1.00	2145.49	23600.35	21454.86	858194
30.00	5.00	SS	0	0.080	20.00	17.50	47.81	3670	1.00	2193.22	17545.77	15352.55	877289
35.00	5.00	SS	0	0.080	22.50	20.00	49.23	3670	1.00	2258.35	20325.17	18066.82	903341
40.00	5.00	SH	0	0.080	22.50	20.00	50.65	3700	1.00	2342.48	21082.29	18739.81	936991
45.00	5.00	SS	0	0.100	20.00	16.88	52.07	3670	1.00	2985.77	19108.92	16123.15	955446
50.00	5.00	SH	0	0.060	18.75	16.88	53.49	3700	1.00	1855.35	18553.53	16698.18	989522
55.00	5.00	SS	0	0.060	20.00	18.13	54.91	3670	1.00	1889.16	20151.02	18261.86	1007551
60.00	5.00	SH	0	0.080	22.50	20.00	56.33	3700	1.00	2605.13	23446.18	20841.05	1042052
60.50	0.50	CO	0	4.210	0.00	-131.56	57.11	1800	0.05	338.10	0.00	-338.10	2570
63.00	2.50	SH	0	0.460	13.75	-0.63	57.53	3700	1.00	7650.22	7317.60	-332.62	532189
65.40	2.40	CO	0	0.760	0.00	-23.75	58.23	1800	0.05	298.72	0.00	-298.72	12578
70.00	4.60	SH	0	0.200	50.00	43.75	59.22	3700	1.00	6299.90	50399.16	44099.27	1007983
75.00	5.00	SH	0	0.250	23.75	15.94	60.59	3700	1.00	8756.63	26620.16	17863.53	1120849
80.00	5.00	SH	0	0.090	20.00	17.19	62.01	3700	1.00	3226.26	22942.28	19716.03	1147114
81.00	1.00	CO	0	0.570	0.00	-17.81	63.00	1800	0.05	101.00	0.00	-101.00	5670
										55662.34	306467.26	250804.92	14390041
										3.87	21.30	17.43	

TOTAL OVERBURDEN VOL.(ACRE-FT): 3906
PERCENT SANDSTONE: 26%
NP/MPA RATIO: 5.51
TONS/ACRE REQUIRED (1:1): 3981 EXCESS

TOTAL (TONS):
TOTAL (TONS/THOUSAND):

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Web Address: www.percengineering.com

COMPANY NAME: Best Coal, Inc.

DATE SAMPLED: 3-1-2012

MINE NAME: Narley Mine

DATE ANALYZED: 3-2-2012

SOIL / OVERBURDEN: S29R8-1

ANALYZED BY: SWR

SAMPLE WEIGHT: 5354.6 (GRAMS)

LAB ID: 7970

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	902.1	100.0	802.1	14.98	14.98	85.02
1/2"	802.7	100.0	702.7	13.12	28.10	71.90
1/4"	1040.8	100.0	940.8	17.57	45.67	54.33
3/16"	425.7	100.0	325.7	6.08	51.75	48.25
2 MM	723.6	100.0	623.6	11.65	63.40	36.60
SOIL	2059.7	100.0	1959.7	36.60	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 63.40

% OF SAMPLE THAT IS SOIL : 36.60

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COMPANY NAME: Best Coal, Inc.

DATE SAMPLED: 3-1-2012

MINE NAME: Narley Mine

DATE ANALYZED: 3-2-2012

SOIL / OVERBURDEN: S29R8-2

ANALYZED BY: SWR

SAMPLE WEIGHT: 4468.8 (GRAMS)

LAB ID: 7971

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	638.9	100.0	538.9	12.06	12.06	87.94
1/2"	334.5	100.0	234.5	5.25	17.31	82.69
1/4"	750.9	100.0	650.9	14.57	31.88	68.12
3/16"	417.8	100.0	317.8	7.11	38.99	61.01
2 MM	837.8	100.0	737.9	16.51	55.50	44.50
SOIL	2088.8	100.0	1988.8	44.50	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 55.50

% OF SAMPLE THAT IS SOIL : 44.50

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Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Best Coal, Inc.

DATE SAMPLED: 3-1-2012

MINE NAME: Narley Mine

DATE ANALYZED: 3-2-2012

SOIL / OVERBURDEN: S29R8-3

ANALYZED BY: SWR

SAMPLE WEIGHT: 4105.1 (GRAMS)

LAB ID: 7972

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	821.9	100.0	721.9	17.59	17.59	82.41
1/2"	399.7	100.0	299.7	7.30	24.89	75.11
1/4"	541.4	100.0	441.4	10.75	35.64	64.36
3/16"	731.9	100.0	631.9	15.39	51.03	48.97
2 MM	1086.2	100.0	986.2	24.02	75.05	24.95
SOIL	1124.0	100.0	1024.0	24.95	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 75.05

% OF SAMPLE THAT IS SOIL : 24.95

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Web Address: www.percengineering.com

COMPANY NAME: Best Coal, Inc.

DATE SAMPLED: 3-1-2012

MINE NAME: Narley Mine

DATE ANALYZED: 3-2-2012

SOIL / OVERBURDEN: OBR8-1

ANALYZED BY: SWR

SAMPLE WEIGHT: 4331.4 (GRAMS)

LAB ID: 7973

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	977.5	100.0	877.5	20.26	20.26	79.74
1/2"	1031.9	100.0	931.9	21.51	41.77	58.23
1/4"	751.2	100.0	651.2	15.03	56.80	43.20
3/16"	285.4	100.0	185.4	4.28	61.08	38.92
2 MM	489.8	100.0	389.8	9.00	70.08	29.92
SOIL	1395.6	100.0	1295.6	29.92	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 70.08

% OF SAMPLE THAT IS SOIL : 29.92

PERC ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Best Coal, Inc.

DATE SAMPLED: 3-1-2012

MINE NAME: Narley Mine

DATE ANALYZED: 3-2-2012

SOIL / OVERBURDEN: OBR8-2

ANALYZED BY: SWR

SAMPLE WEIGHT: 4424.0 (GRAMS)

LAB ID: 7974

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	886.8	100.0	786.8	17.78	17.78	82.22
1/2"	905.5	100.0	805.5	18.21	35.99	64.01
1/4"	836.6	100.0	736.6	16.65	52.64	47.36
3/16"	352.3	100.0	252.3	5.70	58.34	41.66
2 MM	523.2	100.0	423.2	9.57	67.91	32.09
SOIL	1519.6	100.0	1419.6	32.09	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 67.91

% OF SAMPLE THAT IS SOIL : 32.09

PERC ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Best Coal, Inc.

DATE SAMPLED: 3-1-2012

MINE NAME: Narley Mine

DATE ANALYZED: 3-2-2012

SOIL / OVERBURDEN: OBR8-3

ANALYZED BY: SWR

SAMPLE WEIGHT: 4308.5 (GRAMS)

LAB ID: 7975

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	701.2	100.0	601.2	13.96	13.96	86.04
1/2"	788.7	100.0	688.7	15.98	29.94	70.06
1/4"	824.2	100.0	724.2	16.81	46.75	53.25
3/16"	329.6	100.0	229.6	5.33	52.08	47.92
2 MM	575.6	100.0	475.6	11.04	63.12	36.88
SOIL	1689.2	100.0	1589.2	36.88	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 63.12

% OF SAMPLE THAT IS SOIL : 36.88

PERC ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Best Coal, Inc.

MINE NAME: Narley Mine

SOIL / OVERBURDEN: OBR8-4

SAMPLE WEIGHT: 4133.4 (GRAMS)

DATE SAMPLED: 3-1-2012

DATE ANALYZED: 3-2-2012

ANALYZED BY: SWR

LAB ID: 7976

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	513.0	100.0	413.0	9.99	9.99	90.01
1/2"	604.4	100.0	504.4	12.20	22.19	77.81
1/4"	557.8	100.0	457.8	11.08	33.27	66.73
3/16"	322.3	100.0	222.3	5.38	38.65	61.35
2 MM	575.9	100.0	475.9	11.51	50.16	49.84
SOIL	2160.0	100.0	2060.0	49.84	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 50.16

% OF SAMPLE THAT IS SOIL : 49.84

APPENDIX 3

Report on Soil Test

Auburn University Soil Testing Laboratory

Auburn University, AL 36849-5411

Perc Engineering Corp Inc

P O Box 1712

Jasper, AL 35502

County:Jefferson

District:1

Test Date:03/07/12

					SOIL TEST RESULTS				RECOMMENDATIONS			
L A B No.	Sample Designation	Crop	S o i l Group*	pH**	Phosphorus P***	Potassium K***	Magnesium Mg***	Calcium Ca***	LIME-STONE	N	P_2O_5	K_2O
					Pounds/Acre				Tons/Acre	Pounds/Acre		
14561	Best Coal Narley Mine P3850 PO 19094 7970 See Comment 1 See Comment 2	Revegetation	4	5.1	M 42	M 158	H 439	H 854	1.0	60	40	40
14562	7971 See Comment 1 See Comment 2	Revegetation	4	4.8	H 96	H 191	H 290	H 393	1.5	60	0	0
14563	7972 See Comment 1 See Comment 2	Revegetation	4	4.9	M 64	M 131	H 222	H 649	1.5	60	40	40
14564	7973 See Comment 2	Revegetation	4	7.3	H 127	VH 363	H 739	H 1735	0.0	60	0	0
14565	7974 See Comment 2	Revegetation	4	7.0	M 64	H 246	H 734	H 1379	0.0	60	40	0
14566	7975 See Comment 1 See Comment 2	Revegetation	4	4.9	M 48	M 176	H 489	H 824	1.0	60	40	40
14567	7976 See Comment 2	Revegetation	4	7.0	M 62	H 222	H 830	H 1551	0.0	60	40	0

Comment No.1: Soil acidity (low pH) can be corrected with either dolomitic or calcitic lime.

Comment No.2: For perennial winter grass pasture, apply N, P, and K as recommended by September 1. Repeat N application in February. If grass is to be cut for hay, in February apply up to 40 pounds N and 35 pounds K2O per ton of anticipated hay yield.

* 1. Sandy soil (CEC < 4.6 $cmol_c kg^{-1}$)

* 2. Loams and Light clays (CEC = 4.6-9.0 $cmol_c kg^{-1}$)

* 3. Clays and soils high in organic matter (CEC > 9.0 $cmol_c kg^{-1}$)

* 4. Clays of the Blackbelt (CEC > 9.0 $cmol_c kg^{-1}$)

** 7.4 or higher - Alkaline - - - - - - - - - - - - - - 6.6-7.3 - Neutral - - - - - - - - - - - - - 6.5 or lower - Acid - - - - - - - - - - - - -5.5 or lower - Strong Acid

*** Extractable nutrients in pounds per acre

If soil group = 1, 2 or 3. Method of Analysis = Mehlich-1. If soil group = 4. Method of Analysis = Miss/Lancaster.

Approved by: Joseph Hulcher

Print Date: April 29, 2012

Report on Soil Test

Auburn University Soil Testing Laboratory

Auburn University, AL 36849-5411

Perc Engineering Corp Inc

P O Box 1712

Jasper, AL 35502

County:Jefferson

District:1

Test Date:03/07/12

The number of samples processed in this report is: 7

For further information call your county agent: (205) 879-6964

* 1. Sandy soil (CEC < 4.6 $cmol_c kg^{-1}$)

* 2. Loams and Light clays (CEC = 4.6-9.0 $cmol_c kg^{-1}$)

* 3. Clays and soils high in organic matter (CEC > 9.0 $cmol_c kg^{-1}$)

* 4. Clays of the Blackbelt (CEC > 9.0 $cmol_c kg^{-1}$)

** 7.4 or higher - Alkaline - - - - - - - - - - - - - - 6.6-7.3 - Neutral - - - - - - - - - - - - - 6.5 or lower - Acid - - - - - - - - - - - - -5.5 or lower - Strong Acid

*** Extractable nutrients in pounds per acre

If soil group = 1, 2 or 3, Method of Analysis = Mehlich-1. If soil group = 4, Method of Analysis = Miss/Lancaster.

Approved by: Joseph Huluka

Print Date: April 29, 2012

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co.,Inc.
PO Box 1712
Jasper,Al. 35502

ALFA Agricultural Service & Research Building
961 S. Donahue Dr.
Auburn University, Auburn, AL 36849-5411
Phone (334)844-3958
Soillab@auburn.edu

Mine Name and Location: Best Coal Inc Narley Mine P3850 Rev R-8 Special Analysis #: 12.G0063-G0065 PO #: 19094

						Particle Size				
		S	OM	NO_3-N	Neutralizing Potential	%	%	%		H_2O avail.
Lab I.D.	Sample I.D.	%	%	ppm	Tons $CaCO_3$/1000Tons material	Sand	Silt	Clay	Textural Class	cm/cm
14561	7970	0.024	0.8	2.7	<1.0	67.50	16.25	16.25	Sandy Loam	0.09
14562	7971	0.019	1.1	1.7	<1.0	50.00	25.00	25.00	Sandy Clay Loam	0.11
14563	7972	0.024	2.6	1.9	<1.0	37.50	42.50	20.00	Loam	0.14

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co.,Inc.
PO Box 1712
Jasper,Al. 35502

ALFA Agricultural Service & Research Building
961 S. Donahue Dr.
Auburn University, Auburn, AL 36849-5411
Phone (334)844-3958
Soillab@auburn.edu

Mine Name and Location: Best Coal Inc Narley Mine P3850 Rev R-8 | Special Analysis #: 12.G0066-G0069 | PO #: 19094

						Soil Texture				
		OM	NO_3-N	Neutralizing Potential		%	%	%		H_2O avail.
Lab I.D.	Sample I.D.	%	ppm	Tons $CaCO_3$/1000 Tons material	max pot.acid.	Sand	Silt	Clay	Textural Class	cm^3/cm^3
14564	7973	12.2	3.3	7.58	6.35	67.50	15.00	17.50	Sandy Loam	0.09
14565	7974	5.0	7.5	9.35	4.00	62.50	17.50	20.00	Sandy Clay Loam	0.10
14566	7975	7.1	4.7	2.53	9.40	60.00	20.00	20.00	Sandy Clay Loam	0.10
14567	7976	4.7	2.3	5.81	4.80	65.00	15.00	20.00	Sandy Clay Loam	0.09

MULTIPLE SULFUR ANALYSES

		%	%	%	%	%					
Lab I.D.	Sample I.D.	1rst	2nd	3rd	4rth	Ave					
14564	7973	0.238	0.199	0.192	0.184	0.203					
14565	7974	0.145	0.126	0.118	0.124	0.128					
14566	7975	0.284	0.266	0.310	0.344	0.301					
14567	7976	0.160	0.118	0.153	0.183	0.154					

DATE: 4-28-12

APPENDIX 4

Determination of the "Total Available Water Capacity."

Note: Soil & Overburden percentages taken from Appendix 2

SOILS (AVE):

SAMPLE NUMBER	PERCENT OF SAMPLE 1"	1/2"	1/4"	2mm
Soil S29R8-1	14.98	13.12	17.57	17.73
Soil S29R8-2	12.06	5.25	14.57	23.62
Soil S29R8-3	17.59	7.30	10.75	39.41
AVE:	14.88	8.56	14.30	26.92

14.88% x .0389 in./in. = .0058
8.56% x .0492 in./in. = .0042
14.30% x .0603 in./in. = .0086
26.92% x .1149 in./in. = .0309

< 2mm average from Appendix 2: 35.34

Average available water capacity of < 2mm from Appendix 3 = .1133

35.34% x .1133 in./in. = .0401

Ave. TAWC for soils = .0896 in./in.

APPENDIX 4 (Continued)

OVERBURDEN (AVE.):

SAMPLE NUMBER	PERCENT OF SAMPLE			
	1"	½"	1/4"	2mm
OBR8-1	20.26	21.51	15.03	13.28
OBR8-2	17.78	18.21	16.65	15.27
OBR8-3	13.96	15.98	16.81	16.37
OBR8-4	9.99	12.20	11.08	16.89
AVE:	15.50	16.98	14.64	15.45

15.50% x .0389 in./in. = .0060
16.98% x .0492 in./in. = .0084
14.64% x .0603 in./in. = .0088
15.45% x .1149 in./in. = .0178

< 2mm average from Appendix 2 = 37.52

Average available water capacity of < 2mm from Appendix 3 = .0950

37.52% x .0950 in./in. = .0356

Ave. TAWC for overburden = .0766 in./in.

*Available water capacity values (in./in.) were obtained from Table 1 "A Method of Comparing Soil Materials for Plant Available Water" which was supplied by the Regulatory Authority.

Exhibit 1: Picture of Overburden Sampling site showing texture of overburden.

Exhibit 2: Another picture of Overburden Sampling site showing texture of overburden.

Exhibit 3: Picture of highwall at the original permit area showing lithology adjacent to the Revision R-8 area.

Exhibit 4: Picture of reclamation adjacent to the Revision R-8 Area showing expected revegetation quality of the reclaimed surface.

CERTIFICATION STATEMENT:

The preceding geologic information submitted in the Topsoil Variance Application prepared for Best Coal, Inc. at the Revision R-8 Area of the Narley Mine was by a qualified professional and I hereby certify that it is true and correct to the best of my knowledge or belief.

_____

Date:_____

TIMOTHY S. THOMAS

PROFESSIONAL ENGINEER

LICENSE NO. 18830

Best Coal, Inc.
Narley Mine / P-3850 / R-8
Attachment IV-B-1

OVERBURDEN RESTABILIZATION PLAN

All overburden shall be backfilled, compacted, and graded so that the post mining slope shall approximate the pre-mining slope (See Attachment IV-B-3) and in a timely manner (See Part IV-B-2). Overburden will be rough graded by Caterpillar type dozers. Once overburden has been rough graded, farm-type tractors will be used to disc the overburden to its final contour, decrease compaction, and increase the mechanical breakage of the surface layer. Rocks 24" in diameter that remain upon the surface, if any, will be collected and buried. At this time the following criteria will be used to evaluate the textural quality of the graded overburden:

a) Rocks of a size greater than 10" shall not exceed 10% by weight of the substitute material.

b) The substitute material shall not contain more than 15% by weight of materials between 10 and 3 inches in size.

c) The substitute material shall not contain more than 50% by weight of materials between 3 and .75 inches in size.

d) At least 30% by weight of the substitute material shall be of a size less than 2 millimeters.

If this criteria is not met, Best Coal, Inc. shall redisc the overburden and resample. If increasing the mechanical breakage will not enhance the graded overburden to a satisfactory level, rocks will be collected from the surface and buried and/or additional soil sized material will be hauled and spread on site until the above criteria is achieved.

C.Revegetation

(1) Outline procedures for soil testing required to determine type and amount of soil amendments to be applied and to evaluate results of topsoil handling and replacement. (780.18, 816.25)

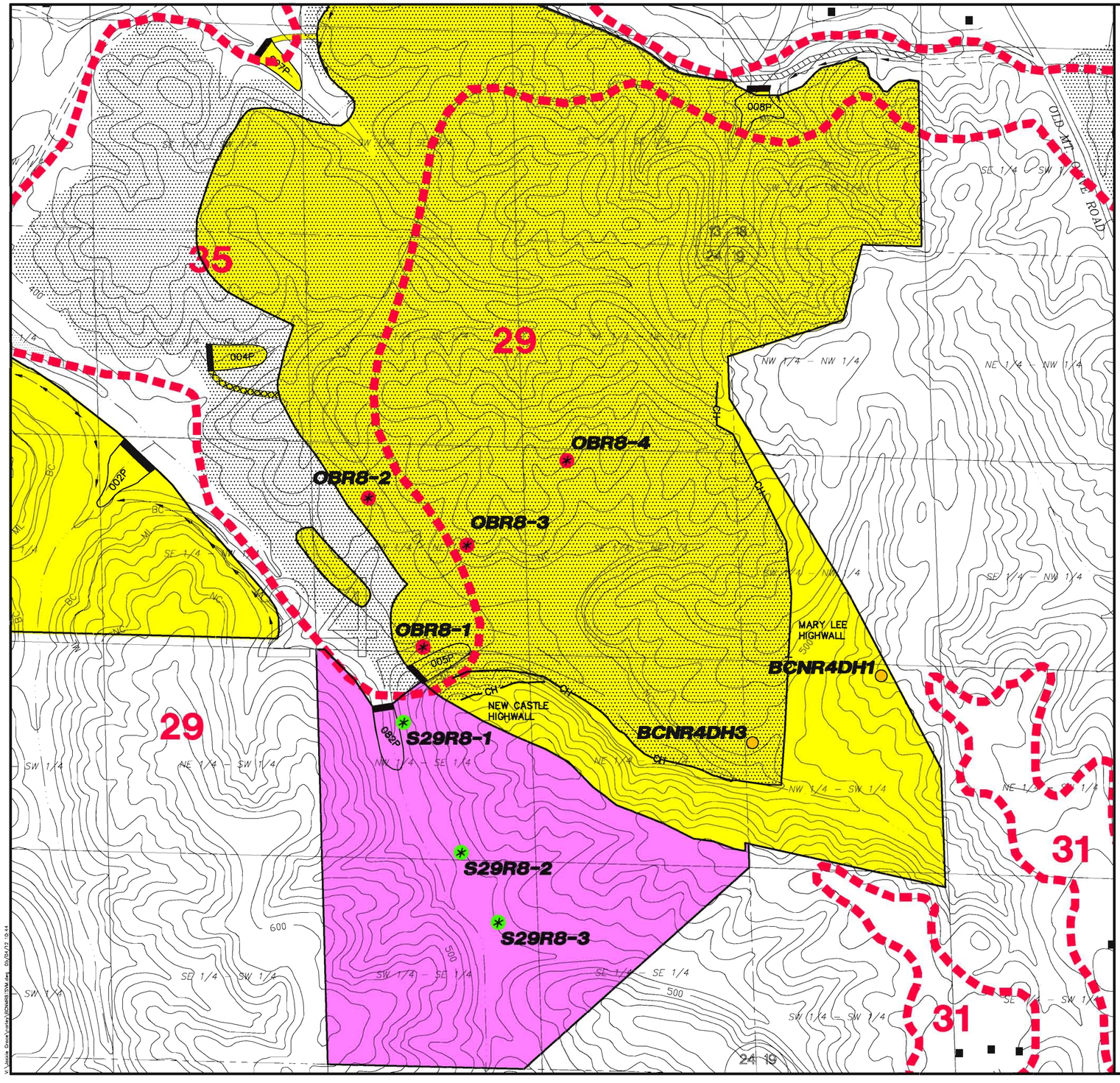
Once the texture criteria for final graded overburden has been met as outlined on Attachment IV-C-2, the final texture samples taken shall be sent to the Auburn University Soil Testing Laboratory where the following tests shall be conducted: % sand, silt, & clay, textural classification, pH, total sulfur, acid-base account, fertility ratings for phosphorus, potassium, and magnesium, and amendment recommendations for post mining revegetation for limestone, nitrogen, P_2O_5 and K_2O. Results of this analysis will be used to determine the amount of soil amendments, if any, to be applied to the plant medium and will be submitted to the Regulatory Authority for review.

Sampling frequency shall be 1 sample/20 acres. Overburden sampling for these areas shall be identical to the guidelines set forth in the "Sampling Technics" section of Attachment IV-C-2. .

(2) Are selected overburden materials to be used as a supplement or substitute for topsoil?
(X) Yes ( ) No

If, yes, provide results of analysis, trials, and tests required under Section 816.22(e). (779.21)

See Topsoil Variance Application (Attachment IV-C-2)



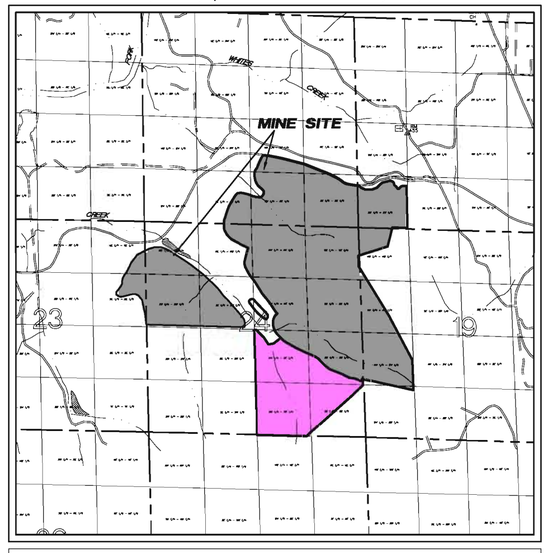
MAP LEGEND

- R–8 Topsoil Variance Area
- Original Permit Area
- EH — Existing Highwall
- 700 — Surface Contour
- Natural Drainage Course
- County Road
- Soil Boundary Line
- BCNR4DH1 — Drill Hole
- S29R8-2 — Topsoil Sampling Site
- OBR8-3 — Overburden Sampling Site
- 29 — Soil Number
- CH — Current Highwall

SOIL TYPE SYMBOL	SOIL NAME & SLOPE RANGE
29	Montevallo–Nauvoo Association, Steep
35	Palmerdale Complex, Steep
31	Nauvoo Fine Sandy Loam

NOTES

- None of the above soils are Classified by the USDA Soil Conservation Service as Prime Farmland.
- The Pre Mining Land use within the Topsoil Variance area is Undeveloped/Unmanaged lands (Forest).
- The Post Mining Land use within the Topsoil Variance area is Undeveloped/Unmanaged Lands, (utilizing perennial grasses as permanent vegetation).
- Base map – Brookside Alabama United States Geological Survey 7.5 Minute Quadrangle Map.
- Narley Mine is located in T15S, R3W, part of Sections 18 & 19 and T15S, R4W, part of Sections 13, 23, & 24.



VICINITY MAP

Scale: 1"= 1 Mile

PERC
ENGINEERING CO., INC.
1606 Hwy. 78 West Jasper, AL 35501/P.O. Box 1712-35502
(205) 384-5533 Office (205) 295-3114 Fax

Scale 1" = 500'

drawn by:	JNG
dwg name:	BCNMR8TSVM
approved by:	TST
date:	5–4–12
scale:	1" = 500'

BEST COAL, INC.
NARLEY MINE
P-3850 / REVISION R-8
ATTACHMENT IV - C - 2
TOPSOIL VARIANCE MAP