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S-075	TUNNEL 104 REPAIR AREAS SEGMENTS 5L & 6L

DRAWN BY : L. PATTERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

CHECKED BY : M. MOYER DATE : 07/2013

[illegible]

PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: _____



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INDEX OF SHEETS

DESIGN AND CONSTRUCTION SPECIFICATIONS
STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (2012)
GENERAL

EXISTING DIMENSIONS AND BRIDGE CONDITIONS ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE LOCATION AND EXTENT OF REPAIRS SHOWN ON THE PLANS ARE GENERAL IN NATURE. THE ENGINEER WILL DETERMINE THE EXACT EXTENT OF REMOVAL IN THE FIELD BASED ON AN EVALUATION OF THE CONDITION OF THE EXPOSED SURFACES.

CONSTRUCTION METHODS, PROCEDURES AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY AND THE CONTRACTOR SHALL TAKE ALL THE NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION AT ALL STAGES.

THE MANUFACTURER'S CERTIFIED DRAWINGS AND SPECIFICATION FOR EQUIPMENT ANCHORAGE AND DETAILS SHALL BE SUBMITTED FOR APPROVAL.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

REPAIR AREAS INACCESSIBLE BY POWER TOOLS SHALL BE CLEANED WITH HAND TOOLS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROTECT EXISTING AND NEW LIGHTING SYSTEM FROM CONCRETE REMOVAL DEBRIS AND SHOTCRETE.

THE CONTRACTOR SHALL PROTECT TRAFFIC FROM CONCRETE REMOVAL DEBRIS AND SHOTCRETE.

TOTAL BILL OF MATERIAL				
	SHOTCRETE REPAIR	DRAINAGE PIPE CLEANOUT	CONCRETE SLAB	* EPOXY COATING
	CU. FT.	LUMP SUM	CU. YDS.	SQ. YDS.
TUNNEL 15	538.2	LUMP SUM	9	6700
TUNNEL 17	612.8	LUMP SUM	-	6600
TUNNEL 104	834.5	LUMP SUM	8	7900
TOTAL	1985.5	LUMP SUM	17	21,200

* QUANTITY SHOWN IS FOR INFORMATION ONLY

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: _____



7-23-14

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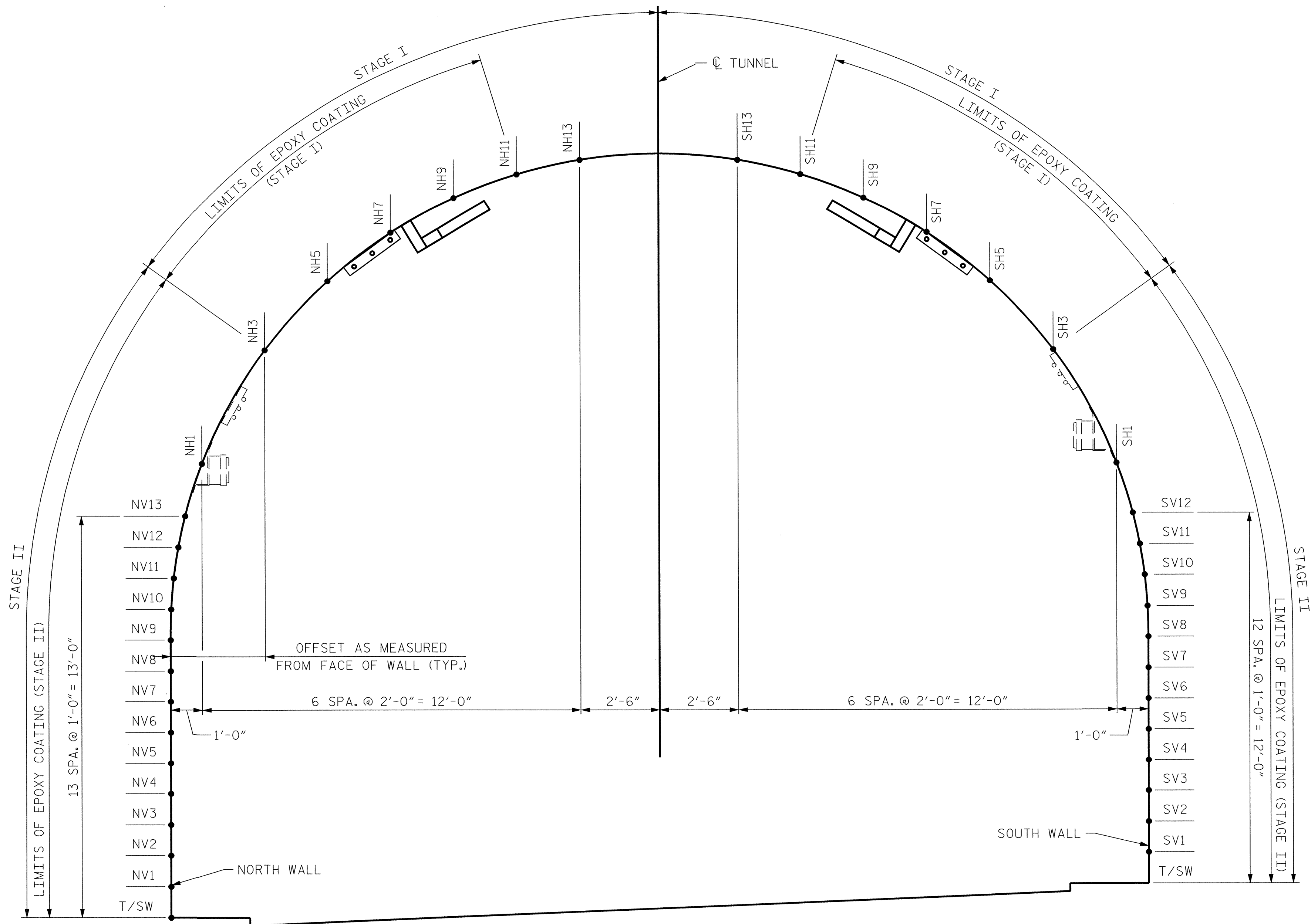
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL NOTES AND TOTAL BILL OF MATERIAL					
REVISIONS					SHEET NO. S-002
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DRAWN BY : L. PATTERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013



SEQUENCE OF CONSTRUCTION

(TUNNEL 15 SHOWN, TUNNELS 17 AND 104 SIMILAR)

SEQUENCE OF CONSTRUCTION

STAGE I

1. PERFORM SHOTCRETE REPAIRS AS INDICATED IN THE STRUCTURAL PLAN SHEETS.
2. APPLY EPOXY COATING TO SURFACE OF TUNNEL.
3. INSTALL NEW LIGHTING SYSTEM AS INDICATED IN THE ELECTRICAL PLAN SHEETS.

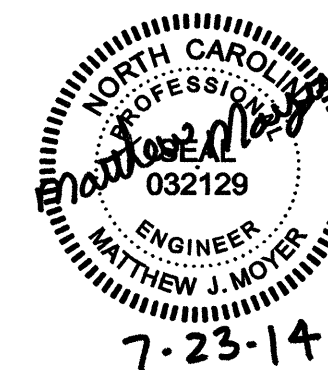
STAGE II

1. REMOVE EXISTING LIGHTING SYSTEM AS INDICATED IN THE ELECTRICAL PLAN SHEETS.
2. PERFORM SHOTCRETE REPAIRS AS INDICATED IN THE STRUCTURAL PLAN SHEETS.
3. APPLY EPOXY COATING TO SURFACE OF TUNNEL.

PROJECT NO. I-5512, 50136.3.FS1
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STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
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RALEIGH

SEQUENCE OF CONSTRUCTION

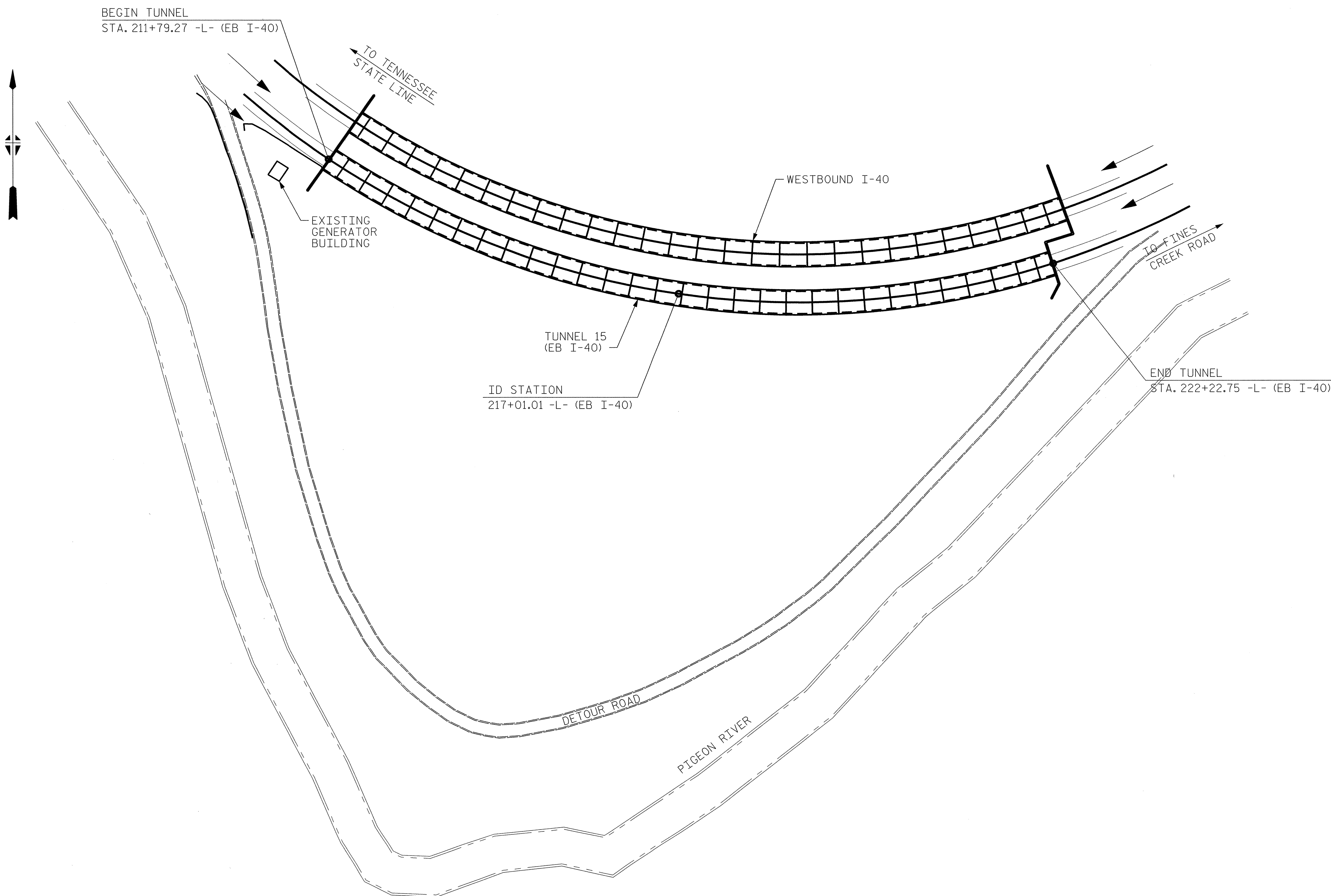


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DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013



PLAN VIEW



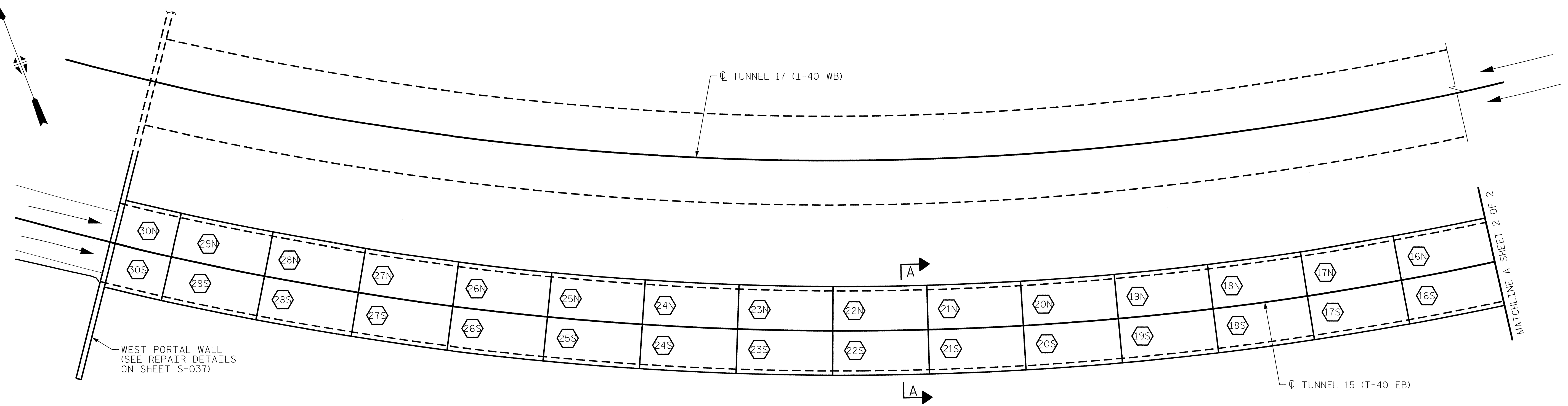
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HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

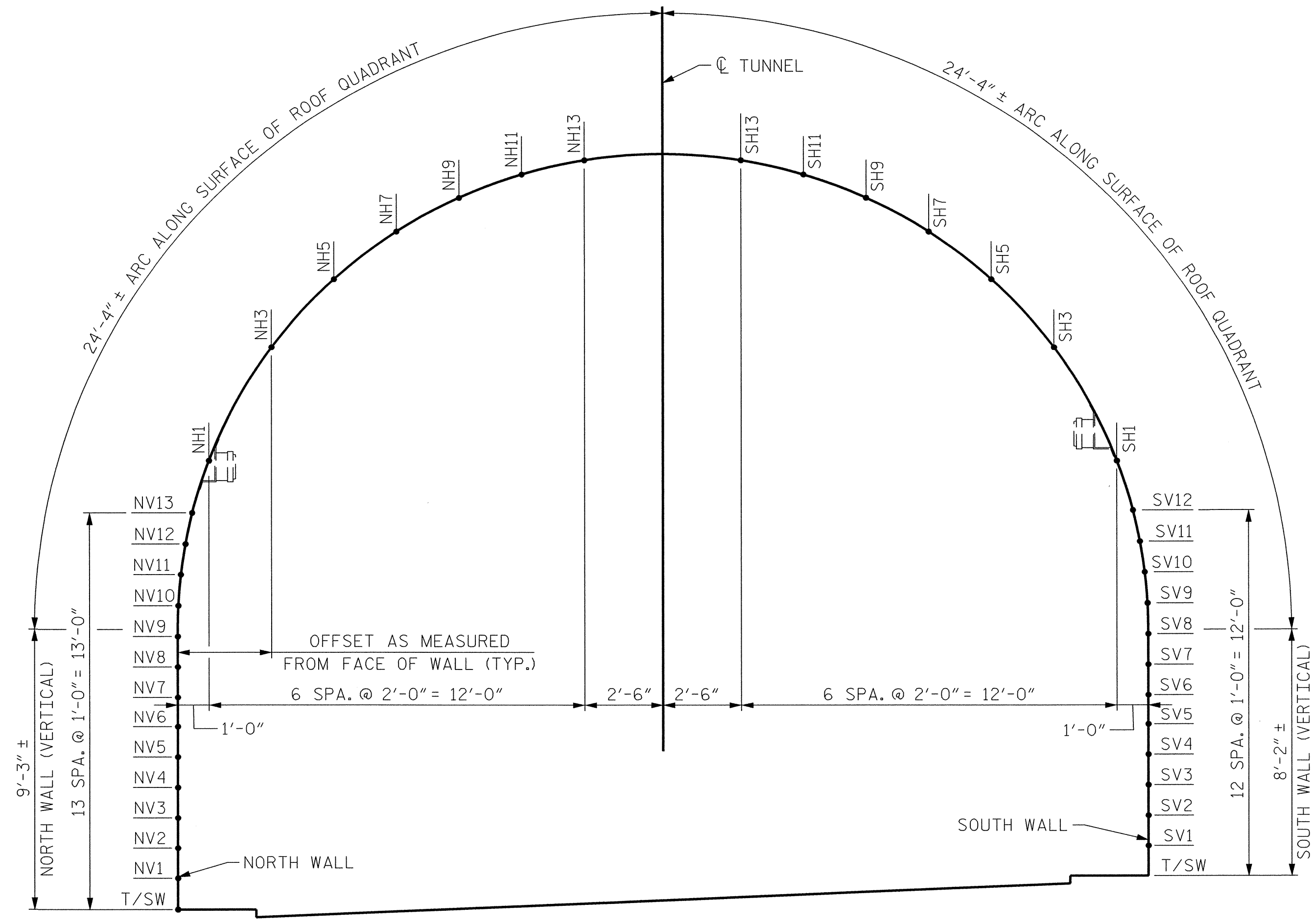
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL PLAN
(TUNNEL 15)

REVISIONS						SHEET NO. S-004 TOTAL SHEETS 110
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2	--	--	4	--	--	



PARTIAL PLAN OF REPAIR SEGMENTS - TUNNEL 15



SECTION A-A: REPAIR GRID REFERENCE DETAIL
(LOOKING EAST)

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

SHEET 1 OF 2

STATE OF NORTH CAROLINA
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TUNNEL 15 PLAN OF
REPAIR SEGMENTS & GRID
REFERENCE DETAIL

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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SHEET NO. S-005
TOTAL SHEETS 110

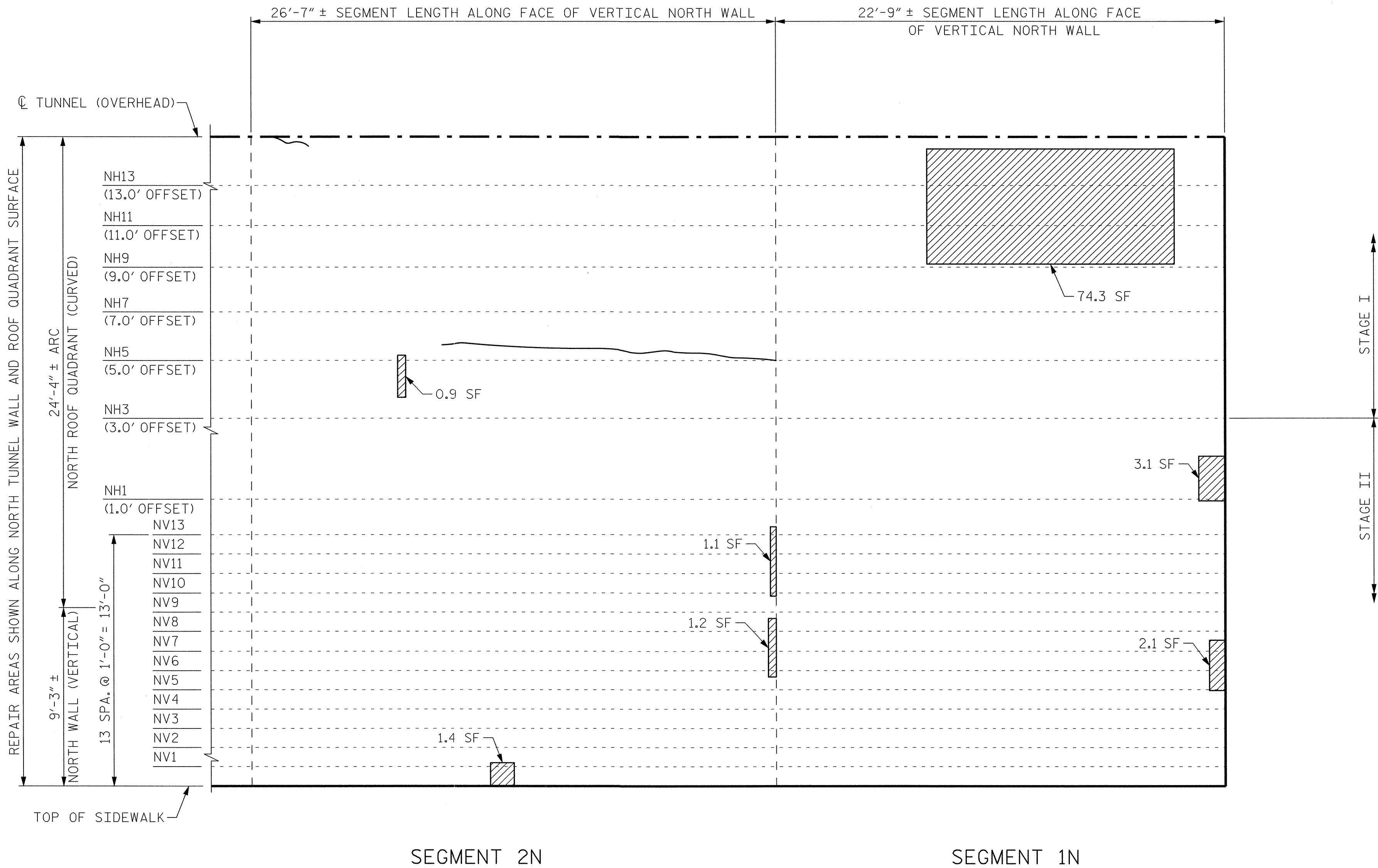
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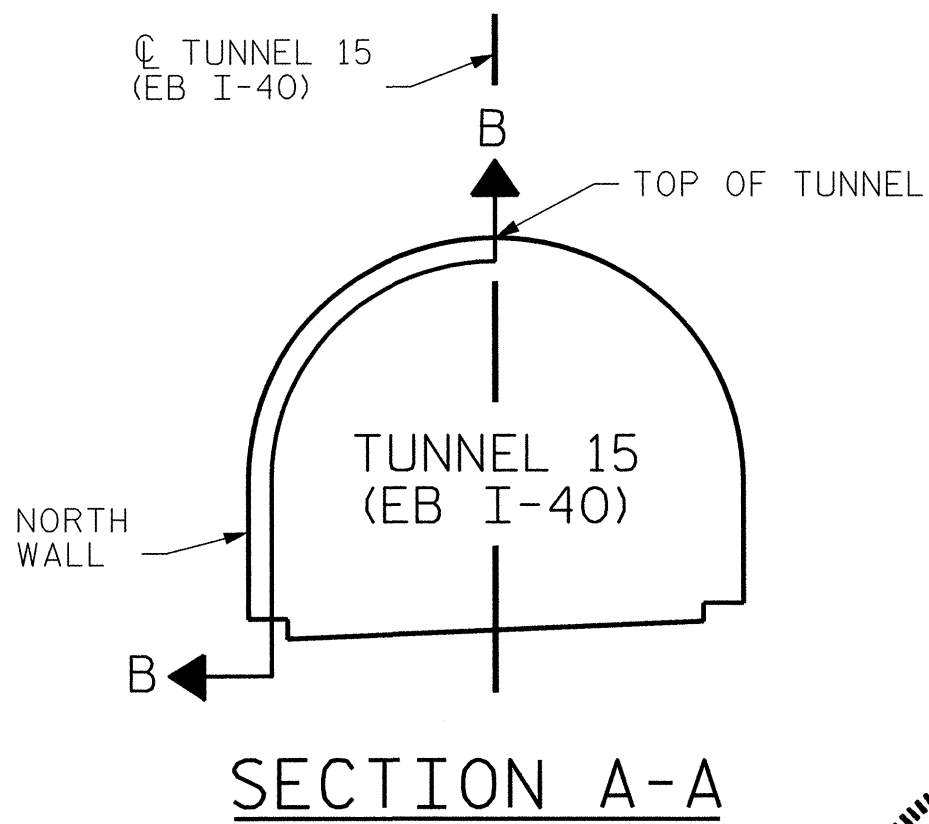
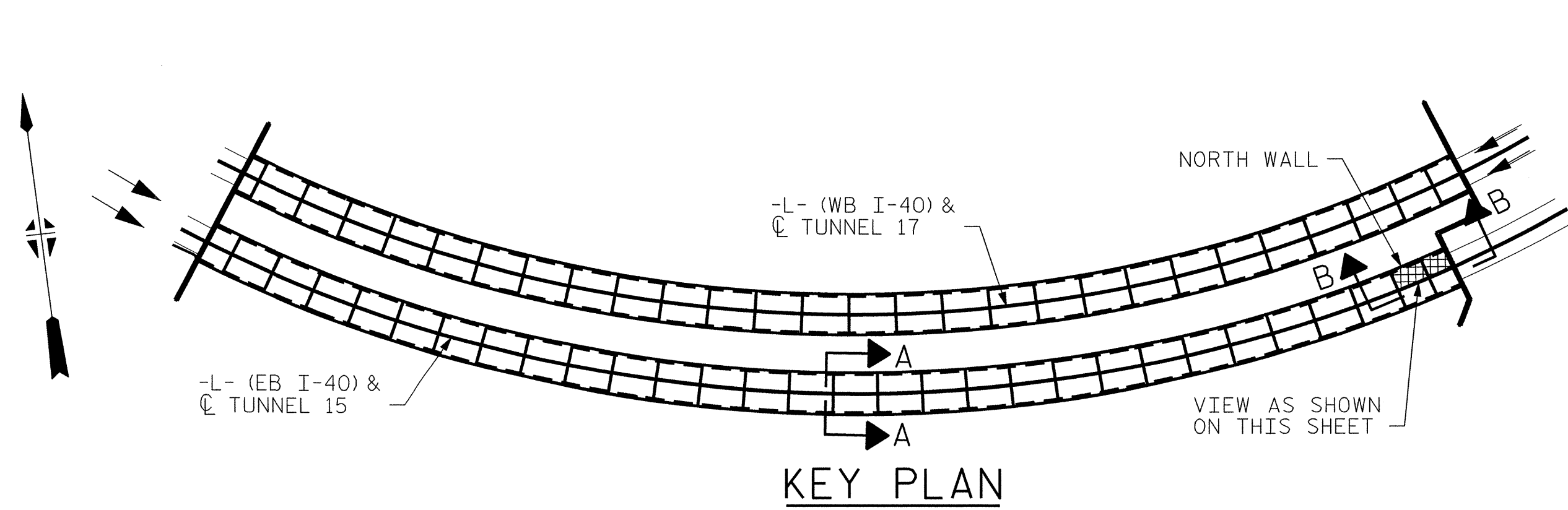
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SHOTCRETE REPAIRS SEGMENT 1N	CF	26.5	
SHOTCRETE REPAIRS SEGMENT 2N	CF	1.5	

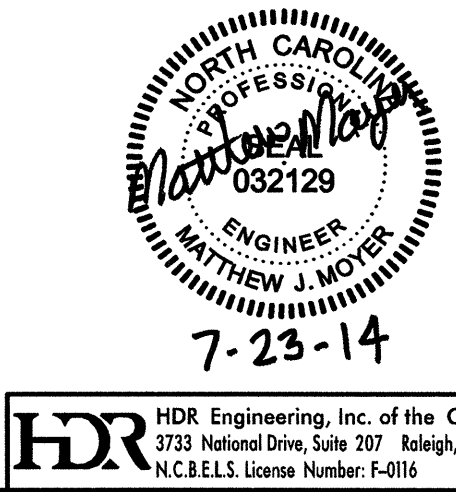


VIEW B-B: REPAIR SEGMENTS 1N & 2N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
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TUNNEL 15 REPAIR AREAS SEGMENTS 1N & 2N			
REVISIONS			
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2	--	--	TOTAL SHEETS 110

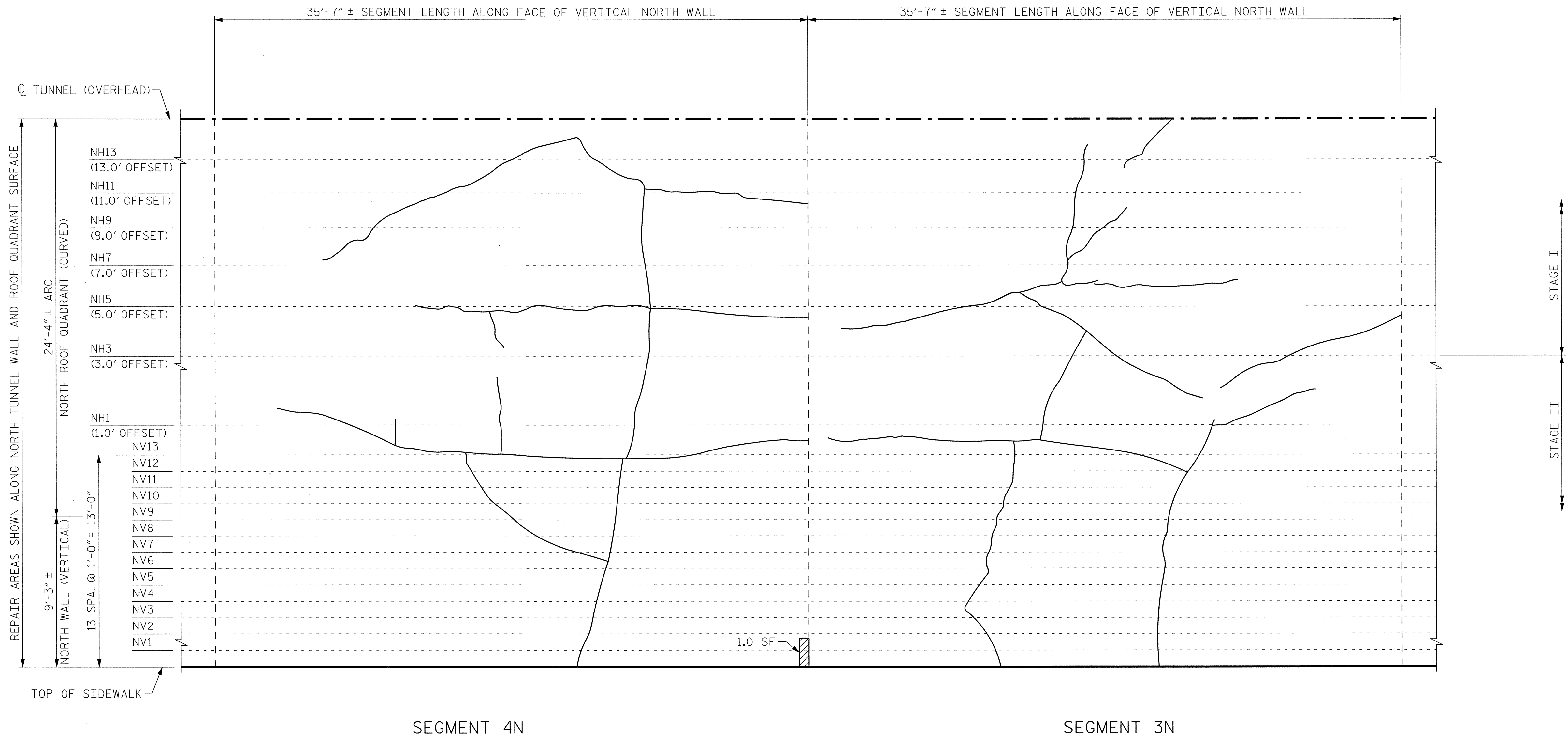


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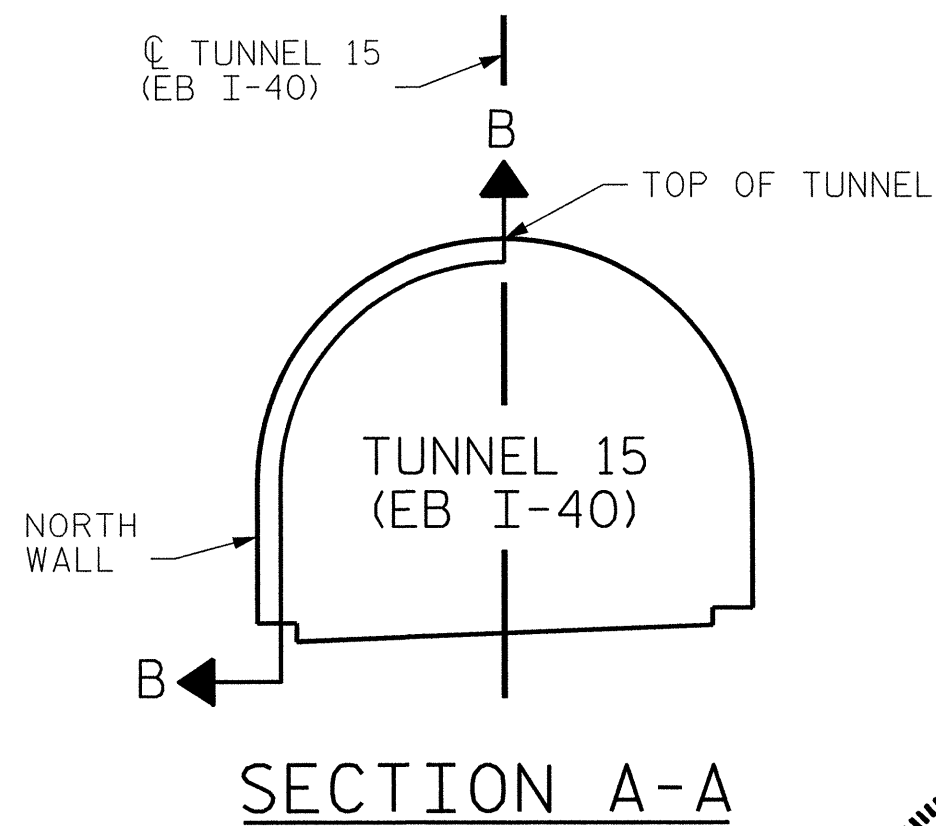
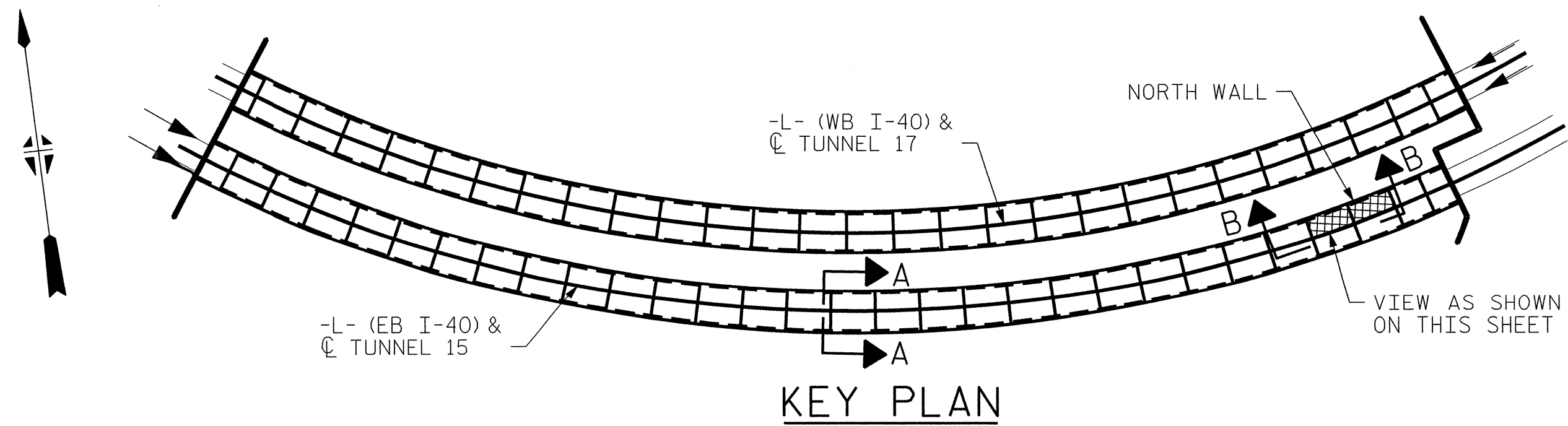
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CHECKED BY : M. MOYER DATE : 07/2013

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DATE: 7/22/2014

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 3N	CF	0.0	
SHOTCRETE REPAIRS SEGMENT 4N	CF	0.3	



VIEW B-B: REPAIR SEGMENTS 3N & 4N
TUNNEL SURFACE ELEVATION



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TUNNEL 15 REPAIR
AREAS
SEGMENTS 3N & 4N



7-23-14

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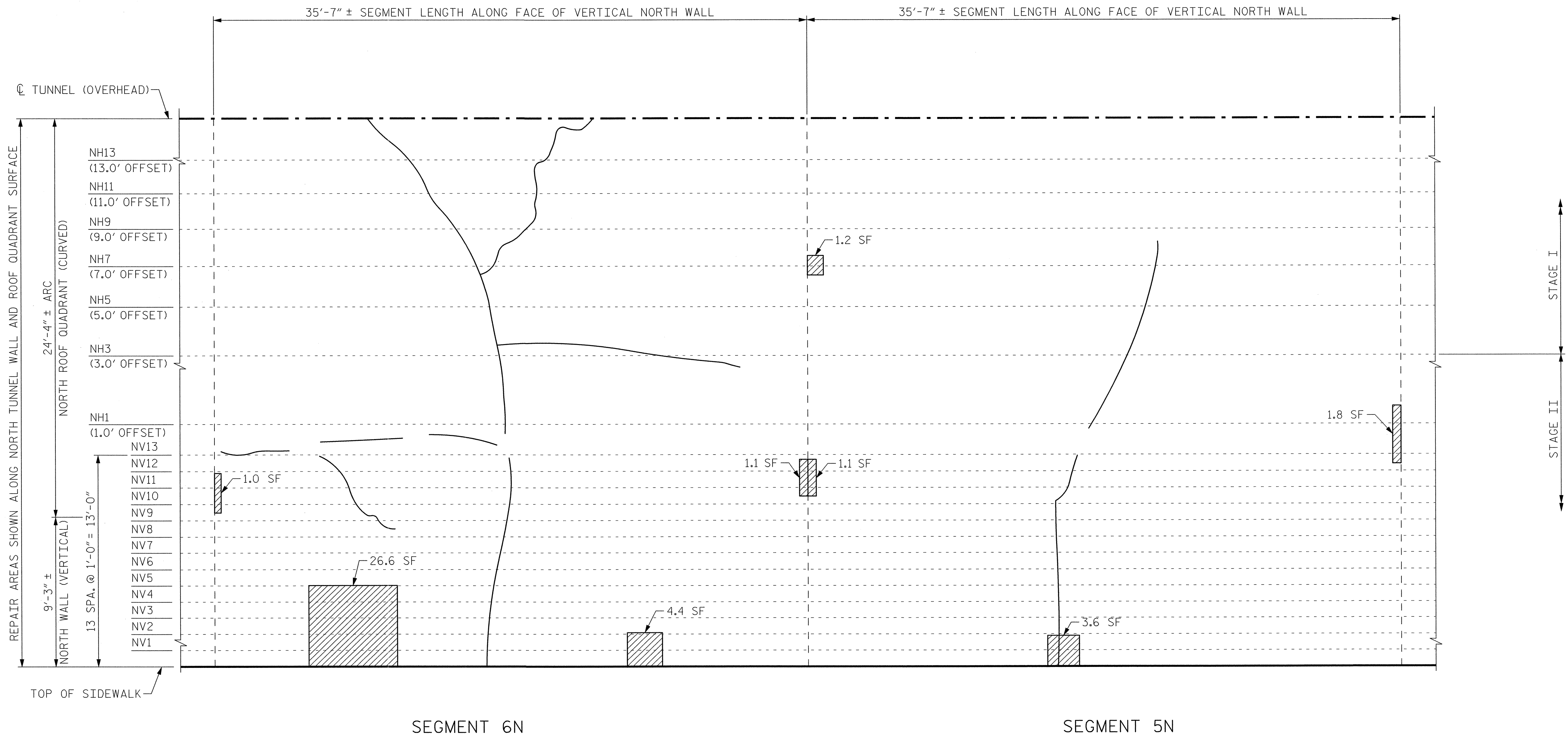
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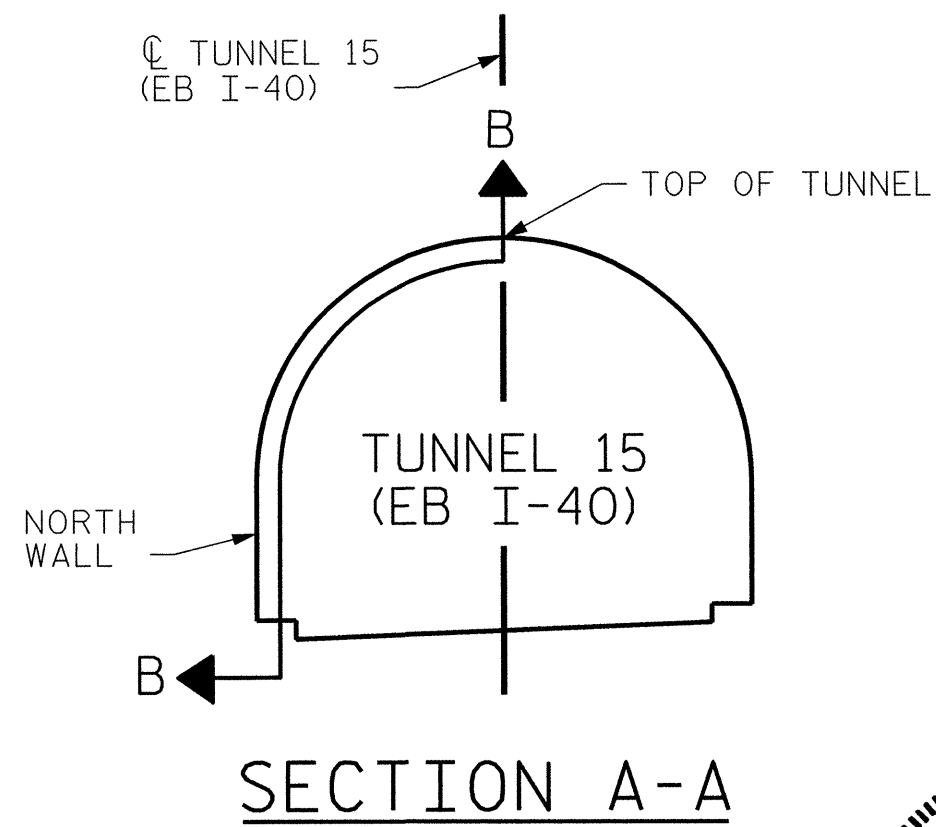
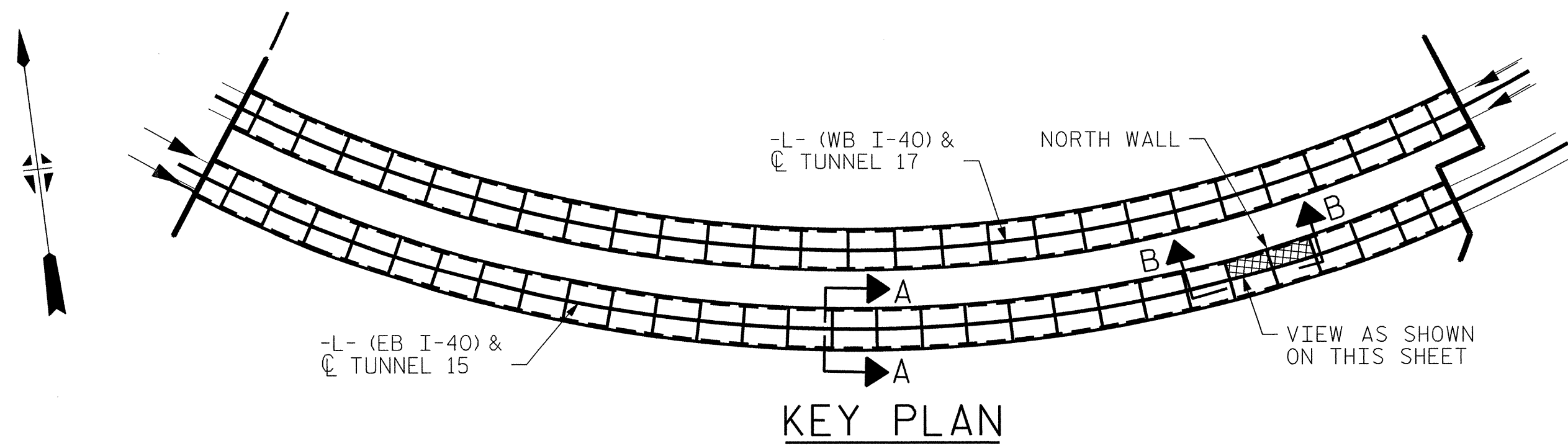
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 5N	CF	2.6	
SHOTCRETE REPAIRS SEGMENT 6N	CF	11.0	



VIEW B-B: REPAIR SEGMENTS 5N & 6N
TUNNEL SURFACE ELEVATION



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TUNNEL 15 REPAIR
AREAS
SEGMENTS 5N & 6N



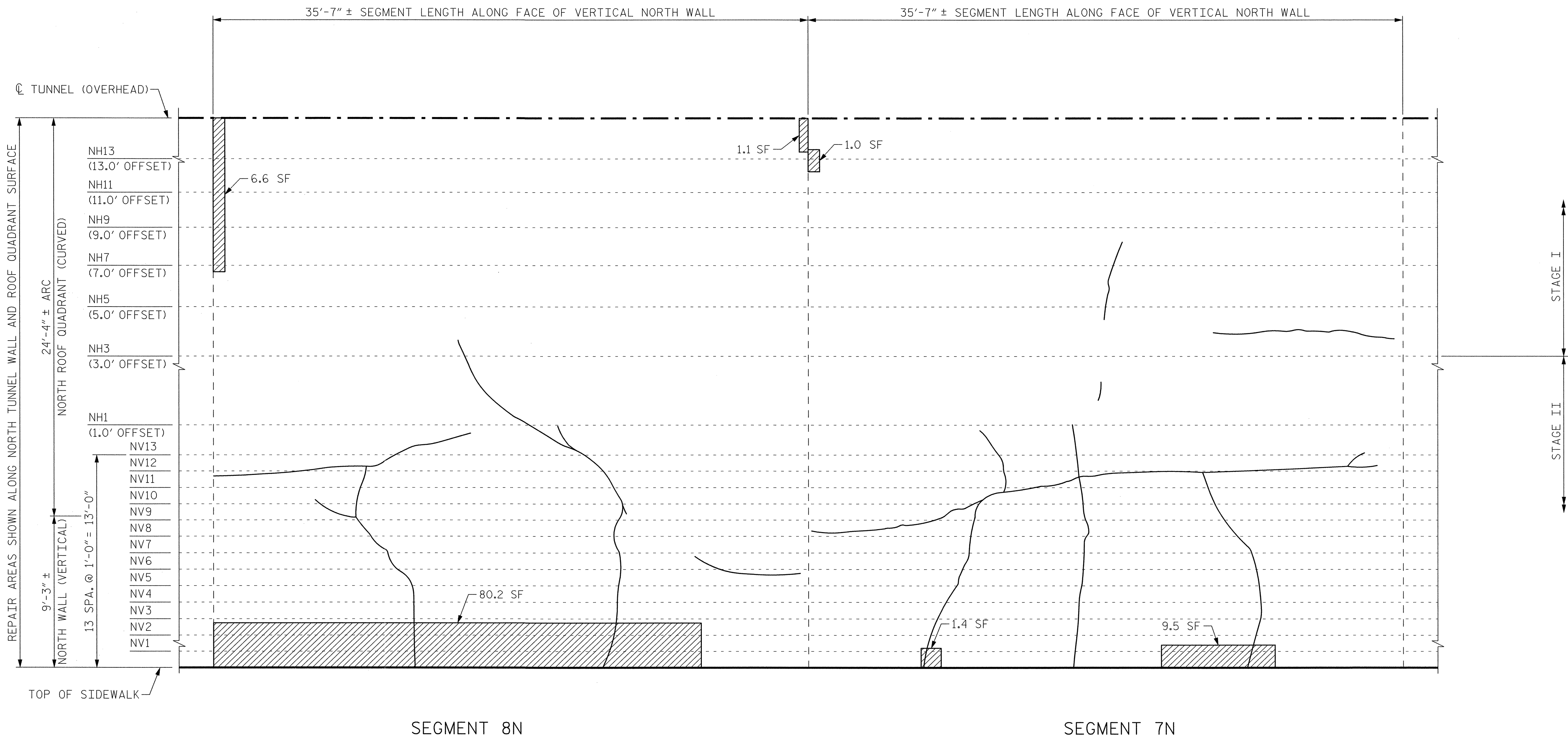
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REVISIONS						SHEET NO. S-009
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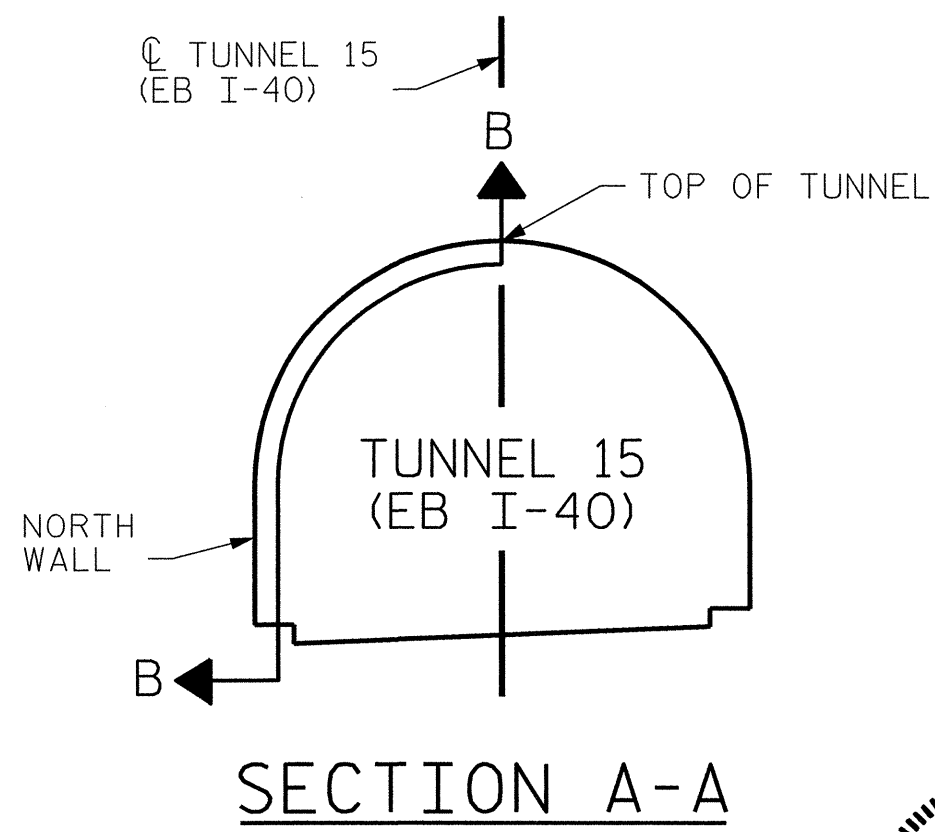
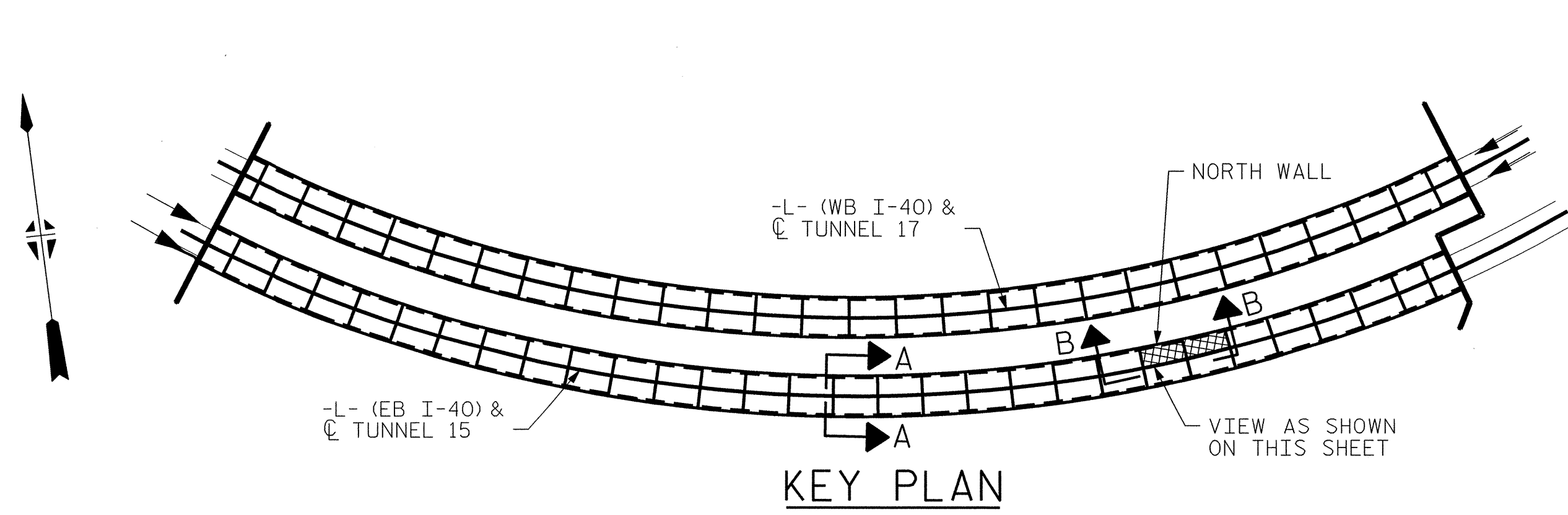
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CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013

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SHOTCRETE REPAIRS SEGMENT 7N	CF	4.0	
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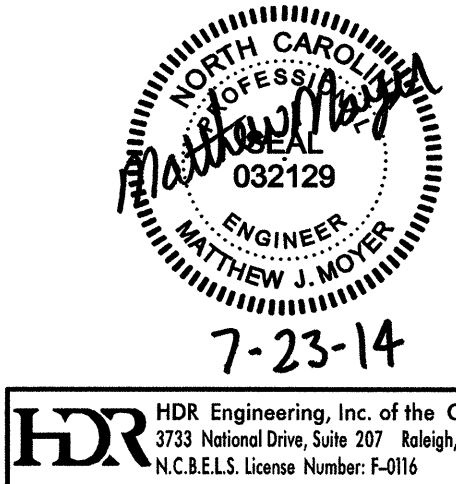


VIEW B-B: REPAIR SEGMENTS 7N & 8N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
TUNNEL 15 REPAIR AREAS SEGMENTS 7N & 8N			
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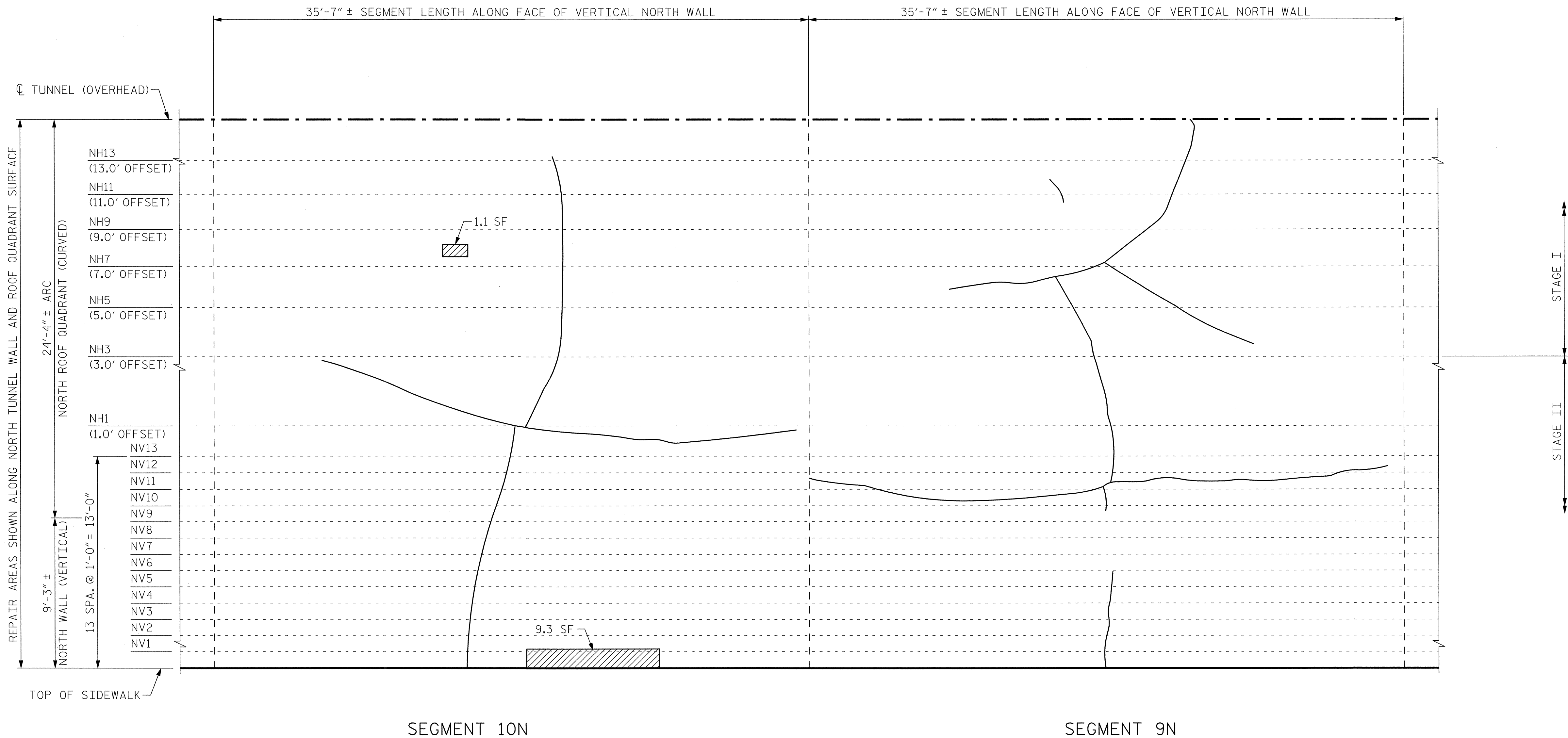


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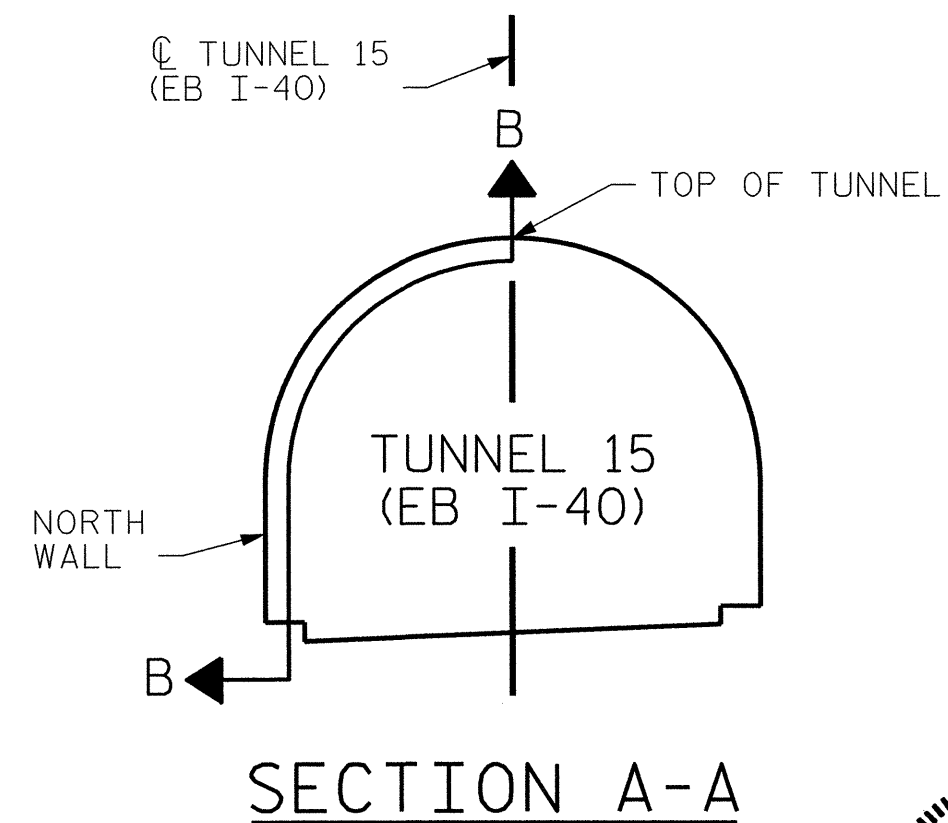
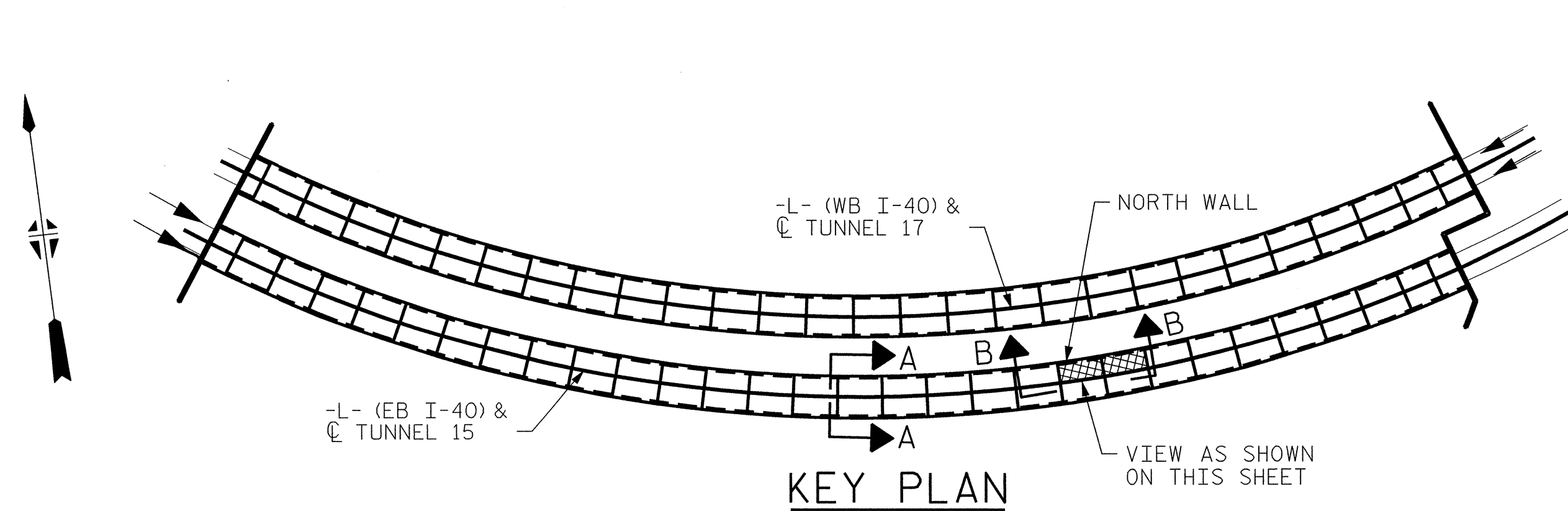
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BILL OF MATERIAL			
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SHOTCRETE REPAIRS SEGMENT 10N	CF	3.5	



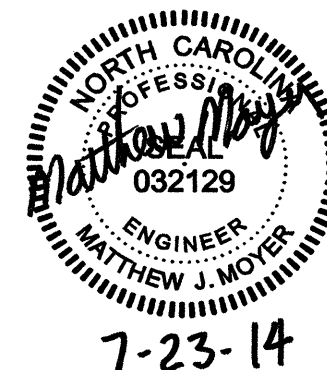
VIEW B-B: REPAIR SEGMENTS 9N & 10N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
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STATION: 217+01.01 -L- (EB I-40)

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RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 9N & 10N



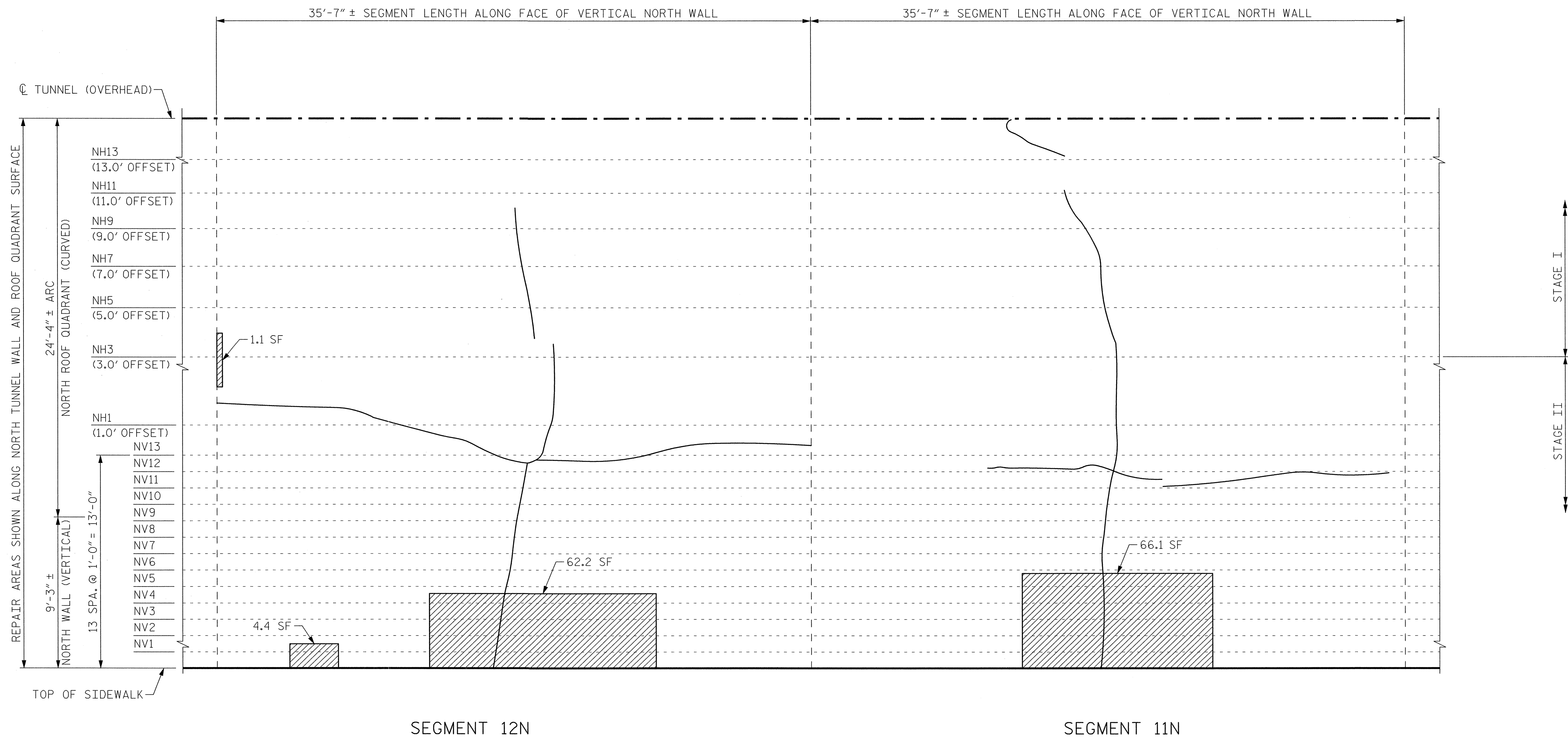
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REVISIONS						SHEET NO. S-011 TOTAL SHEETS 110
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2	--	--	4	--	--	

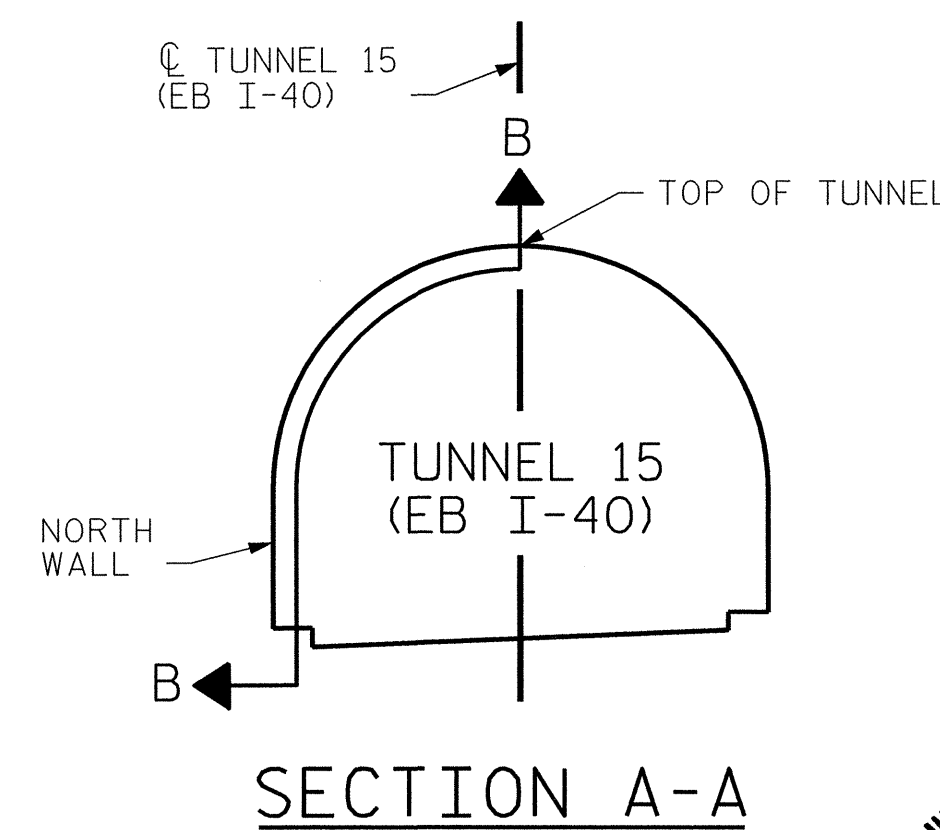
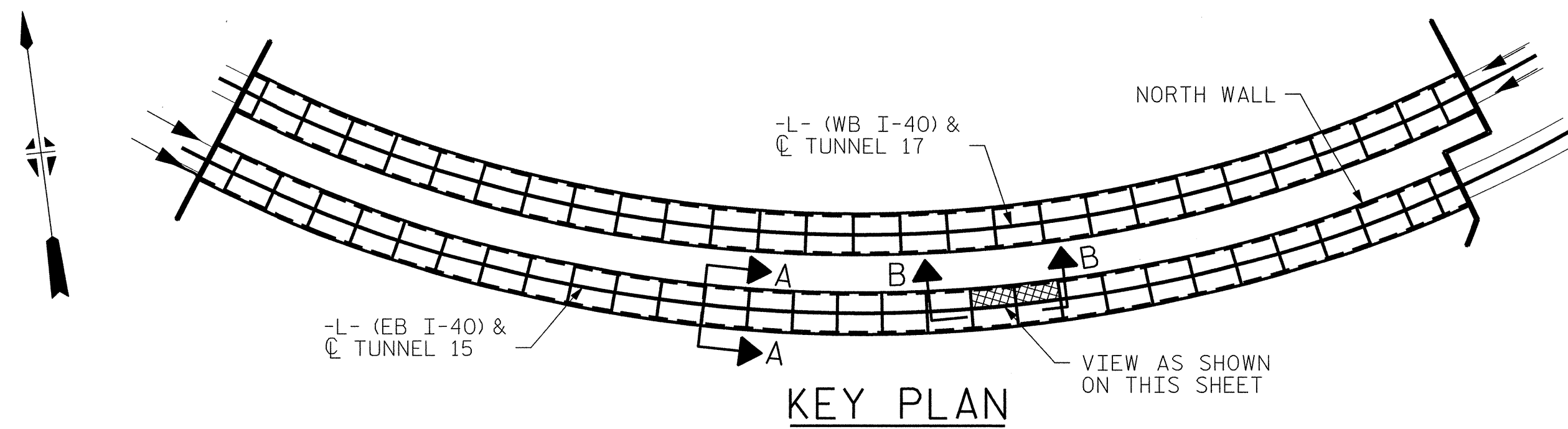
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CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL		
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SHOTCRETE REPAIRS SEGMENT 12N	CF	22.6



VIEW B-B: REPAIR SEGMENTS 11N & 12N
TUNNEL SURFACE ELEVATION



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HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 11N & 12N



7-23-14

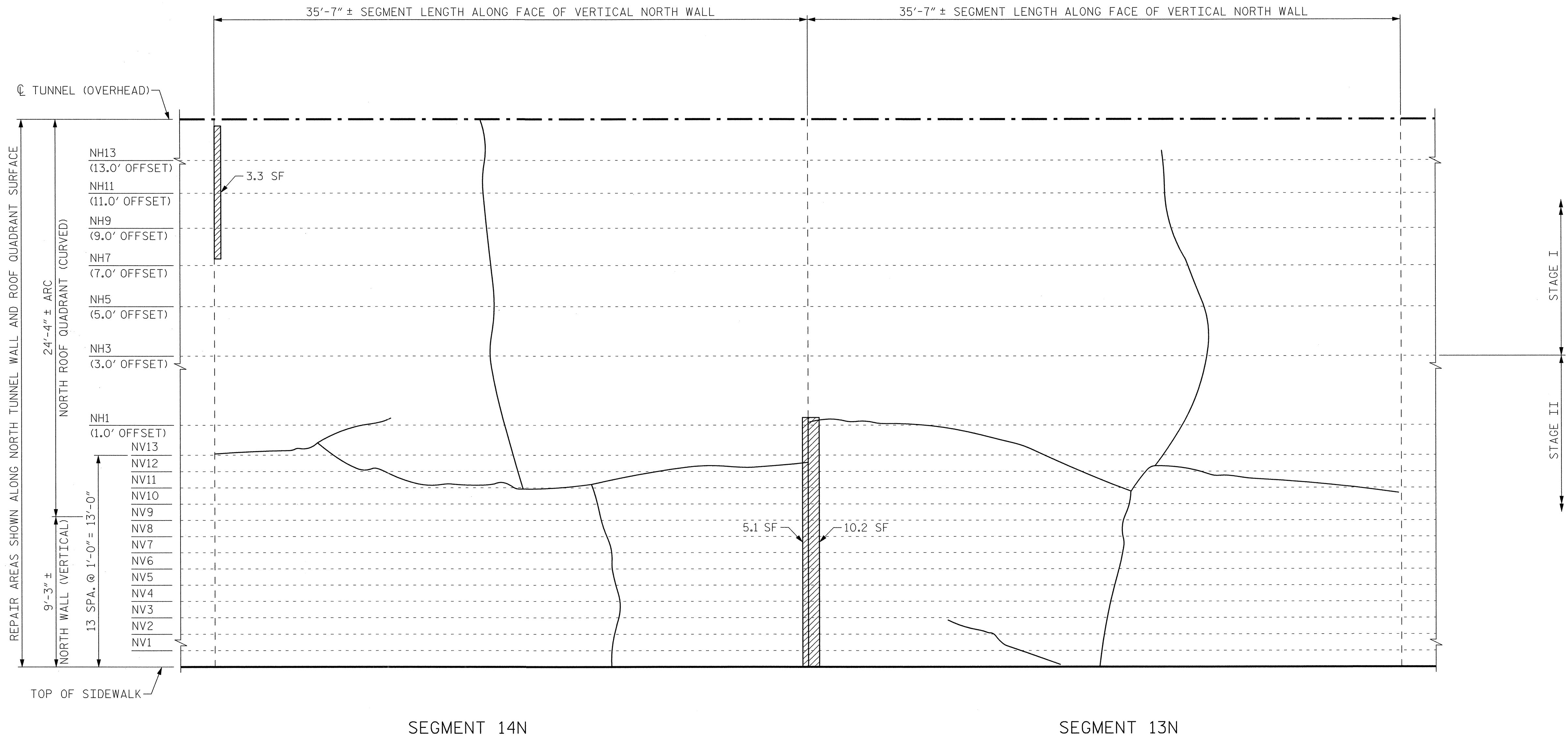
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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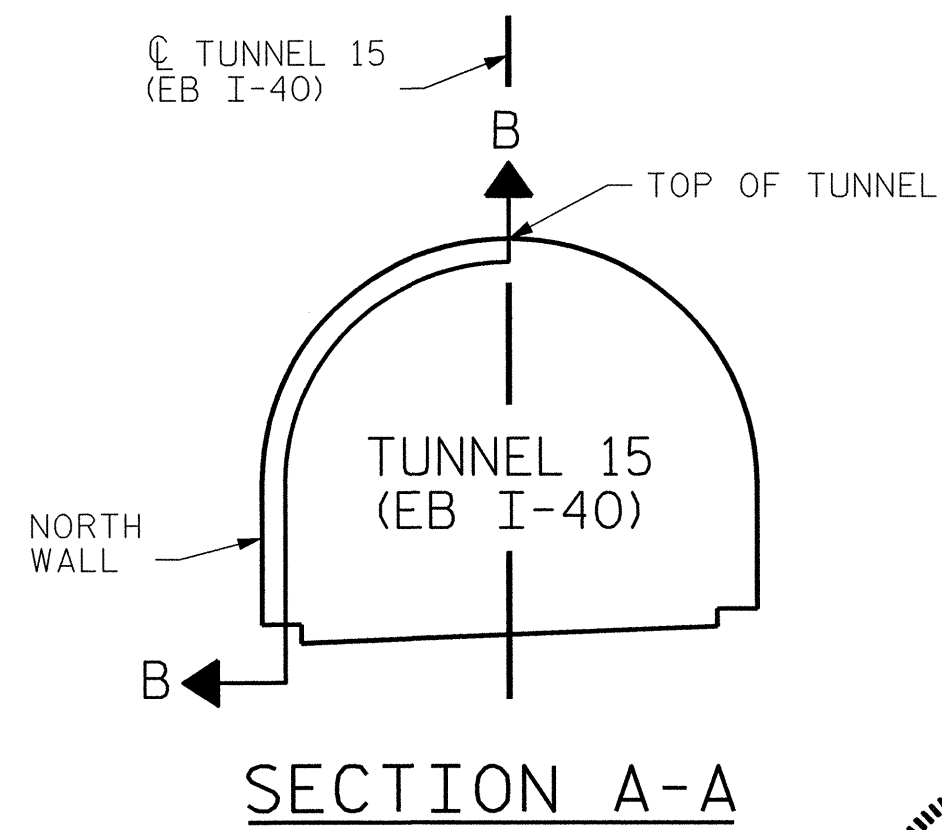
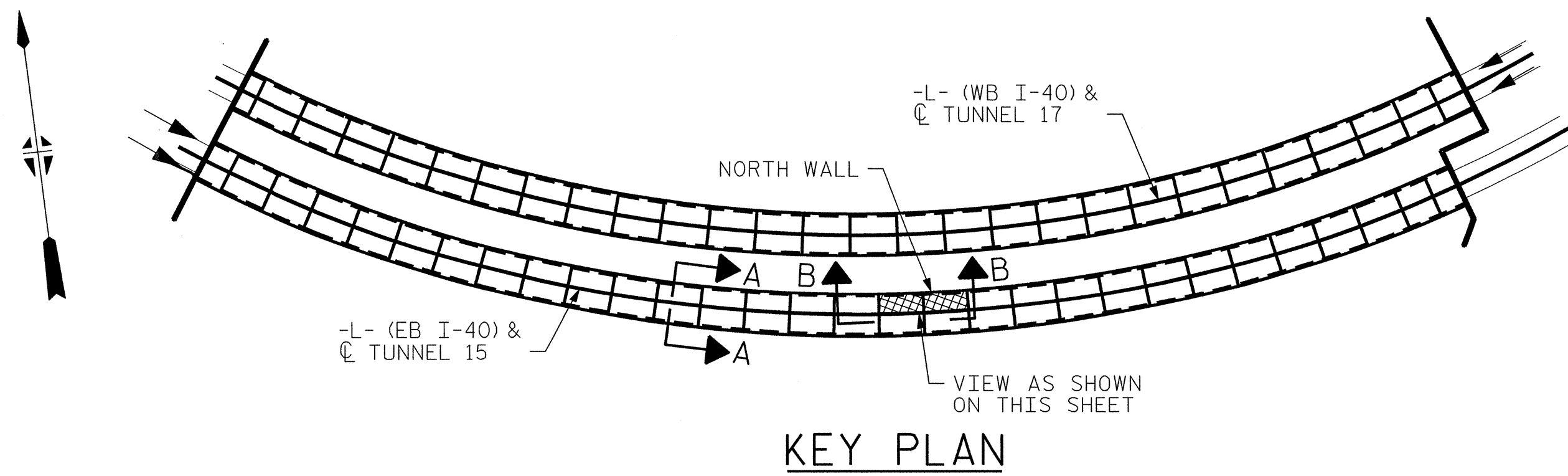
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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SHOTCRETE REPAIRS SEGMENT 14N	CF	2.8	



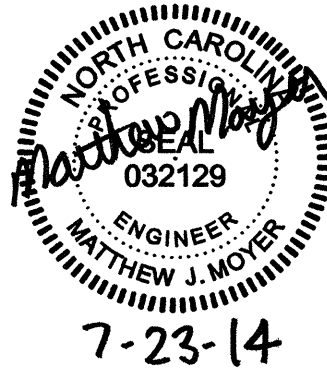
VIEW B-B: REPAIR SEGMENTS 13N & 14N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 13N & 14N



7-23-14

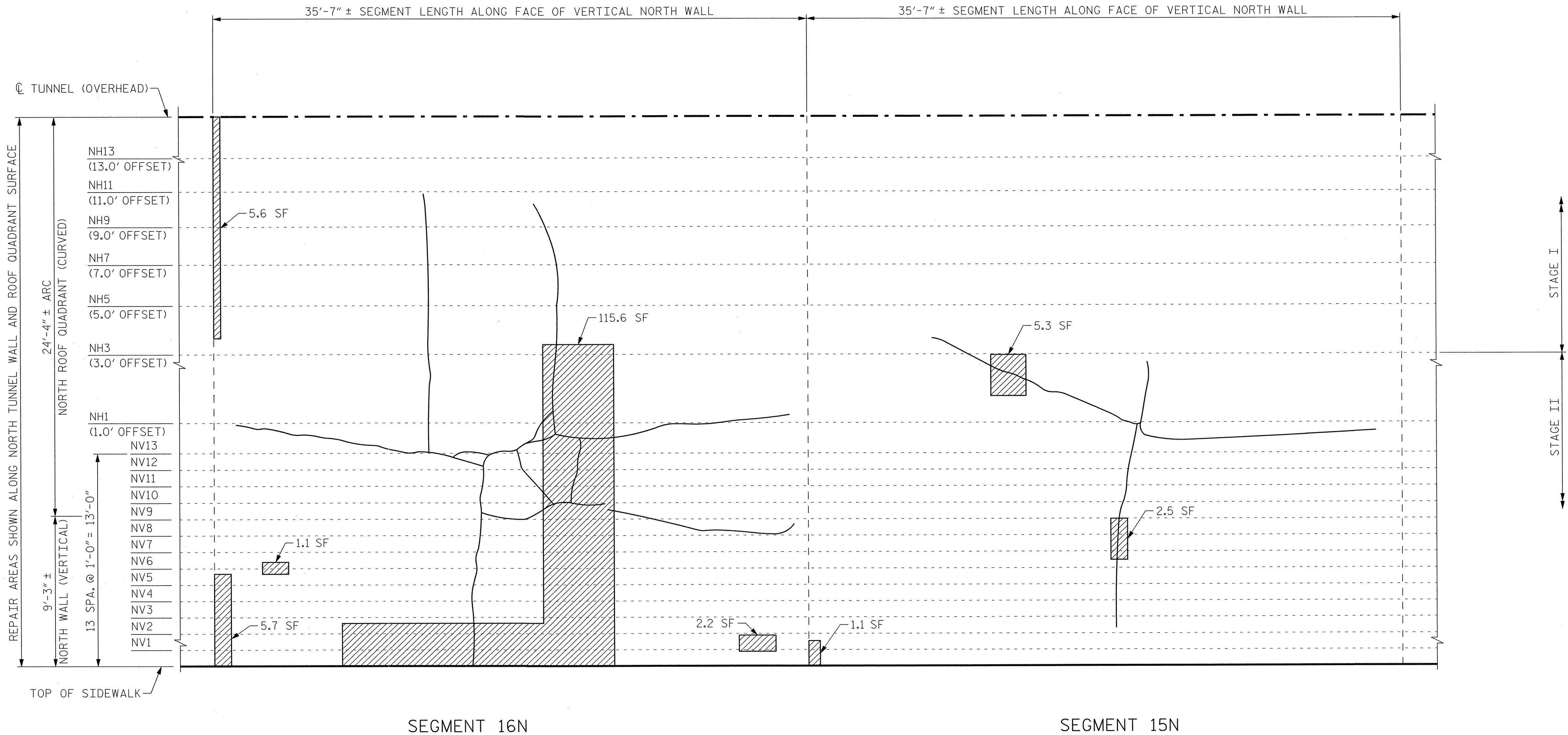
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, NC 27612
N.C.B.E.L.S. License Number: F-0116

DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

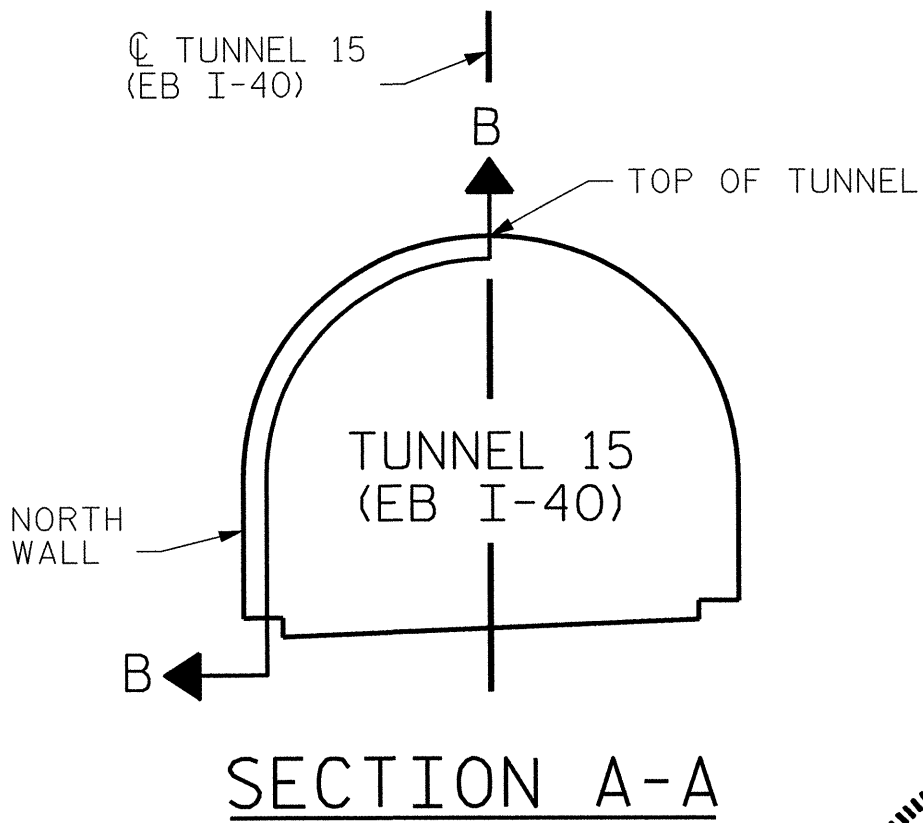
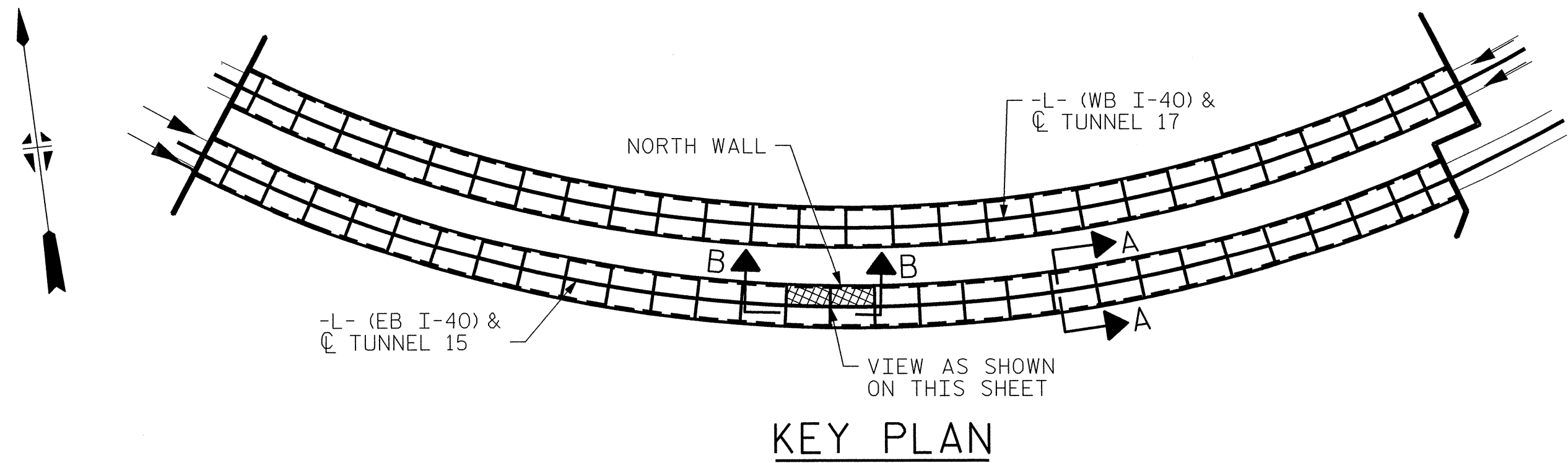
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BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 15N	CF	3.0	
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VIEW B-B: REPAIR SEGMENTS 15N & 16N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 15N & 16N



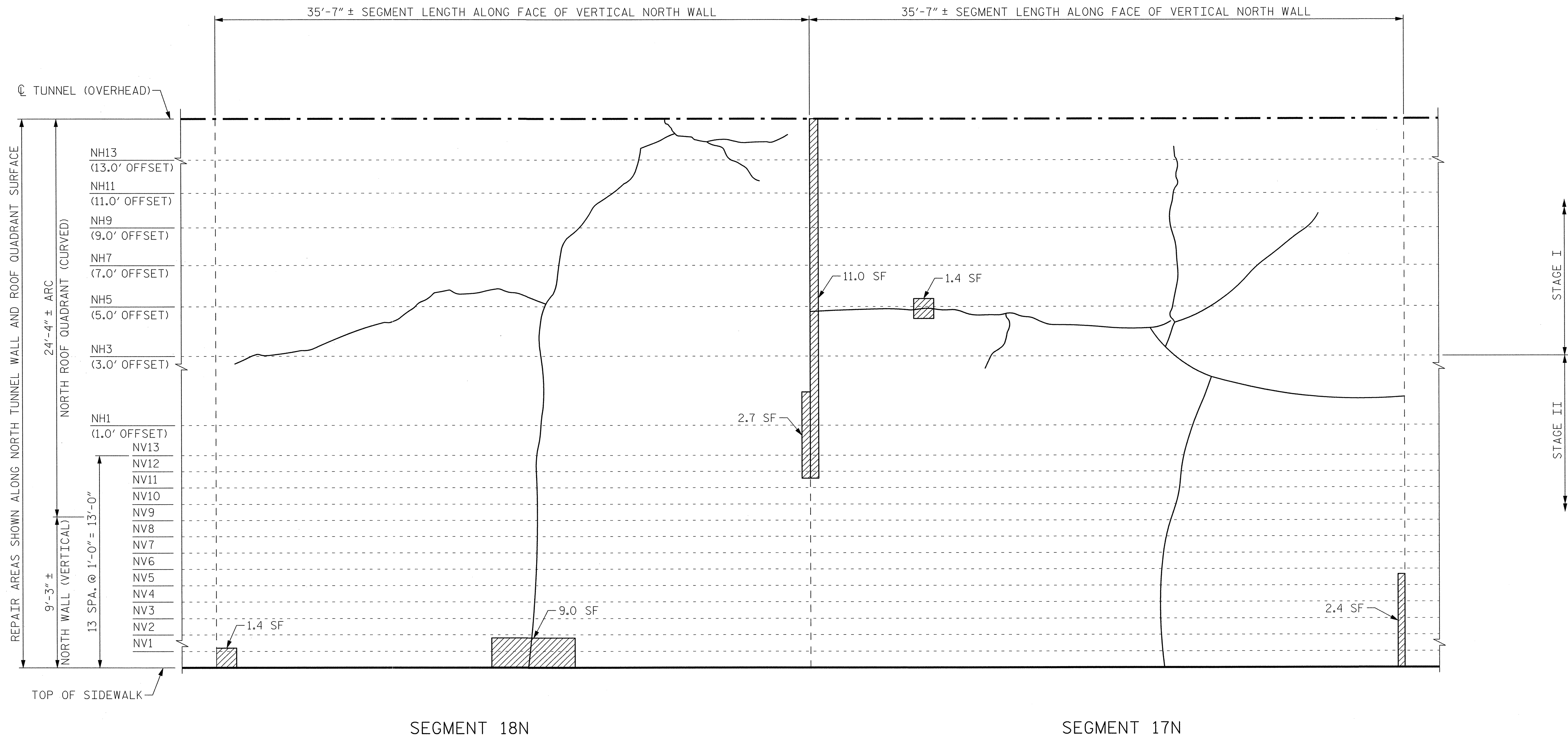
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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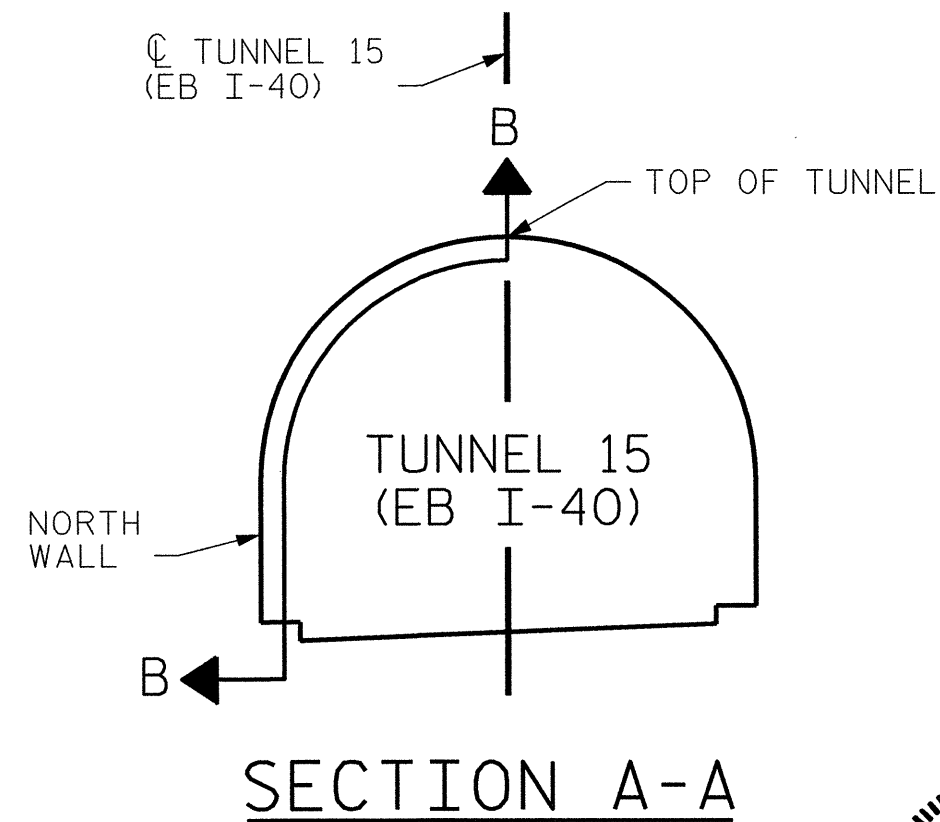
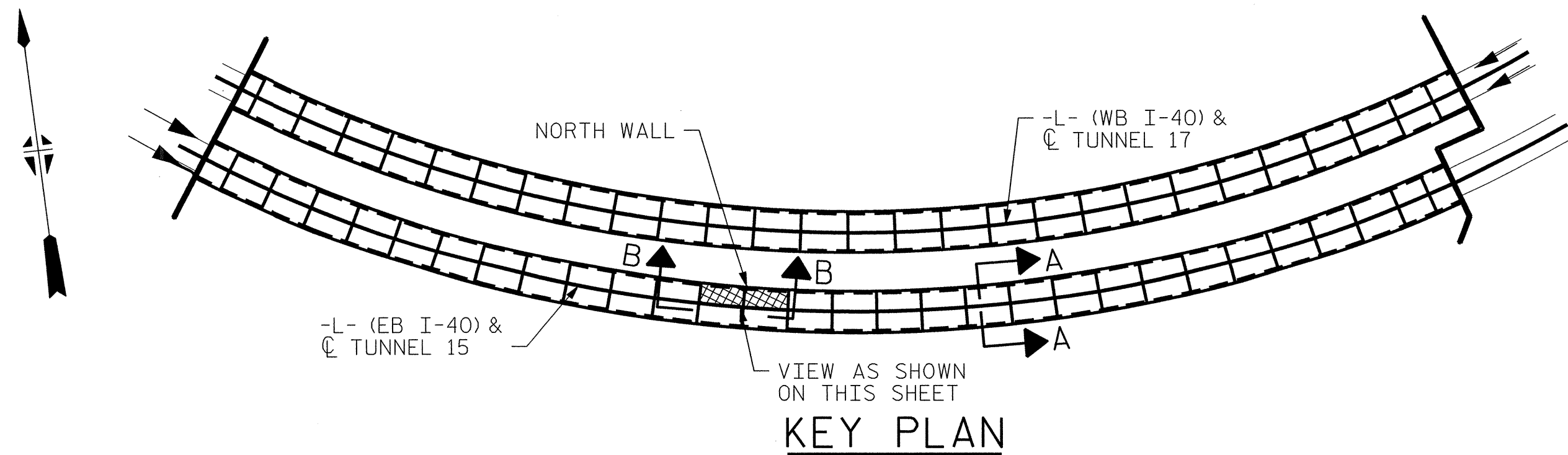
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DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 17N	CF	4.9	
SHOTCRETE REPAIRS SEGMENT 18N	CF	4.4	



VIEW B-B: REPAIR SEGMENTS 17N & 18N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 17N & 18N



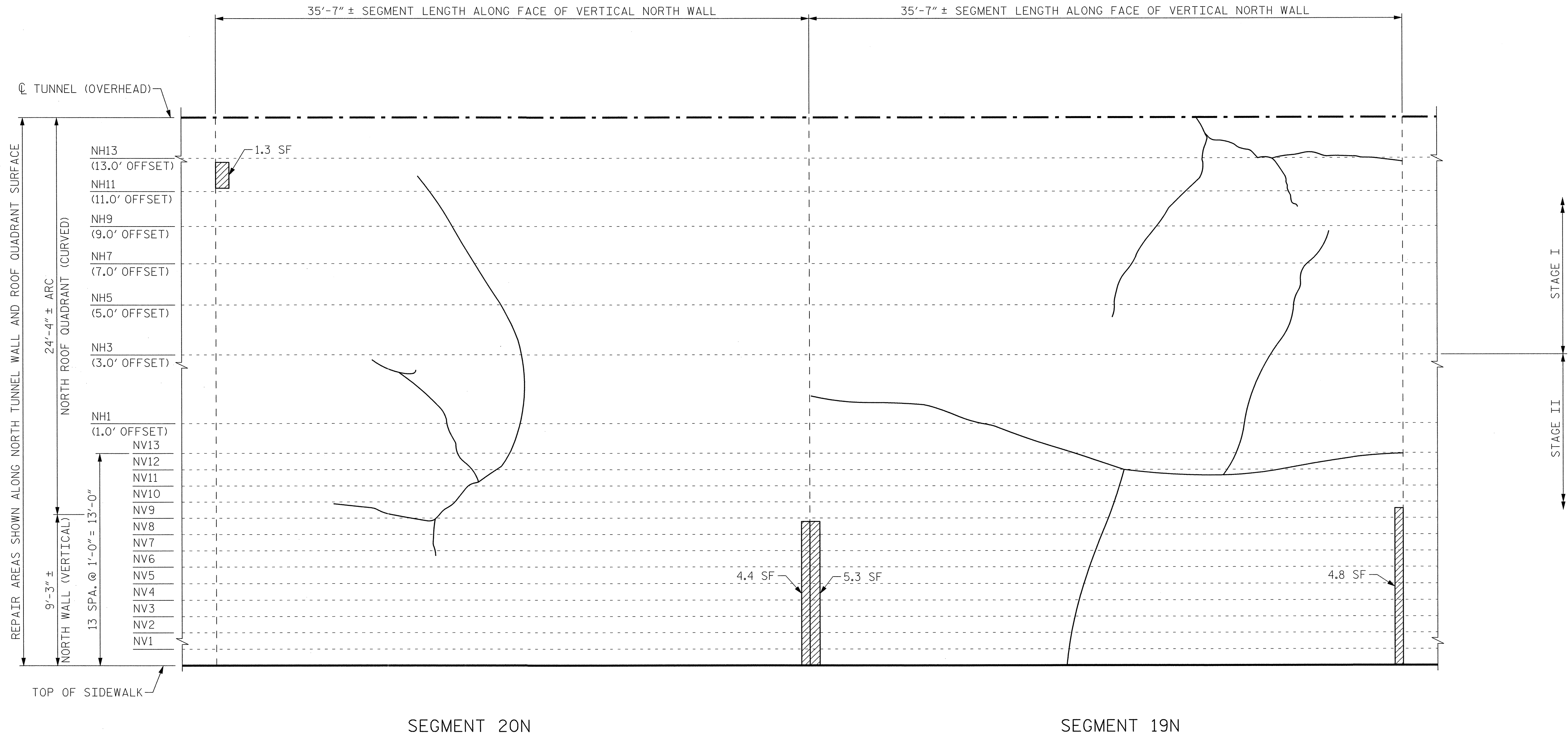
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

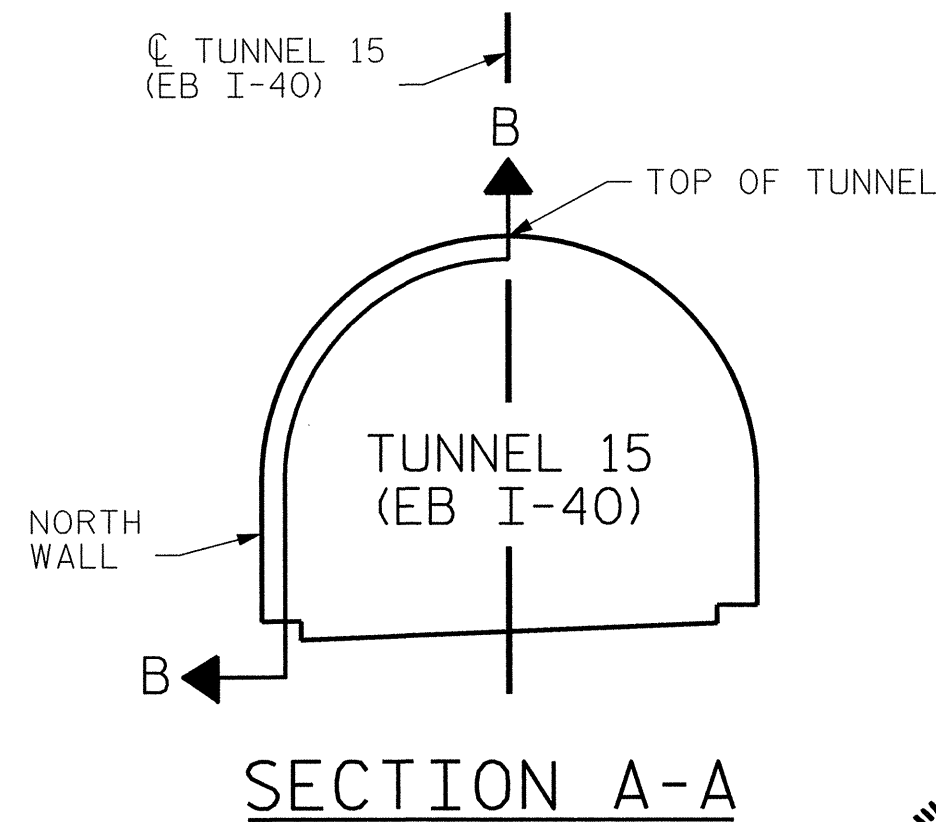
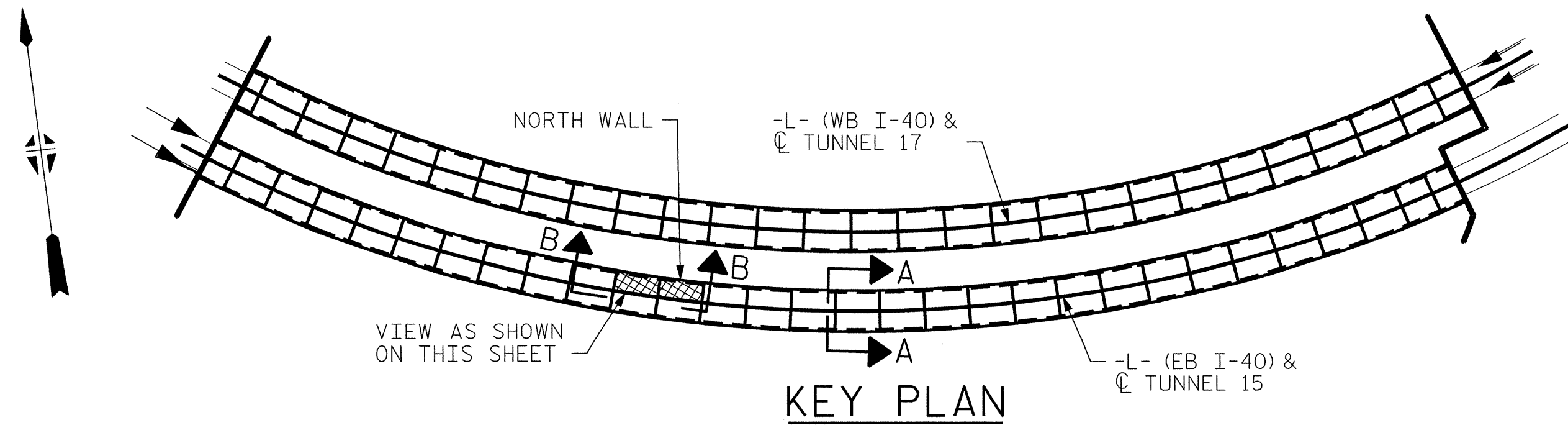
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2	--	--	4	--	--	

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BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 19N	CF	3.4	
SHOTCRETE REPAIRS SEGMENT 20N	CF	1.9	



VIEW B-B: REPAIR SEGMENTS 19N & 20N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 19N & 20N

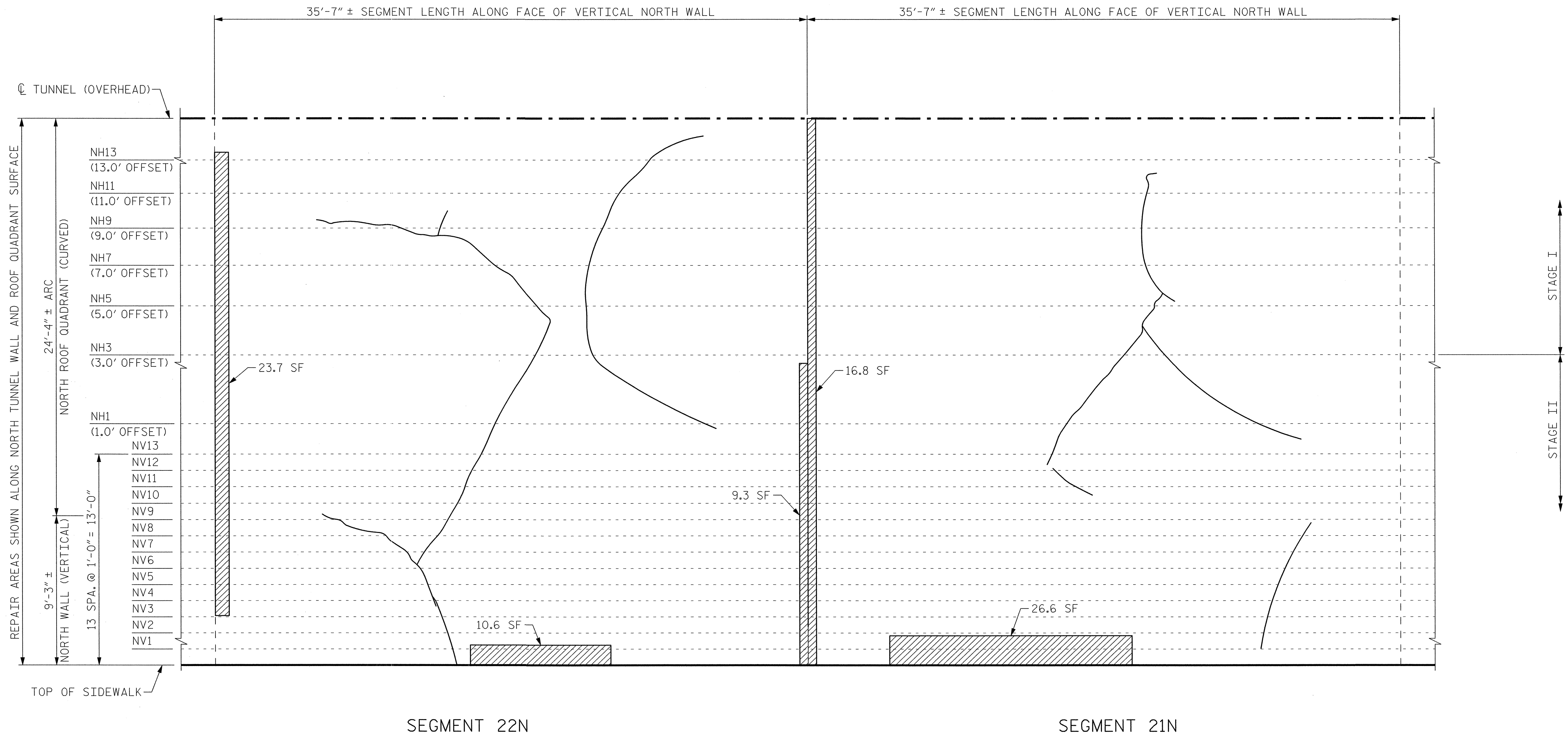


7-23-14

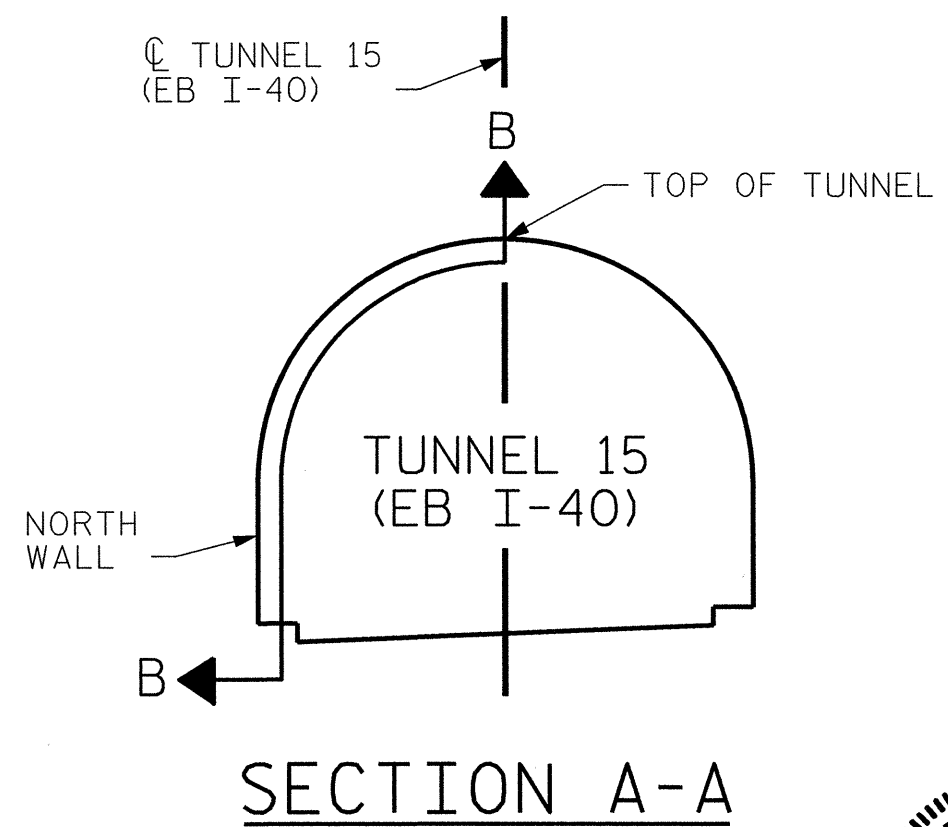
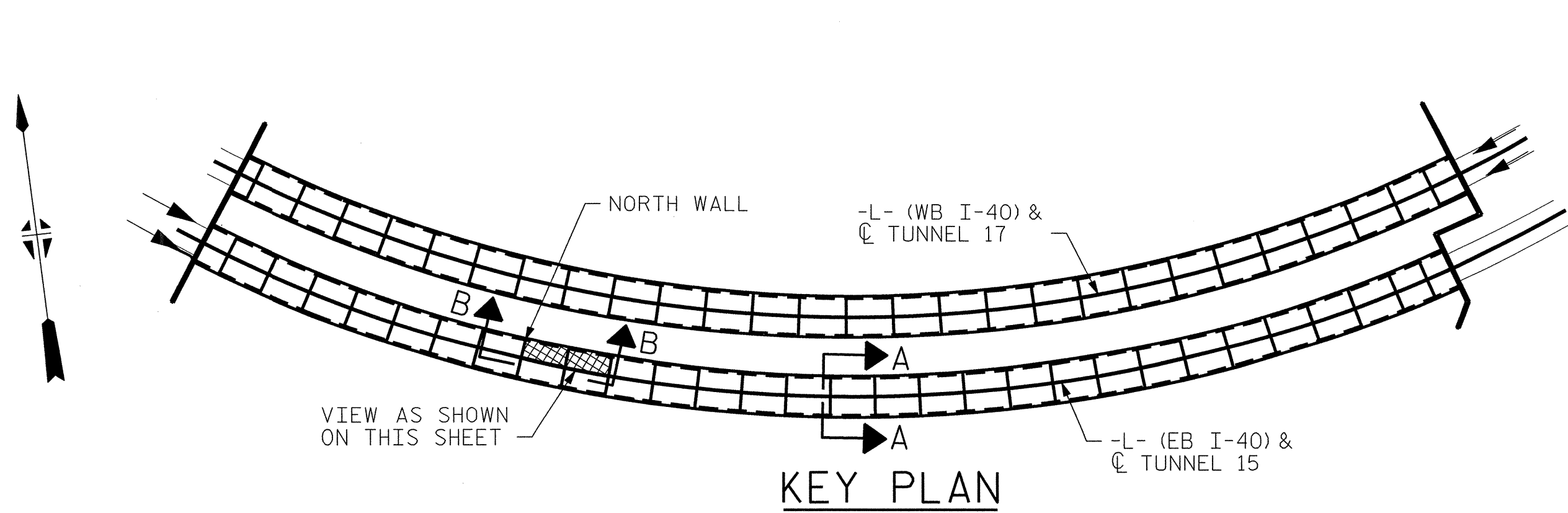
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-016 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	
2	--	--	4	--	--	

BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 21N	CF	14.5
SHOTCRETE REPAIRS SEGMENT 22N	CF	14.5



VIEW B-B: REPAIR SEGMENTS 21N & 22N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 21N & 22N

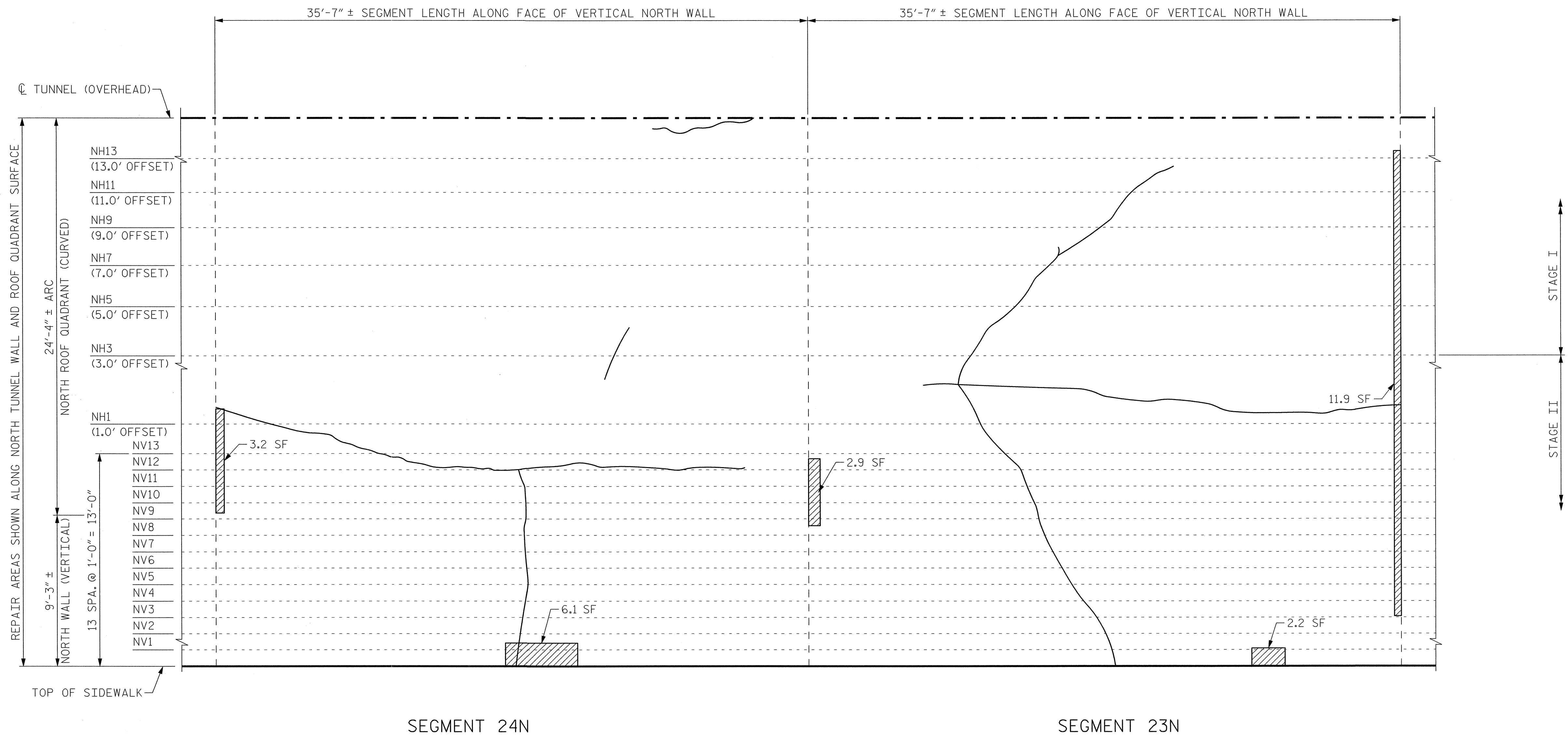


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N.C.B.E.L.S. License Number: F-0116

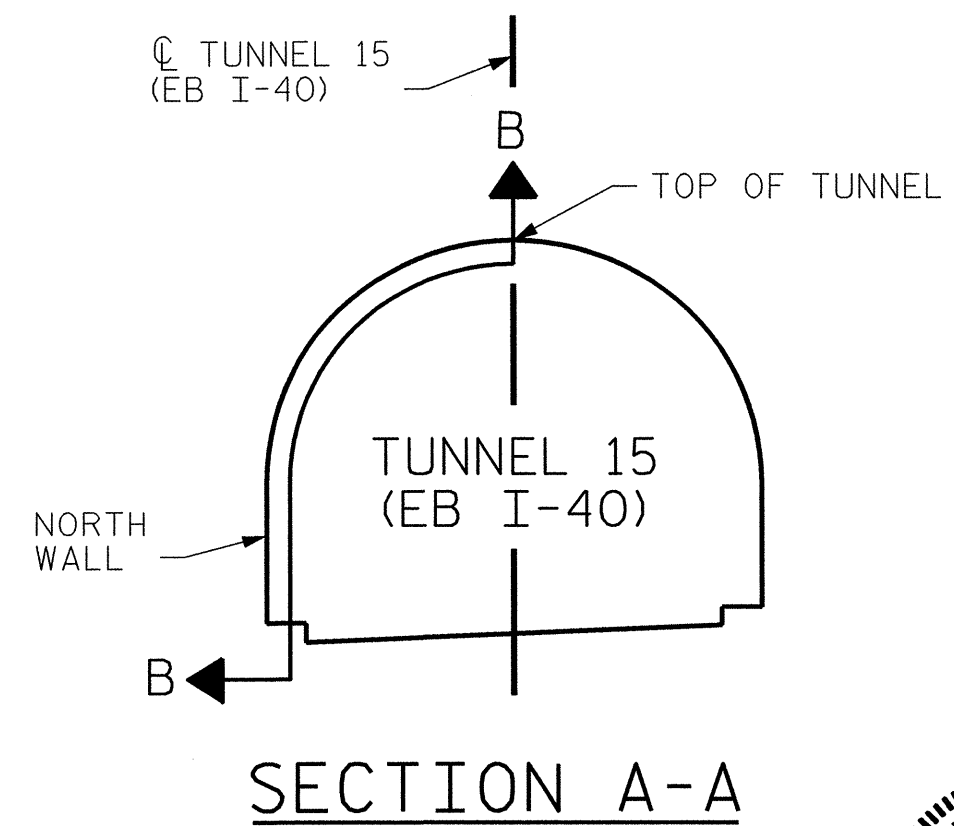
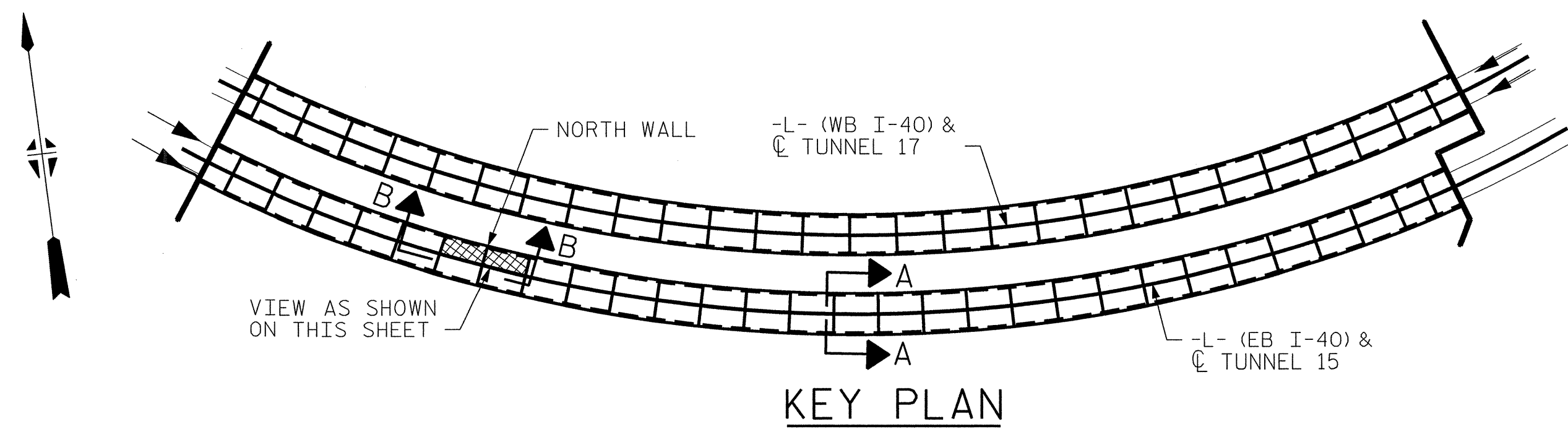
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CHECKED BY : M. MOYER DATE : 07/2013

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BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 23N	CF	5.7	
SHOTCRETE REPAIRS SEGMENT 24N	CF	3.1	



VIEW B-B: REPAIR SEGMENTS 23N & 24N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 23N & 24N

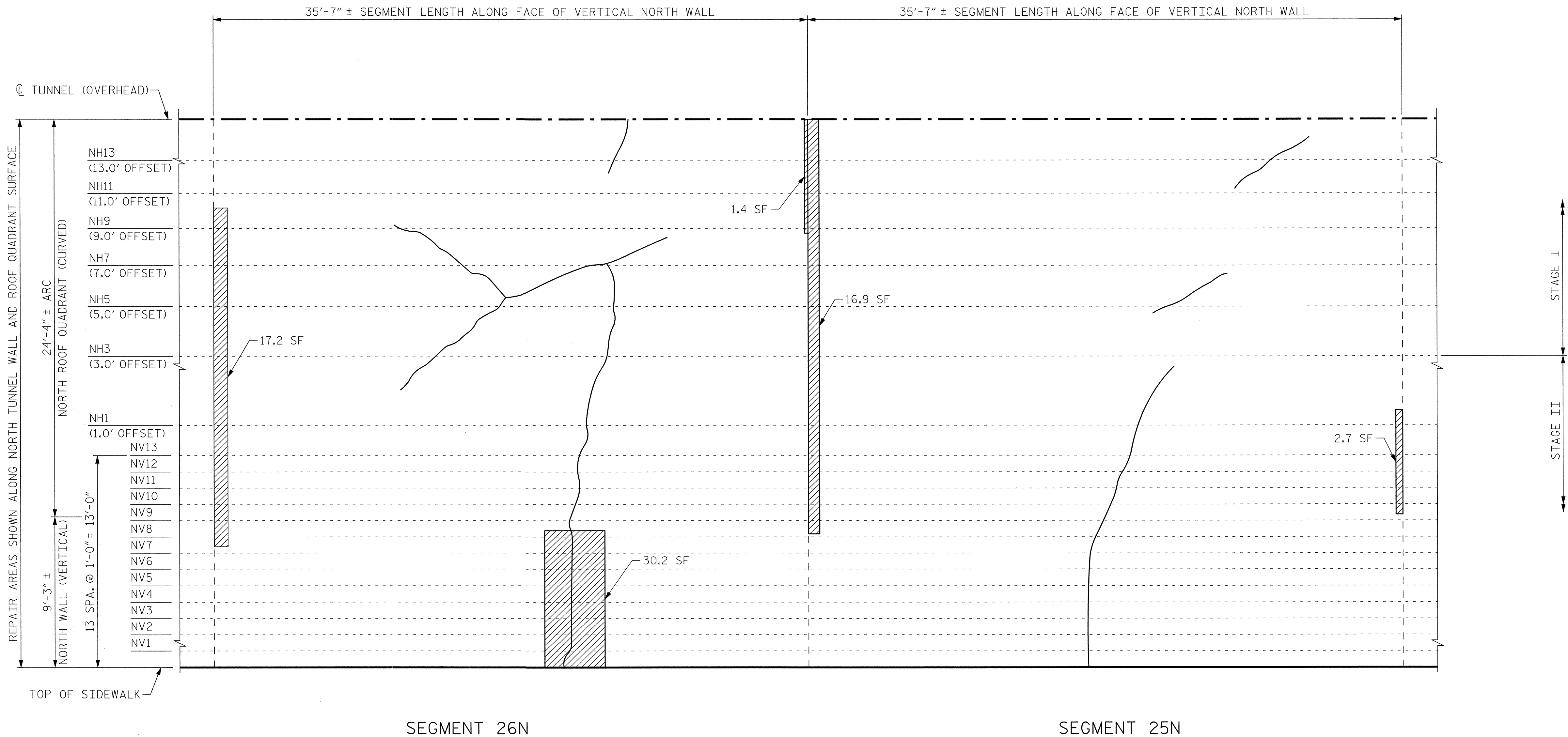


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N.C.B.E.L.S. License Number: F-0116

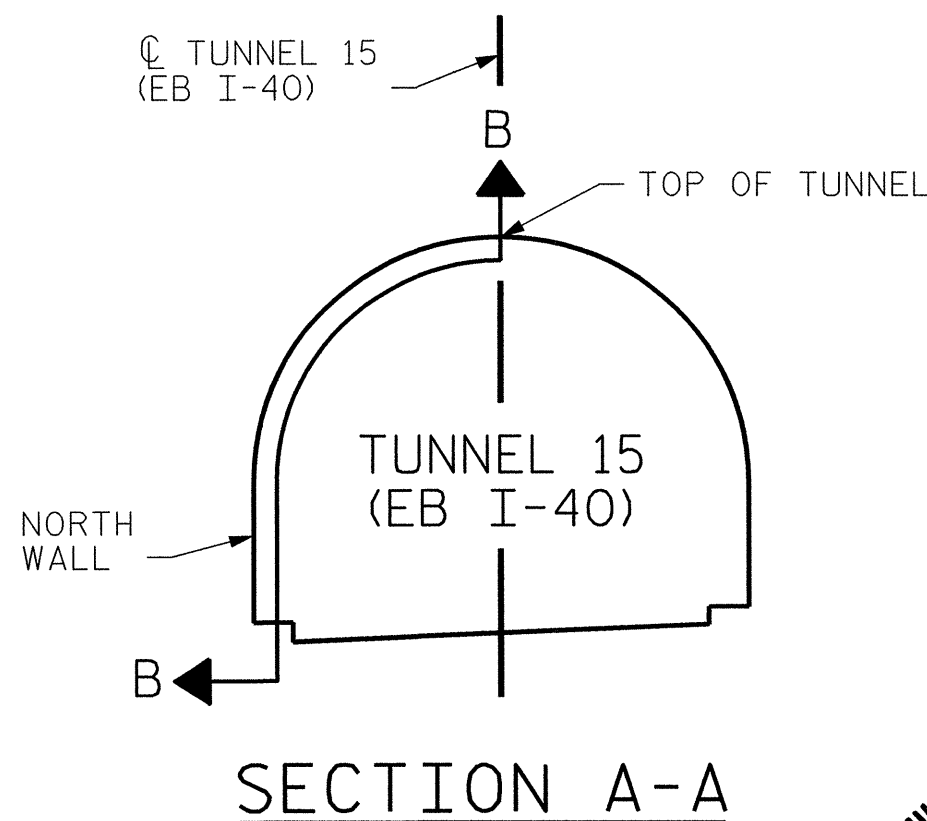
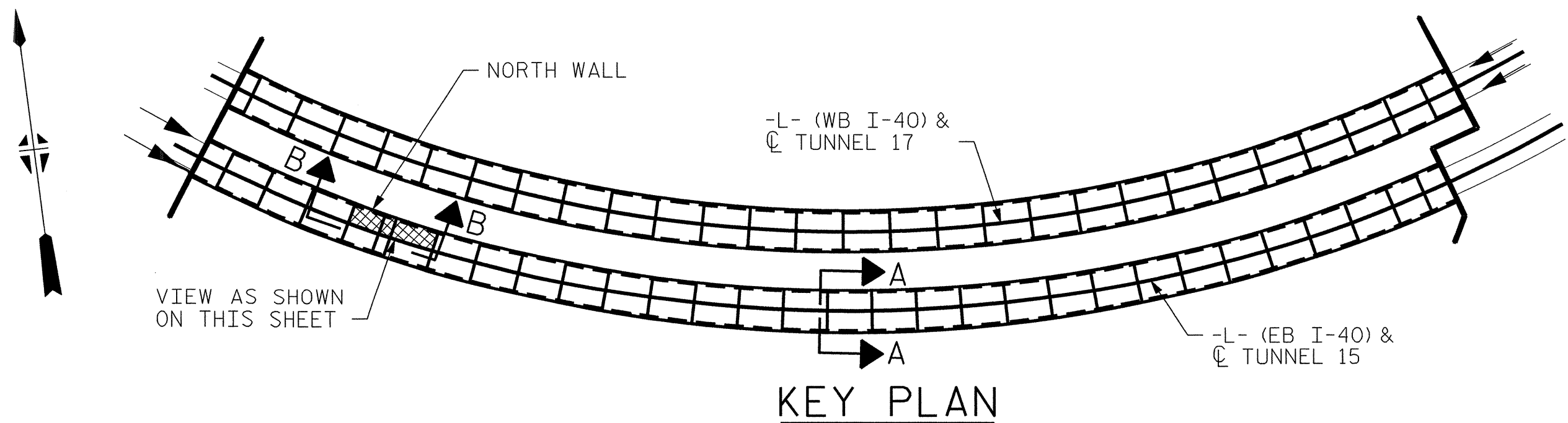
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 25N	CF	6.5	
SHOTCRETE REPAIRS SEGMENT 26N	CF	16.3	



VIEW B-B: REPAIR SEGMENTS 25N & 26N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 25N & 26N

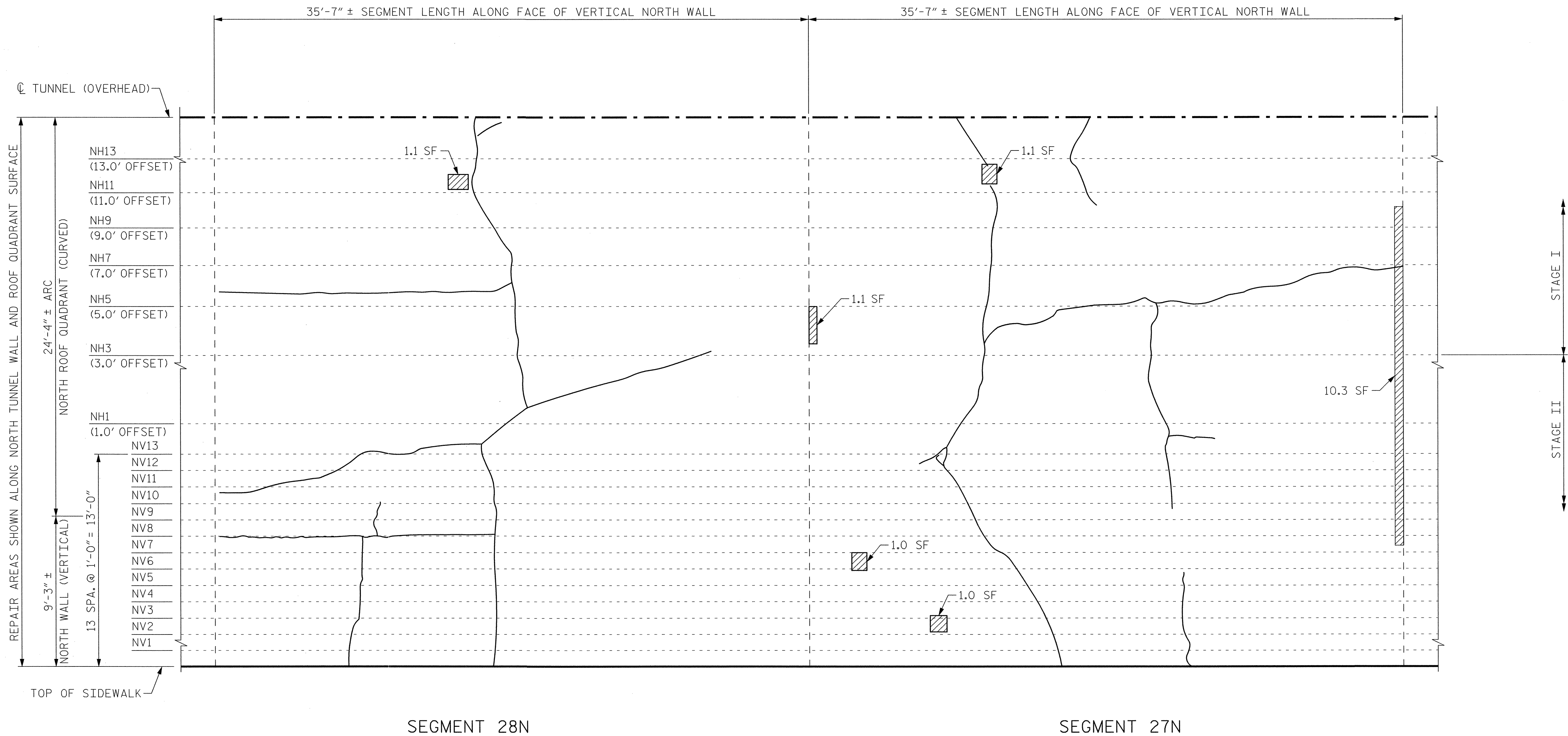


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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-019 TOTAL SHEETS 110
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CHECKED BY : M. MOYER DATE : 07/2013

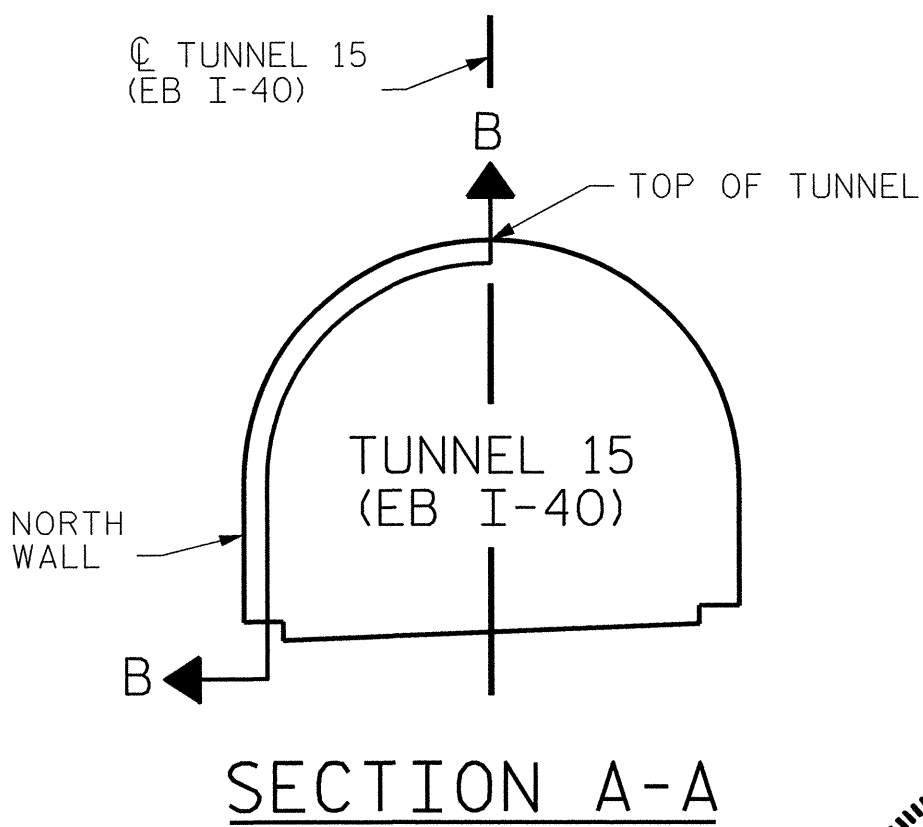
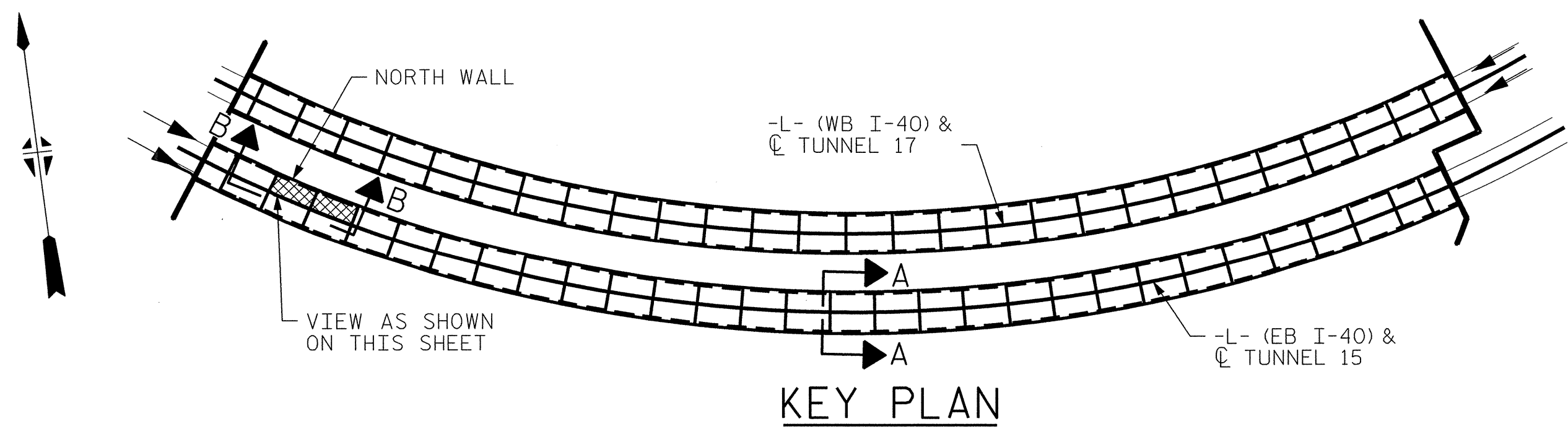
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SHOTCRETE REPAIRS SEGMENT 28N	CF	0.4	



SEGMENT 28N

SEGMENT 27N

VIEW B-B: REPAIR SEGMENTS 27N & 28N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 15 REPAIR AREAS SEGMENTS 27N & 28N					
REVISIONS					
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SHEET NO. S-020					TOTAL SHEETS 110

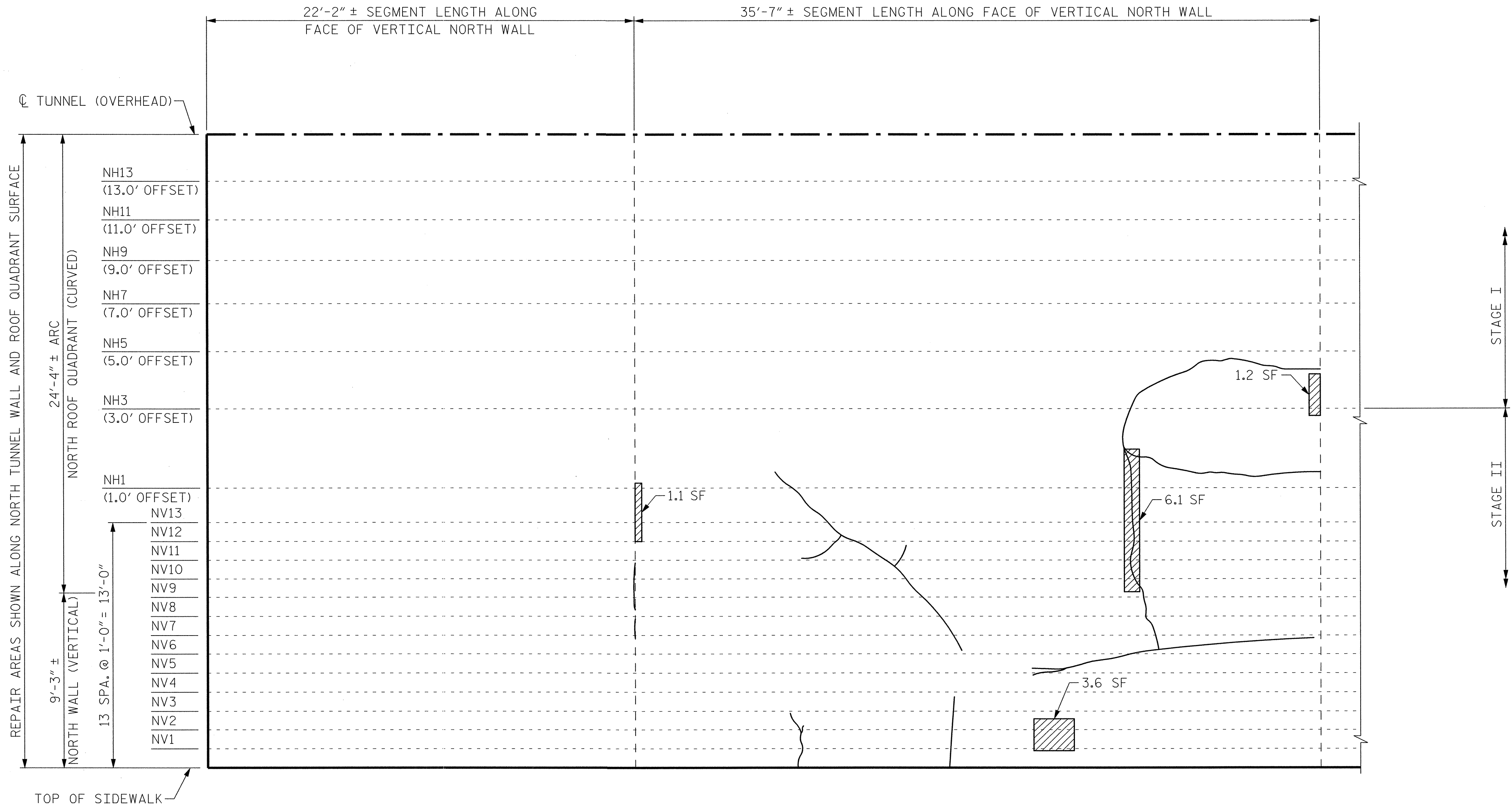


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N.C.B.E.L.S. License Number: F-0116

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DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013

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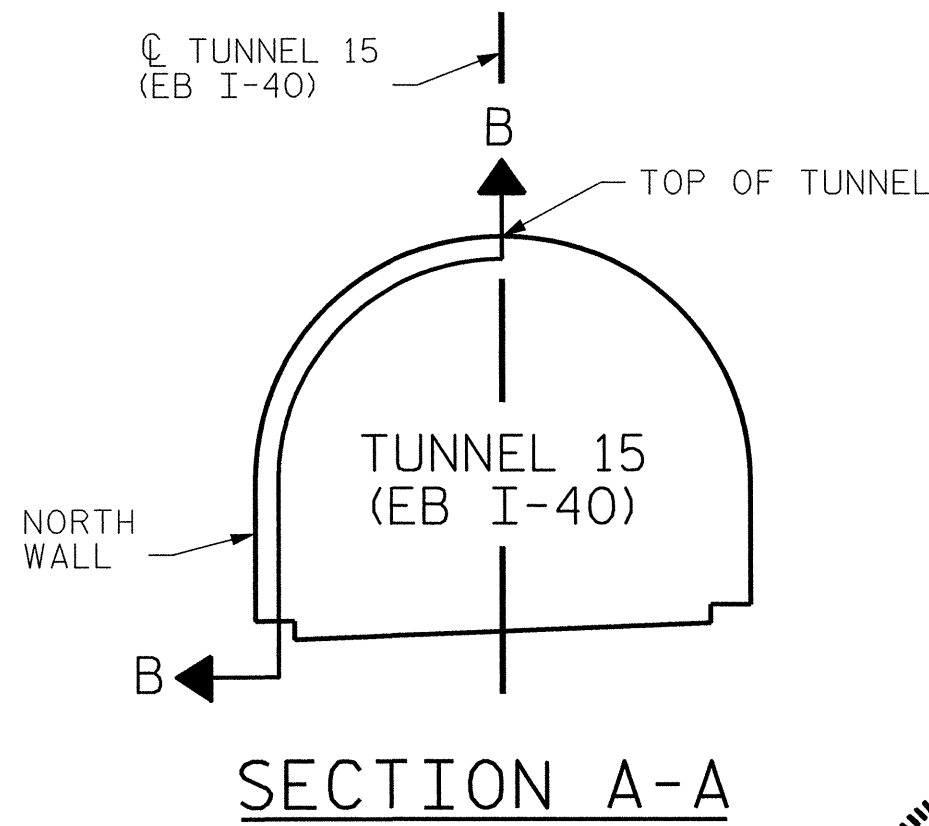
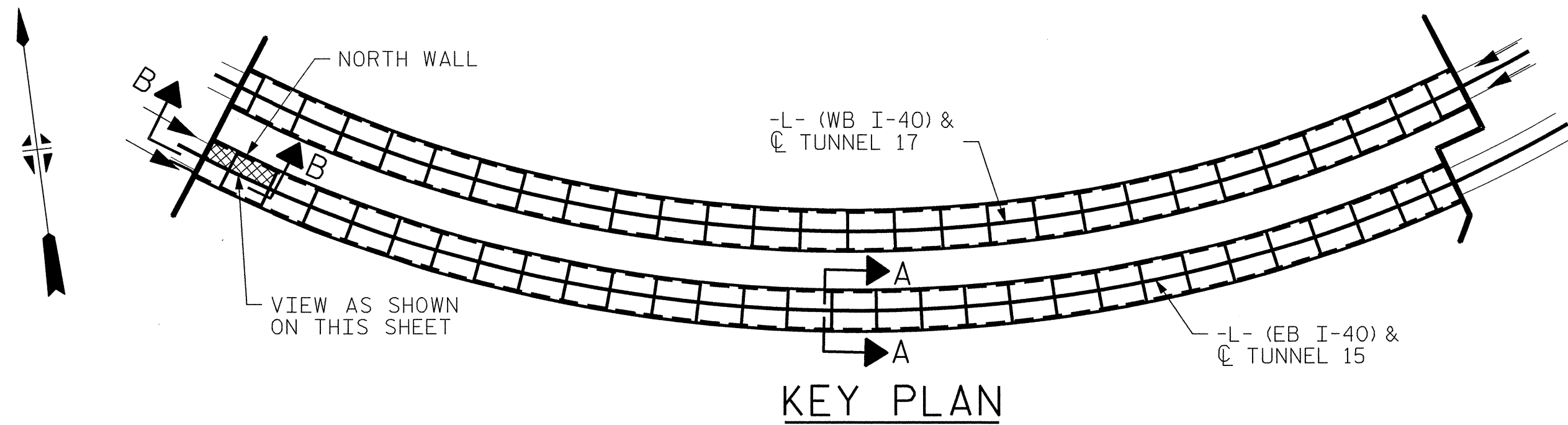


SEGMENT 30N

SEGMENT 29N

VIEW B-B: REPAIR SEGMENTS 29N & 30N

TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 29N & 30N



7-23-14

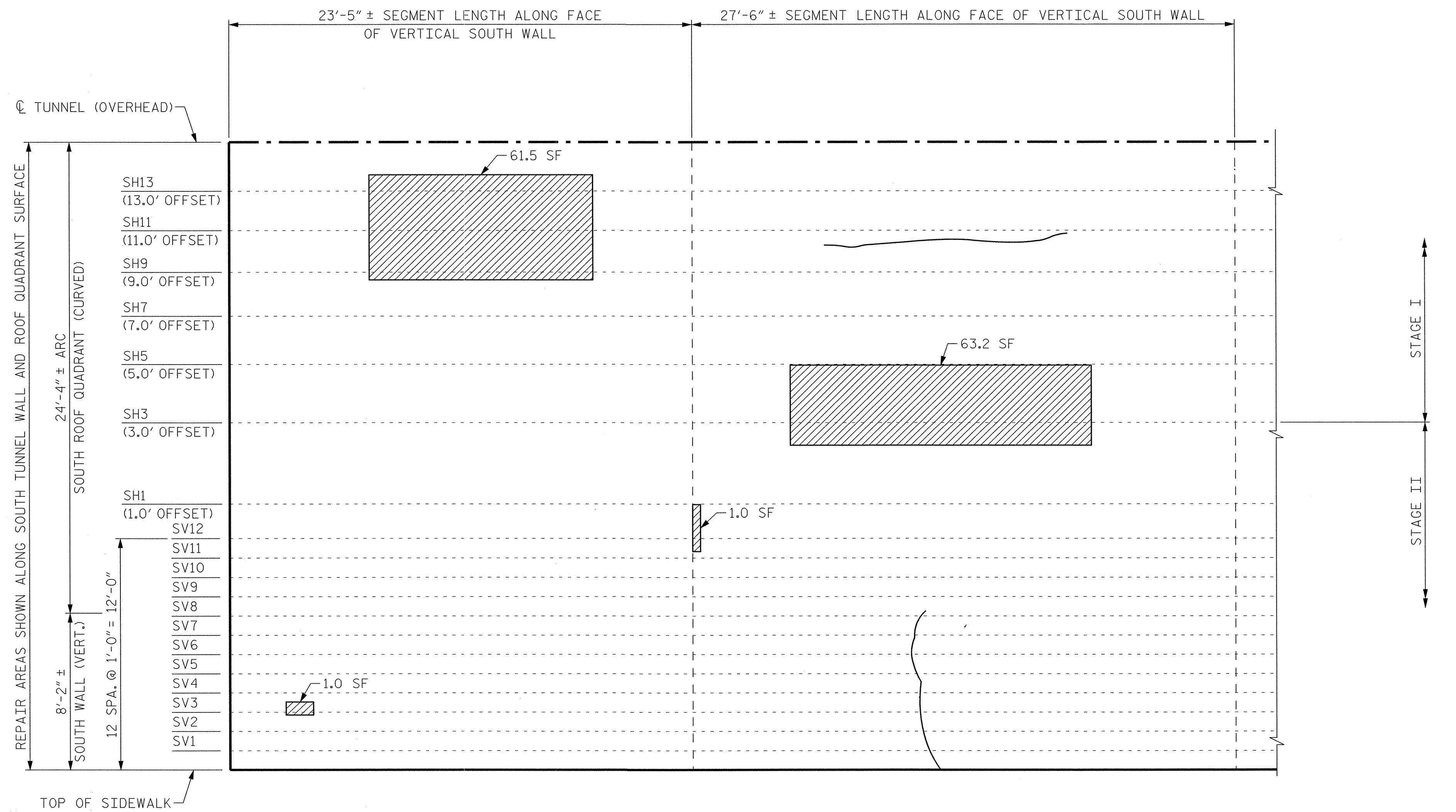
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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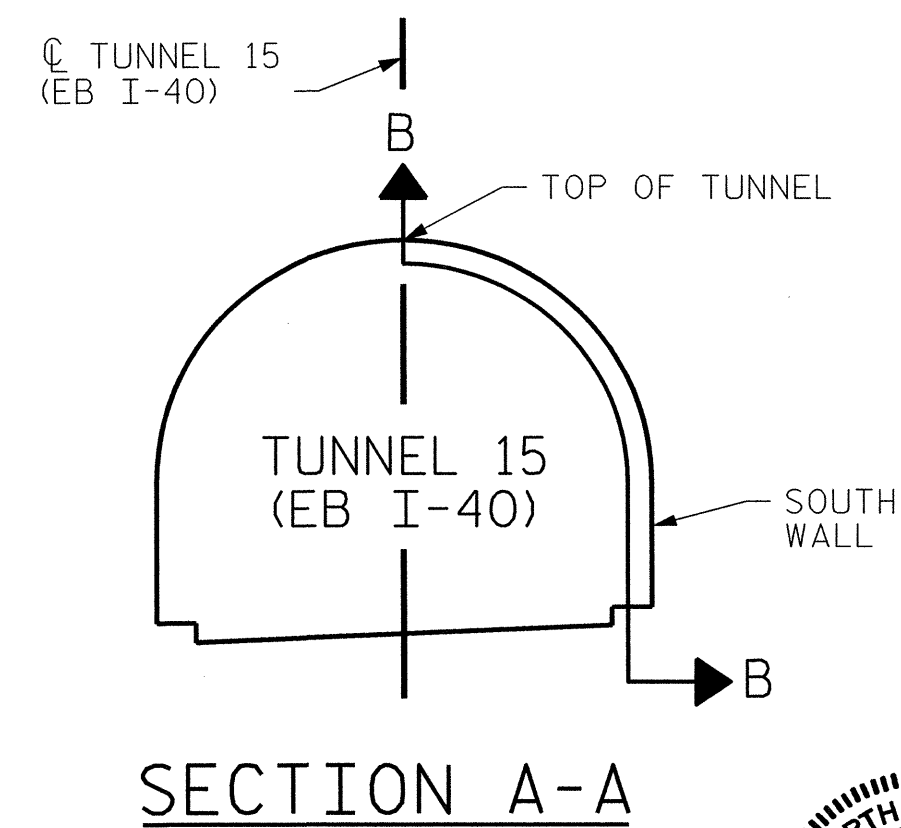
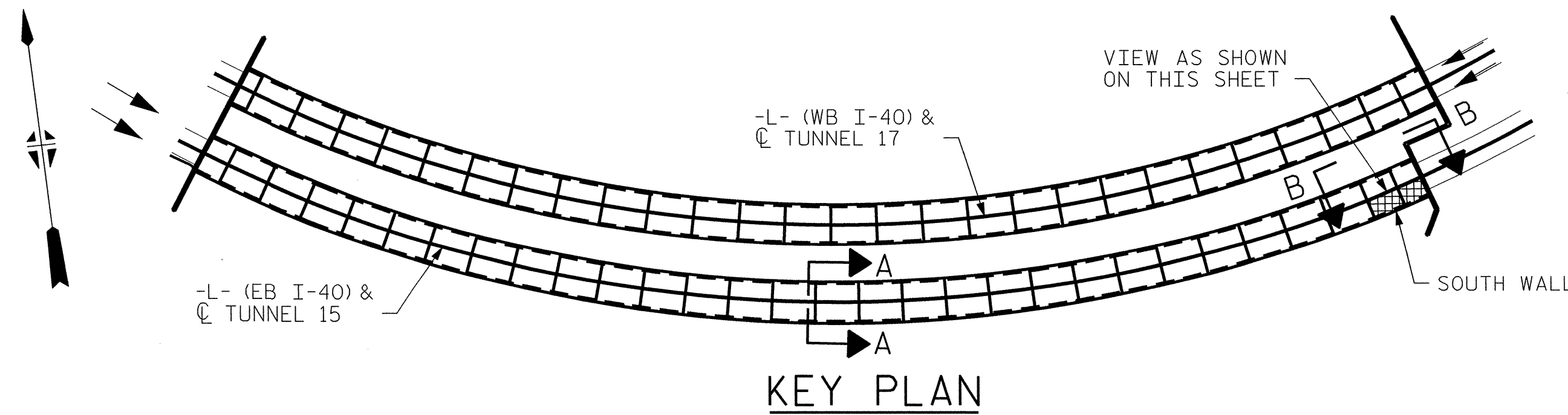
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SHOTCRETE REPAIRS SEGMENT 2S	CF	21.4



SEGMENT 1S SEGMENT 2S

VIEW B-B: REPAIR SEGMENTS 1S & 2S

TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 1S & 2S

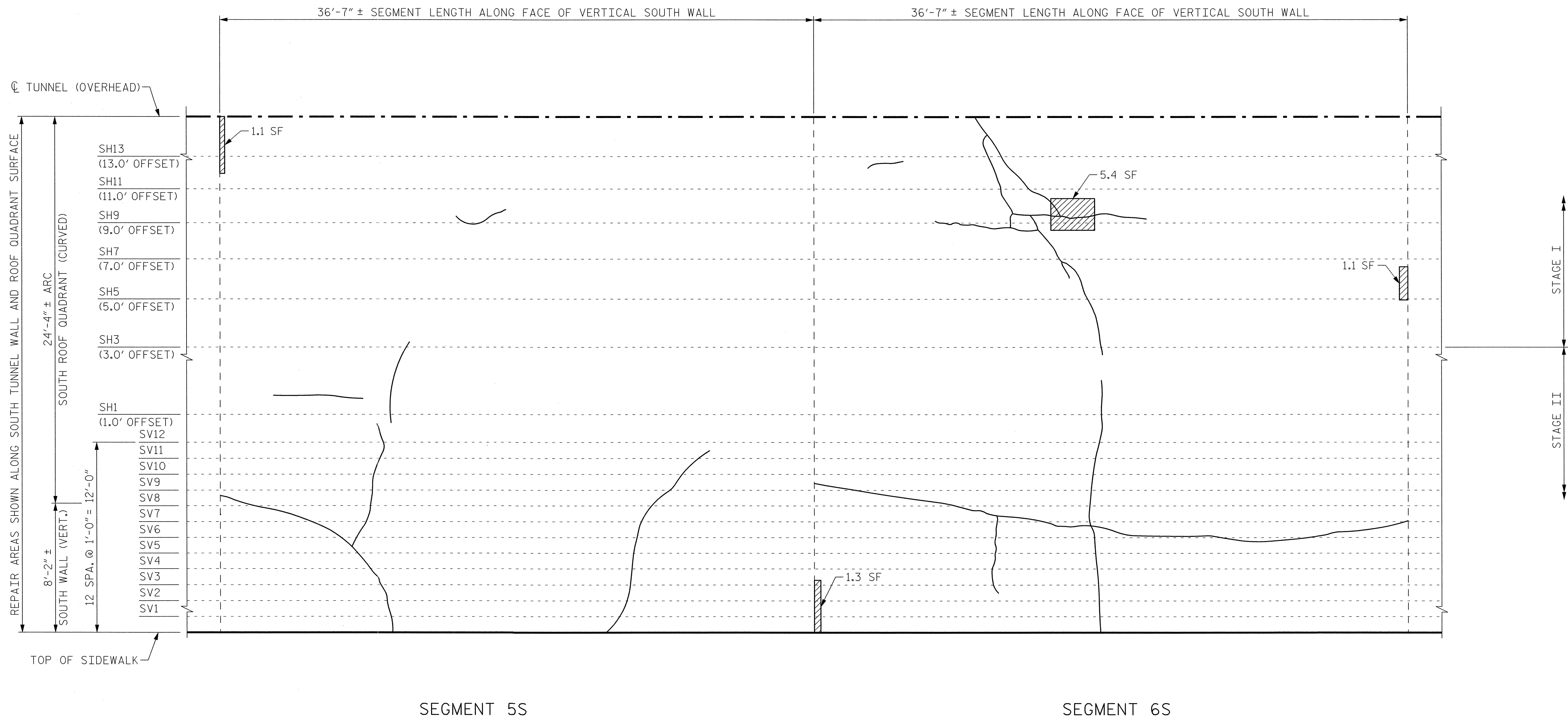
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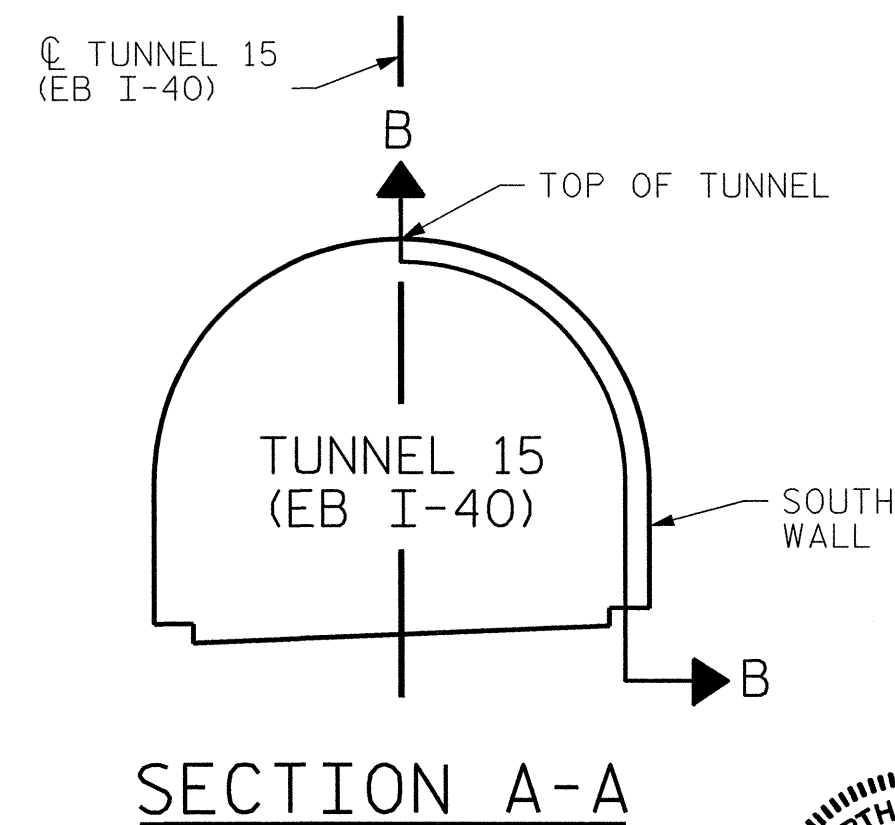
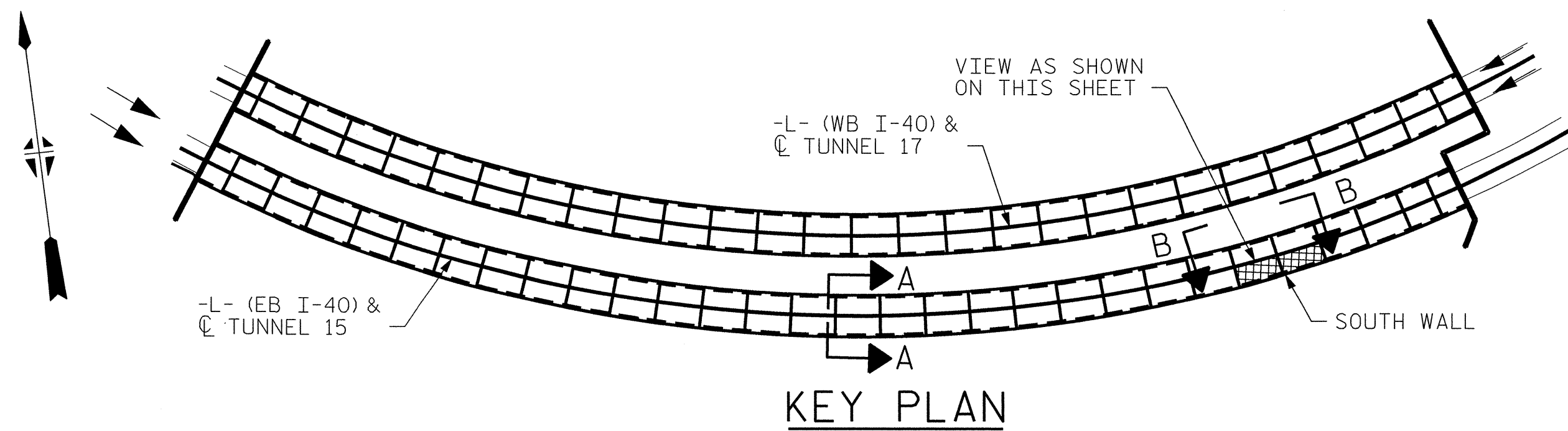
HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 5S	CF	0.4	
SHOTCRETE REPAIRS SEGMENT 6S	CF	2.6	



VIEW B-B: REPAIR SEGMENTS 5S & 6S
TUNNEL SURFACE ELEVATION

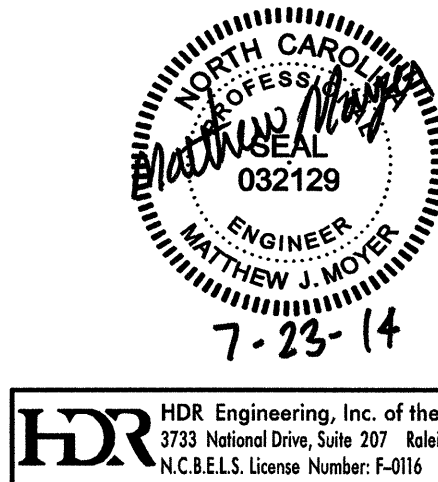


PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
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RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 5S & 6S

REVISIONS						SHEET NO. 5-024 TOTAL SHEETS 110
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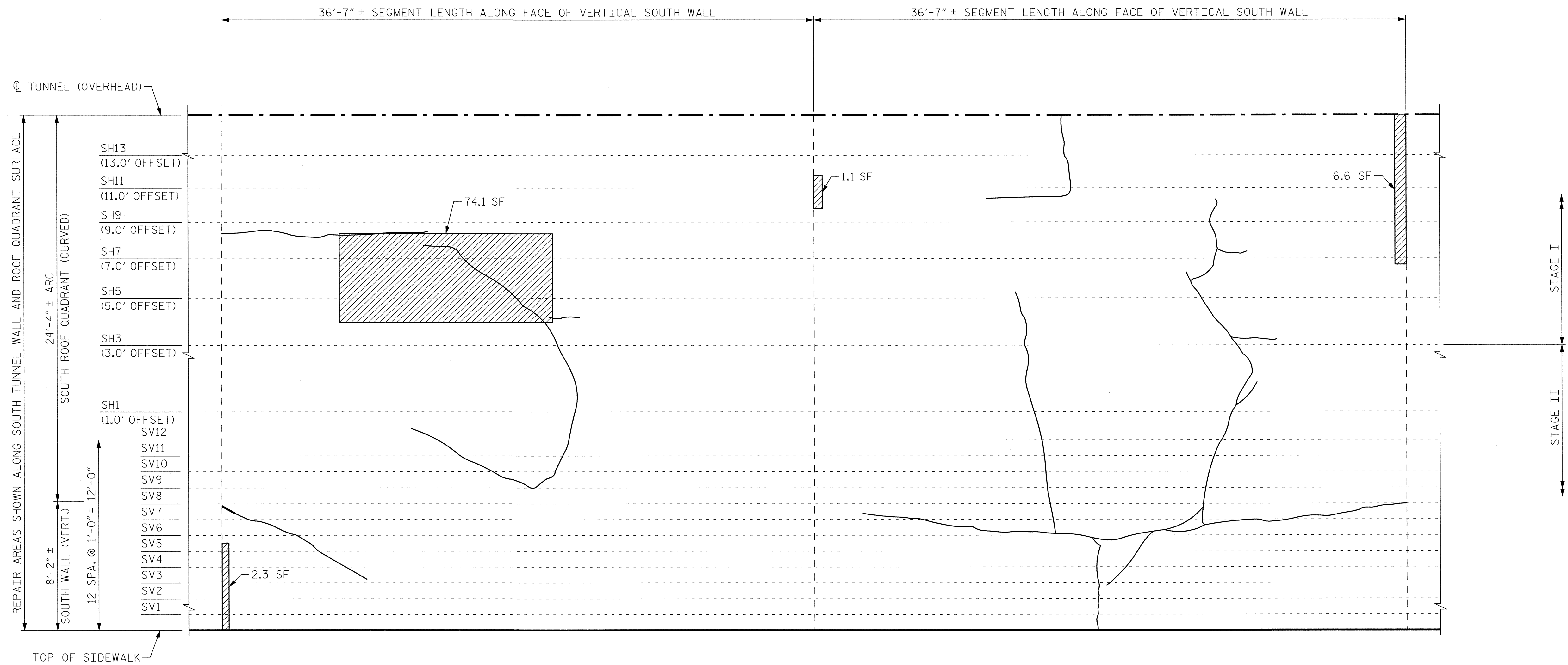


HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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DATE : 07/2013
DATE : 07/2013

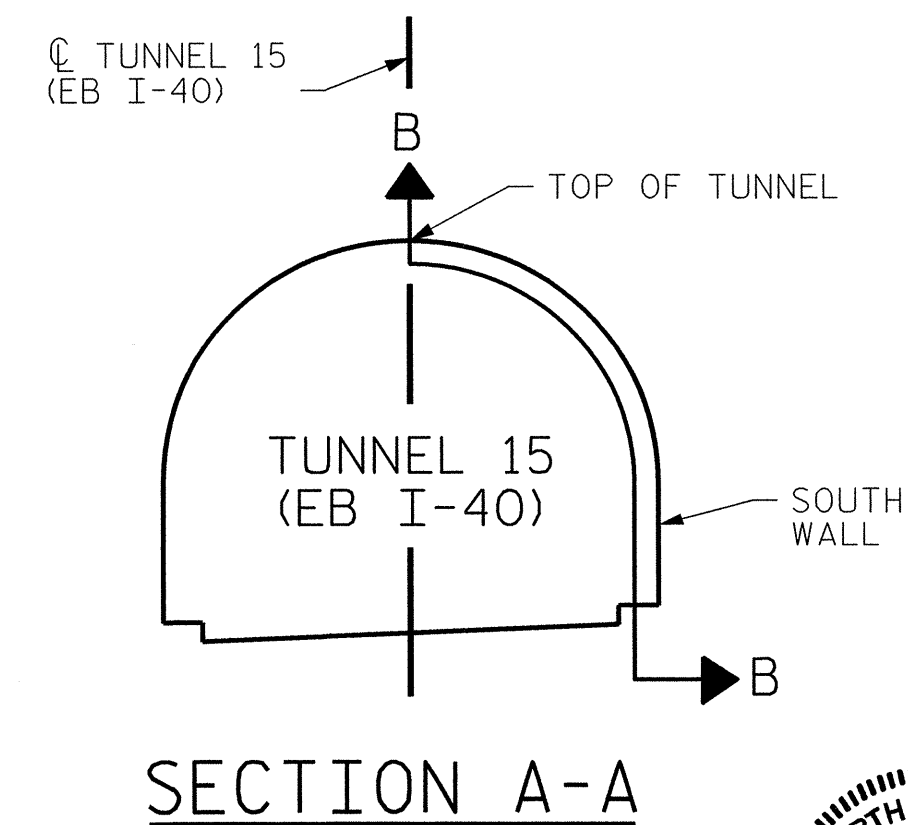
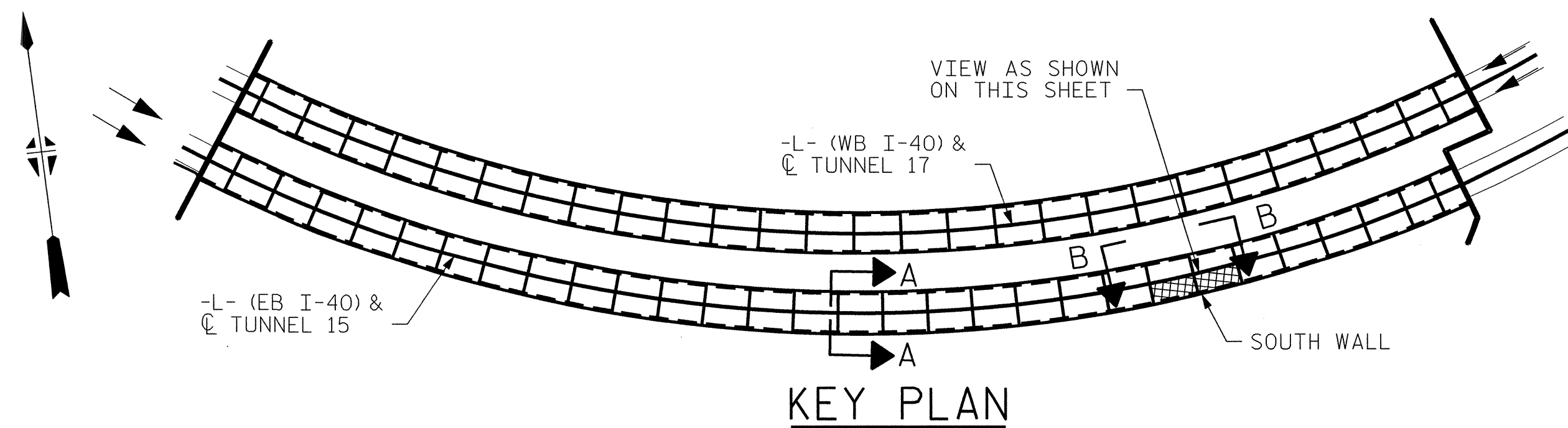
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SEGMENT 7S

SEGMENT 8S

VIEW B-B: REPAIR SEGMENTS 7S & 8S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 7S & 8S



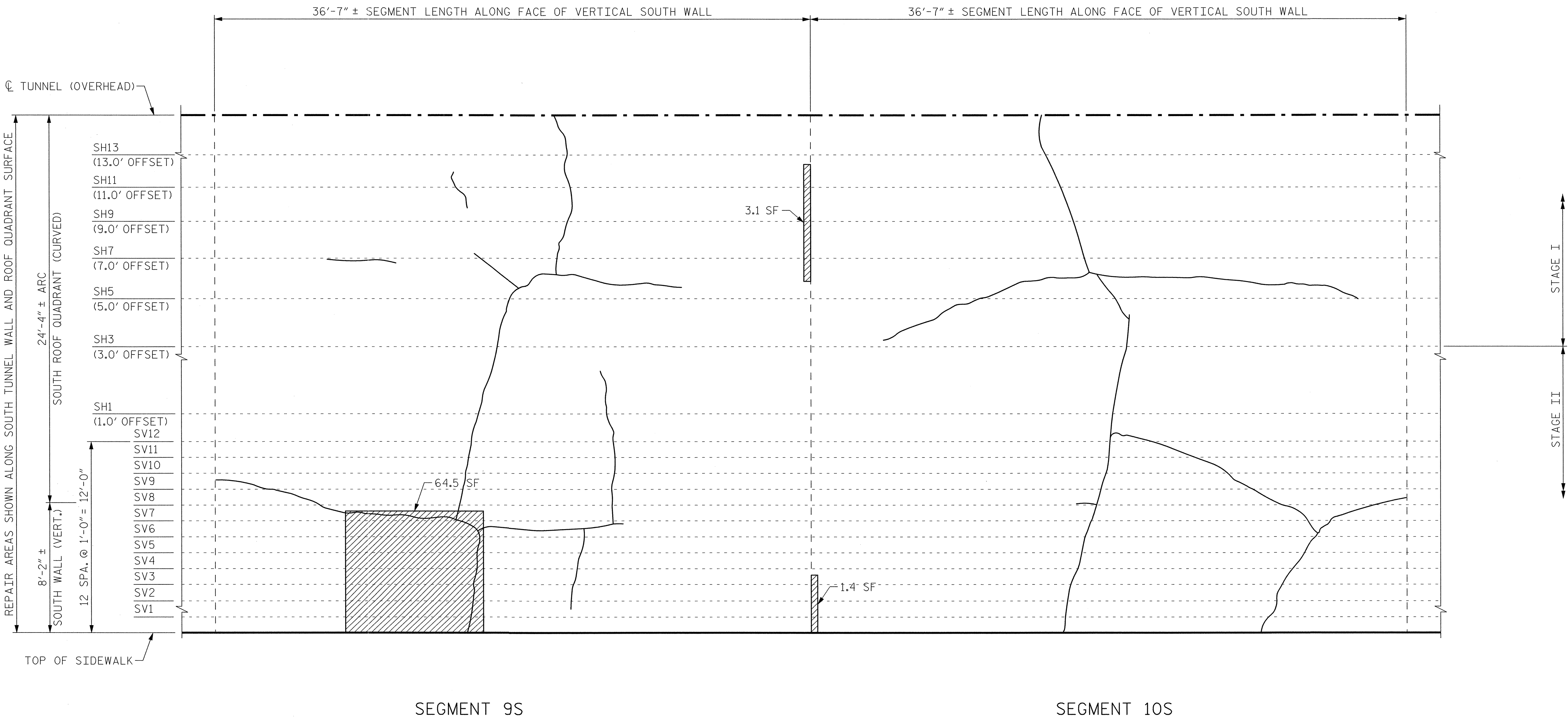
7-23-14

HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

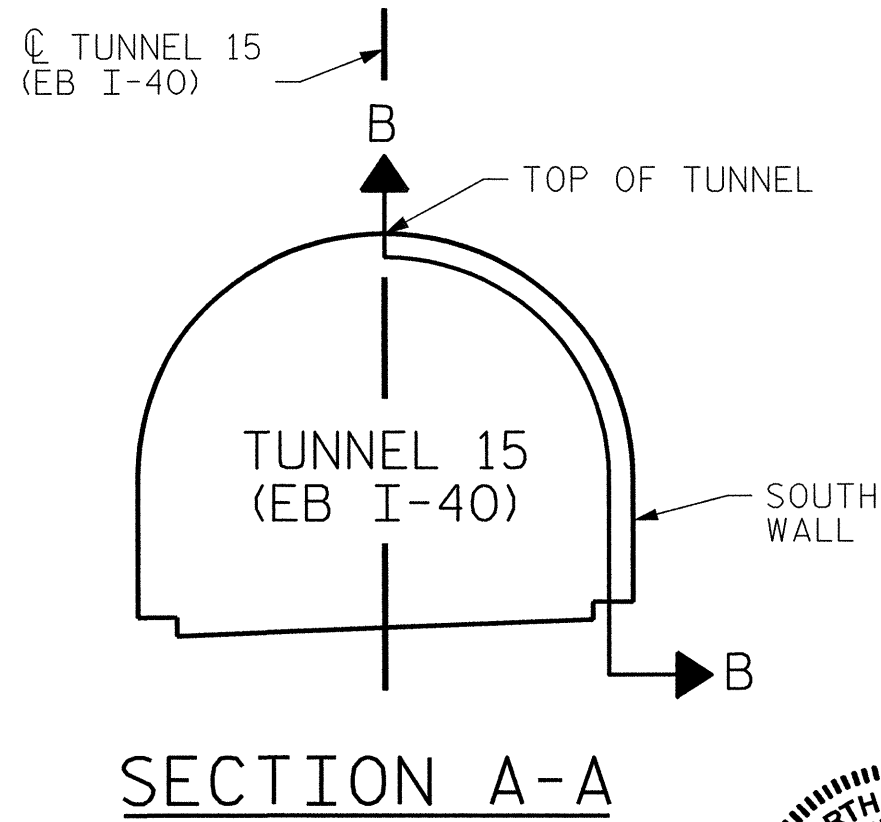
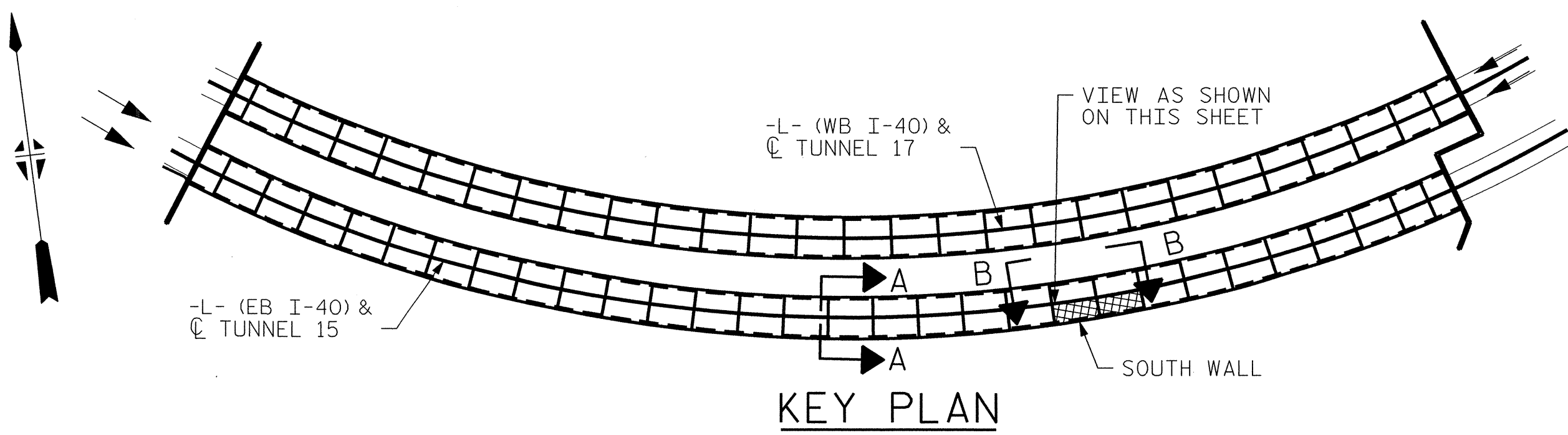
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2	--	--	4	--	--	

BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 9S	CF	22.5
SHOTCRETE REPAIRS SEGMENT 10S	CF	0.5



VIEW B-B: REPAIR SEGMENTS 9S & 10S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 15 REPAIR AREAS SEGMENTS 9S & 10S					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
SHEET NO. S-026					TOTAL SHEETS 110

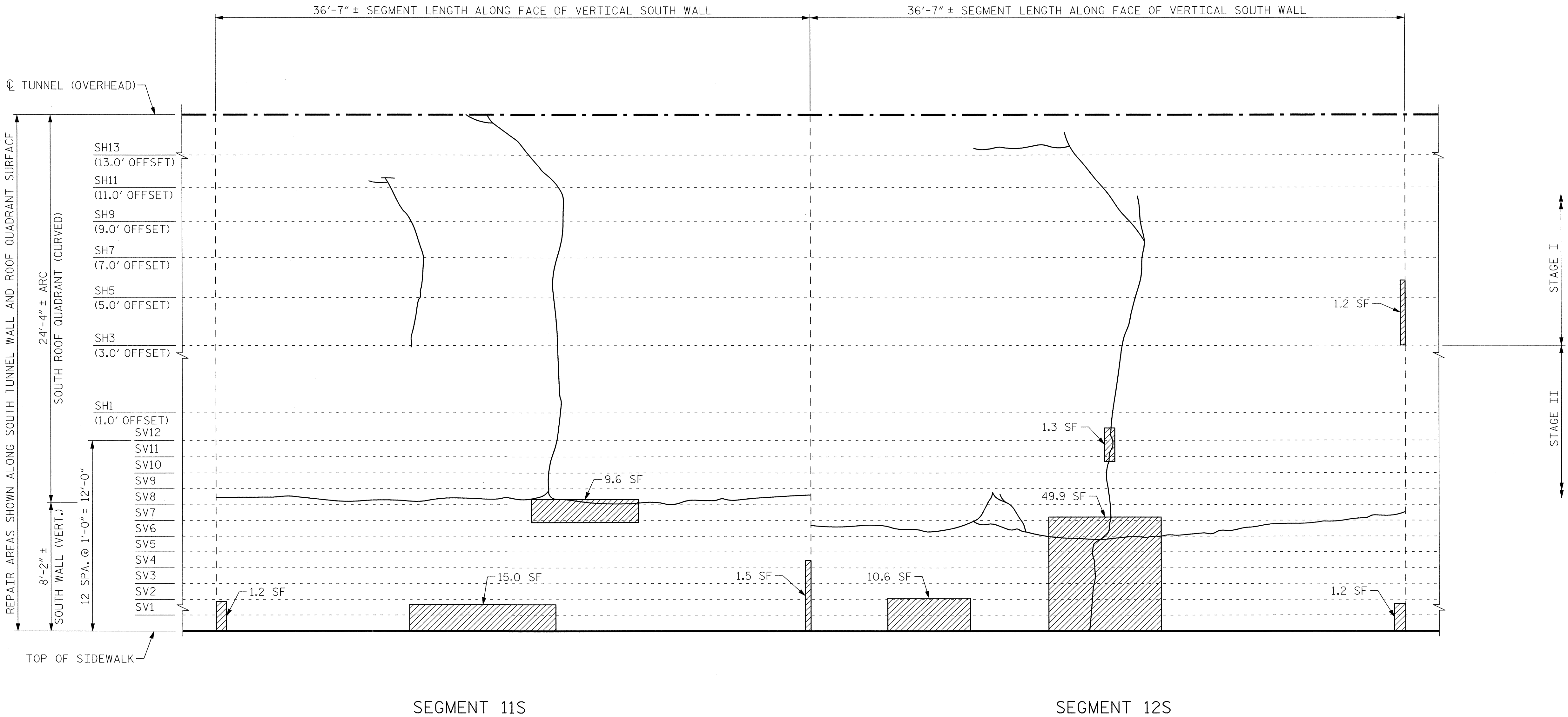


HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

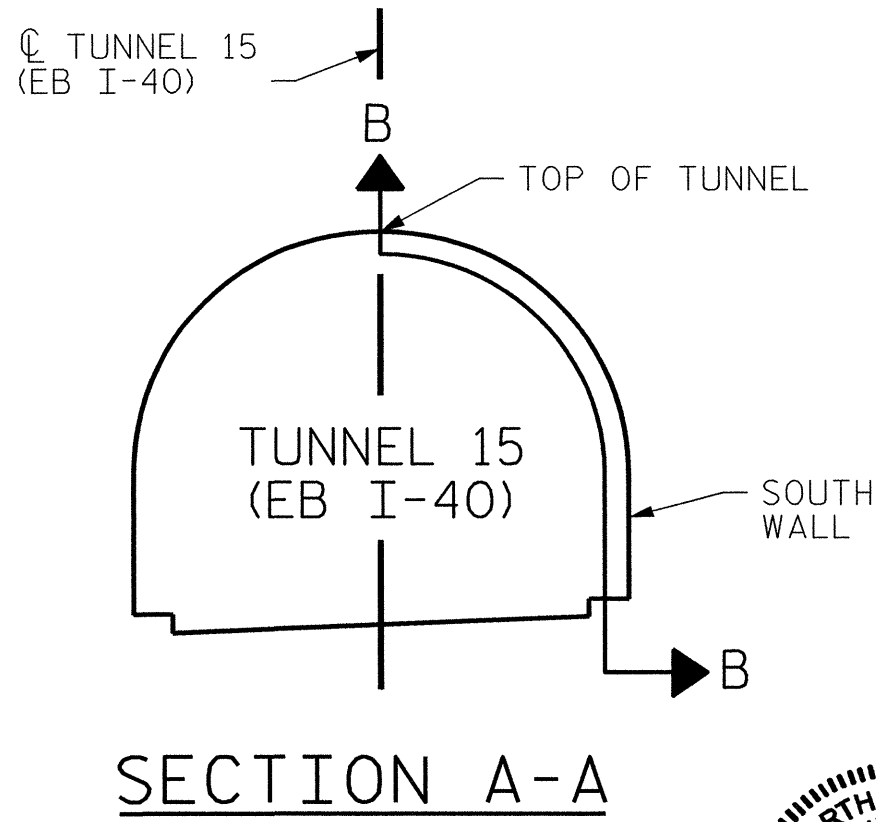
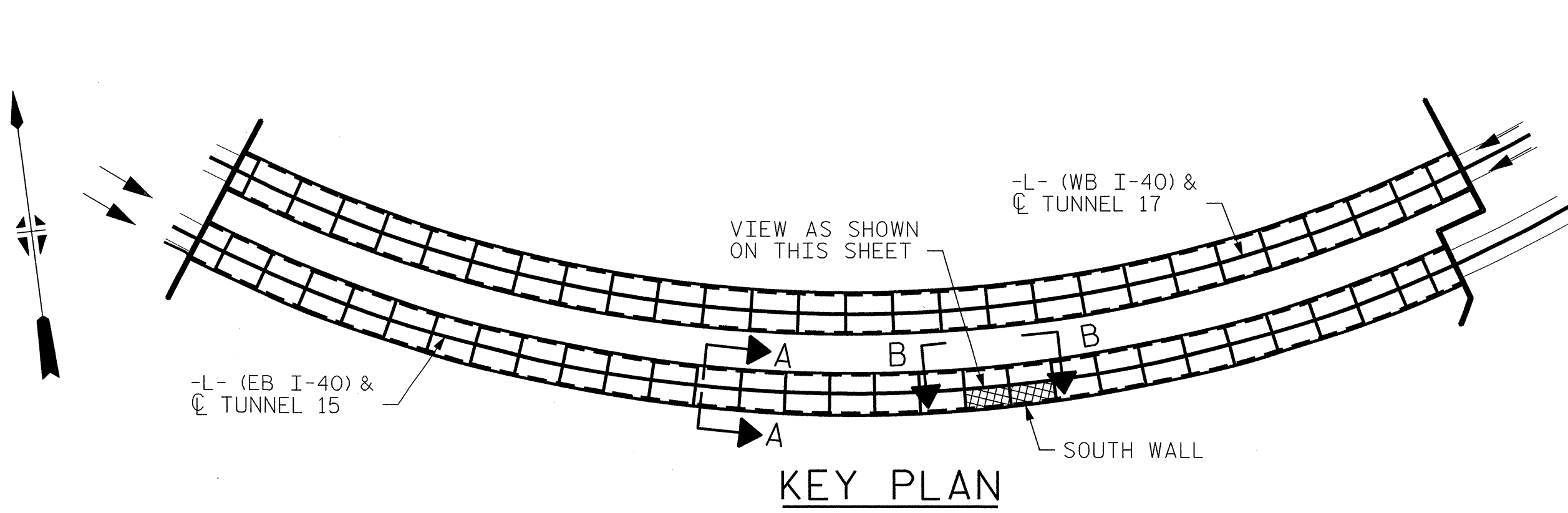
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CHECKED BY : M. MOYER DATE : 07/2013

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PENTABLE: I-40 Tunnel.tbl
USER: msells DATE: 7/22/2014
FILE: ..\13.00-CAO\Tunnel15\15S-0910

BILL OF MATERIAL			
SHOTCRETE REPAIRS	SEGMENT 11S	CF	9.1
SHOTCRETE REPAIRS	SEGMENT 12S	CF	21.4



VIEW B-B: REPAIR SEGMENTS 11S & 12S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 11S & 12S

REVISIONS						SHEET NO. S-027
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 110
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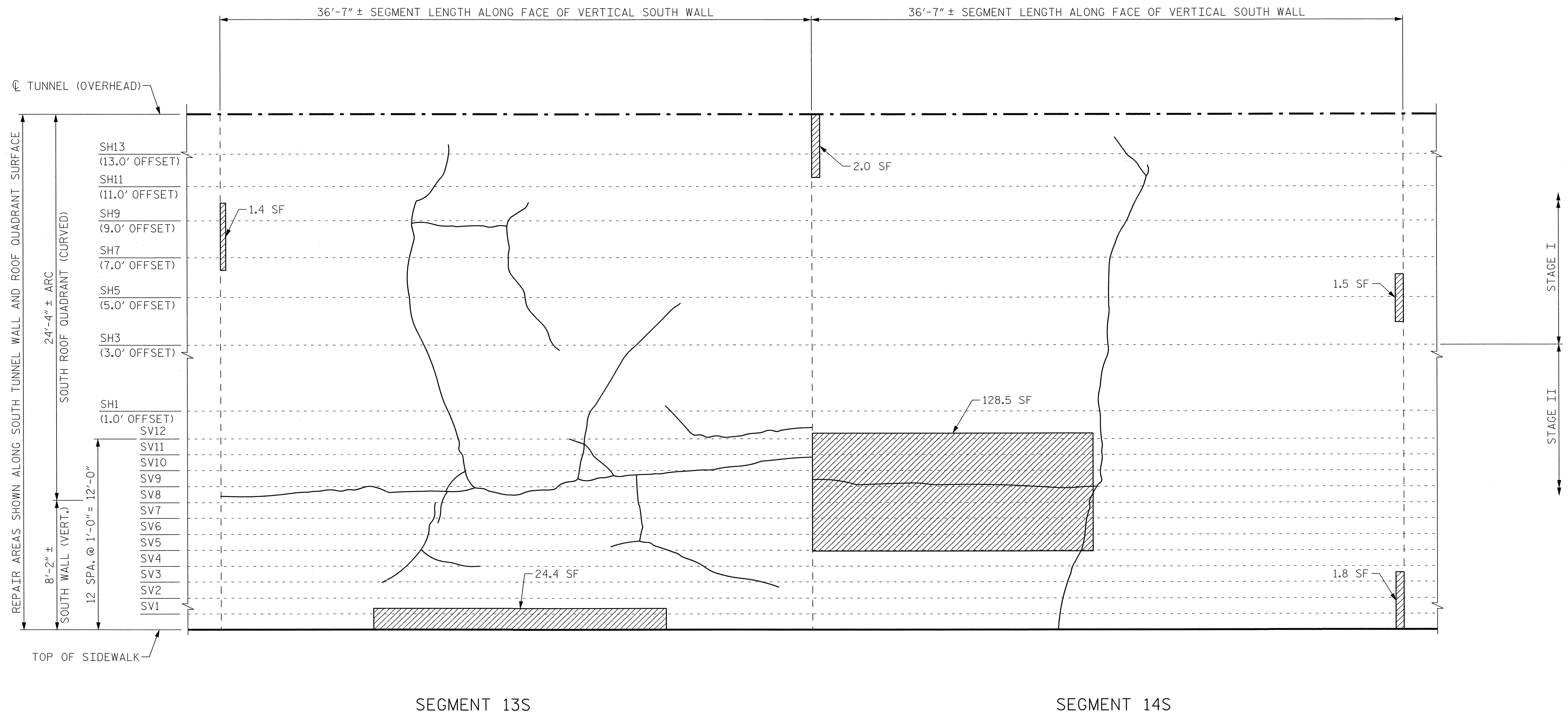


HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

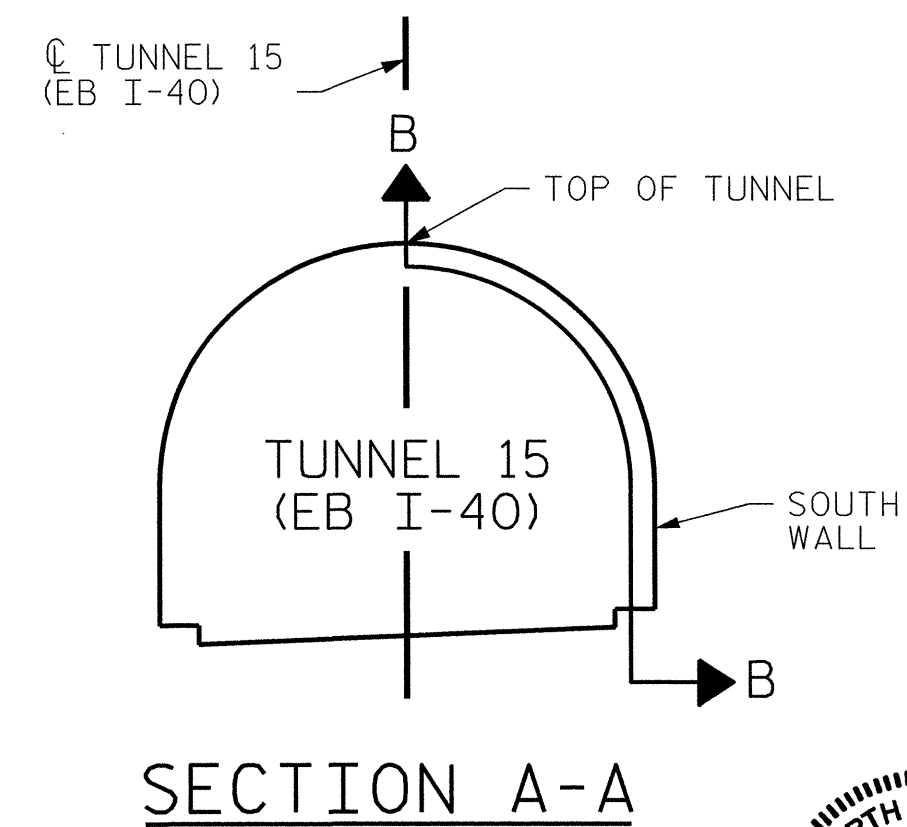
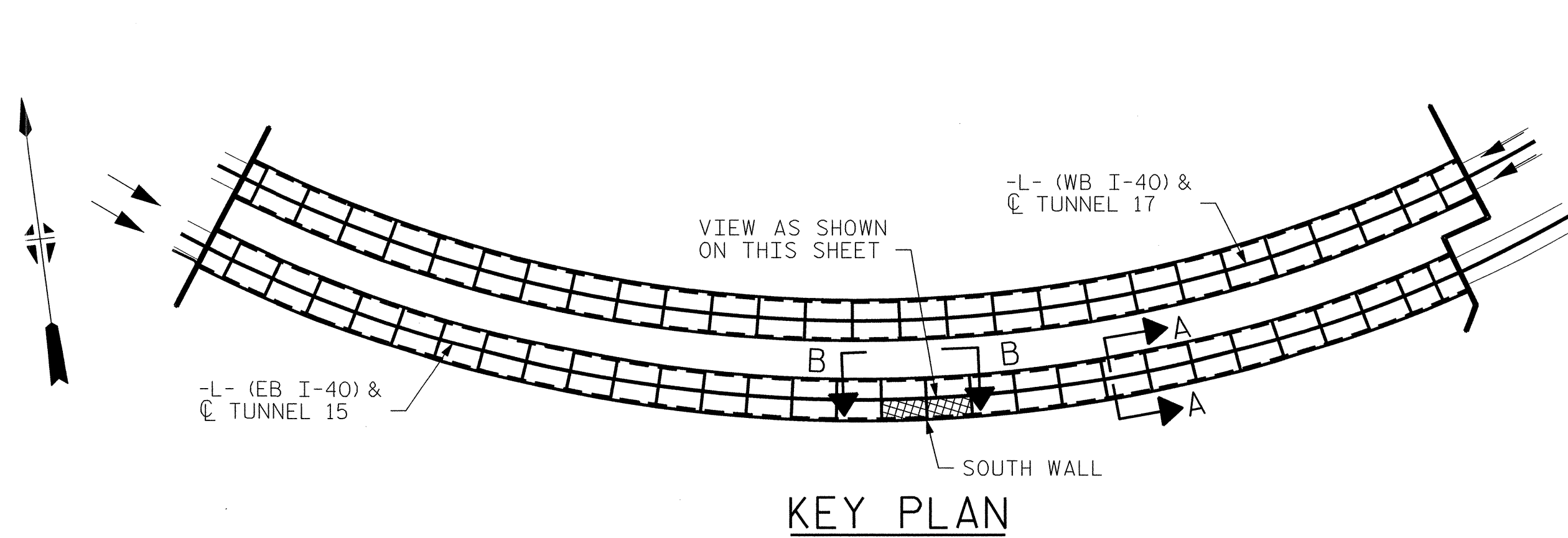
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CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NCDOT-pdf_mono_eng_100.plt
USER: msalis DATE: 7/22/2014
FILE: ..\13.00_CAD\tunnel\15\15S-112

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SHOTCRETE REPAIRS SEGMENT 14S	CF	44.6	



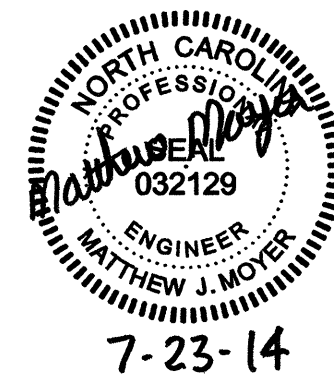
VIEW B-B: REPAIR SEGMENTS 13S & 14S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 13S & 14S



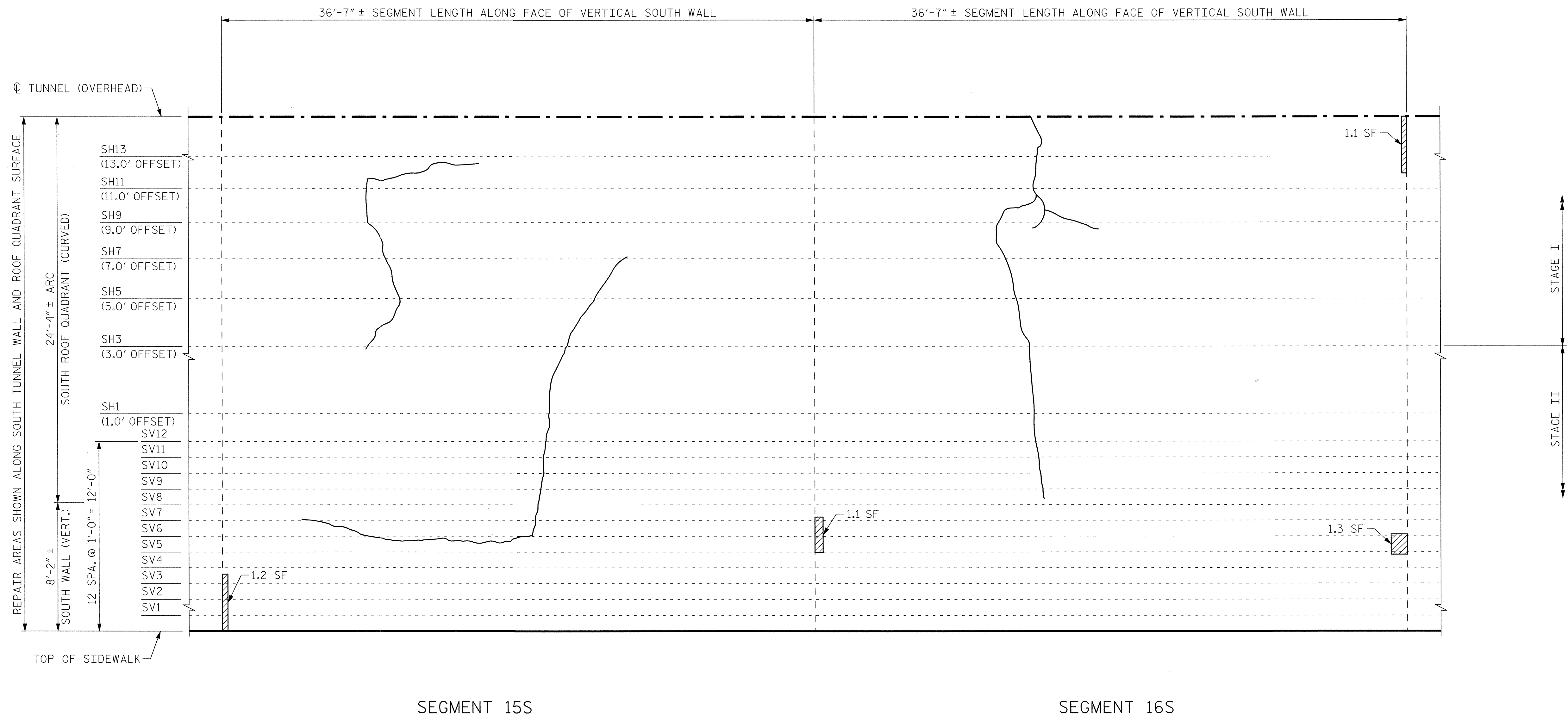
7-23-14

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

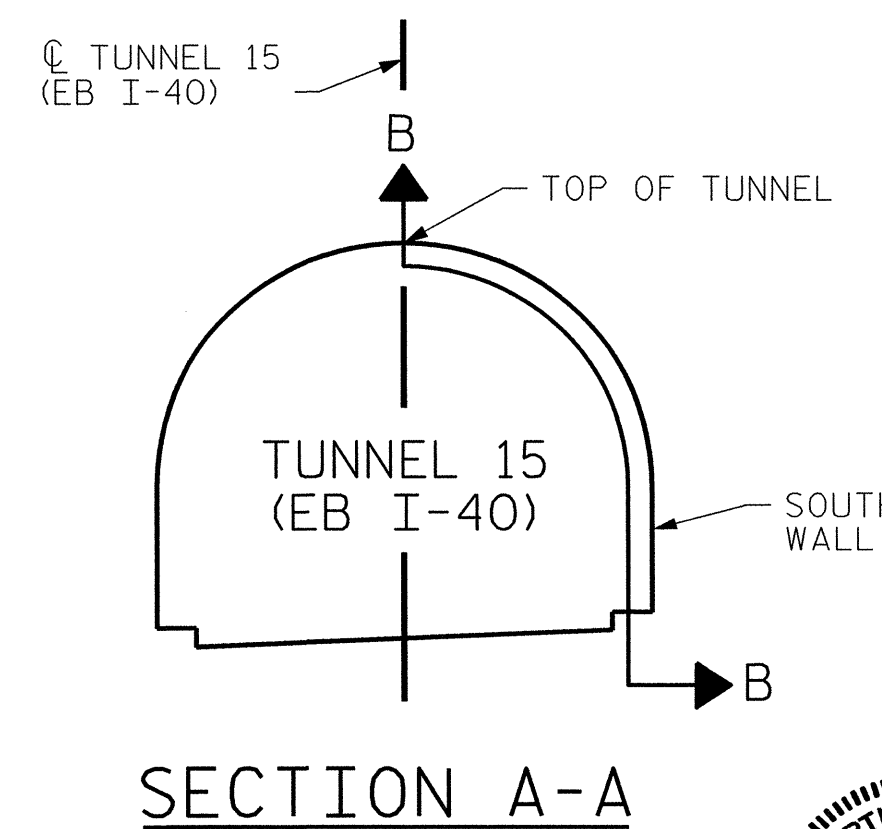
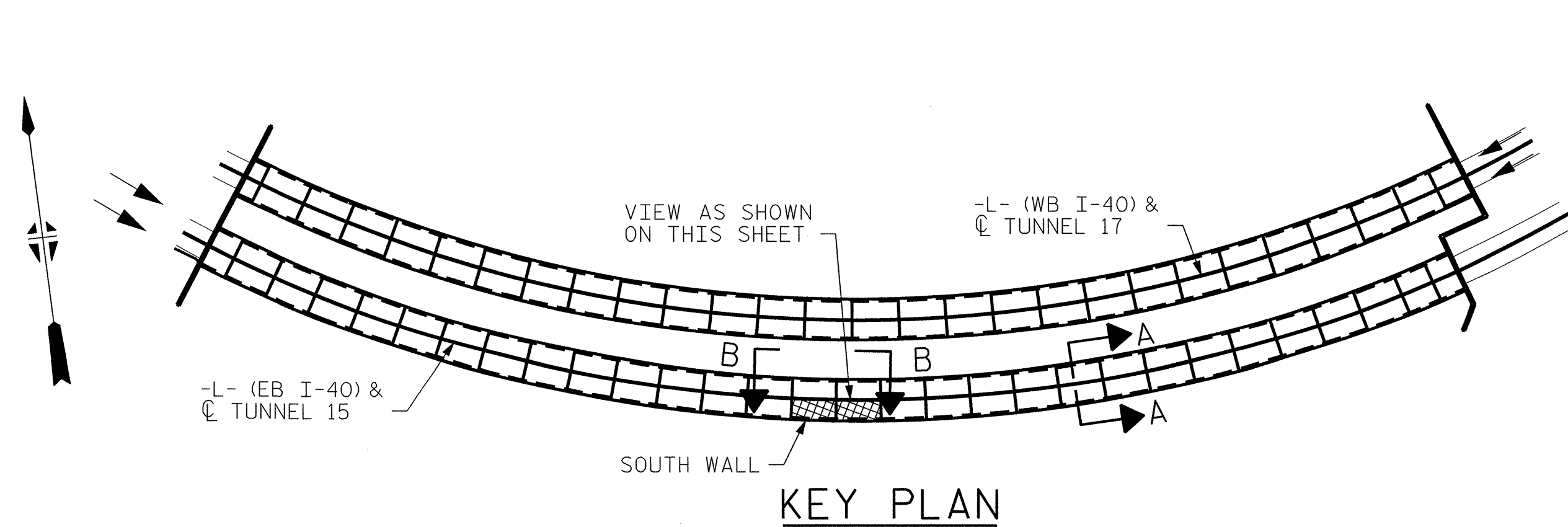
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CHECKED BY: M. MOYER DATE: 07/2013

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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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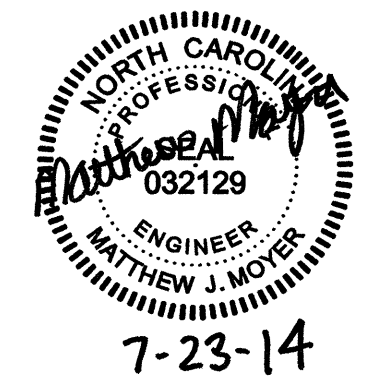
VIEW B-B: REPAIR SEGMENTS 15S & 16S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 15S & 16S

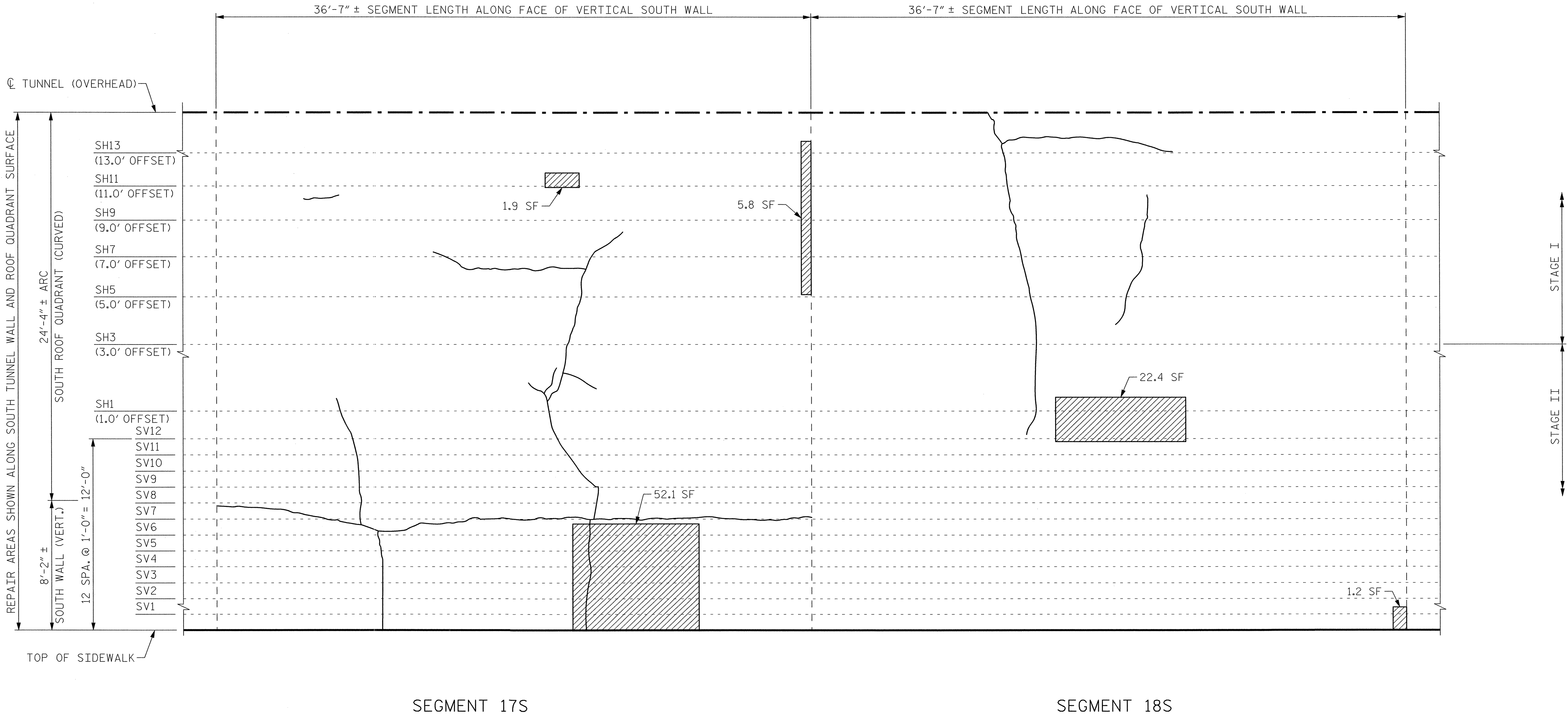


HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

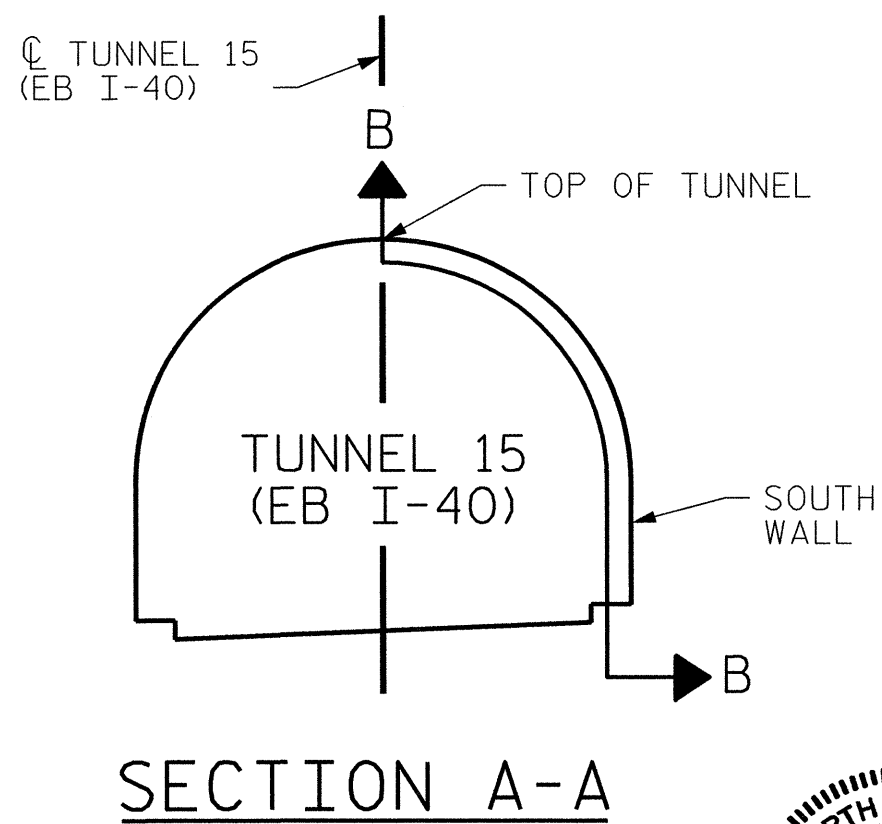
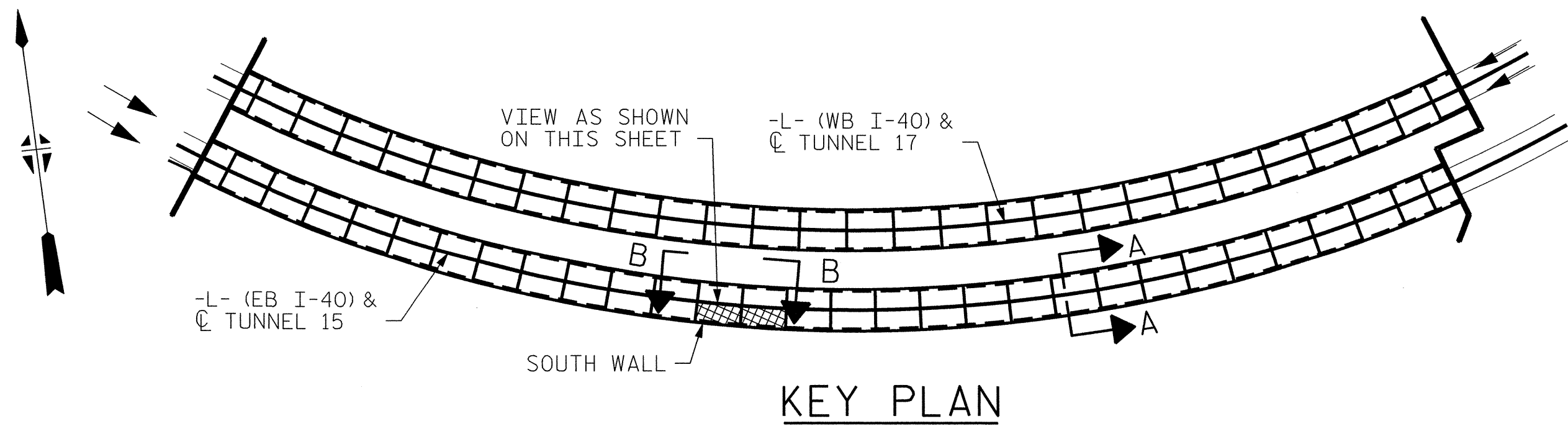
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CHECKED BY : M. MOYER DATE : 07/2013

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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 17S	CF	19.9
SHOTCRETE REPAIRS SEGMENT 18S	CF	7.9



VIEW B-B: REPAIR SEGMENTS 17S & 18S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		
TUNNEL 15 REPAIR AREAS SEGMENTS 17S & 18S		
REVISIONS		
NO.	BY:	DATE:
1	--	--
2	--	--
SHEET NO. S-030 TOTAL SHEETS 110		

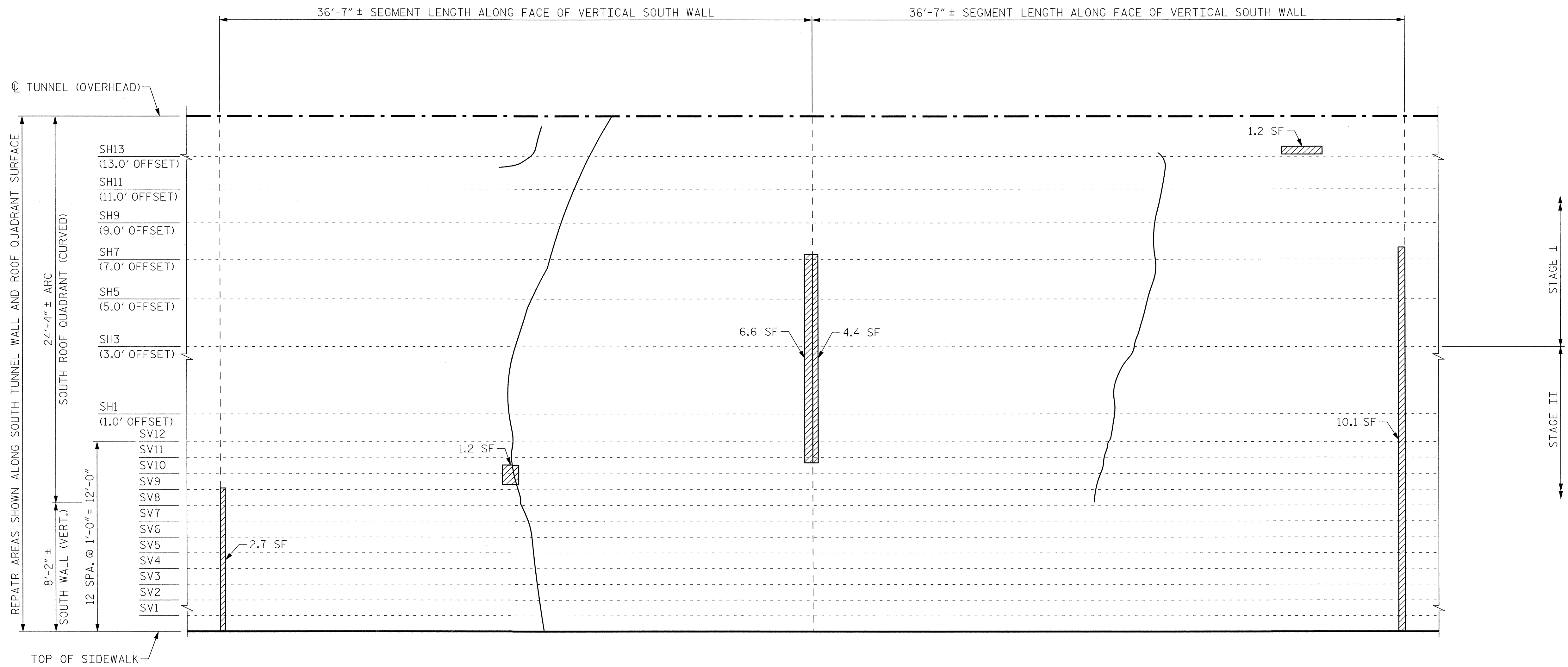


HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

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USER: msellis
DATE: 7/22/2014
FILE: ...\\13.00.CAD\\Tunnel\\15\\V55-1718

DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013

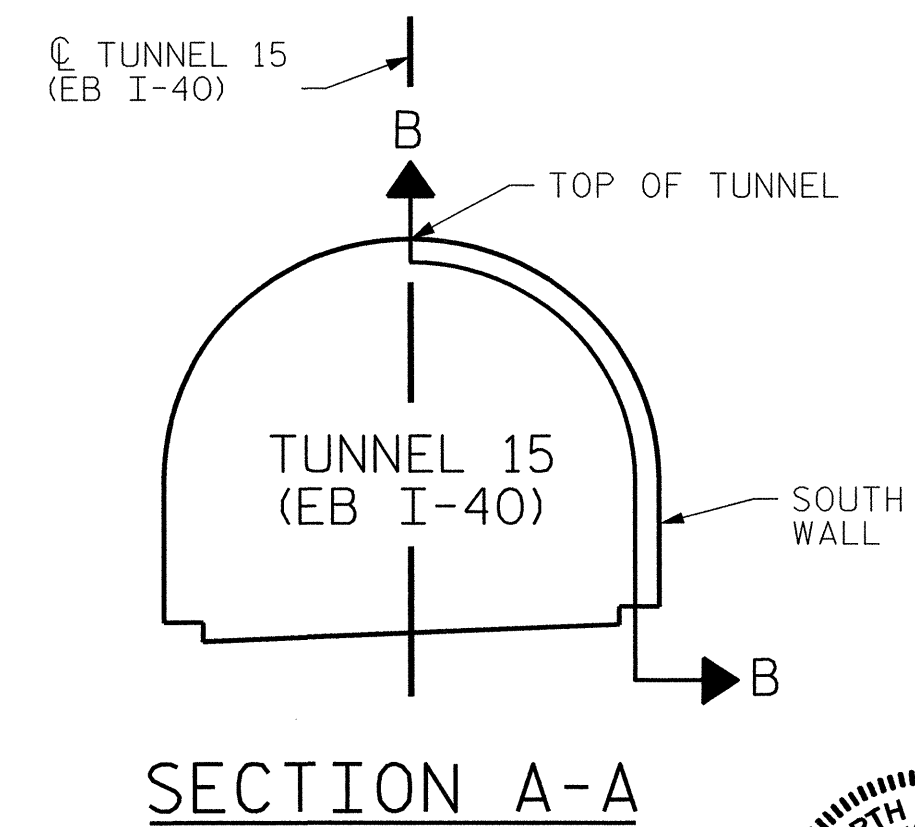
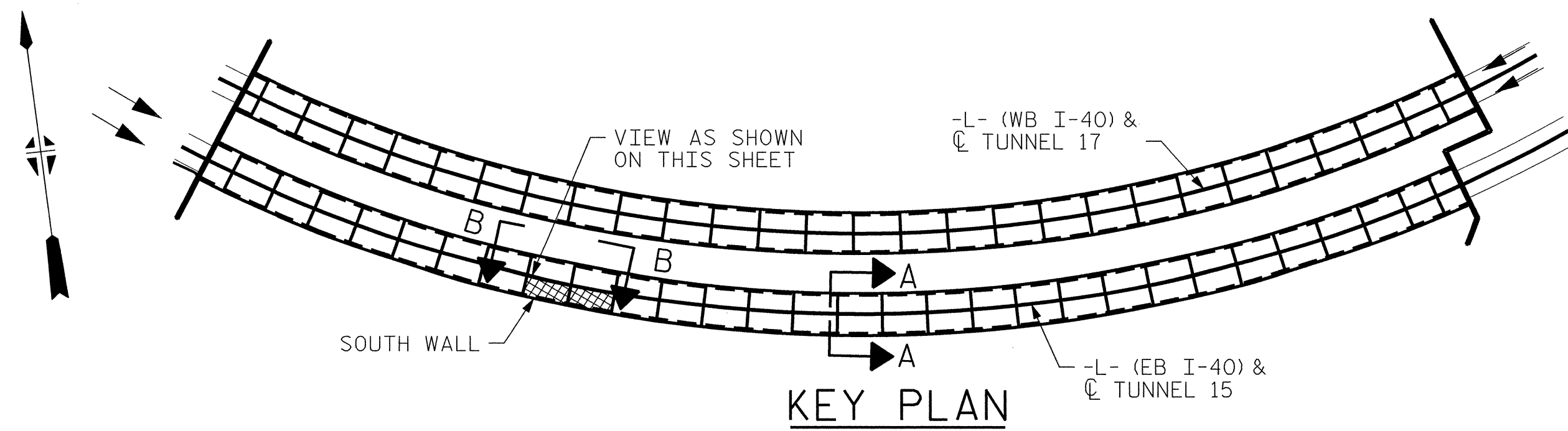
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SHOTCRETE REPAIRS SEGMENT 21S	CF	3.5	
SHOTCRETE REPAIRS SEGMENT 22S	CF	5.2	



SEGMENT 21S

SEGMENT 22S

VIEW B-B: REPAIR SEGMENTS 21S & 22S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 21S & 22S



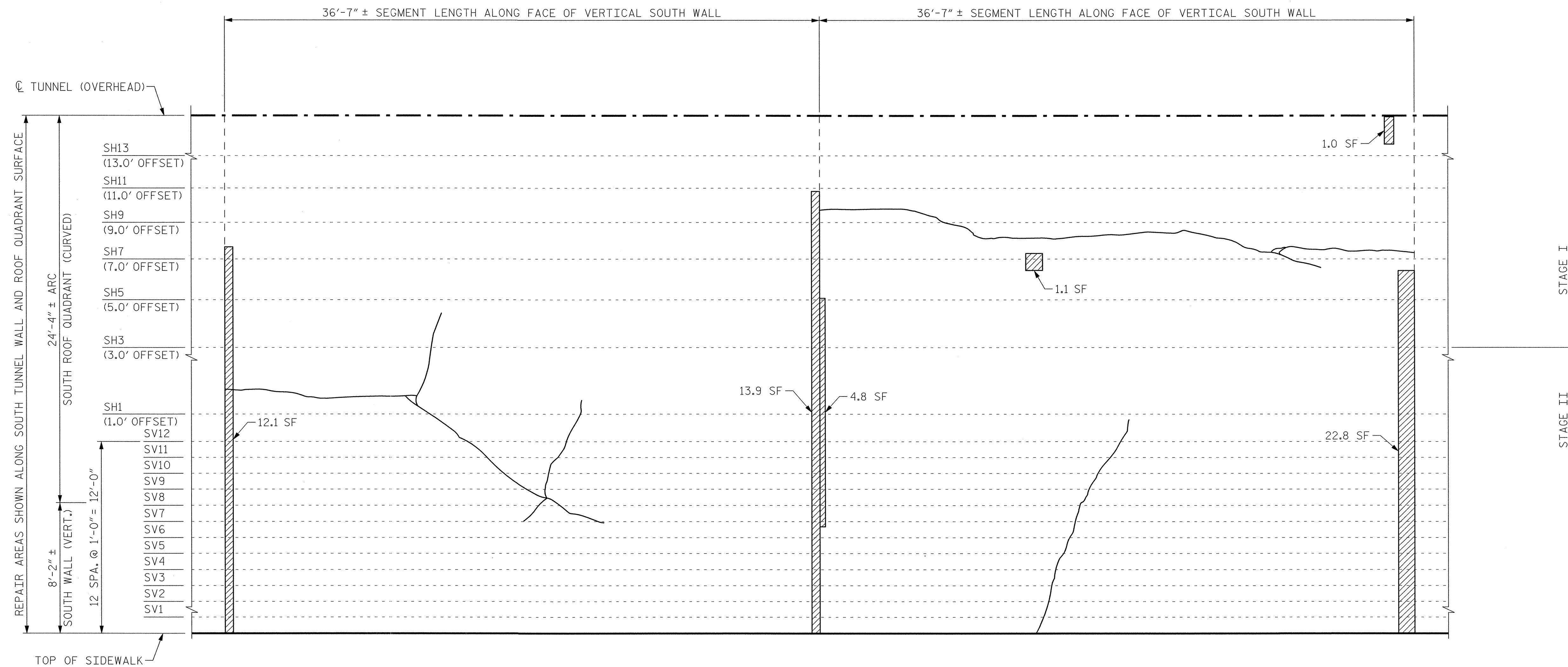
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-032 TOTAL SHEETS 110
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2	--	--	4	--	--	

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TIME: 1:03:00 PM
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

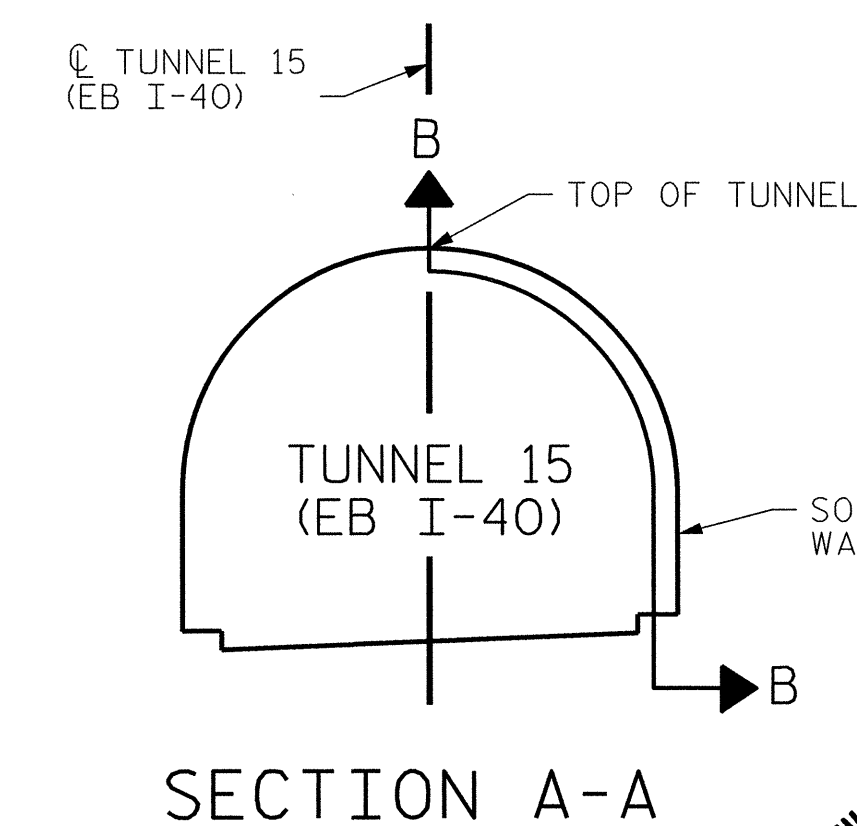
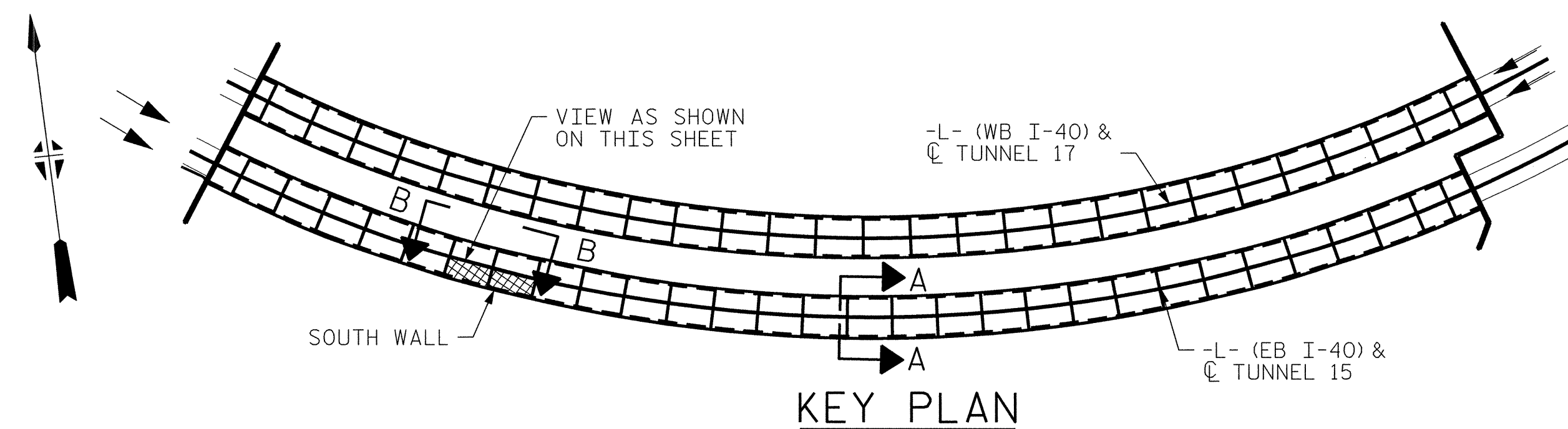
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SHOTCRETE REPAIRS	SEGMENT 23S	CF	8.7
SHOTCRETE REPAIRS	SEGMENT 24S	CF	9.9



SEGMENT 23S

SEGMENT 24S

VIEW B-B: REPAIR SEGMENTS 23S & 24S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 23S & 24S



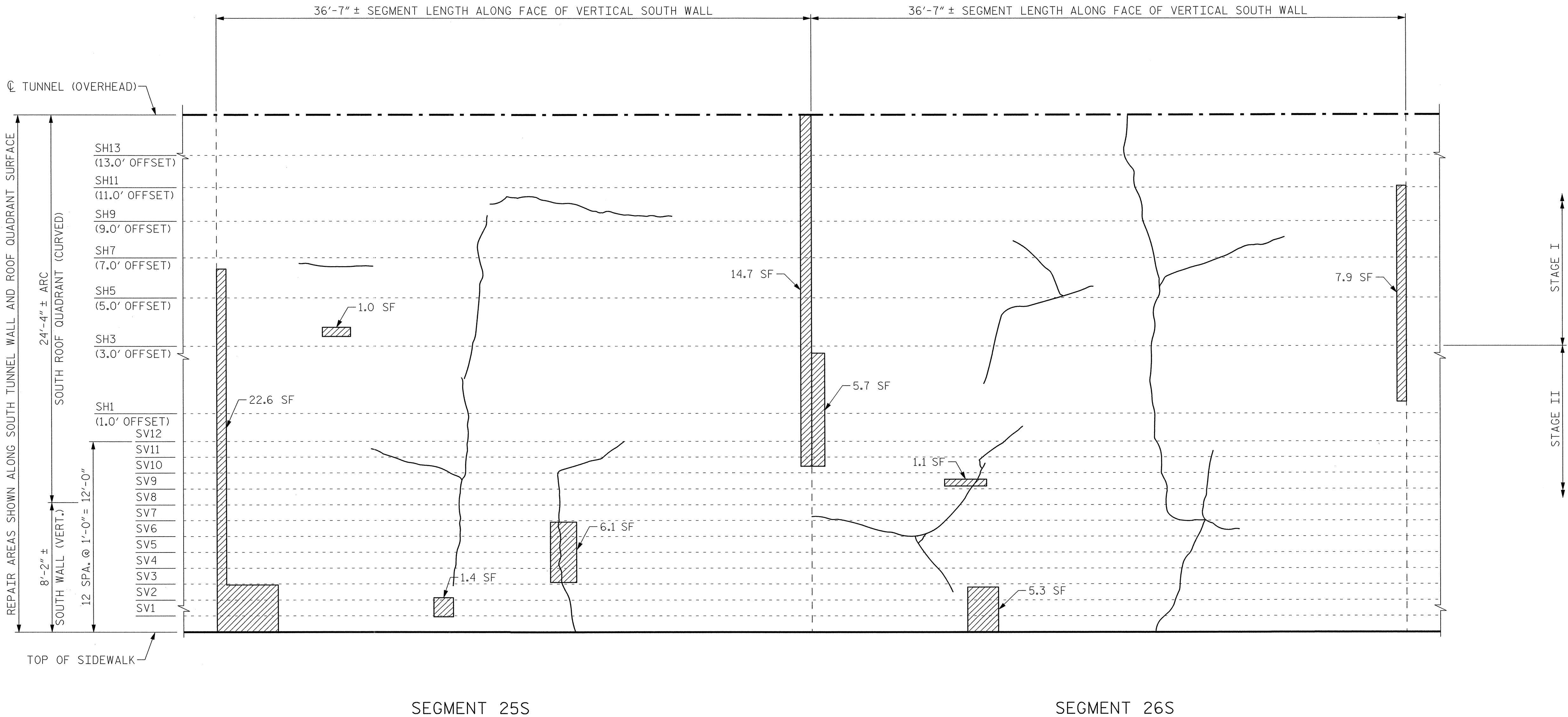
7-23-14

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CHECKED BY: M. MOYER DATE: 07/2013

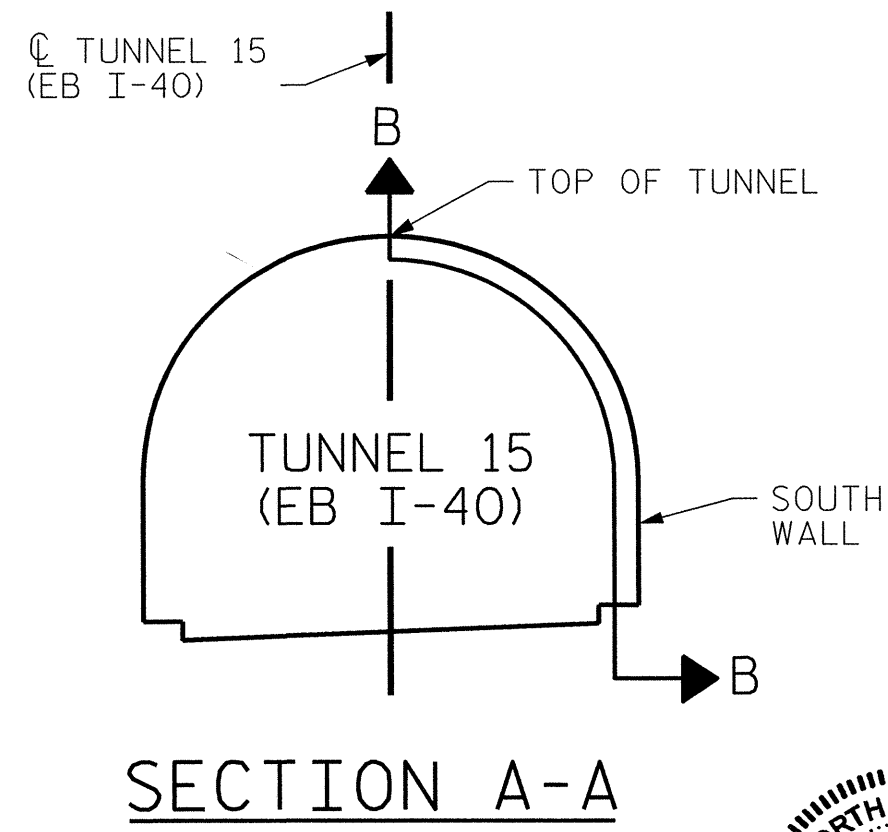
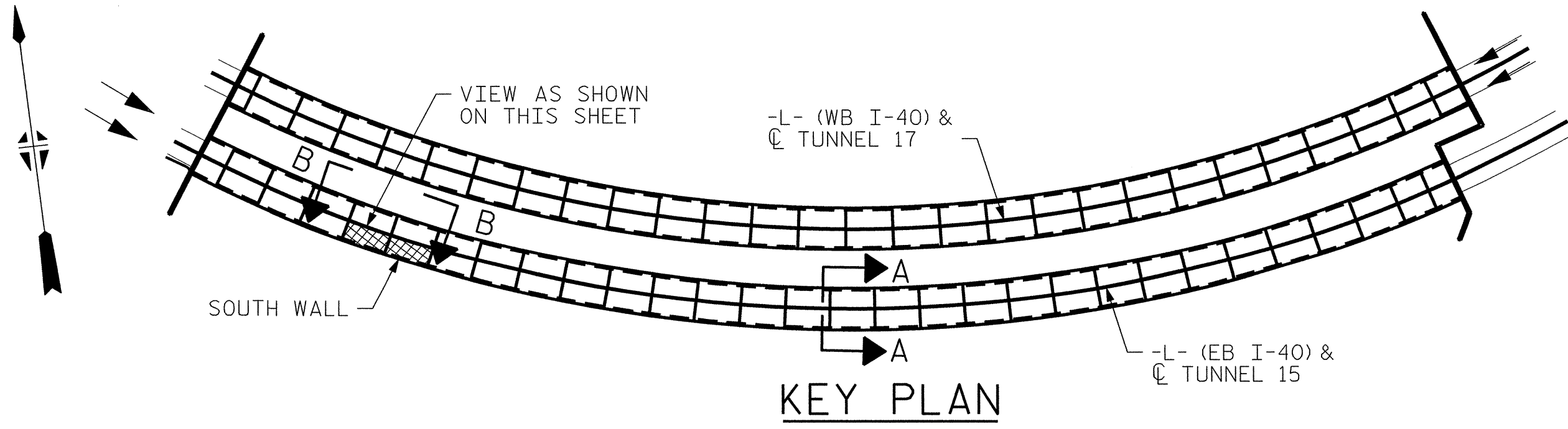
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. 5-033 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

BILL OF MATERIAL			
SHOTCRETE REPAIRS	SEGMENT 25S	CF	15.3
SHOTCRETE REPAIRS	SEGMENT 26S	CF	6.7



VIEW B-B: REPAIR SEGMENTS 25S & 26S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
TUNNEL 15 REPAIR AREAS SEGMENTS 25S & 26S				
REVISIONS				
NO.	BY:	DATE:	NO.	BY:
1	--	--	3	--
2	--	--	4	--
TOTAL SHEETS				110

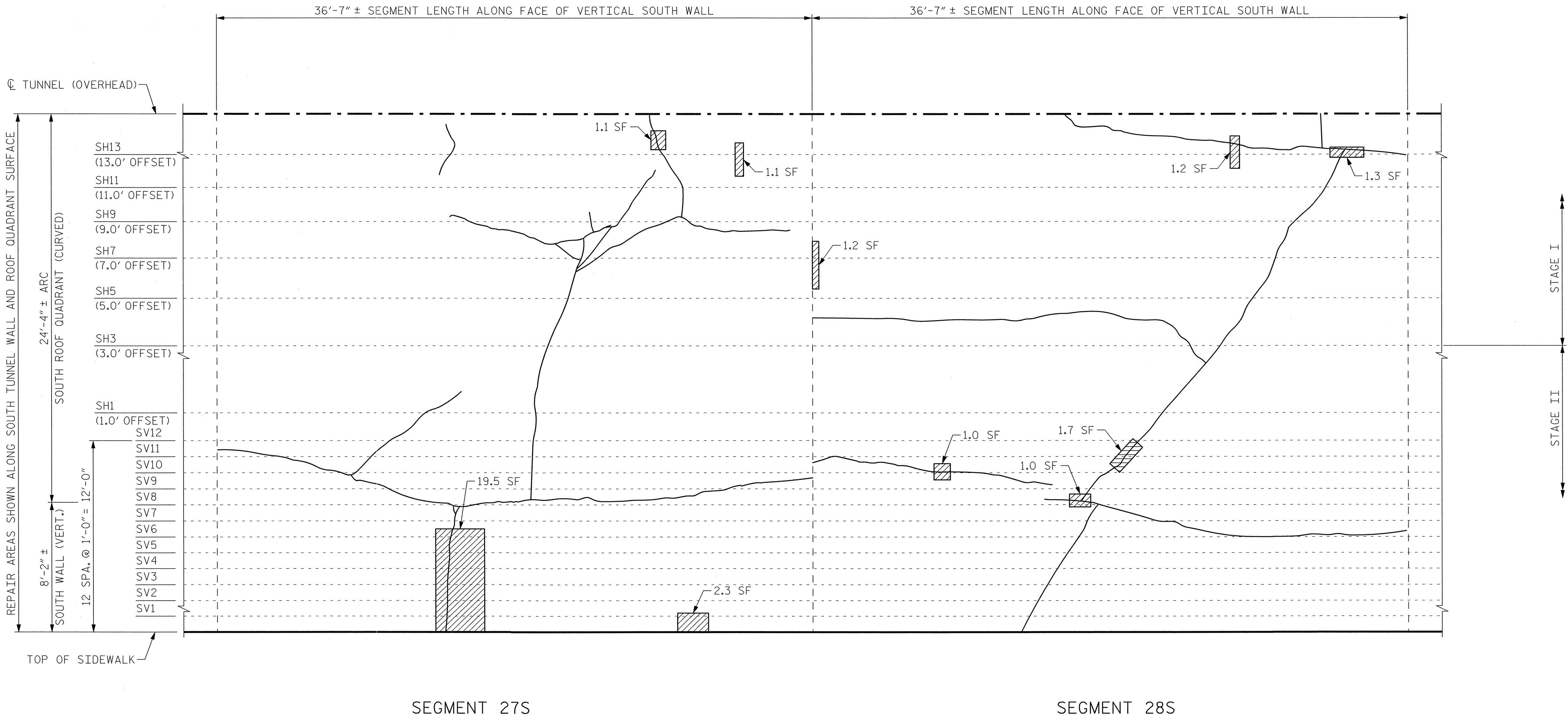


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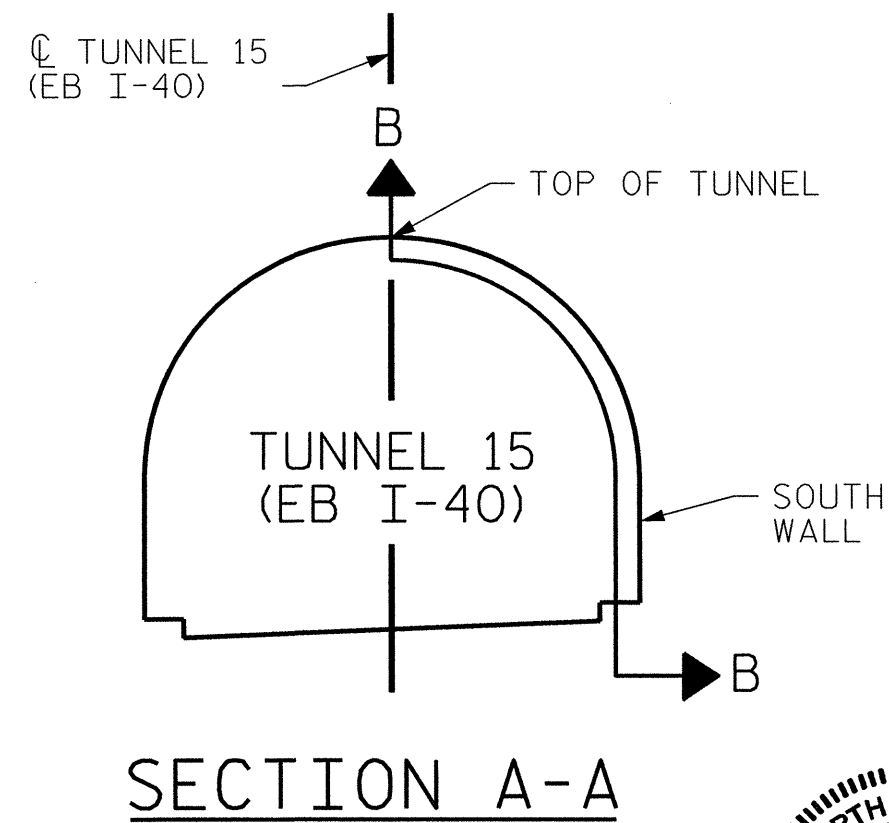
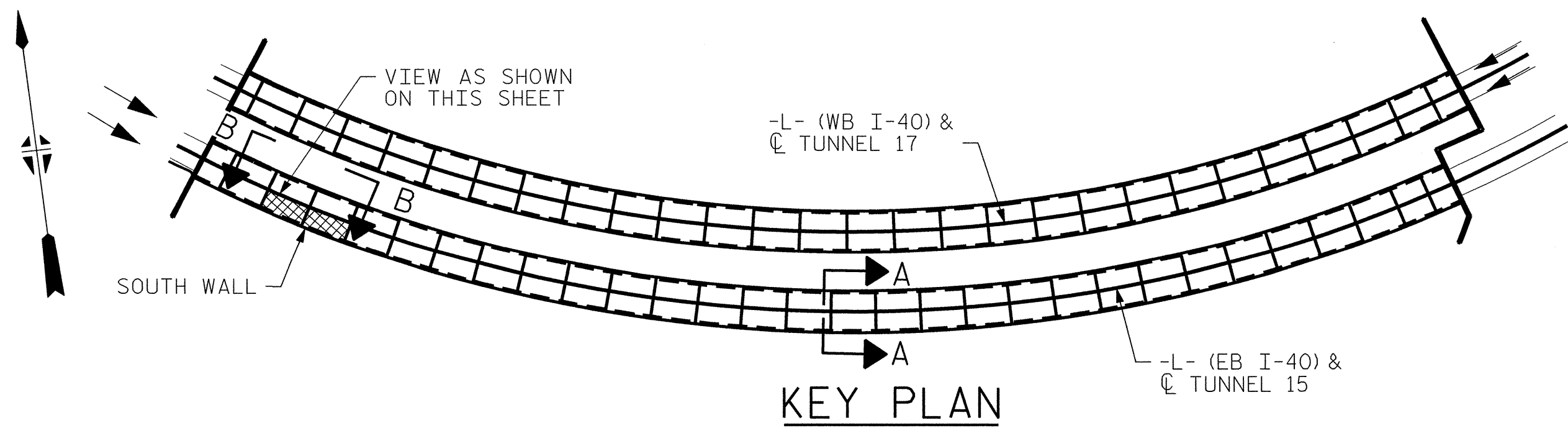
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HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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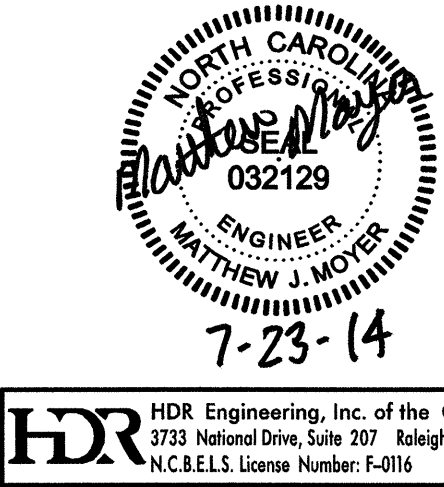


VIEW B-B: REPAIR SEGMENTS 27S & 28S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

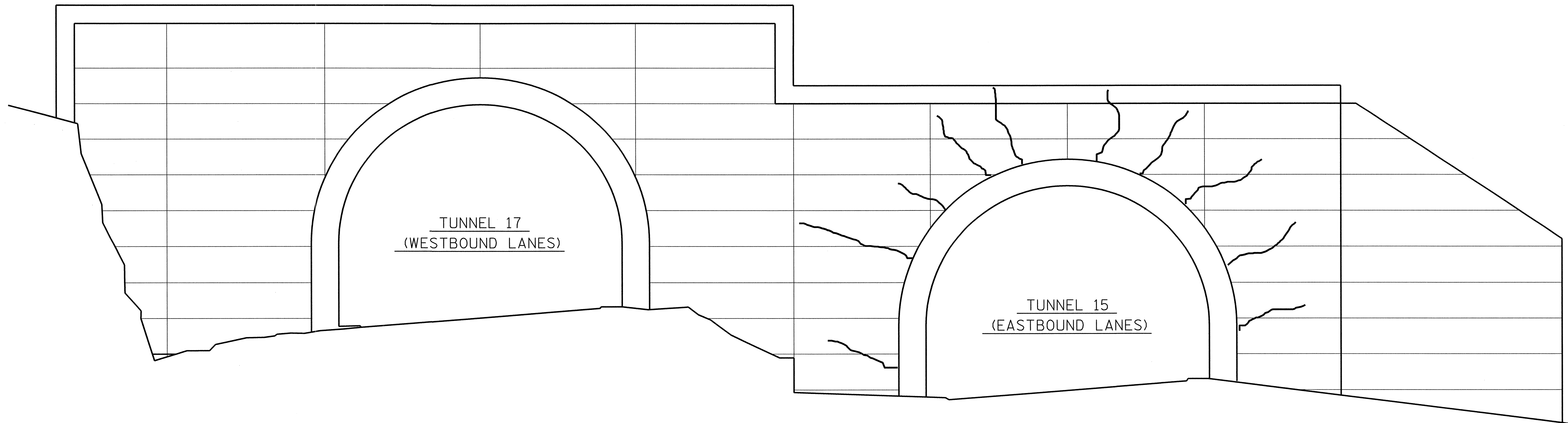
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 15 REPAIR AREAS SEGMENTS 27S & 28S					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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SHEET NO. S-035					TOTAL SHEETS 110



HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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ELEVATION OF WEST PORTAL WALL

PROJECT NO. I-5512, 50136.3.FS1
 HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 & 17
REPAIR AREAS
WEST PORTAL WALL



DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

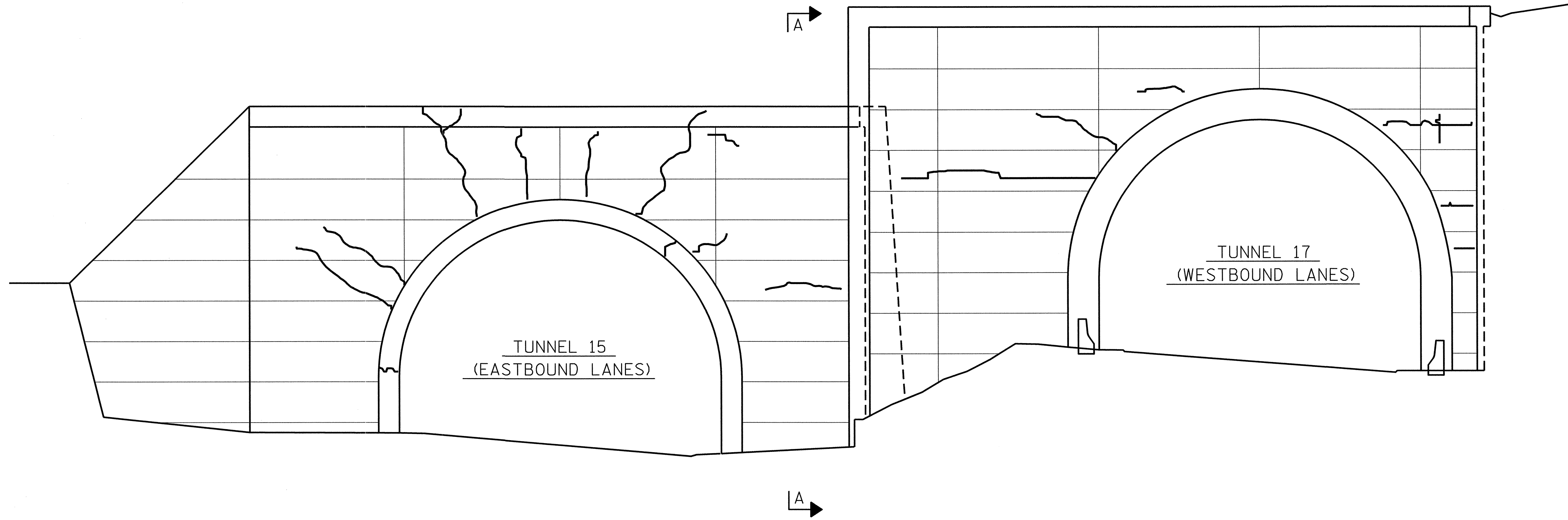
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-037
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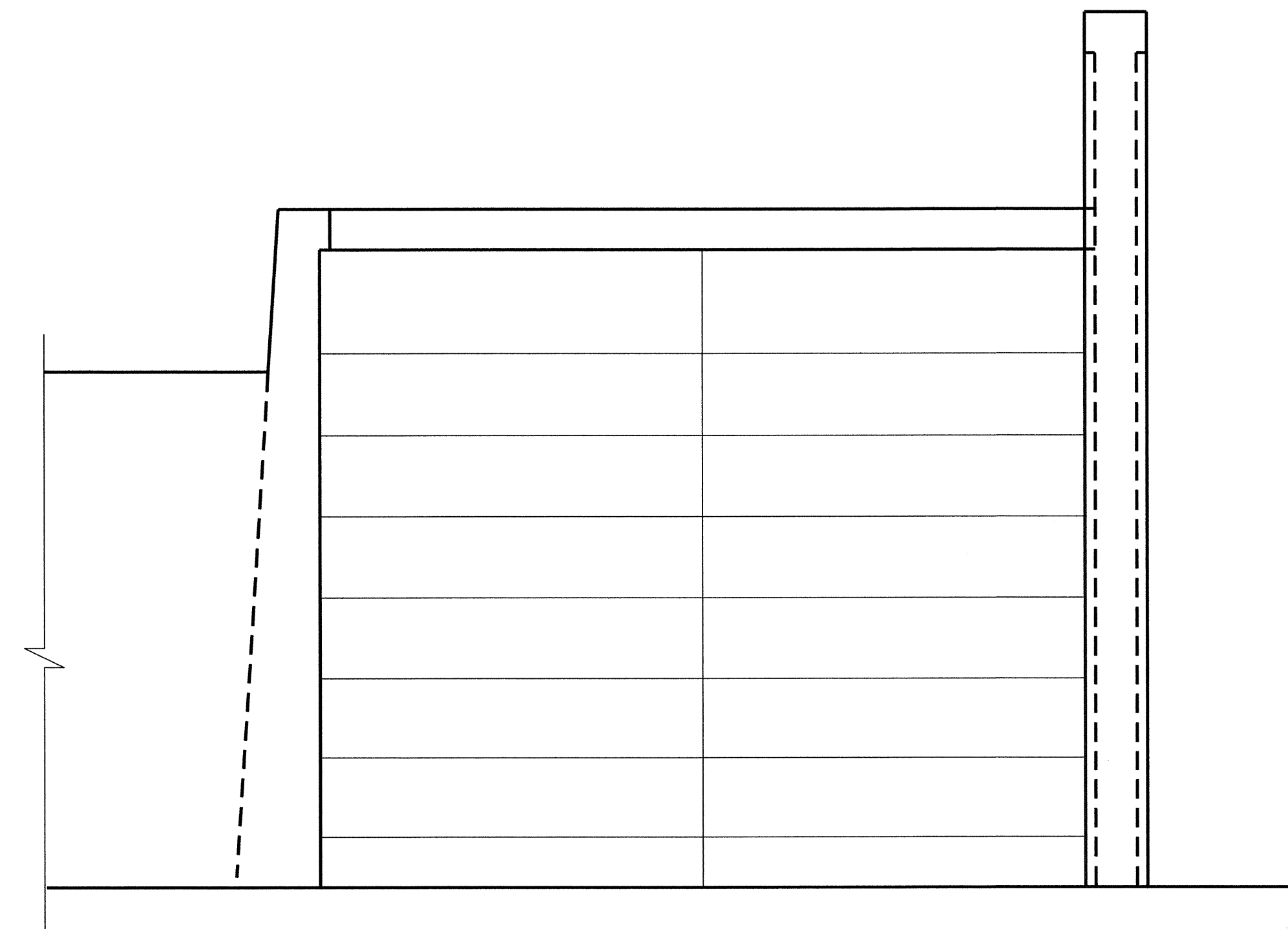
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DATE : 07/2013
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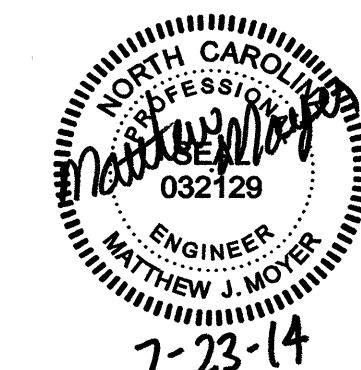


ELEVATION OF EAST PORTAL WALL



VIEW A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 217+01.01 -L- (EB I-40)



HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

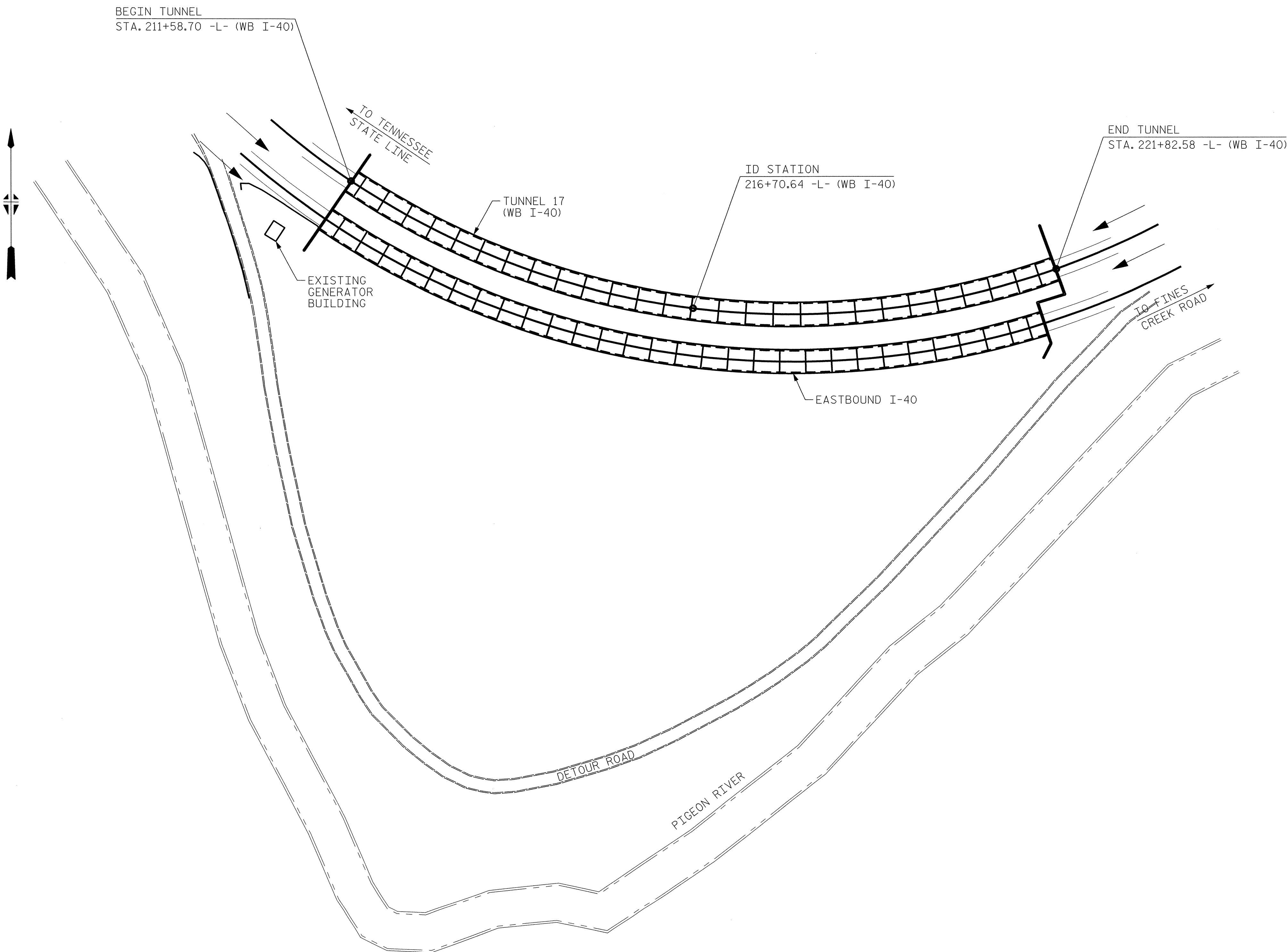
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 & 17
REPAIR AREAS
EAST PORTAL WALL

REVISIONS						SHEET NO. S-038
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DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013



PLAN VIEW

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

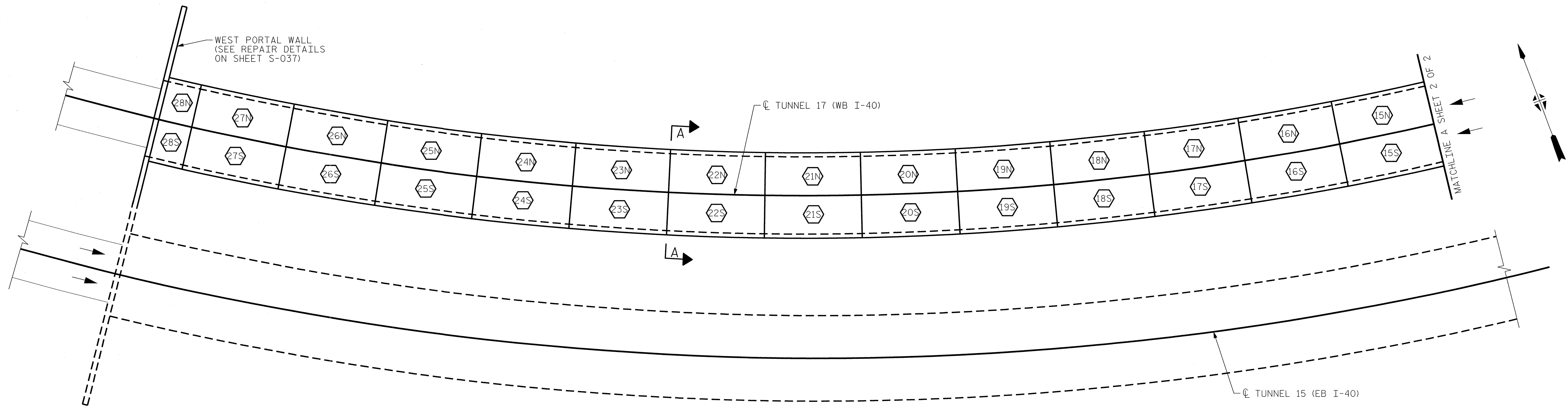
GENERAL PLAN
(TUNNEL 17)

REVISIONS						SHEET NO. S-039 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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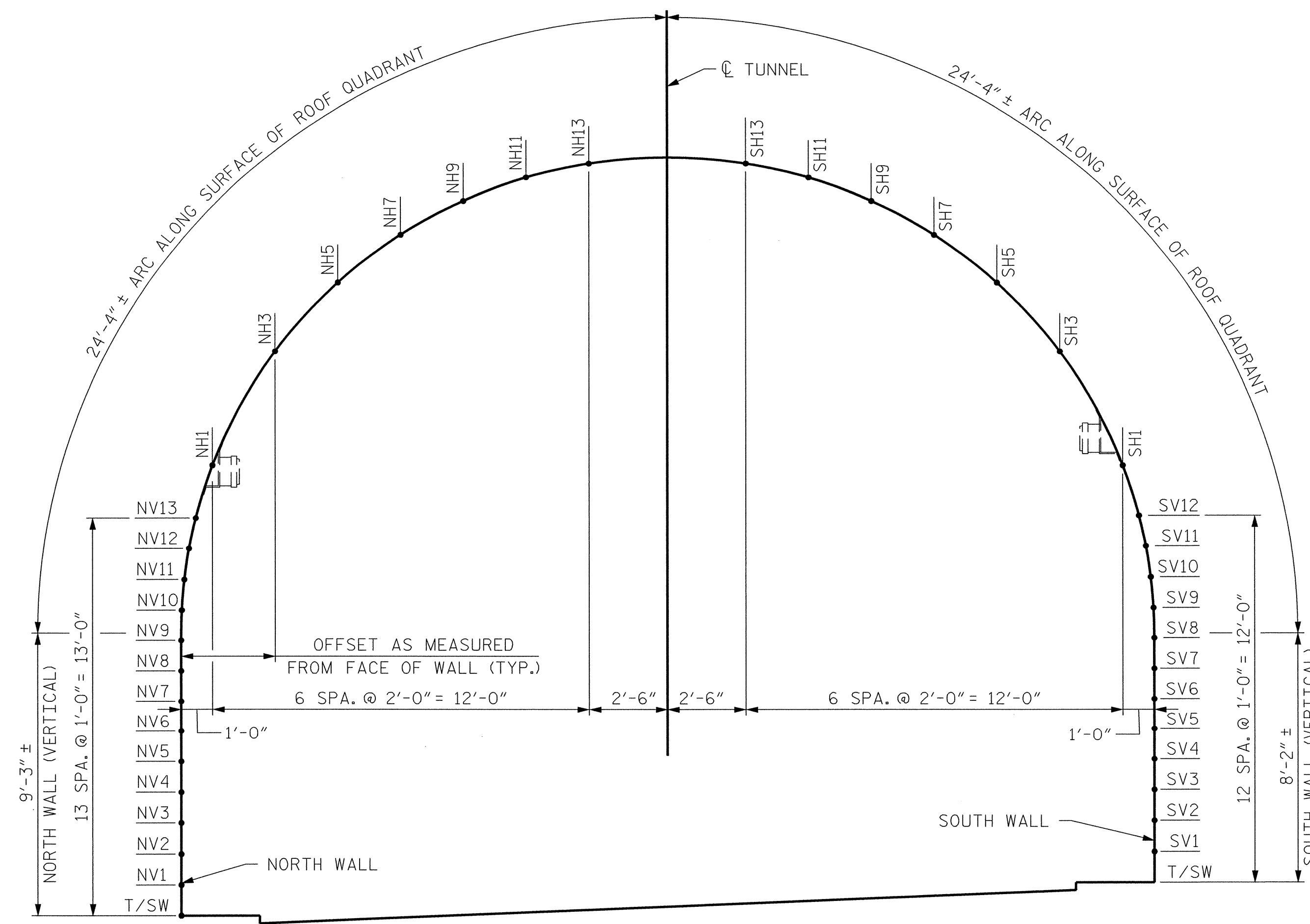
7-23-14

HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

Professional Engineer Seal
NORTH CAROLINA
MATTHEW J. MOYER
032129
ENGINEER



PARTIAL PLAN OF REPAIR SEGMENTS - TUNNEL 17



SECTION A-A: REPAIR GRID REFERENCE DETAIL
(LOOKING EAST)

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 PLAN OF
REPAIR SEGMENTS & GRID
REFERENCE DETAIL



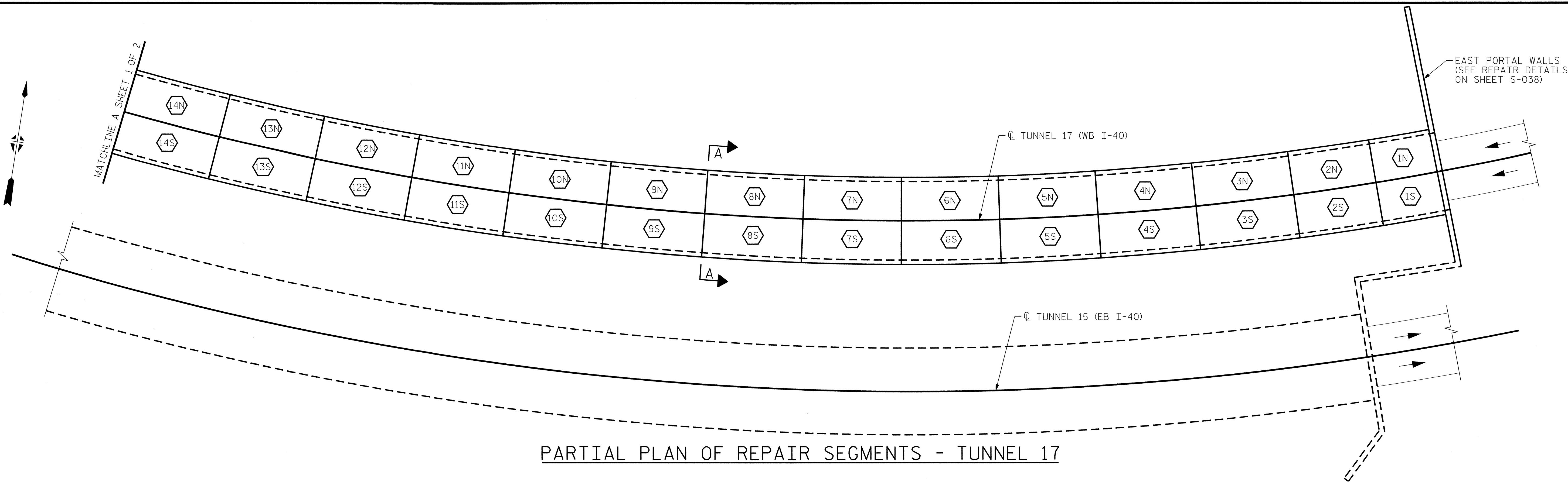
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-040 TOTAL SHEETS 110
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2			4			

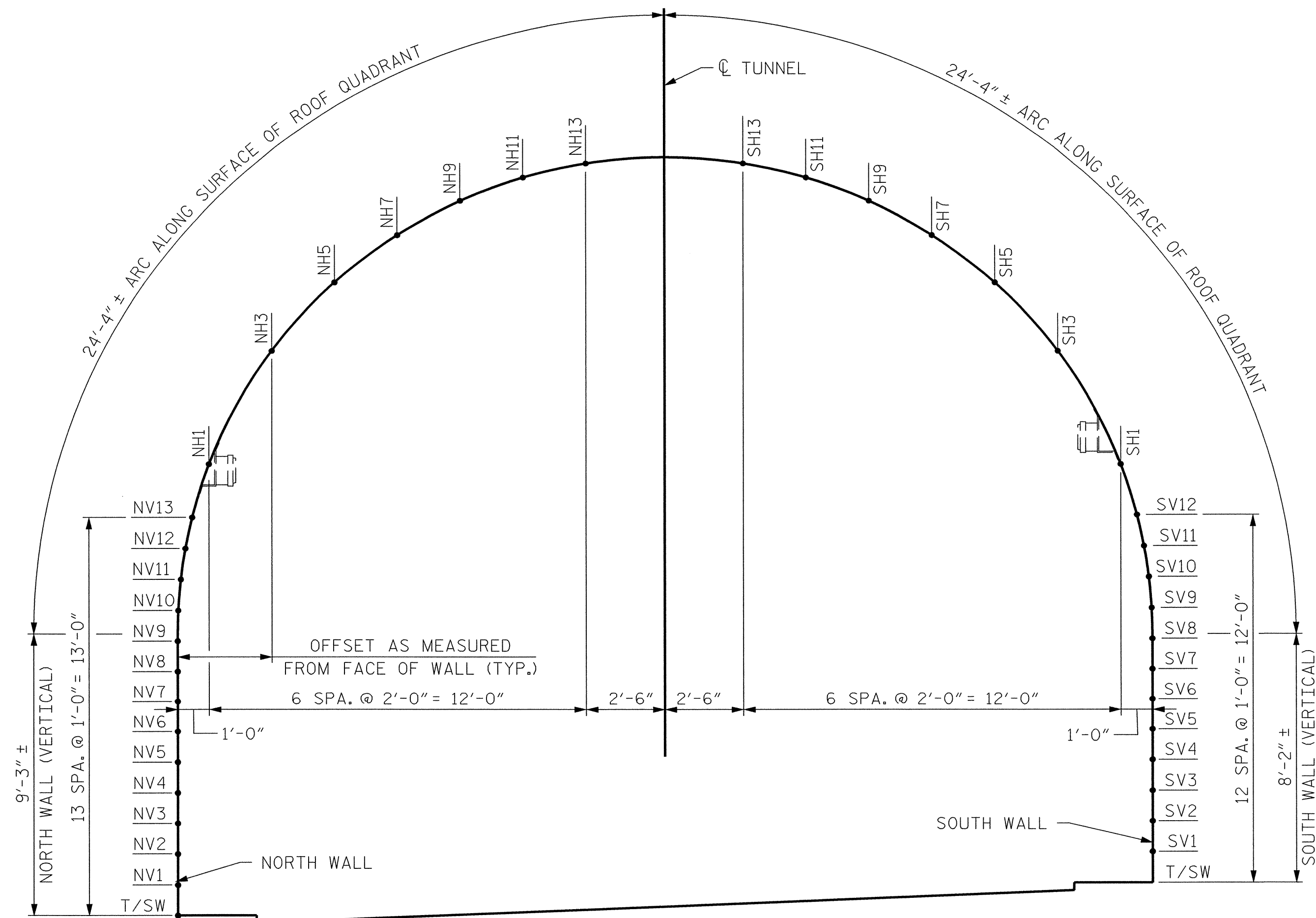
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TIME: 11:16:20 PM

DRAWN BY : L. PATTERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013



PARTIAL PLAN OF REPAIR SEGMENTS - TUNNEL 17



SECTION A-A: REPAIR GRID REFERENCE DETAIL
(LOOKING EAST)



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNEL 17 PLAN OF
REPAIR SEGMENTS & GRID
REFERENCE DETAIL

REVISIONS

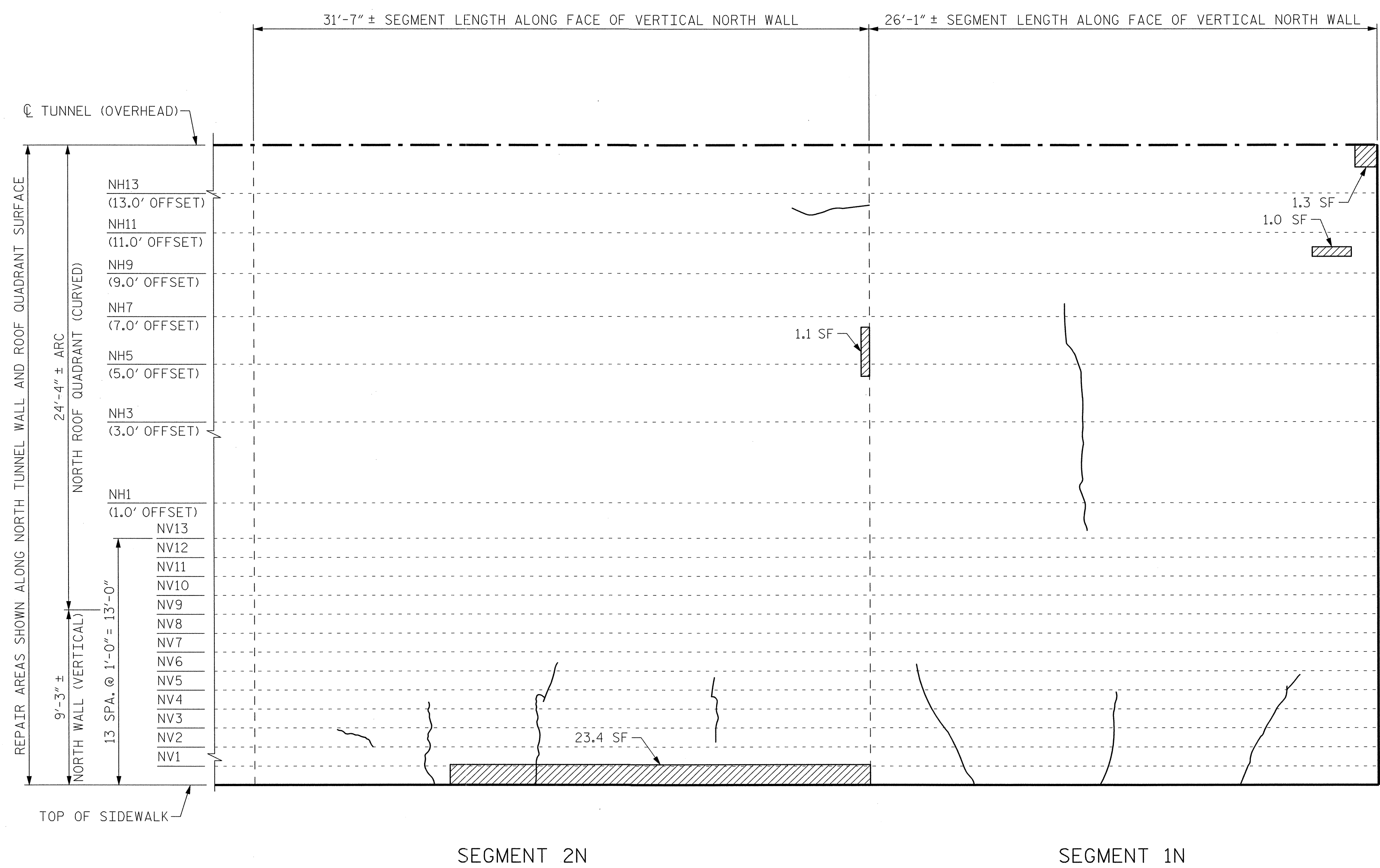
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as
012

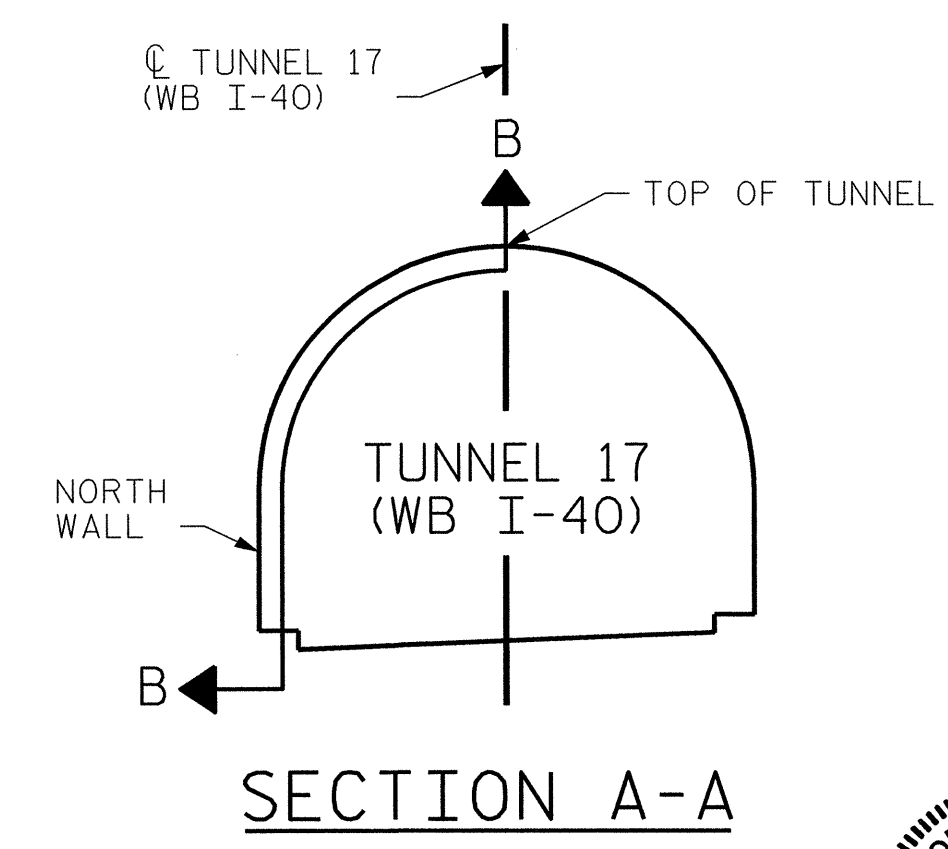
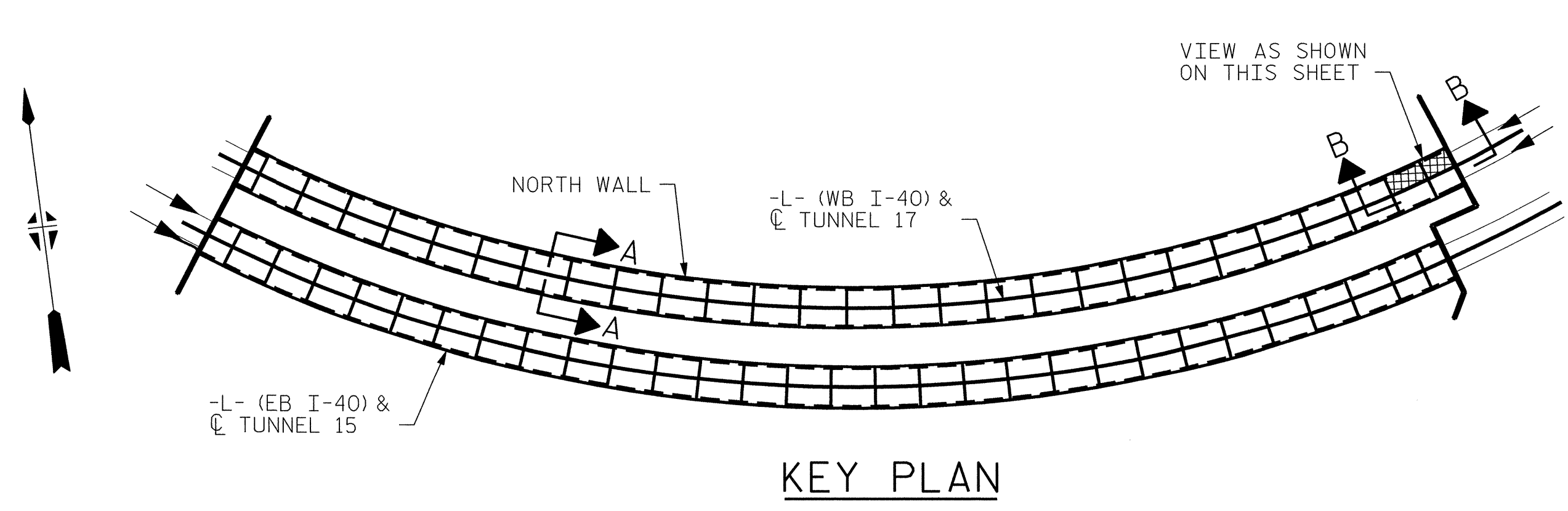
SHEET
NO.
S-041

TOTAL
SHEETS
110

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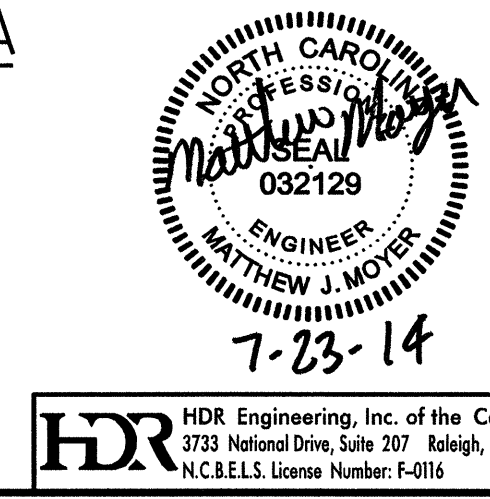


VIEW B-B: REPAIR SEGMENTS 1N & 2N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 17 REPAIR AREAS SEGMENTS 1N & 2N					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
SHEET NO. 5-042					TOTAL SHEETS 110

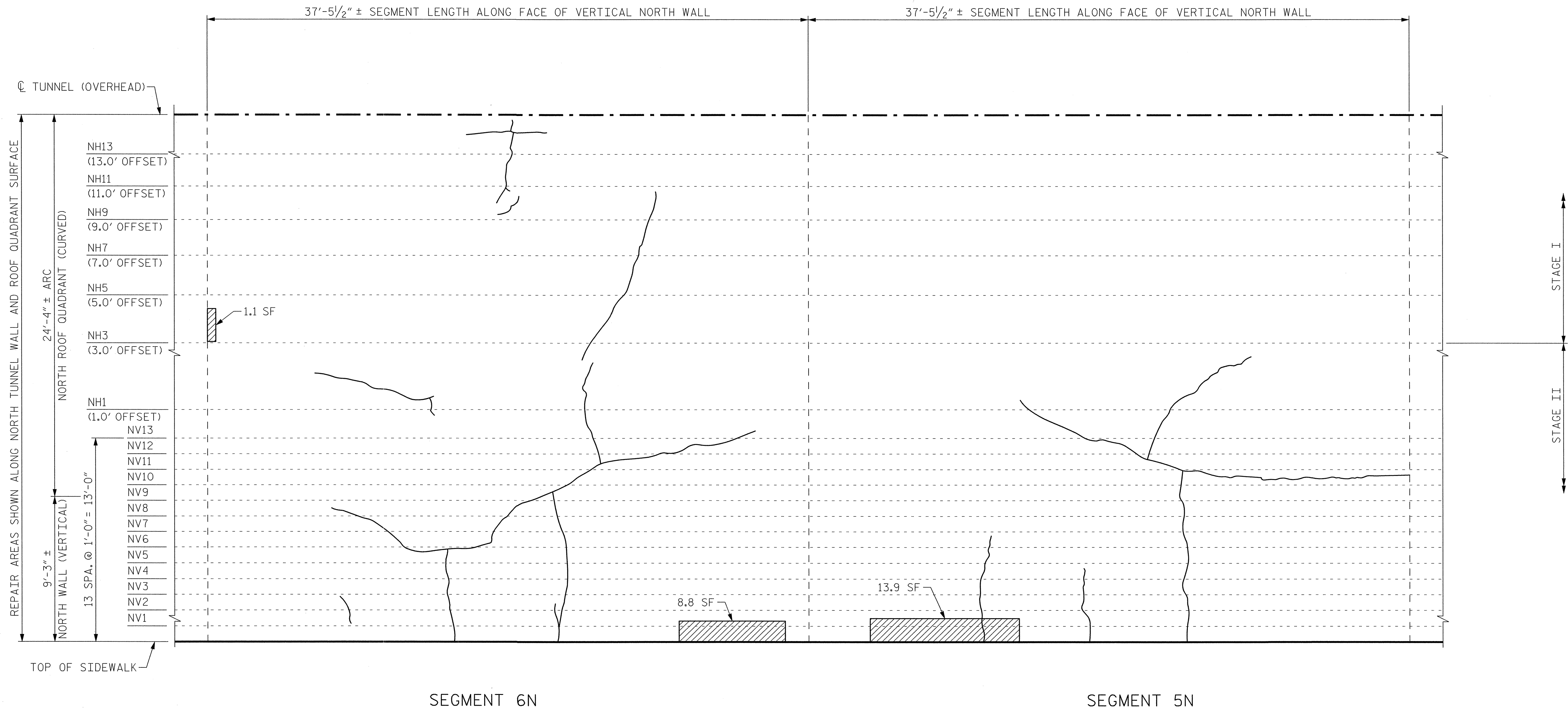


DRAWN BY : B. PETERSON	DATE : 07/2013
CHECKED BY : M. MOYER	DATE : 07/2013

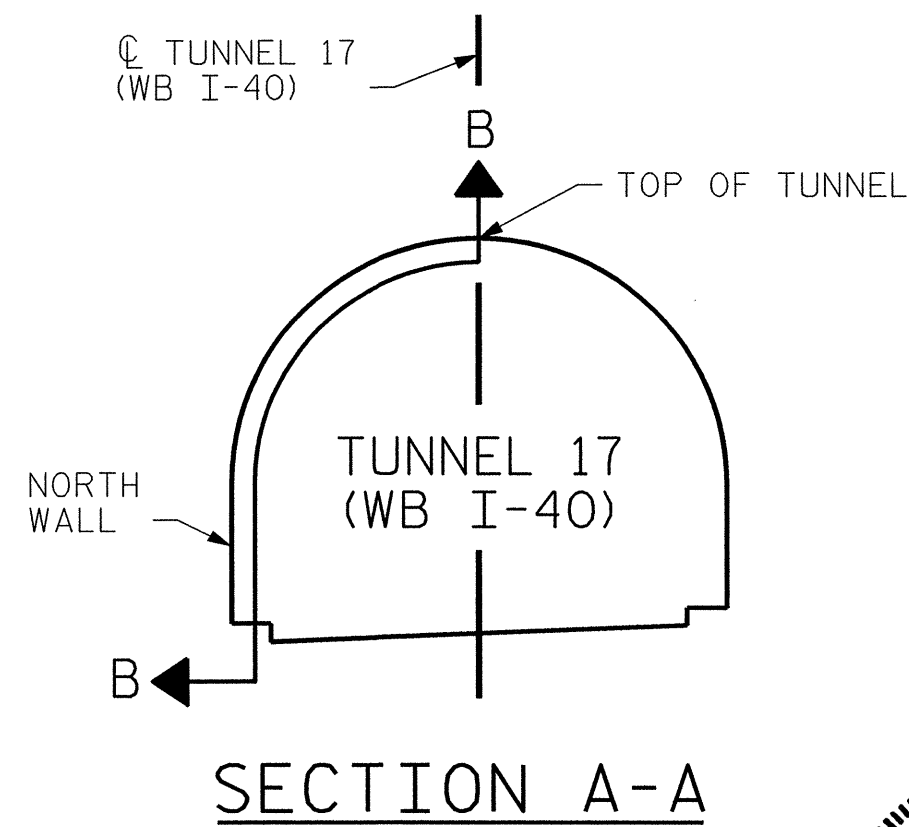
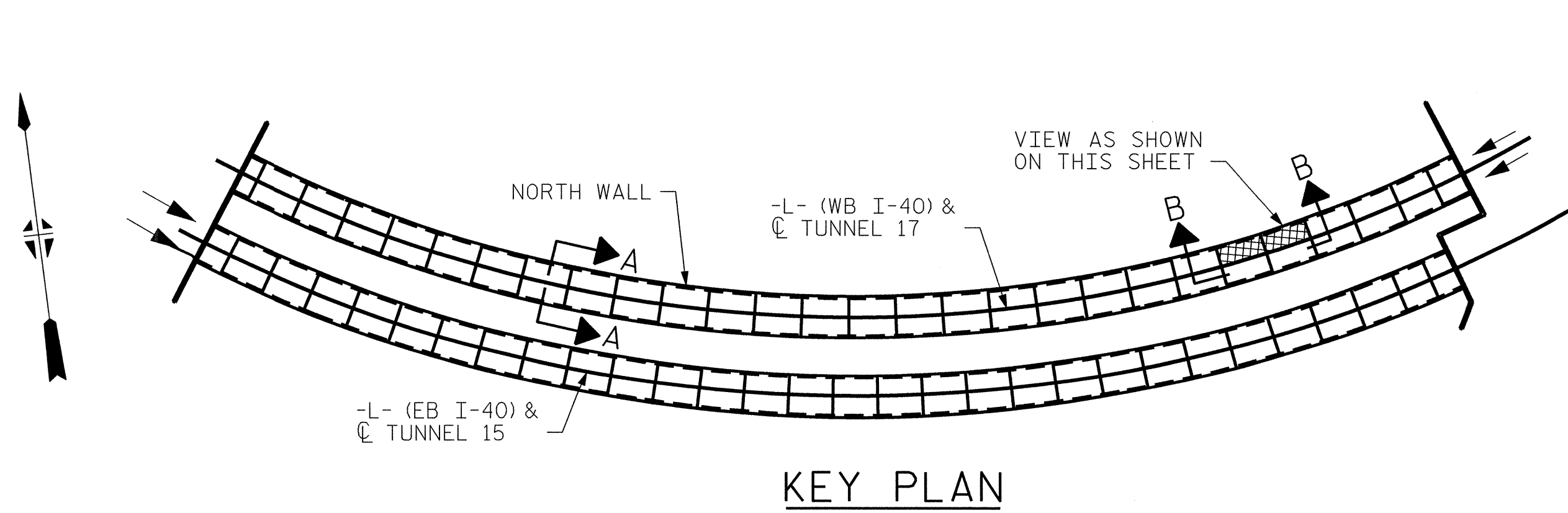
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N.C.B.E.L.S. License Number: F-0116

PLOT DRIVER: NC001.pdf_mono_eng-100.plt
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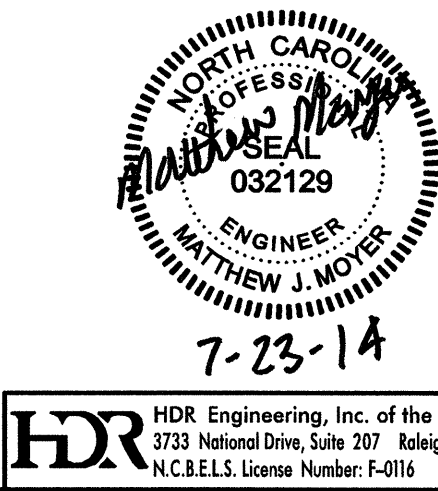


VIEW B-B: REPAIR SEGMENTS 5N & 6N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
TUNNEL 17 REPAIR AREAS SEGMENTS 5N & 6N			
REVISIONS			
NO.	BY:	DATE:	SHEET NO.
1	--	--	5-044
2	--	--	TOTAL SHEETS 110

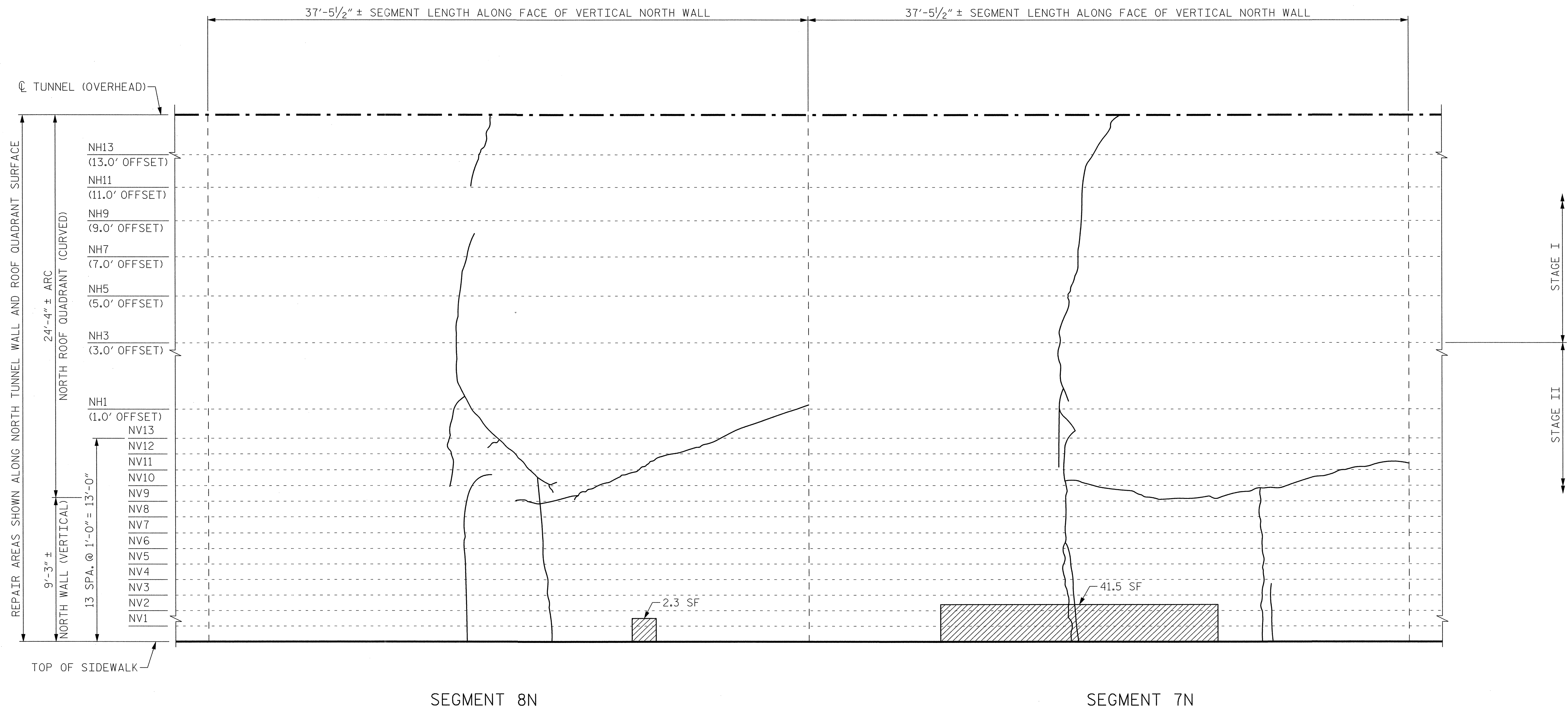


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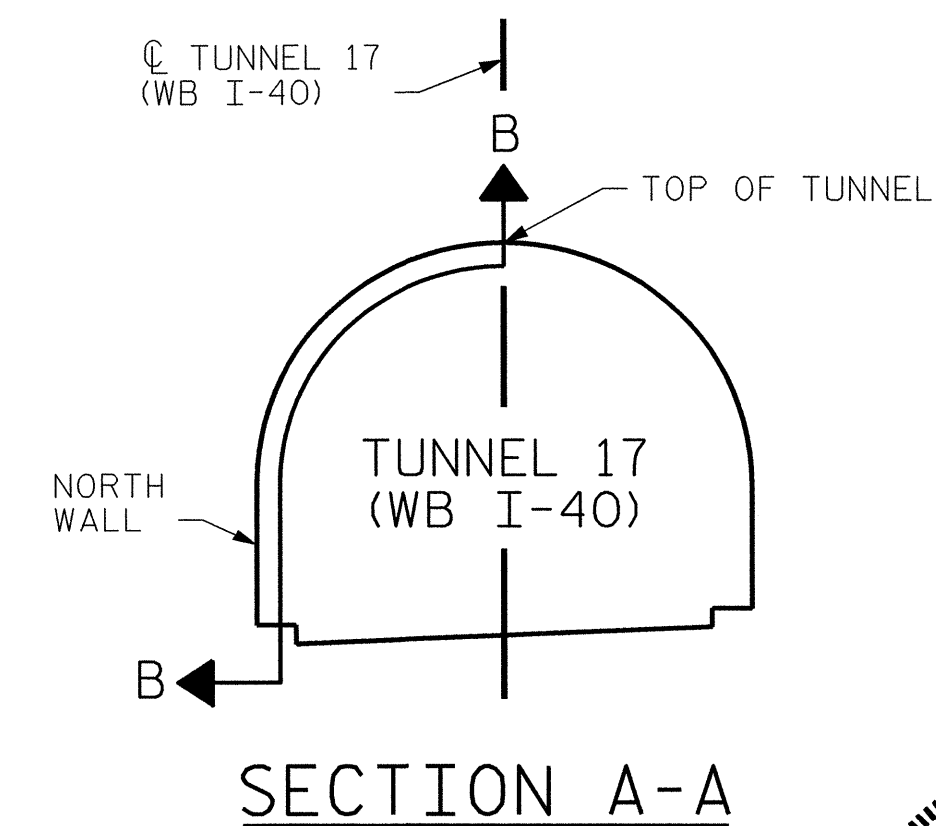
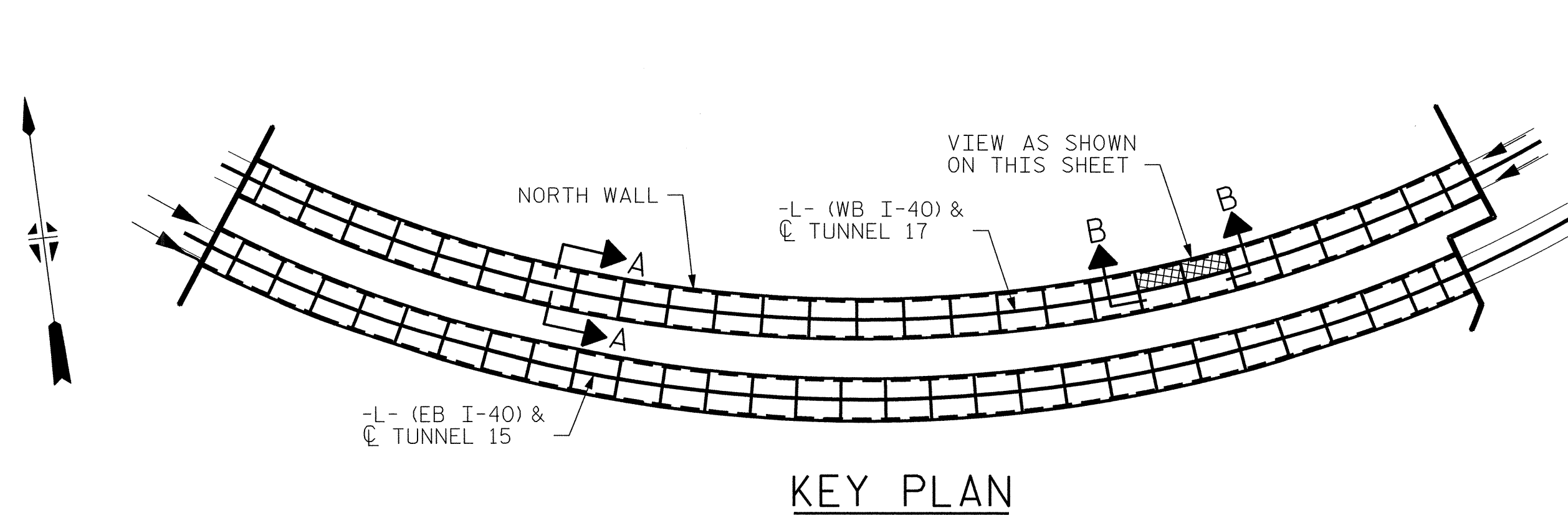
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DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013

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SHOTCRETE REPAIRS SEGMENT 8N	CF	0.8



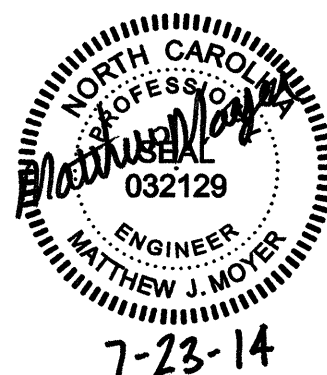
VIEW B-B: REPAIR SEGMENTS 7N & 8N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 7N & 8N



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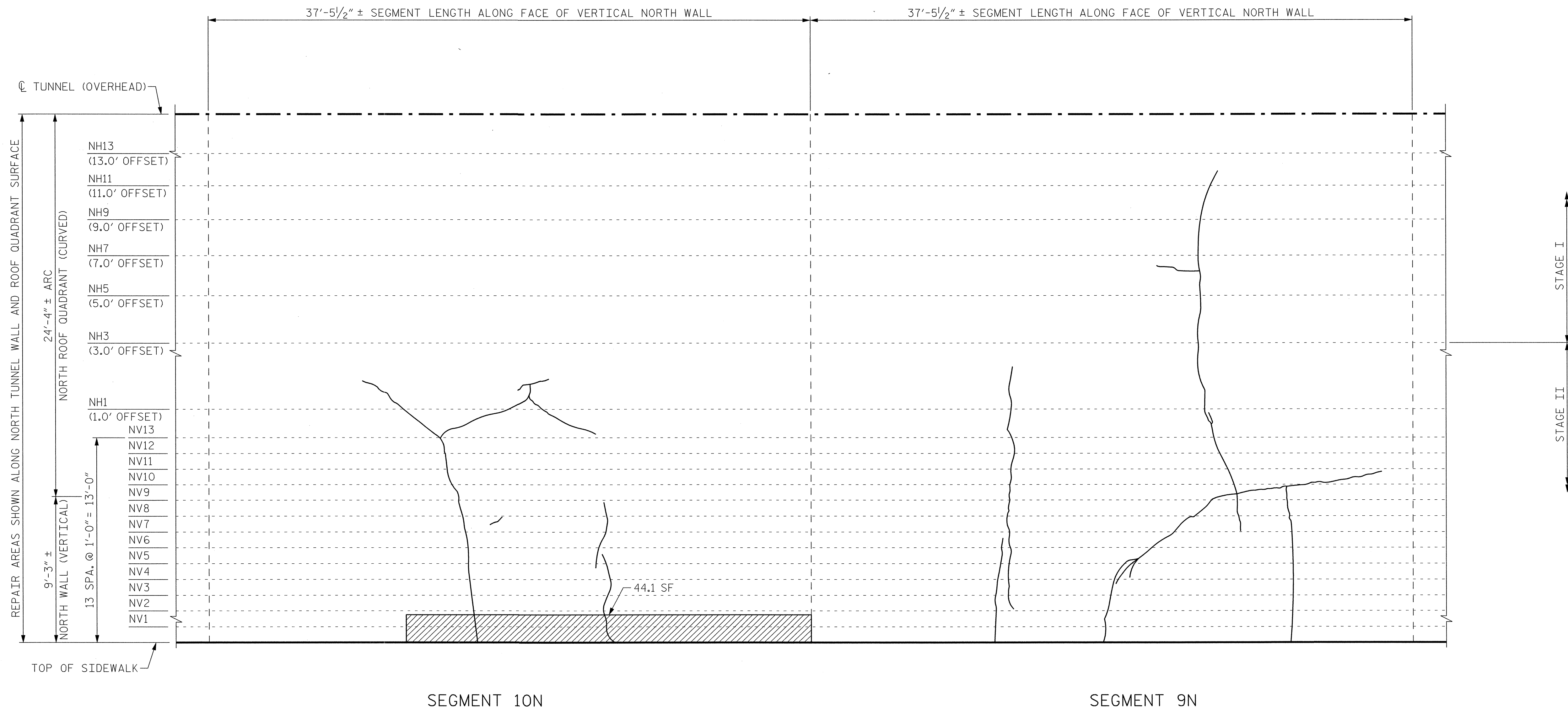
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CHECKED BY : M. MOYER DATE : 07/2013

REVISIONS						SHEET NO. 5-045 TOTAL SHEETS 110
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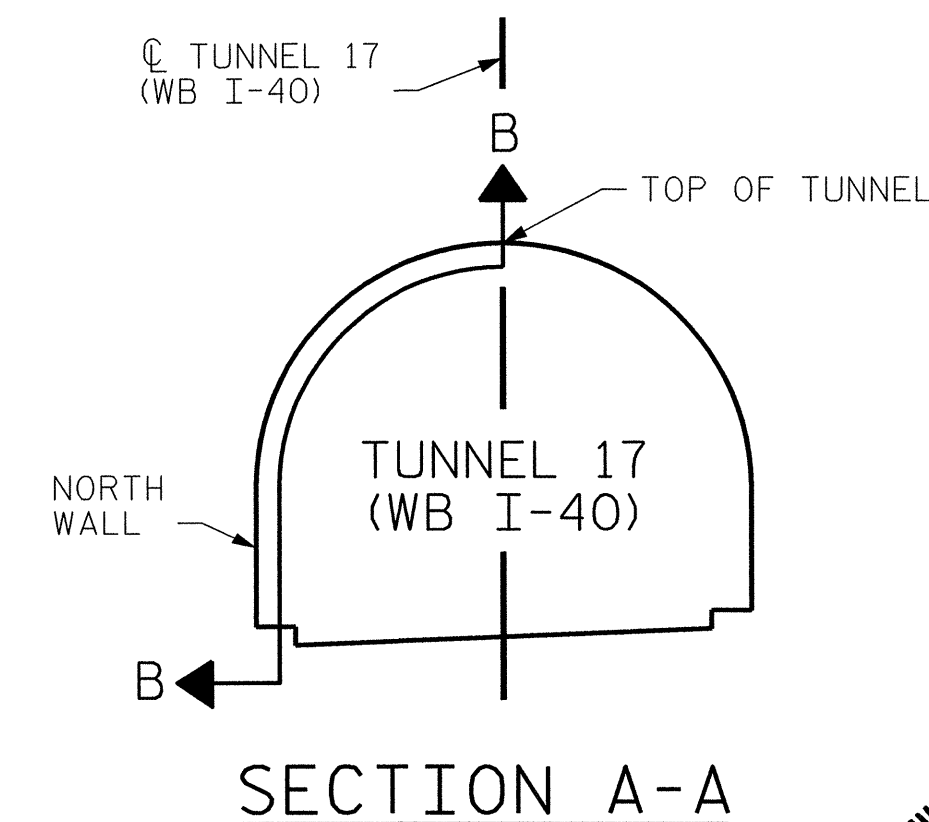
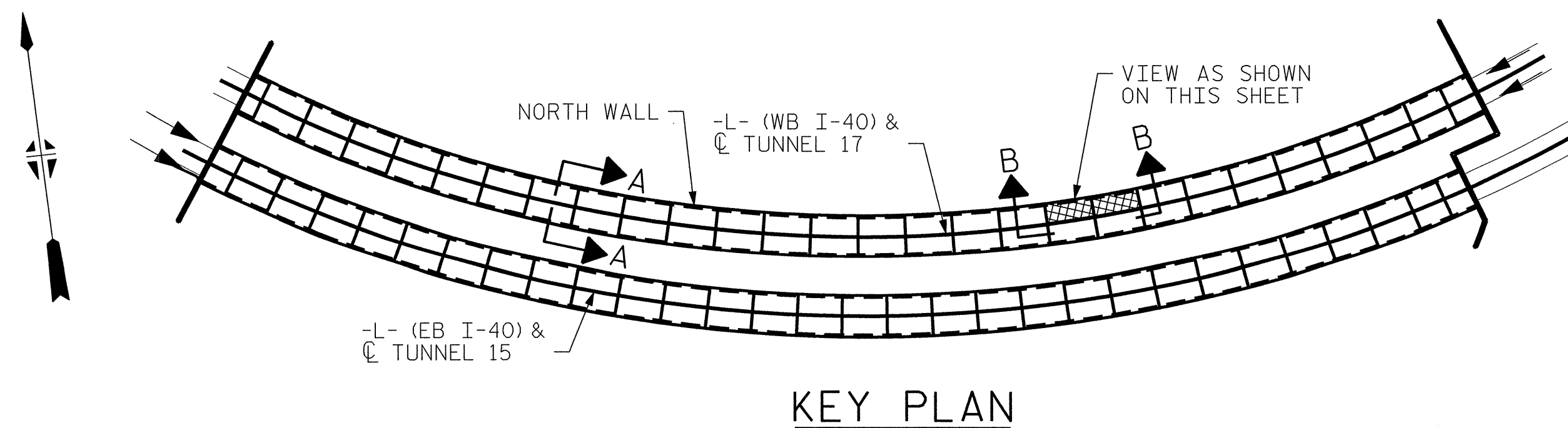
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DATE: 7/22/2014

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SHOTCRETE REPAIRS SEGMENT 10N	CF	14.7	



VIEW B-B: REPAIR SEGMENTS 9N & 10N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 9N & 10N



7-23-14

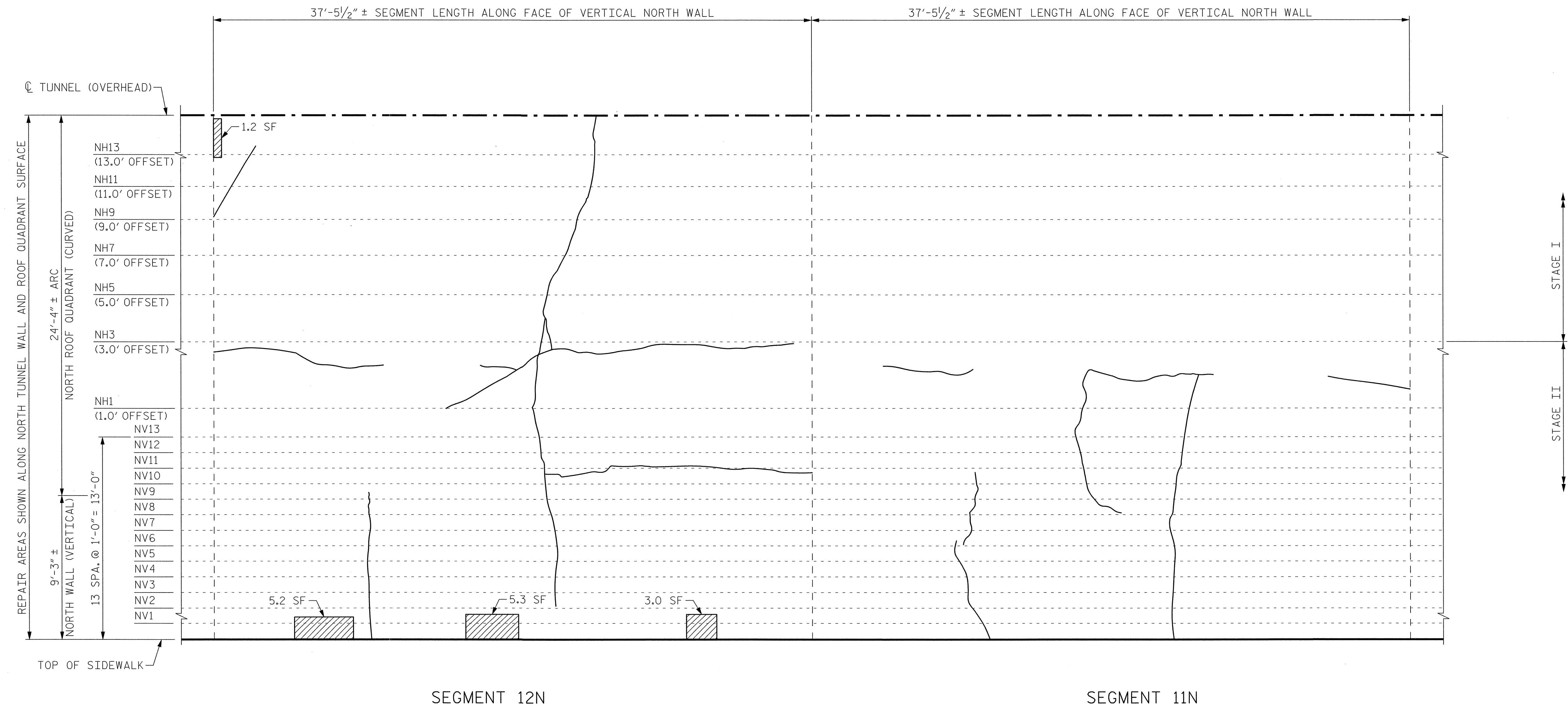
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0115

REVISIONS						SHEET NO. S-046
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	110

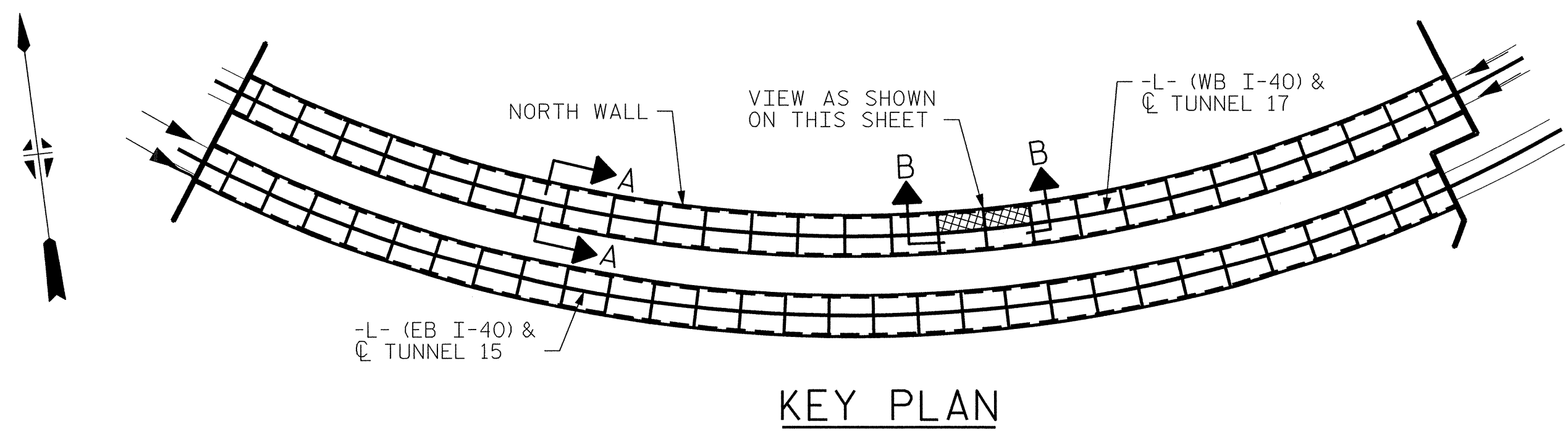
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

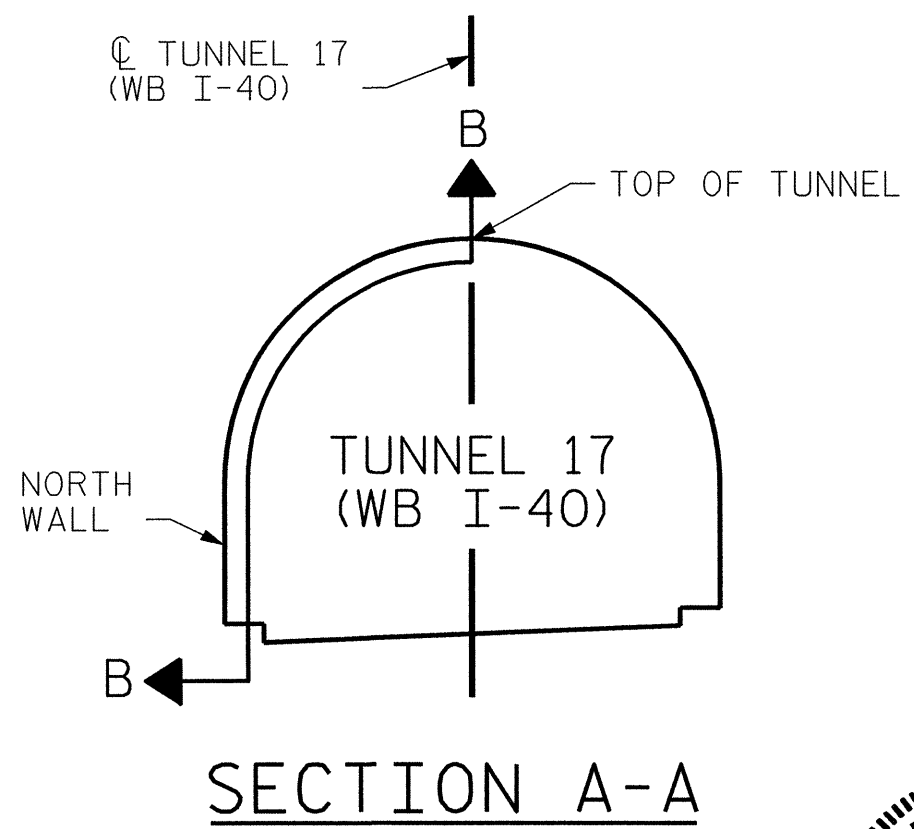
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SHOTCRETE REPAIRS SEGMENT 12N	CF	4.5	



VIEW B-B: REPAIR SEGMENTS 11N & 12N
TUNNEL SURFACE ELEVATION



KEY PLAN



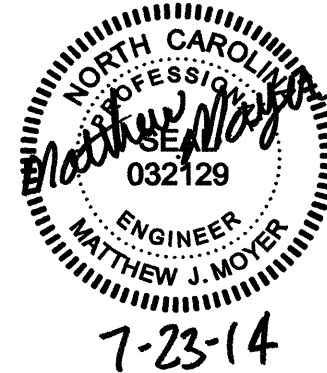
SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 17 REPAIR AREAS SEGMENTS 11N & 12N					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--

SHEET NO. S-047

TOTAL SHEETS 110

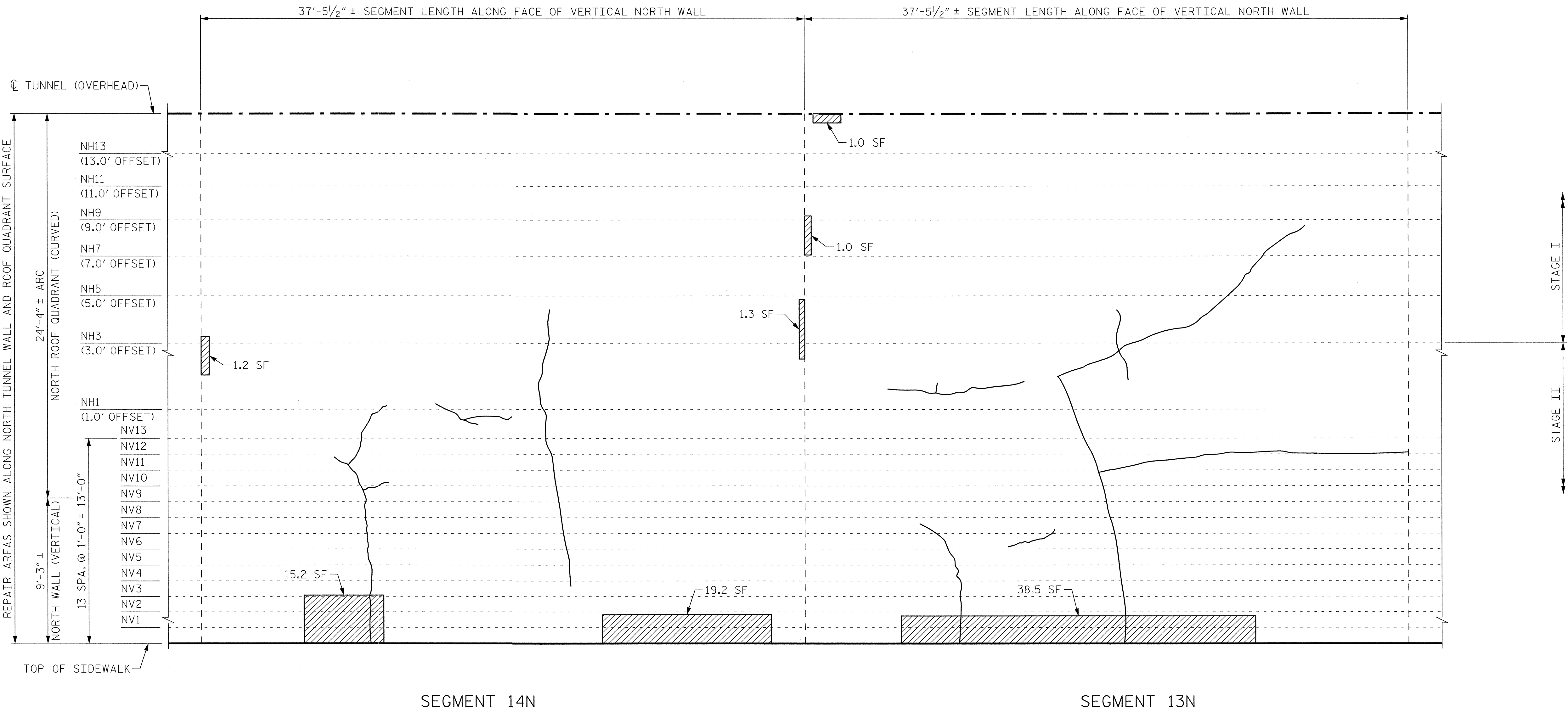


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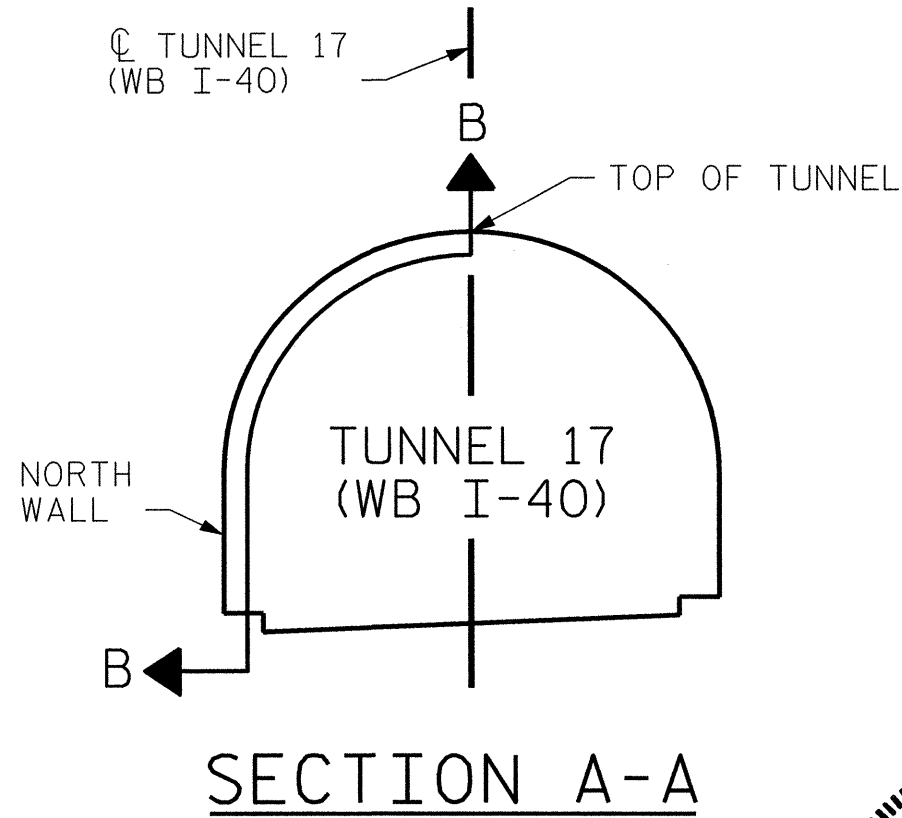
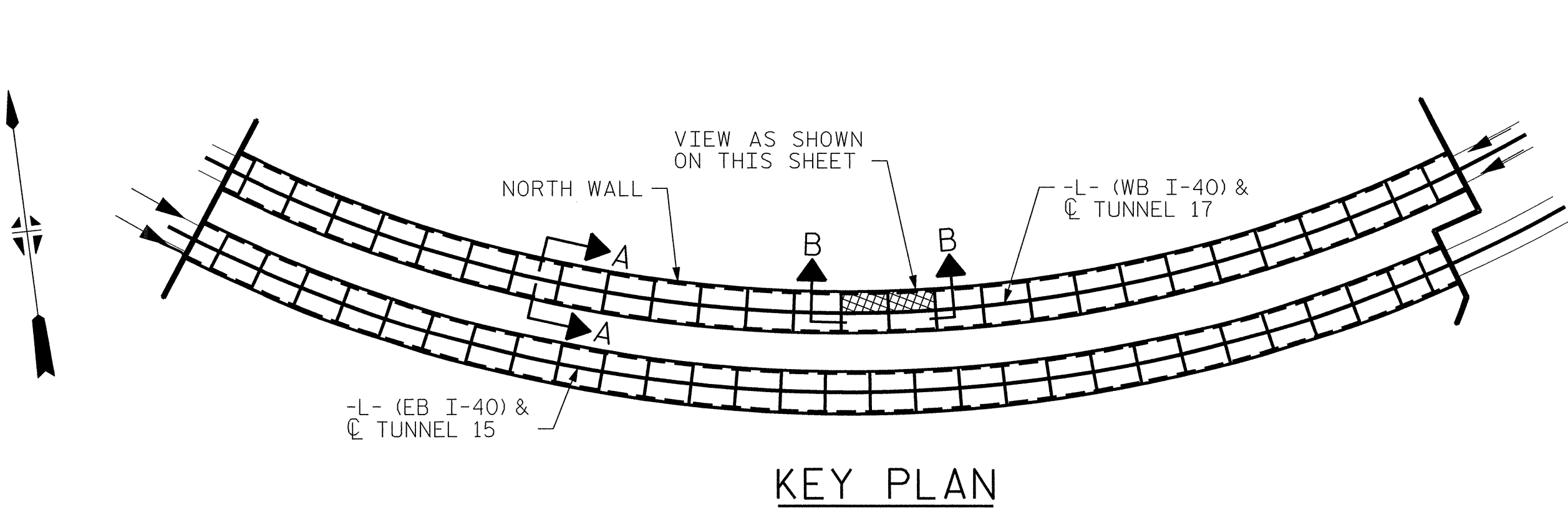
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 13N	CF	13.5	
SHOTCRETE REPAIRS SEGMENT 14N	CF	12.3	



VIEW B-B: REPAIR SEGMENTS 13N & 14N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 13N & 14N

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--

SHEET NO. S-048

TOTAL SHEETS 110

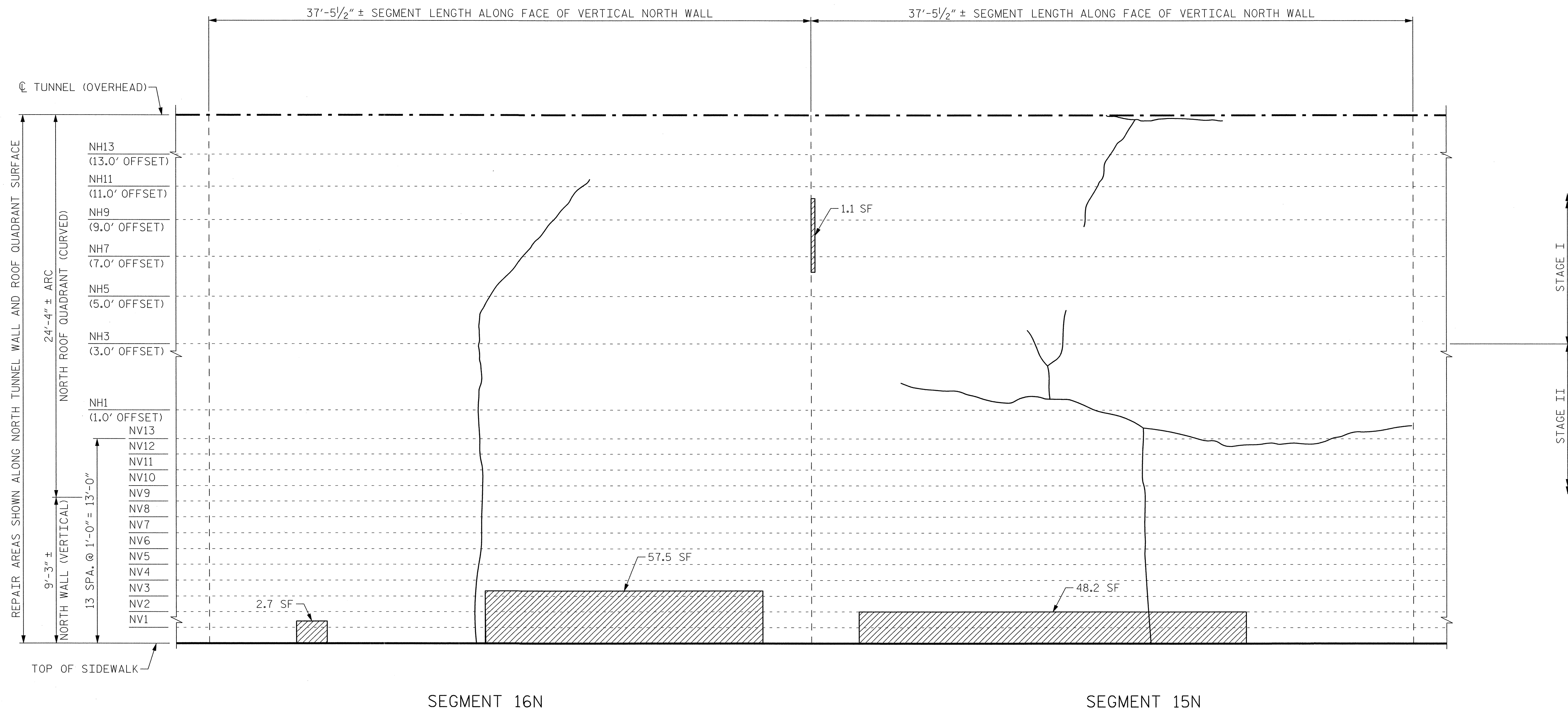


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N.C.E.L.S. License Number: F-0116

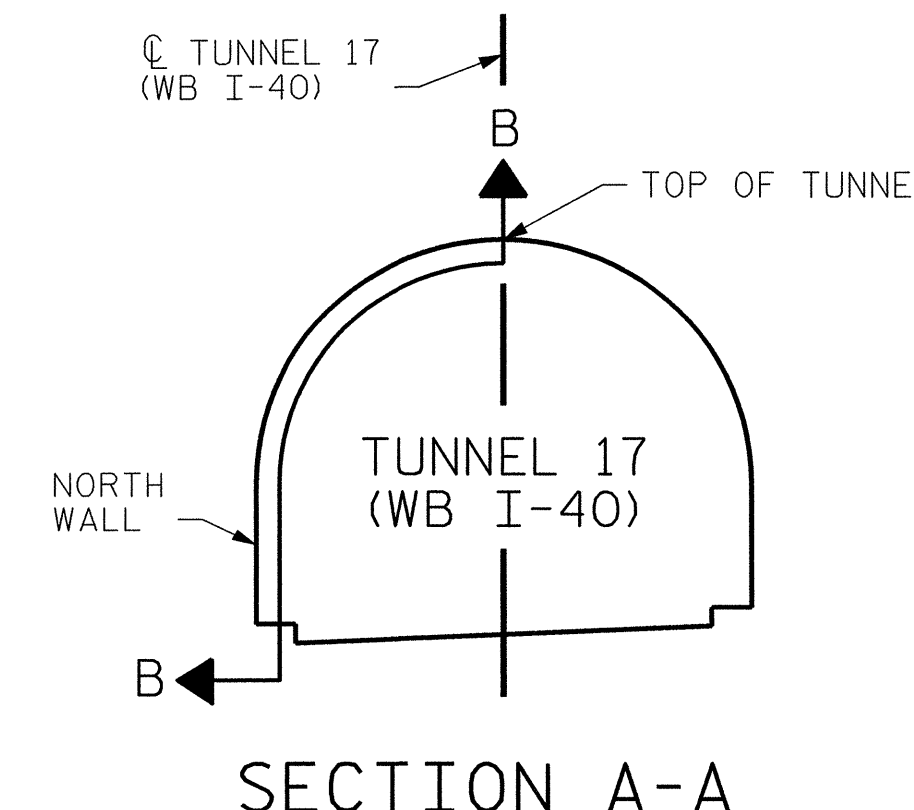
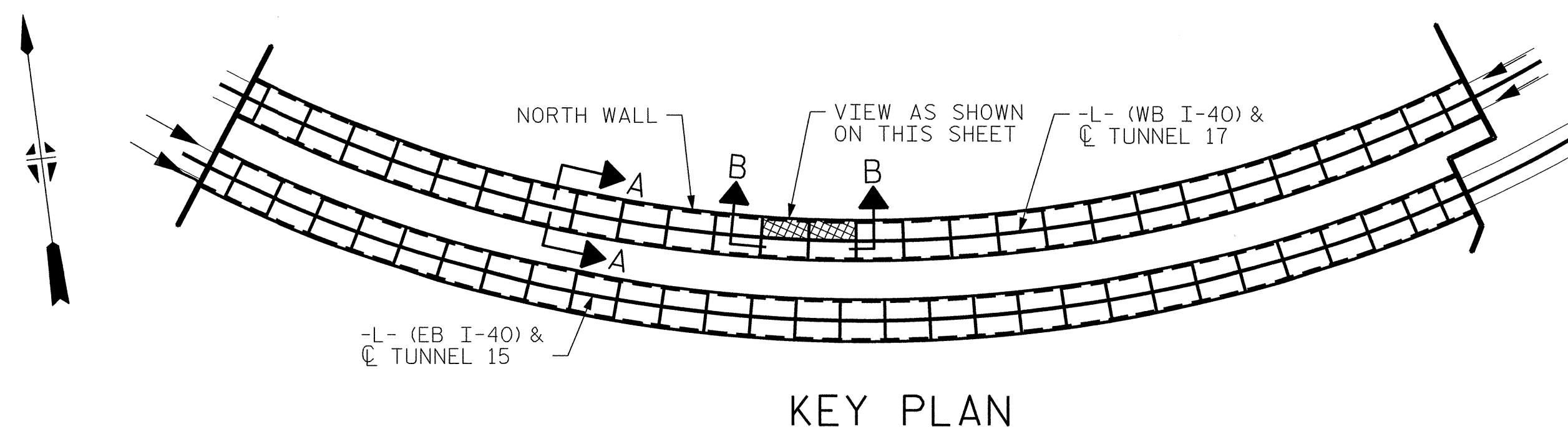
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CHECKED BY : M. MOYER DATE : 07/2013

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FILE: ...\\13.00.CAD\\Tunnel\\17\\17N-1314

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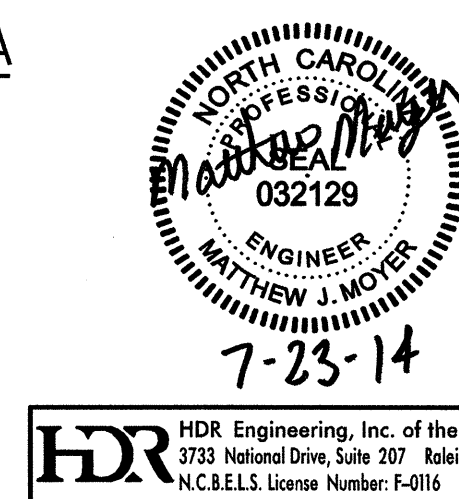


VIEW B-B: REPAIR SEGMENTS 15N & 16N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 17 REPAIR AREAS SEGMENTS 15N & 16N					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
SHEET NO. S-049					TOTAL SHEETS 110

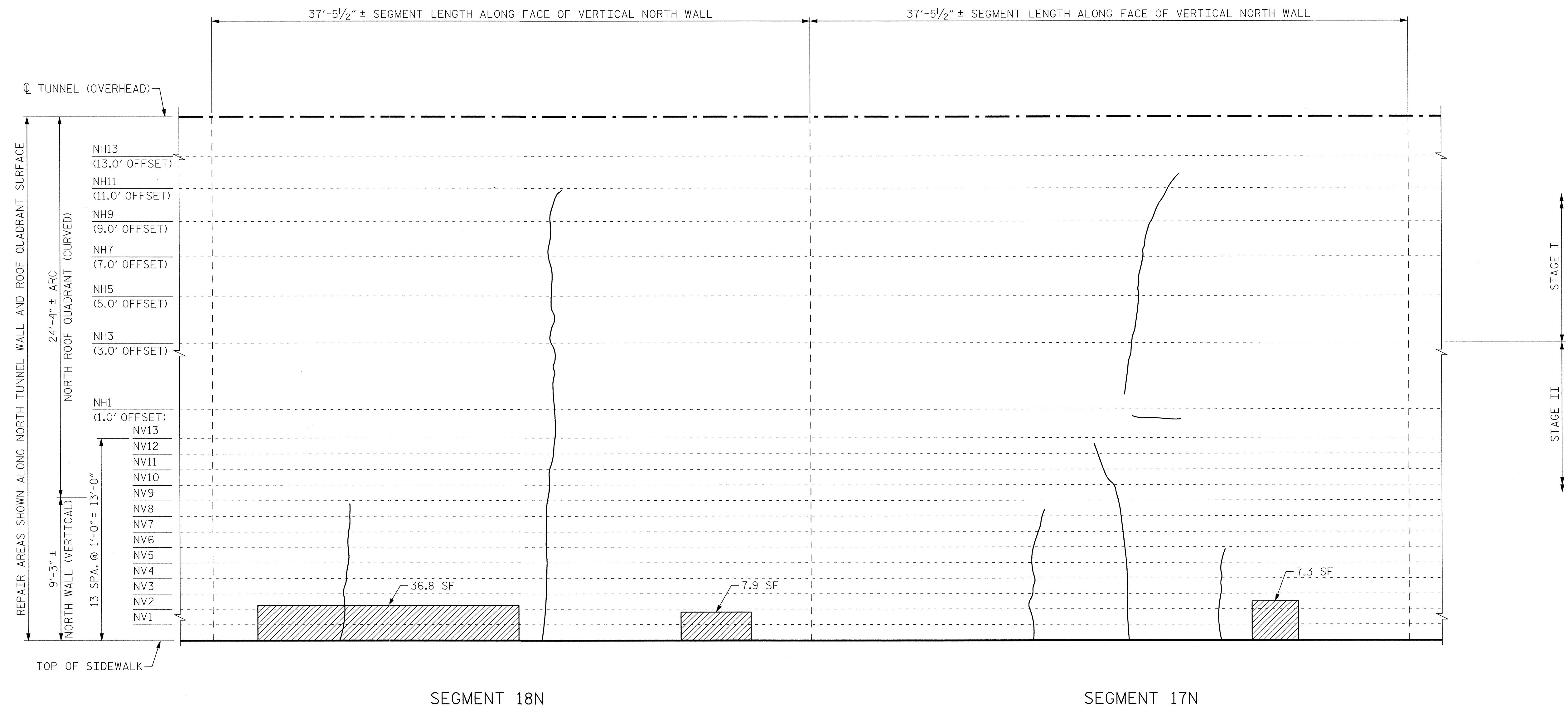


7-23-14
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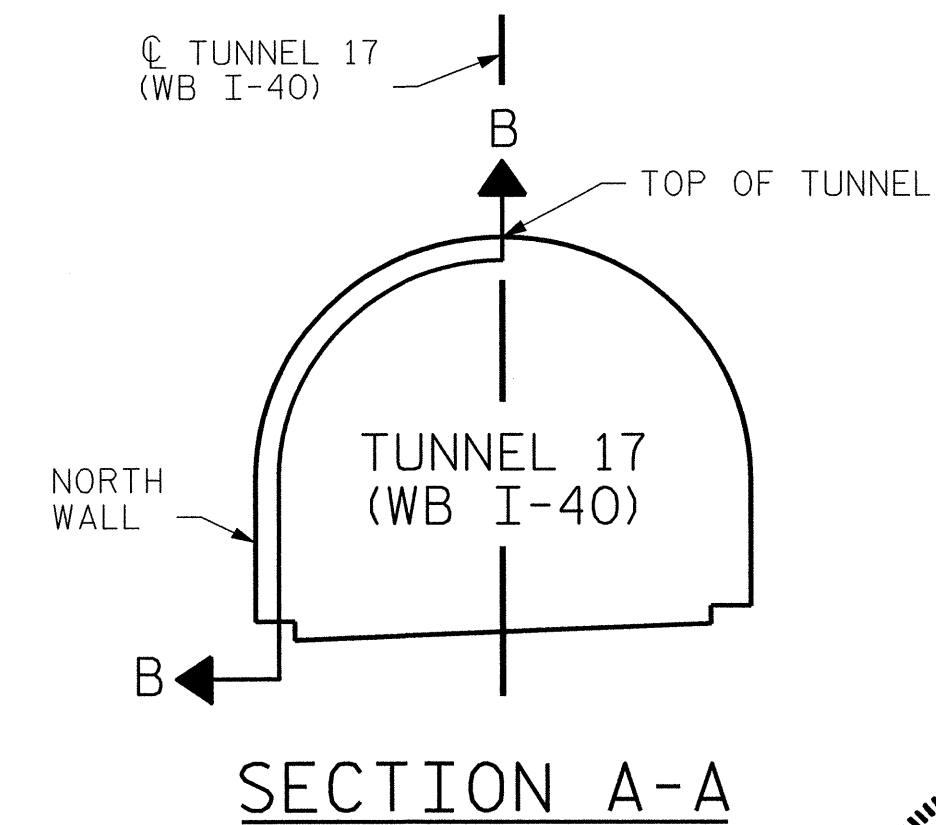
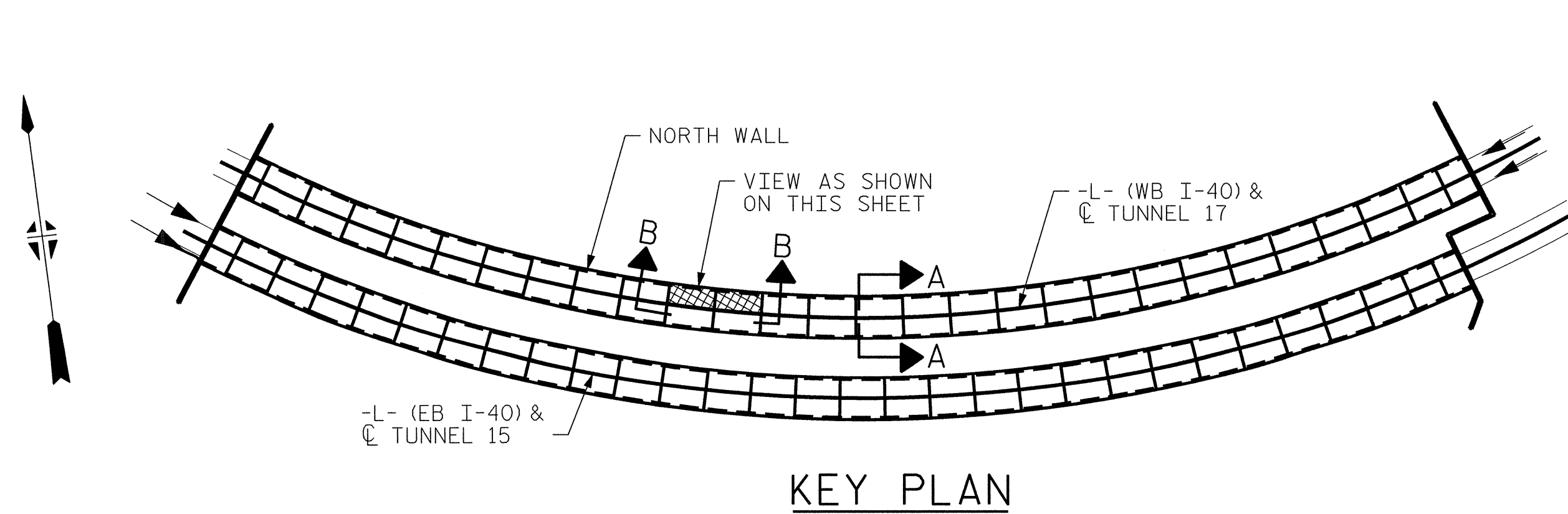
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CHECKED BY : M. MOYER DATE : 07/2013

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USER: msells DATE: 7/22/2014
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BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 17N	CF	2.4	
SHOTCRETE REPAIRS SEGMENT 18N	CF	14.9	



VIEW B-B: REPAIR SEGMENTS 17N & 18N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 17N & 18N



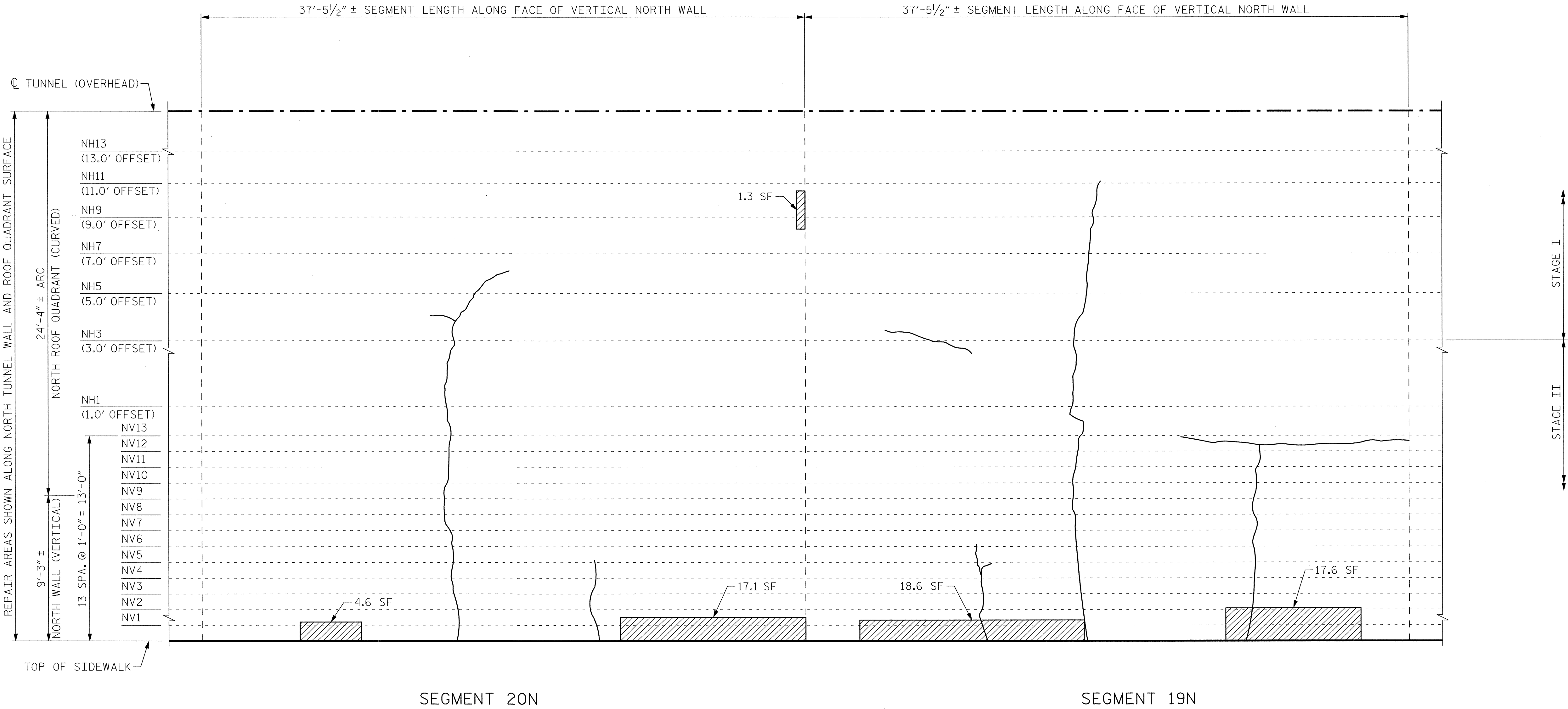
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-050
NO.	BY:	DATE:	NO.	BY:	DATE:	
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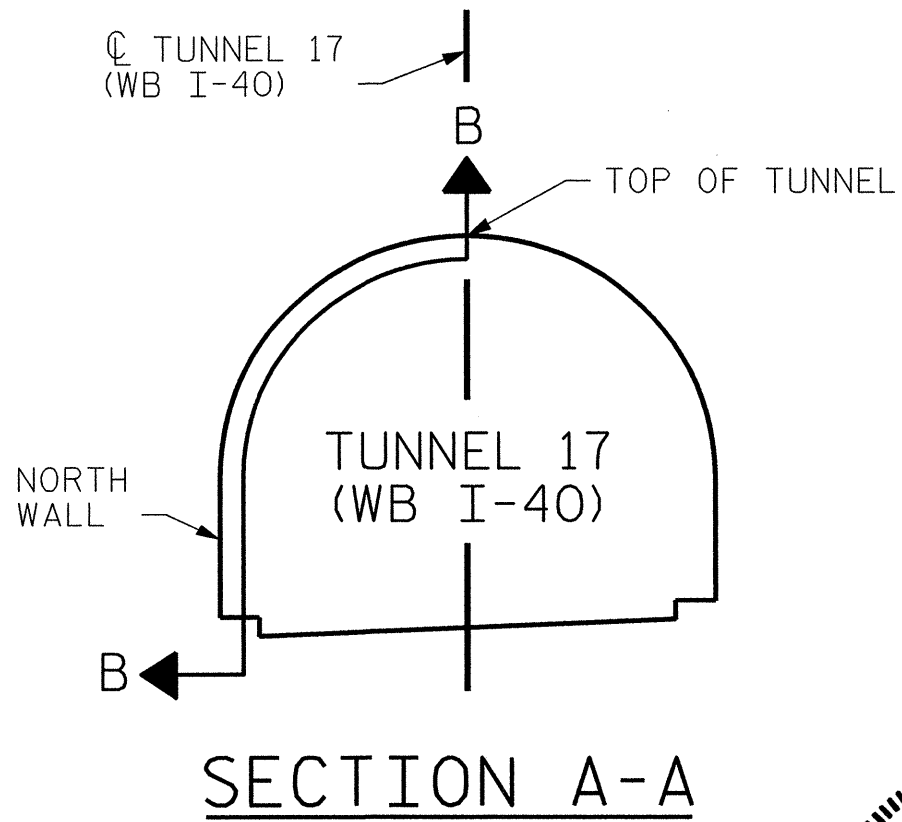
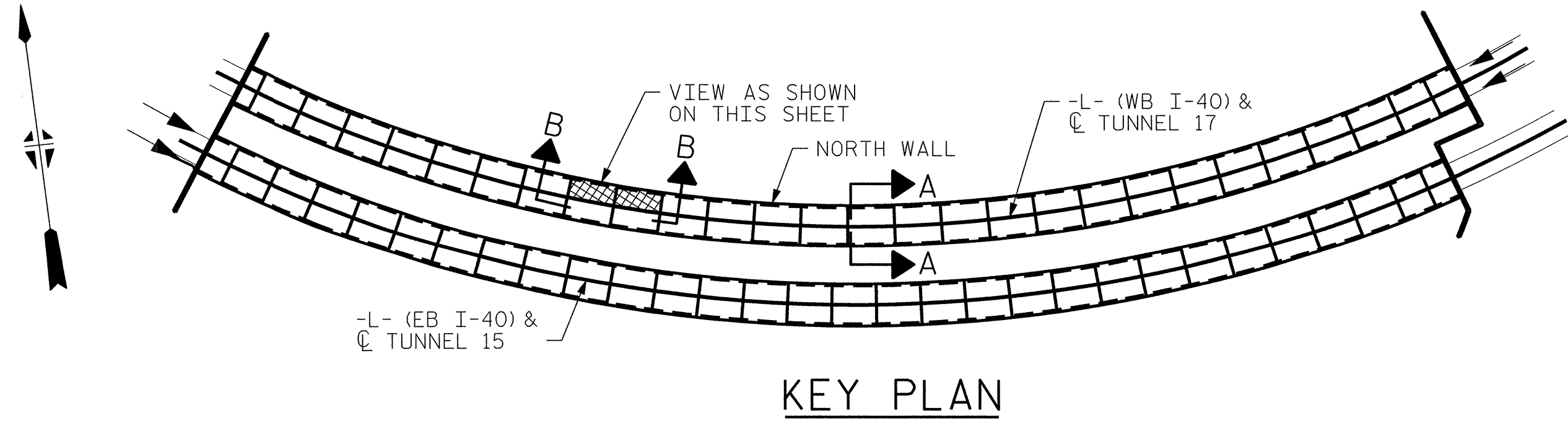
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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PENTABLE: I-40 Tunnel.tbl
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FILE: ..\13.00.CAD\Tunnel17\17N-1718

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 19N	CF	12.1	
SHOTCRETE REPAIRS SEGMENT 20N	CF	7.7	



VIEW B-B: REPAIR SEGMENTS 19N & 20N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 17 REPAIR AREAS SEGMENTS 19N & 20N					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2	--	--	4	--	--
SHEET NO. S-051					TOTAL SHEETS 110

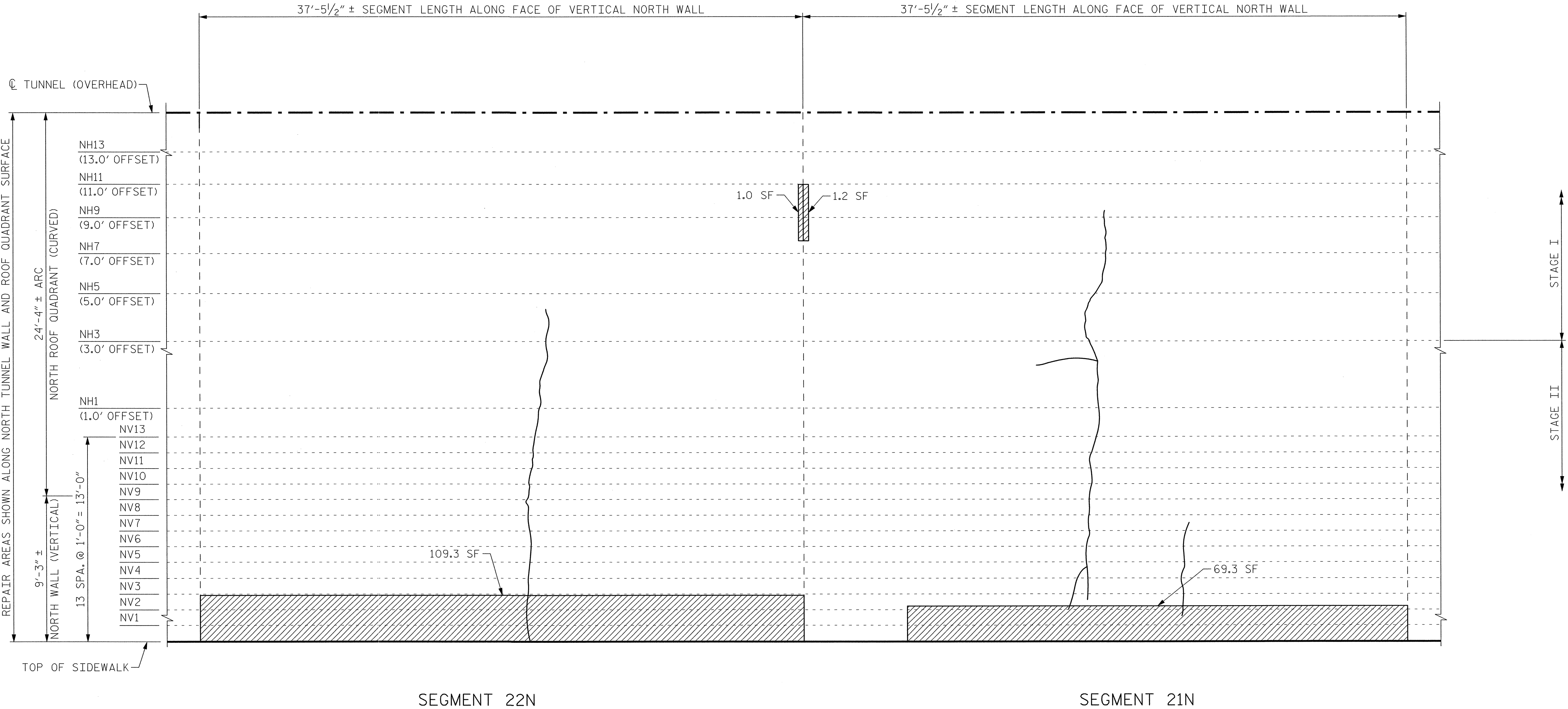


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N.C.B.E.L.S. License Number: F-0116

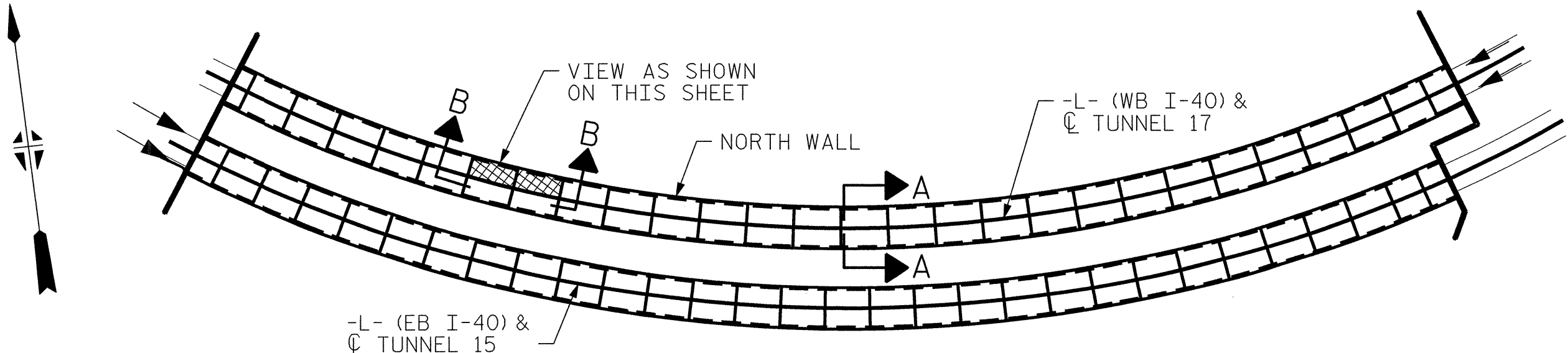
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CHECKED BY : M. MOYER DATE : 07/2013

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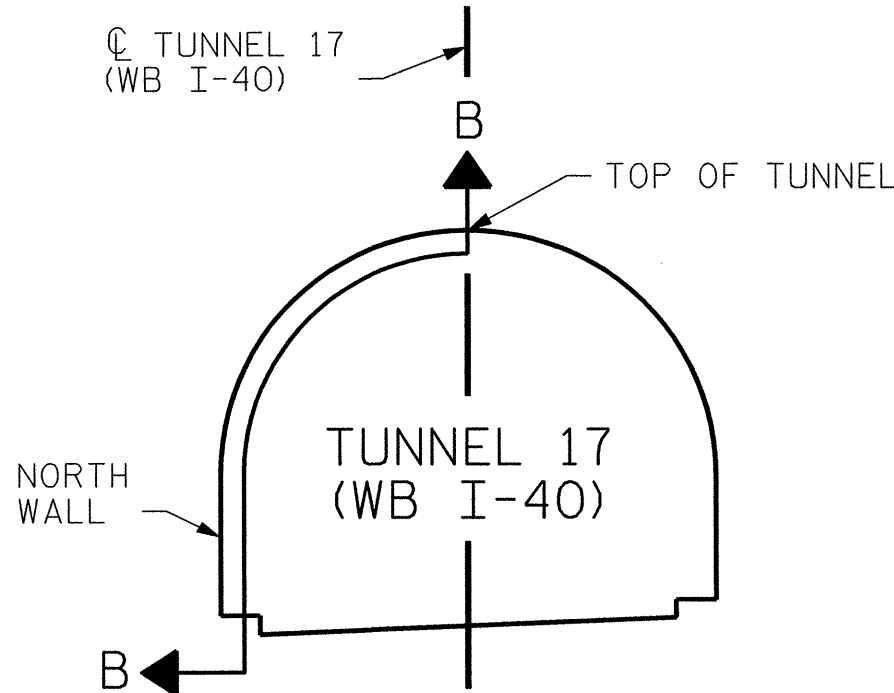
BILL OF MATERIAL		
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SHOTCRETE REPAIRS SEGMENT 22N	CF	36.8



VIEW B-B: REPAIR SEGMENTS 21N & 22N
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 17 REPAIR AREAS SEGMENTS 21N & 22N					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2	--	--	4	--	--
SHEET NO. S-052					TOTAL SHEETS 110

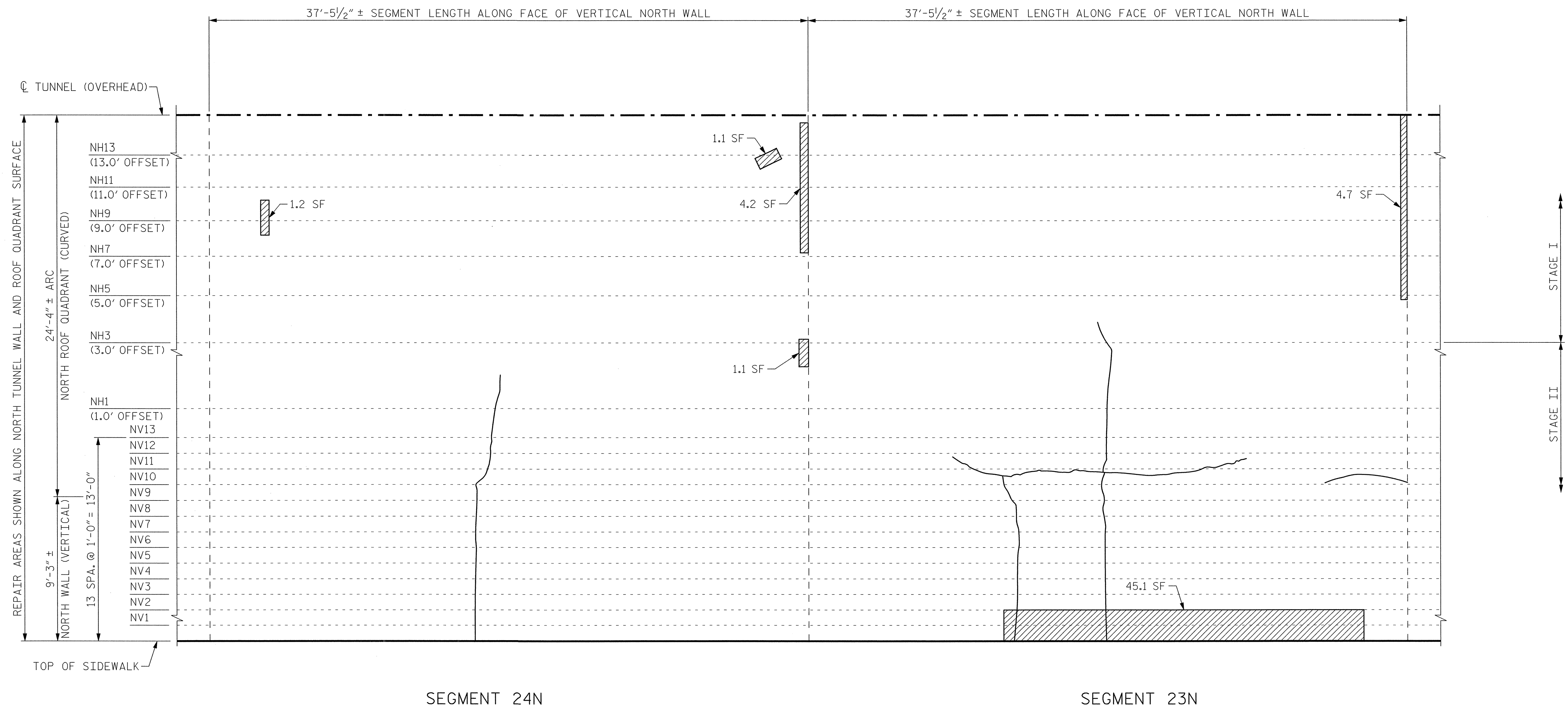


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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NCDOT.pdf_mono_eng_100.plt
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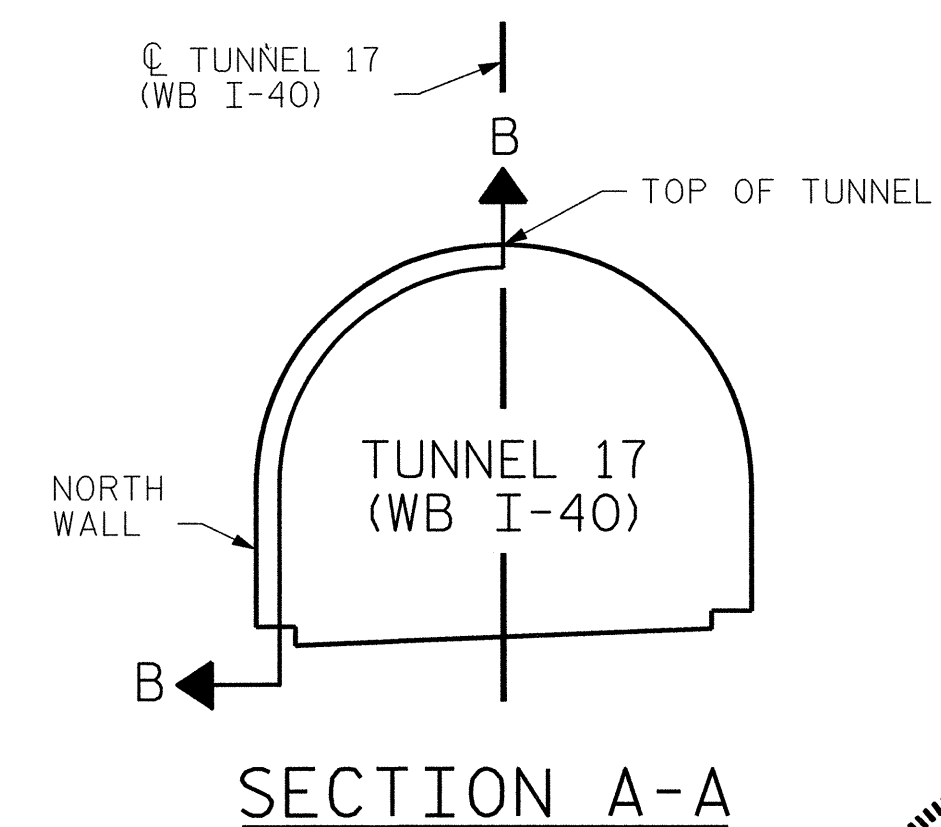
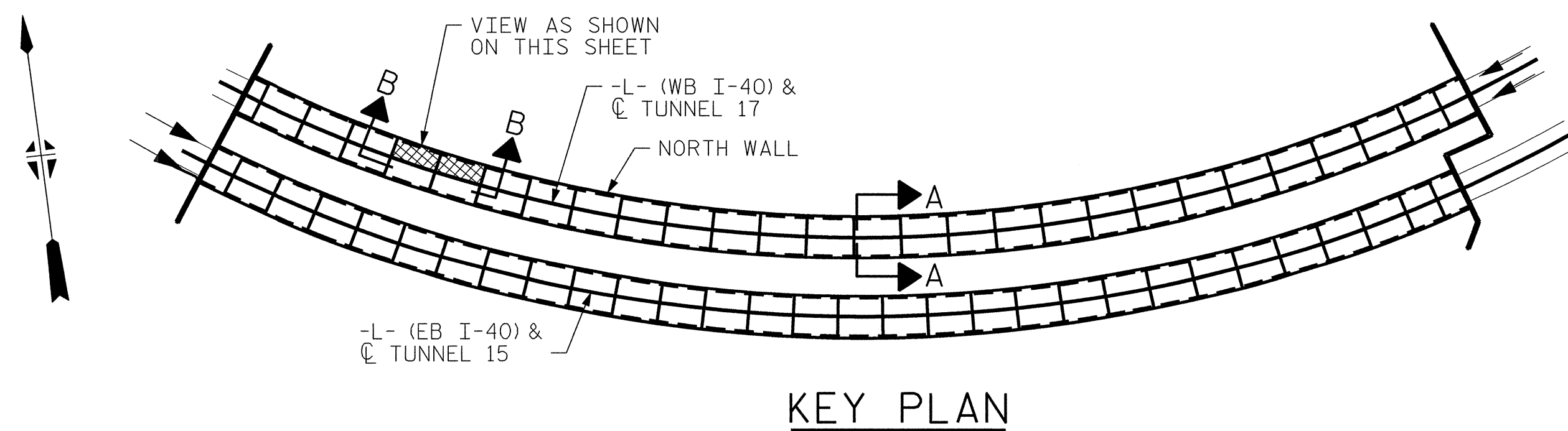
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SHOTCRETE REPAIRS	SEGMENT 23N	CF	16.6
SHOTCRETE REPAIRS	SEGMENT 24N	CF	2.5



SEGMENT 24N

SEGMENT 23N

VIEW B-B: REPAIR SEGMENTS 23N & 24N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 23N & 24N



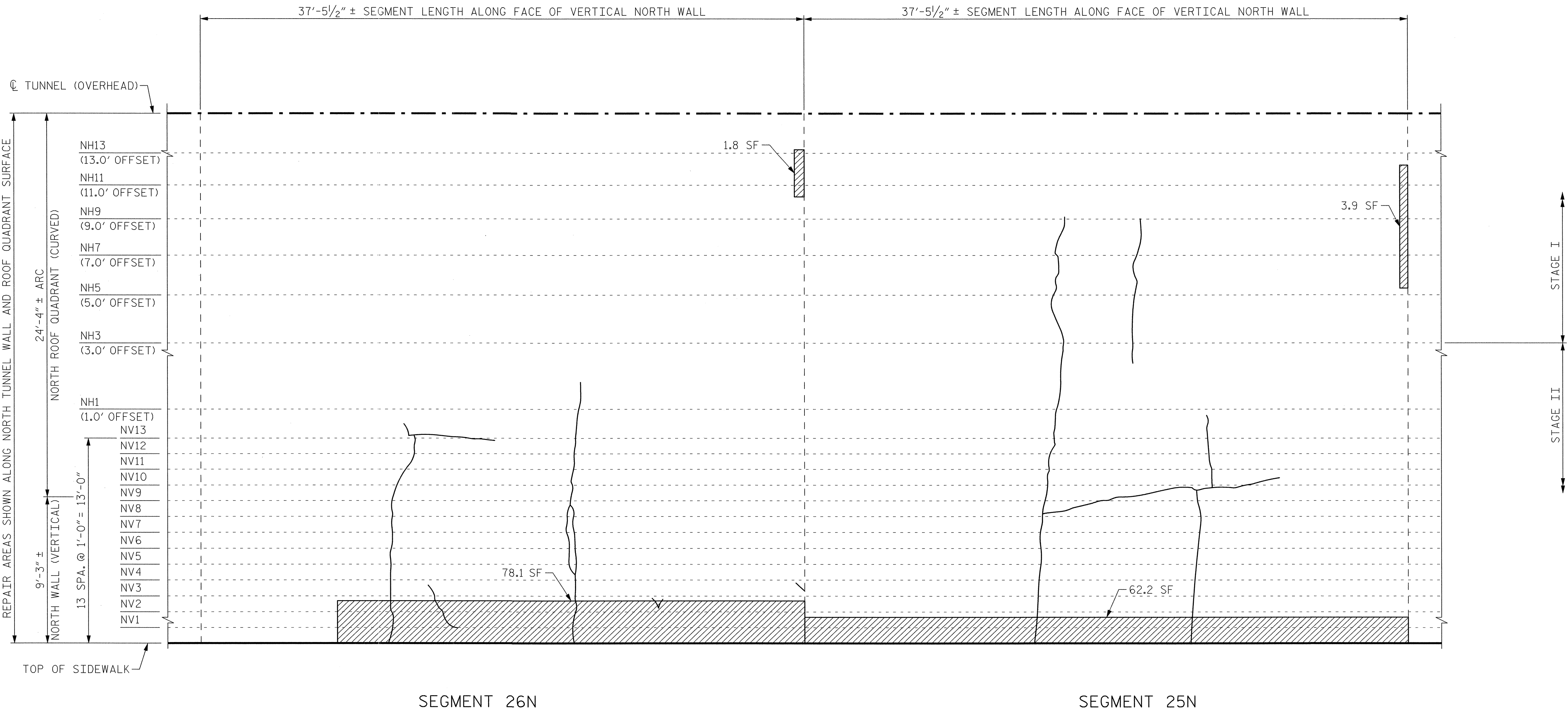
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-053 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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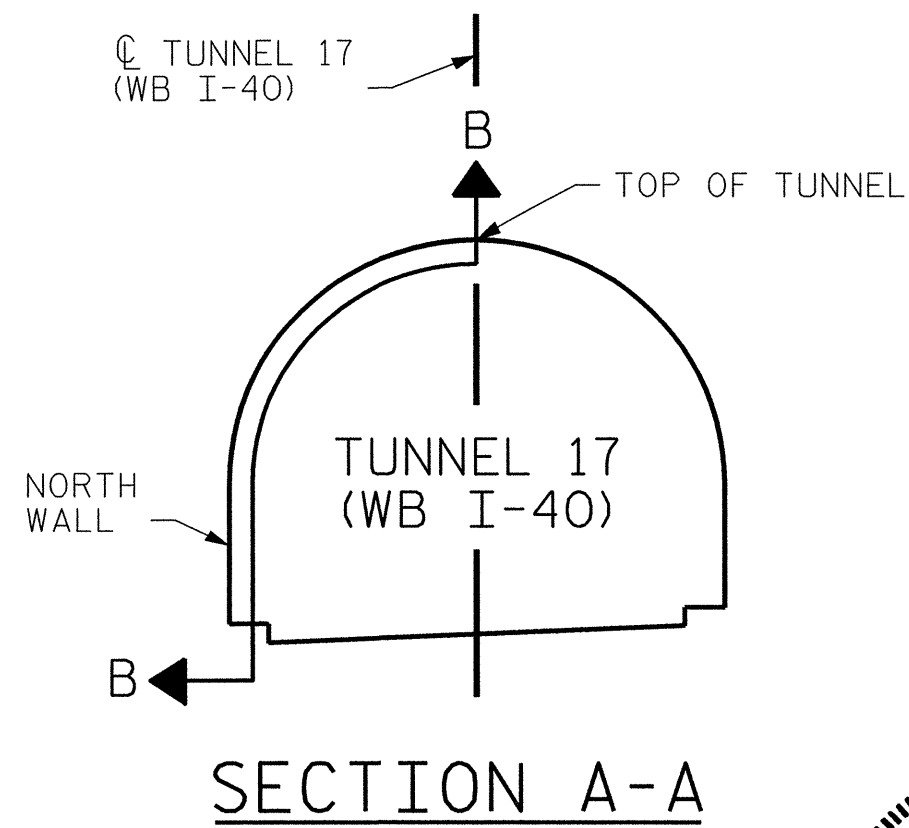
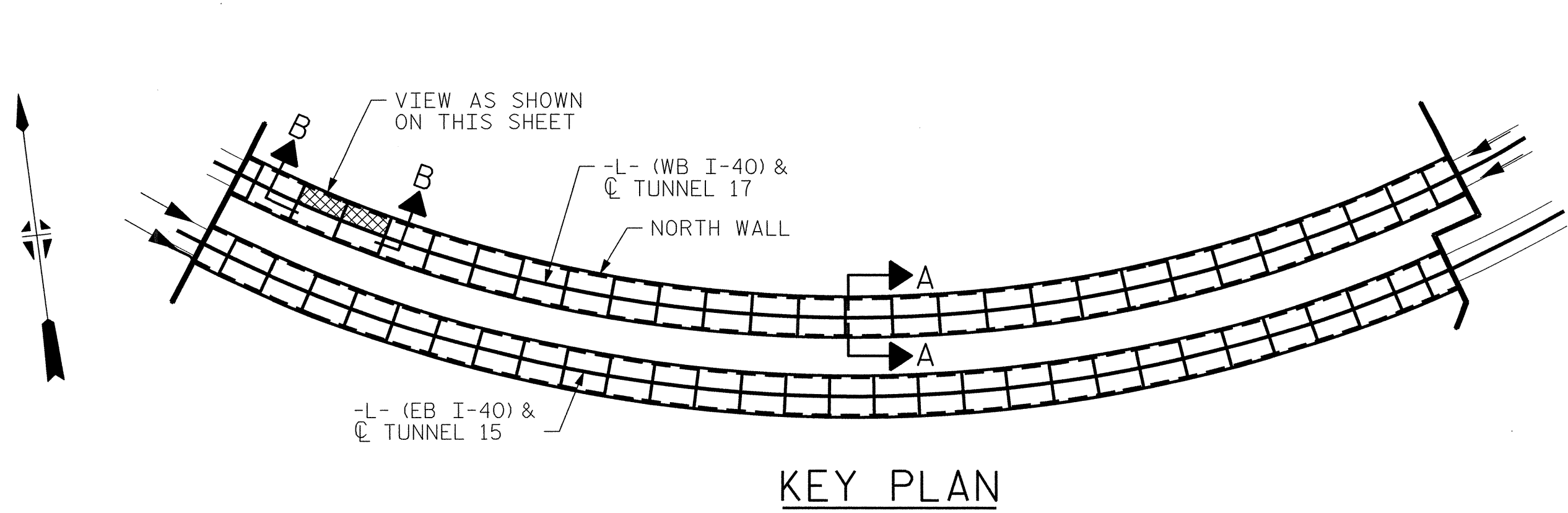
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CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NC001.pdf_mono_eng_100.plt
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USER: msells DATE: 7/22/2014
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BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 25N	CF	22.0
SHOTCRETE REPAIRS SEGMENT 26N	CF	26.6



VIEW B-B: REPAIR SEGMENTS 25N & 26N
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 25N & 26N



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N.C.B.E.L.S. License Number: F-0116

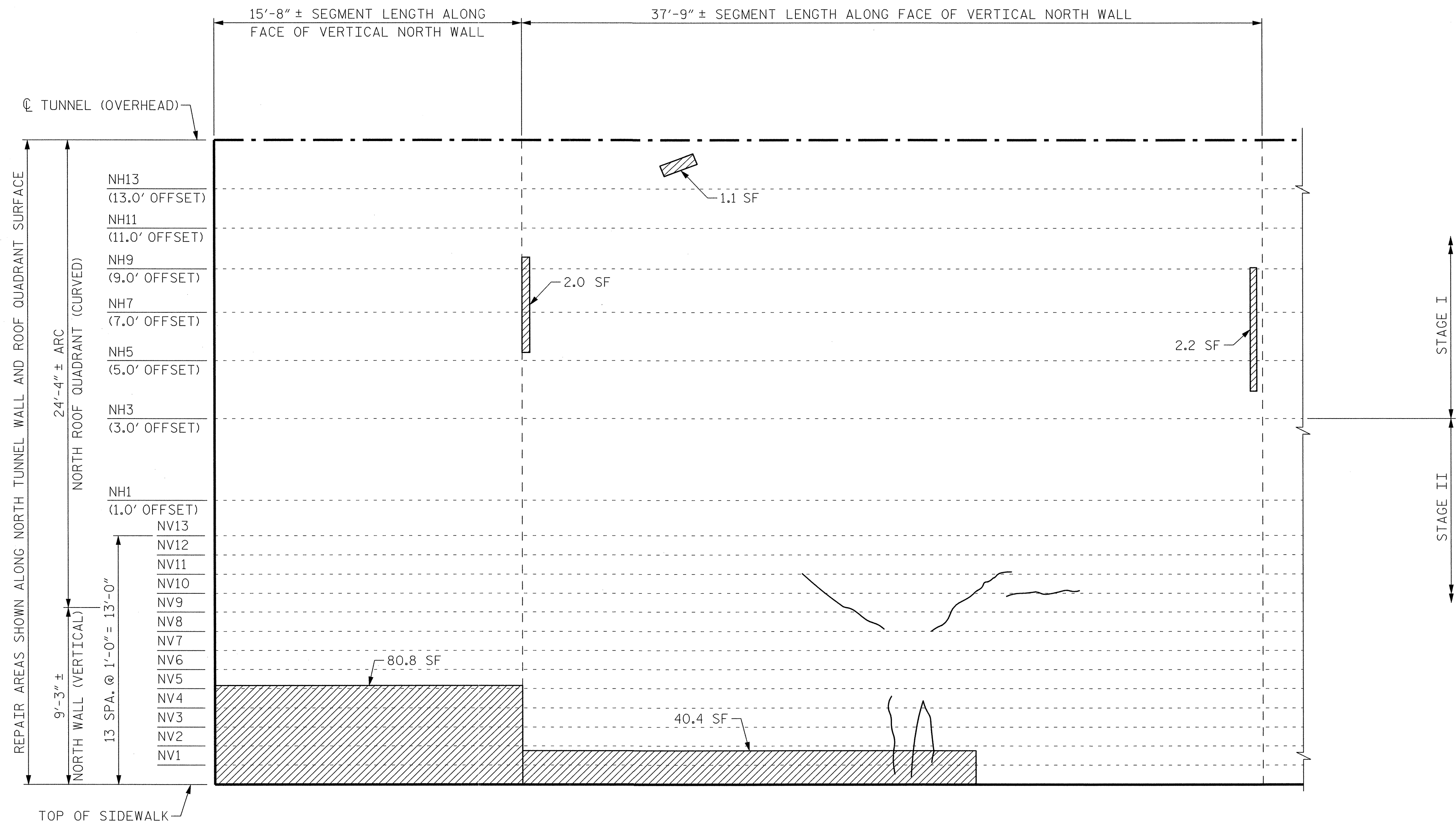
REVISIONS						SHEET NO. S-054
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DRAWN BY : B. PETERSON
CHECKED BY : M. MOYER

DATE : 07/2013
DATE : 07/2013

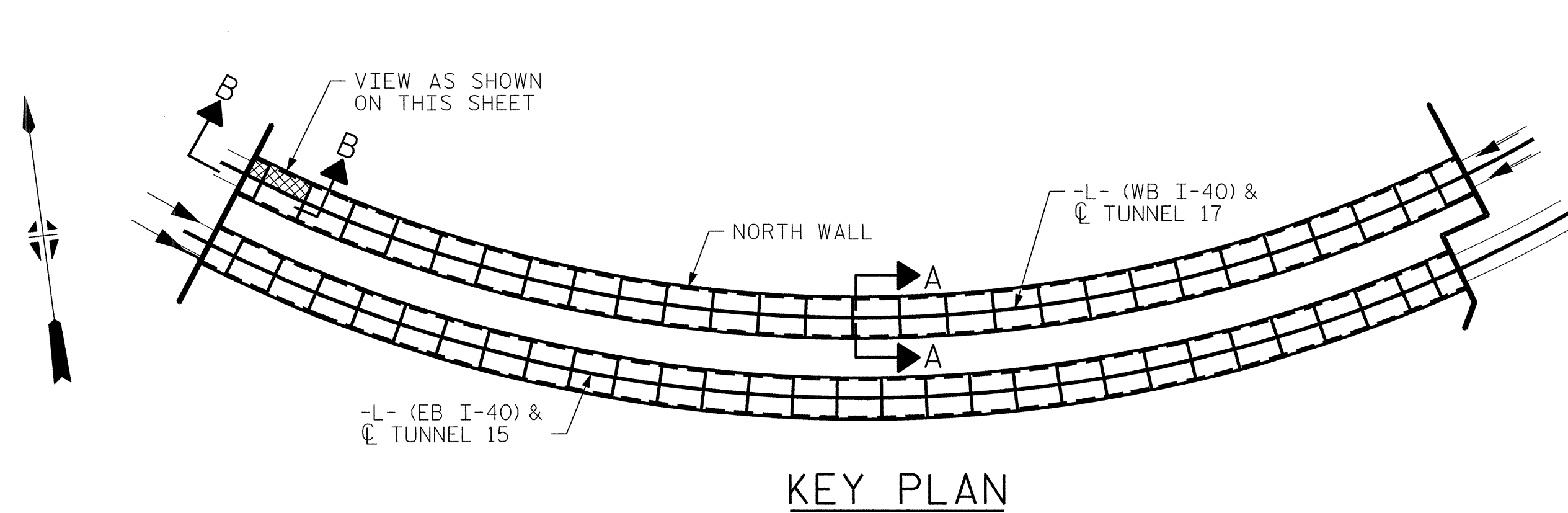
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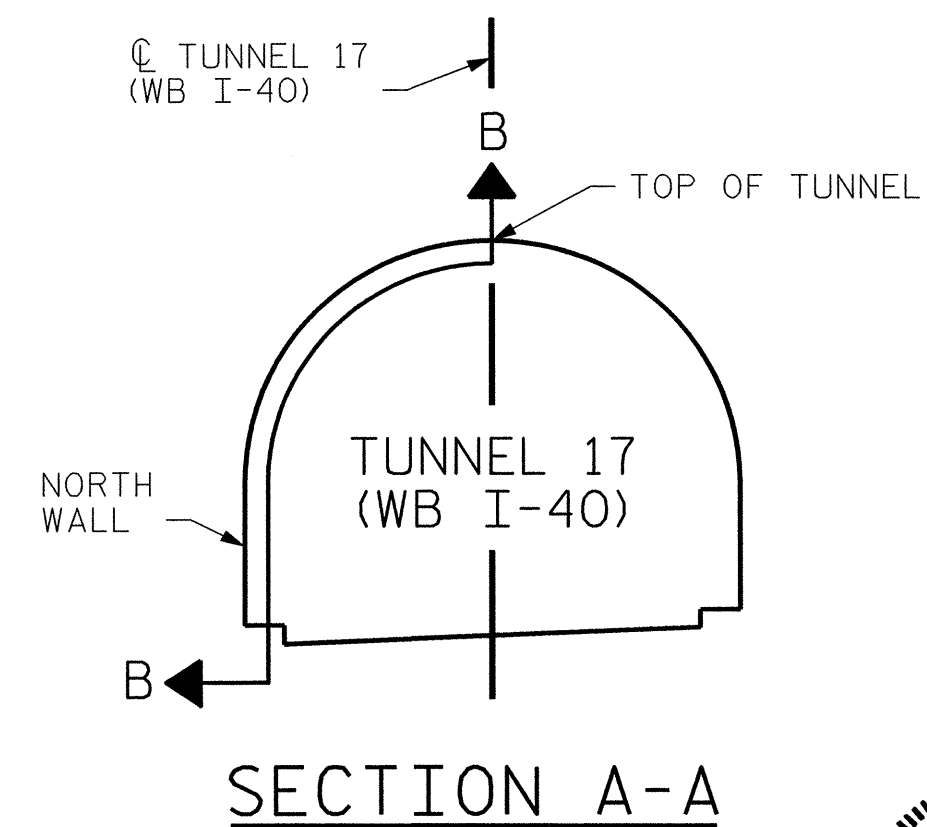
SEGMENT 28N

SEGMENT 27N

VIEW B-B: REPAIR SEGMENTS 27N & 28N
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 27N & 28N

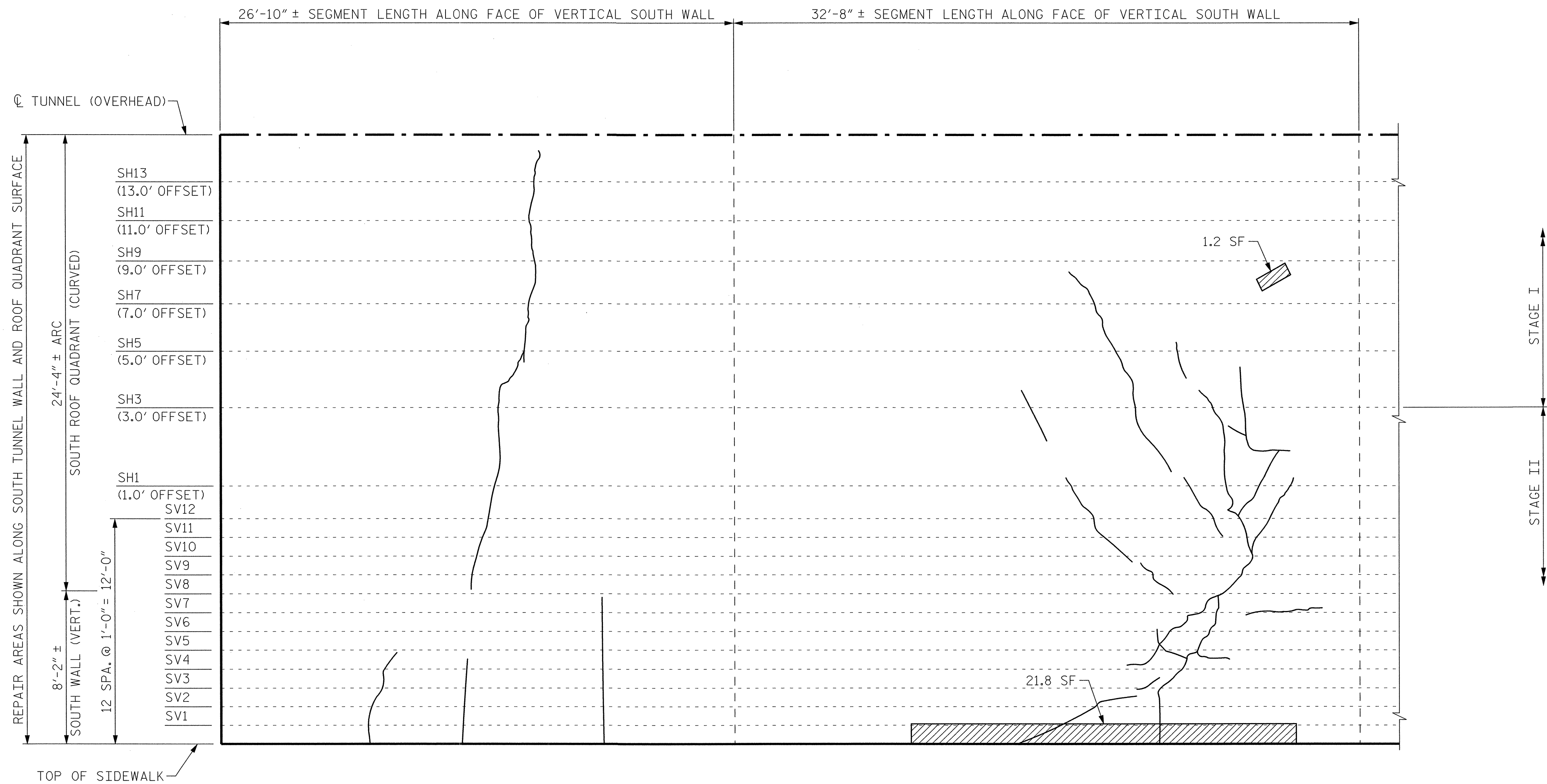


DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

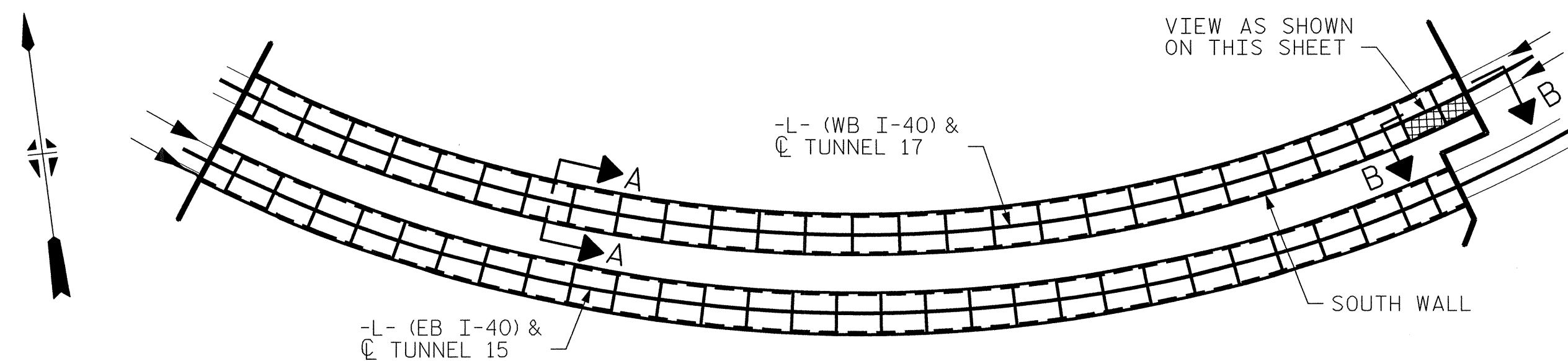
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2	--	--	4	--	--	

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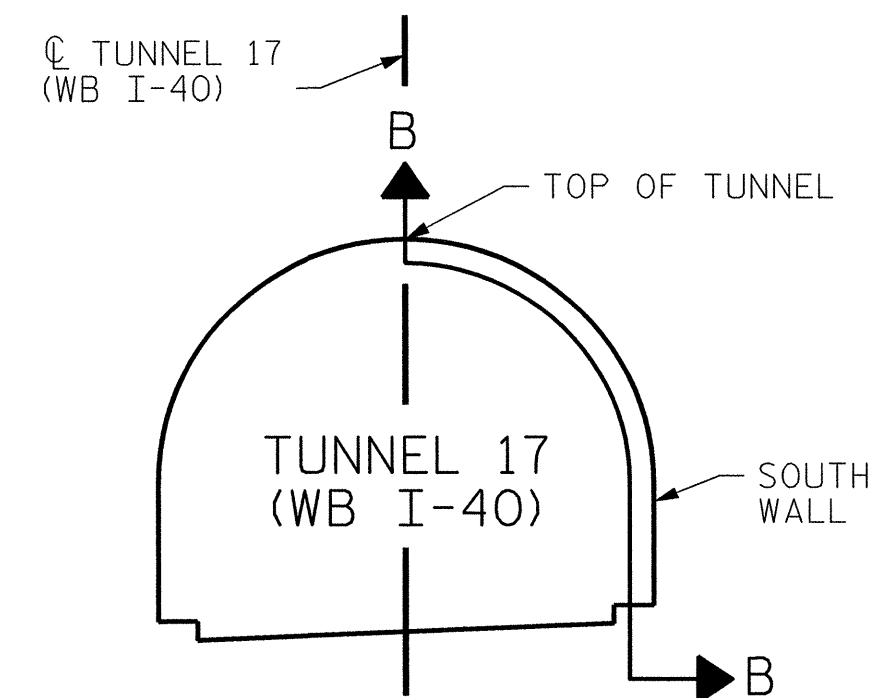


SEGMENT 1S SEGMENT 2S

VIEW B-B: REPAIR SEGMENTS 1S & 2S
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 1S & 2S



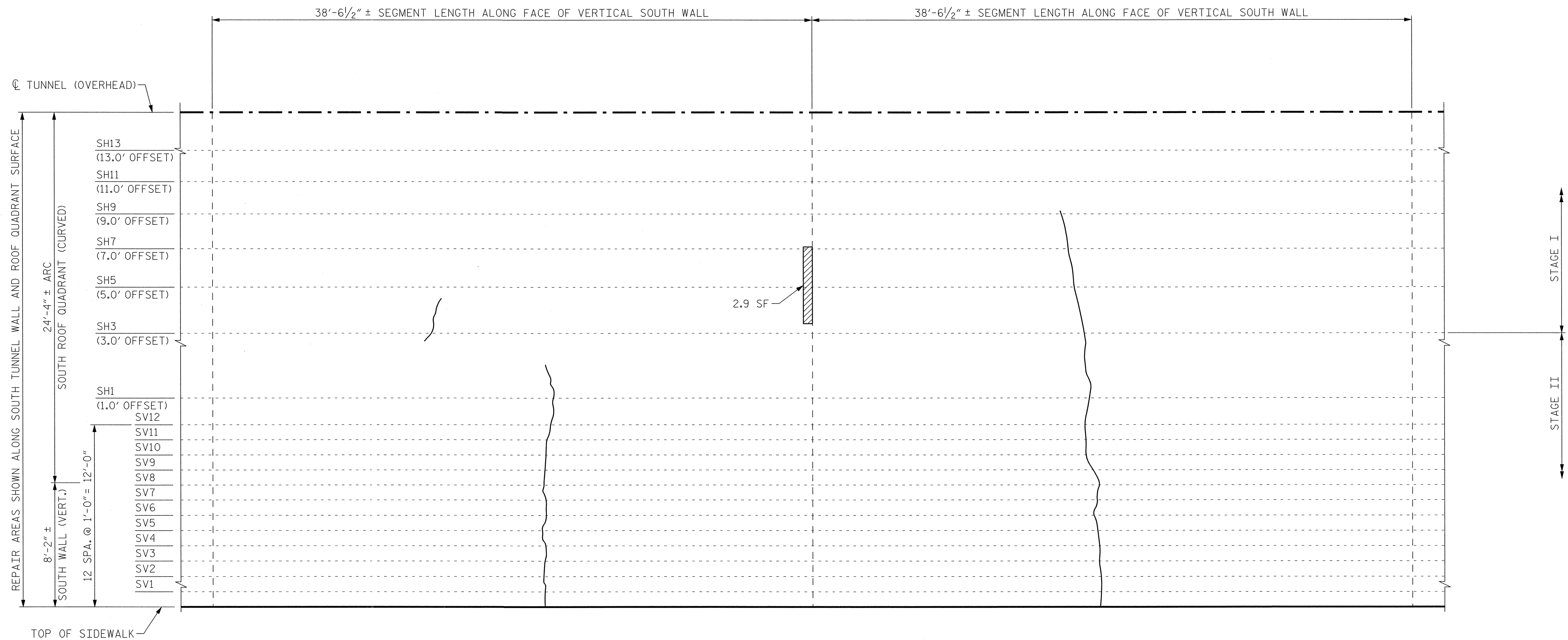
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-056
NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

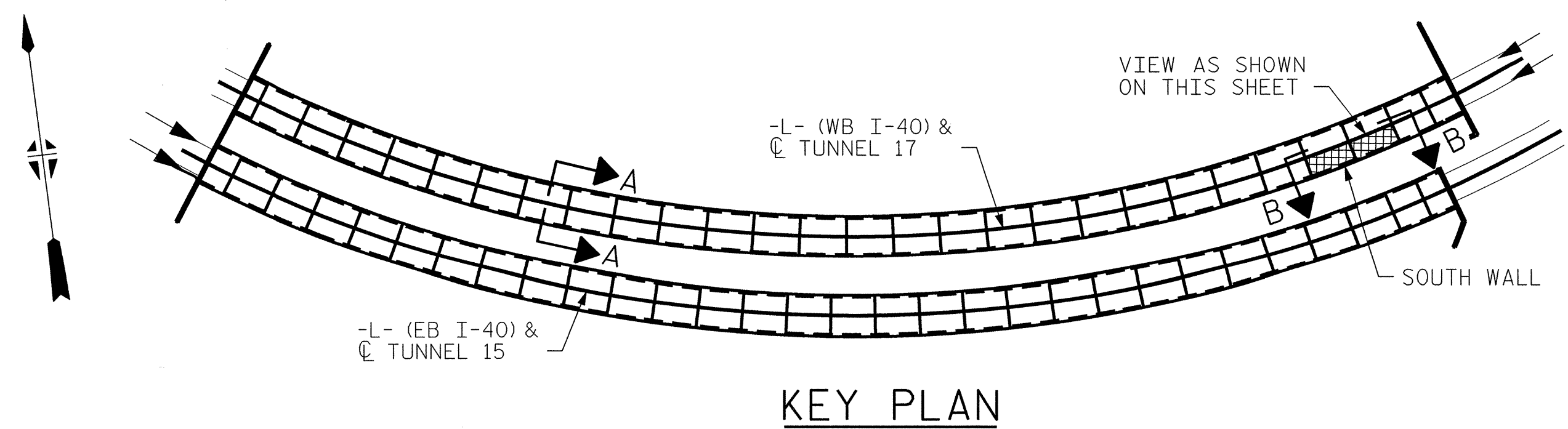
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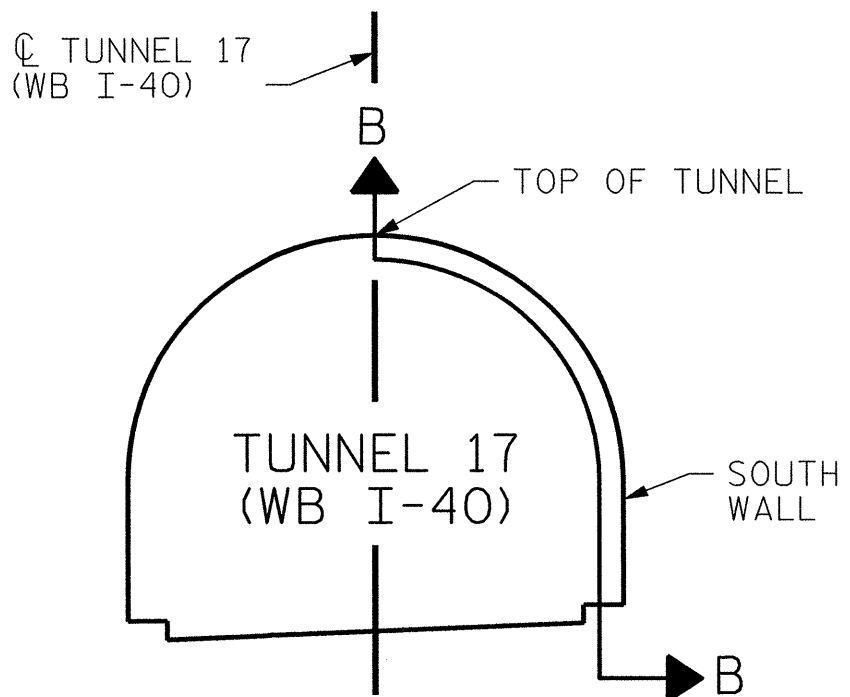
SEGMENT 3S

SEGMENT 4S

VIEW B-B: REPAIR SEGMENTS 3S & 4S
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 3S & 4S



7-23-14

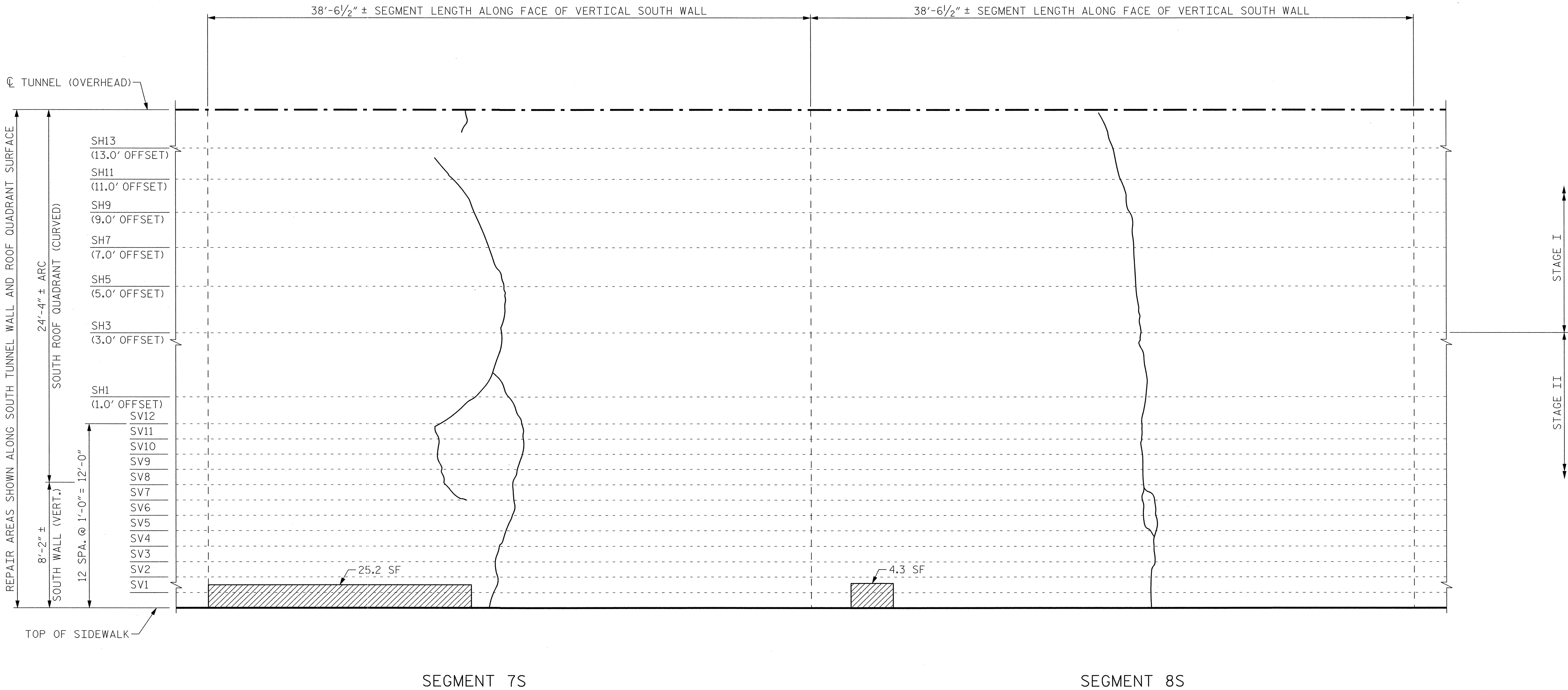
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. 9-057 TOTAL SHEETS 110
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2	--	--	4	--	--	

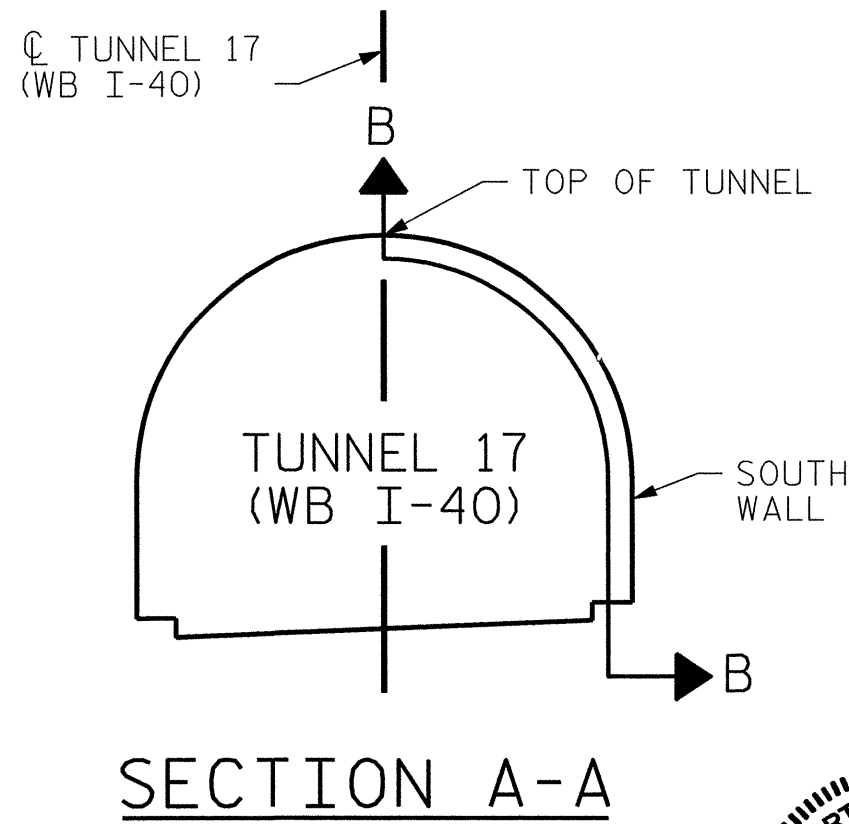
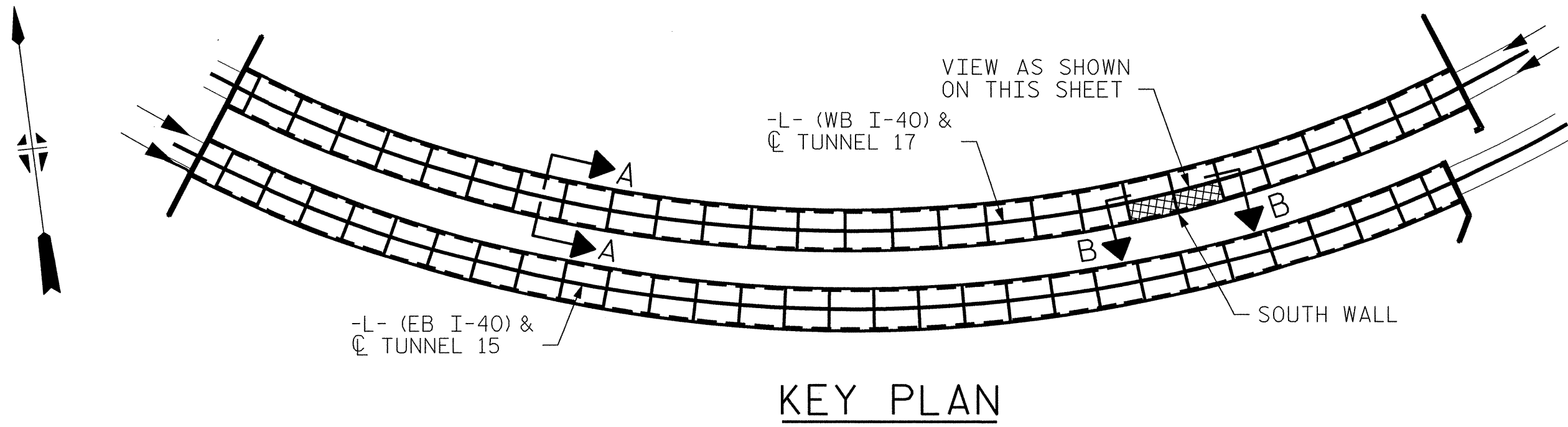
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 7S	CF	8.4	
SHOTCRETE REPAIRS SEGMENT 8S	CF	1.4	



VIEW B-B: REPAIR SEGMENTS 7S & 8S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 17 REPAIR
AREAS
SEGMENTS 7S & 8S



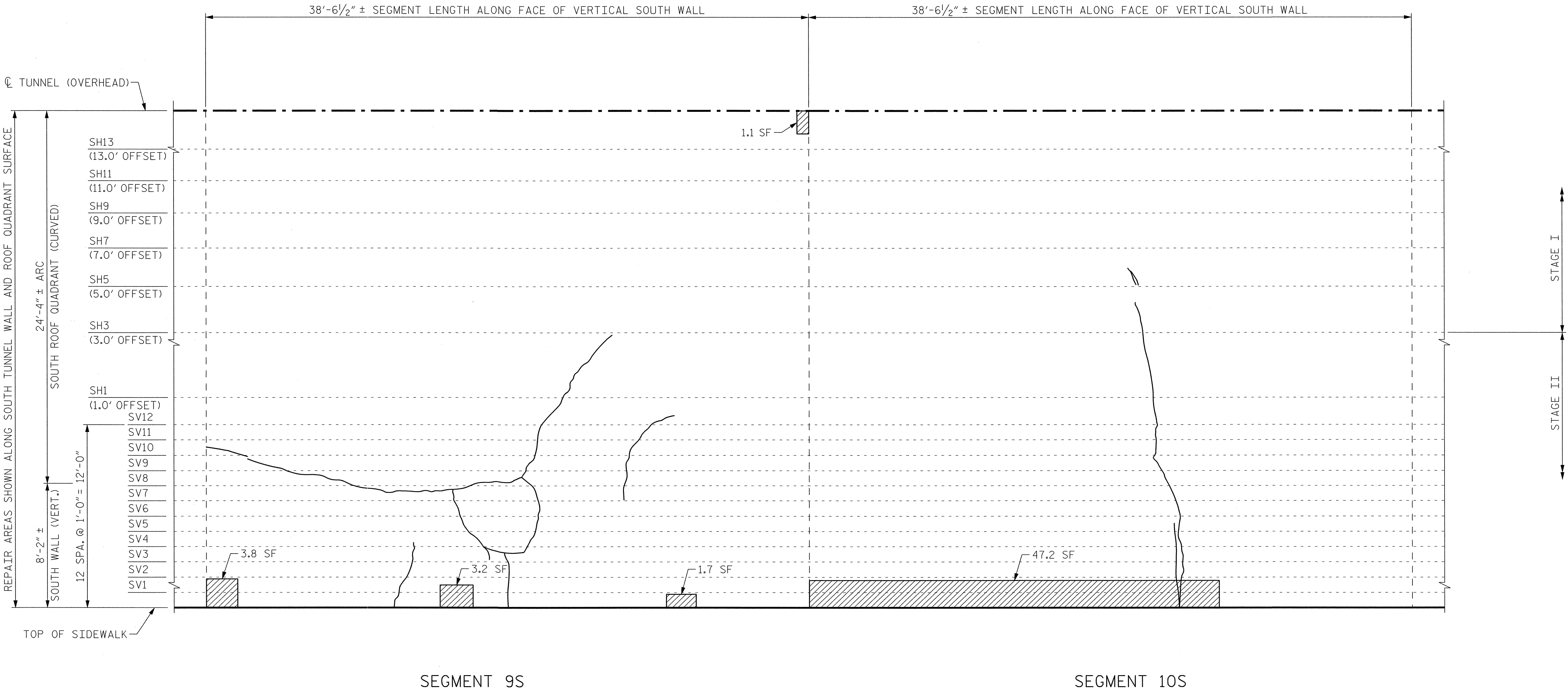
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CHECKED BY : M. MOYER DATE : 07/2013

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N.C.B.E.L.S. License Number: F-0116

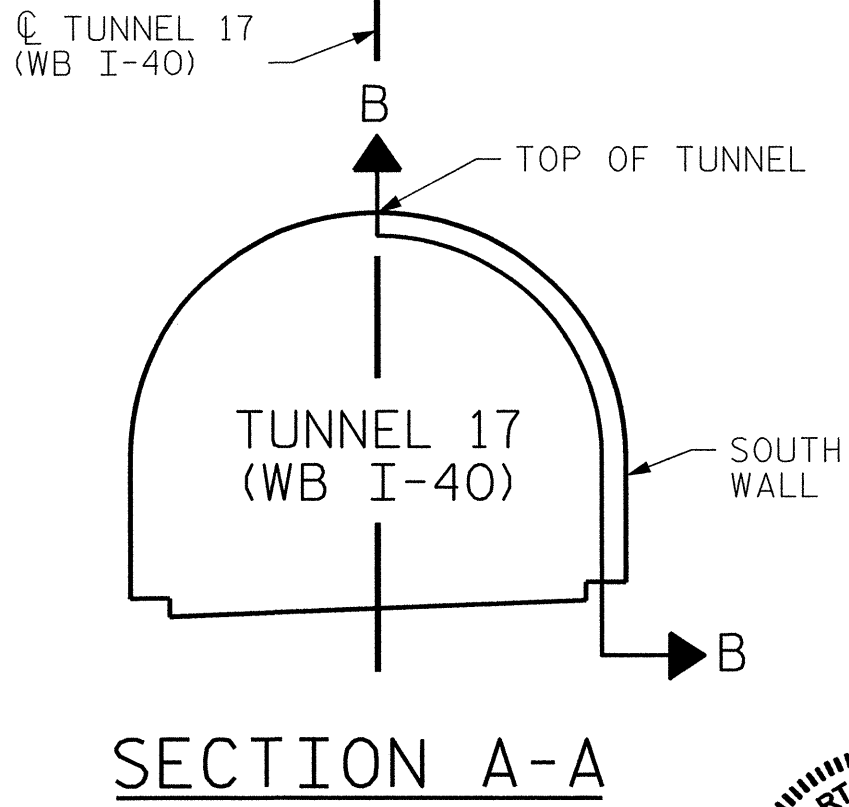
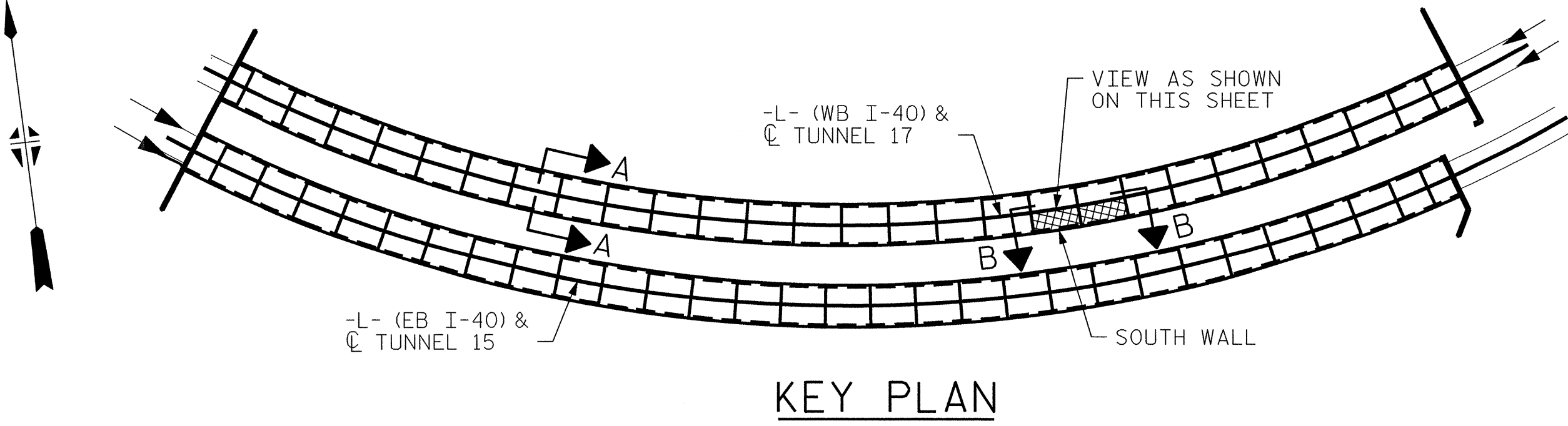
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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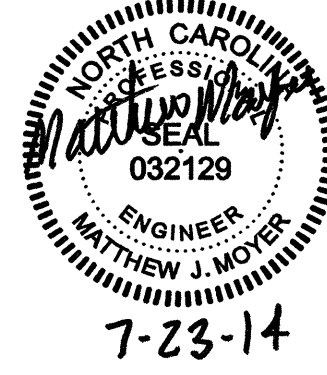


VIEW B-B: REPAIR SEGMENTS 9S & 10S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 17 REPAIR
AREAS
SEGMENTS 9S & 10S



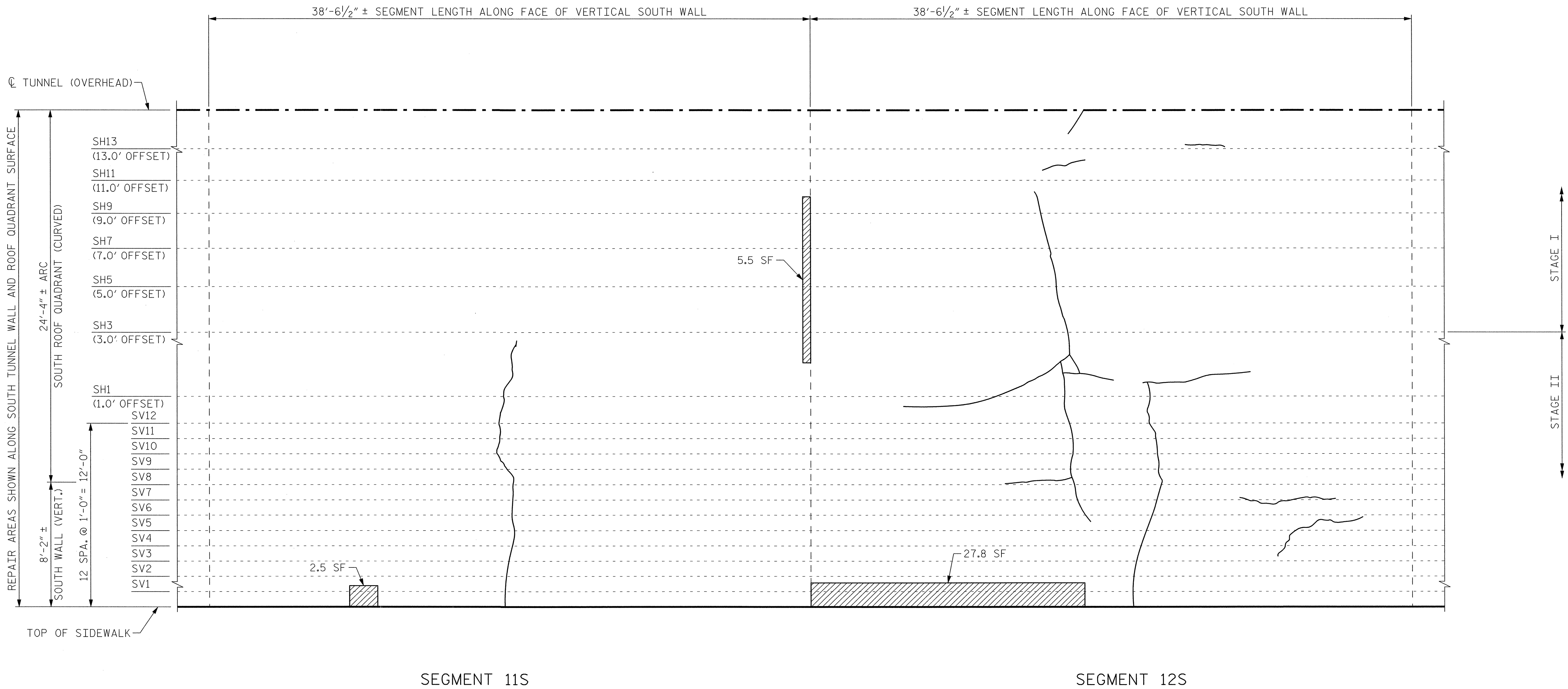
DRAWN BY : B. PETERSON	DATE : 07/2013
CHECKED BY : M. MOYER	DATE : 07/2013

HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

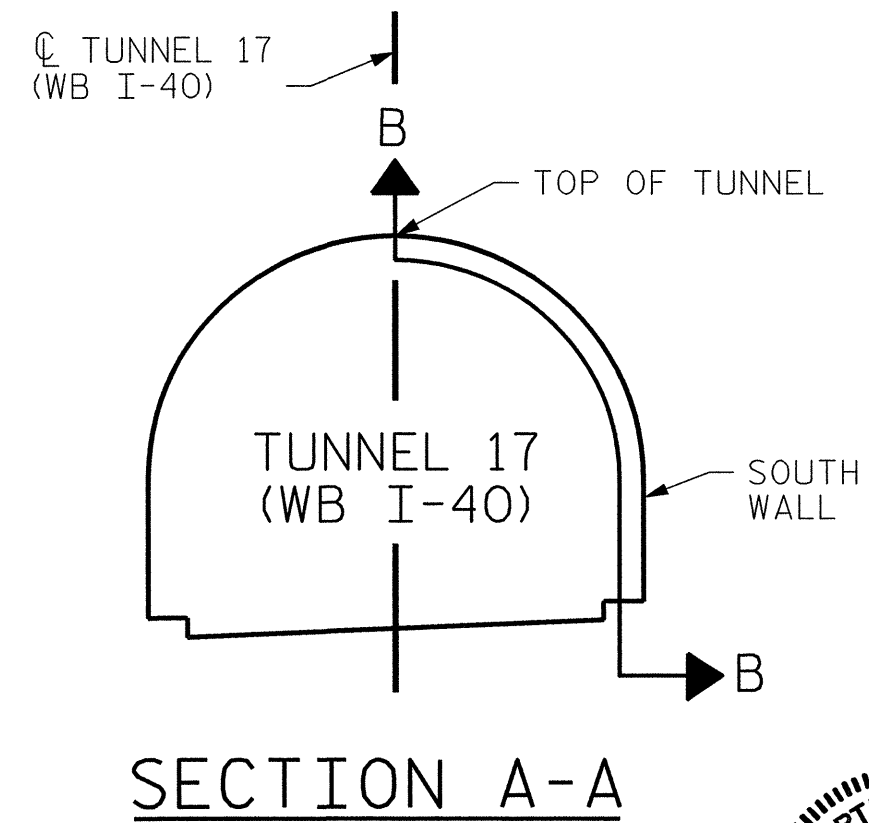
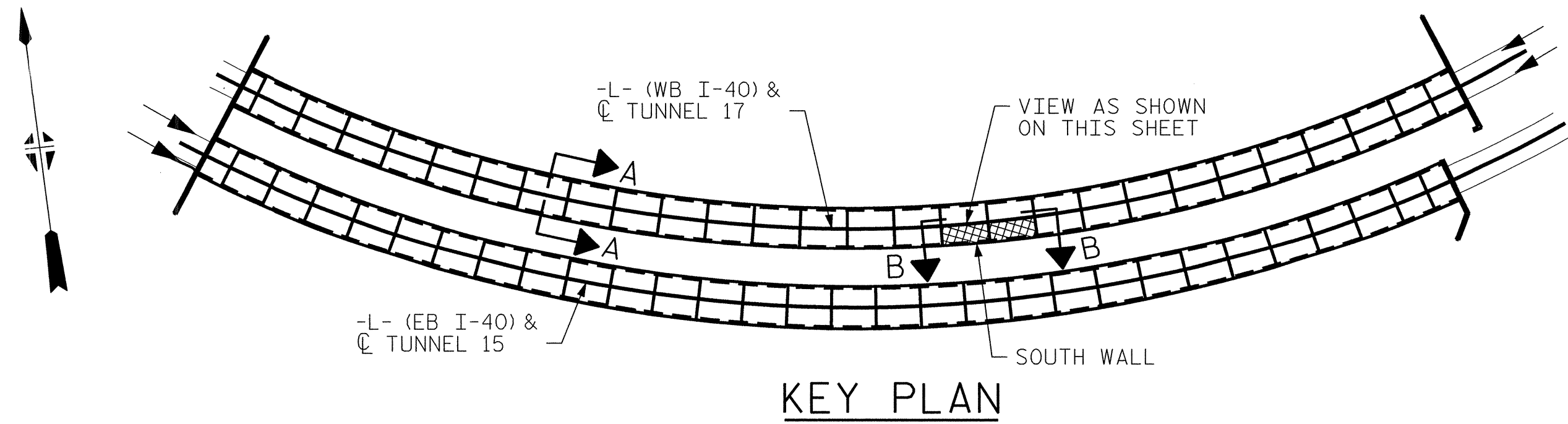
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BILL OF MATERIAL			
SHOTCRETE REPAIRS	SEGMENT 11S	CF	2.7
SHOTCRETE REPAIRS	SEGMENT 12S	CF	9.3



VIEW B-B: REPAIR SEGMENTS 11S & 12S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 17 REPAIR AREAS SEGMENTS 11S & 12S					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
TOTAL SHEETS					110

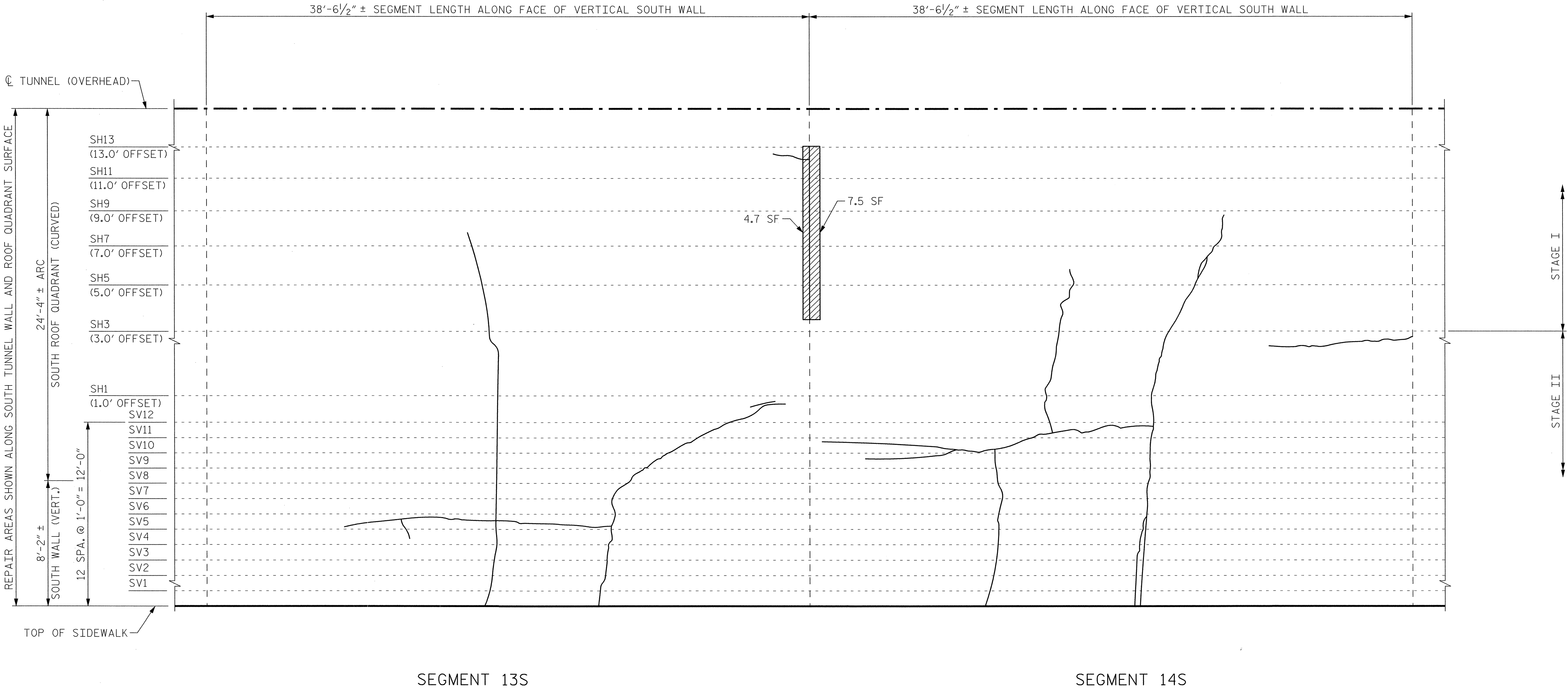


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N.C.B.E.L.S. License Number: F-0116

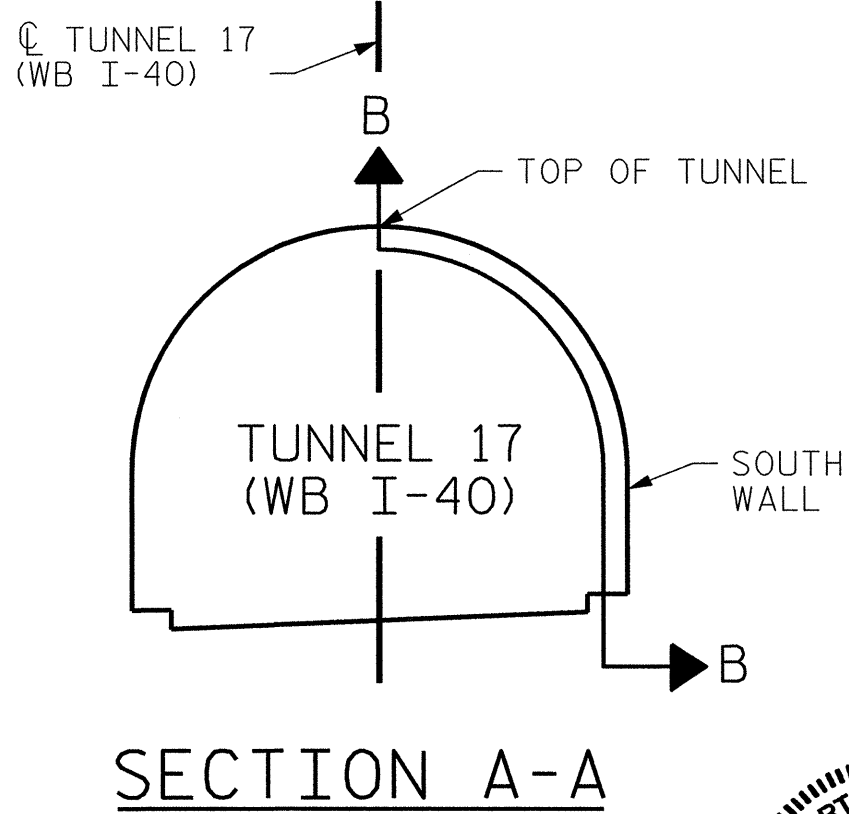
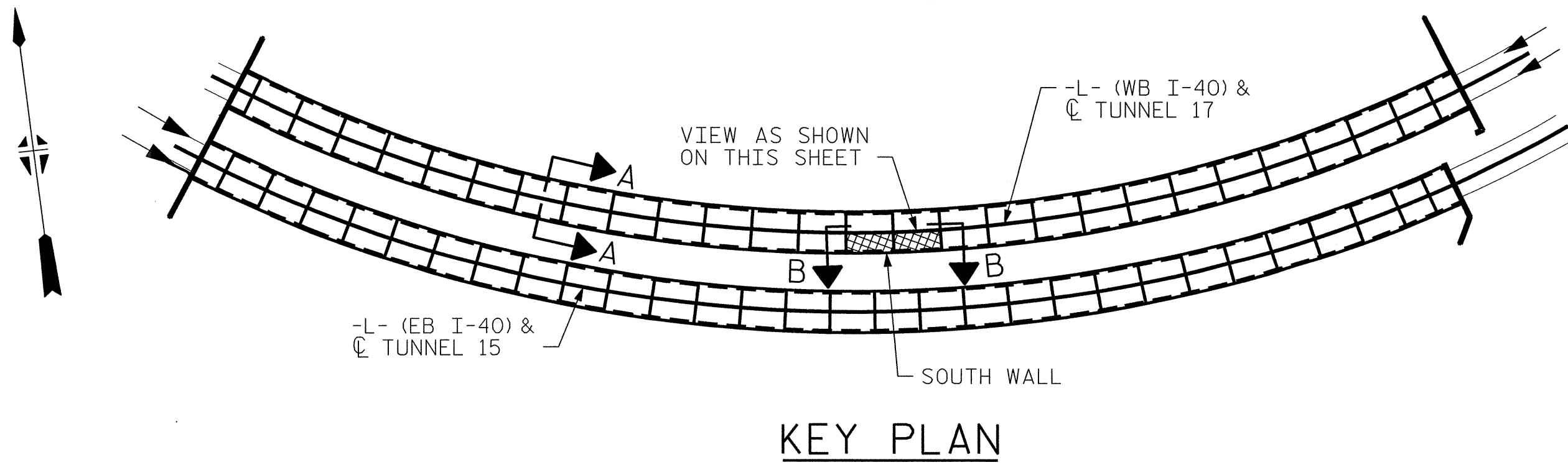
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BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 13S	CF	1.6	
SHOTCRETE REPAIRS SEGMENT 14S	CF	2.5	



VIEW B-B: REPAIR SEGMENTS 13S & 14S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR AREAS
SEGMENTS 13S & 14S

REVISIONS						SHEET NO. S-062 TOTAL SHEETS 110
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HDR

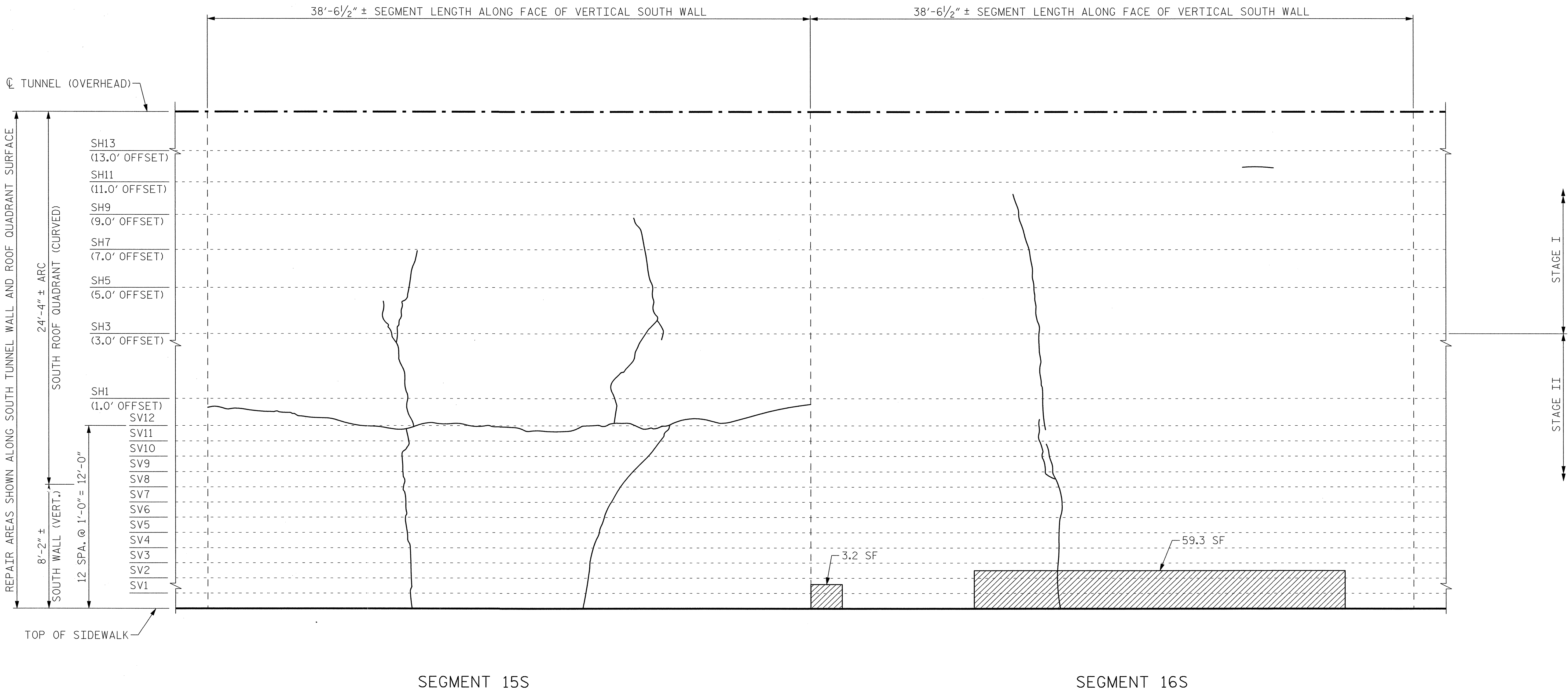
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NORTH CAROLINA
Professional Engineer
SEAL
032129
ENGINEER
MATTHEW J. MOYER
7-23-14

DRAWN BY :	B. PETERSON	DATE :	07/2013
CHECKED BY :	M. MOYER	DATE :	07/2013

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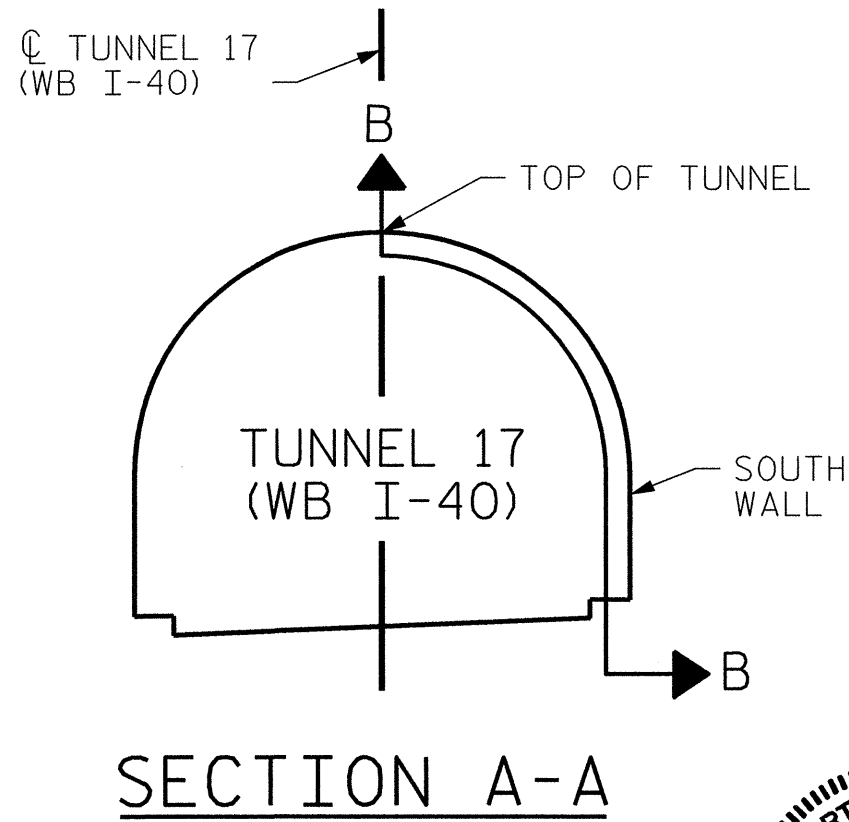
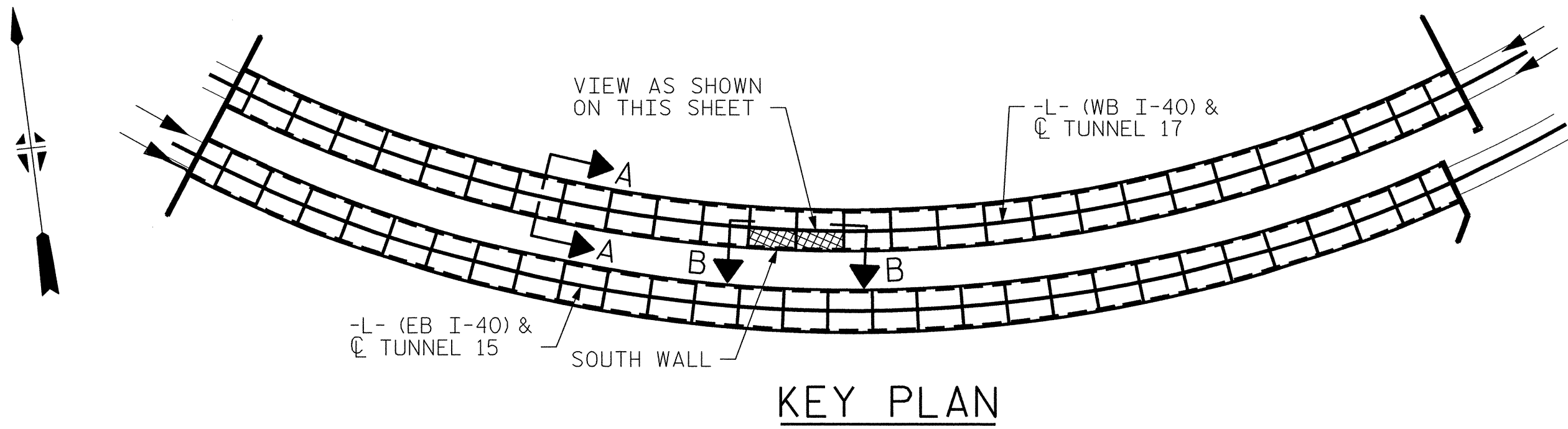
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SHOTCRETE REPAIRS	SEGMENT 16S	CF	20.8



SEGMENT 15S

SEGMENT 16S

VIEW B-B: REPAIR SEGMENTS 15S & 16S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 17 REPAIR
AREAS
SEGMENTS 15S & 16S



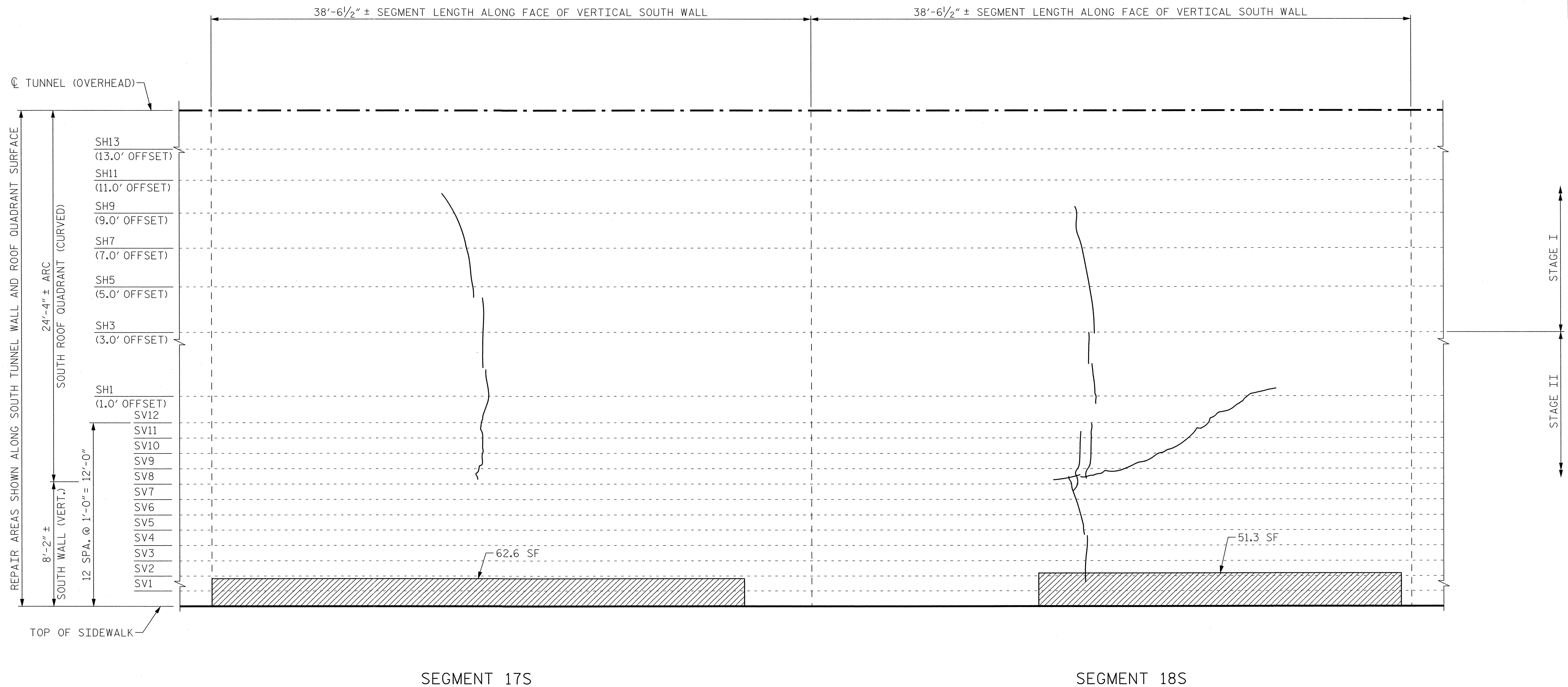
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HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

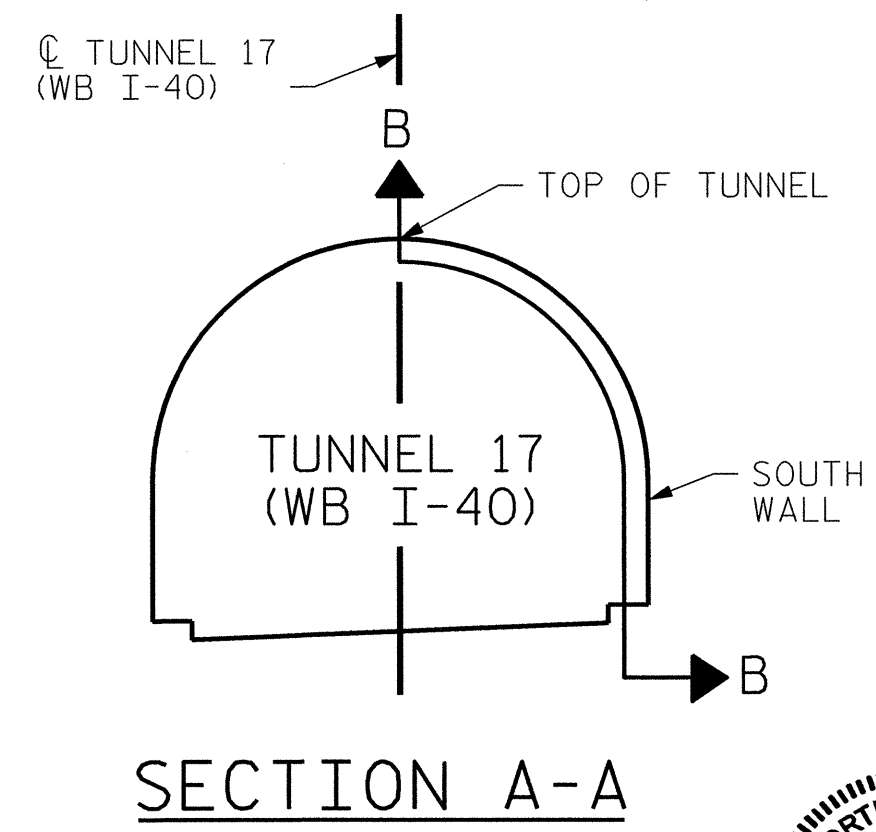
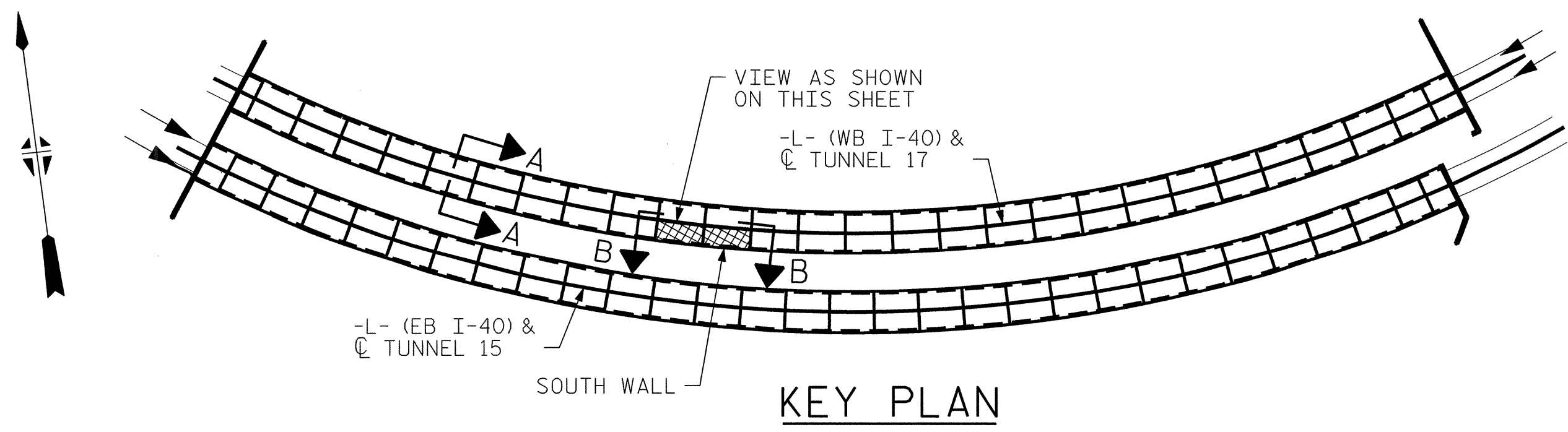
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USER: msells DATE: 7/22/2014
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BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 17S	CF	20.9
SHOTCRETE REPAIRS SEGMENT 18S	CF	17.1



VIEW B-B: REPAIR SEGMENTS 17S & 18S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

REVISIONS						SHEET NO. 5-064 TOTAL SHEETS 110
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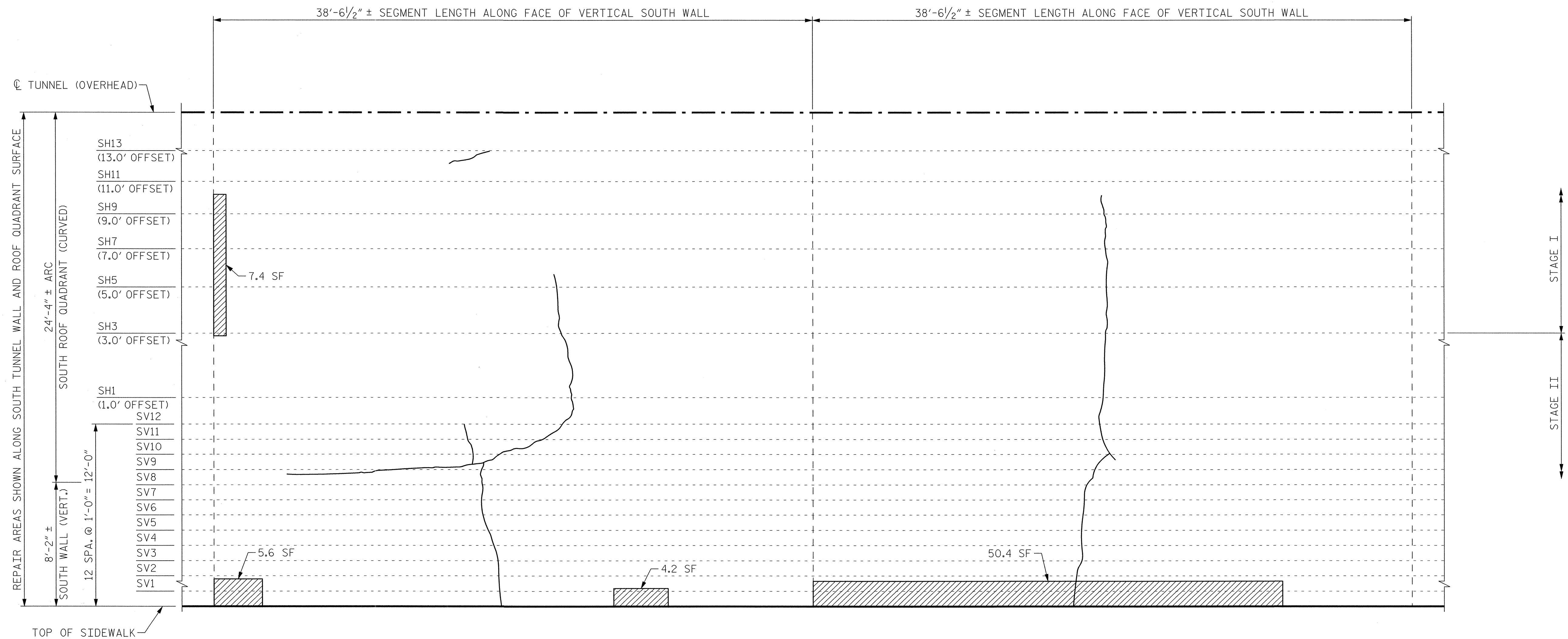


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N.C.B.E.L.S. License Number: F-0116

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DATE: 7/22/2014
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DRAWN BY: B. PETERSON
CHECKED BY: M. MOYER
DATE: 07/2013
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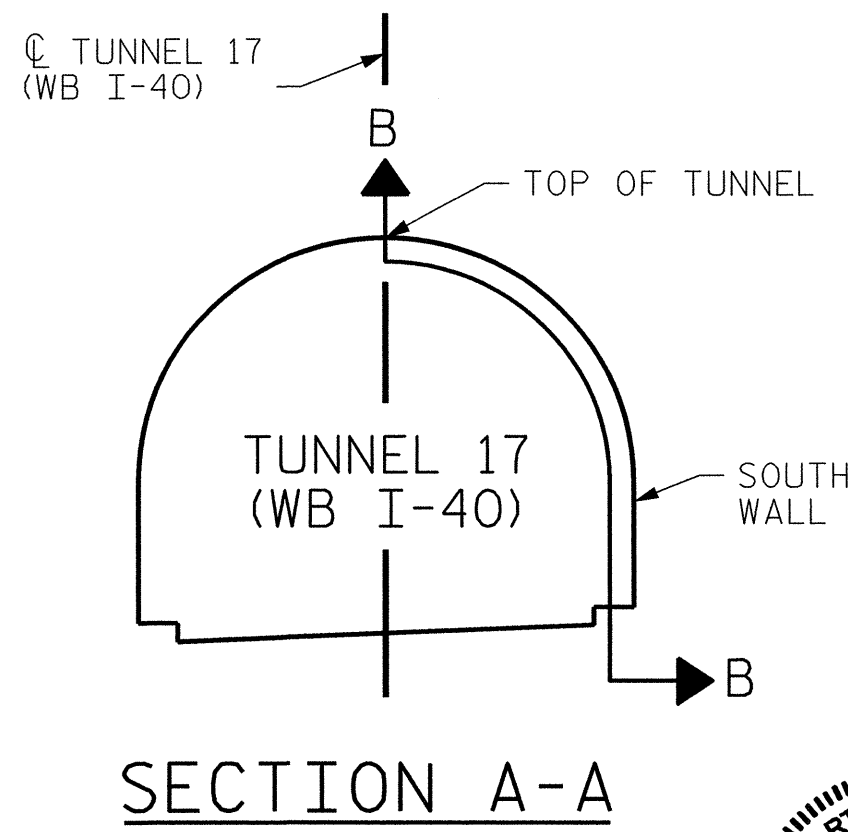
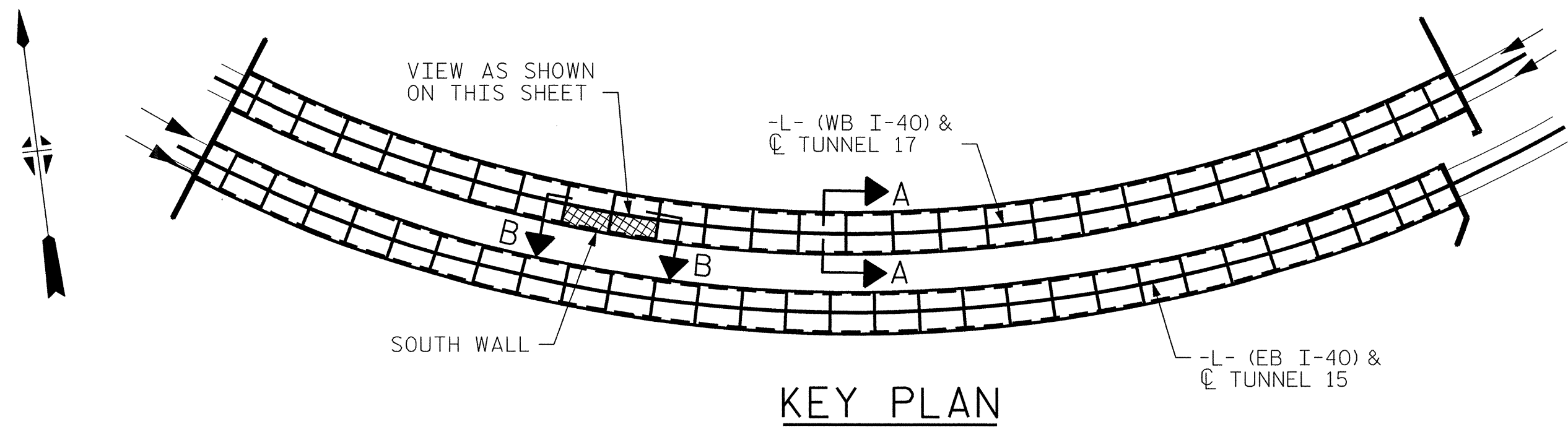
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SHOTCRETE REPAIRS SEGMENT 19S	CF	5.7	
SHOTCRETE REPAIRS SEGMENT 20S	CF	16.8	



SEGMENT 19S

SEGMENT 20S

VIEW B-B: REPAIR SEGMENTS 19S & 20S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 19S & 20S



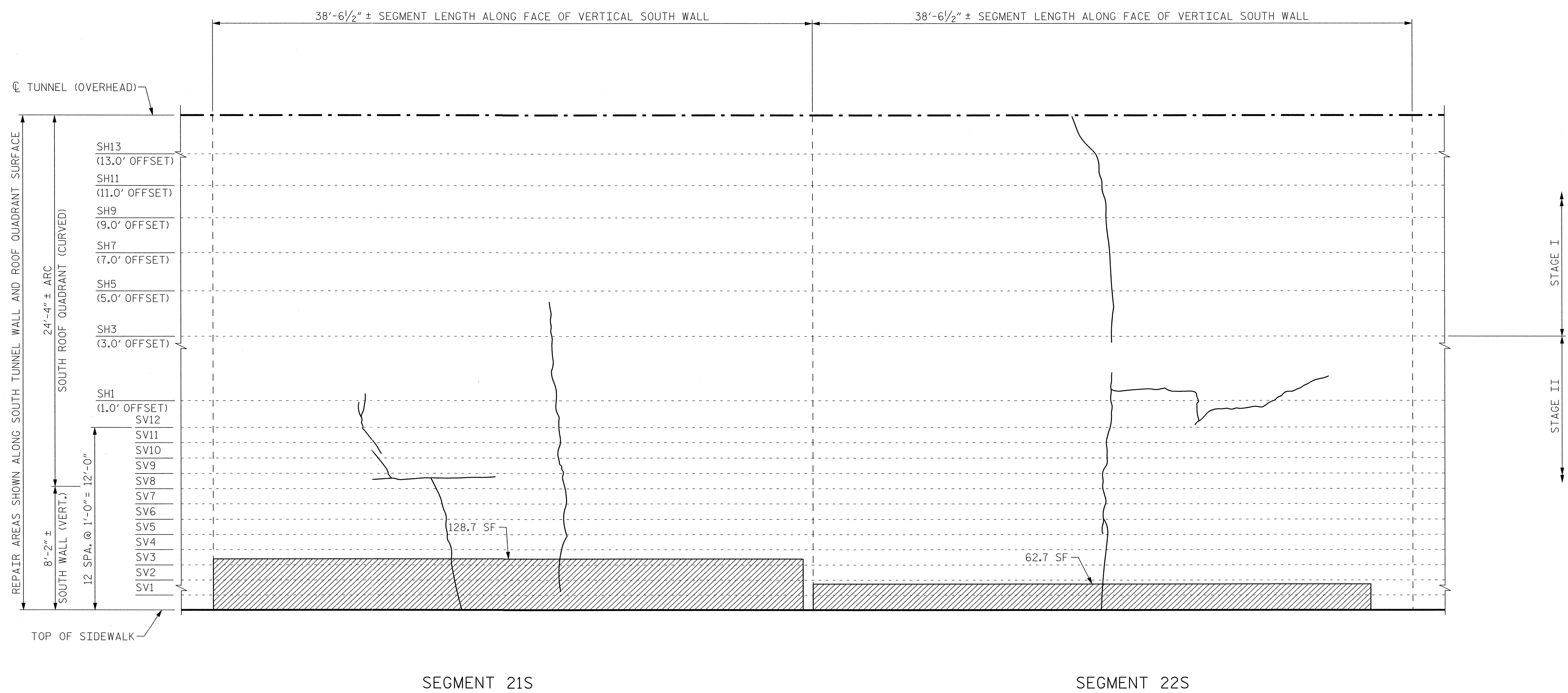
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. 5-065 TOTAL SHEETS 110
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

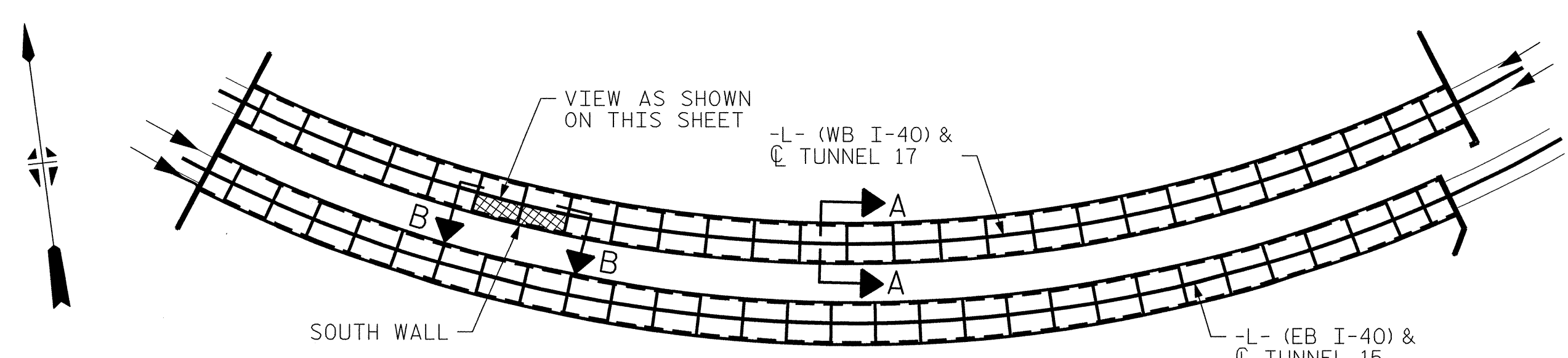
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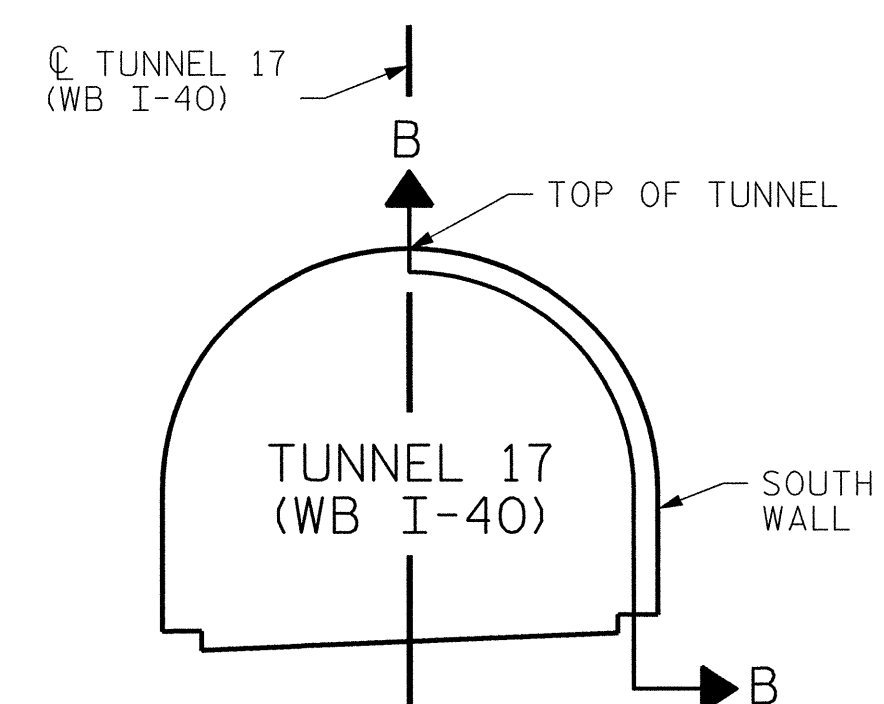
SEGMENT 21S

SEGMENT 22S

VIEW B-B: REPAIR SEGMENTS 21S & 22S
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

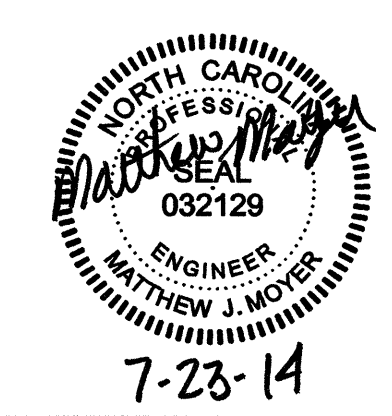
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 21S & 22S

REVISIONS						SHEET NO. S-066	
NO.	BY:	DATE:	NO.	BY:	DATE:		
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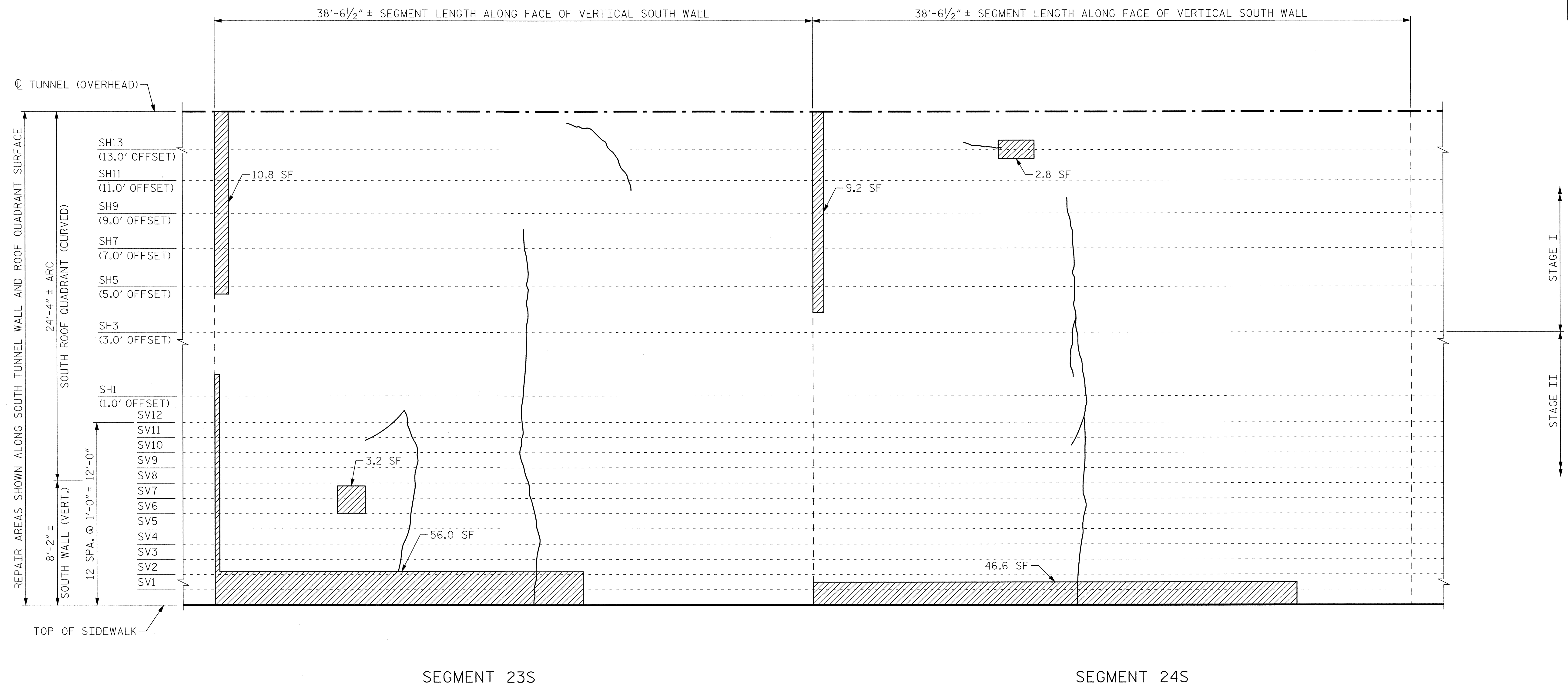


HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

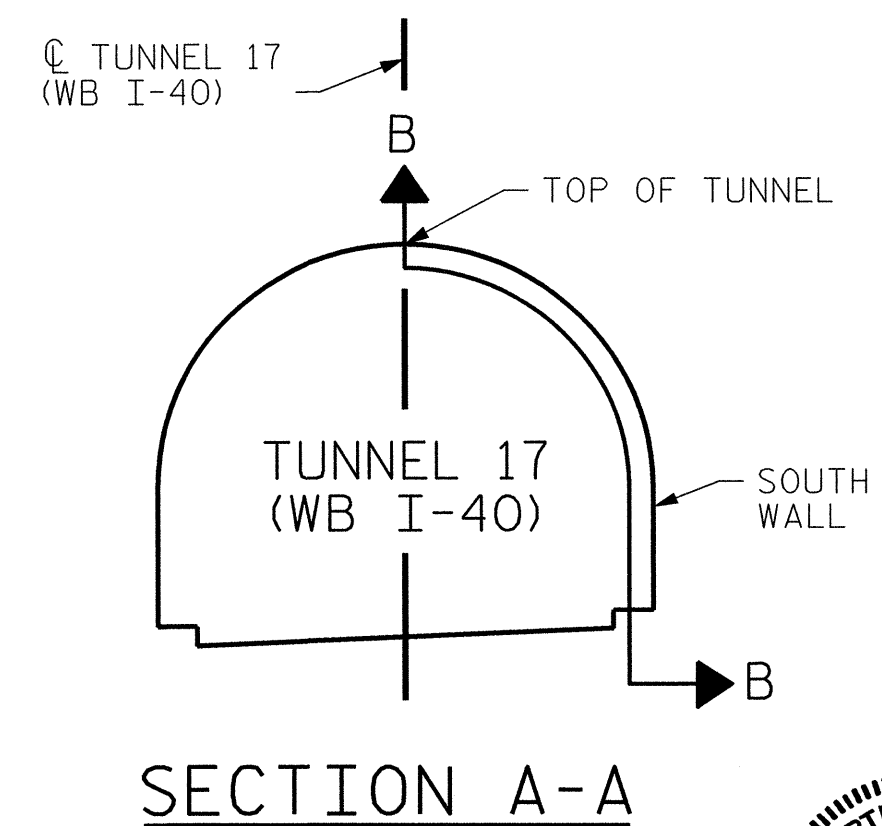
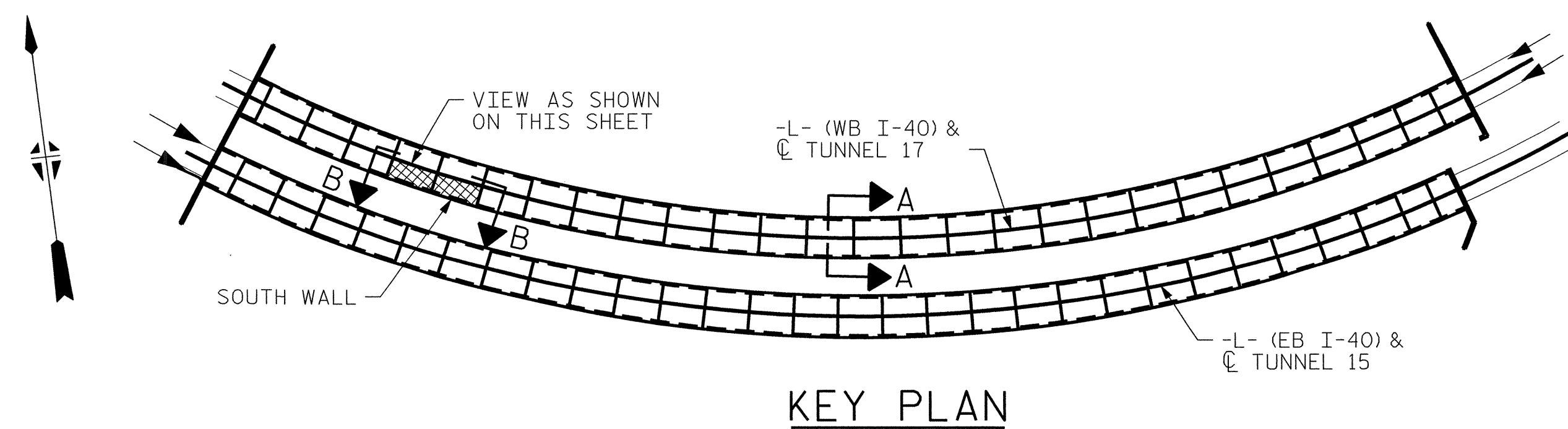
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 23S	CF	23.3	
SHOTCRETE REPAIRS SEGMENT 24S	CF	19.5	



VIEW B-B: REPAIR SEGMENTS 23S & 24S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 23S & 24S

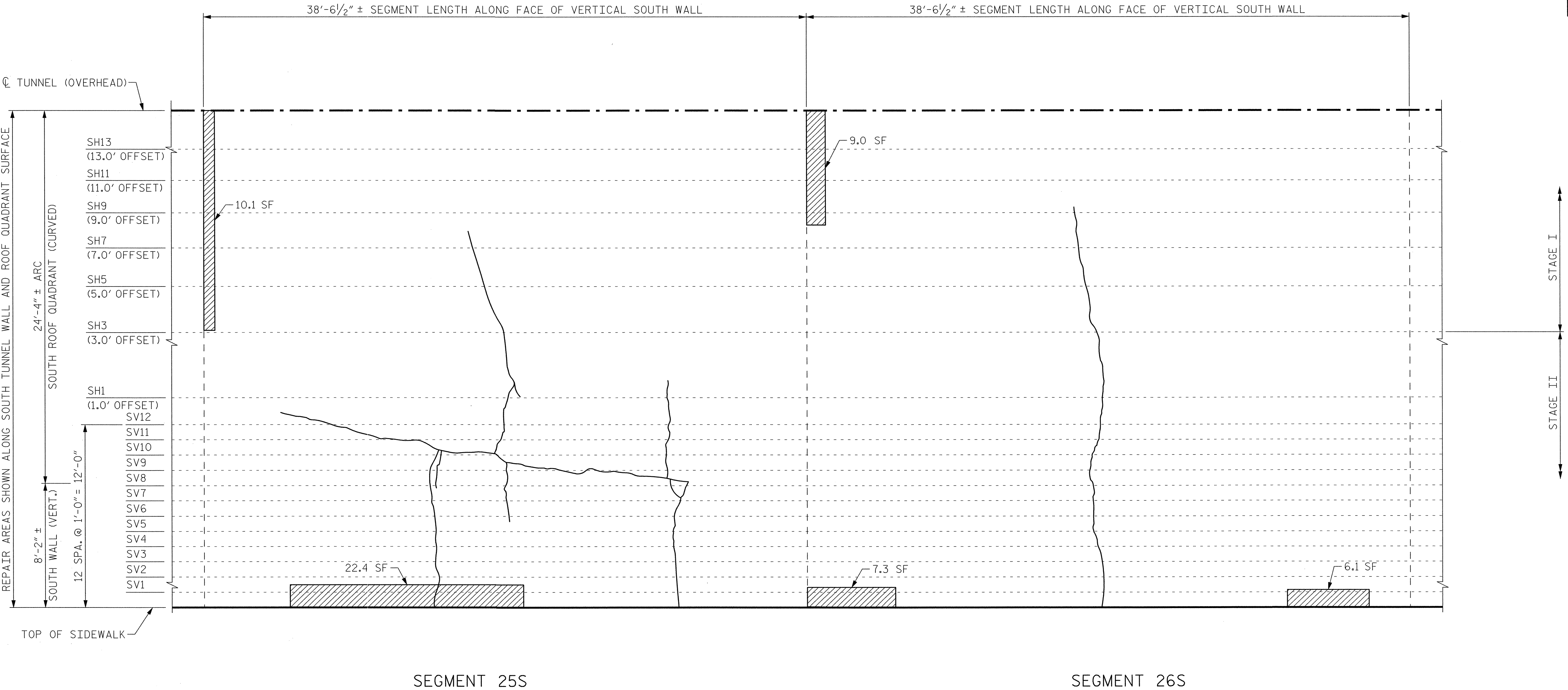


HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

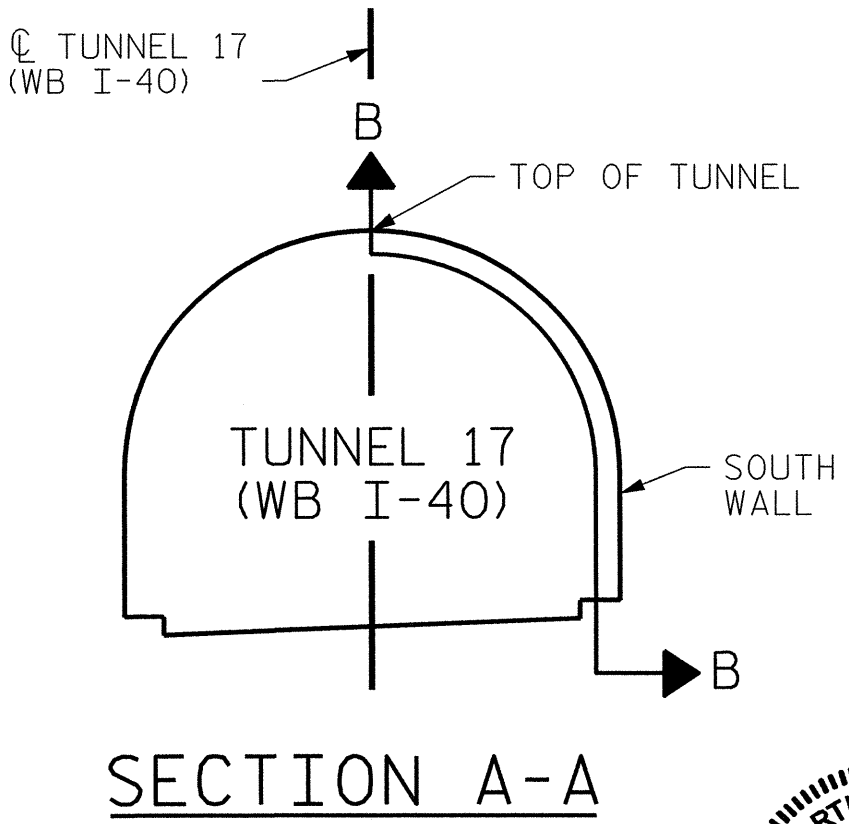
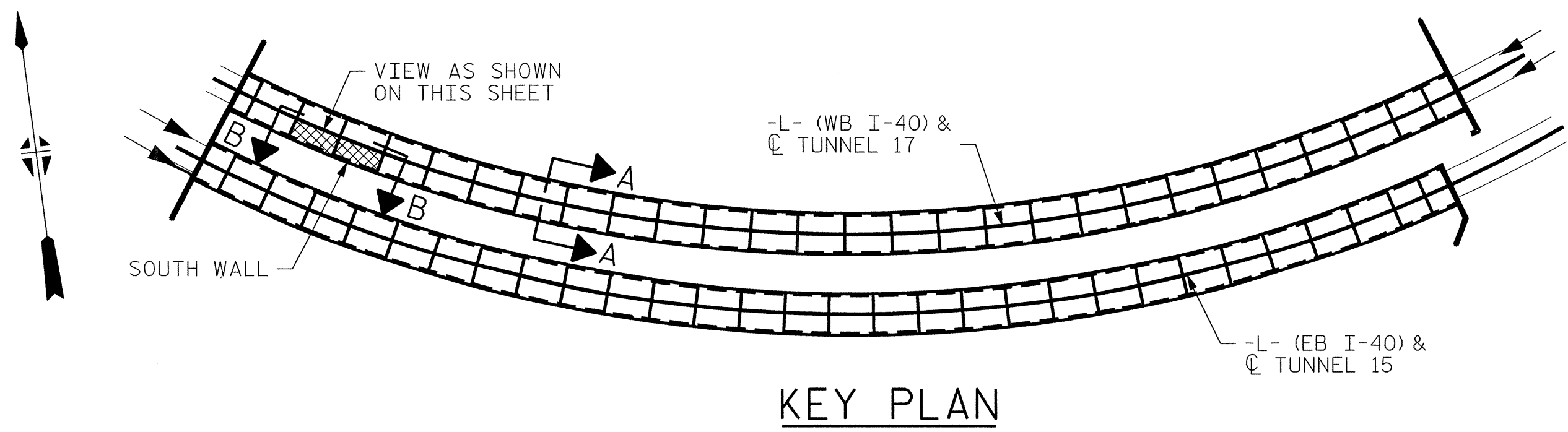
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CHECKED BY : M. MOYER DATE : 07/2013

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2	--	--	4	--	--	

BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 25S	CF	10.8
SHOTCRETE REPAIRS SEGMENT 26S	CF	7.5



VIEW B-B: REPAIR SEGMENTS 25S & 26S
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TUNNEL 17 REPAIR
AREAS

SEGMENTS 25S & 26S

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--

SHEET NO. S-068

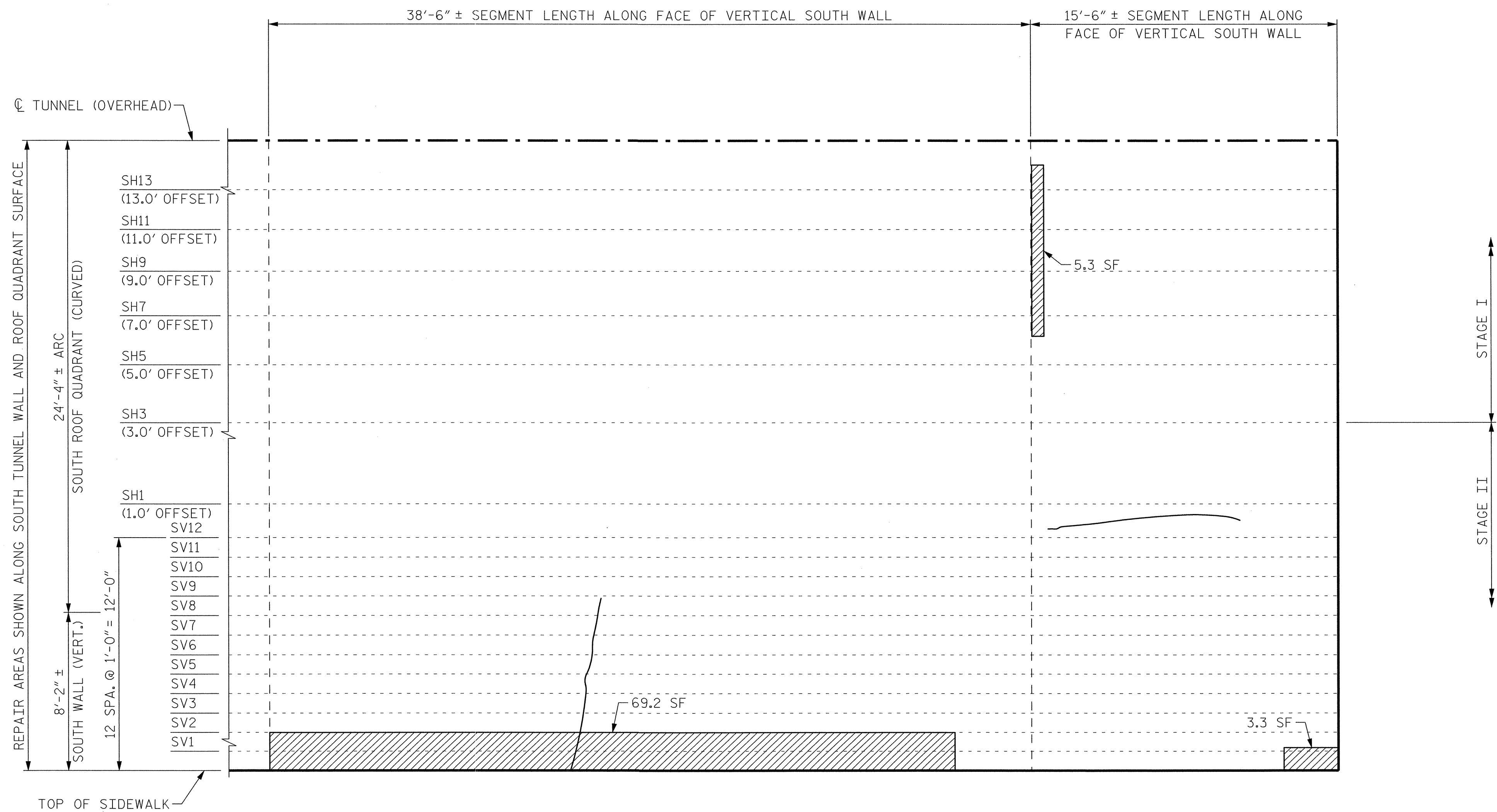
TOTAL SHEETS 110



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3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

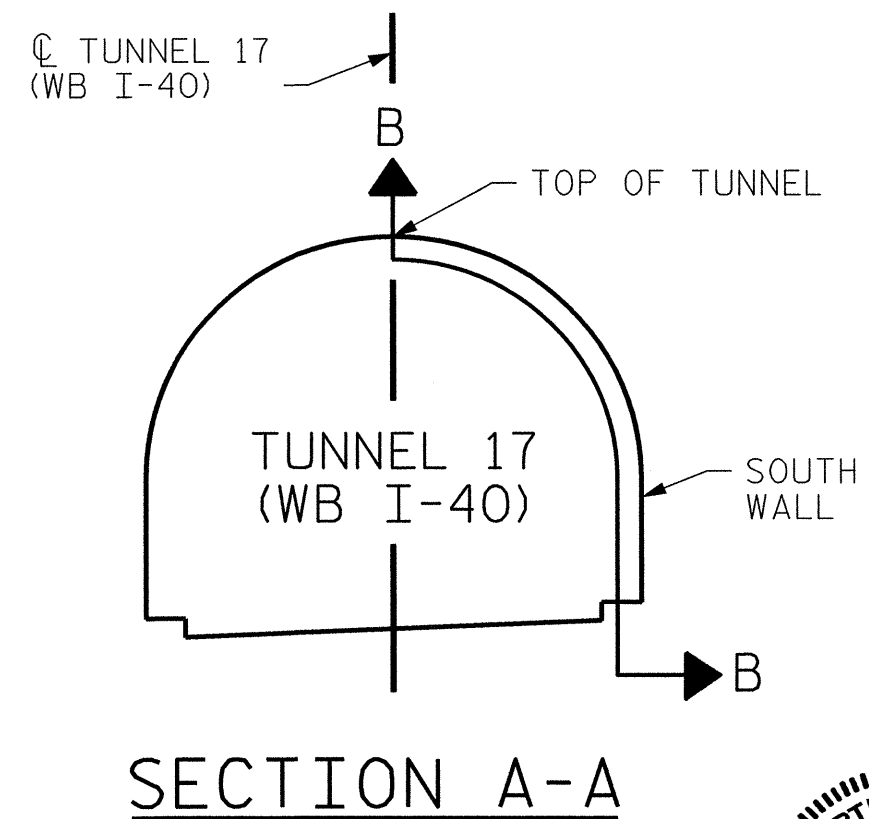
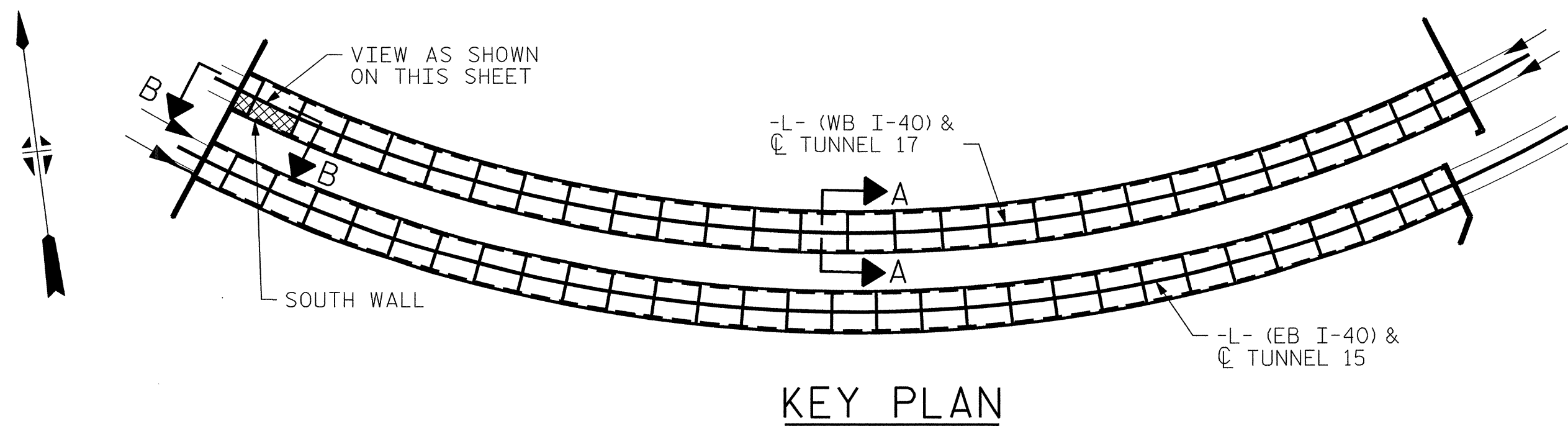
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SHOTCRETE REPAIRS	SEGMENT 27S	CF	23.1
SHOTCRETE REPAIRS	SEGMENT 28S	CF	2.9



SEGMENT 27S SEGMENT 28S

VIEW B-B: REPAIR SEGMENTS 27S & 28S

TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 27S & 28S

REVISIONS						<i>SHEET NO. S-069</i>
NO.	BY:	DATE:	NO.	BY:	DATE:	
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TOTAL
SHEETS
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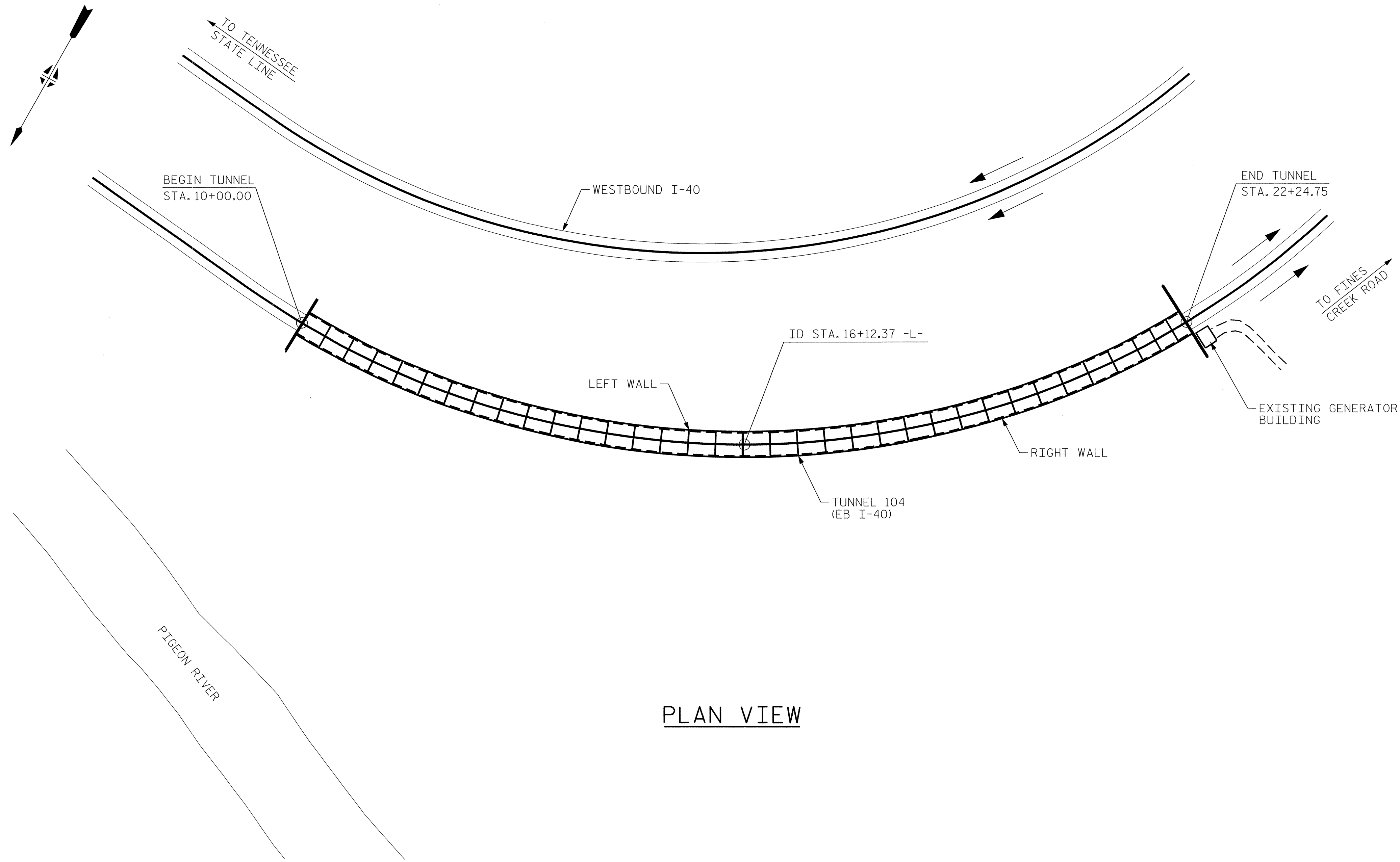


HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

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DATE: 7/22/2014
TIME: 1:30:20 PM

DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013



PLAN VIEW

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL PLAN
(TUNNEL 104)



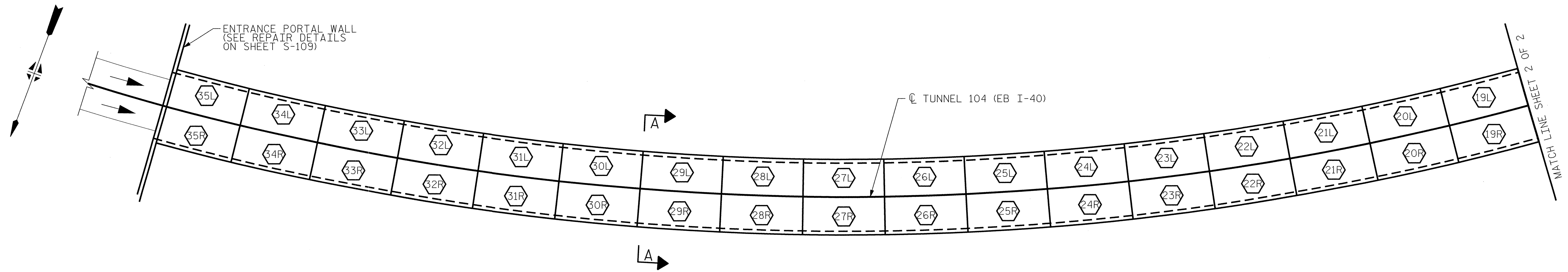
7-23-14

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3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

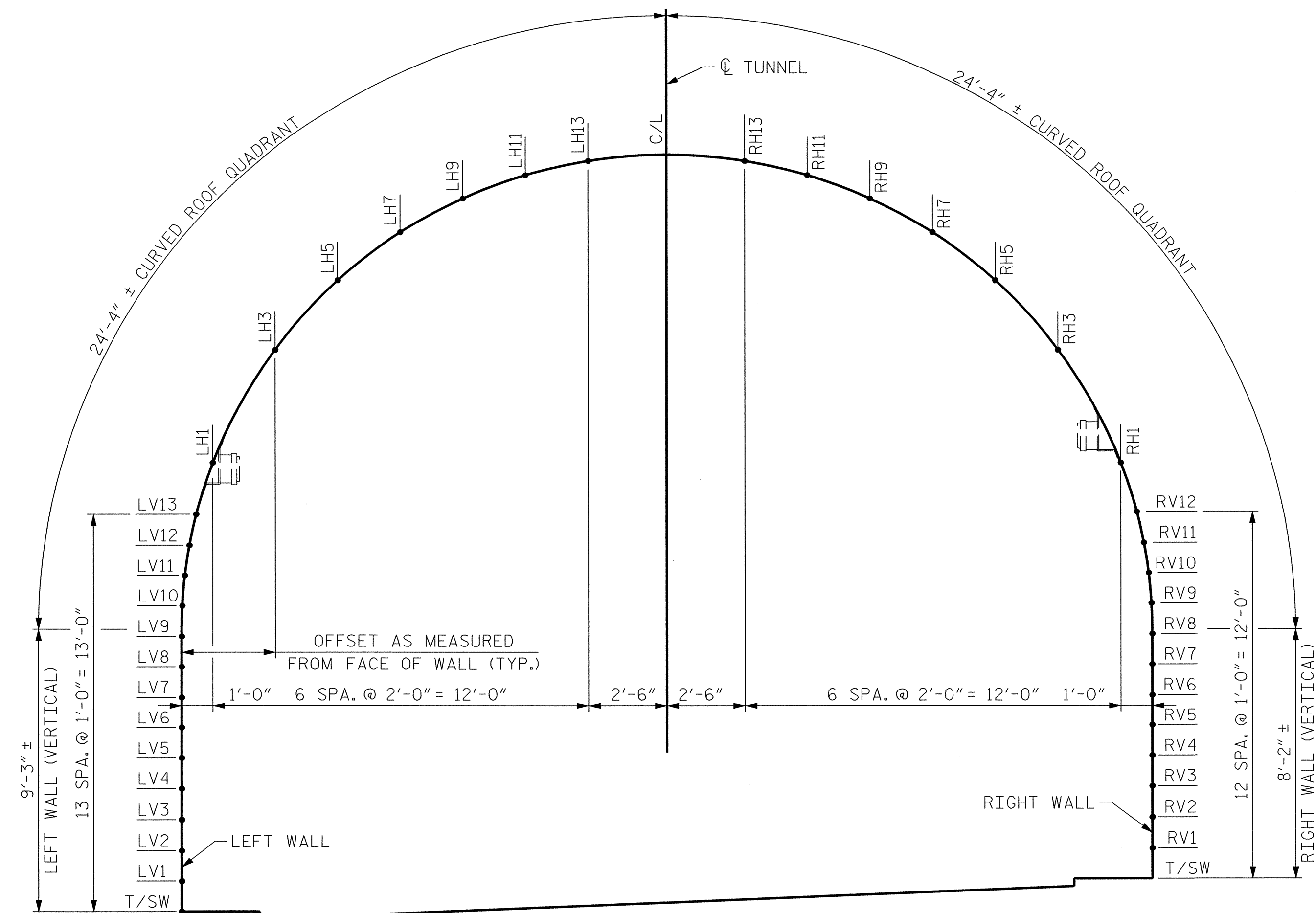
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013



PARTIAL PLAN OF REPAIR SEGMENTS - TUNNEL 104



SECTION A-A: REPAIR GRID REFERENCE DETAIL
(LOOKING EAST BOUND)

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 16+12.37 -L- (EB I-40)

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TUNNEL 104 PLAN OF
 REPAIR SEGMENTS & GRID
 REFERENCE DETAIL

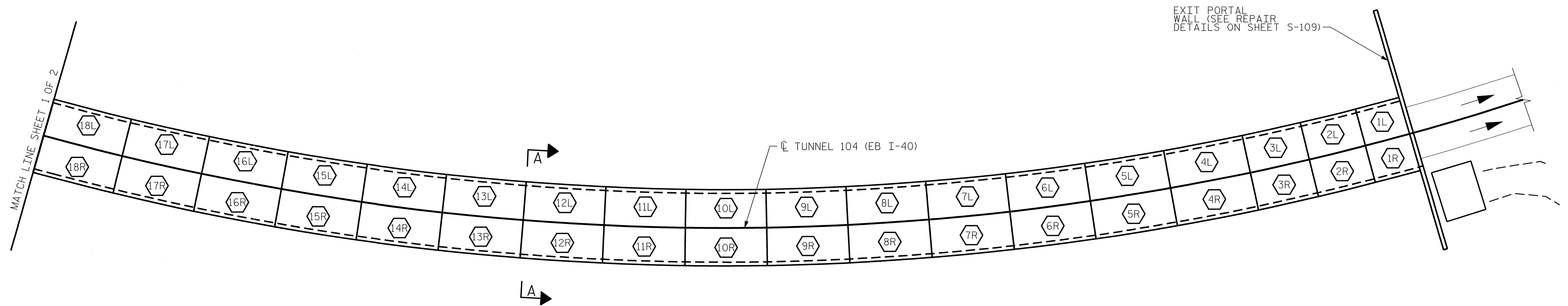


7-23-14

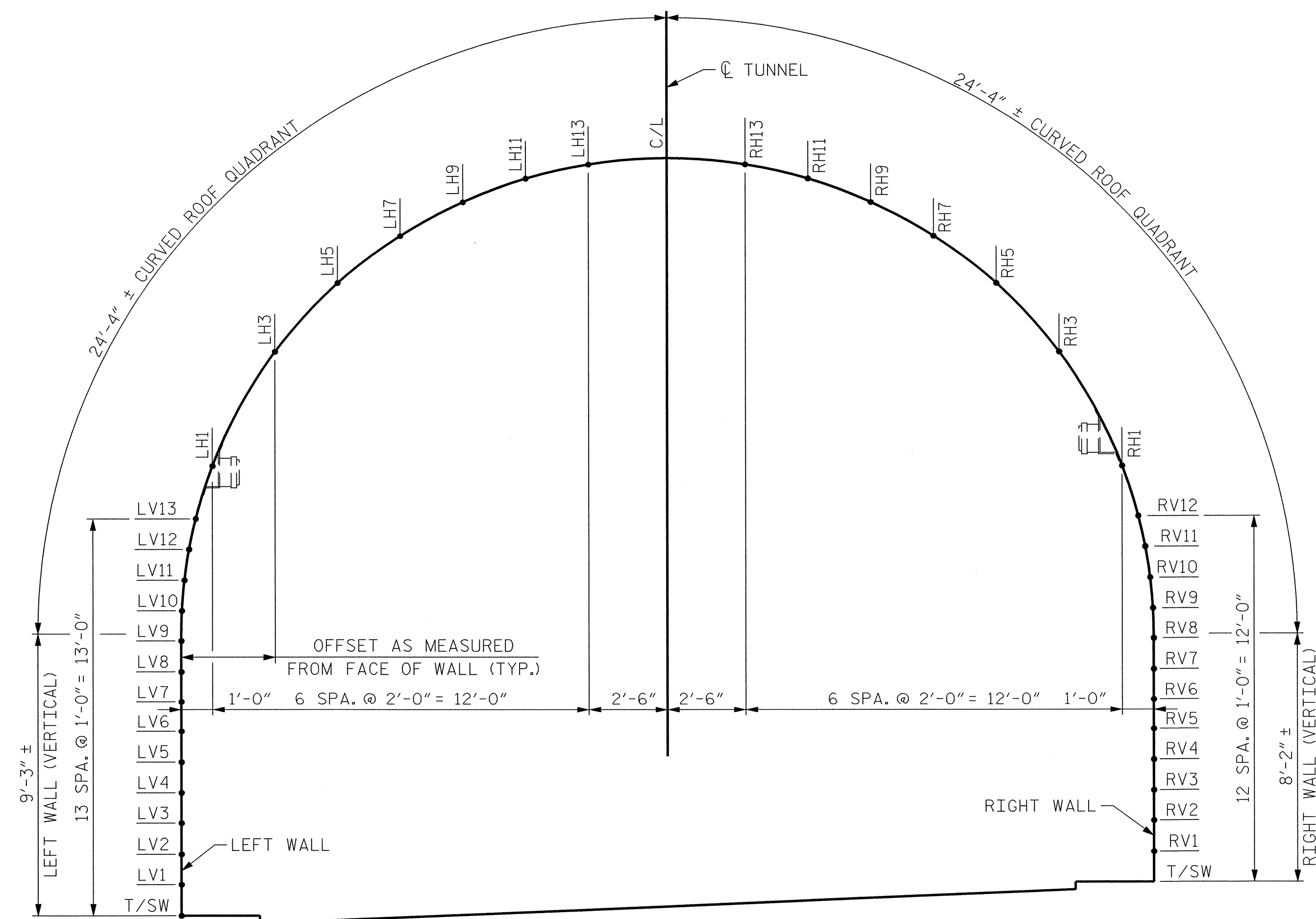
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HDR HDR Engineering, Inc. of the Carolinas
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REVISIONS						SHEET NO. S-071 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			



PARTIAL PLAN OF REPAIR SEGMENTS - TUNNEL 104



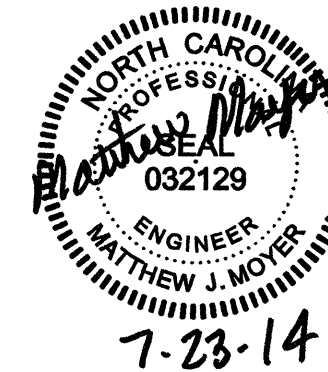
SECTION A-A: REPAIR GRID REFERENCE DETAIL
(LOOKING EAST BOUND)

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

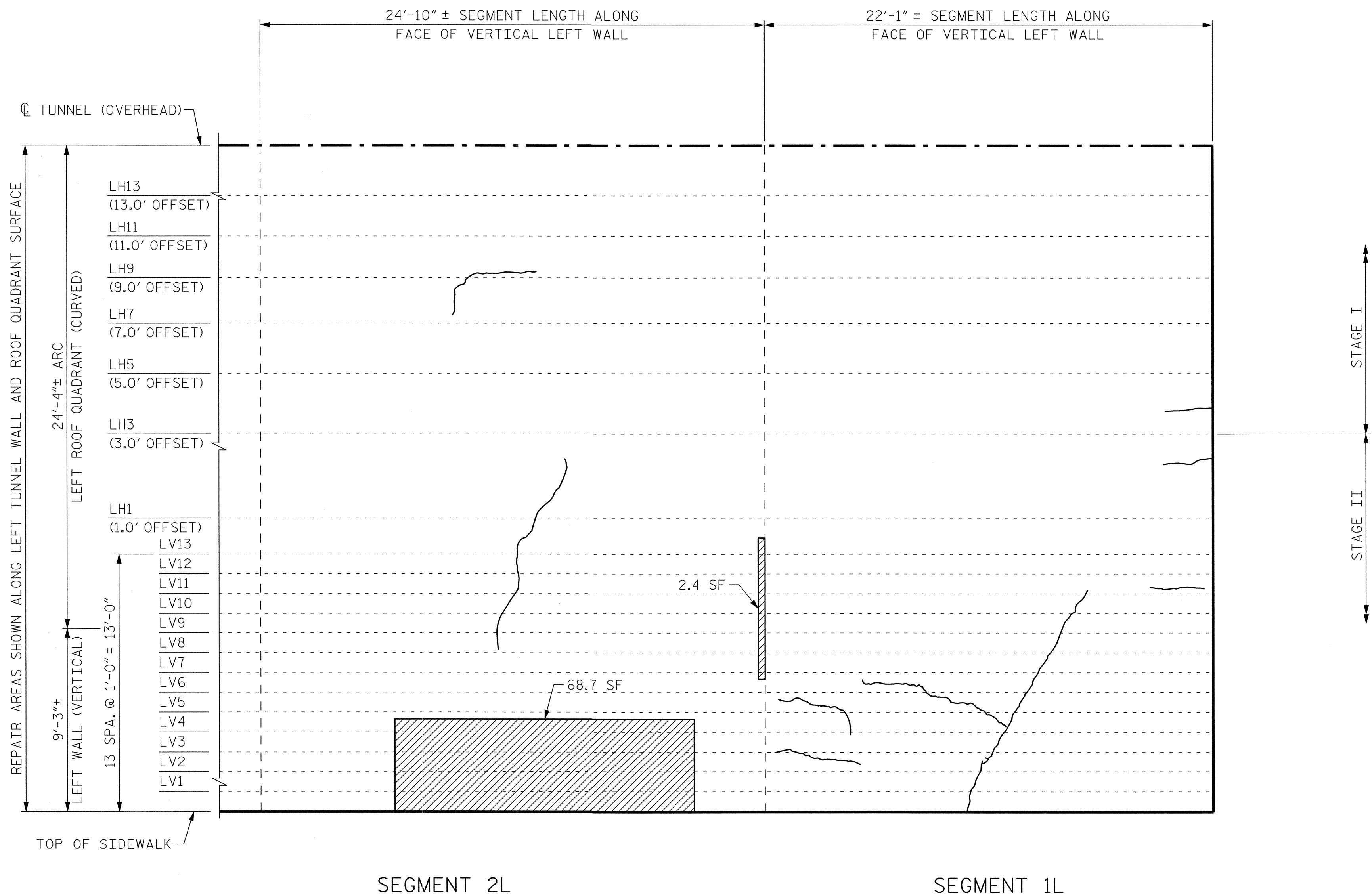
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REPAIR SEGMENTS & GRID
REFERENCE DETAIL



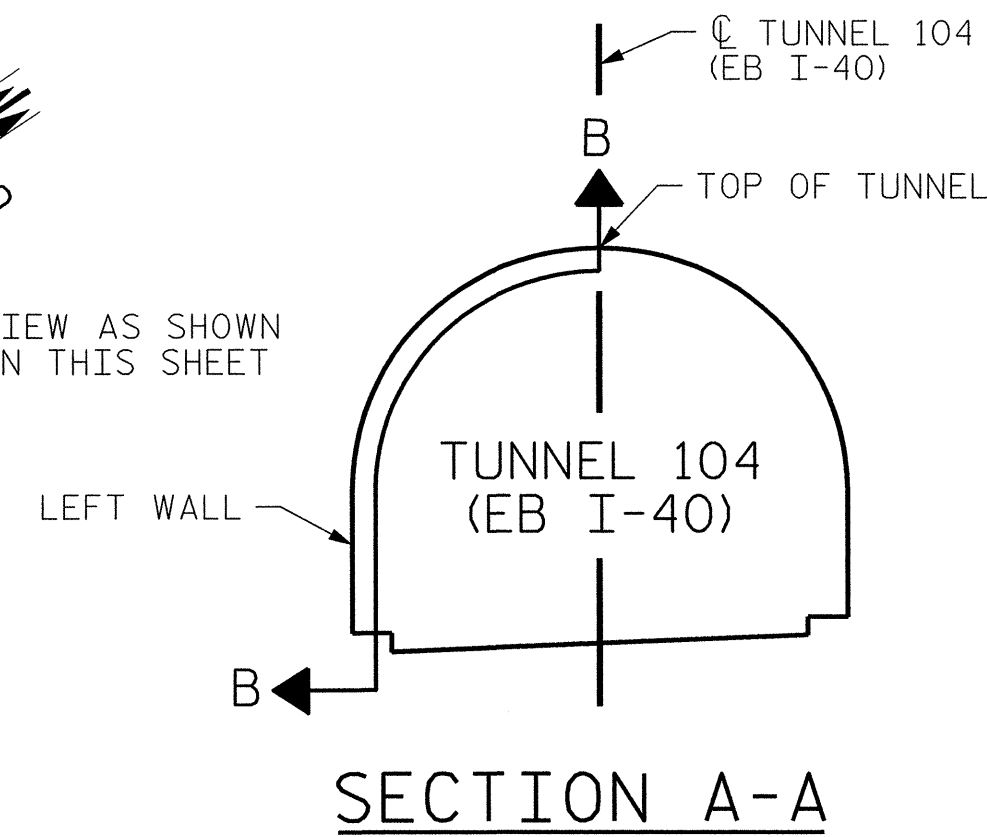
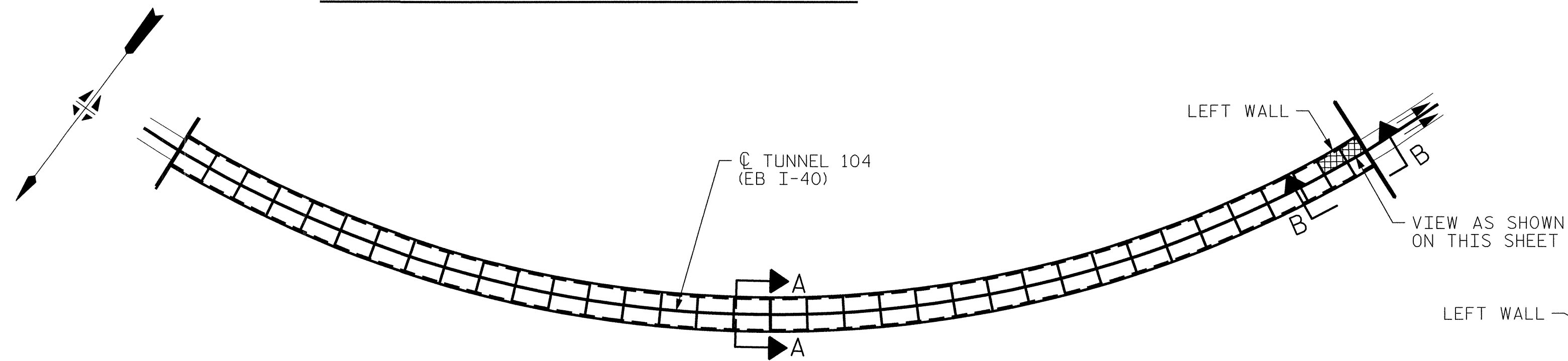
HDR Engineering, Inc. of the Carolinas
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N.C.E.L.S. License Number: F-8716

REVISIONS					SHEET NO. S-072
NO.	BY:	DATE:	NO.	BY:	
1			3		TOTAL SHEETS 110
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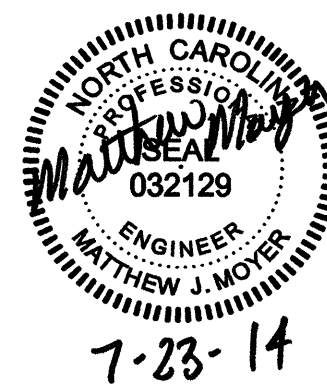
VIEW B-B: REPAIR SEGMENTS 1L & 2L
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 1L & 2L



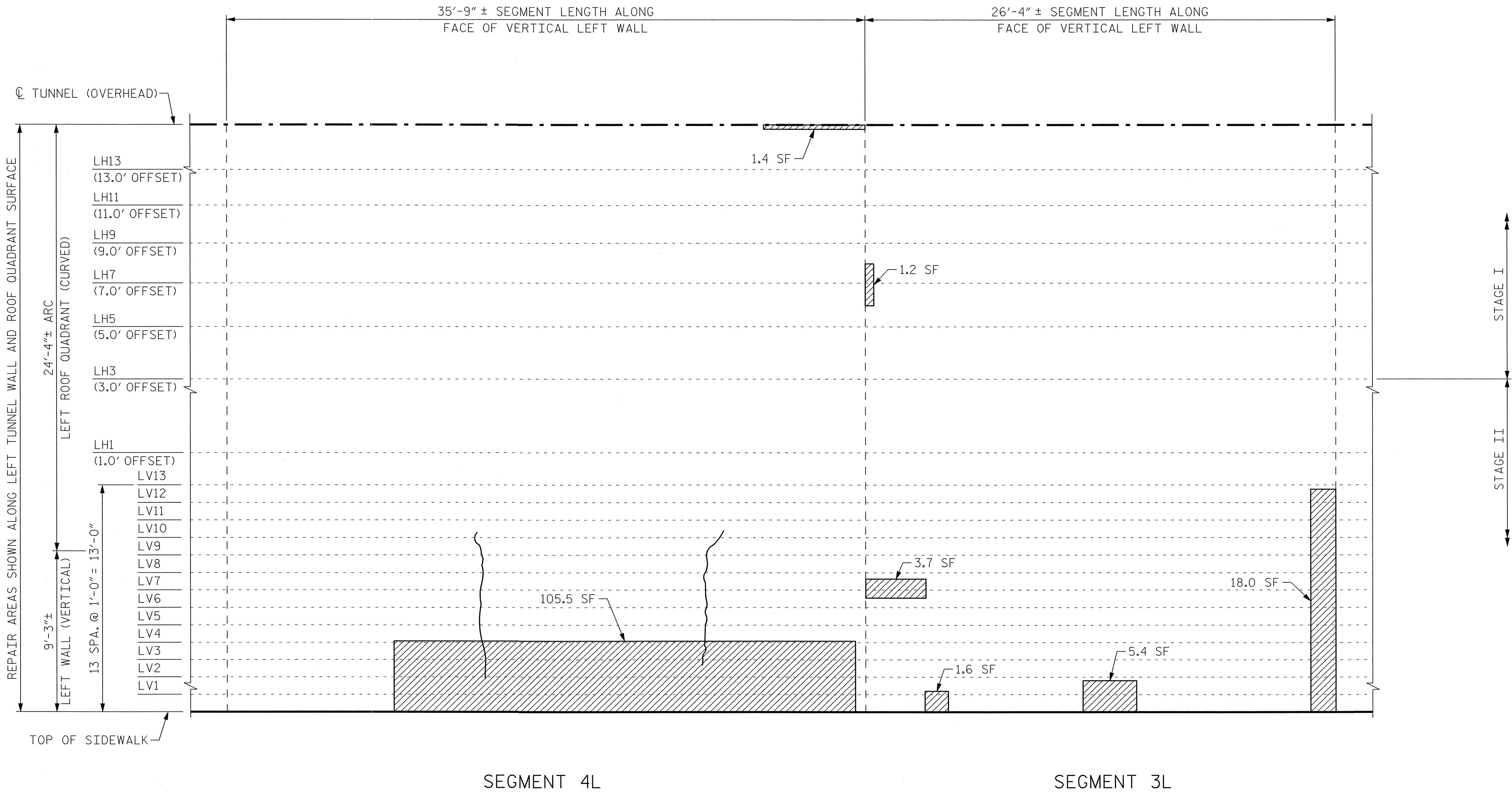
7-23-14

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N.C.B.E.L.S. License Number: F-0116

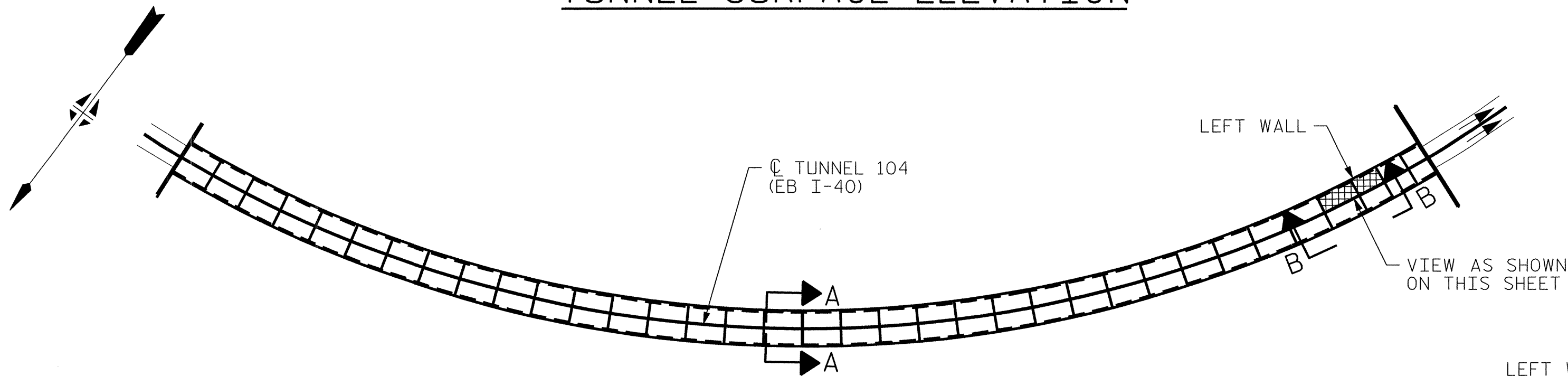
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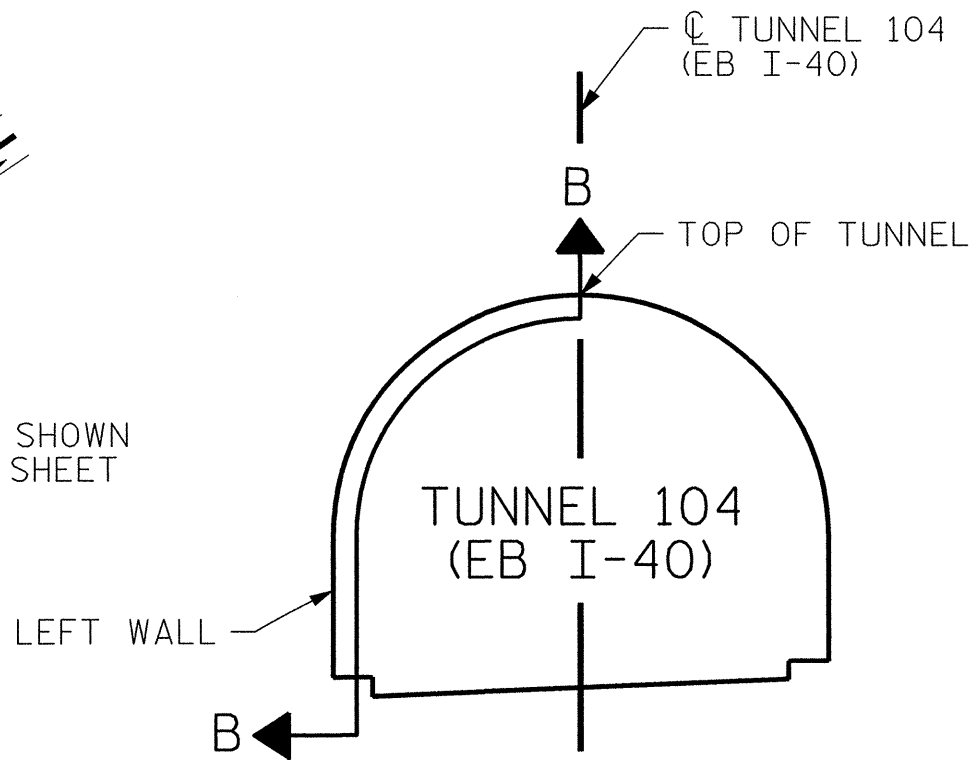
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SHOTCRETE REPAIRS SEGMENT 4L	CF	35.6



VIEW B-B: REPAIR SEGMENTS 3L & 4L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 104 REPAIR AREAS SEGMENTS 3L & 4L					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2	--	--	4	--	--
SHEET NO. S-074					TOTAL SHEETS 110

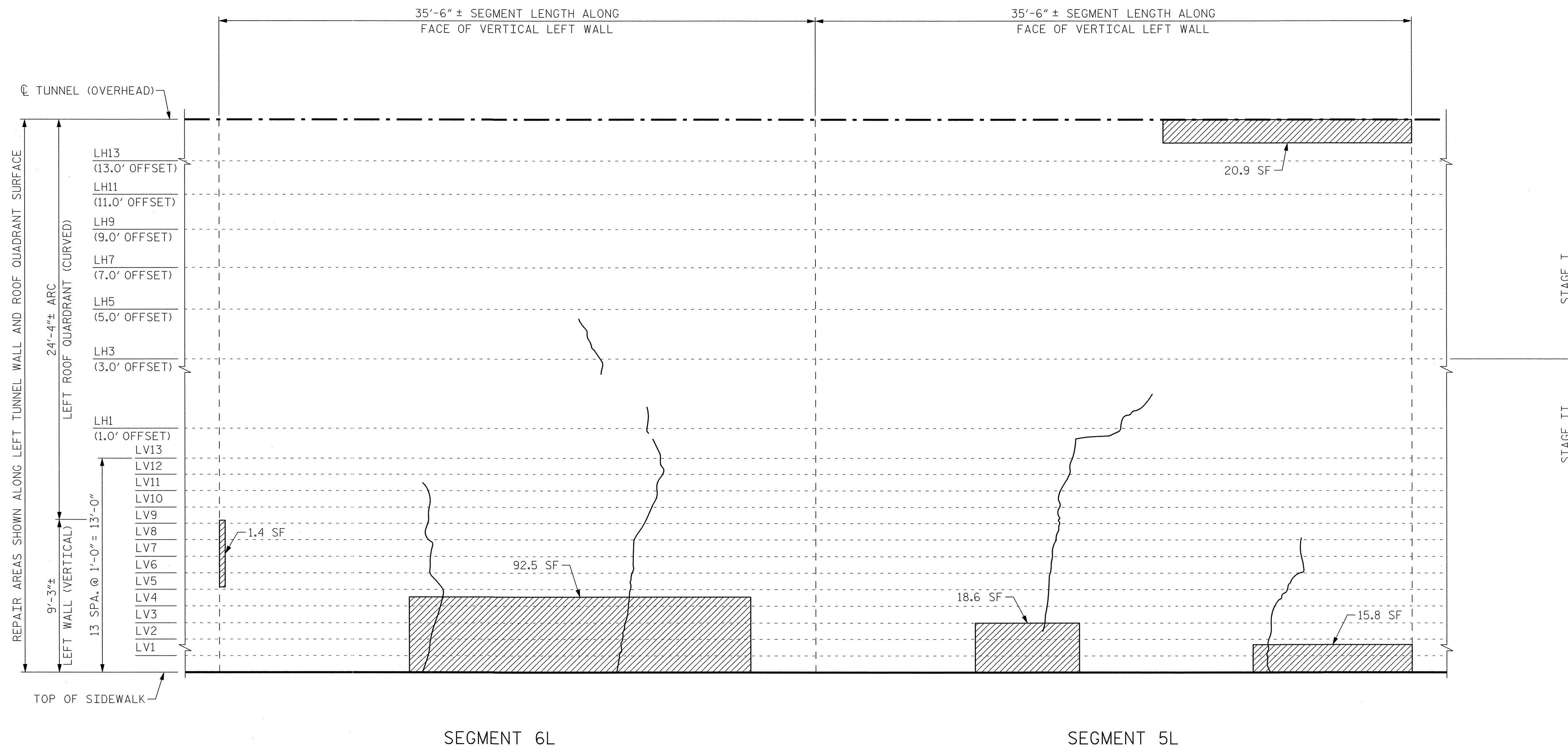


HDR HDR Engineering, Inc. of the Carolinas
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N.C.E.L.S. License Number: F-0116

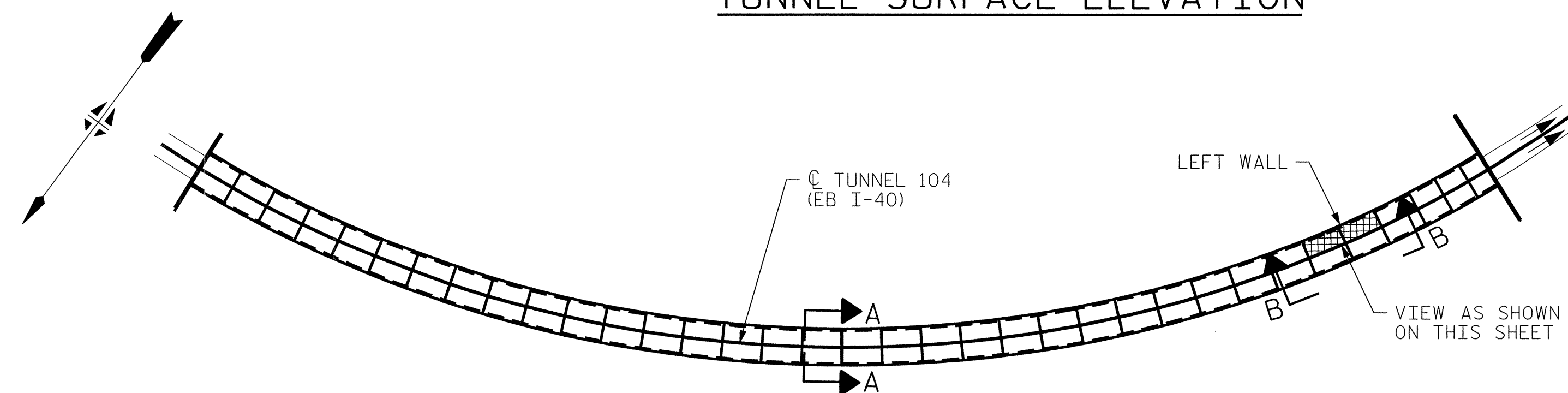
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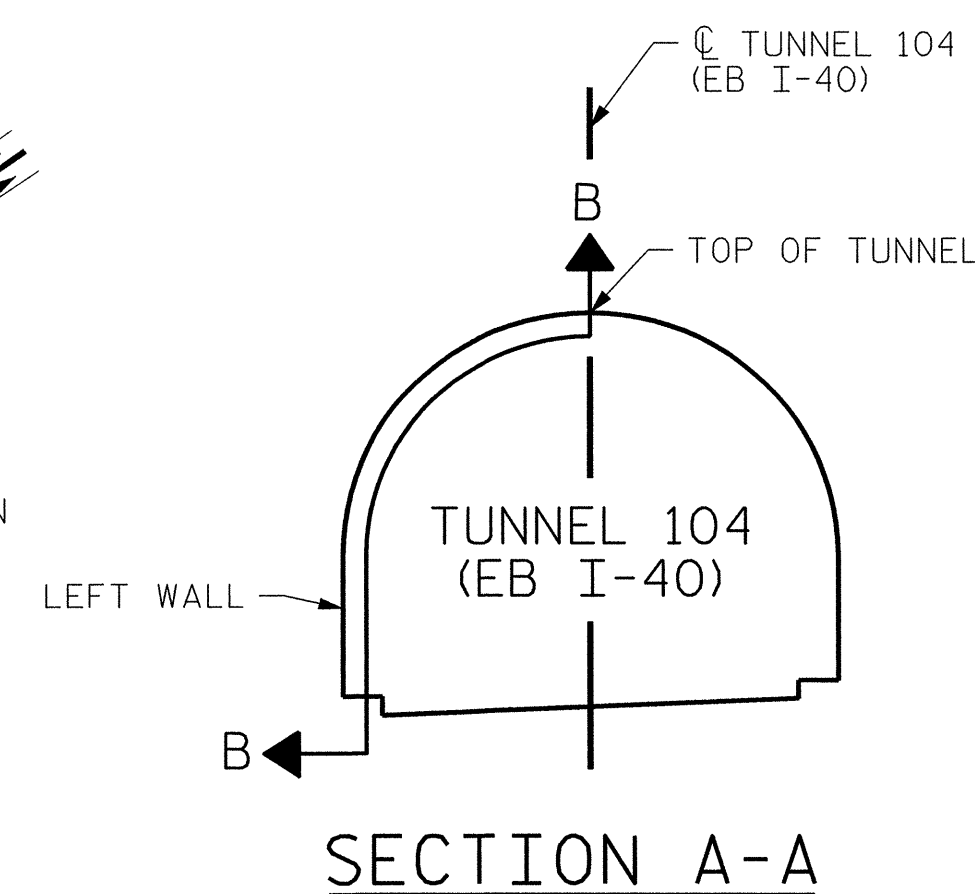
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SHOTCRETE REPAIRS SEGMENT 6L	CF	31.3	



VIEW B-B: REPAIR SEGMENTS 5L & 6L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 5L & 6L



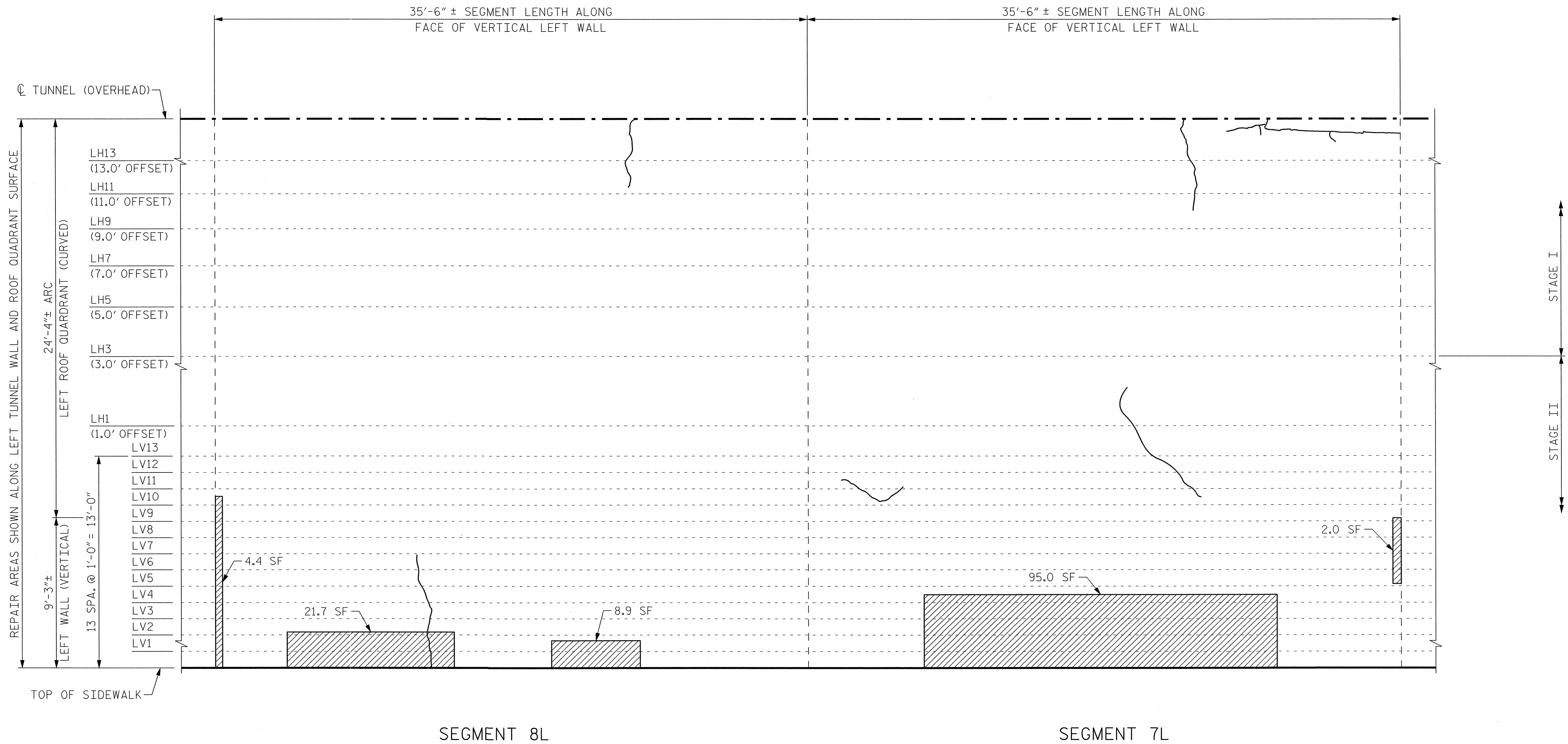
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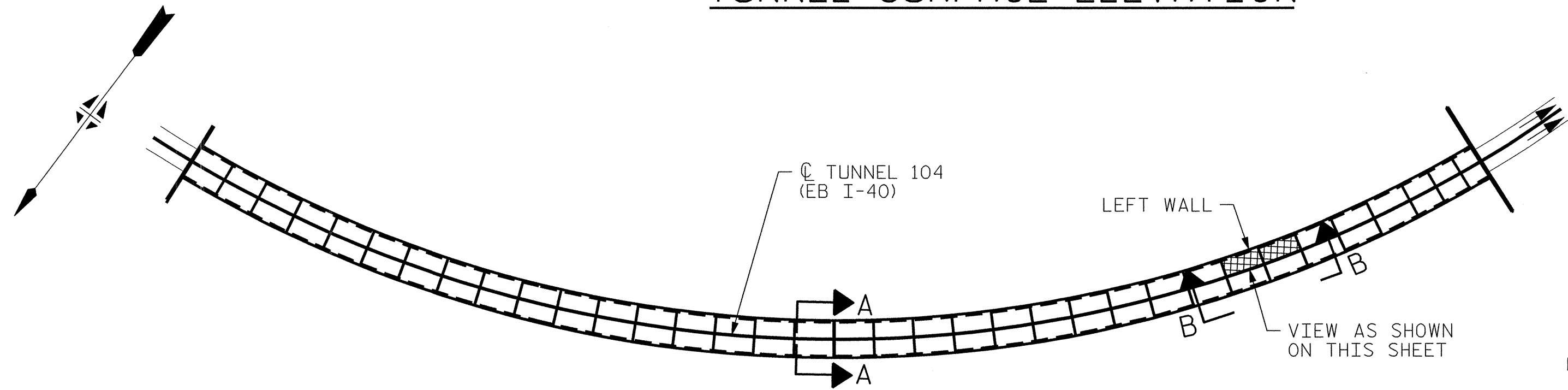
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DATE : 07/2013
DATE : 07/2013

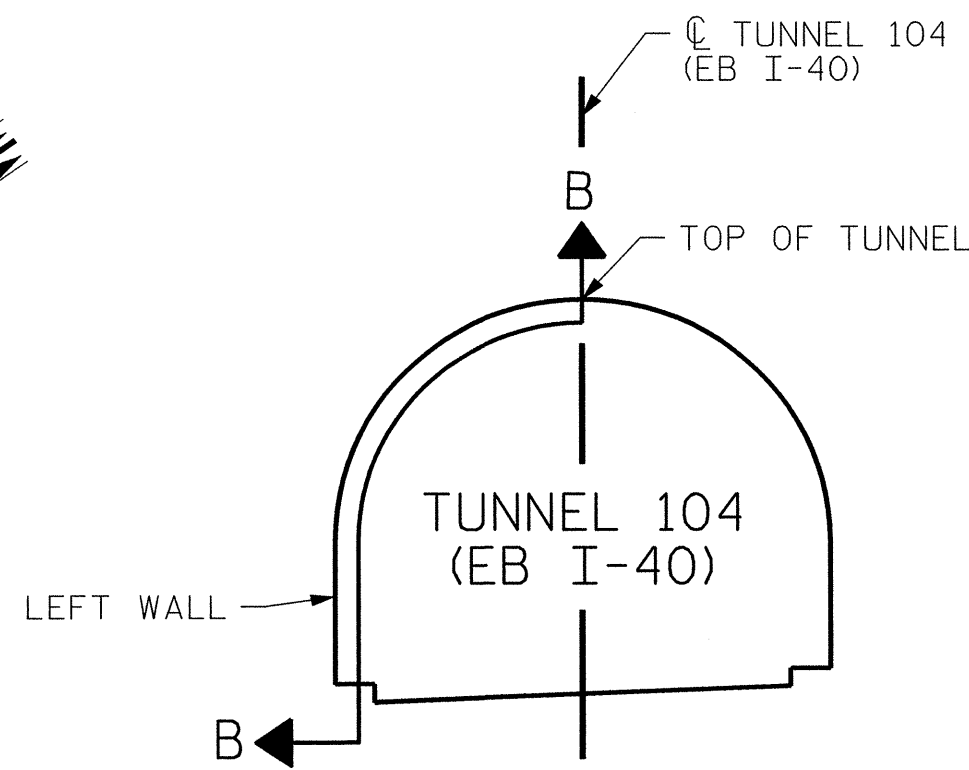
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SHOTCRETE REPAIRS SEGMENT 8L	CF	11.7	



VIEW B-B: REPAIR SEGMENTS 7L & 8L
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 7L & 8L

REVISIONS						SHEET NO. 5-076
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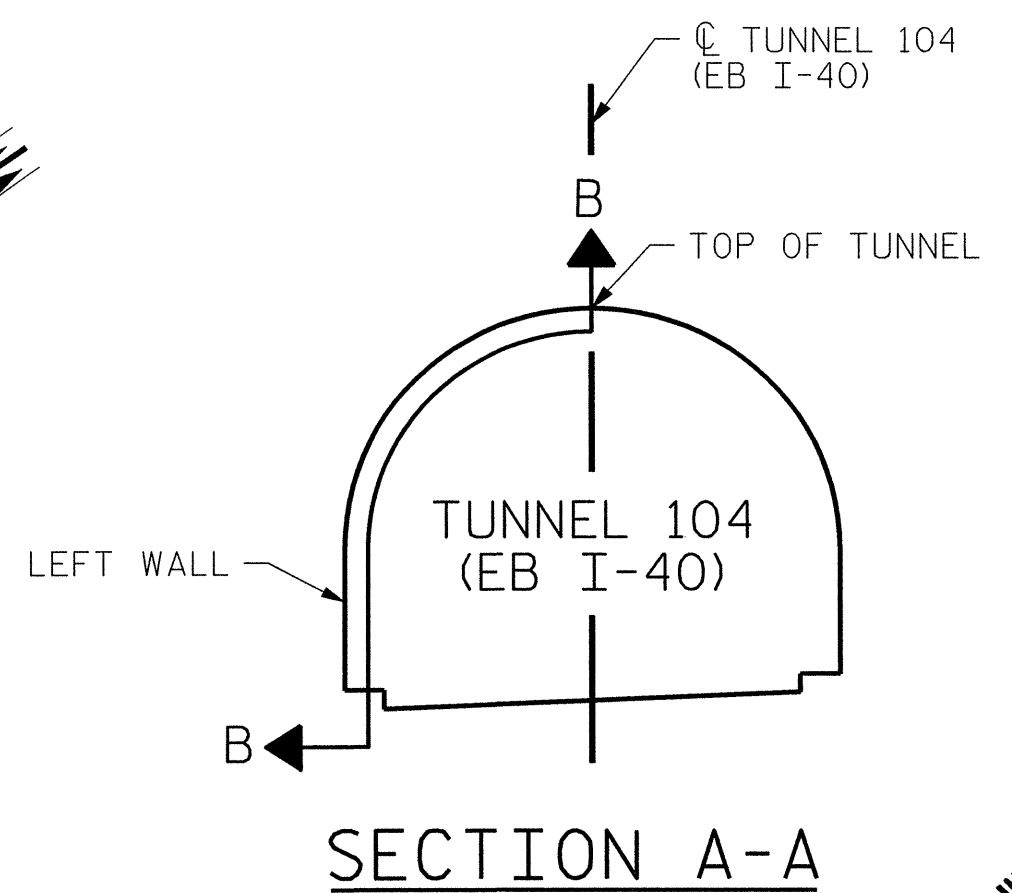
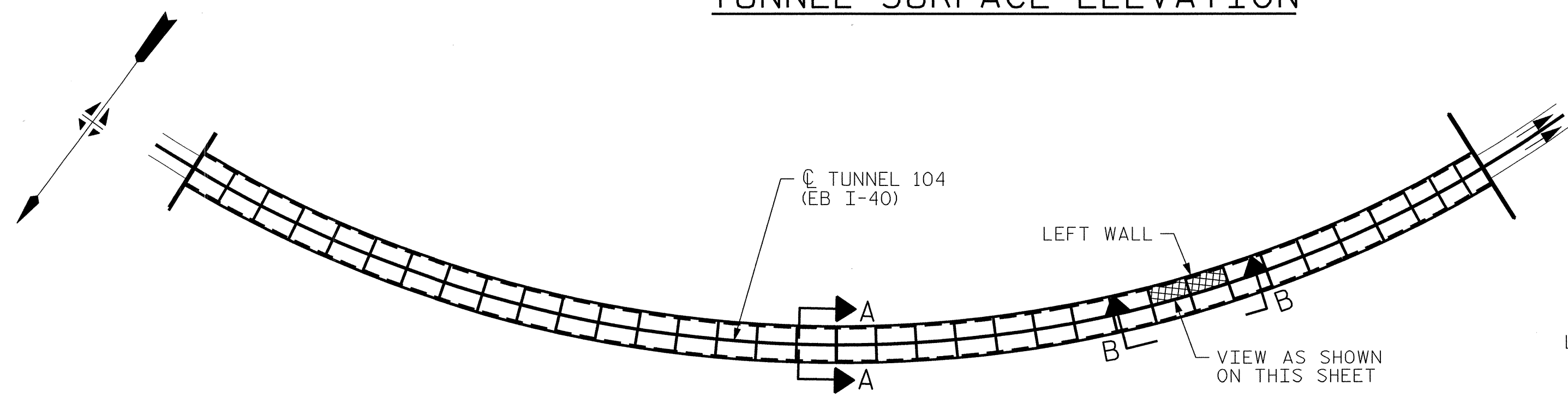
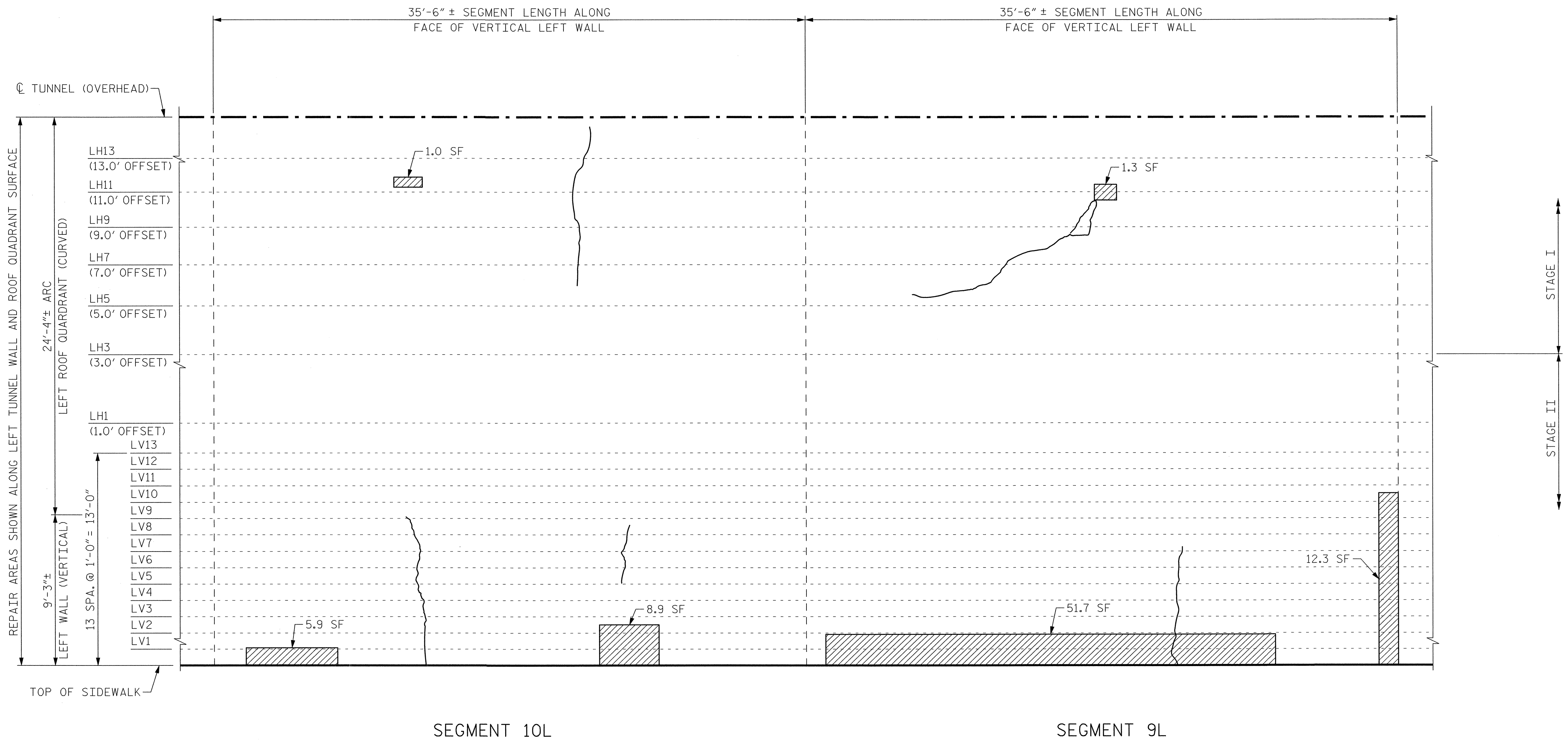


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N.C.B.E.L.S. License Number: F-0116

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DATE: 7/22/2014
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DRAWN BY : M. SELLS
CHECKED BY : M. MOYER
DATE : 07/2013
DATE : 07/2013

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SHOTCRETE REPAIRS SEGMENT 10L	CF	5.3	



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 9L & 10L



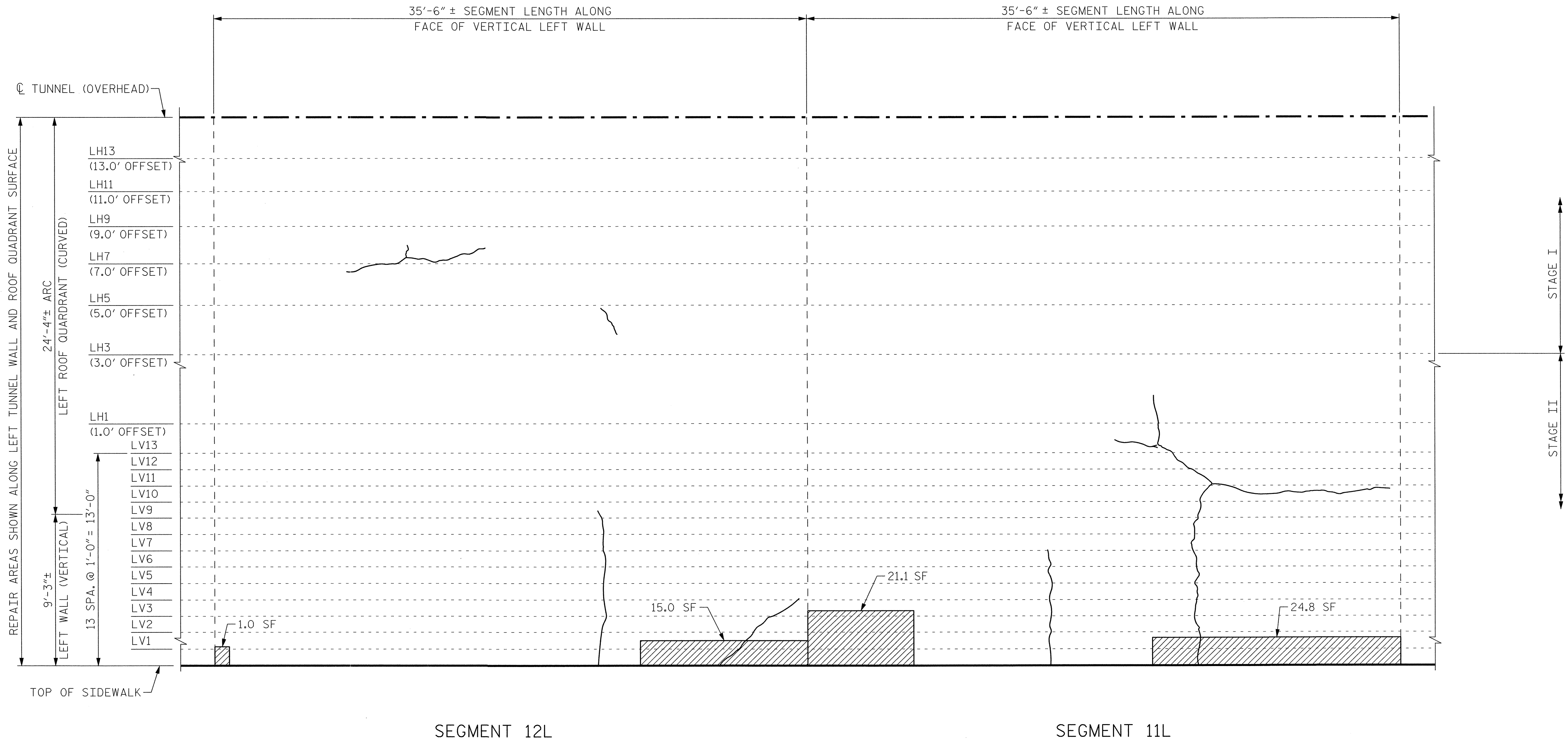
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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CHECKED BY : M. MOYER DATE : 07/2013

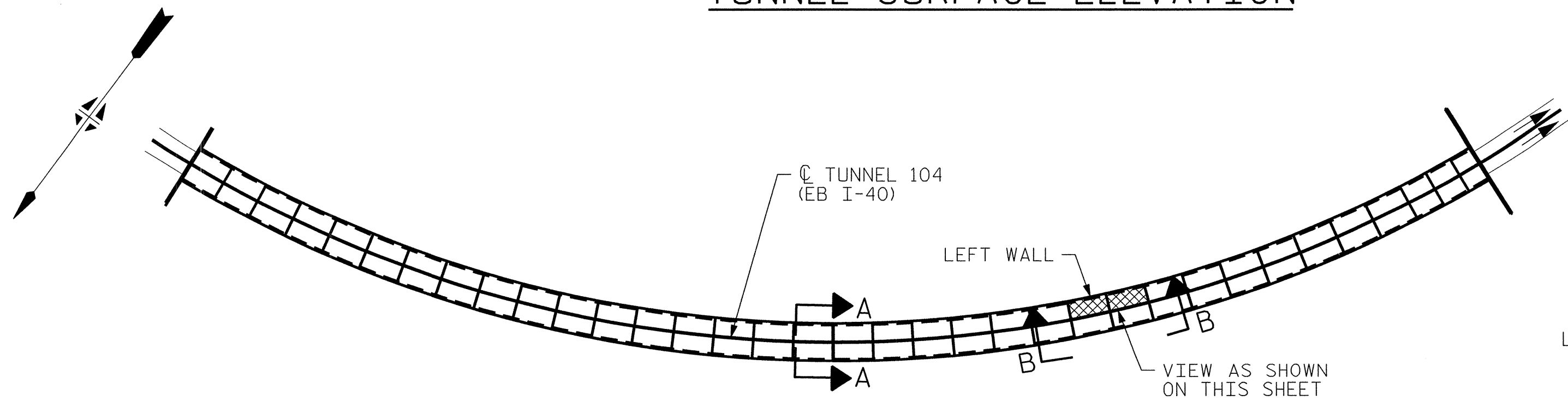
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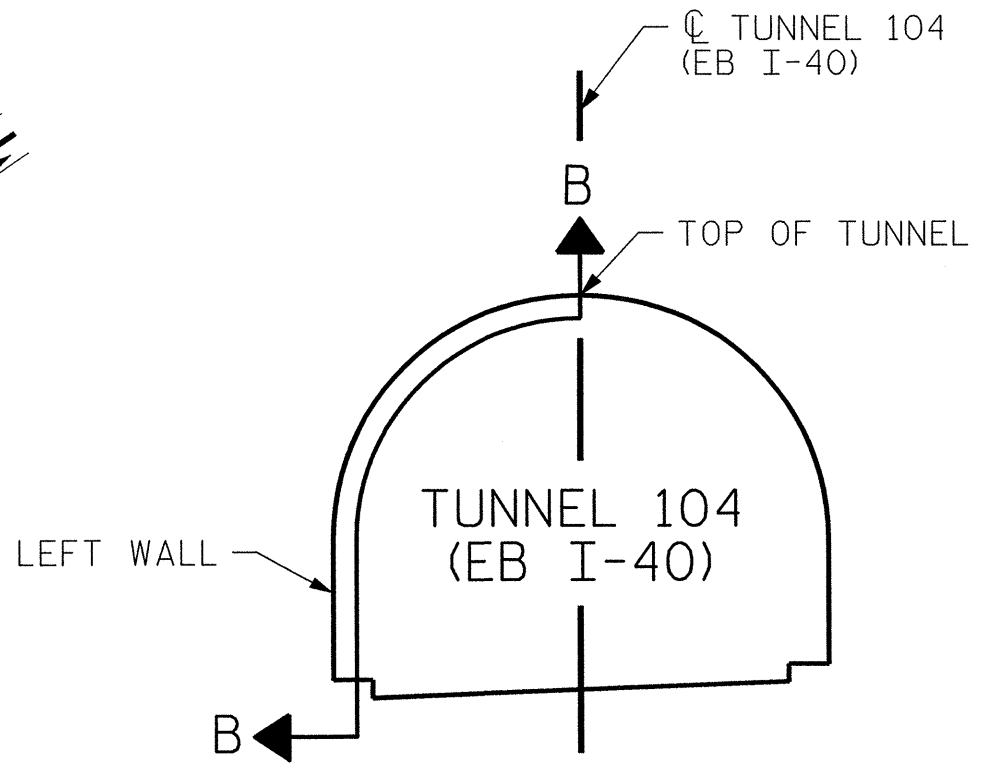
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SHOTCRETE REPAIRS SEGMENT 12L	CF	5.3	



VIEW B-B: REPAIR SEGMENTS 11L & 12L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

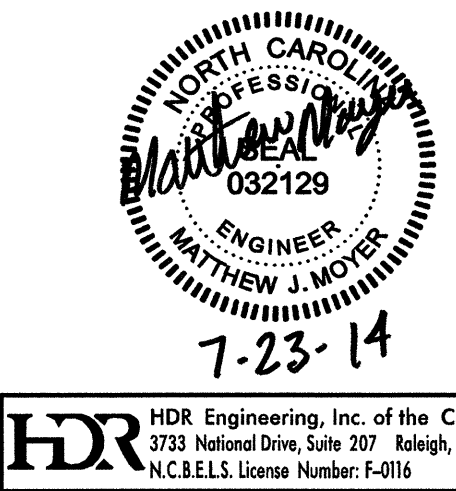
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 11L & 12L

REVISIONS						SHEET NO. 5-078
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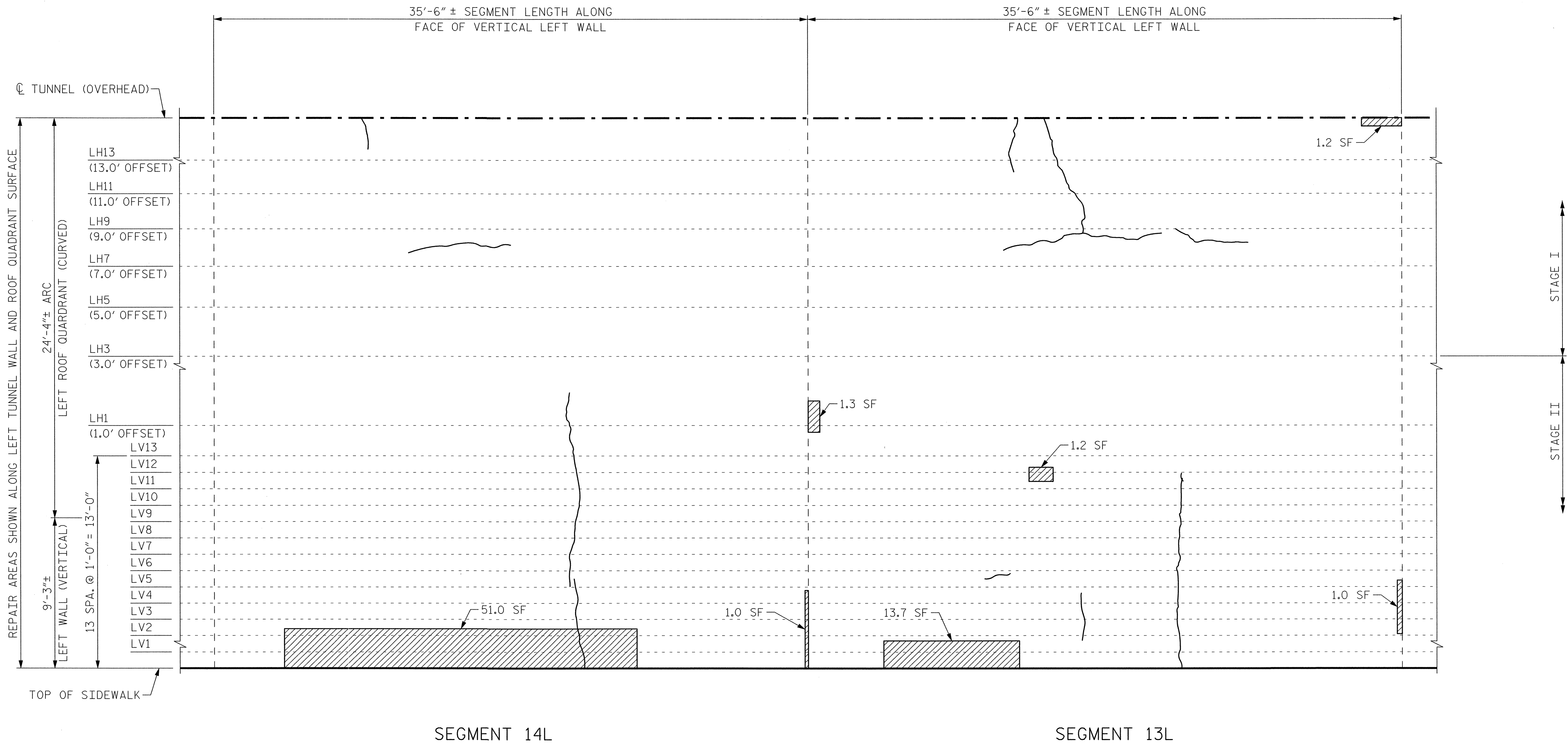


HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
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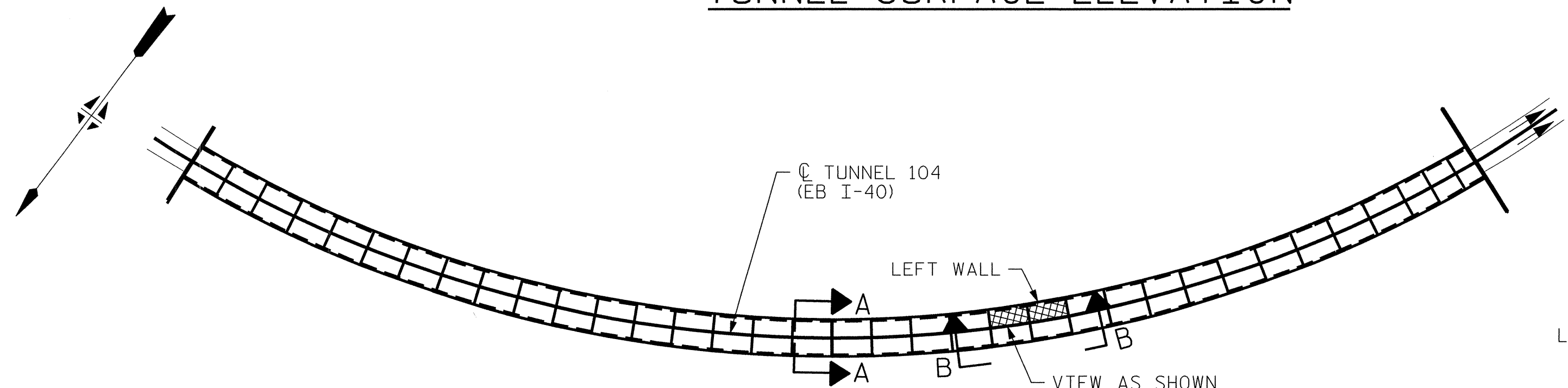
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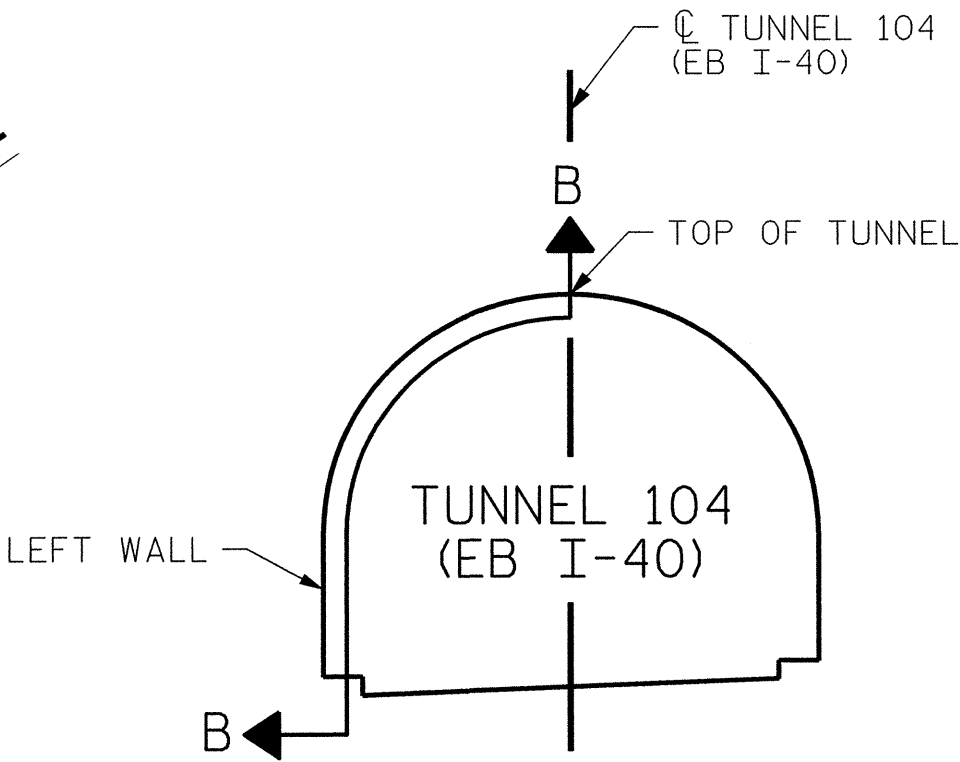
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VIEW B-B: REPAIR SEGMENTS 13L & 14L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 104 REPAIR
AREAS
SEGMENTS 13L & 14L



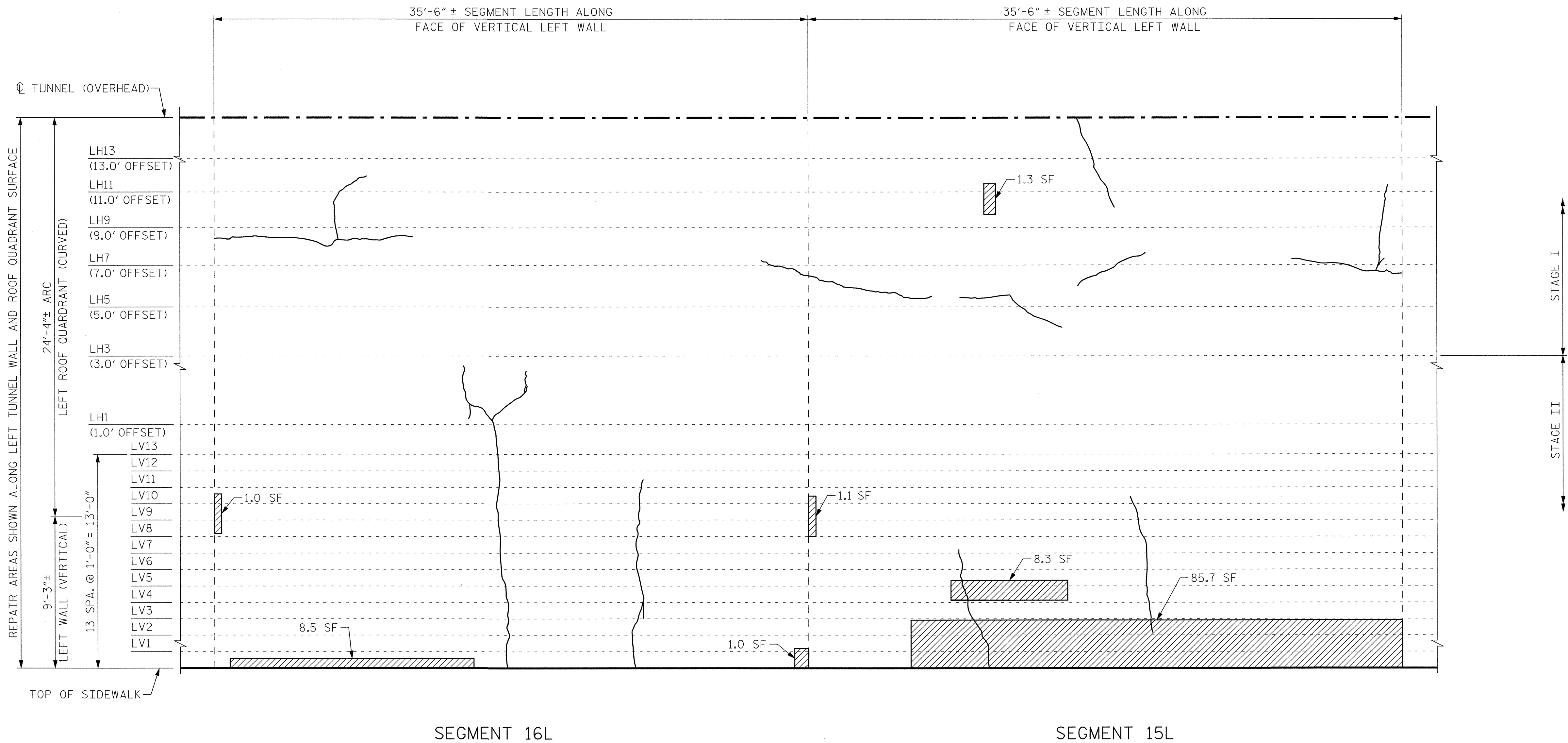
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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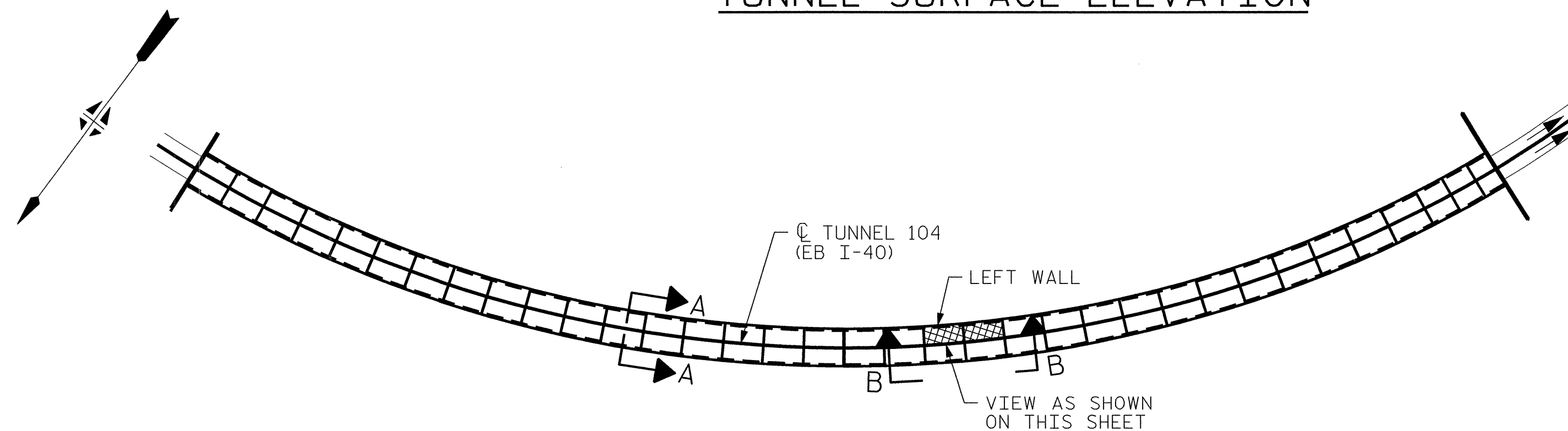
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CHECKED BY : M. MOYER
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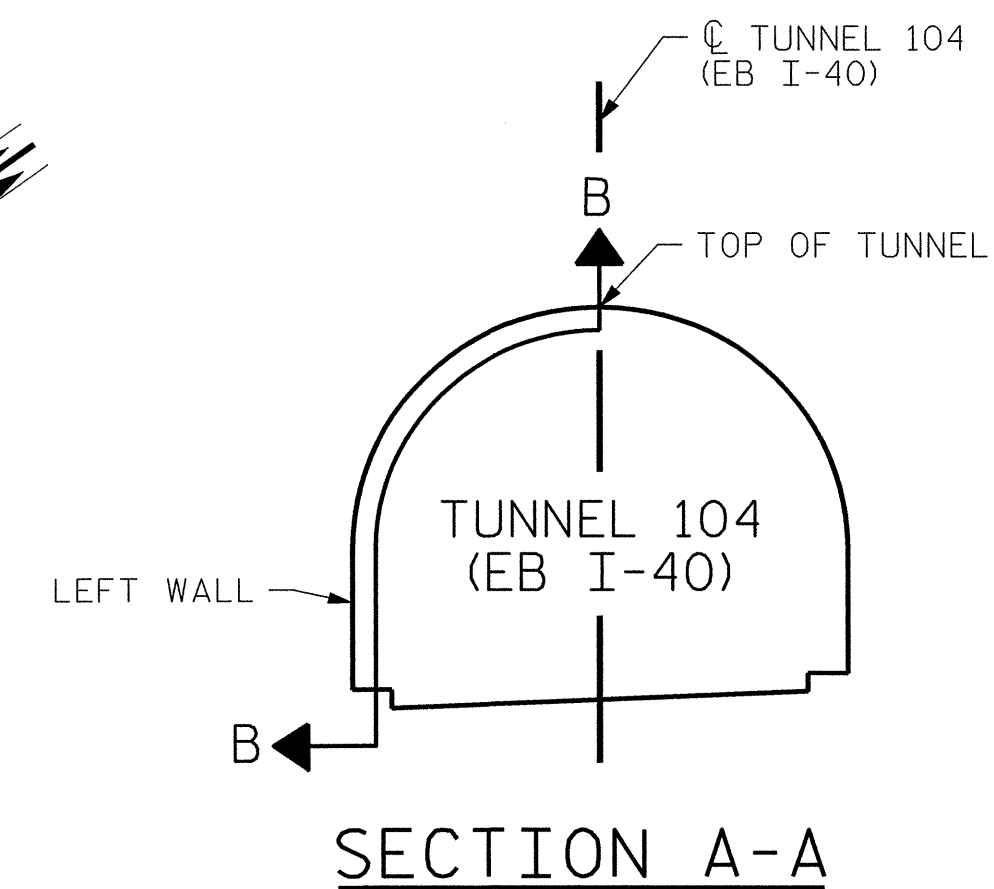
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SHOTCRETE REPAIRS SEGMENT 16L	CF	3.5	



VIEW B-B: REPAIR SEGMENTS 15L & 16L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

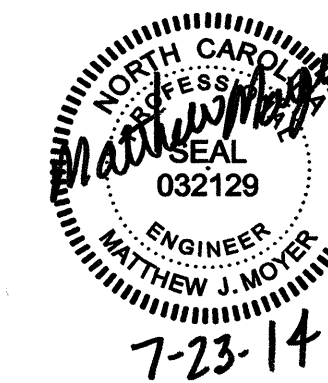
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 15L & 16L

REVISIONS						SHEET NO. 5-080
NO.	BY:	DATE:	NO.	BY:	DATE:	
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N.C.B.E.L.S. License Number: F-0116

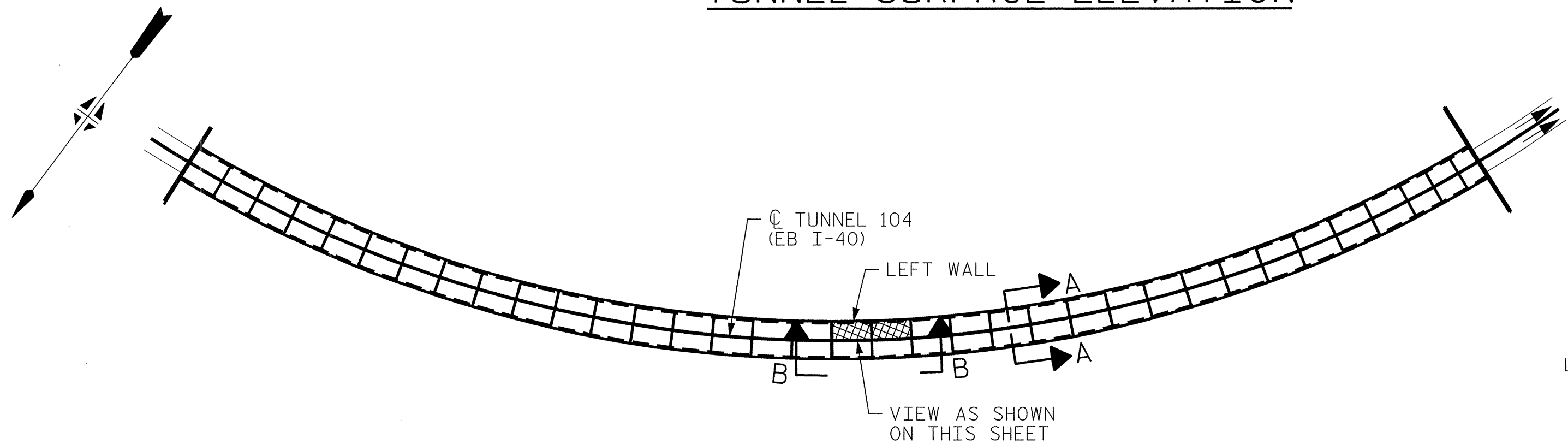


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DATE: 07/2013
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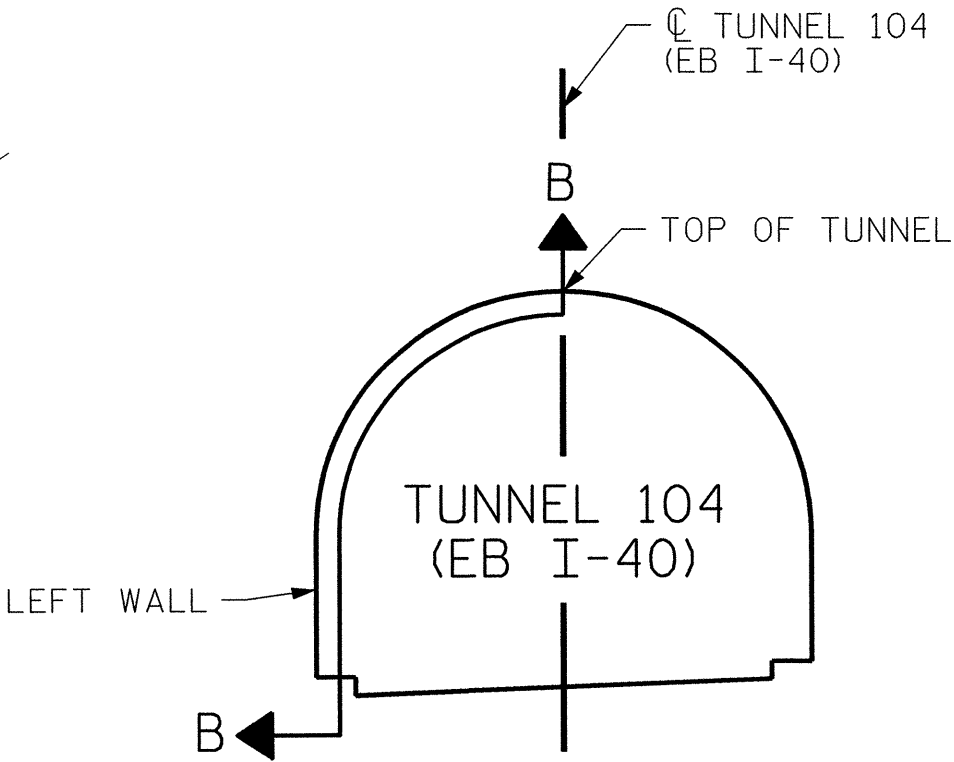
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VIEW B-B: REPAIR SEGMENTS 17L & 18L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 17L & 18L



7-23-14

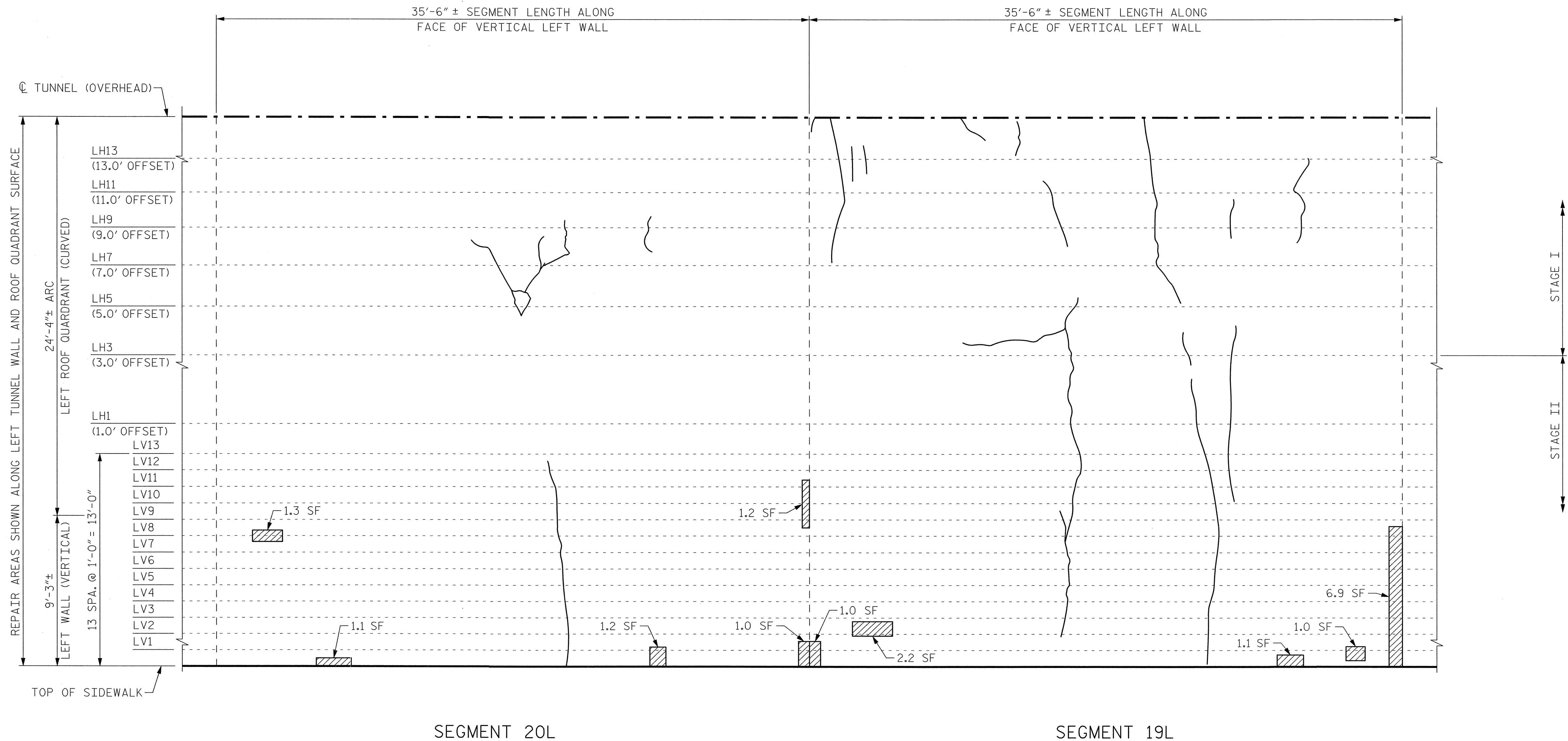
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

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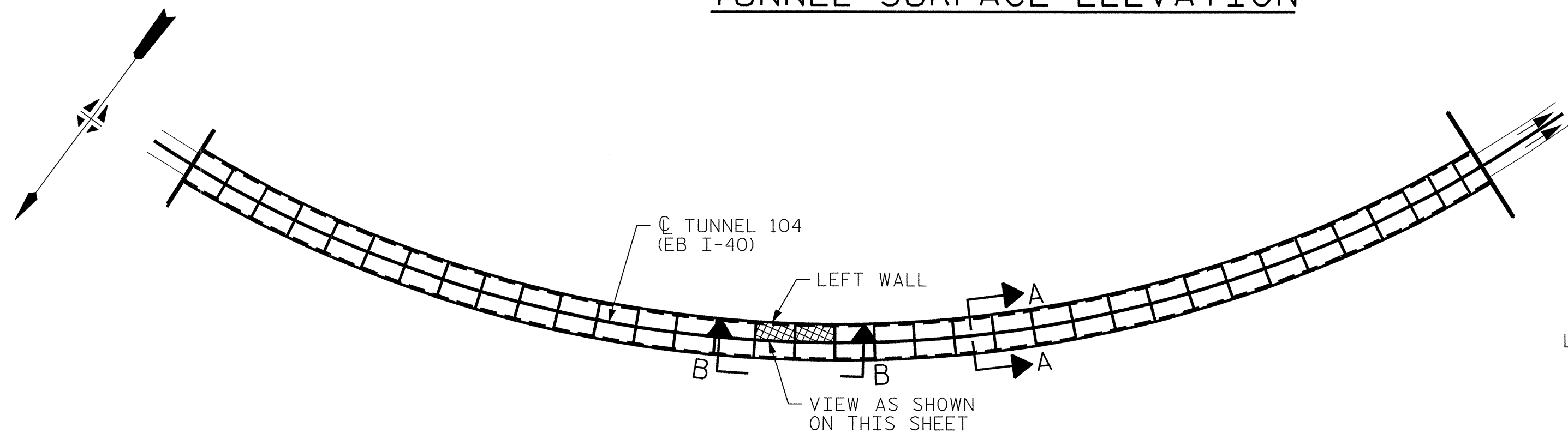
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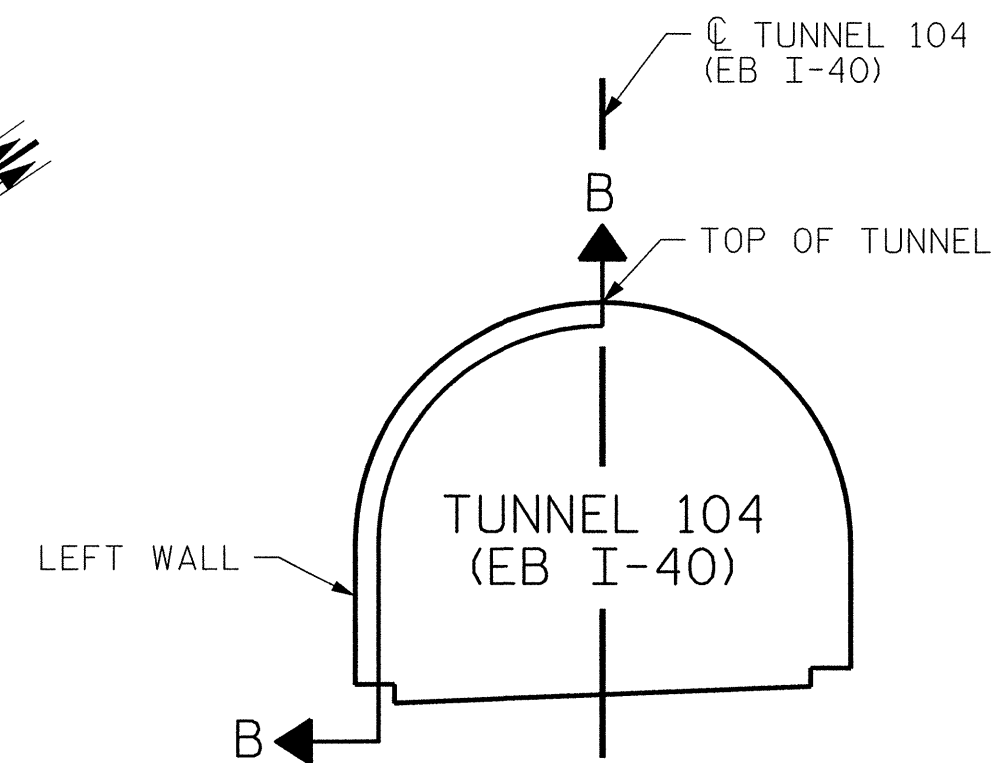
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VIEW B-B: REPAIR SEGMENTS 19L & 20L
TUNNEL SURFACE ELEVATION



KEY PLAN

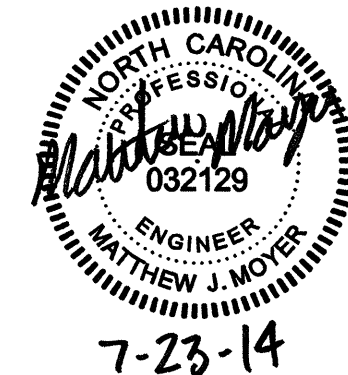


SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 19L & 20L



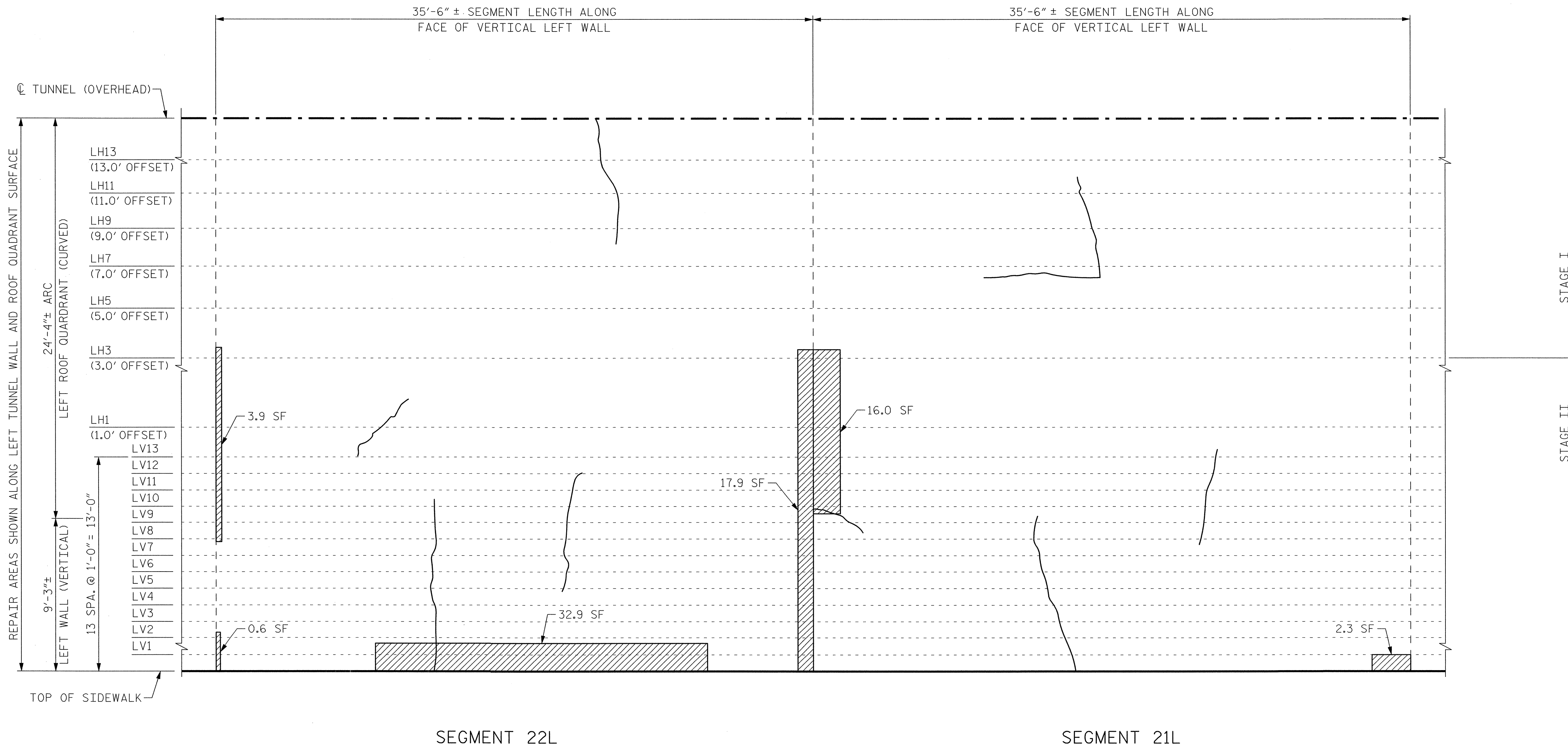
7-23-14

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3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

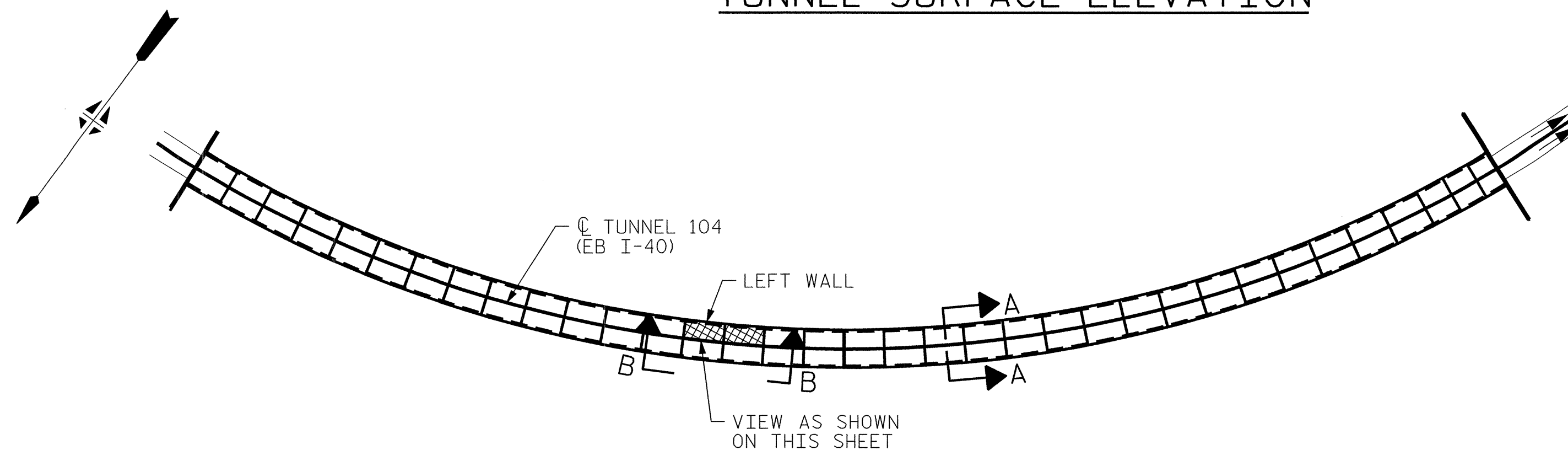
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CHECKED BY : M. MOYER DATE : 07/2013

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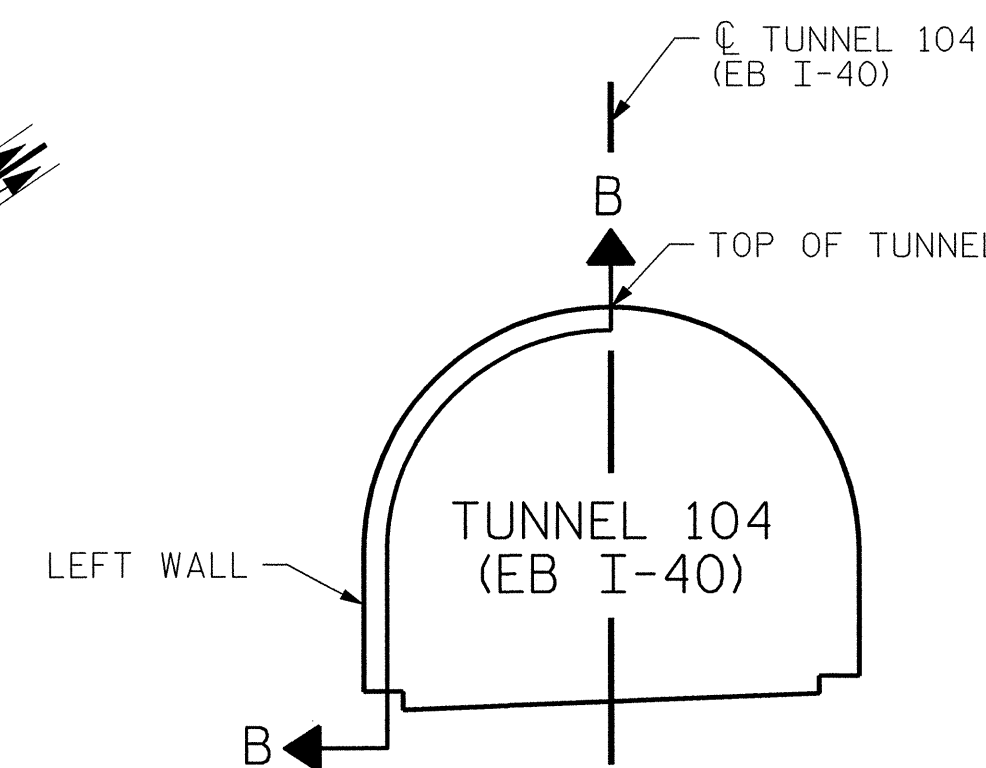
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SHOTCRETE REPAIRS SEGMENT 21L	CF	6.1	
SHOTCRETE REPAIRS SEGMENT 22L	CF	18.4	



VIEW B-B: REPAIR SEGMENTS 21L & 22L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 21L & 22L

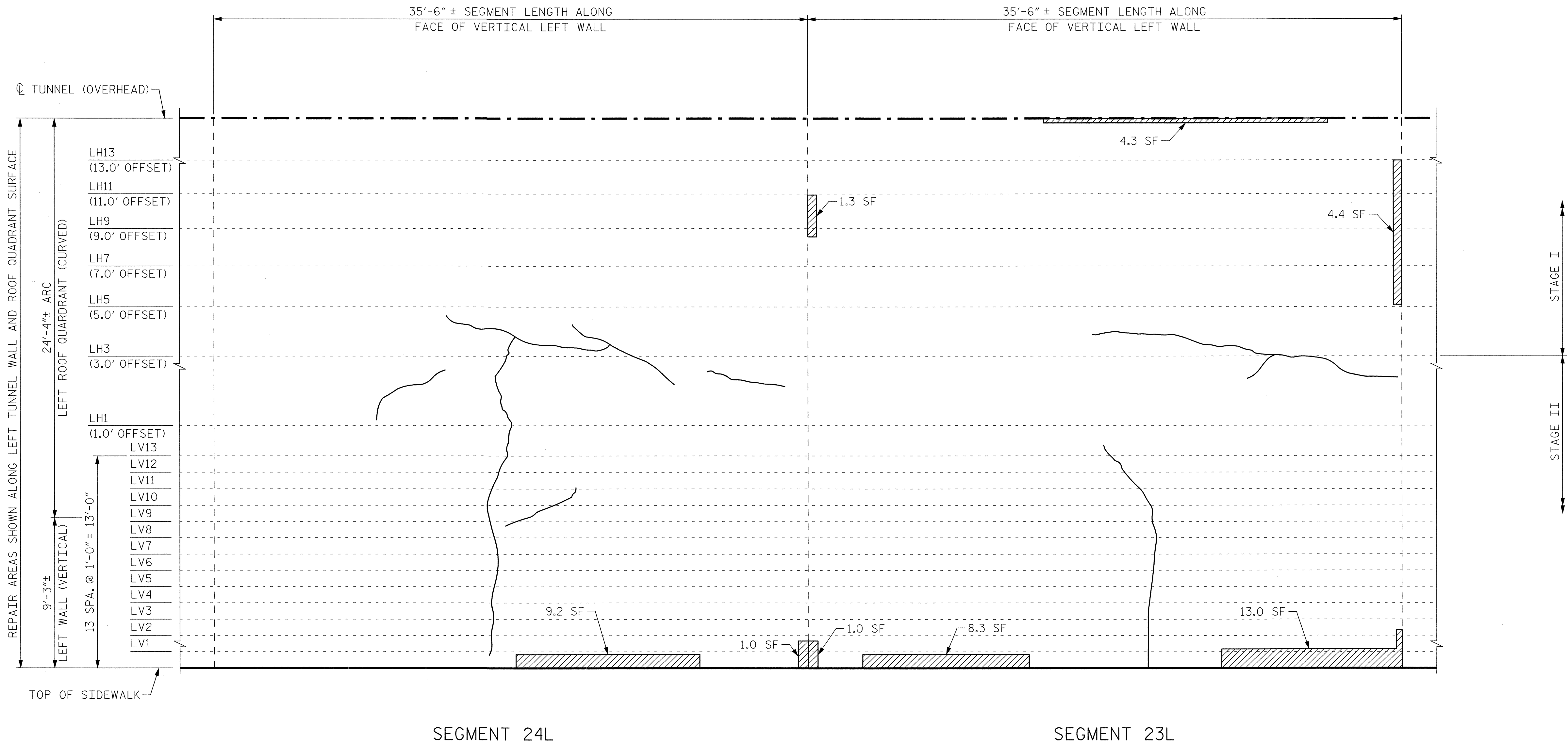


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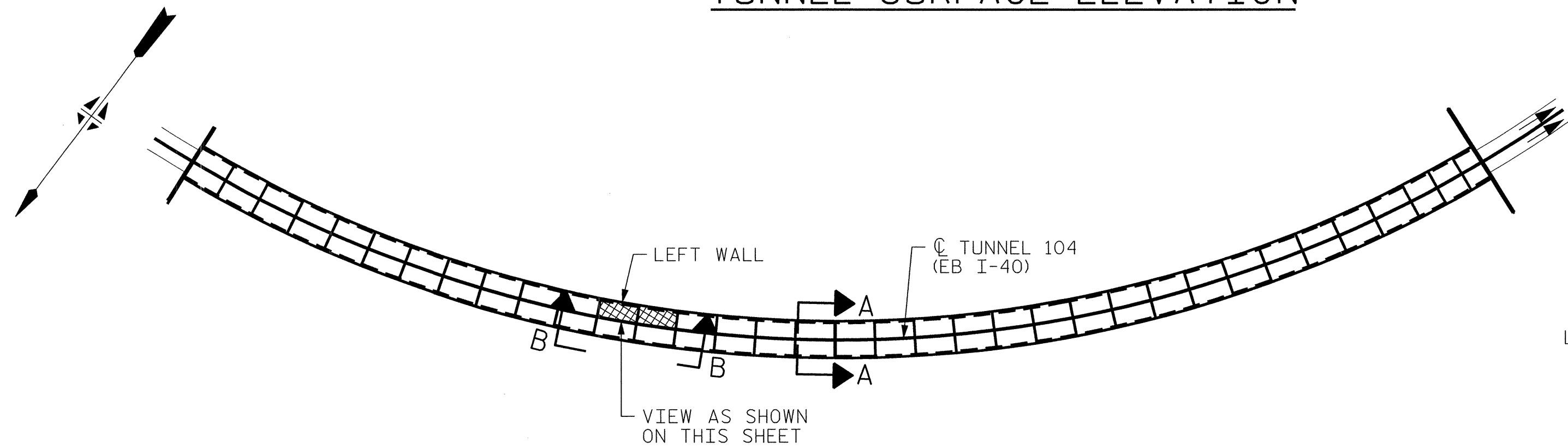
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CHECKED BY : M. MOYER DATE : 07/2013

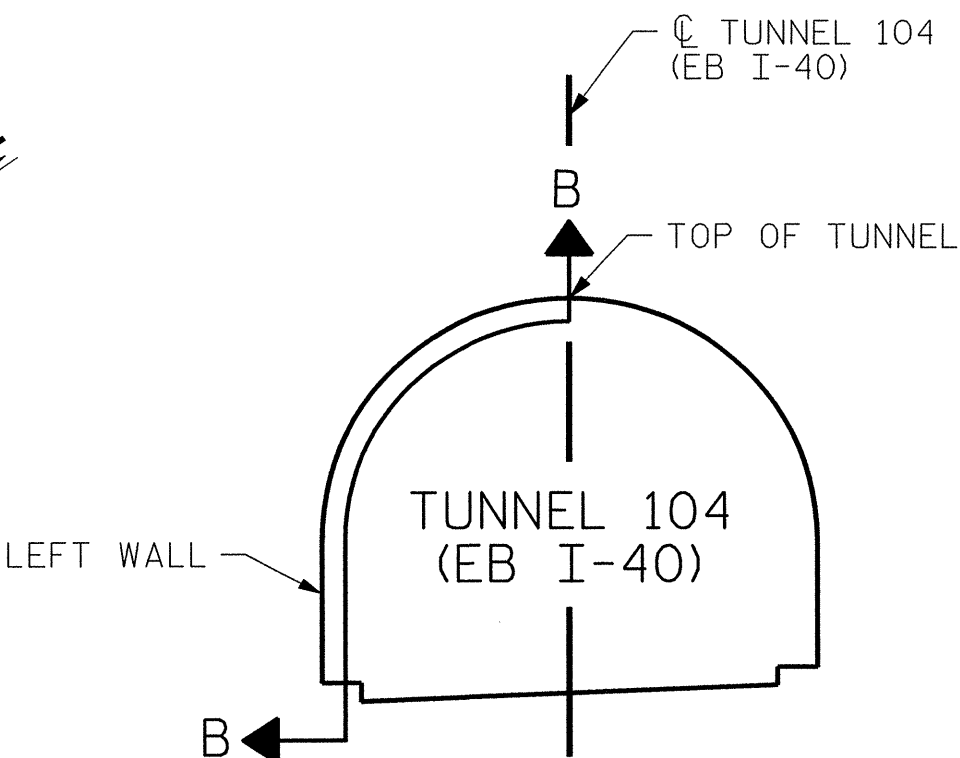
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 23L	CF	10.8	
SHOTCRETE REPAIRS SEGMENT 24L	CF	3.4	



VIEW B-B: REPAIR SEGMENTS 23L & 24L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 104 REPAIR
AREAS
SEGMENTS 23L & 24L



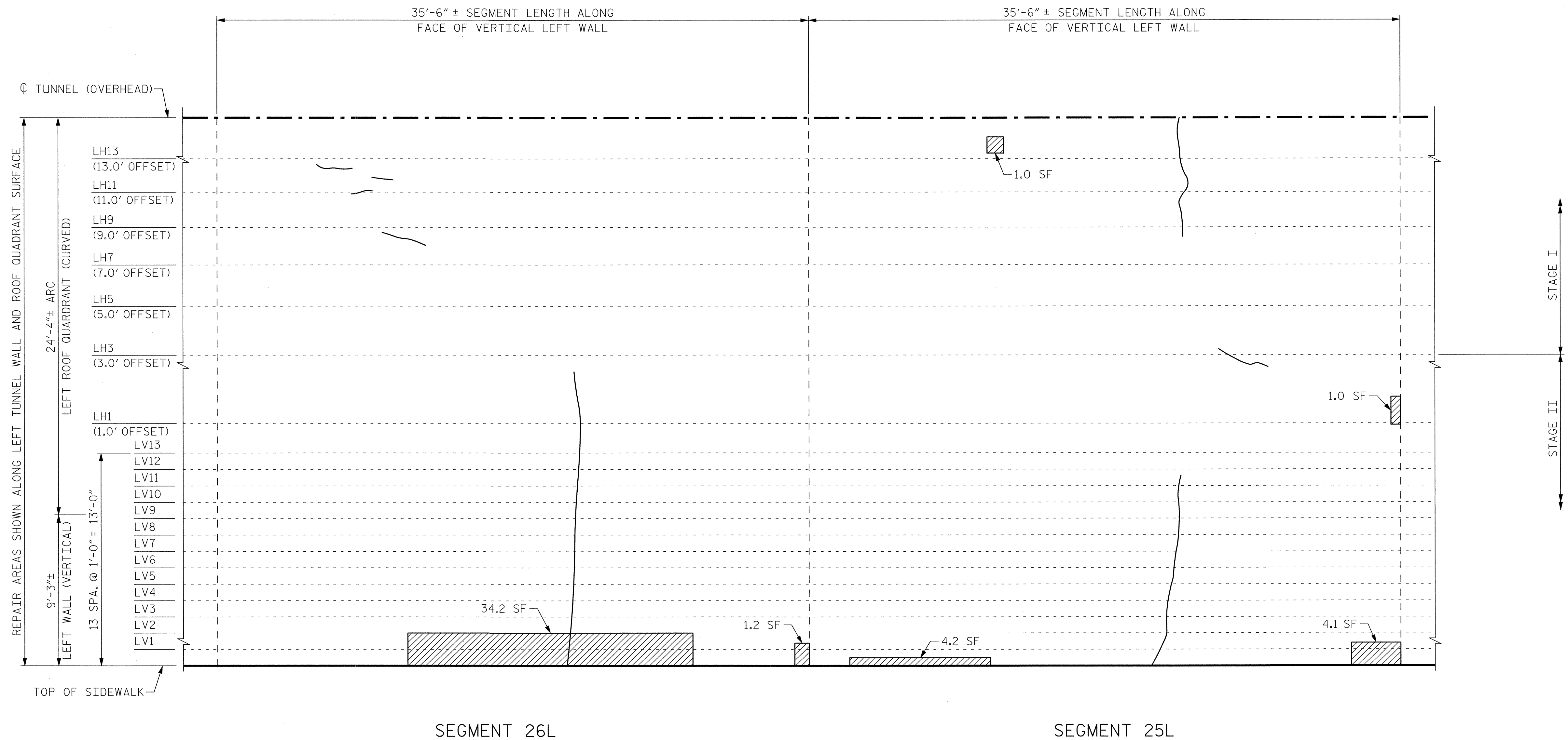
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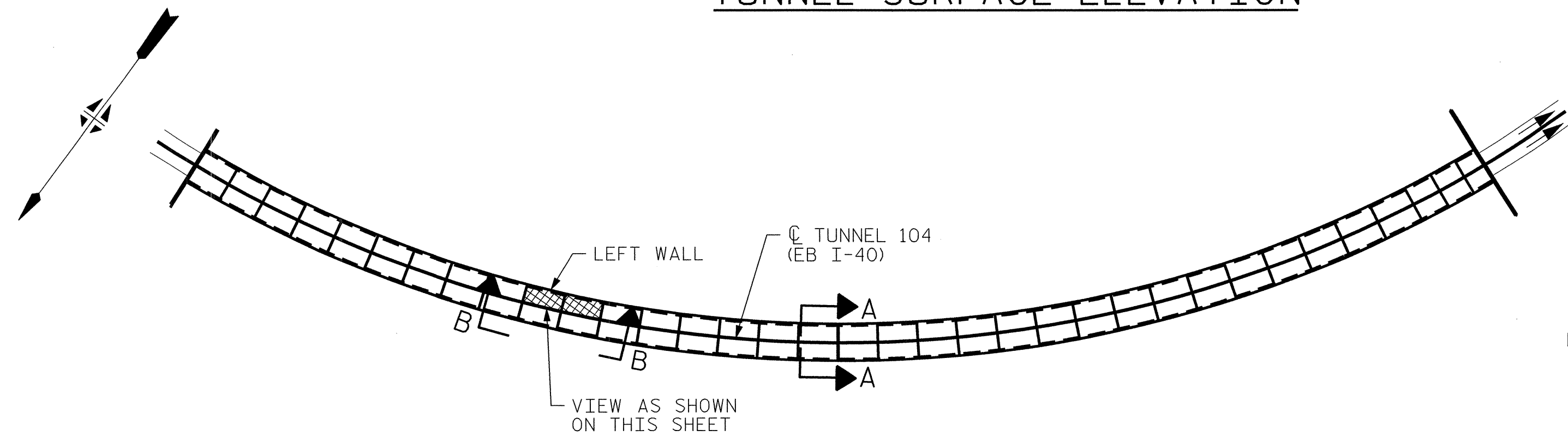
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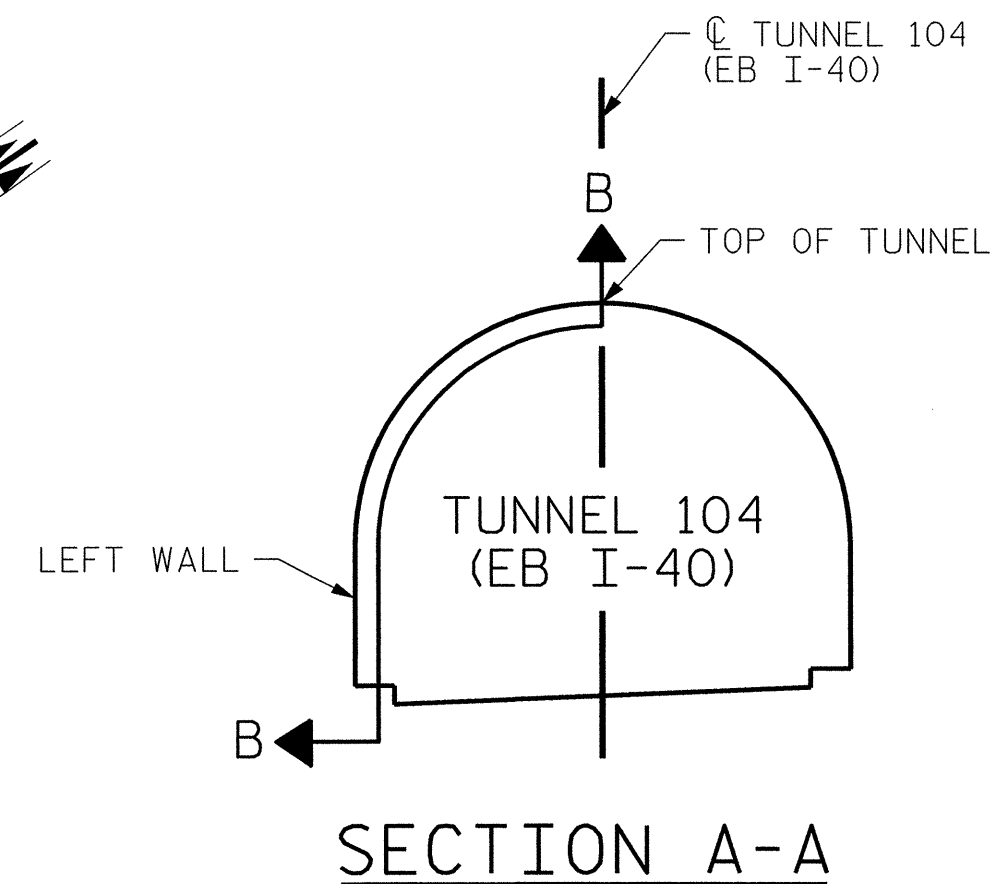
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 25L	CF	3.4	
SHOTCRETE REPAIRS SEGMENT 26L	CF	11.8	



VIEW B-B: REPAIR SEGMENTS 25L & 26L
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 25L & 26L

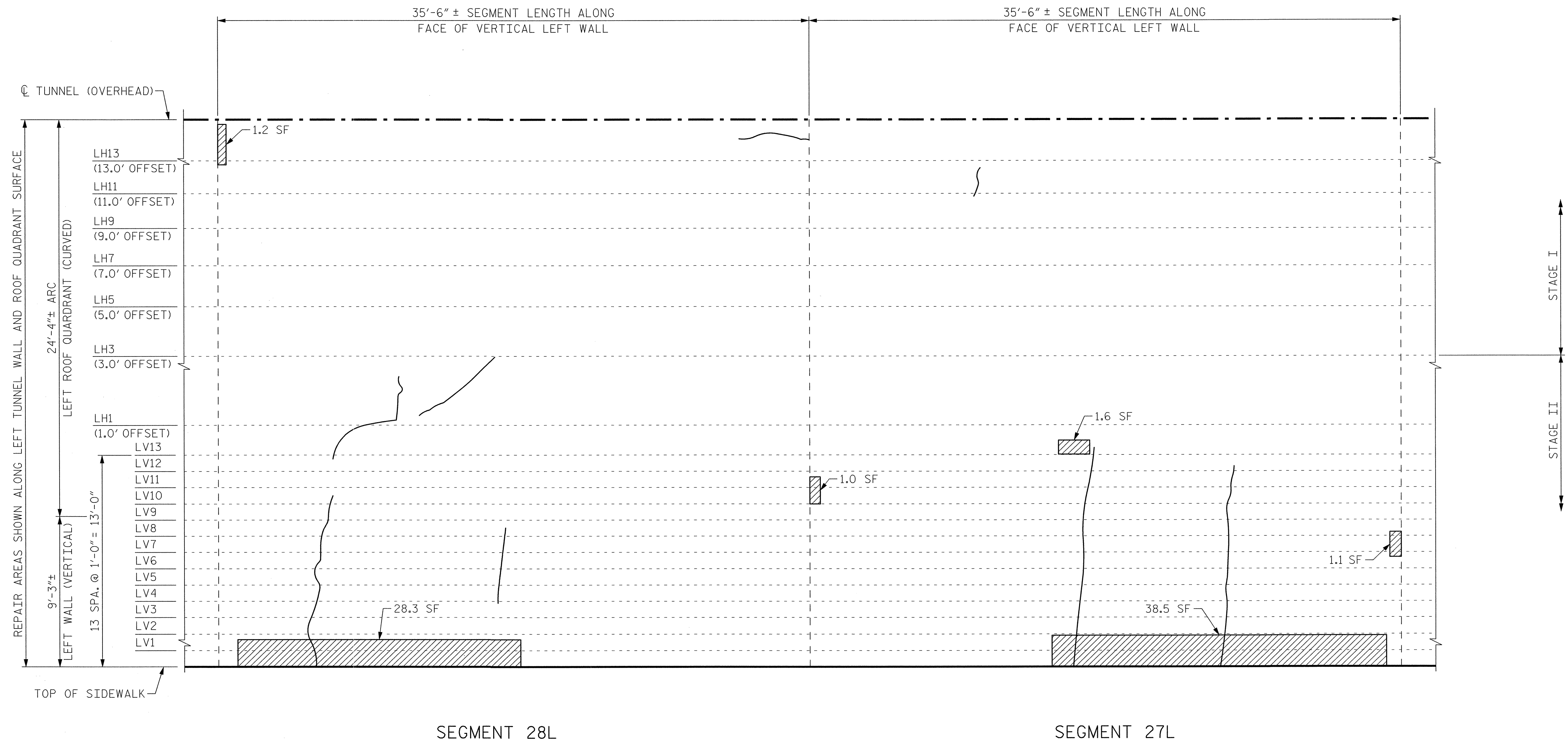


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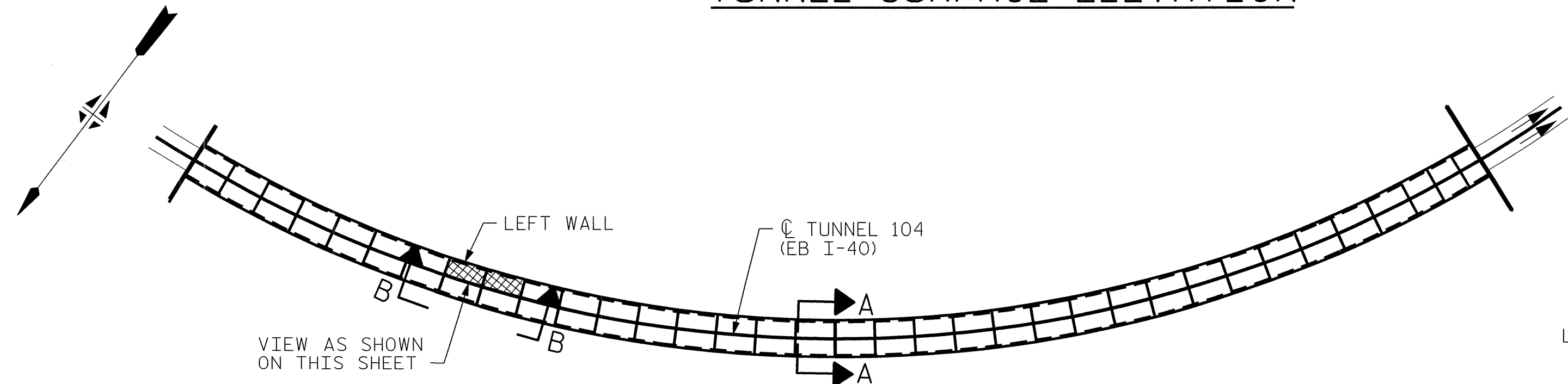
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CHECKED BY : M. MOYER DATE : 07/2013

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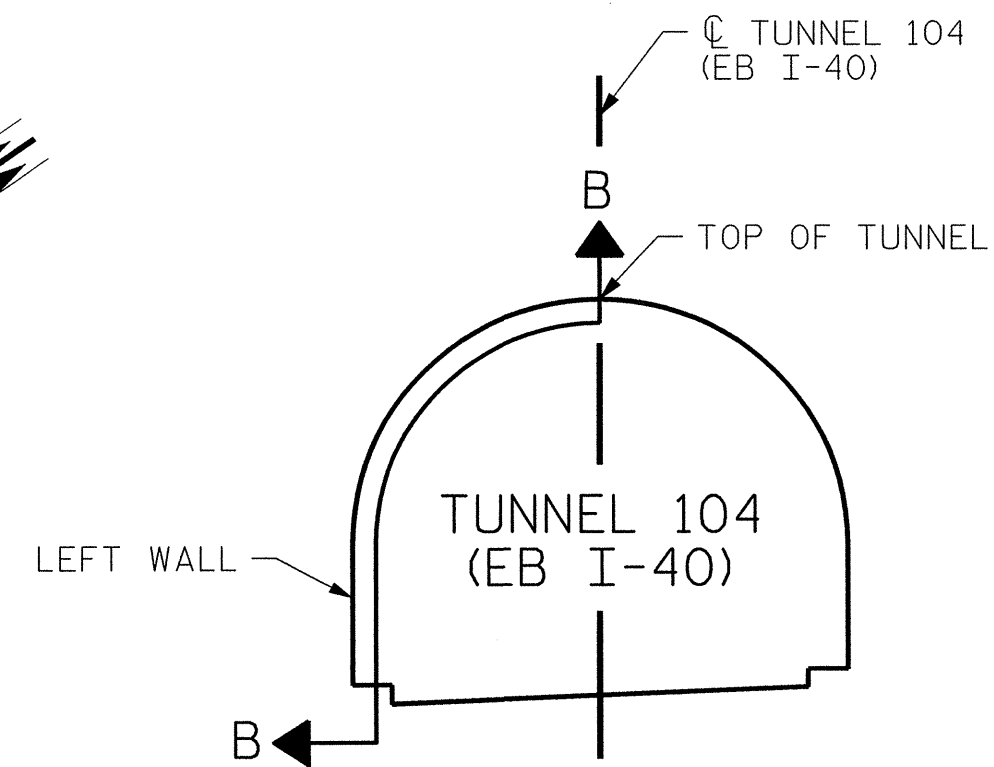
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SHOTCRETE REPAIRS SEGMENT 27L	CF	14.1	
SHOTCRETE REPAIRS SEGMENT 28L	CF	9.8	



VIEW B-B: REPAIR SEGMENTS 27L & 28L
TUNNEL SURFACE ELEVATION



KEY PLAN

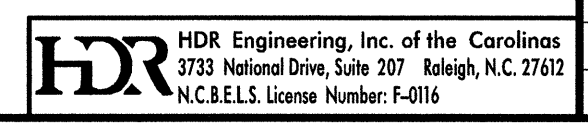


SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 27L & 28L

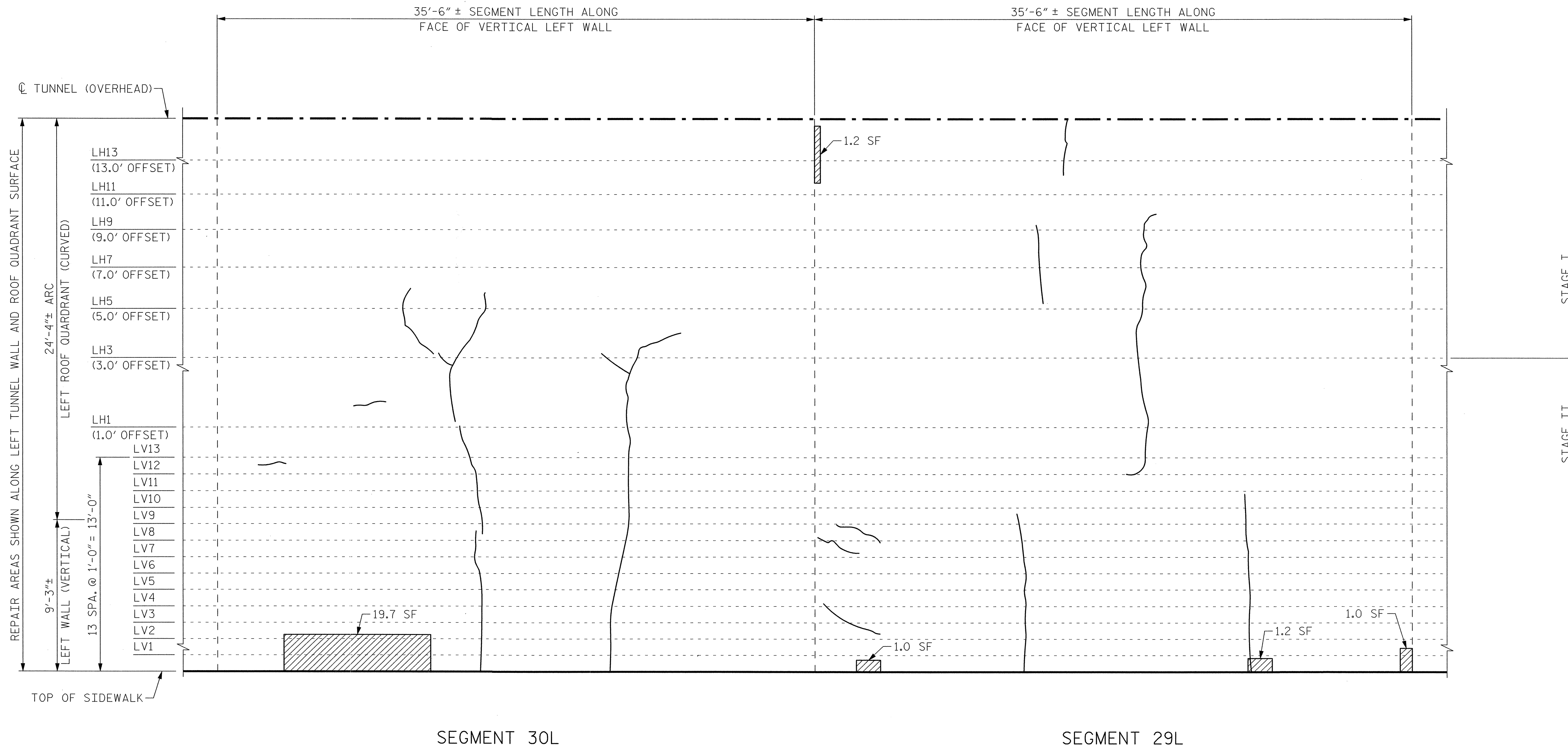


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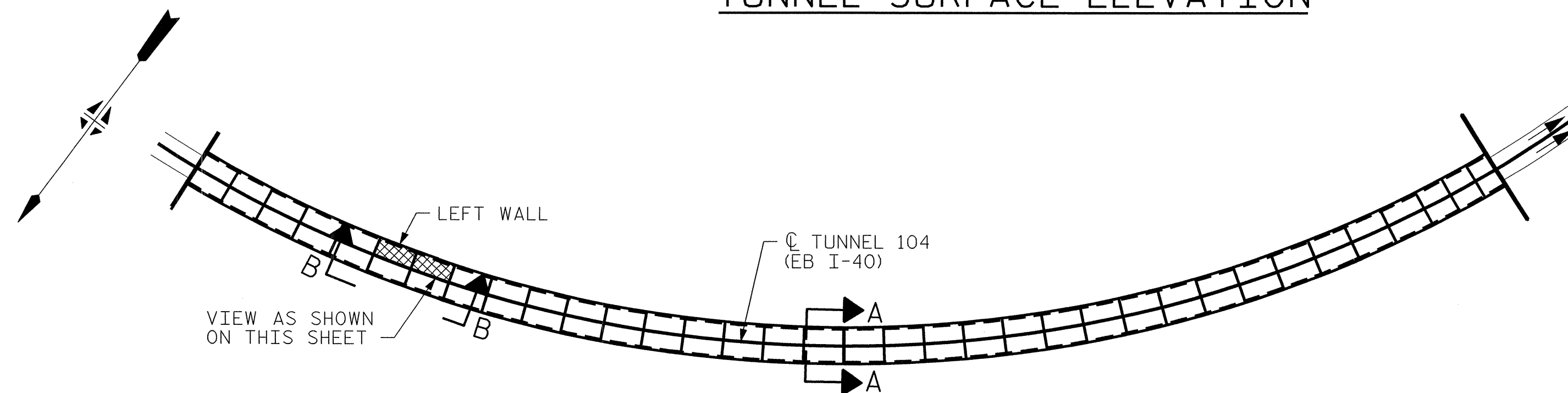
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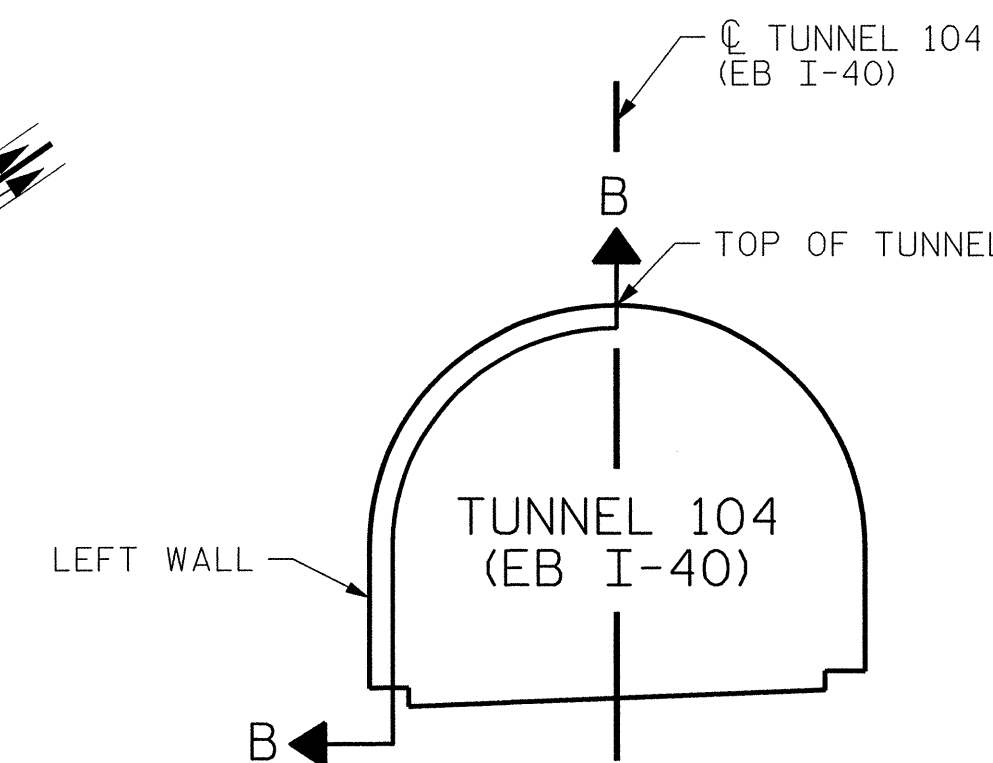
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 29L	CF	1.5	
SHOTCRETE REPAIRS SEGMENT 30L	CF	6.6	



VIEW B-B: REPAIR SEGMENTS 29L & 30L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 29L & 30L



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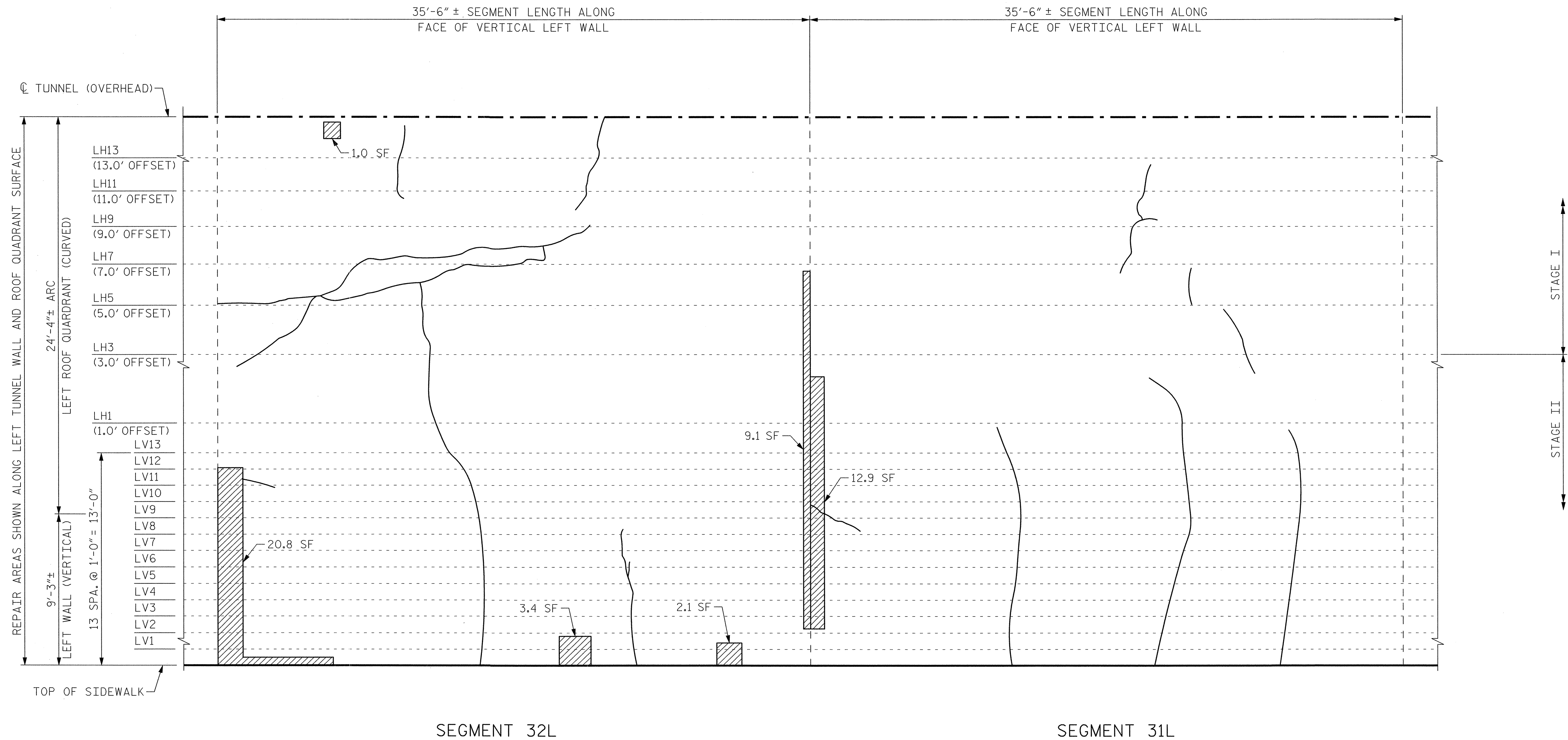
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CHECKED BY : M. MOYER DATE : 07/2013

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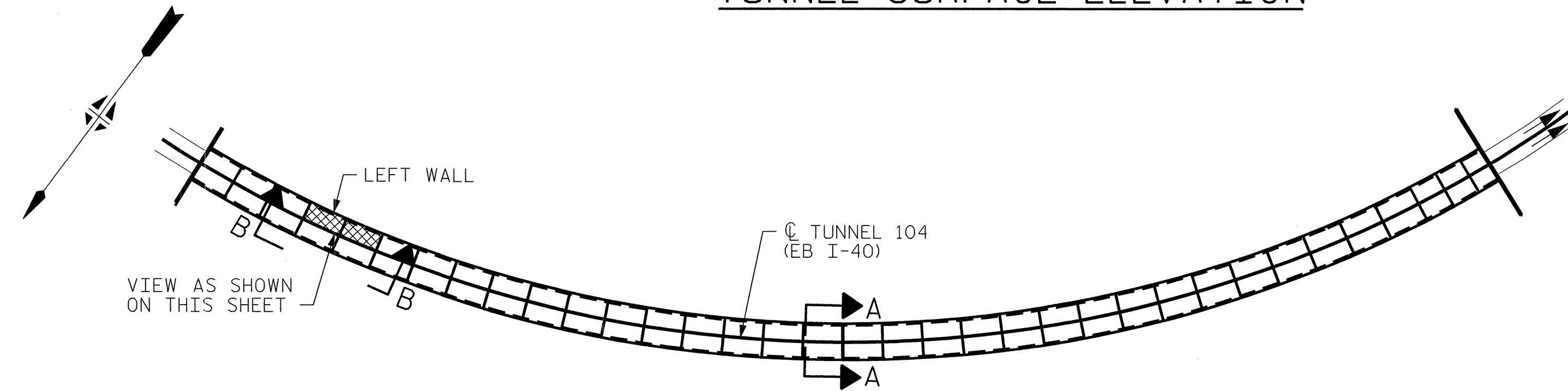
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CHECKED BY: M. MOYER
DATE: 07/2013

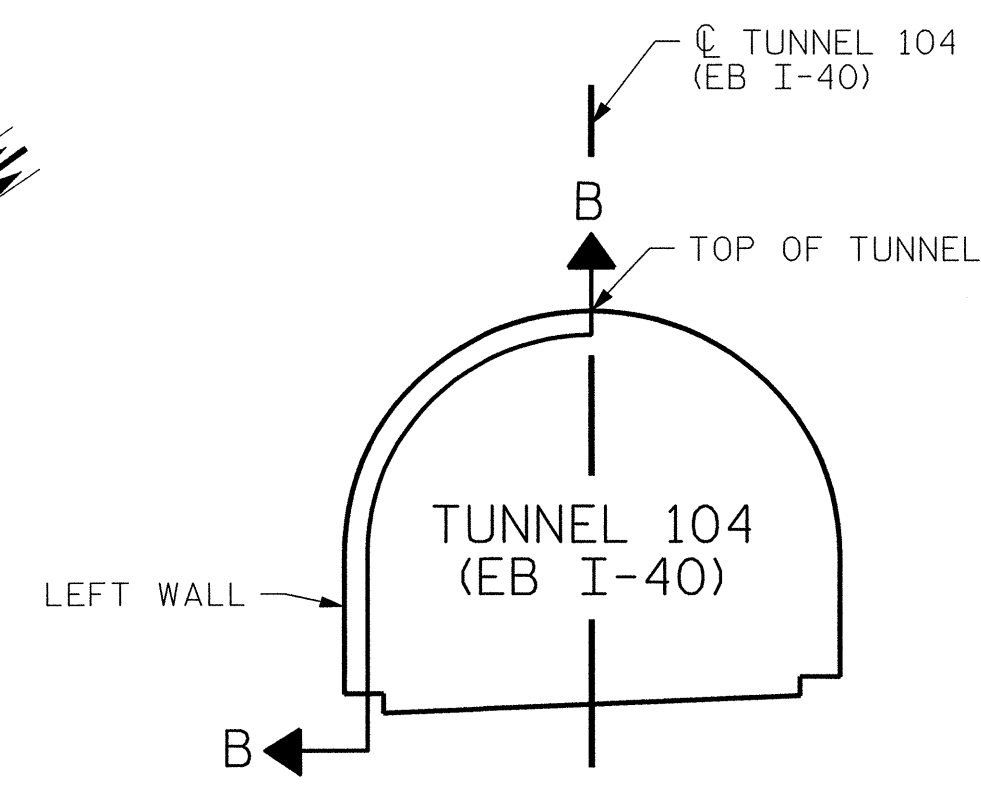
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SHOTCRETE REPAIRS SEGMENT 31L	CF	4.3	
SHOTCRETE REPAIRS SEGMENT 32L	CF	12.1	



VIEW B-B: REPAIR SEGMENTS 31L & 32L
TUNNEL SURFACE ELEVATION



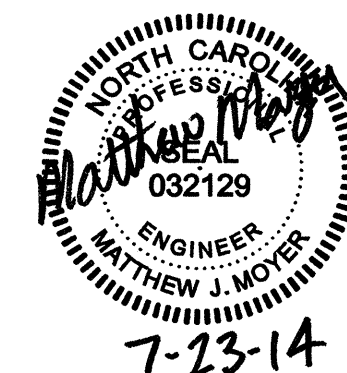
KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

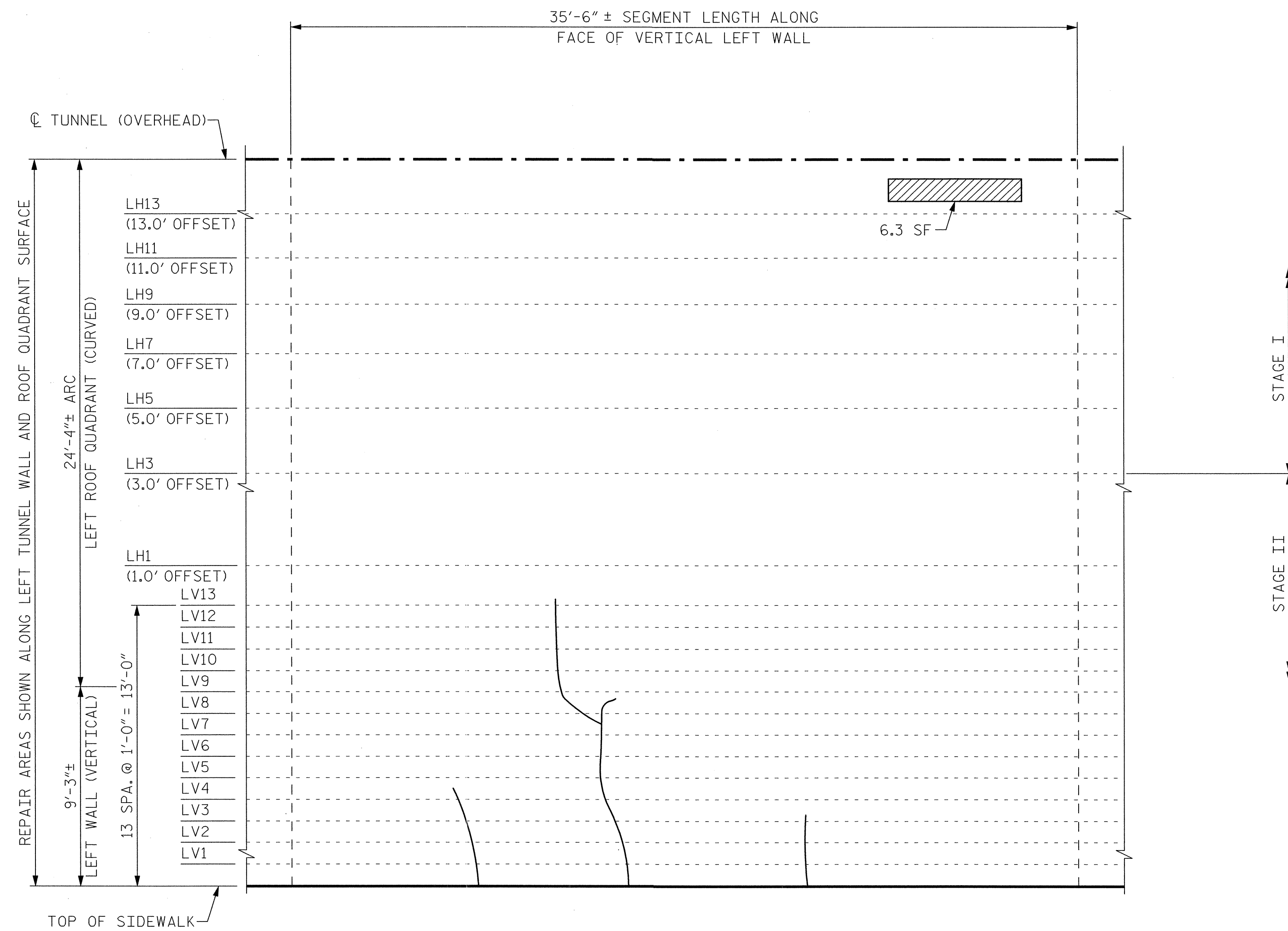
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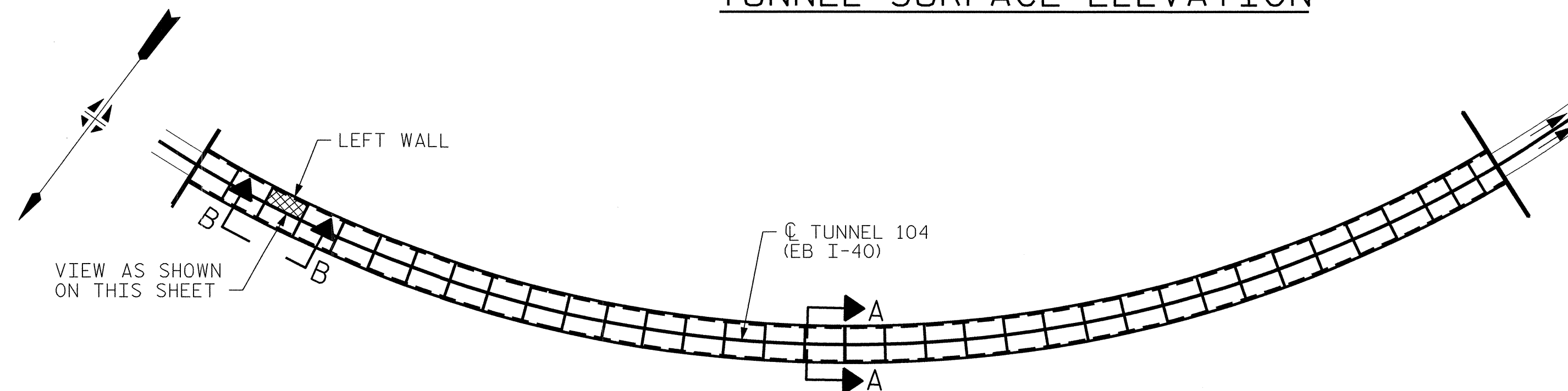
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CHECKED BY : M. MOYER
DATE : 07/2013
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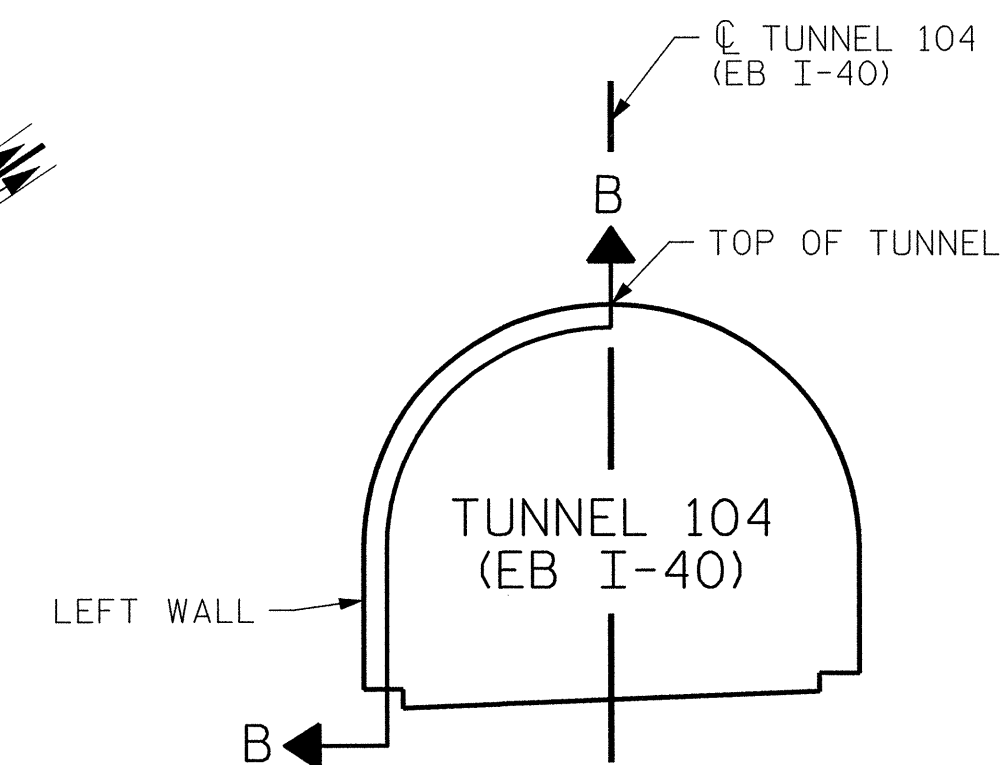


SEGMENT 33L

VIEW B-B: REPAIR SEGMENT 33L
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENT 33L



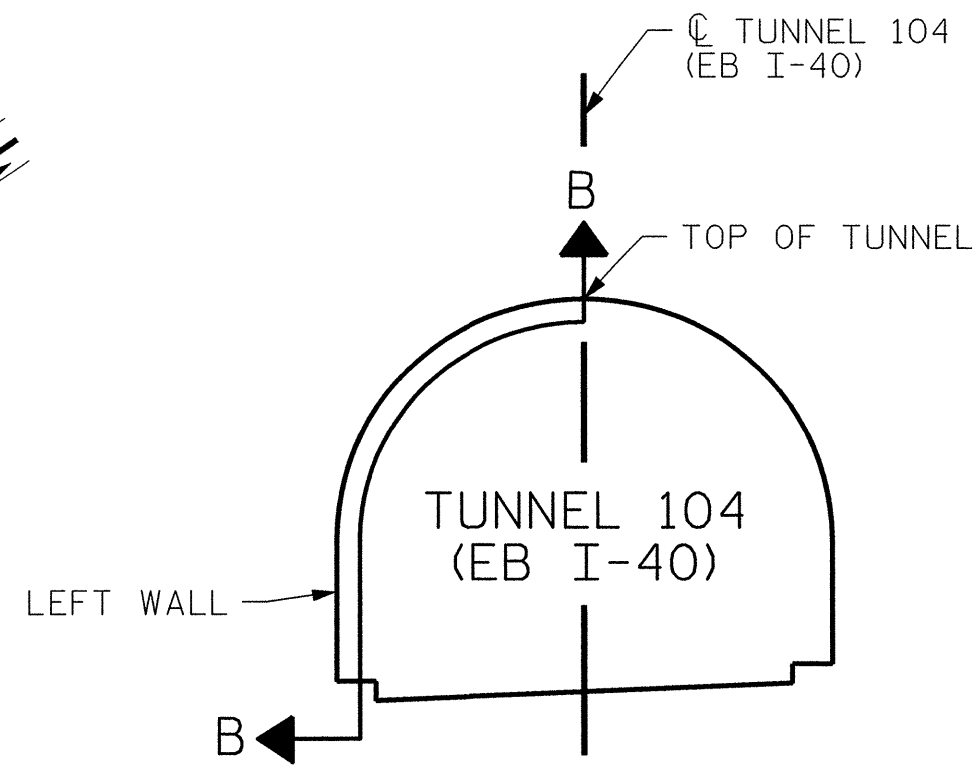
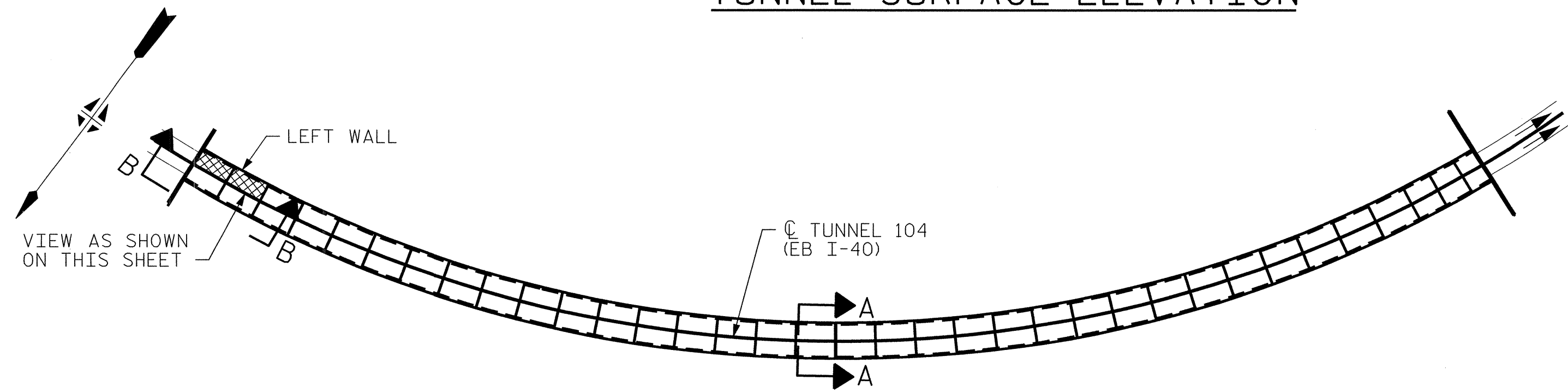
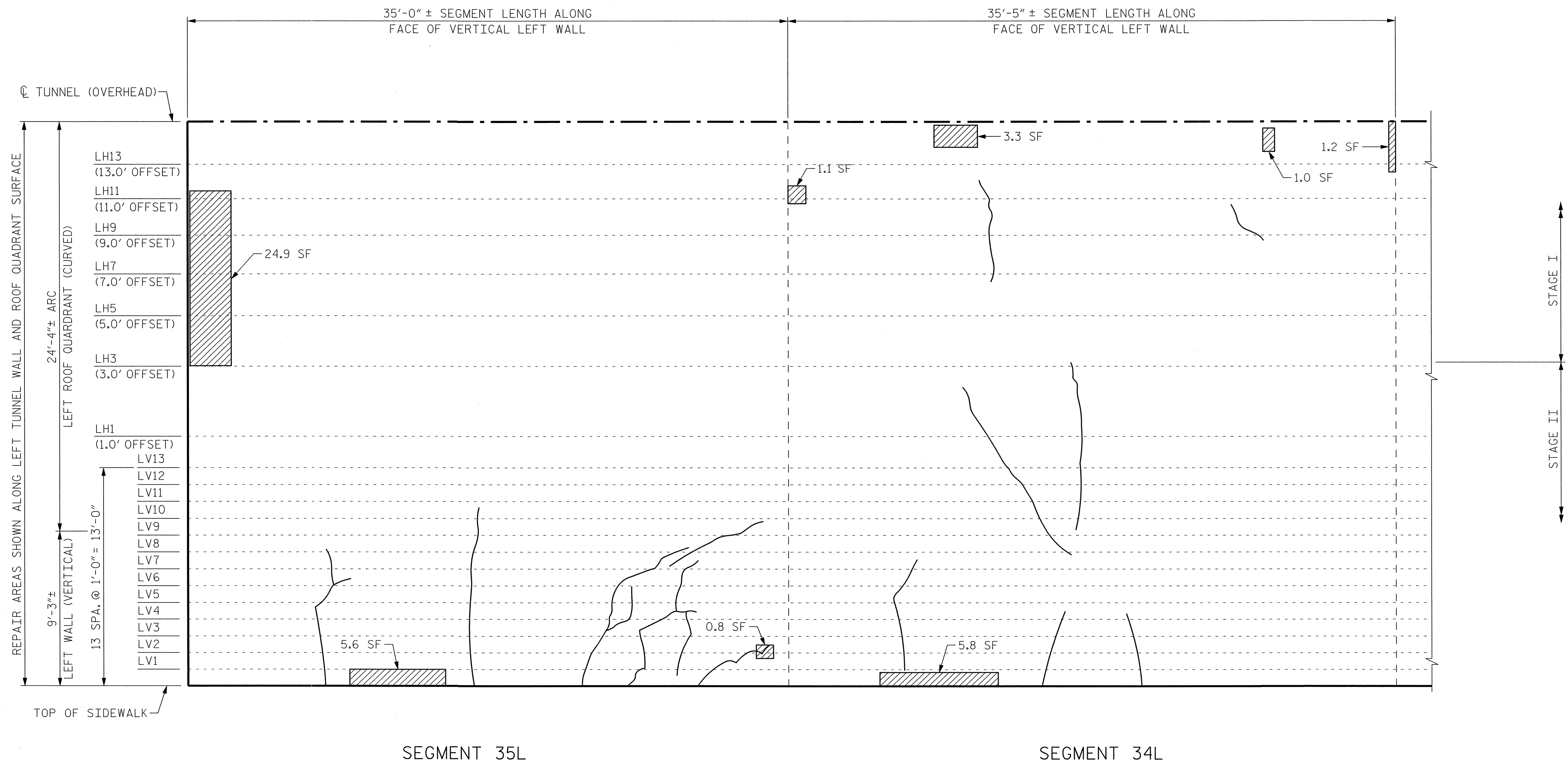
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N.C.B.E.L.S. License Number: F-3016

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2	--	--	4	--	--	

BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 34L	CF	4.1
SHOTCRETE REPAIRS SEGMENT 35L	CF	10.4



KEY PLAN

SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 34L & 35L

REVISIONS						SHEET NO. S-090 TOTAL SHEETS 110
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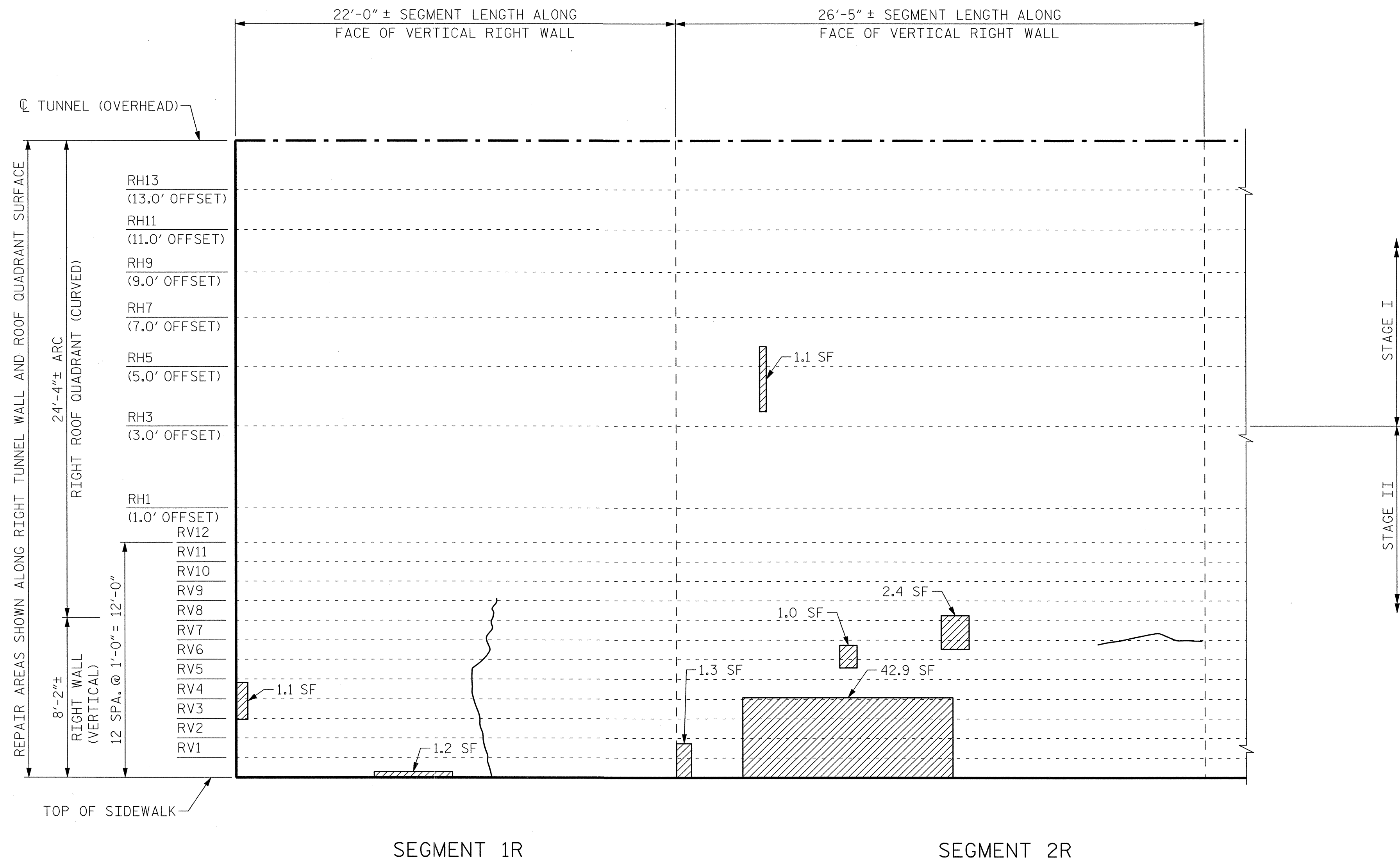


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N.C.B.E.L.S. License Number: F-0116

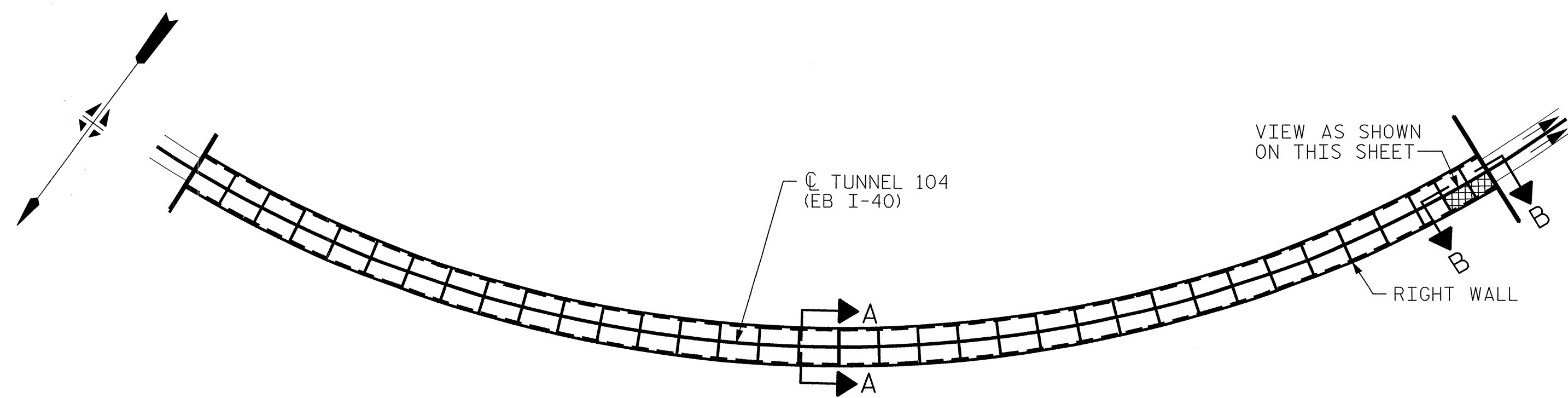
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CHECKED BY: M. MOYER DATE: 07/2013

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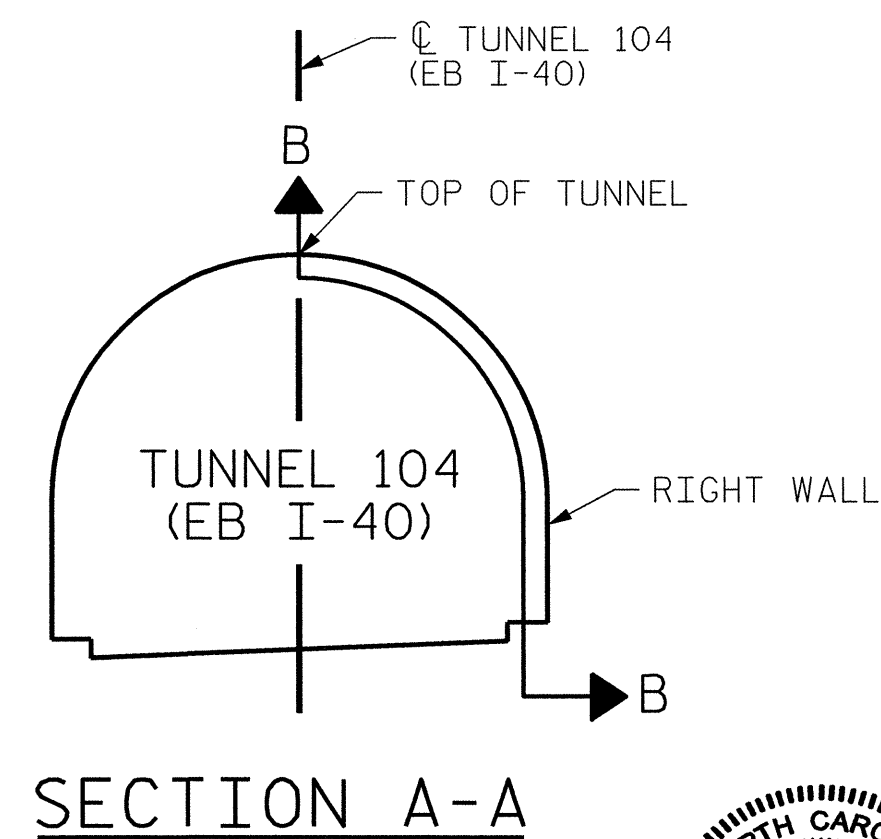
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 1R	CF	0.8	
SHOTCRETE REPAIRS SEGMENT 2R	CF	16.2	



VIEW B-B: REPAIR SEGMENTS 1R & 2R
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 1R & 2R



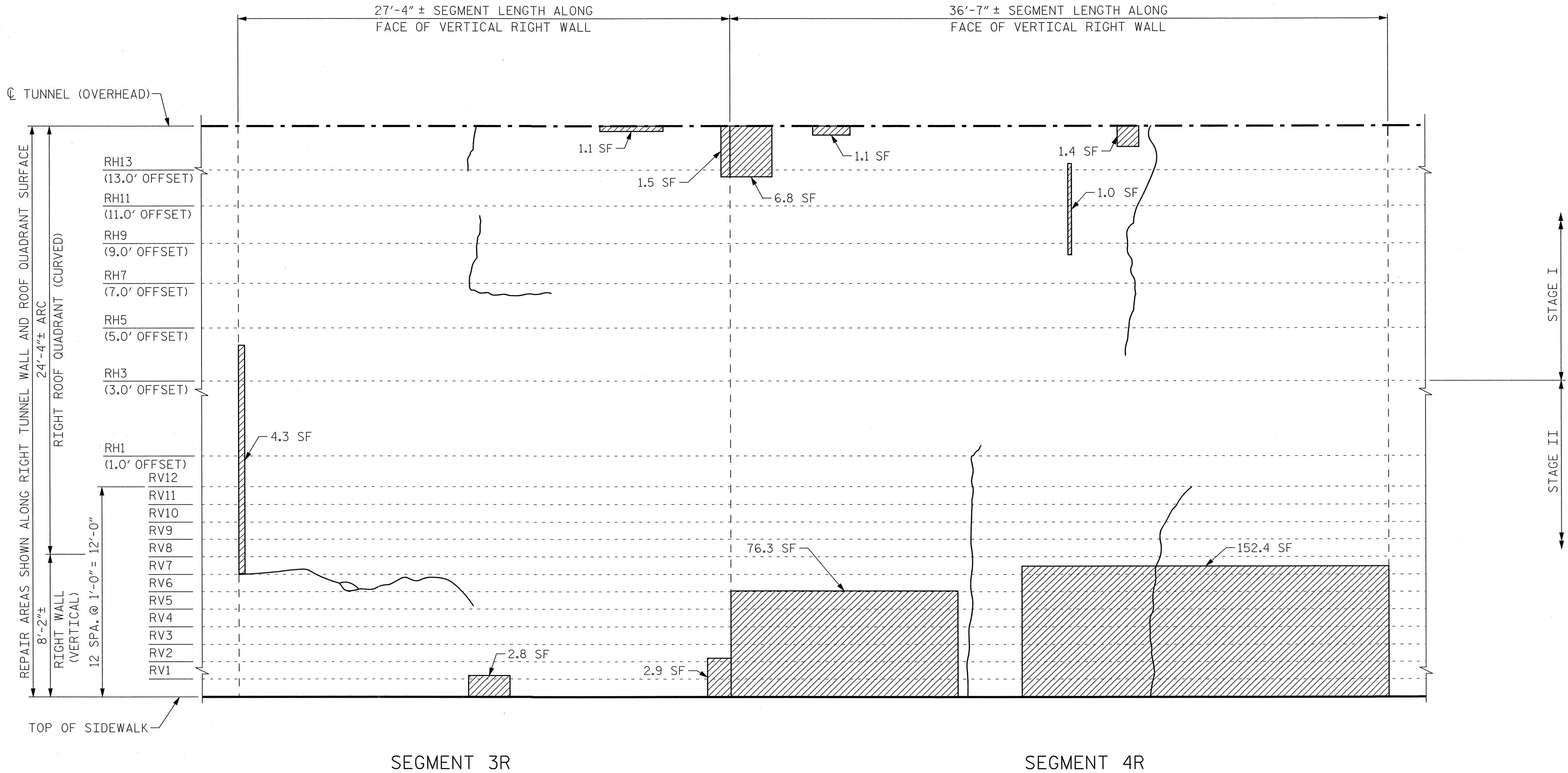
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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-091
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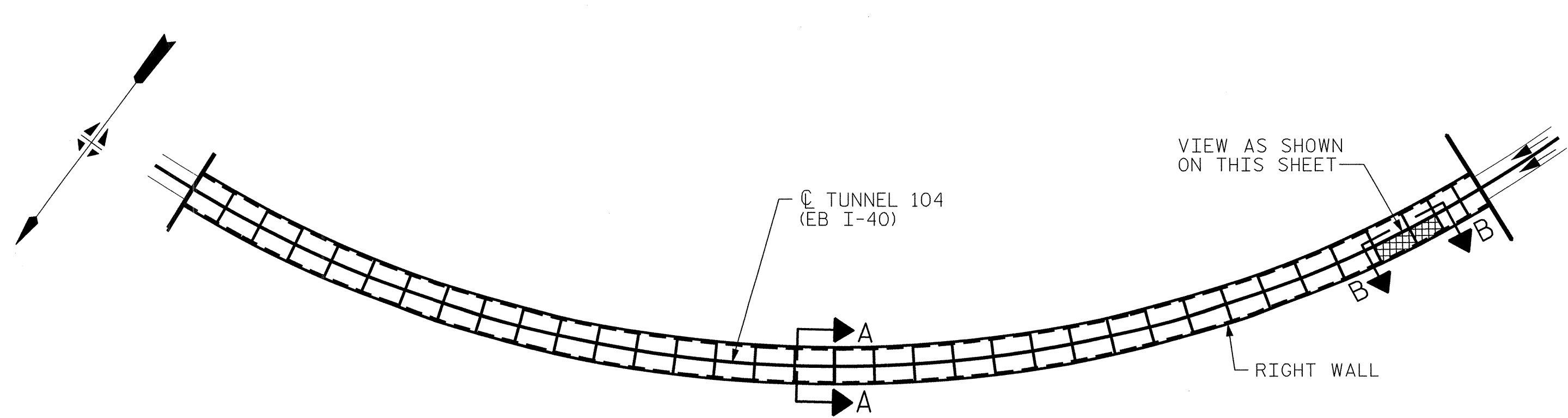
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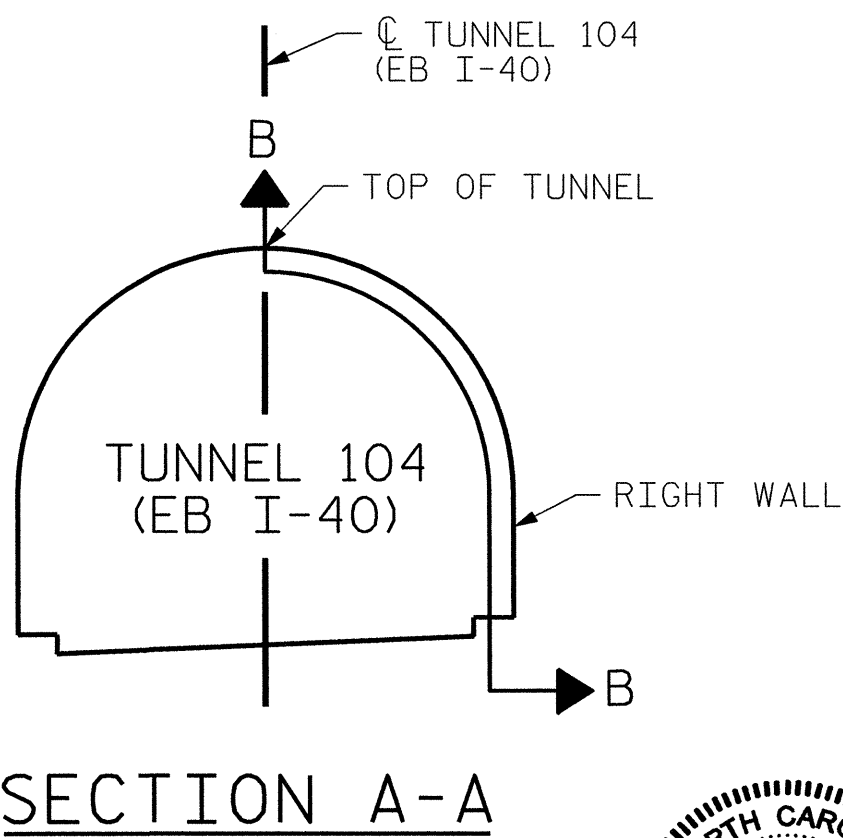
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SHOTCRETE REPAIRS SEGMENT 3R	CF	4.1	
SHOTCRETE REPAIRS SEGMENT 4R	CF	79.7	



VIEW B-B: REPAIR SEGMENTS 3R & 4R
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 104 REPAIR AREAS SEGMENTS 3R & 4R					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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TOTAL SHEETS 110					

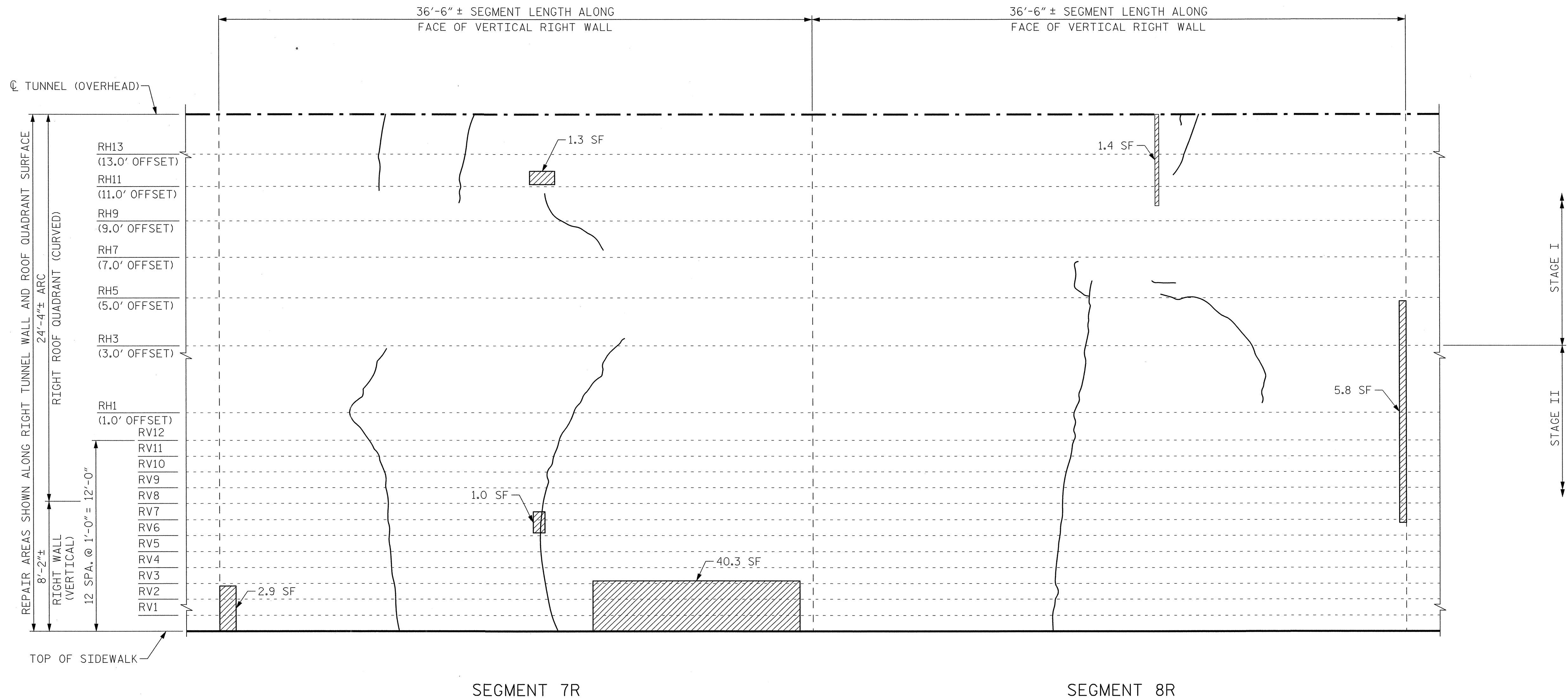


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N.C.B.E.L.S. License Number: F-0116

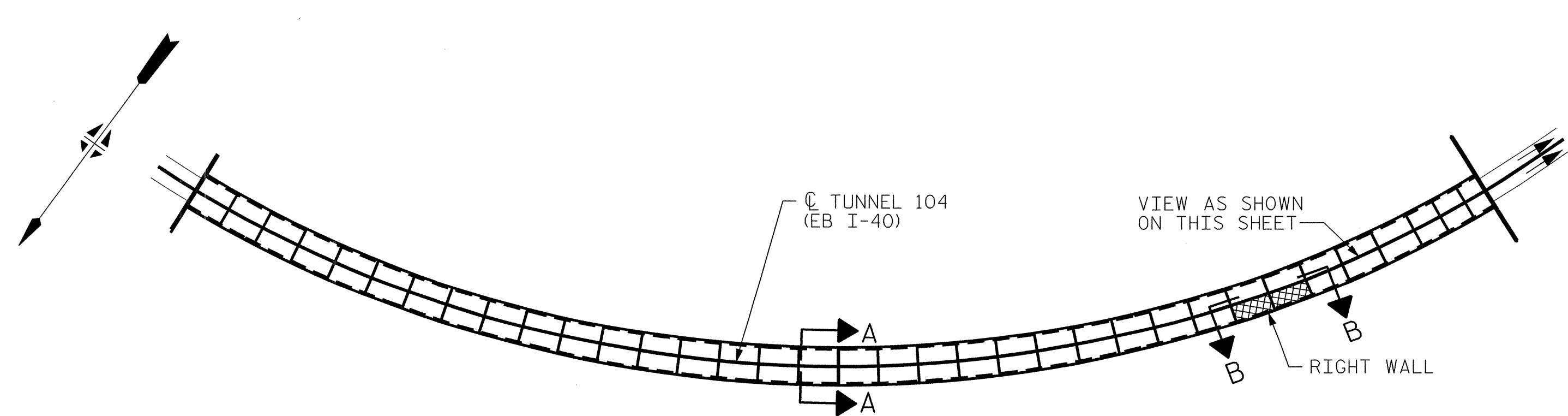
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CHECKED BY : M. MOYER DATE : 07/2013

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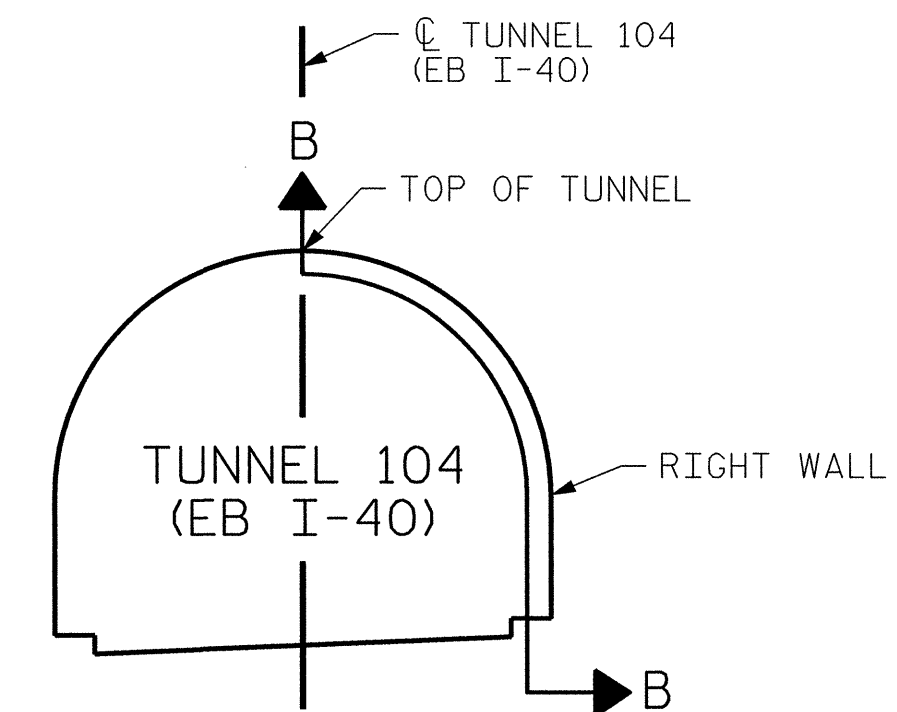
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SHOTCRETE REPAIRS	SEGMENT 7R	CF	15.2
SHOTCRETE REPAIRS	SEGMENT 8R	CF	2.4



VIEW B-B: REPAIR SEGMENTS 7R & 8R
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 7R & 8R

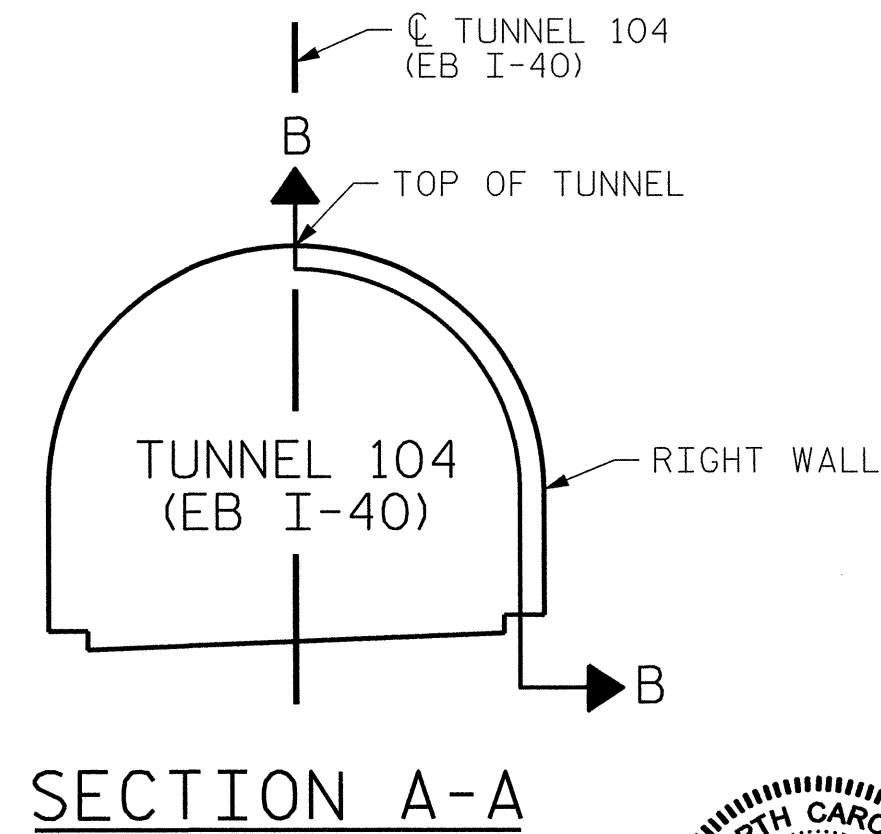
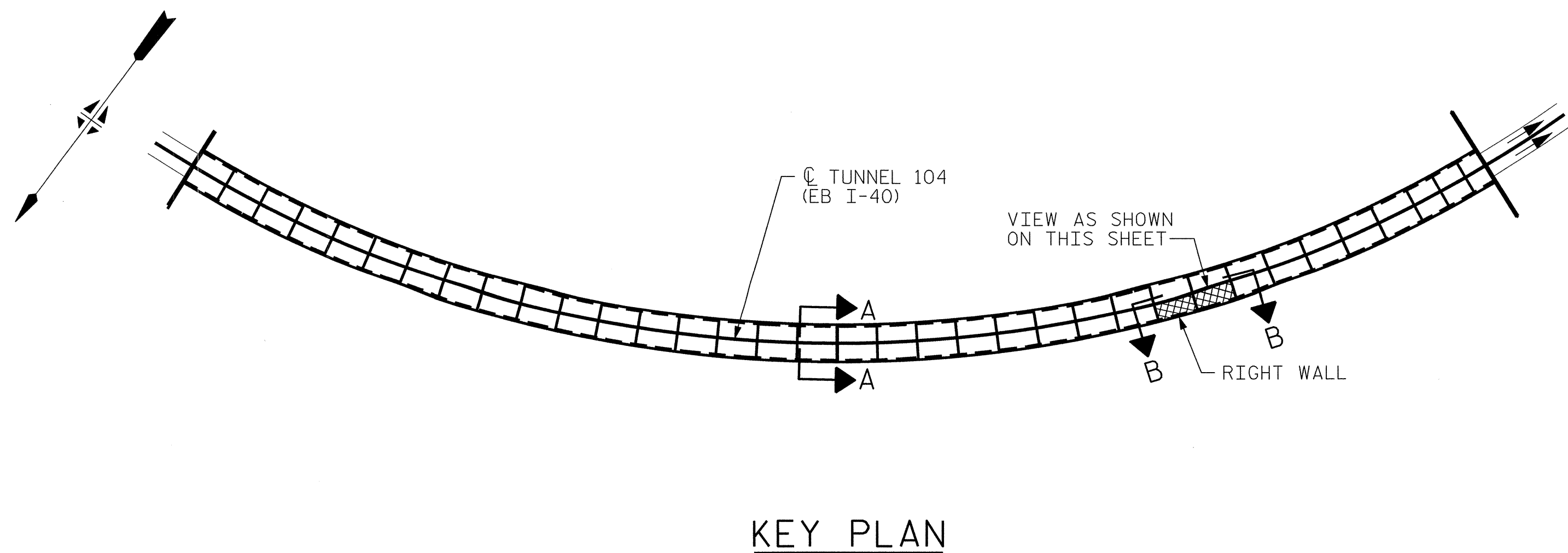
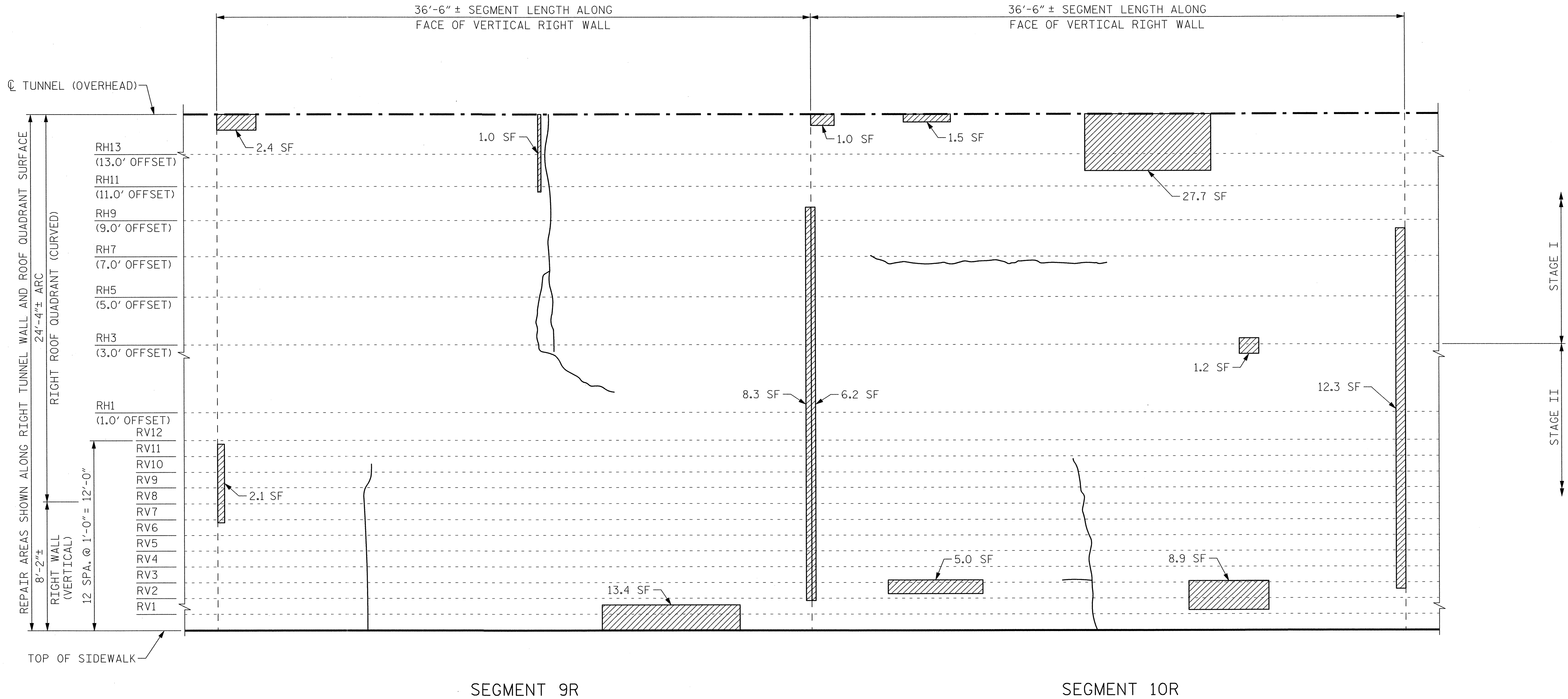
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N.C.B.E.L.S. License Number: F-0116



DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 9R	CF	9.1	
SHOTCRETE REPAIRS SEGMENT 10R	CF	21.3	



PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 104 REPAIR AREAS SEGMENTS 9R & 10R					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
SHEET NO. S-095 TOTAL SHEETS 110					

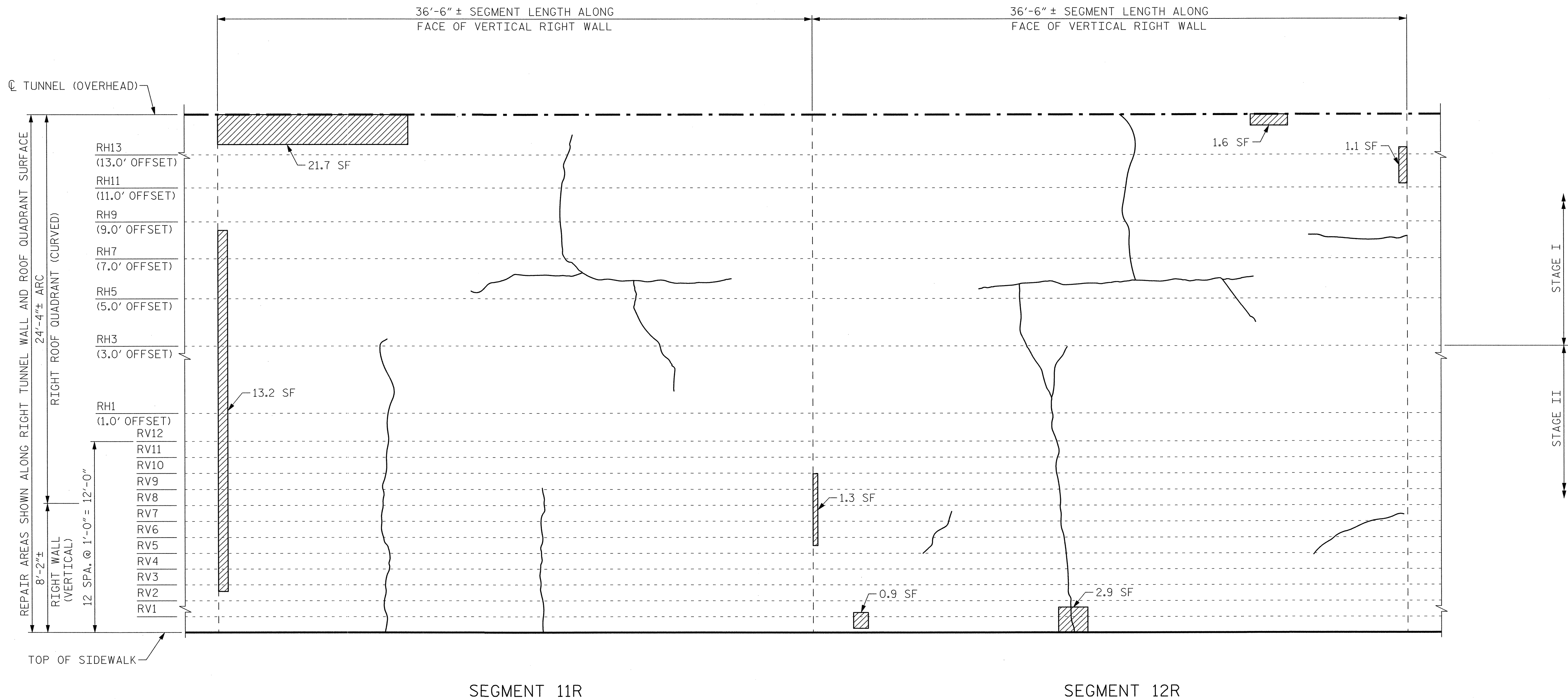


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N.C.B.E.L.S. License Number: F-0116

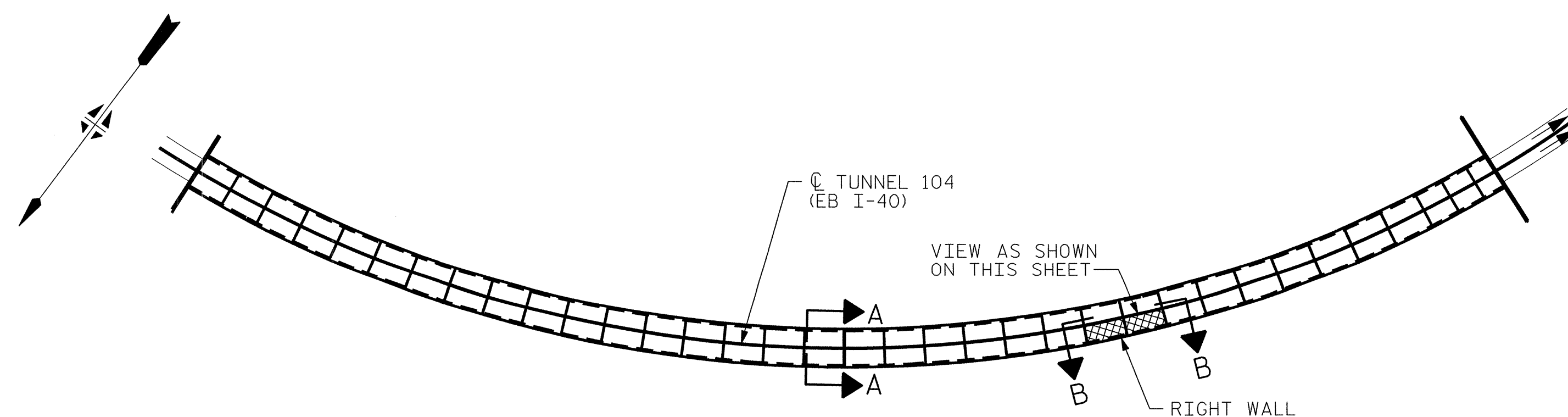
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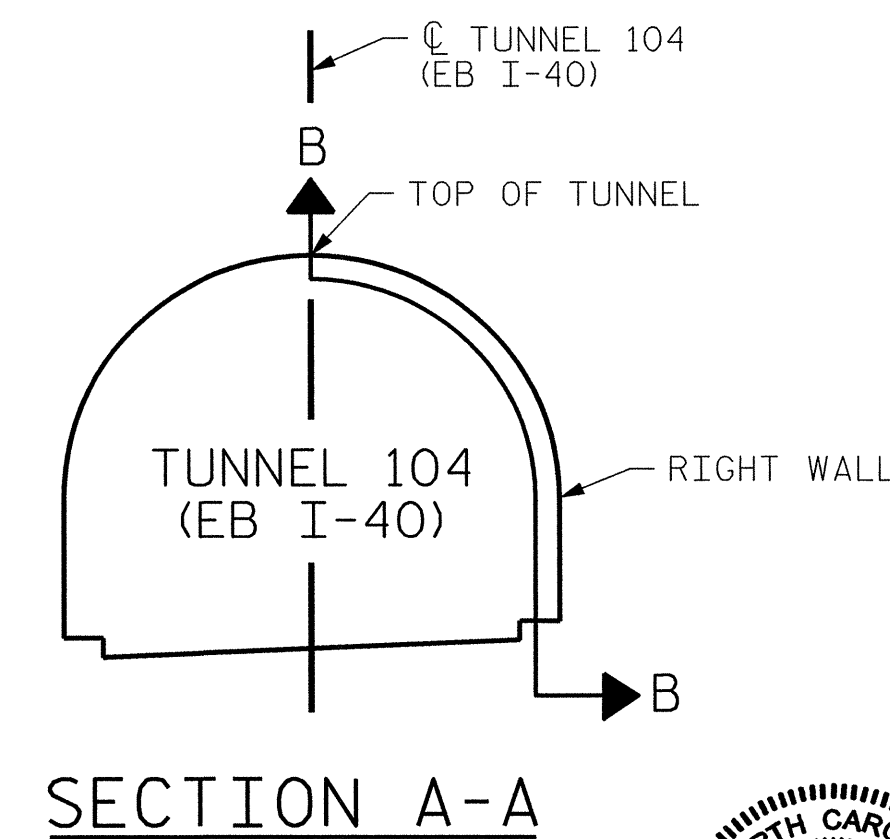
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 11R	CF	11.6	
SHOTCRETE REPAIRS SEGMENT 12R	CF	2.6	



VIEW B-B: REPAIR SEGMENTS 11R & 12R
TUNNEL SURFACE ELEVATION



KEY PLAN



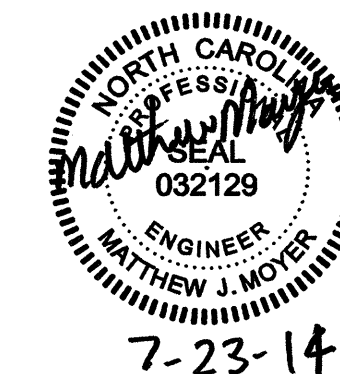
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 11R & 12R

REVISIONS						SHEET NO. S-096
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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N.C.B.E.L.S. License Number: F-0116

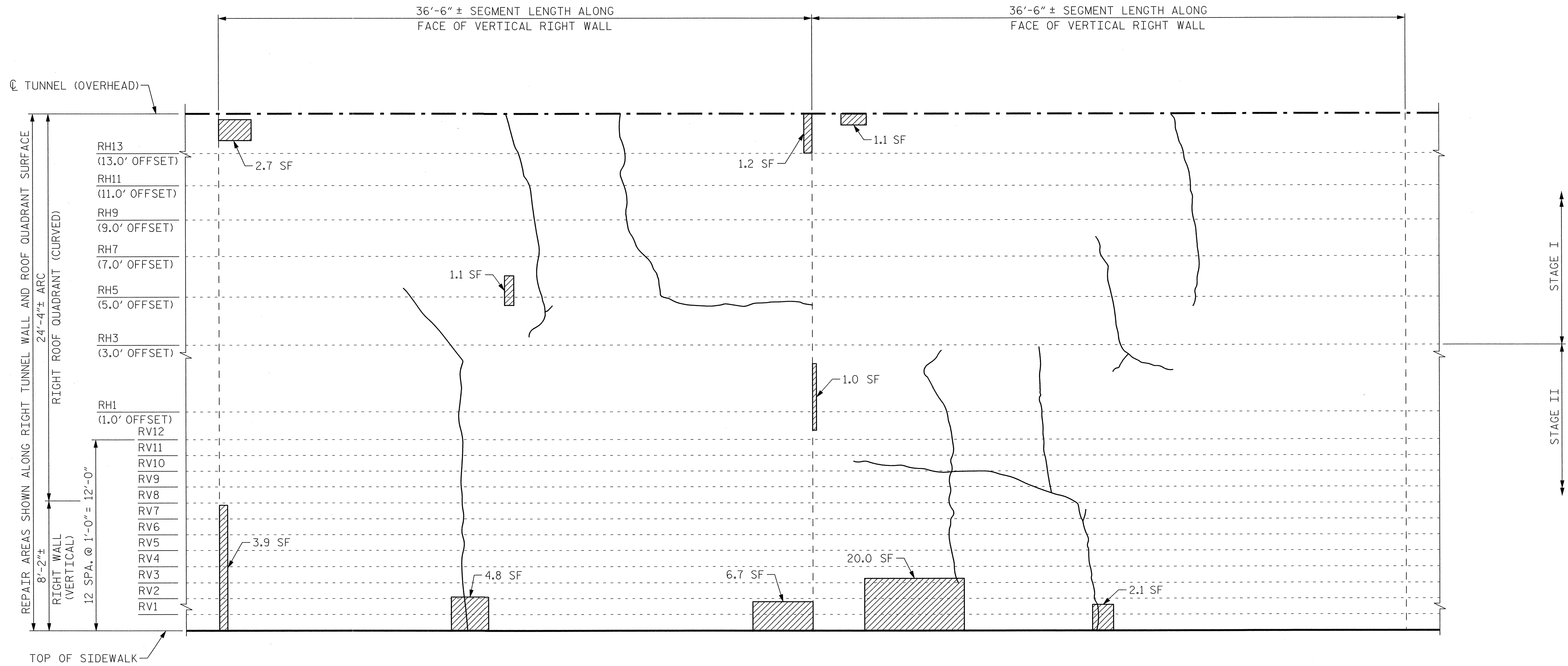


7-23-14

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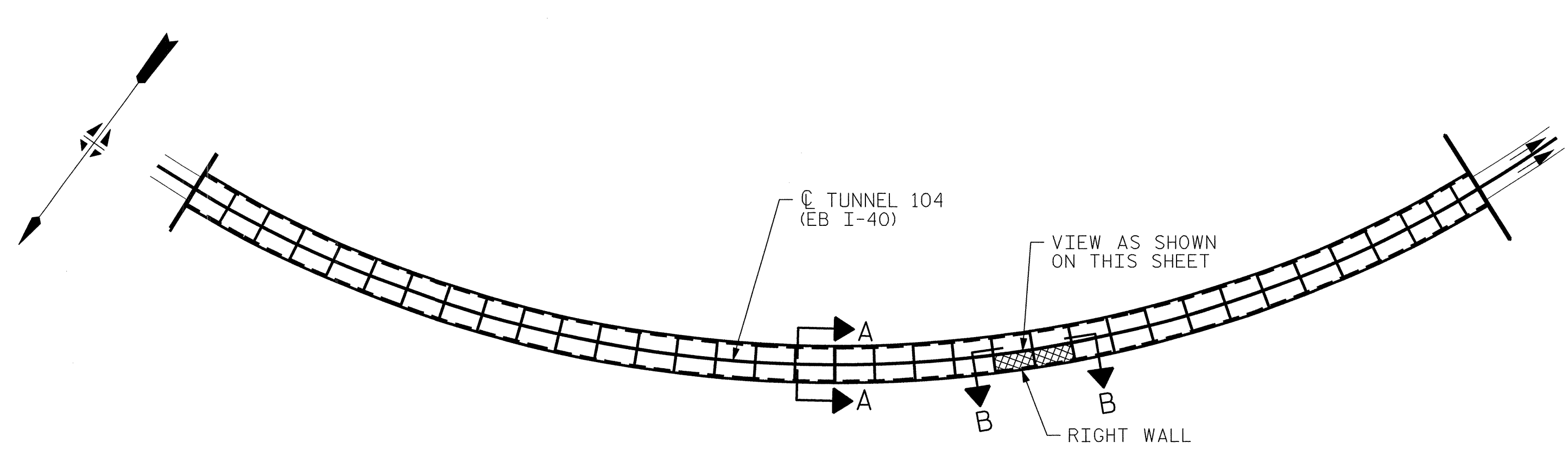
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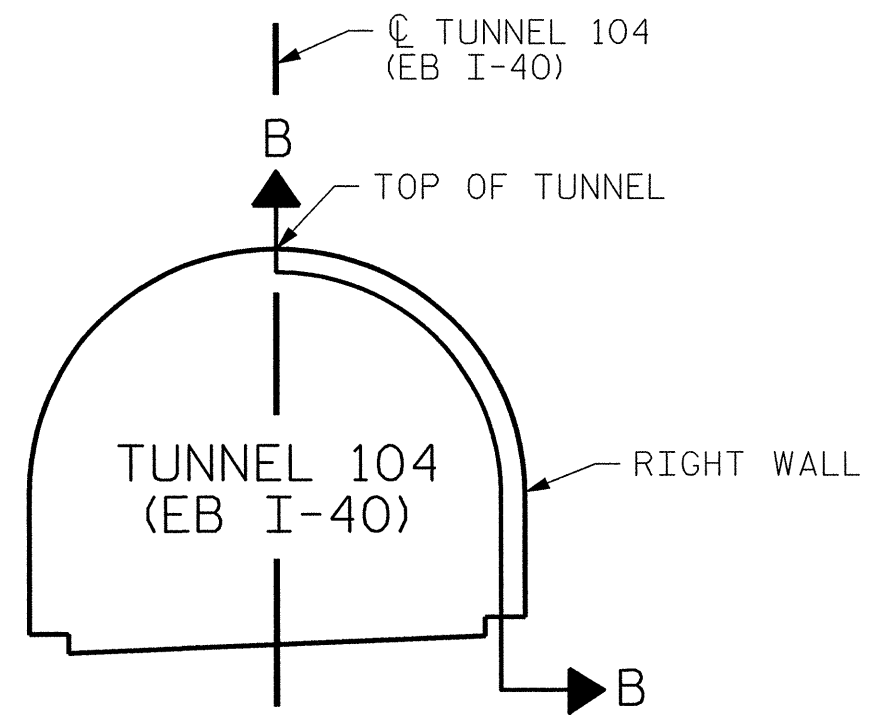
SEGMENT 13R

SEGMENT 14R

VIEW B-B: REPAIR SEGMENTS 13R & 14R
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 13R & 14R

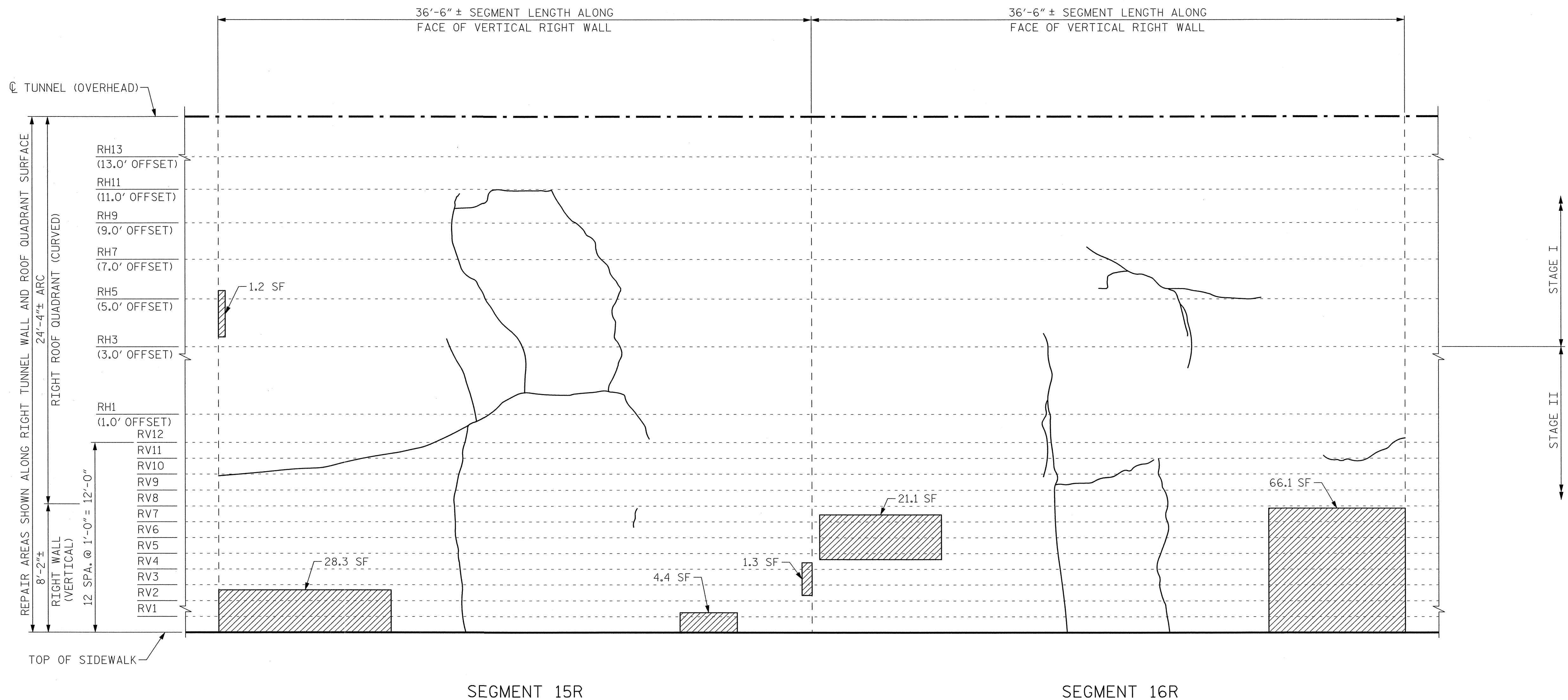
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N.C.B.E.L.S. License Number: F-0116

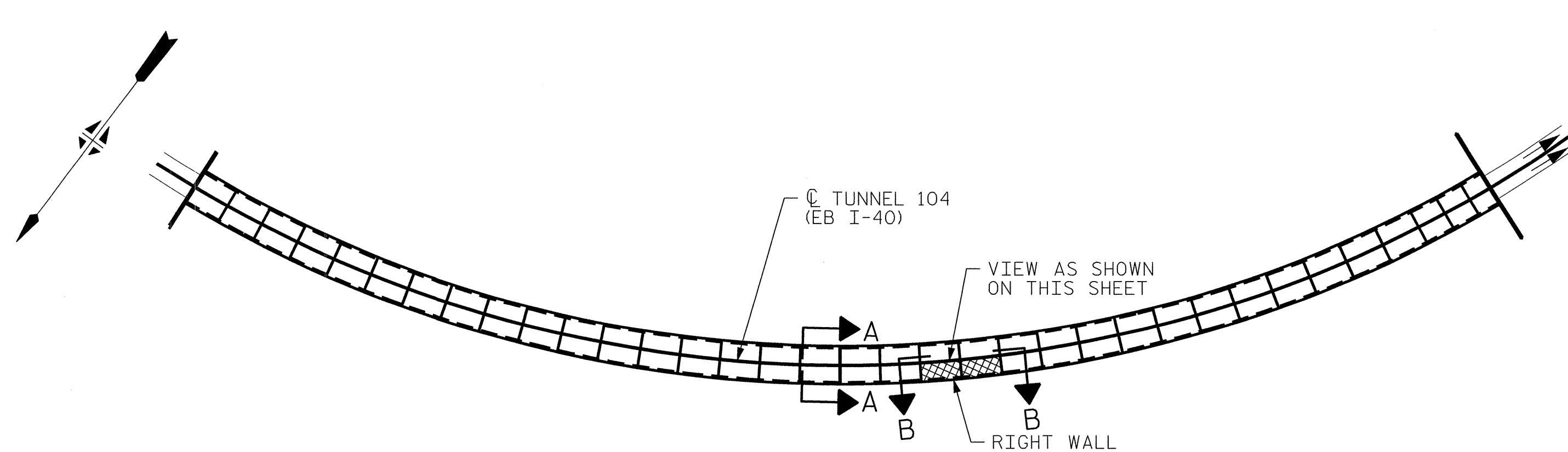


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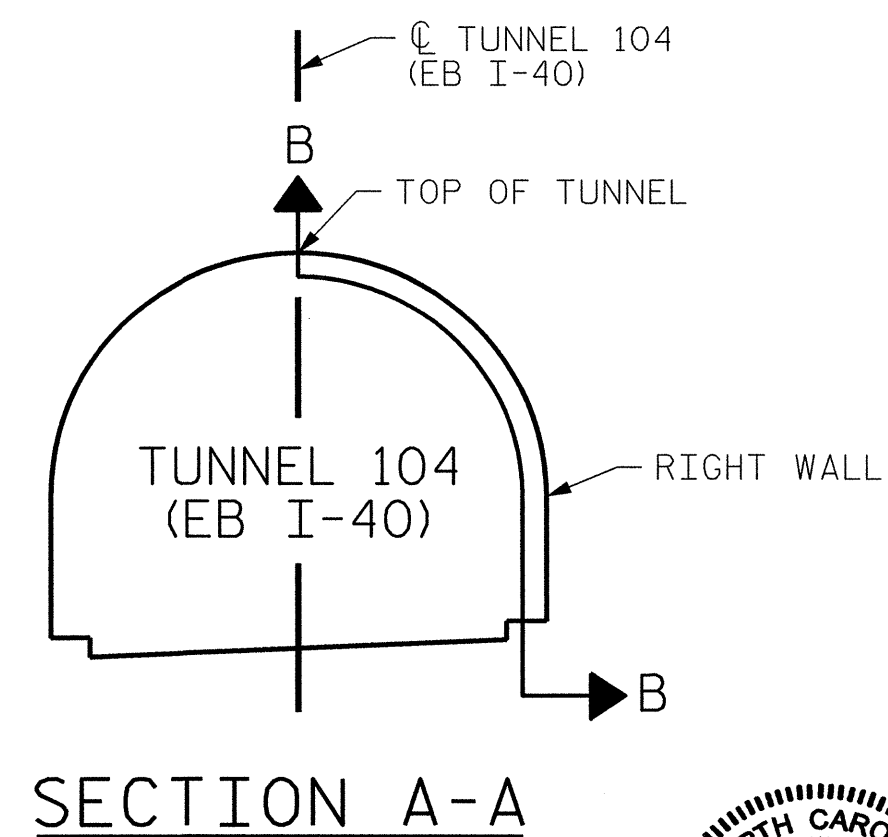
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VIEW B-B: REPAIR SEGMENTS 15R & 16R
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 15R & 16R



7-23-14

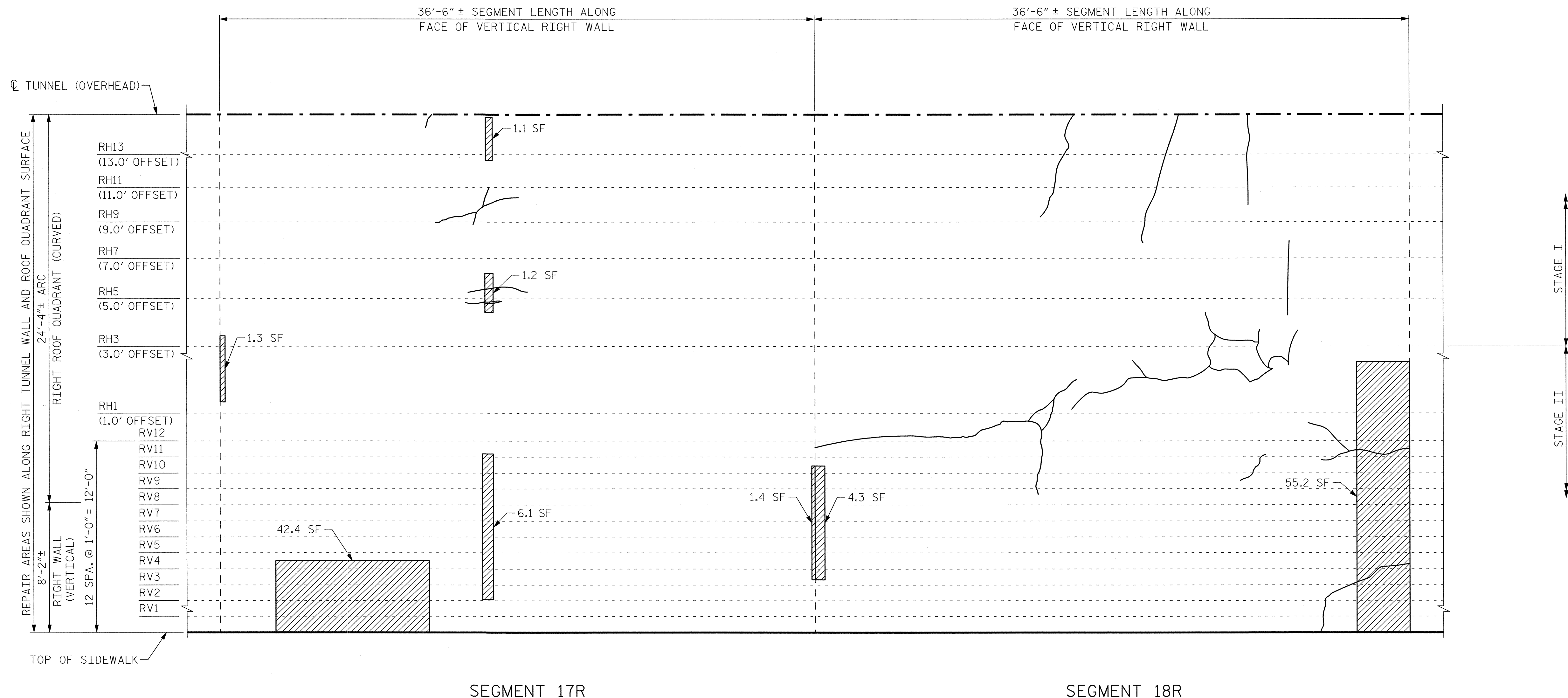
HDR HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

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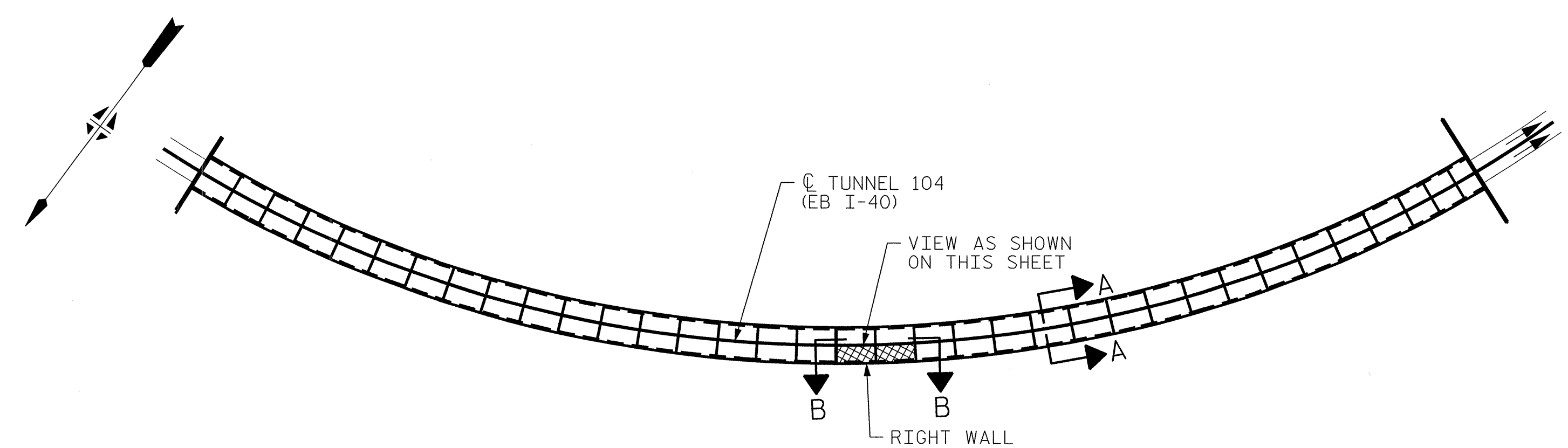
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DATE : 07/2013
DATE : 07/2013

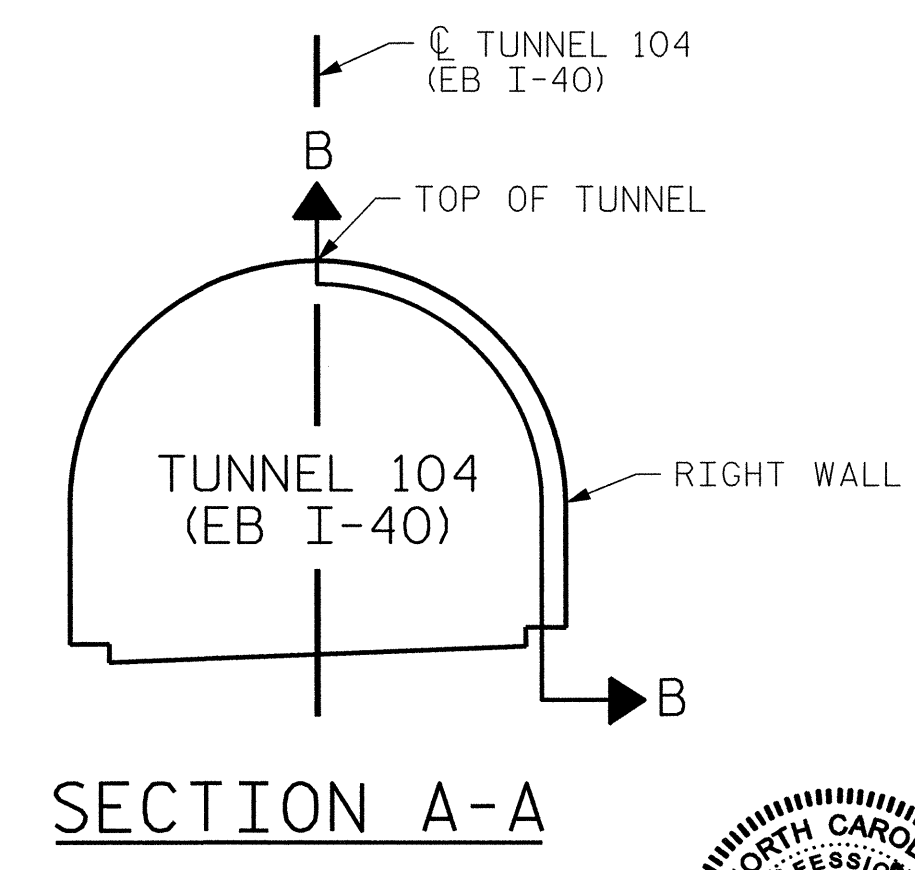
BILL OF MATERIAL		
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VIEW B-B: REPAIR SEGMENTS 17R & 18R
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 104 REPAIR AREAS SEGMENTS 17R & 18R					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2	--	--	4	--	--
SHEET NO. S-099					TOTAL SHEETS 110

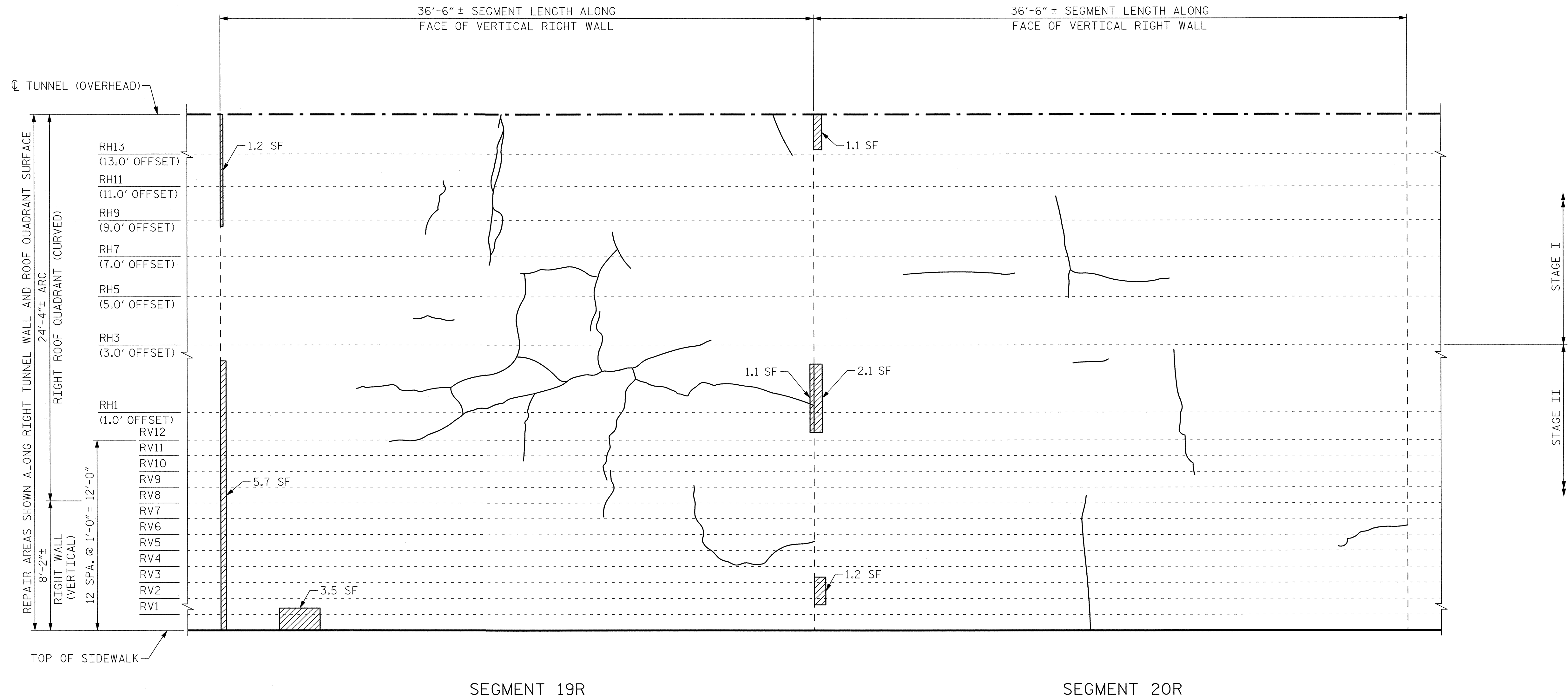


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N.C.B.E.L.S. License Number: F-0116

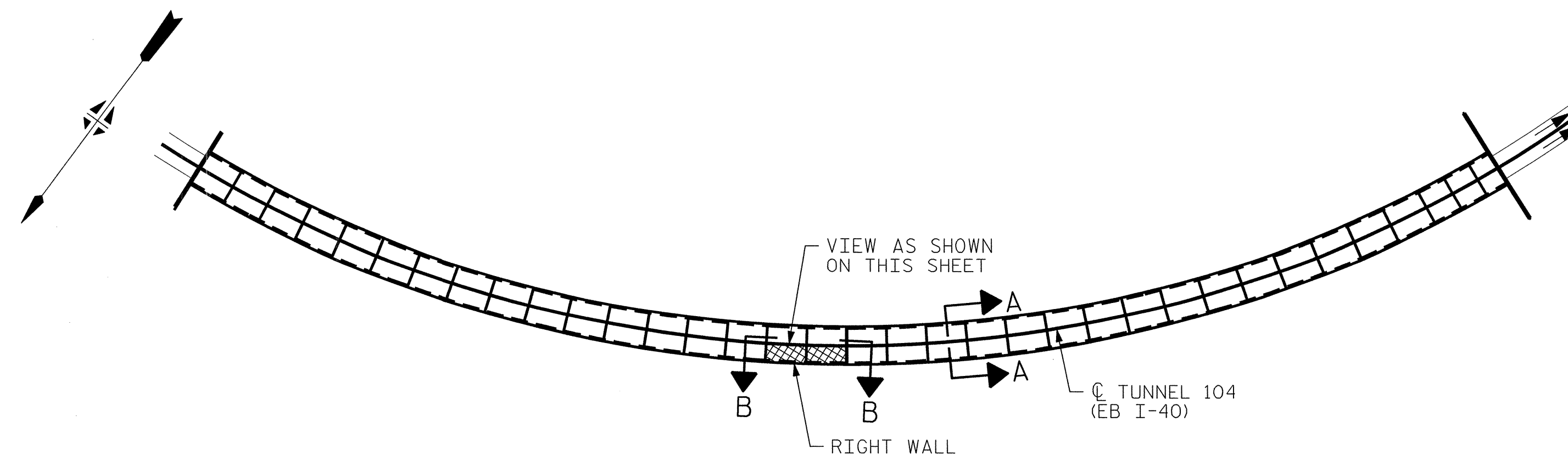
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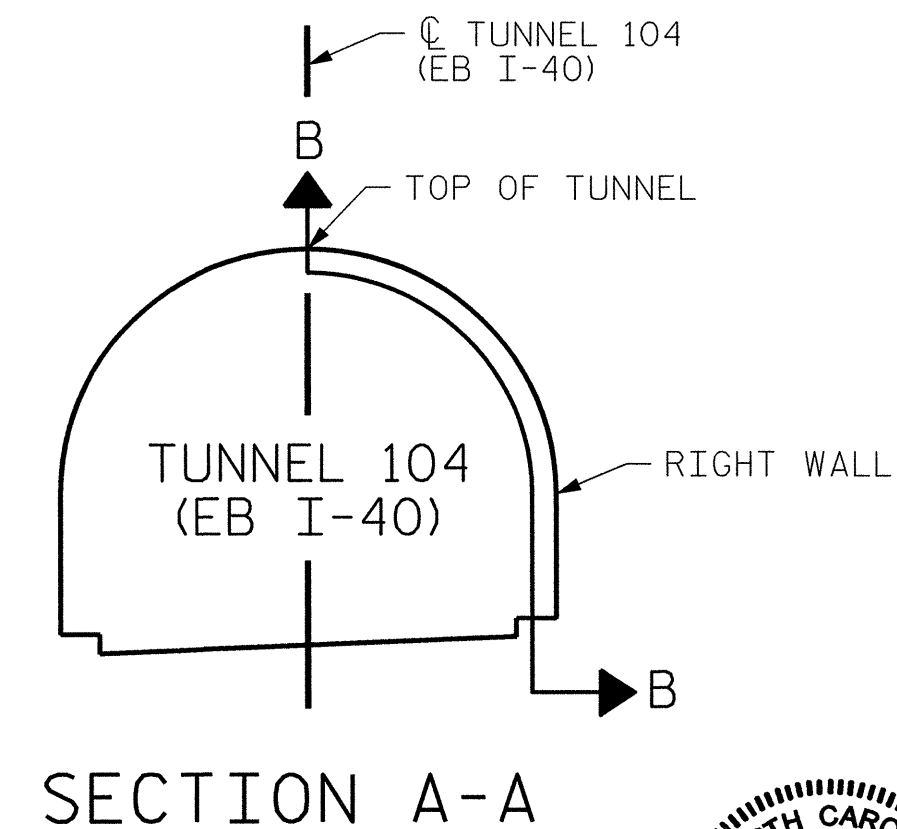
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SHOTCRETE REPAIRS	SEGMENT 19R	CF	3.8
SHOTCRETE REPAIRS	SEGMENT 20R	CF	1.5



VIEW B-B: REPAIR SEGMENTS 19R & 20R
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 19R & 20R

REVISIONS						SHEET NO. S-100
NO.	BY:	DATE:	NO.	BY:	DATE:	
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N.C.B.E.L.S. License Number F-0116

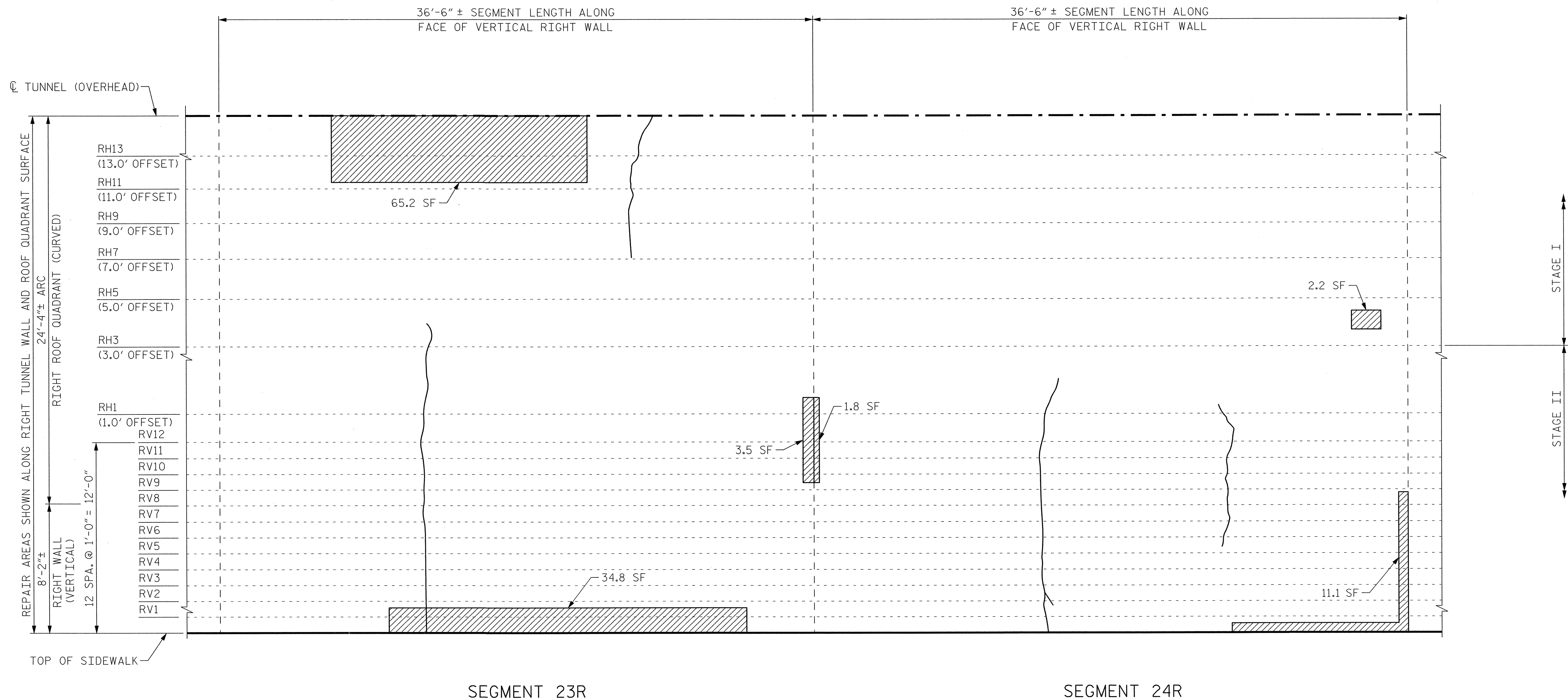


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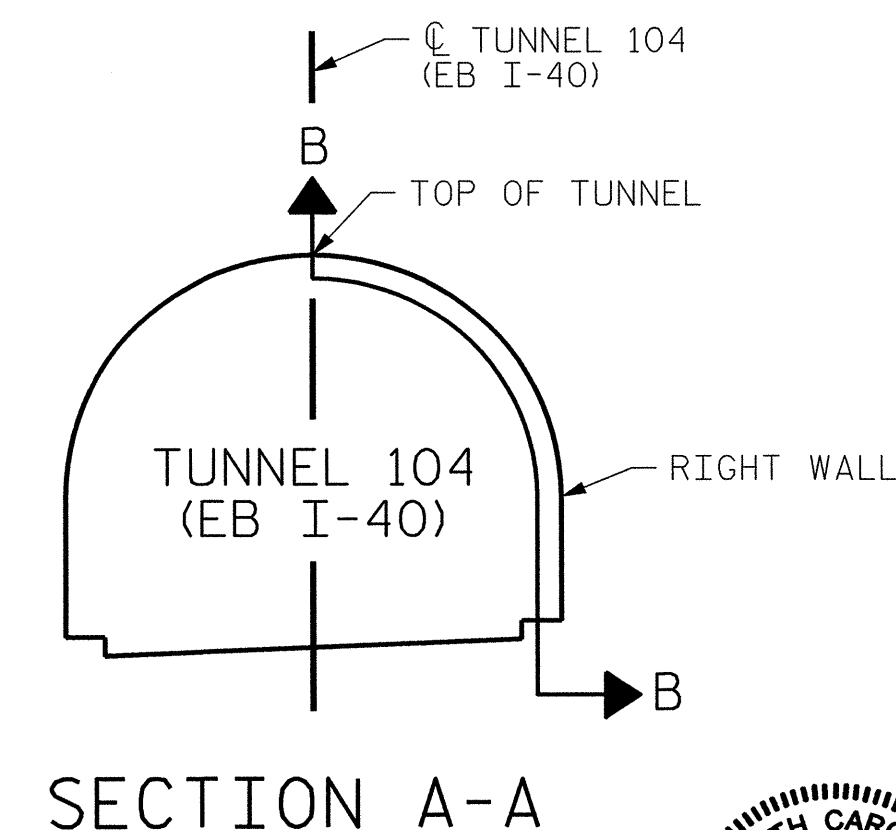
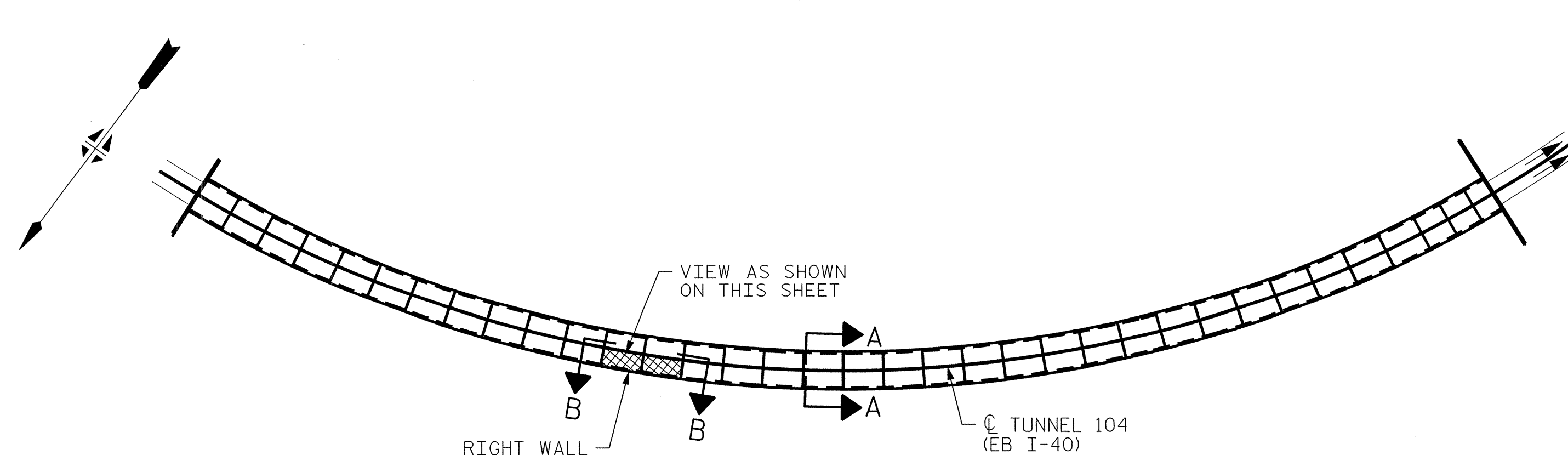
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BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 23R	CF	34.5	
SHOTCRETE REPAIRS SEGMENT 24R	CF	5.0	



VIEW B-B: REPAIR SEGMENTS 23R & 24R
TUNNEL SURFACE ELEVATION



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 23R & 24R



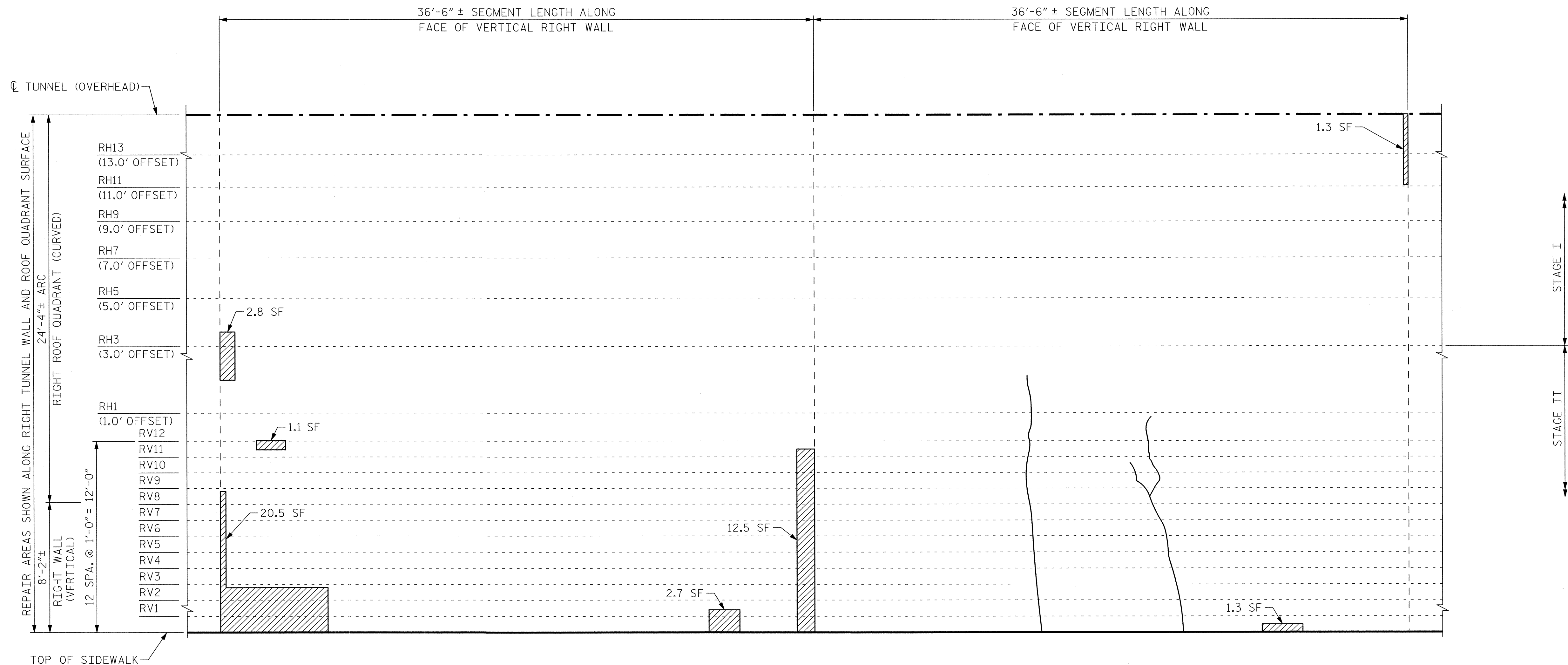
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.E.L.S. License Number: F-0116

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CHECKED BY: M. MOYER DATE: 07/2013

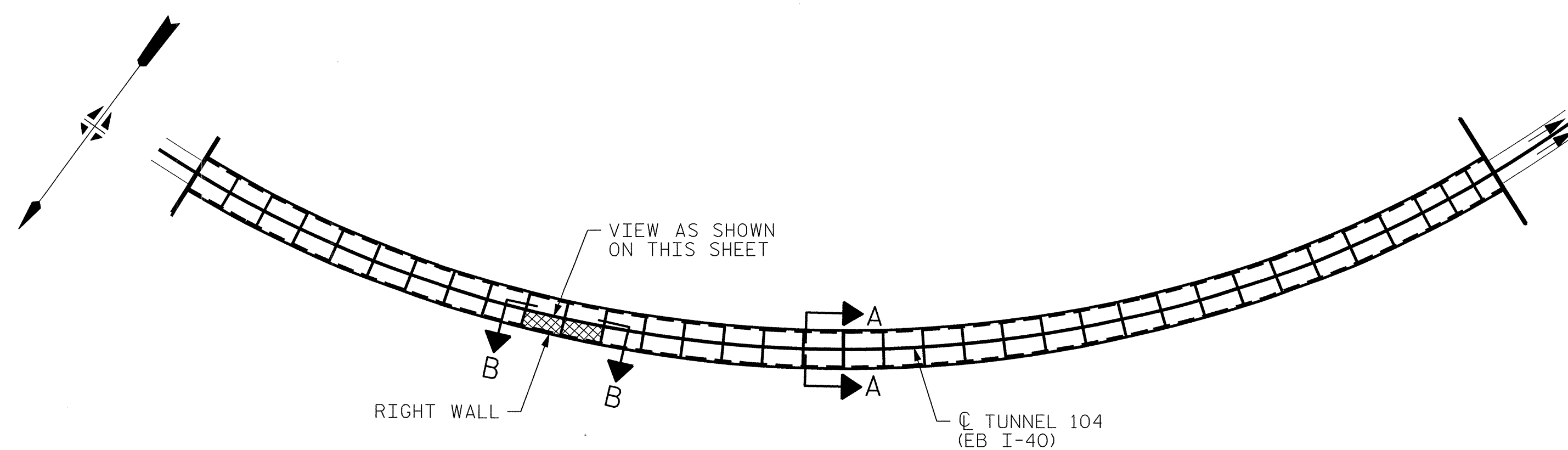
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SHOTCRETE REPAIRS	SEGMENT 26R	CF	0.9



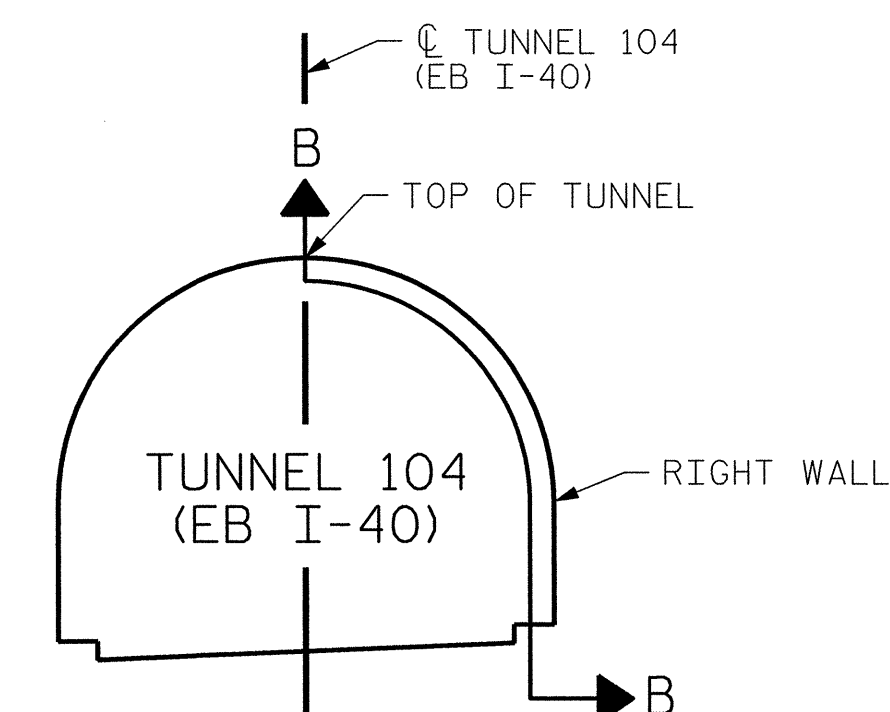
SEGMENT 25R

SEGMENT 26R

VIEW B-B: REPAIR SEGMENTS 25R & 26R
TUNNEL SURFACE ELEVATION



KEY PLAN

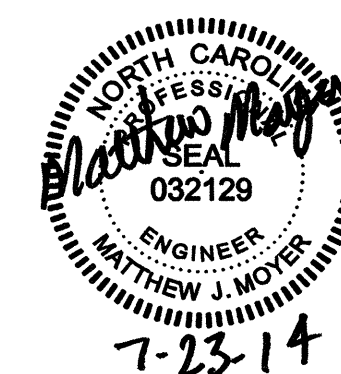


SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 25R & 26R



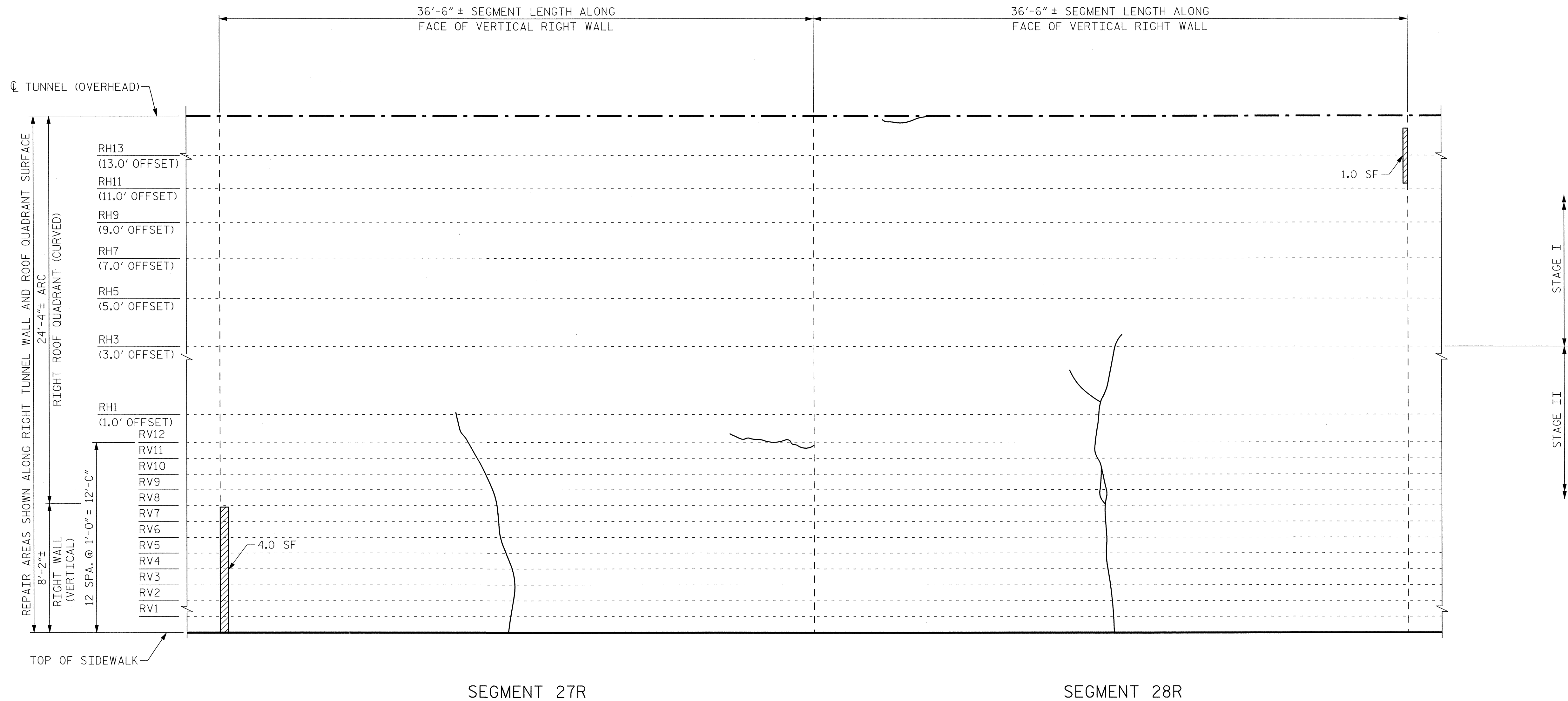
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N.C.B.E.L.S. License Number: F-9116

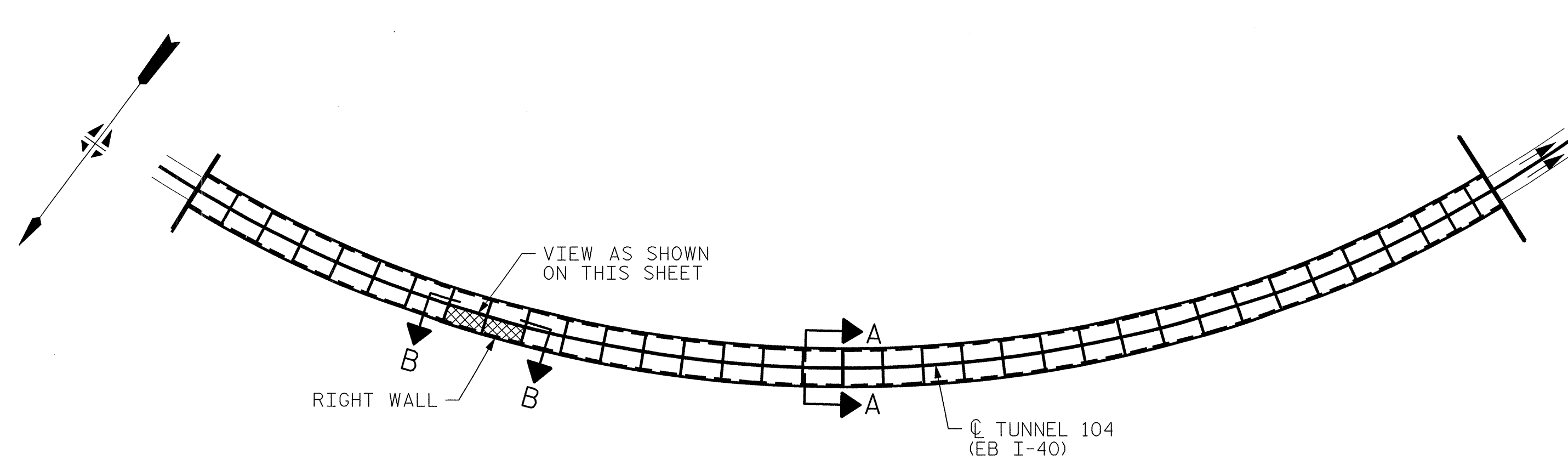
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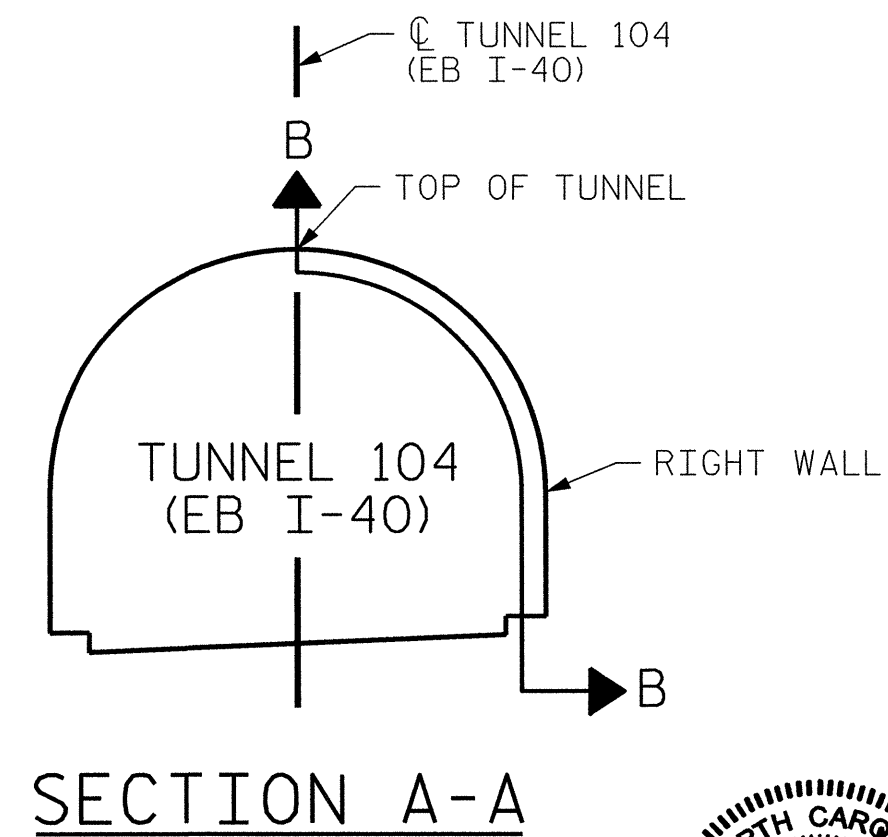
BILL OF MATERIAL			
SHOTCRETE REPAIRS	SEGMENT 27R	CF	1.3
SHOTCRETE REPAIRS	SEGMENT 28R	CF	0.3



VIEW B-B: REPAIR SEGMENTS 27R & 28R
TUNNEL SURFACE ELEVATION



KEY PLAN



SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 27R & 28R



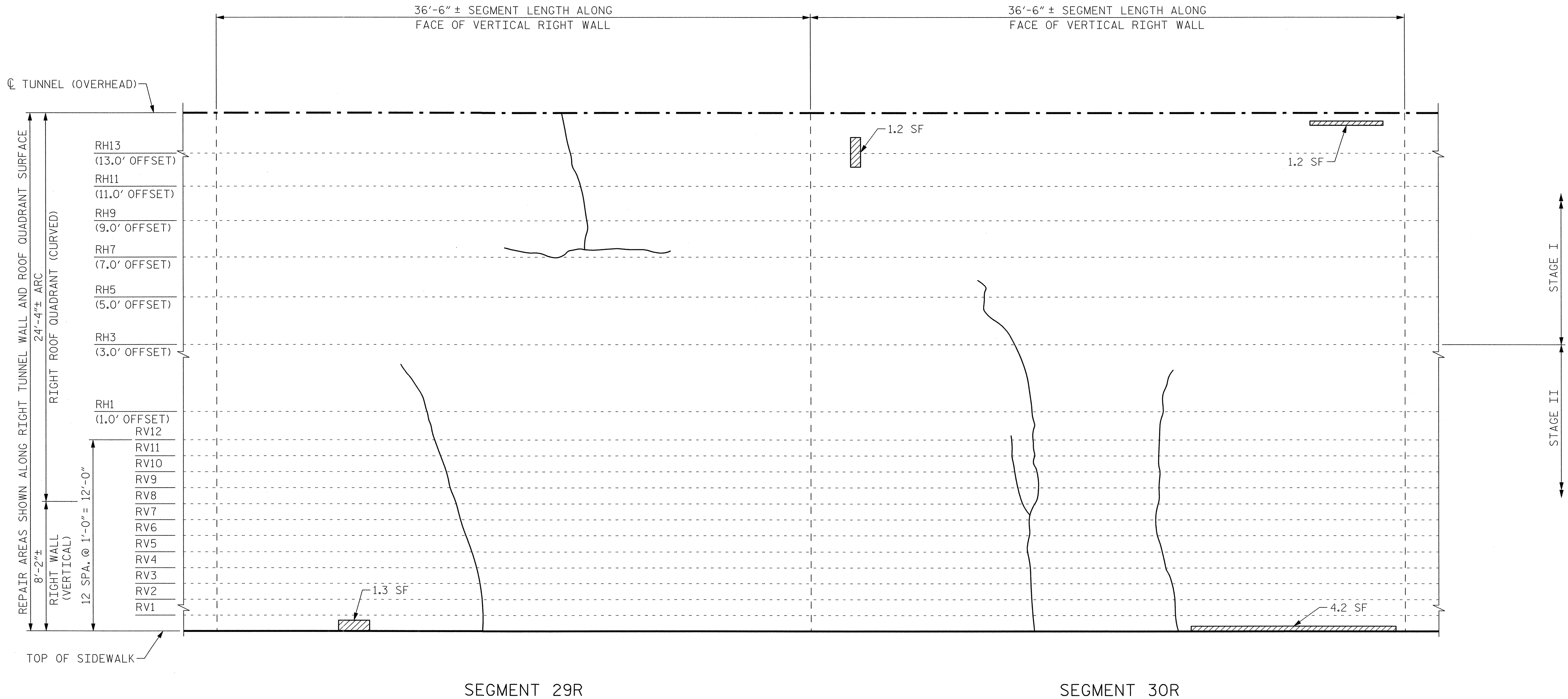
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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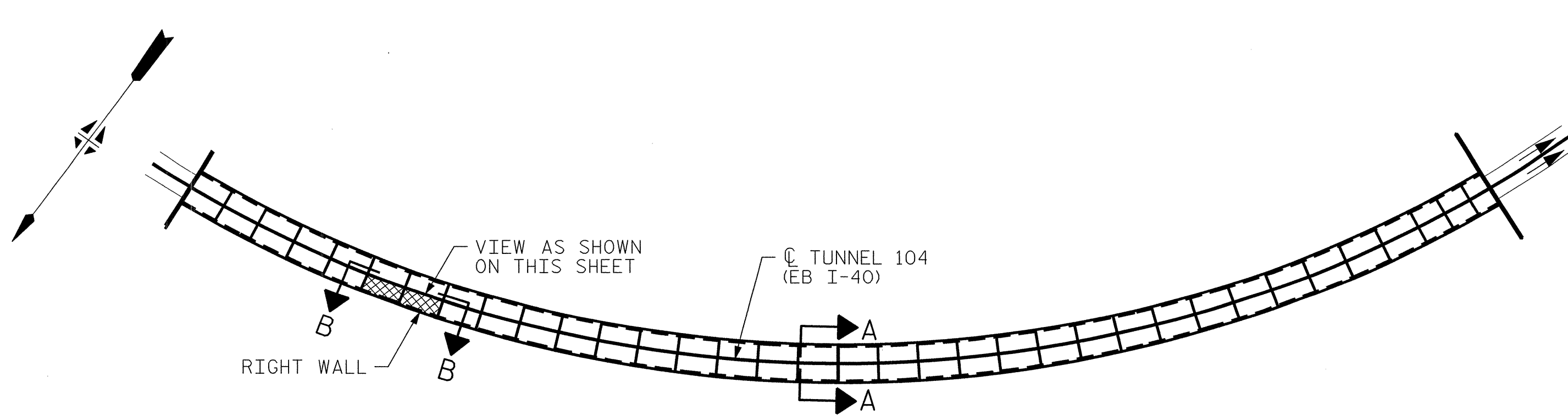
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DATE : 07/2013
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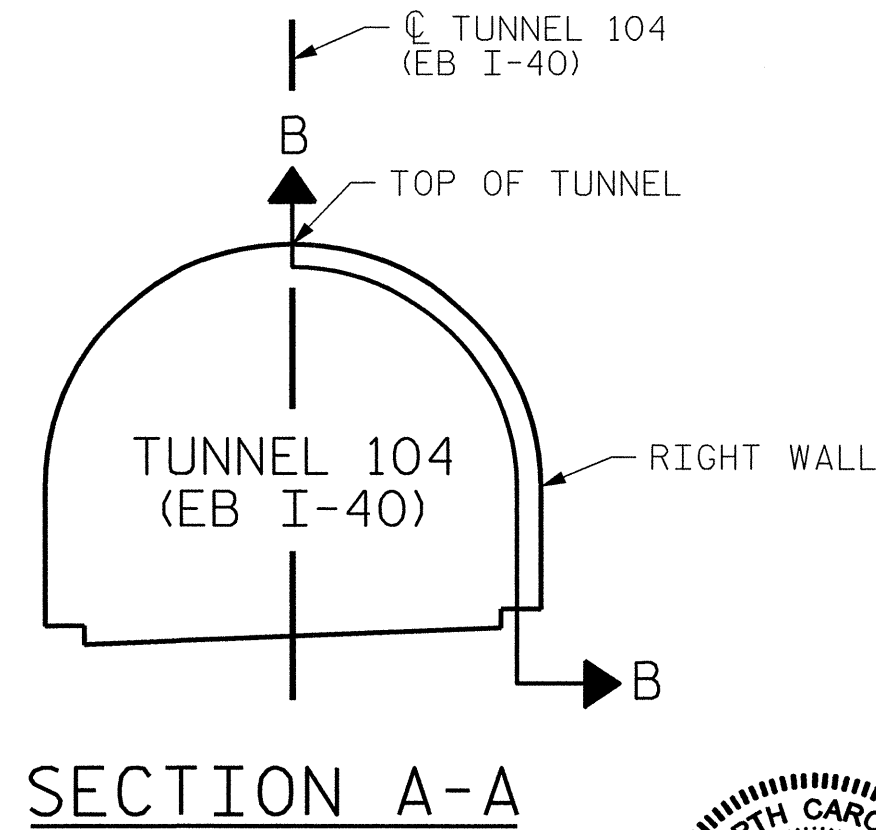
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 29R	CF	0.4
SHOTCRETE REPAIRS SEGMENT 30R	CF	2.2



VIEW B-B: REPAIR SEGMENTS 29R & 30R
TUNNEL SURFACE ELEVATION



KEY PLAN

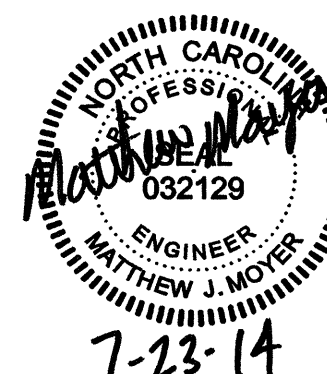


SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 29R & 30R



7-23-14

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N.C.B.E.L.S. License Number: F-0116

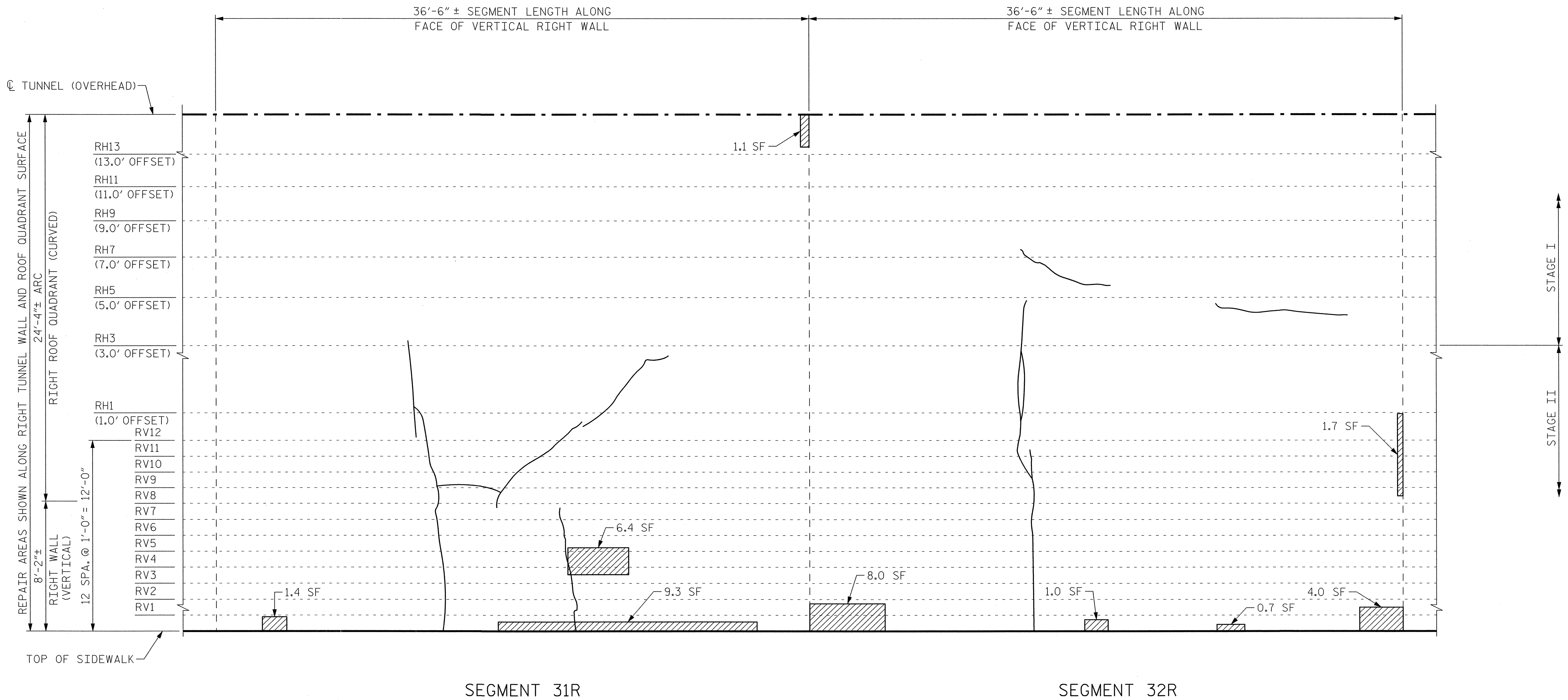
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TOTAL SHEETS 110

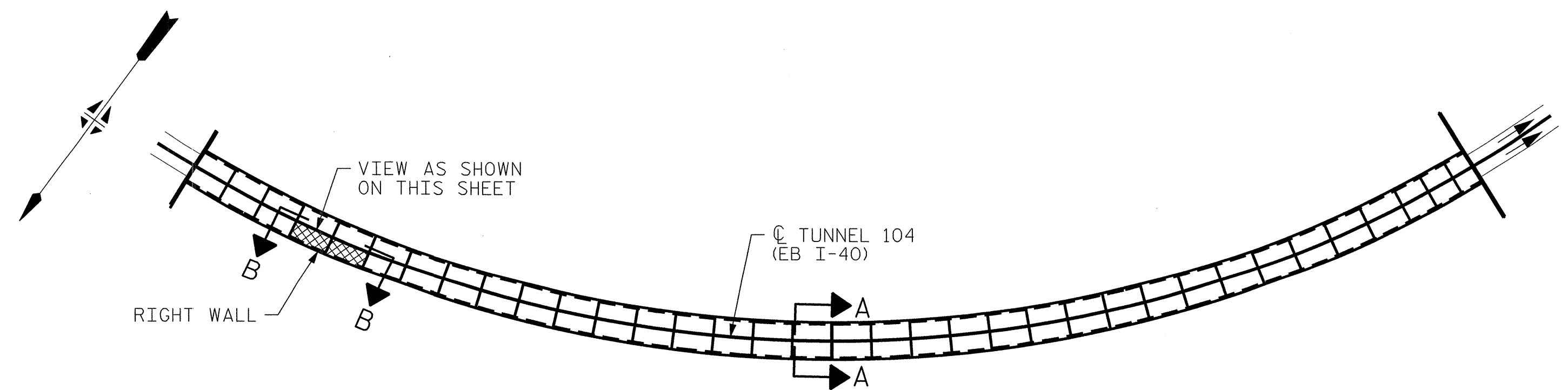
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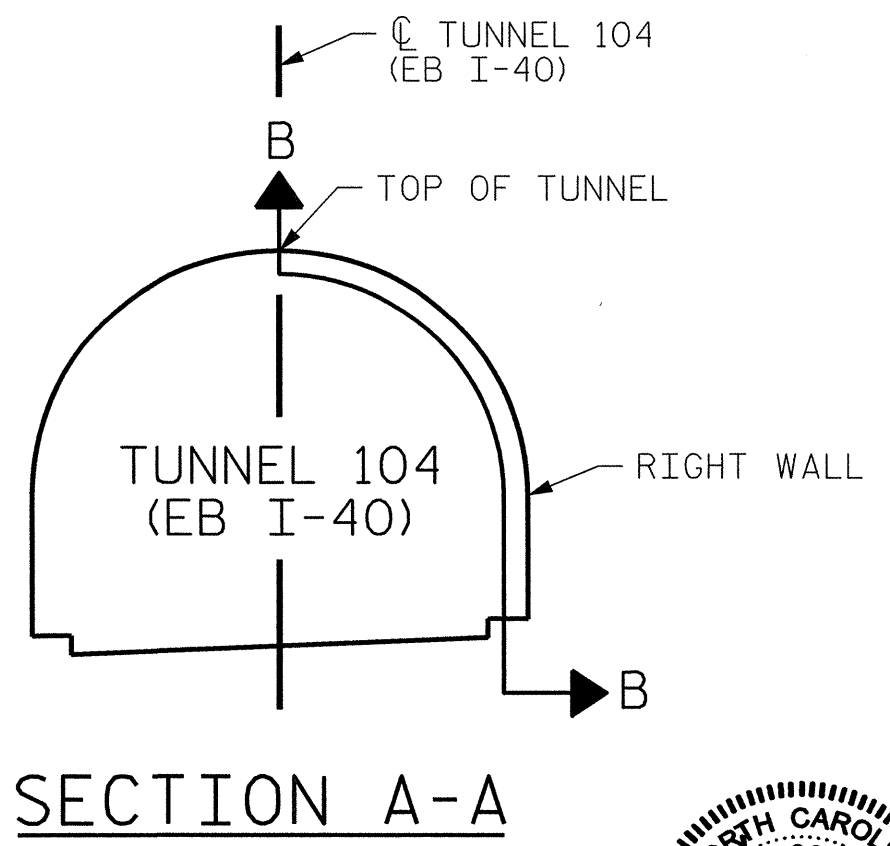
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SHOTCRETE REPAIRS SEGMENT 31R	CF	6.1
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VIEW B-B: REPAIR SEGMENTS 31R & 32R
TUNNEL SURFACE ELEVATION

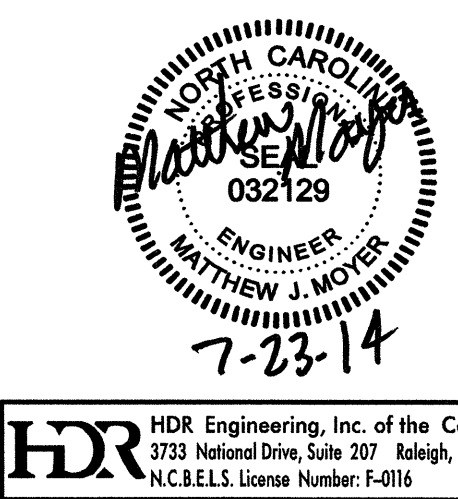


KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

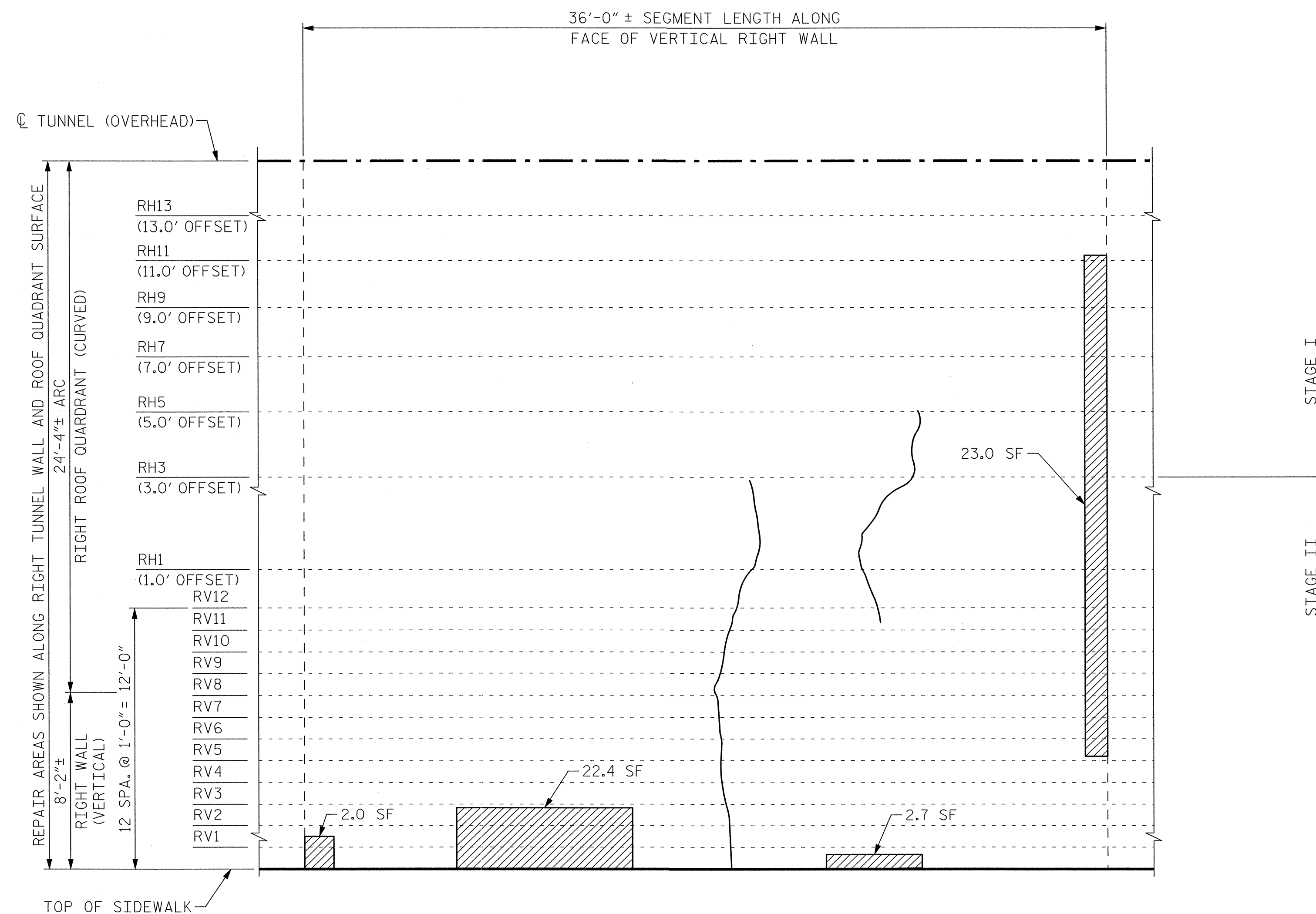
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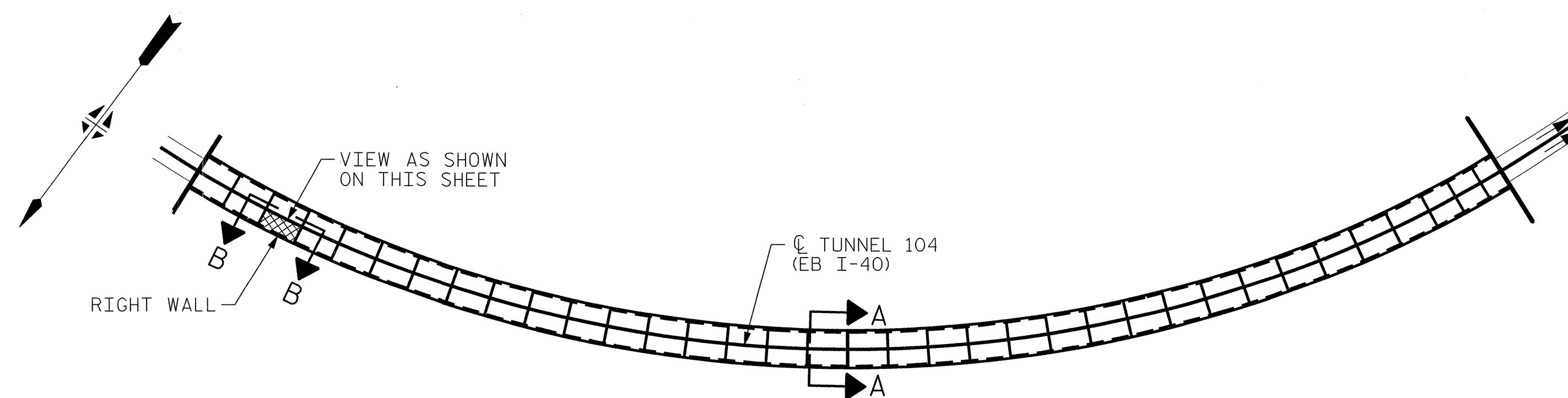
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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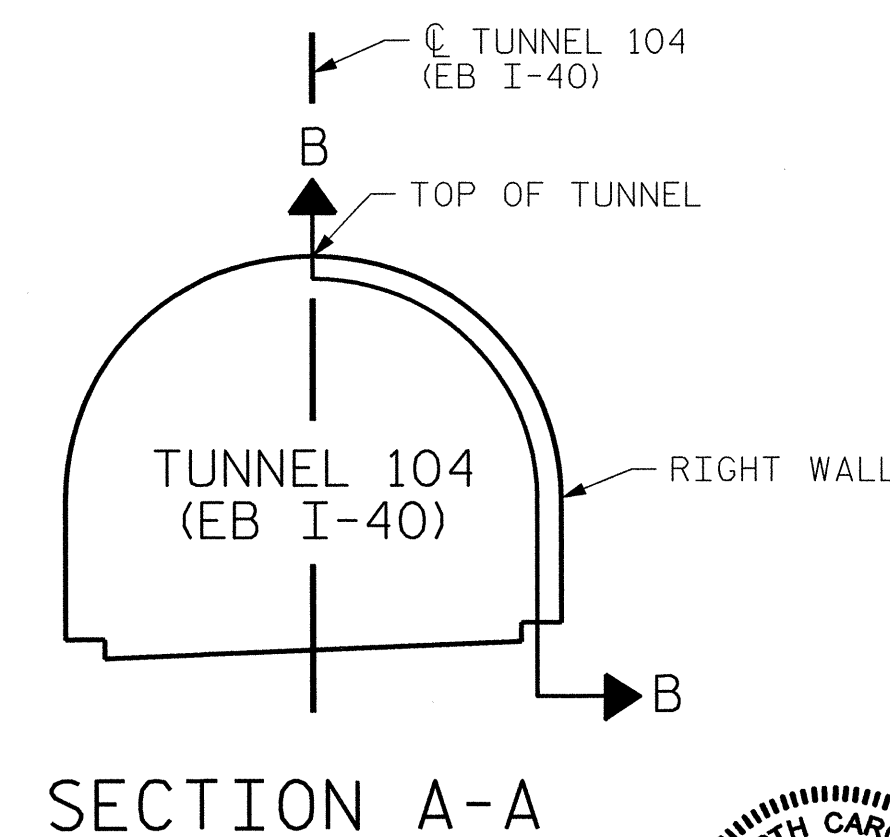
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VIEW B-B: REPAIR SEGMENT 33R
TUNNEL SURFACE ELEVATION



KEY PLAN



PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENT 33R

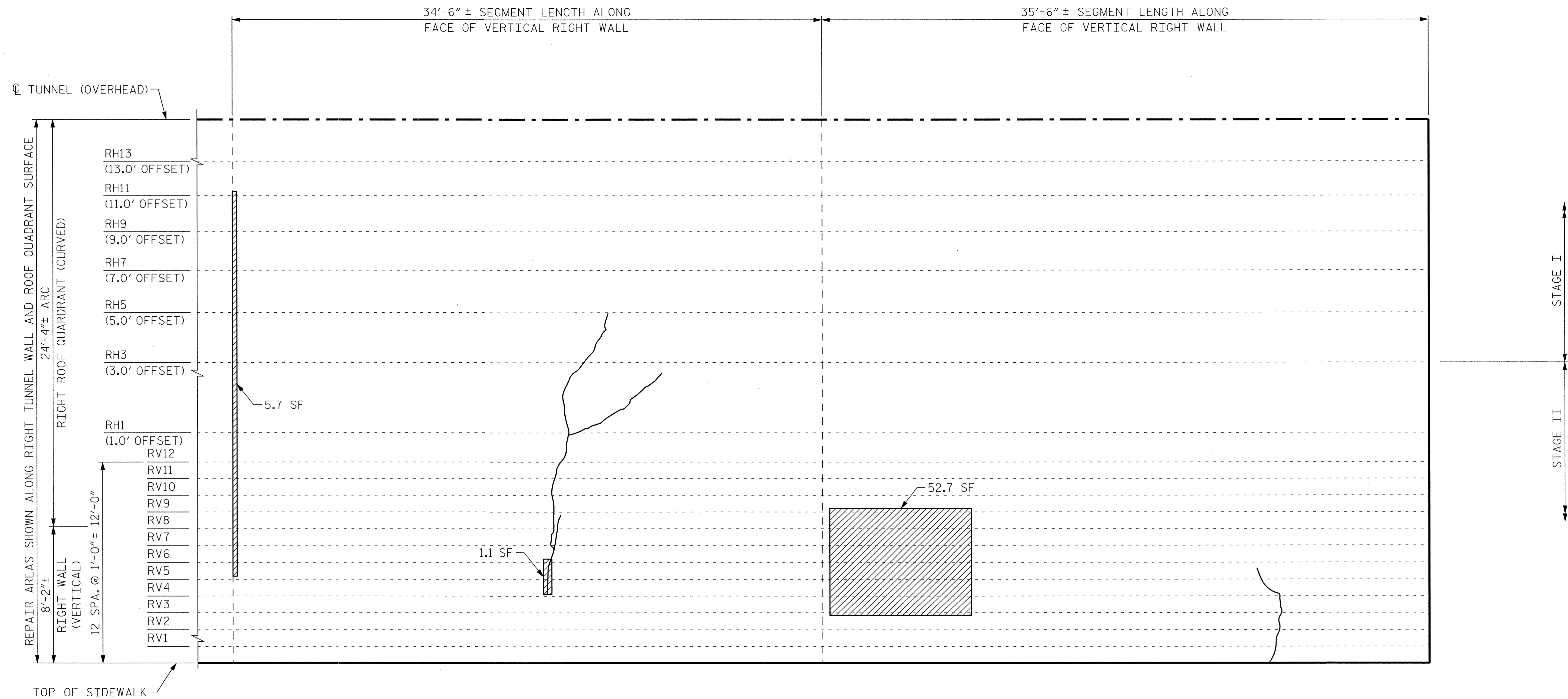


7-23-14

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N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-107 TOTAL SHEETS 110
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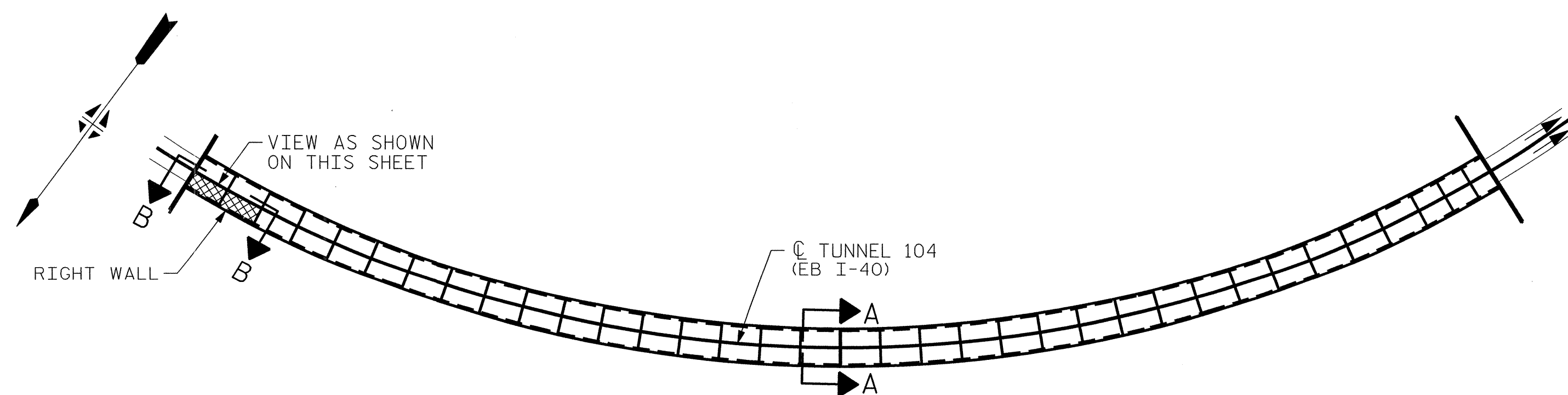
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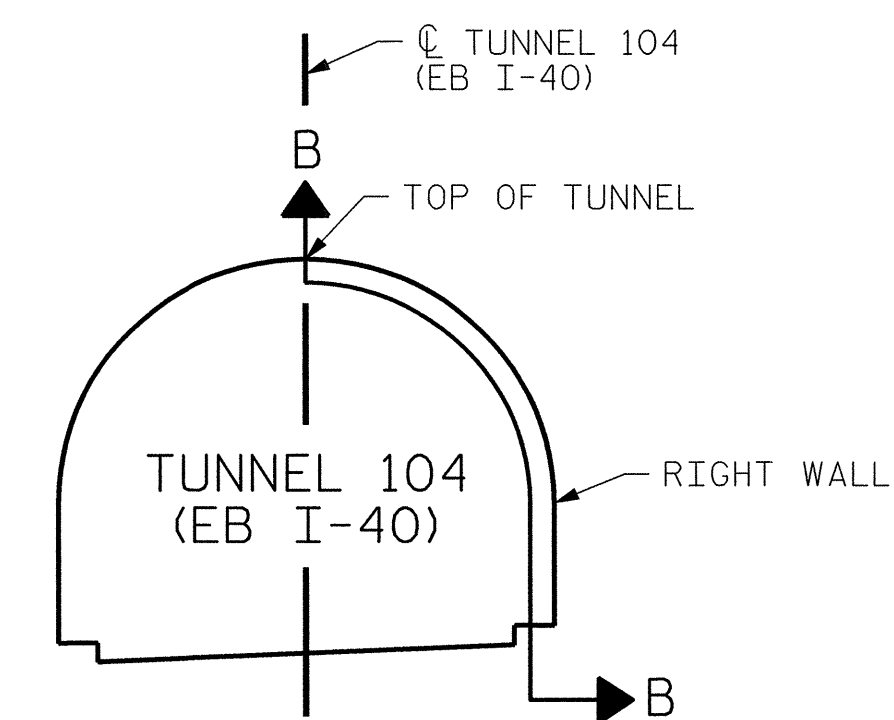
SEGMENT 34R

SEGMENT 35R

VIEW B-B: REPAIR SEGMENTS 34R & 35R
TUNNEL SURFACE ELEVATION



KEY PLAN

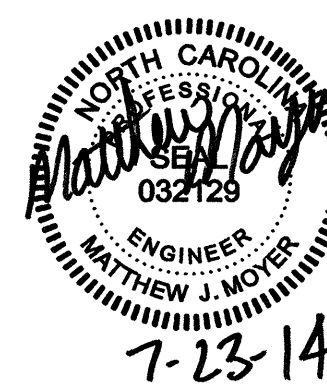


SECTION A-A

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 34R & 35R



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N.C.B.E.L.S. License Number: F-0116

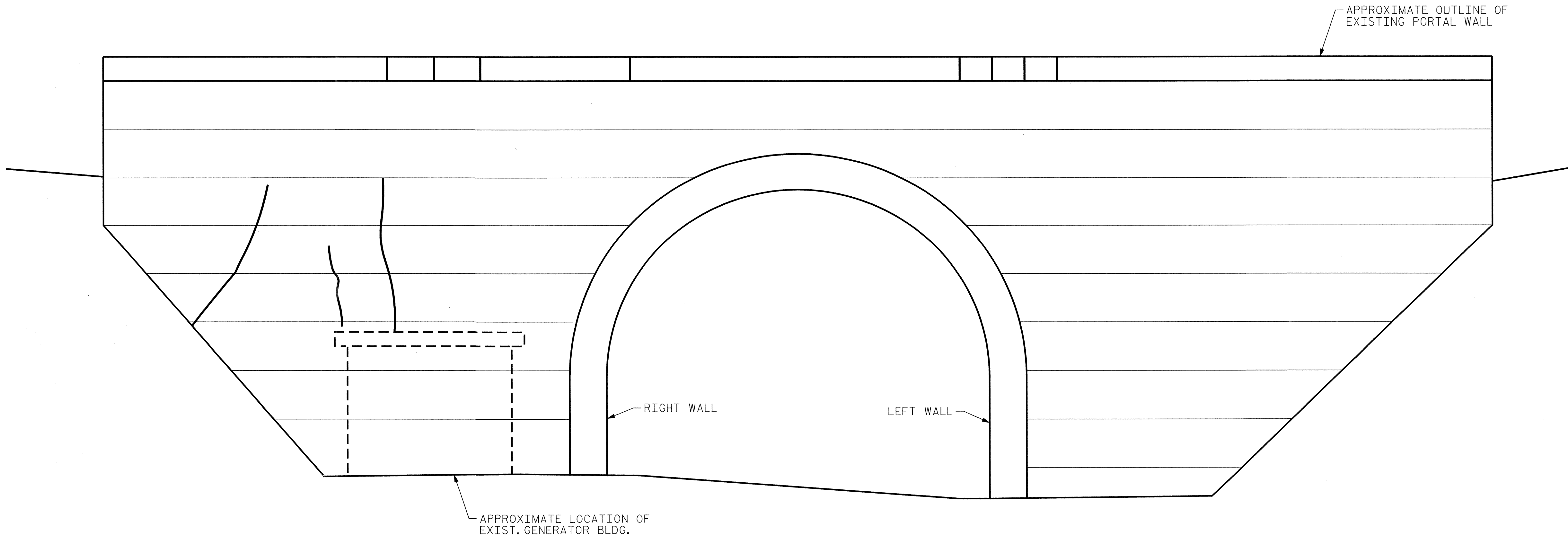
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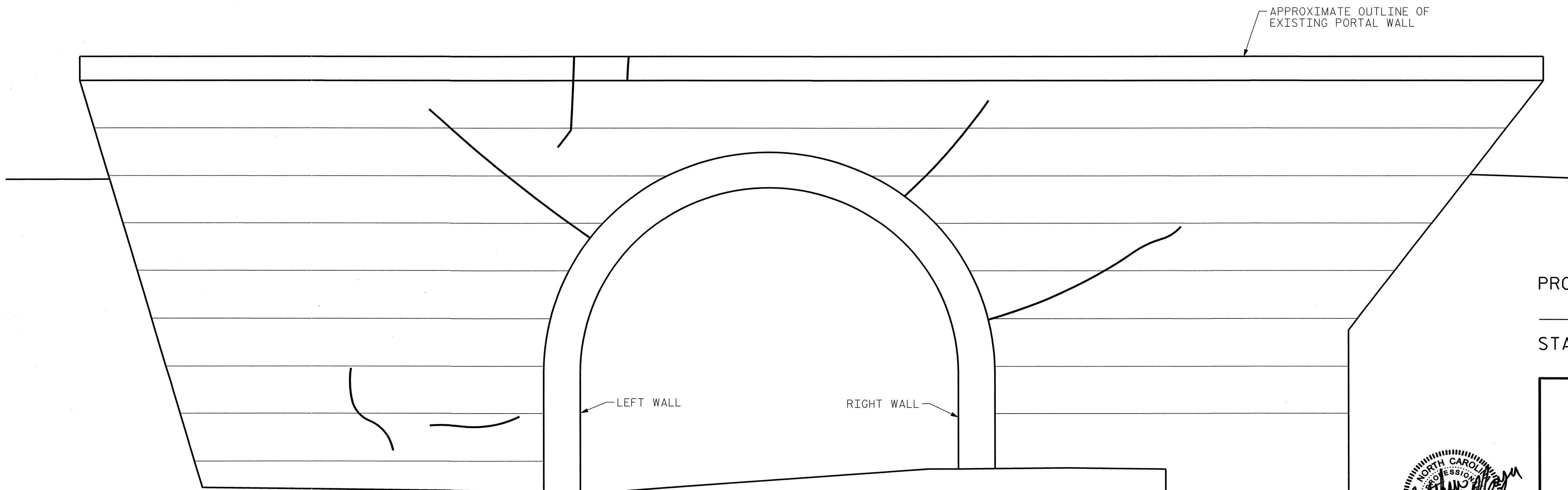
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EXIT PORTAL WALL
(SOUTH OR EAST END)



ENTRANCE PORTAL WALL
(NORTH OR WEST END)

PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

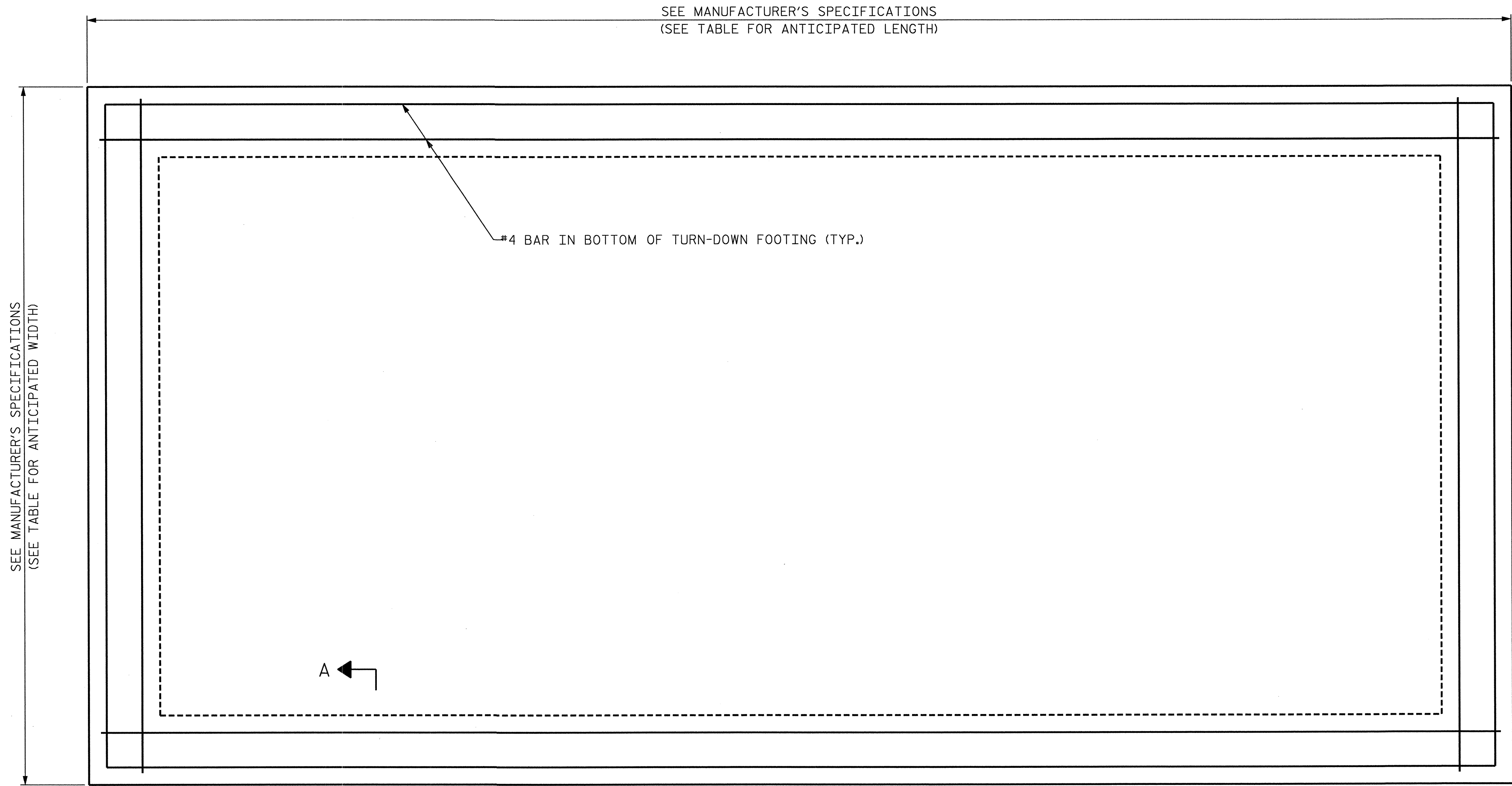
TUNNEL 104
PORTAL WALLS



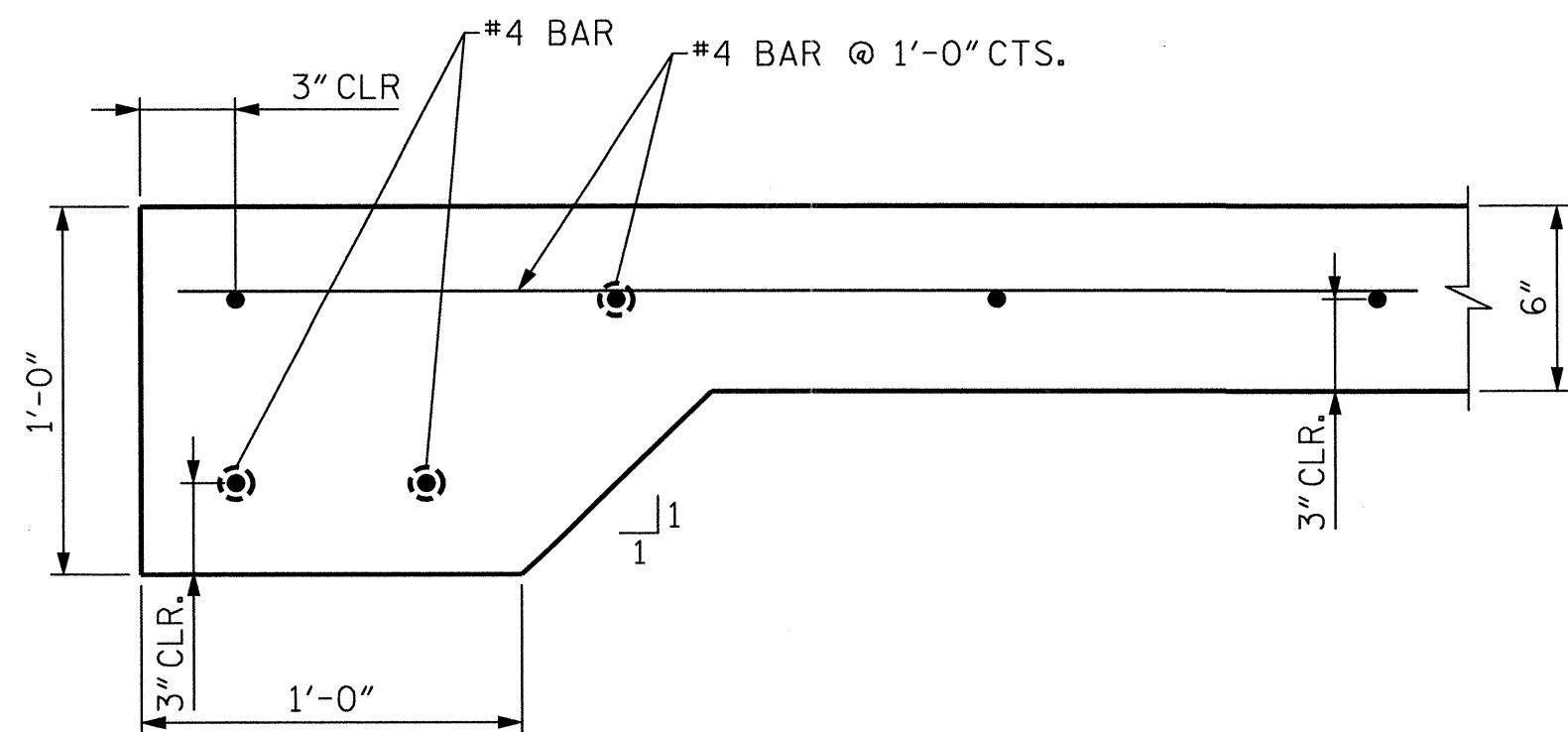
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-109
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TIME: 9:52:17 AM



PLAN

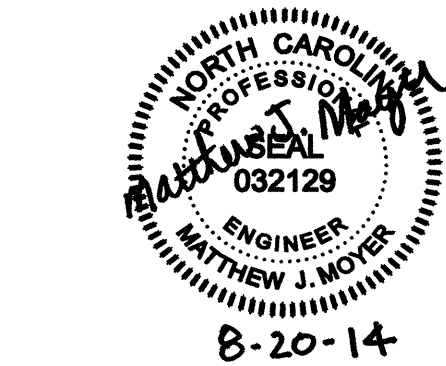


SECTION A-A

ANTICIPATED CONCRETE PAD DIMENSIONS		
LOCATION	LENGTH (FT)	WIDTH (FT)
TUNNELS 15 AND 17 GENERATOR	24	5
TUNNEL 104 GENERATOR	20	5
LIGHTING SYSTEM ENCLOSURES	20	10

DRAWN BY : S. COLLIER
CHECKED BY : M. MOYER

DATE : 08/2013
DATE : 08/2013



HDR Engineering, Inc. of the Carolinas
1733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

NOTES:

1. THE CONTRACTOR SHALL VERIFY THE CONCRETE PAD DIMENSIONS WITH THE LIGHTING SYSTEM ENCLOSURE MANUFACTURER.
2. THE CONTRACTOR SHALL VERIFY THE CONCRETE PAD DIMENSIONS WITH THE GENERATOR MANUFACTURER.
3. REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE "CONCRETE SLAB" PAY ITEM.
4. PROVIDE A REINFORCING PLAN THAT INCLUDES SIZE, TYPE, SPACING, AND CLEARANCES TO THE ENGINEER FOR APPROVAL.
5. PROVIDE FOUNDATION CONDITIONING MATERIAL AT A MINIMUM DEPTH OF TWELVE INCHES BELOW THE CONCRETE SLAB. THE LIMITS OF THE FOUNDATION CONDITIONING MATERIAL SHALL EXTEND A MINIMUM OF ONE FOOT BEYOND THE EDGE OF THE CONCRETE SLAB ON EACH SIDE.

BILL OF MATERIALS

TUNNEL 15 CLASS A CONCRETE	9.0 CU. YDS.
TUNNEL 104 CLASS A CONCRETE	8.0 CU. YDS.
TOTAL CLASS A CONCRETE	17.0 CU. YDS.
TUNNEL 15 FOUNDATION CONDITIONING MATERIAL	32 TONS
TUNNEL 104 FOUNDATION CONDITIONING MATERIAL	30 TONS
TOTAL FOUNDATION CONDITIONING MATERIAL	62 TONS

PROJECT NO. I-5512, 50136.3.FS1

HAYWOOD COUNTY

STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE PAD DETAILS

REVISIONS						SHEET NO. S-110
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 110
2	--	--	4	--	--	

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8"Ø SHEAR STUDS FOR THE 3/4"Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8"Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4"Ø STUDS BASED ON THE RATIO OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.