Heartland Corridor, Walton Virginia to Columbus Ohio

Preliminary Engineering Phase Report

ANTLER NO. 1
TUNNEL –
MP N403.71
MOHEGAN, WV

October 14, 2005, Rev. 2

Hatch Mott MacDonald

Hatch Mott MacDonald

Preliminary Engineering Phase Report

October 14, 2005

Norfolk Southern Railway
Heartland Corridor, Walton VA to Columbus OH

Antler No. 1 Tunnel – MP N403.71

Statistics: Pocahontas Division
Double-width Tunnel for Main #1 and Main #2
Length = 613'
Concrete lined
Degree of Curvature = 5.9 RT (per Track Chart)
Superelevation = 3.5" (per Track Chart)

1. EXISTING CONDITIONS

1.1 Background

Valuation Maps V-13WV/30 & 31 (16286 & 16287) for the Antler No.1 Tunnel are dated June 30, 1916. Parcels for the tunnel were acquired in 1903. Therefore it is suspected to have been constructed in 1903 or shortly afterwards. Additional information on this tunnel was obtained from various sources such as topographic maps, aerial photos, inspection reports, track charts, and field investigations that were performed on March 22, June 13, and July 10, 2005.

1.2 General Area

The tunnel is located in a lightly populated area in the Town of Mohegan, McDowell County, West Virginia. Nearby land use includes residential areas near the east and west portals. Potential staging areas are located in close proximity of both the east and west portals. The tunnel may be accessed from Mohegan Bottom Road off of Route 7. There is a rail bridge in close proximity to the east portal crossing the Tug Fork River.

1.3 Structural Conditions

The tunnel is 613' long with a concrete lining and a width of approximately 30'. It is a double-width tunnel for two tracks. There are no signs of utilities inside of the tunnel, however track circuits could be buried in ballast. Most of the construction joints are generally open and leaking water. Spalling is common around the construction joints, typically 6" to 12" on each side of the joints.

Liner cores were taken on July 10, 2005. Cores were drilled into the liner at locations 150' and 550' into the tunnel from the east portal. The cores were taken at the 7, 10 and 12 o'clock positions at each location. A borescope was inserted into the holes to view inside the liner. The video from the borescope was recorded onto a DVD. The liner probe investigation is summarized in the table below:

Summary of Antler No. 1 Tunnel Liner Core Investigation

Distance from East Portal	Position	Liner Thickness	Notes
150'	7 o'clock	41"	Deteriorated concrete after 16". No void behind liner.
150'	10 o'clock	49"	No void behind liner.
150'	12 o'clock	44"	Wood above liner. No voids encountered.
550'	7 o'clock	37"	No void behind liner.

Summary of Antler No. 1 Tunnel Liner Core Investigation			
Distance from East Portal	**Position**	**Liner Thickness**	**Notes**
550'	10 o'clock	33"	No void behind liner
550'	12 o'clock	40"	Wood above liner. No voids encountered.

The bridge outside of the east portal of the tunnel was investigated on June 13, 2005. It is a 3-span timber deck girder bridge. The girders are built-up steel plate girders with the south pair of girders carrying Main #1 and the north pair carrying Main #2. The girders bear directly on the abutments. The bridge spans over the Tug Fork River. The structure type and site geometry, coupled with the proximity of rock below the rail make track lowering a difficult and expensive option.

Approximately 12" of the tunnel liner foundation is exposed. A small portion of the tunnel invert material was excavated to expose the base of the tunnel liner footing. The footing thickness was found to be 19". The vertical distance from the top of rail to the base of the footing was measured at 29".

1.4 Track

The track is continuous welded rail of conventional design with wooden crossties at approximately 19" on center and a stone ballast section. The rail is typically 141 AB or 132RE on 15" tie plates and fastened with rail spikes and anchors. The track curves right 5.9 degrees with a superelevation of 3.5" throughout the length of the tunnel. There are drainage ditches along each wall and in between the tracks. Standing water is present in the north ditch. The water in the tunnel was tested and its pH reading was 7.6. This is a fairly neutral reading and indicates that the water is not unusually corrosive. Ballast on Main #2 is fouled and the track is pumping mud near the north ditch. The ballast from this tunnel was tested and classified as being "Very Strong", requiring many blows of a geological hammer to break intact rock specimens. There is a gage rod present near the west portal which may be an indication of a gage problem through the curve

1.5 Geotechnical

The tunnels in the east-central part of the Pocahontas Division (including Antler No. 1) are located in the Appalachian Plateaus Physiographic Province, a region characterized by deeply incised plateaus underlain by flat-lying sedimentary rock. The tunnel itself is lined and no rock was exposed. The description of the site geology at each tunnel is based on our observations of the rockmass at the portals and adjacent cuts and the 1968 West Virginia Geologic Map prepared by the West Virginia Geologic and Economic Survey.

The tunnel was excavated through the medium- to thick-bedded fine-to medium grained sandstone of the New River Formation. The sandstone is locally interbedded with thin-bedded sandstone, siltstone, shale, and coal. Bedding is subhorizontal and gently rolls back and forth towards the northwest and southeast. Beds of thin-bedded sandstone and shale up to five feet thick were infrequently noted within the sandstone.

Coal beds and coaly shale beds up to five feet thick were noted along several County Route 7 road cuts located above and adjacent to the Antler No. 1 and No. 2 Tunnels. The coal beds appear to be locally mined out from the road cut surface and the excavation extends several tens of feet back from the cut face. Joints in the rock cuts are typically steeply dipping and widely spaced. Most joints are less than 15 feet in length and are not through-going across the exposure face.

The rock quality designation, Q, at the portals was determined to be 18. A Q rating between 10 and 40 is considered "Good" with 10 bordering on "Fair" and 40 bordering on "Very Good." A sample of rock was taken from the portal and tested. Lab testing of the sample indicates indicates that the rock has an intact compressive strength of 17,000 psi.

The geoprobes indicate that the top of rock is located between 2.0' to 3.0' (averaging about 2.6') below the top of ballast throughout the tunnel for Main #1 and between 1.5' to 3.8' (averaging about 2.3') below the top of ballast throughout the tunnel for Main #2. Top of ballast is typically about 0.8' below top of low rail.

1.6 Clearances

The laser car measurements indicate that the existing tunnel has inadequate horizontal clearance for the "High-Wide Load" portion of the composite clearance envelope. It encroaches on the right wall throughout the whole tunnel, up to 5" at the west portal. Horizontal clearance to the left wall is adequate. The tunnel has adequate horizontal clearance for the "Double Stack" portion of the envelope. For vertical clearance, the "Double Stack" portion of the envelope encroaches on both sides of the tunnel crown by an average of about 14" on the left wall and 25" on the right wall. For the "High-Wide Load," encroachment on either side the crown averages about 5" on the left wall and 18" on the right wall, varying up to 21", at points lower than the "Double Stack" envelope. Cross sections of the tunnel clearance encroachments are shown in the drawings at the end of this report. The maximum vertical encroachments are summarized in the table below:

	Crown Encroachment (radial inches)	
Distance (ft) from East Portal	**Left Side**	**Right Side**
0	16	26
102	13	26
201	14	24
302	12	23
402	13	25

	Crown Encroachment (radial inches)	
Distance (ft) from East Portal	Left Side	Right Side
501	13	26
601	15	25

2. CLEARANCE IMPROVEMENT ALTERNATIVES

Given the magnitude of the vertical clearance deficiency, there are several general alternatives that can be used to obtain the clearance; replacing the lining, notching the lining, using steel ties to lower the track, or realigning the track. Combinations of the general methods may be required to obtain a design that is cost effective and that can be constructed within reasonable track outages. Track lowering or undercutting does not appear feasible due to the proximity of the top of rock to the surface.

2.1 Liner Replacement

To obtain the desired clearance, the concrete liner in the tunnel crown must be demolished, the native rock excavated to the clearance limits plus the new liner thickness, and a new concrete liner installed. This method appears necessary considering that the amount of encroachment is nearly equal to the entire thickness of the liner for most of the right side of the tunnel crown. Partial demolition on the sides of the liner will be used to address the horizontal encroachments.

2.2 Notching

Notching in the upper quadrants of the tunnel crown may not cut entirely through the liner and could be an alternative to complete liner replacement. However, on the right side of the tunnel crown, the encroachment is large enough that a minimum liner thickness of at least 10” might not be maintained. The six cores taken in July 2005 varied in thickness from 33" - 49", which is more than the minimum thickness of 26" at crown and 34" in the sidewalls that was indicated on drawings for adjacent tunnels. However additional investigations would be required before the apparent additional thickness of concrete can be relied on in the reconstruction. Therefore, deep notching of the tunnel crown will no longer be considered as a viable alternative for achieving the necessary vertical clearance, unless additional investigations in the Final Design Phase conclude that an adequate thickness can be maintained.

A form of notching by means of hydro-demolition would be a viable alternative for achieving the necessary horizontal clearance for the “High-Wide” portion clearance envelope. Hydro-demolition provides the ability to shave off several inches of concrete from the interfering wall. Preliminary calculations indicate that 6” could be shaven off the wall with little adverse effects to the wall stability.

2.3 Steel Ties

Substitution of steel ties for the standard wood ties would permit the rails to be lowered about 6 inches. Transition sections would be constructed at the tunnel approaches for the vertical curves and for a gradual transition in track stiffness. A proper drainage system is required to minimize corrosion of the ties.

Steel ties would not be sufficient to fix the entire clearance deficiencies, but in some cases could be used in conjunction with notching to provide a more economical solution. However, in this case, even with steel ties the amount of encroachment of the tunnel crown would still be significant enough to eliminate deep notching as a practical alternative. Due to the close proximity of the rail bridge outside the east portal, steel ties would require expensive and impractical bridge modifications in order to lower the bridge. Also, lateral shifting of the track is a concern when using steel ties. Steel ties do not provide any significant advantages that would warrant their expense. Therefore, they will no longer be considered as a viable alternative.

2.4 Track Re-Alignment

Realigning the track to a uniform curved alignment at the tunnel portals and within the tunnels could allow the High and Wide load to clear the tunnel walls while maintaining adequate track centers. However, realigning to achieve adequate clearance on the right side of the tunnel may result in horizontal encroachments on the left side of the tunnel near the east portal. The track re-alignment is minor and would be accomplished during the ballast cleaning operation.

2.5 Daylighting

Daylighting was investigated for this tunnel but the presence of two roadways over the tunnel would add significant costs due to the need for new bridges. Therefore this alternative will no longer be considered.

3. PREFERRED ALTERNATIVE

Given the magnitude of the vertical encroachment, liner replacement of the tunnel crown is necessary for 100% of the length of the tunnel to achieve the required clearance. Modifications to the right wall, most likely by hydro-demolition, will be required to gain adequate horizontal clearance for the High-Wide portion of the clearance envelope. These modifications will be required for approximately 70% of the length of the tunnel on the right wall only. Detailed analysis into the necessity of, and method for, wall modifications will be done in final design. Additional investigations in the final design phase may determine that notching is possible for some of the tunnel. Drainage improvements are also recommended to help alleviate the ballast-fouling problem.

3.1 Preliminary Design

The preliminary design uses liner replacement of the tunnel crown with hydro-demolition of the right wall. The existing track structure is planned to be flooded with ballast to the top of the rail to provide access into the tunnel for the contractor to work and to protect the track during the

construction. The preliminary design also proposes to install a drainage system and undercut the track to replace the fouled ballast.

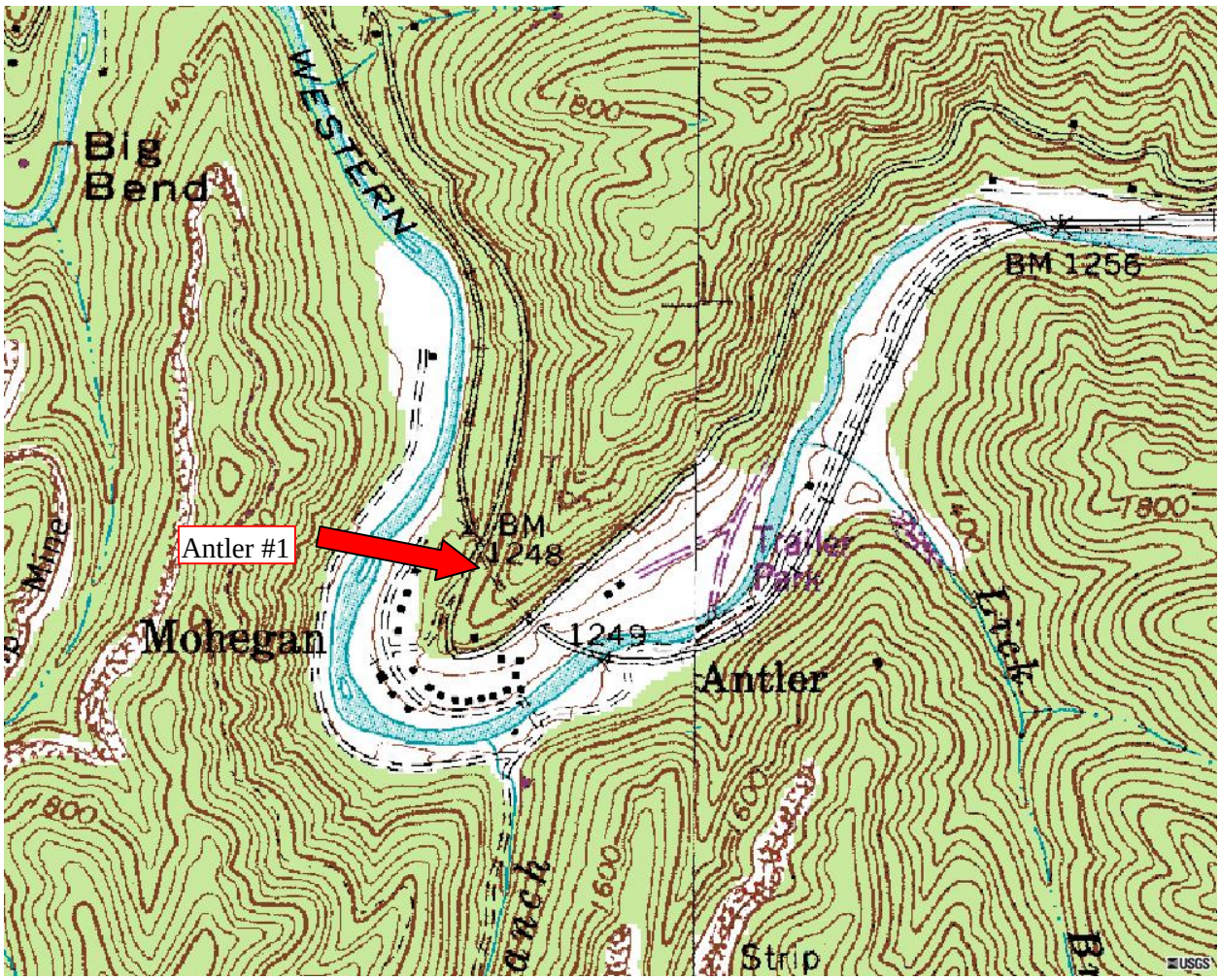
3.2 Schedule

The estimated schedule for completing improvements on this tunnel is twenty-five (25) weeks from mobilization to demobilization. The schedule assumes one track being closed at a time for eight hours, five days a week. The schedule assumes 12' of crown removal each day, with concrete removal, rock removal, installation of rock dowels and installation of shotcrete all occurring on the same day for each 12' segment. Drainage improvement operations would be undertaken at the same time as the crown removal, but at different locations in the tunnel. Wall modifications would be completed after the tunnel crown has been replaced.

3.3 Estimate

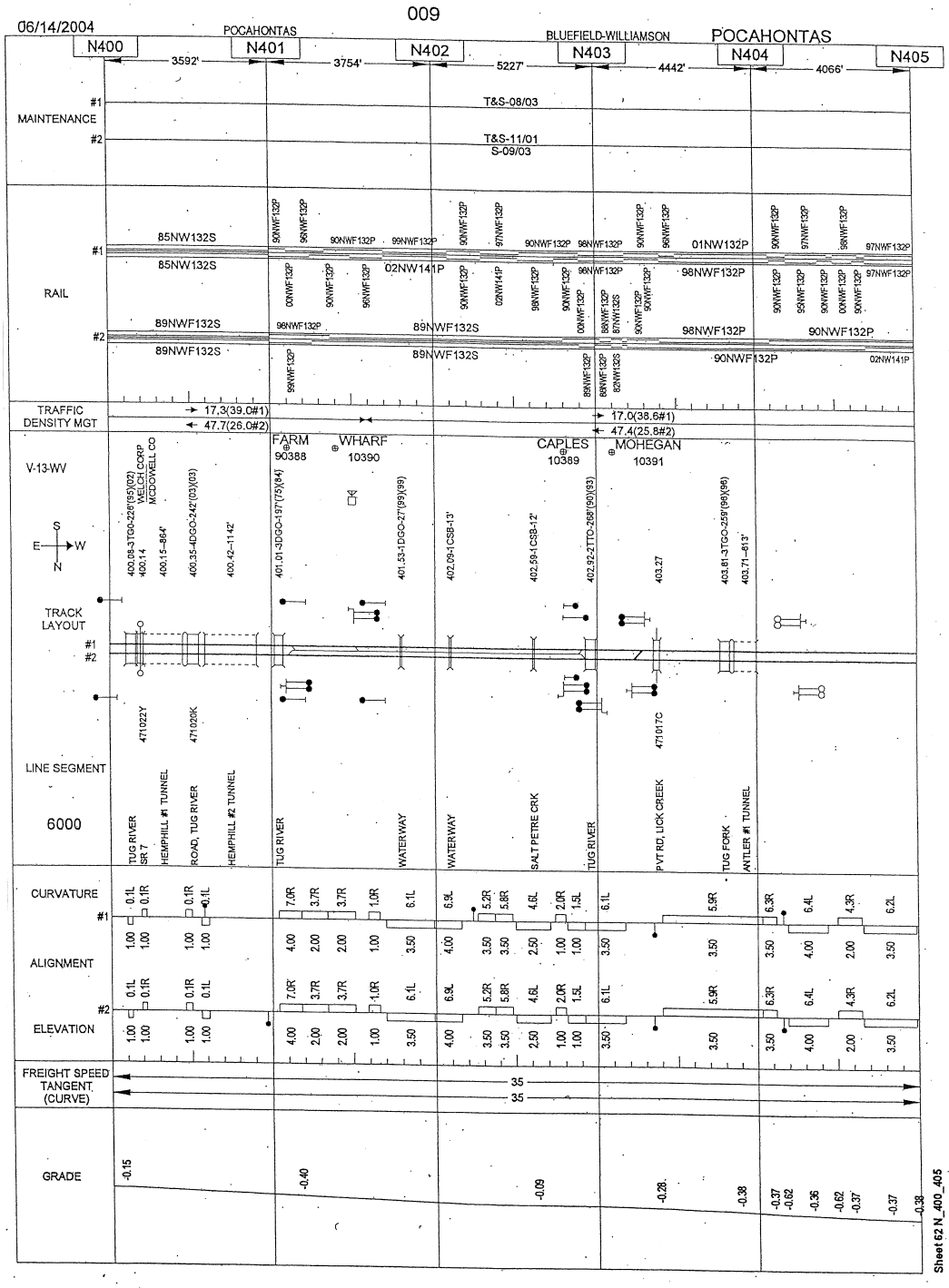
The total estimated cost for achieving clearance at this location is $4.6 million (2005 rates) or $7,485 per foot of tunnel. The work items include mobilization, surveying, crown removal, rock removal, rock dowels, crown replacement, wall hydro-demolition, rock cut for drainage trench, tunnel drainage system, ballast cleaning, and demobilization. The total cost is made up of tunnel, track, signal, and site work items at $2.8 million, plus a 30% construction contingency, a 10% engineering allowance, and a 14% construction management allowance.

4. USGS TOPOGRAPHIC MAP



5. AERIAL PHOTO

6. TRACK CHART



7. PHOTOS

Photo No. 1 – East Portal

Photo No. 2 – Looking from East Portal

Photo No. 3. – West Portal

Photo No. 4. – Looking from West Portal

Photo No. 5. – Mud Pumping Through Ballast

Photo No. 6. – Spall With Water Leaking

8. ESTIMATE

Antler No. 1

Tunnel Length	613	ft
Tunnel Width	29.5	ft
# of Tracks	2	

	Contractor		Railroad	
Work Window	10	hrs	10	hrs
Setup & Demobilization Allowance	2	hrs	2	hrs
Production Time	8	hrs	8	hrs

Tunnel Work Items	UOM	Quantity	Unit Rate	Total
Mobilization	%	5%		$119,263.48
Surveying	DY	5	$1,300.00	$6,500.00
Rock Dowels 14' with Chain Link Mesh - Crown	EA	1022	$604.43	$617,525.87
Crown Removal	SF	28887	$16.21	$468,279.20
Wall Hydrodemolition	SF	6544	$4.84	$31,659.20
Rock Removal - Crown	CY	1070	$428.06	$457,979.20
Crown Installation	SF	28887	$24.46	$706,446.38
Rock Cut Drainage Trench	LF	713	$94.41	$67,315.20
Tunnel Drainage	LF	713	$18.44	$13,148.64
Demobilization	DY	5	$3,283.20	$16,416.00
Total Tunnel Work Items	**LF**	**613**	**$4,085.70**	**$2,504,533.18**

Trackwork Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY			
Undercutting	PF	1300	$20.02	$26,029.72
Surfacing & Lining	PF	3900	$2.64	$10,304.06
Ballasting Track	TN	1300	$39.41	$51,231.32
Demobilization	DY			
Total Trackwork Items				**$87,565.10**

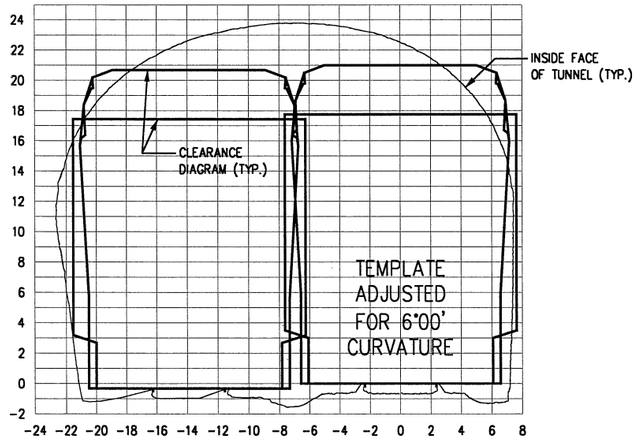
Signal Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY			
Relocate Cables / Track Leads	LF	613	$14.21	$8,710.18
Demobilization	DY			
Total Signal Items				**$8,710.18**

Site Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY	1	$2,483.60	$2,483.60
Erosion & Sedimentation Control	EA	1	$11,958.80	$11,958.80
Demobilization	DY			
Total Site Items				**$14,442.40**

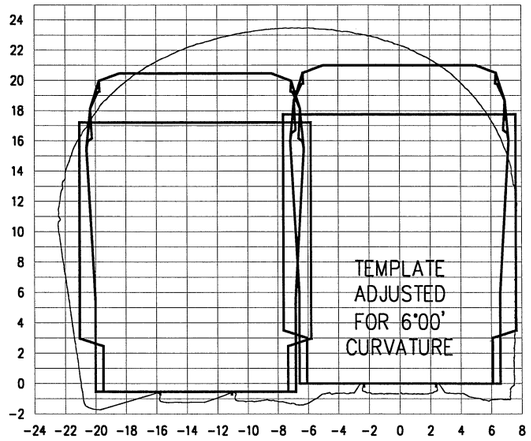
Special Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY			
Flagging	DY	124	$821.50	$101,866.00
Flood Track with Ballast for Protection	TN	2600	$40.36	$104,926.06
Remove Flooded Ballast	TN	2600	$9.41	$24,474.46
Demobilization	DY			
Total Specialty Items				**$231,266.51**

Subtotal All Items		**$2,846,517.38**
Construction Contingency	**30%**	**$853,955.21**
Engineering Allowance	**10%**	**$370,047.26**
Construction Management Allowance	**14%**	**$518,066.16**
Total		**$4,588,586.01**

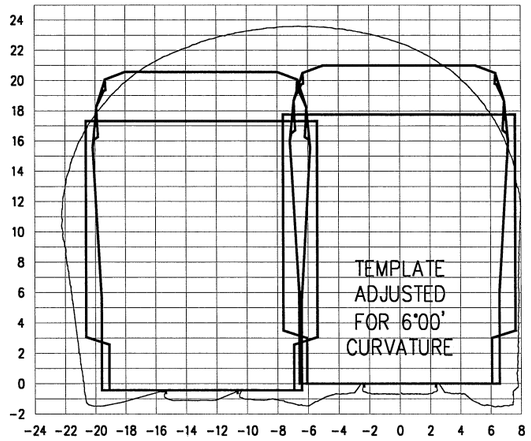
9. DRAWINGS



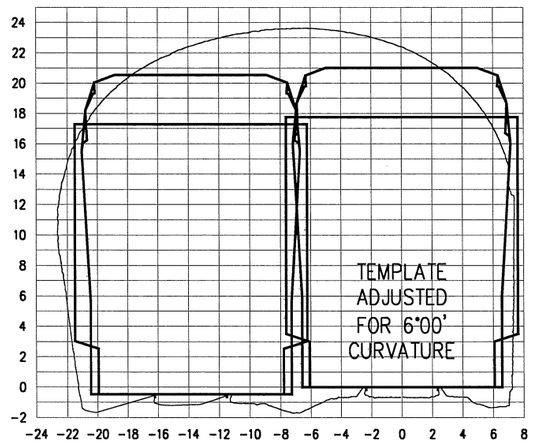
0+00



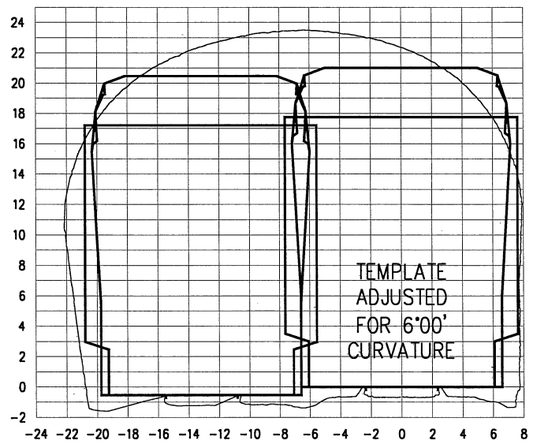
1+51



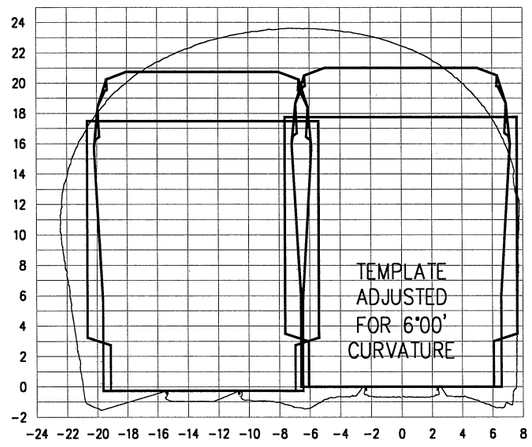
3+02



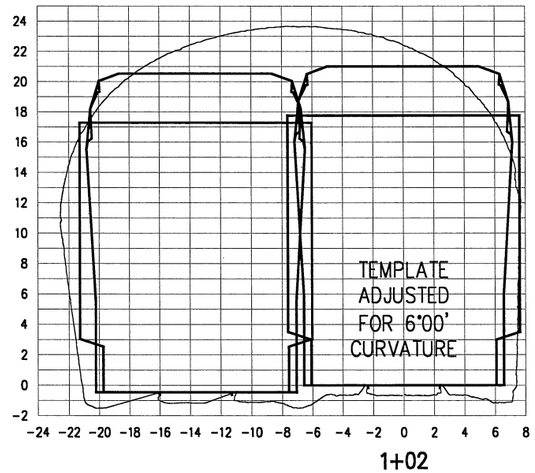
0+51



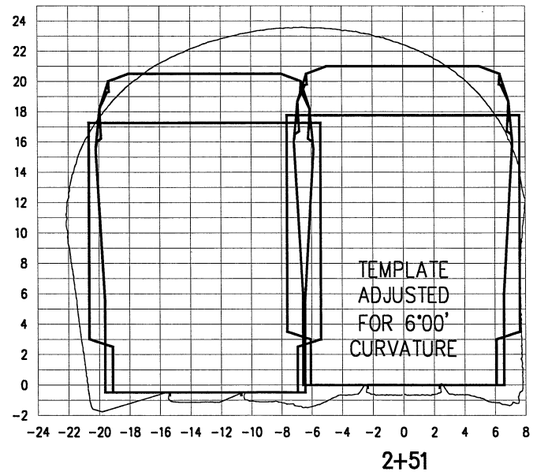
2+01



3+51



1+02



2+51

NOTES:

1. HORIZONTAL DATUM IS PARALLEL TO TRACK. WHERE TRACK IS SUPERELEVATED, DATUM IS NOT PARALLEL WITH GROUND.
2. CROSS SECTION GIVEN FOR STA. 0+00 IS A COMPOSITE FOR THE TUNNEL FROM STA. 0+00 THROUGH 0+50. ALL OF THE SECTIONS FOLLOW THIS CONVENTION.

NOT FOR CONSTRUCTION

SCALE: 1" = 100'

50 0 100 200 300

Hatch Mott MacDonald

NORFOLK SOUTHERN

OWNING COMPANY
POCAHONTAS
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

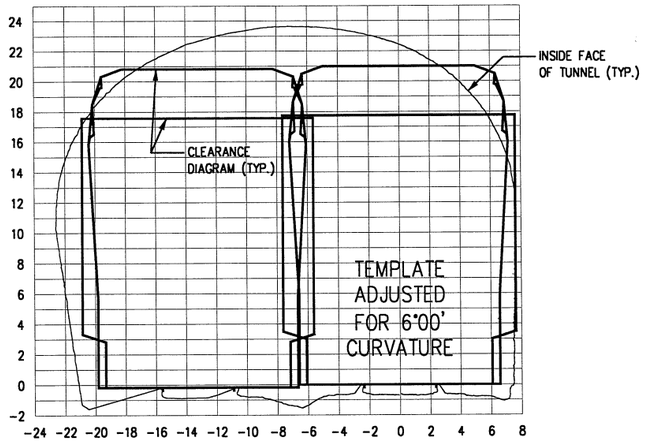
REV	BY	DATE	DESCRIPTION
P1	OJL	7/29/05	PRELIMINARY ENGINEERING PHASE REPORT

LOCATION: ANTLER NO. 1, MOHEGAN, WV

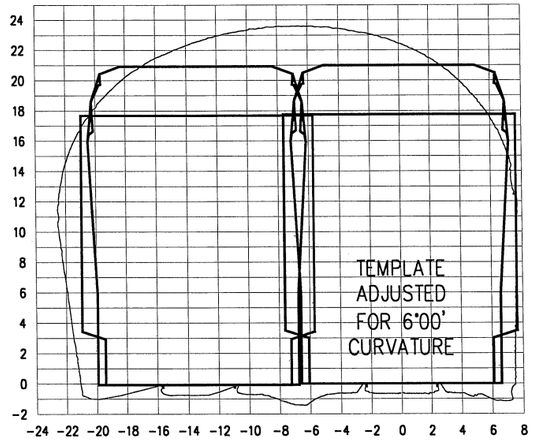
TITLE: TUNNEL CLEARANCE CROSS SECTIONS – 1 OF 2

DGN	P.I.D No.	V.R.N	MILE POST
	16286 & 16287		N-403.71
DWN	FILE No.		DRAWING NUMBER
CHK	DATE APRIL 15, 2005		

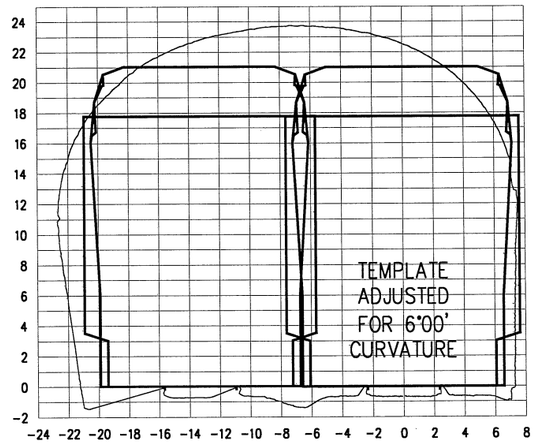
FILE NAME = P:\NSR\29999\CAD\LASER CAR INFO\403.7\antler_no_1.dgn
DATE/TIME = 07/28/2005 04:33 AM



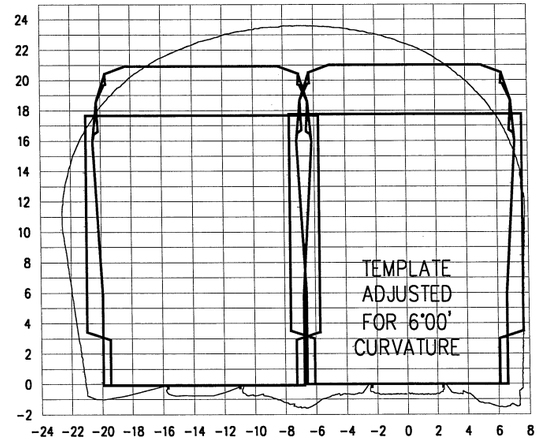
4+02



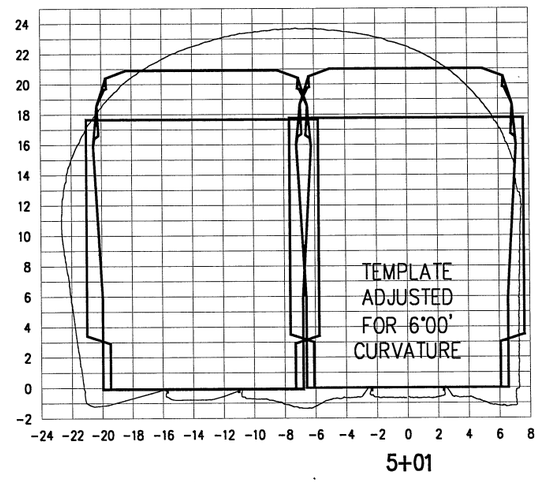
5+52



4+52



6+01



5+01

NOTES:

1. HORIZONTAL DATUM IS PARALLEL TO TRACK. WHERE TRACK IS SUPERELEVATED, DATUM IS NOT PARALLEL WITH GROUND.
2. CROSS SECTION GIVEN FOR STA. 0+00 IS A COMPOSITE FOR THE TUNNEL FROM STA. 0+00 THROUGH 0+50. ALL OF THE SECTIONS FOLLOW THIS CONVENTION.

NOT FOR CONSTRUCTION

SCALE: 1"=100'

50 0 100 200 300

Hatch Mott MacDonald

NORFOLK SOUTHERN

OWNING COMPANY
POCAHONTAS
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

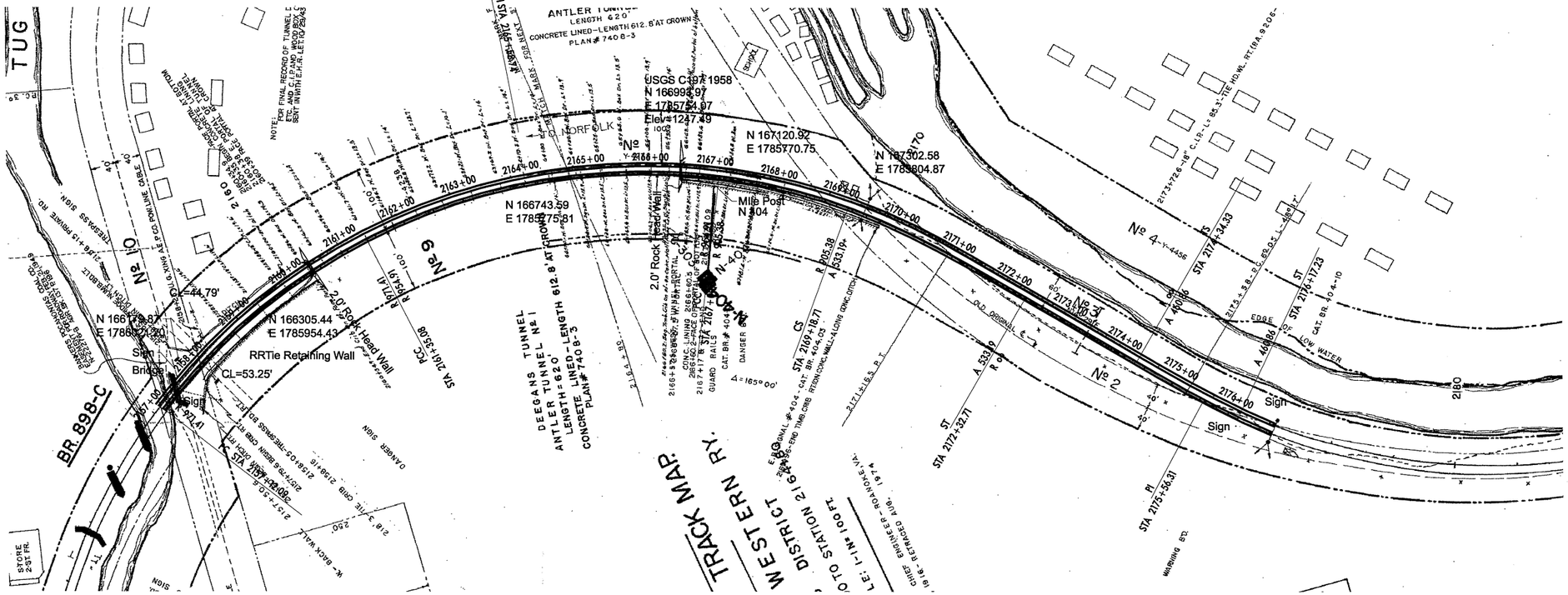
REV	BY	DATE	DESCRIPTION
P1	DJL	7/29/05	PRELIMINARY ENGINEERING PHASE REPORT

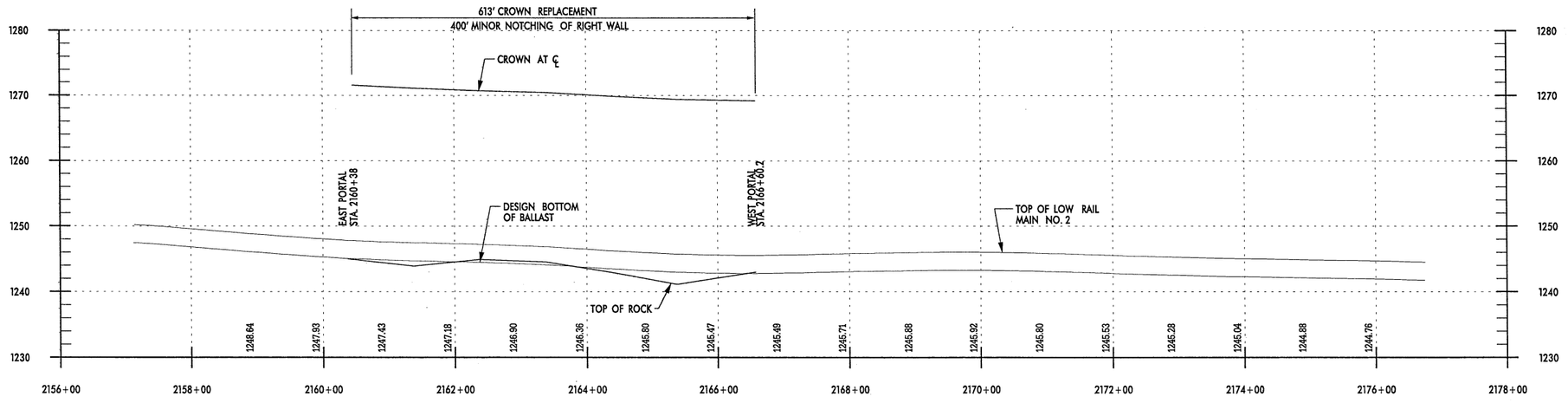
LOCATION: ANTLER NO. 1, MOHEGAN, WV

TITLE: TUNNEL CLEARANCE CROSS SECTIONS - 2 OF 2

DGN	PTO NO.	VRN 16286 & 16287	MILE POST N-403.71
DWN	FILE No.	DRAWING NUMBER	
CHK	DATE APRIL 15, 2005		

FILE NAME = P:\NSR\26391\CAD\LASER CAR INFO\403.7tantler_no_l.dgn
DATE/TIME = 07/26/2005 10:47:40 AM





ANTLER NO. 1 PROFILE
SCALE: 1"=100' HORIZ.
1"=10' VERT.

SCALE: 1"=100'

NOT FOR CONSTRUCTION

Hatch Mott MacDonald

NORFOLK SOUTHERN

OWNING COMPANY
POCAHONTAS
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

P2	01/10/05	PRELIMINARY ENGINEERING PHASE REPORT	
P1	01/29/05	PRELIMINARY ENGINEERING PHASE REPORT	
REV	BY	DATE	DESCRIPTION

LOCATION: ANTLER NO. 1 TUNNEL, MOHEGAN, WV

TITLE: PLAN AND PROFILE

DGN	PTD NO.	VRN	MILE POST N-403.71
DWN	FILE NO.	16286 & 16287	DRAWING NUMBER
CHK	DATE APRIL 15, 2005		

FILE NAME = P:\NSR\29399\CAD\survey info\403.71Antler No.1\403.71Antler No.1.dgn
DATE/TIME = 6/07/2005 02:59:20 PM

ANTLER NO. 1 CURVE DATA

```
                Description:
Horizontal Alignment Name: 3
                Description:
                      Style:
                Input Factor: 1.0000
                                          STATION      NORTHING     EASTING

Element: Circular
                PC (      )       2157+12.90      166151.57    1786096.42
                PI (      )       2159+27.47      166293.23    1785935.25
                CC (      )                       166881.20    1786737.73
               PCC (      )       2161+35.08      166489.59    1785848.75
                            Radius:      971.41
                             Delta:  24°54'43" Right
Degree of Curvature(Chord):          5°54'03"
                            Length:      422.36
                Length(Chorded):         422.18
                           Tangent:      214.57
                             Chord:      419.04
                Middle Ordinate:          22.86
                          External:       23.42
                Tangent Direction:  311°18'50"
                 Radial Direction:   41°18'50"
                   Chord Direction:  323°46'12"
                 Radial Direction:   66°13'33"
                Tangent Direction:  336°13'33"

Element: Circular
               PCC (      )       2161+35.08      166489.59    1785848.75
                PI (      )       2164+31.34      166760.72    1785729.32
                CC (      )                       166874.55    1786722.63
               PCC (      )       2167+09.36      167051.84    1785784.32
                            Radius:      954.91
                             Delta:  34°28'25" Right
Degree of Curvature(Chord):          6°00'10"
                            Length:      574.55
                Length(Chorded):         574.29
                           Tangent:      296.27
                             Chord:      565.92
                Middle Ordinate:          42.89
                          External:       44.90
                Tangent Direction:  336°13'33"
                 Radial Direction:   66°13'33"
                   Chord Direction:  353°27'46"
                 Radial Direction:  100°41'59"
                Tangent Direction:   10°41'59"

Element: Circular
               PCC (      )       2167+09.36      167051.84    1785784.32
                PI (      )       2168+14.56      167155.20    1785803.85
                CC (      )                       166883.74    1786673.96
                CS (      )       2169+18.71      167251.34    1785846.56
                            Radius:      905.38
                             Delta:  13°15'17" Right
Degree of Curvature(Chord):          6°19'54"
                            Length:      209.45
                Length(Chorded):         209.34
                           Tangent:      105.19
                             Chord:      208.98
                Middle Ordinate:            6.05
                          External:         6.09
                Tangent Direction:   10°41'59"
                 Radial Direction:  100°41'59"
                   Chord Direction:   17°19'37"
                 Radial Direction:  113°57'16"
                Tangent Direction:   23°57'16"

Element: Clothoid
                CS (      11)       2169+18.71      167251.34    1785846.56
                SPI (     12)       2170+23.68      167347.26    1785889.18
                ST (      13)       2172+32.71      167521.31    1786006.09
                  Entrance Radius:      905.38
                     Exit Radius:         0.00
                          Length:      314.00
                           Angle:  9°56'08" Right
                        Constant:      533.19
                    Long Tangent:      209.66
                   Short Tangent:      104.97
                    Long Chord:        313.58
                              Xs:      313.06
                              Ys:       18.11
                              P:         4.53
                              K:       156.84
                Tangent Direction:   23°57'16"
                 Radial Direction:  113°57'16"
                   Chord Direction:   30°34'44"
                 Radial Direction:  123°53'24"
                Tangent Direction:   33°53'24"

Element: Linear
                ST (      13)       2172+32.71      167521.31    1786006.09
                TS (       5)       2174+34.33      167688.68    1786118.52
                Tangent Direction:   33°53'24"
                  Tangent Length:      201.62

Element: Clothoid
                TS (       5)       2174+34.33      167688.68    1786118.52
                SPI (     14)       2175+56.31      167789.93    1786186.53
                ST (      15)       2176+17.23      167843.09    1786216.45
                  Entrance Radius:         0.00
                     Exit Radius:      1161.27
                          Length:      182.90
                           Angle:  4°30'43" Left
                        Constant:      460.86
                    Long Tangent:      121.97
                   Short Tangent:       61.00
                    Long Chord:        182.85
                              Xs:      182.79
                              Ys:        4.80
                              P:         1.20
                              K:        91.43
                Tangent Direction:   33°53'24"
                 Radial Direction:  123°53'24"
                   Chord Direction:   32°23'10"
                 Radial Direction:  119°22'40"
                Tangent Direction:   29°22'40"
```

FILE NAME = P:\NSR\28399\CAD\survey in\fov\403.7\Antler No.1\403.7Antler No.1- curve data.dgn
DATE/TIME = 10/12/2005 08h03 PM

NOT FOR CONSTRUCTION

SCALE: 1" = 100'

50 0 100 200 300

REV	BY	DATE	DESCRIPTION
P1	DJL	7/29/05	PRELIMINARY ENGINEERING PHASE REPORT

Hatch Mott MacDonald

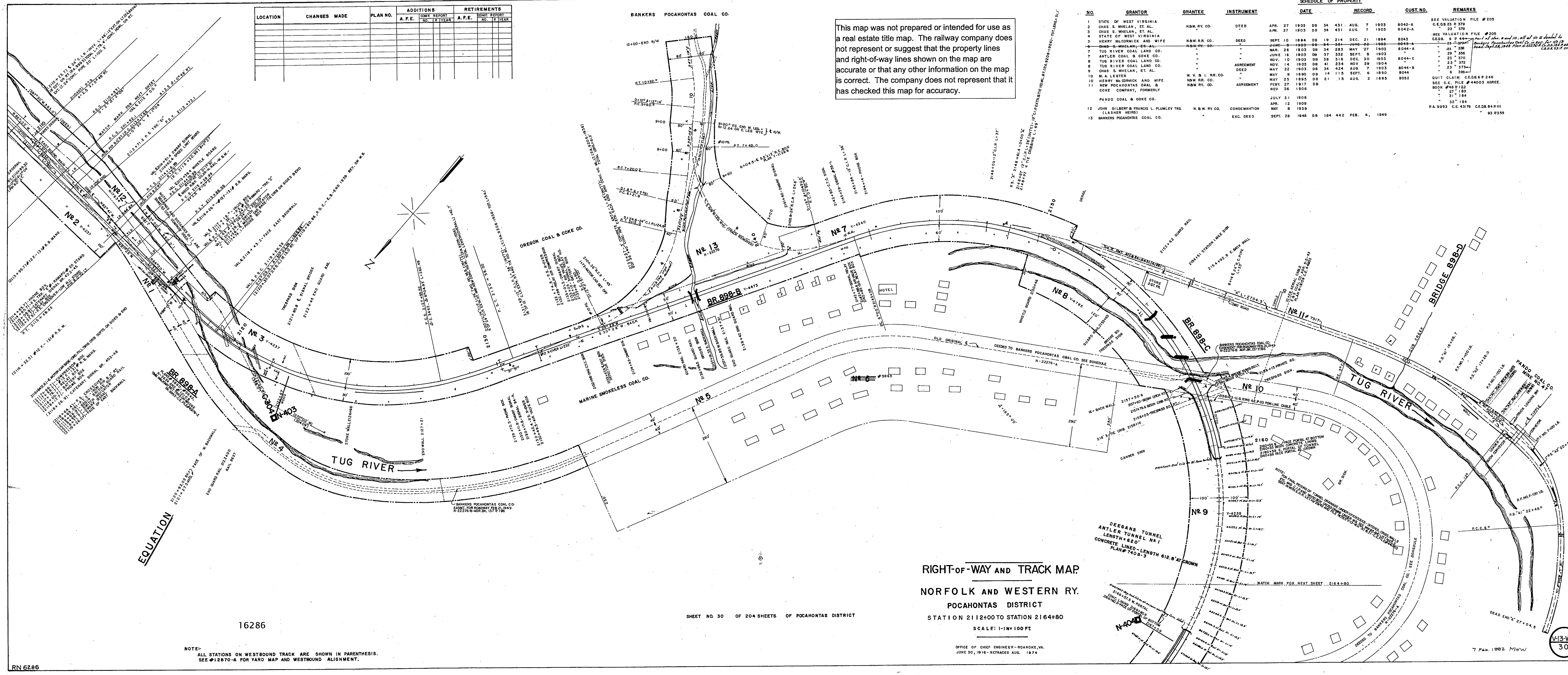
NORFOLK SOUTHERN

OWNING COMPANY
POCAHONTAS
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

LOCATION: ANTLER NO. 1 TUNNEL, MOHEGAN, WV

TITLE: CURVE DATA

DGN	PID No. 16286 & 16287	MILE POST	N-403.71
DWN	FILE No.	DRAWING NUMBER	
CHK	DATE APRIL 15, 2005		



LOCATION	CHANGES MADE	PLAN NO.	ADDITIONS A. F. E.	ADDITIONS COM'R. REPORT NO.	ADDITIONS COM'R. REPORT YEAR	RETIREMENTS A. F. E.	RETIREMENTS COM'R. REPORT NO.	RETIREMENTS COM'R. REPORT YEAR

This map was not prepared or intended for use as a real estate title map. The railway company does not represent or suggest that the property lines and right-of-way lines shown on the map are accurate or that any other information on the map is correct. The company does not represent that it has checked this map for accuracy.

SCHEDULE OF PROPERTY

NO.	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD	CUST. NO.	REMARKS
1	STATE OF WEST VIRGINIA						SEE VALUATION FILE #205
2	CHAS. S. WHELAN, ET. AL.	N.&W. RY. CO.	DEED	APR. 27 1903 DB 34 431	AUG. 7 1903	8042-A	C.E.D.B. 23 P. 379
3	CHAS. S. WHELAN, ET. AL.	"	"	APR. 27 1903 DB 34 431	AUG. 7 1903	8042-A	" 23 " 379
4	STATE OF WEST VIRGINIA						SEE VALUATION FILE #205
5	HENRY McCORMICK AND WIFE	N.&W. R.R. CO.	DEED	SEPT. 10 1894 DB 19 214	DEC. 21 1894	8043	C.E.D.B. 6 P. 44
~~6~~	~~CHAS. S. WHELAN, ET. AL.~~	~~N.&W. RY. CO.~~	~~"~~	~~JUNE 8 1903 DB 34 331~~	~~JUNE 22 1903~~	~~8043-A~~	~~" 23 " 377~~
7	TUG RIVER COAL LAND CO.	"	"	MAR. 26 1903 DB 34 283	MAY 27 1903	8044-A	" 23 " 338
7	ANTLER COAL & COKE CO.	"	"	JUNE 16 1903 DB 37 332	SEPT. 8 1903	"	" 29 " 356
8	TUG RIVER COAL LAND CO.	"	"	NOV. 10 1903 DB 38 316	DEC. 30 1903	8044-C	" 23 " 370
8	TUG RIVER COAL LAND CO.	"	AGREEMENT	NOV. 14 1903 DB 41 234	NOV 29 1904	"	" 23 " 372
9	CHAS. S. WHELAN, ET. AL.	"	DEED	MAY 22 1903 DB 34 424	AUG. 7 1903	8044-B	" 23 " 373
10	M. A. LESTER	W. V. & I. RR. CO.	"	MAY 9 1890 DB 14 115	SEPT. 6 1890	8044	" 6 399
10	HENRY McCORMICK AND WIFE	N.&W. R.R. CO.	"	MAY 25 1895 DB 21 15	AUG. 2 1895	8052	QUIT CLAIM C.E.D.B. 6 P. 246
11	NEW POCAHONTAS COAL &	N.&W. RY. CO.	AGREEMENT	FEBY. 27 1917 DB			SEE C.E. FILE #44003 AGREE.
	COKE COMPANY, FORMERLY			NOV 26 1906			BOOK #48 P. 122
	PANDO COAL & COKE CO.			JULY 31 1908			" 27 " 180
							" 31 " 184
				APR. 12 1909			" 32 " 184
12	JOHN GILBERT & FRANCIS L. PLUMLEY TRS. (LASHER HEIRS)	N. & W. RY. CO.	CONDEMNATION	MAY 8 1939			P.A. 9993 C.E. 43176 C.E.D.B. 84 P. 111
13	BANKERS POCAHONTAS COAL CO.	"	EXC. DEED	SEPT. 28 1948 DB 184 442	FEB. 4, 1949		" 93 P. 355

Part of Nos. 5 and 10, all of No 6 deeded to Bankers Pocahontas Coal Co. in Exc. for No 13 Deed Sept. 28, 1948 Plan N-22276-A-Co. D.B. 184 P. 442. C.E.D.B. 93-P. 355

RIGHT-OF-WAY AND TRACK MAP

NORFOLK AND WESTERN RY.

POCAHONTAS DISTRICT

STATION 2112+00 TO STATION 2164+80

SCALE: 1-IN = 100 FT.

OFFICE OF CHIEF ENGINEER – ROANOKE, VA.
JUNE 30, 1916 – RETRACED AUG. 1974

SHEET NO. 30 OF 204 SHEETS OF POCAHONTAS DISTRICT

16286

NOTE:-
ALL STATIONS ON WESTBOUND TRACK ARE SHOWN IN PARENTHESIS.
SEE #12870-A FOR YARD MAP AND WESTBOUND ALIGNMENT.

7 Feb. 1982 MWW

RN 6286

SCHEDULE OF PROPERTY

NO.	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD	CUST.NO.	REMARKS
1	CHAS. S. WHELAN ET AL.	N.& W. RY. CO.	DEED	MAY 22 1903	DB 34 424	AUG. 7 1903	8044-B
2	W. A. LESTER	W. V. & P. R.R. CO.	"	MAY 9 1890	DB 14 115	SEPT. 6 1890	8044
2	HENRY McCORMICK, ET UX.	N.& W. RR. CO.	"	MAY 25 1895	DB 21 15	AUG. 2 1895	8052
3	TUG RIVER COAL LAND CO.,	N.& W. RY. CO.	"	MAR. 26 1903	DB 34 281	MAY 27 1903	8044-D
4	DO.	"	"	MAY 5 1903	DB 36 371		8044-E
5	CHAS S. WHELAN ET AL.	"	"	MAY 22 1903	DB 34 424	AUG. 7 1903	8044-B
6	TUG RIVER COAL LAND CO.	"	"	MAR. 26 1903	DB 36 366	MAY 27 1903	8045-A
6	SHORT CREEK COAL & COKE CO.	"	"	APR. 25 1903	DB 37 81	JULY 9 1903	8045-A
7	TUG RIVER COAL LAND CO.	"	"	MAR. 26 1903	DB 36 366	MAY 27 1903	8045-A
8	HENRY HALL AND WIFE	W. V. & P. R.R. CO.	"	OCT. 21 1889	DB 14 99	DEC. 21 1889	8045
8	HENRY McCORMICK AND WIFE	N.& W. R. CO.	"	MAY 25 1895	DB 21 15	AUG. 2 1895	8052
~~8~~	~~SHORT CREEK COAL & COKE CO.~~	~~N.& W. RY. CO.~~	~~AGREEMENT~~	~~JULY 31 1954~~	~~" 213 219~~	~~AUG. 5 1954~~	~~—~~
10	BANKERS POCAHONTAS COAL CO	N.& W. RY. CO.	DEED	JULY 31 1954	" 213 219	AUG. 5 1954	—
11	TRUSTEES OF WEST VIRGINIA LANDS	N.& W. RY. CO.	CONDEMNATION	JULY 17 1954	" 213 97	JULY 17 1954	—

			C.E.D.B.23 P.373						
QUIT CLAIM	6	399	PART OF NO.2 DEEDED TO BANKERS POCAHONTAS COAL CO.						
	6	246	DEED SEPT.28,1948 PLAT W-2237A-4 CO.D.B.154 P.442.-C.E.D.B.93 P.355						
	23	336							
	23	340							
	23	373							
	23	343							
	29	352							
	25	342							
	6	451							
QUIT CLAIM	6	244							
~~C.E.C. AGREEMENT~~			TRACK RETIRED UNDER SMA 3410 10-31-1920						
~~BOOK 99 PAGE 300~~	96-	250	SURFACE RIGHTS ONLY- C.E. 48239-PA.15088						
	96-246		SURFACE RIGHTS ONLY-C.E. 48239-PA.15088						

This map was not prepared or intended for use as a real estate title map. The railway company does not represent or suggest that the property lines and right-of-way lines shown on the map are accurate or that any other information on the map is correct. The company does not represent that it has checked this map for accuracy.

LOCATION	CHANGES MADE	PLAN NO.	ADDITIONS A.F.E.	ADDITIONS COMP. REPORT NO.	ADDITIONS COMP. REPORT R	ADDITIONS COMP. REPORT YEAR	RETIREMENTS A.F.E.	RETIREMENTS COMP. REPORT NO.	RETIREMENTS COMP. REPORT P. YEAR

16287

SHEET No. 31 OF 204 SHEETS OF POCA. DISTRICT

FROM SURVEY STATION 2164+80 TO SURVEY STATION 2217+60

CHIEF DRAFTSMAN

RIGHT-OF-WAY AND TRACK MAP

NORFOLK AND WESTERN RY.

POCAHONTAS DISTRICT

STATION 2164+80 TO STATION 2217+60

SCALE: 1-IN × 100 FT.

OFFICE OF CHIEF ENGINEER-ROANOKE, VA.
JUNE 30, 1916-RETRACED OCT. 1974

V-13-W.V.
31