

STANDARD PROCTOR COMPACTION TEST (ASTM D-698)

Company Name: Birmingham Coal & Coke Co., Inc

Location: Old Union #2 Mine

Sample I.D.: Basin 138

Description: Dam Material

Sample Date: 07/11/11

Analyzed By: KF/GA

Date Analyzed: 07/14/11

Requested By: JRW

Weight of Mold (W1): 4,250 Grams

Test No.	Wt. of Mold & Wet Soil (w2) grams	Wt. of wet Soil (w2-w1) grams	Wet Unit Wt. (w2-w1)/c lb/cu-ft	Moisture Content (w) %	Dry Unit Weight lb/cu-ft
1	6,055	1,805	119.4	10.0	108.6
2	6,159	1,909	126.3	12.2	112.6
3	6,255	2,005	132.6	15.0	115.3
4	6,244	1,994	131.9	16.8	112.9
5	6,209	1,959	129.6	17.8	110.0
6					
7					

Constant C = 15.12 (conversion factor)

MOISTURE CONTENT DETERMINATION

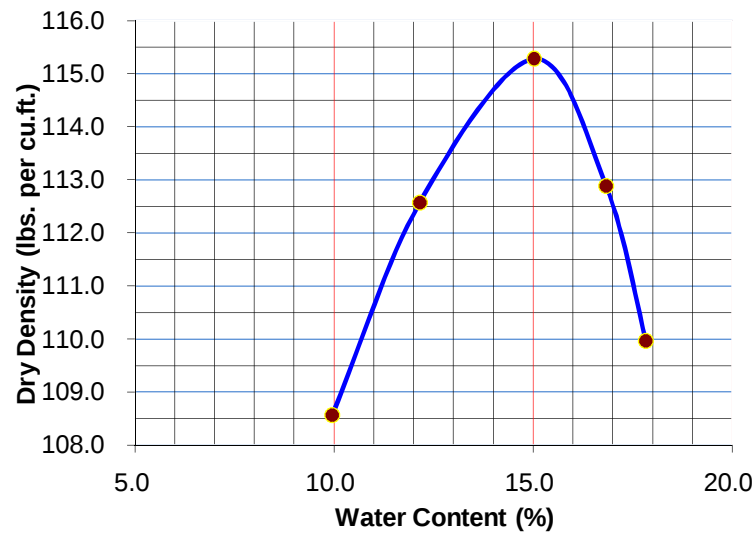
Test No.	1	2	3	4	5	6	7
Can No.	1	2	3	4	5	6	
Wt. of Can, a, (g)	20.5	20.5	20.6	20.5	20.6		
Wt. of Can + Wet Soil, b, (g)	51.4	71.2	48.9	62.1	53.0		
Wt. of Can + Dry Soil, c, (g)	48.6	65.7	45.2	56.1	48.1		
* Moisture Content, w, (%)	10.0	12.2	15.0	16.8	17.8		

* Moisture Content, $w = (b - c)/(c - a) \times 100$

Maximum Dry Density (Lb/Cu-Ft):

Optimum Moisture Content (%):

Birmingham Coal & Coke Co., Inc
Old Union #2 Mine, Basin 138, Dam Material
Moisture Density Relationship
(Proctor Method)



ASTM D-698 Method C	Water Content %	Specific Gravity	%> No. 4	%< No. 200	LL %	PL %	PI %
			30.90	20.50	30.9	23.6	7.3
Sample Description, Classification and Location				Sample No.: Basin 138 Dam Material			
Coarse Grained Clayey Sand (SC)				Optimum Moisture Content= 15.0			
				Maximum Dry Density = 115.3			

SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Birmingham Coal & Coke

Location: Old Union #2 Mine

Sample I.D.: Basin 138

Description: Dam Material

Sample Date: 7/11/11

Analyzed By: KF/GA

Date Analyzed: 7/13/11

Requested By: J.R.W.

Weight of Oven Dry Sample (W): 1020.0 Grams

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1/2"	667.0	540.0	127.0	12.5	12.5	12.5	87.5
4	700.0	513.0	187.0	18.4	30.9	30.9	69.1
10	664.0	462.0	202.0	19.9	50.7	50.7	49.3
40	473.0	383.0	90.0	8.8	59.6	59.6	40.4
200	535.2	333.0	202.2	19.9	79.5	79.5	20.5
Pan	570.8	362.0	208.8	20.5	100.0	100.0	0.0
Total Weight (W1):			1017.0				

SOIL CLASSIFICATION

Unified System (ASTM D-2487)

Liquid Limit: 30.9

Plastic Limit: 23.6

Plasticity Index: 7.3

Effective Cohesion: 0.6940 psi

Total Cohesion: 8.610 psi

Permeability: 0.50 ft/yr

Maximum Dry Density: 116.0 pcf

Optimum Moisture: 15.1 %

Effective Cohesion: 99.9 psf

Angle of Internal Friction: 27.92 degrees

Mass Unit Weight: 133.52 pcf

Soil Classification: SC

Coarse Grained
Clayey Sand

SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Birmingham Coal & Coke

Location: Old Union #2 Mine

Sample I.D.: Basin 138

Description: Foundation

Sample Date: 7/11/11

Analyzed By: KF/GA

Date Analyzed: 7/13/11

Requested By: J.R.W.

Weight of Oven Dry Sample (W): 1155.0 Grams

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1/2"	609.0	540.0	69.0	6.0	6.0	6.0	94.0
4	680.0	513.0	167.0	14.5	20.5	20.5	79.5
10	644.0	462.0	182.0	15.8	36.3	36.3	63.7
40	700.0	383.0	317.0	27.5	63.9	63.9	36.1
200	520.4	333.0	187.4	16.3	80.2	80.2	19.8
Pan	590.4	362.0	228.4	19.8	100.0	100.0	0.0
Total Weight (W1):			1150.8				

SOIL CLASSIFICATION

Unified System (ASTM D-2487)

Liquid Limit: 23.9

Plastic Limit: 15.6

Plasticity Index: 8.3

Effective Cohesion: 0.6940 psi

Total Cohesion: 8.610 psi

Permeability: 0.50 ft/yr

Maximum Dry Density: 116.0 pcf

Optimum Moisture: 15.1 %

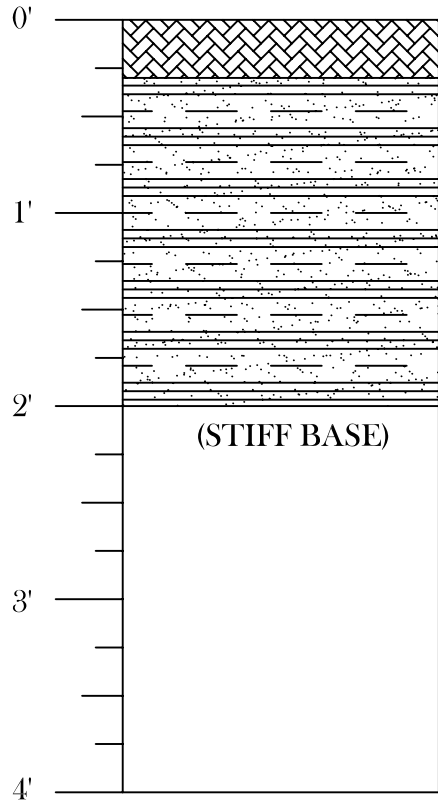
Effective Cohesion: 99.9 psf

Angle of Internal Friction: 27.92 degrees

Mass Unit Weight: 133.52 pcf

Soil Classification: SC

Coarse Grained
Clayey Sand



BIRMINGHAM COAL AND COKE CO., INC.

DRAWN BY: JRW	DATE: 07/19/11	OLD UNION #2 BASIN 138P FOUNDATION INVESTIGATION
APPROVED BY: J.D.M.	DATE: 07/19/11	
SCALE: 1" = 1'	SHEET: 1 OF 1	LYNN & POPLAR SPRINGS USGS QUADRANGLE



DESIGN GROUP, LLC
ENGINEERING / SURVEYING

1400 VIKING DRIVE
JASPER, ALABAMA 35501
TELEPHONE: (205) 221-6262