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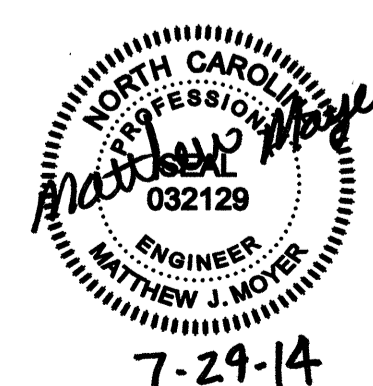
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DRAWN BY : L. PATTERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

INDEX OF SHEETS



7-29-14

HDR HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.E.L.S. License Number: F-016

REVISIONS						SHEET NO. S-001
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 110
2	--	--	4	--	--	

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.

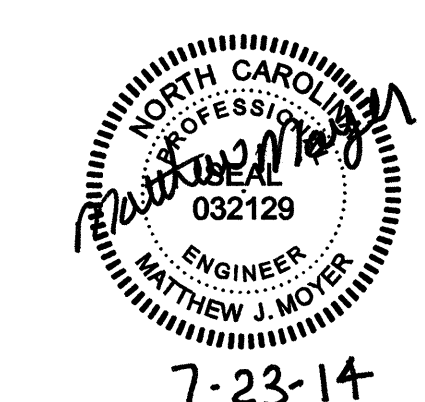
TOTAL BILL OF MATERIAL				
	SHOTCRETE REPAIR	DRAINAGE PIPE CLEANOUT	CONCRETE SLAB	* EPOXY COATING
	CU. FT.	LUMP SUM	CU. YDS.	SQ. YDS.
TUNNEL 15	538.2	LUMP SUM	9	6700
TUNNEL 17	612.8	LUMP SUM	-	6600
TUNNEL 104	834.5	LUMP SUM	8	7900
TOTAL	1985.5	LUMP SUM	17	21,200

* QUANTITY SHOWN IS FOR INFORMATION ONLY

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

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

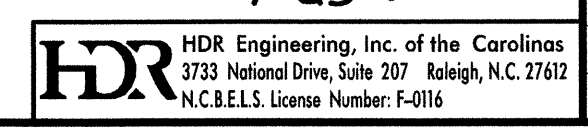
GENERAL NOTES
 AND TOTAL
 BILL OF MATERIAL



7-23-14

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

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NO.	BY:	DATE:	NO.	BY:	DATE:	
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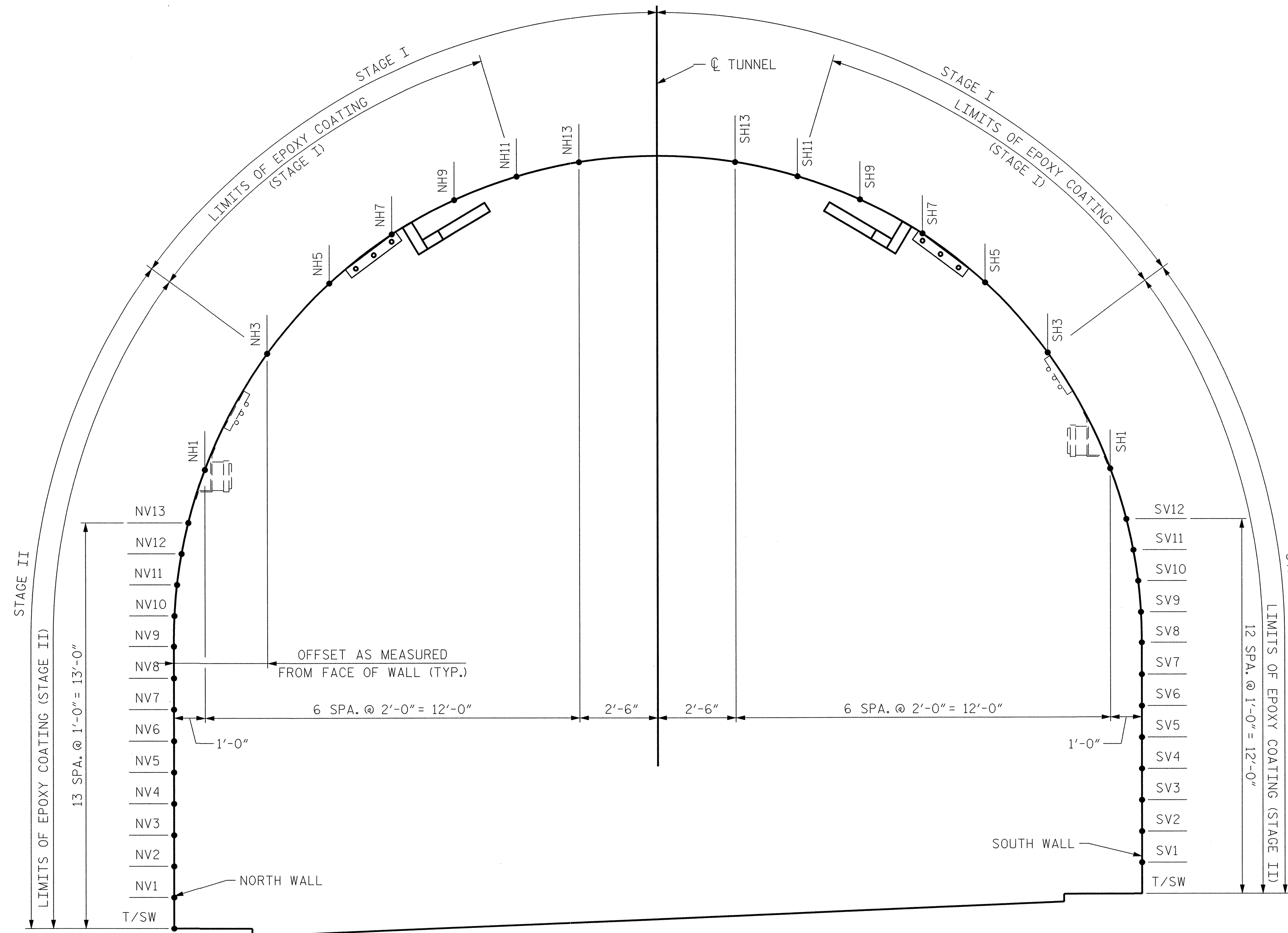
SEQUENCE OF CONSTRUCTION

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

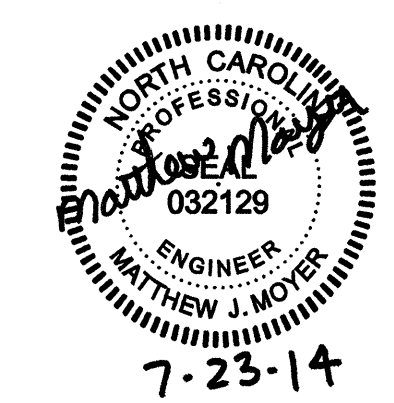
1. REMOVE EXISTING LIGHTING SYSTEM AS INDICATED IN THE ELECTRICAL PLAN SHEETS.
2. PERFORM SHOTCRETE REPAIRS AS INDICATED IN THE STRUCTURAL PLAN SHEETS.
3. APPLY EPOXY COATING TO SURFACE OF TUNNEL.



SEQUENCE OF CONSTRUCTION
(TUNNEL 15 SHOWN, TUNNELS 17 AND 104 SIMILAR)

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					
SEQUENCE OF CONSTRUCTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
					SHEET NO. S-003
					TOTAL SHEETS 110



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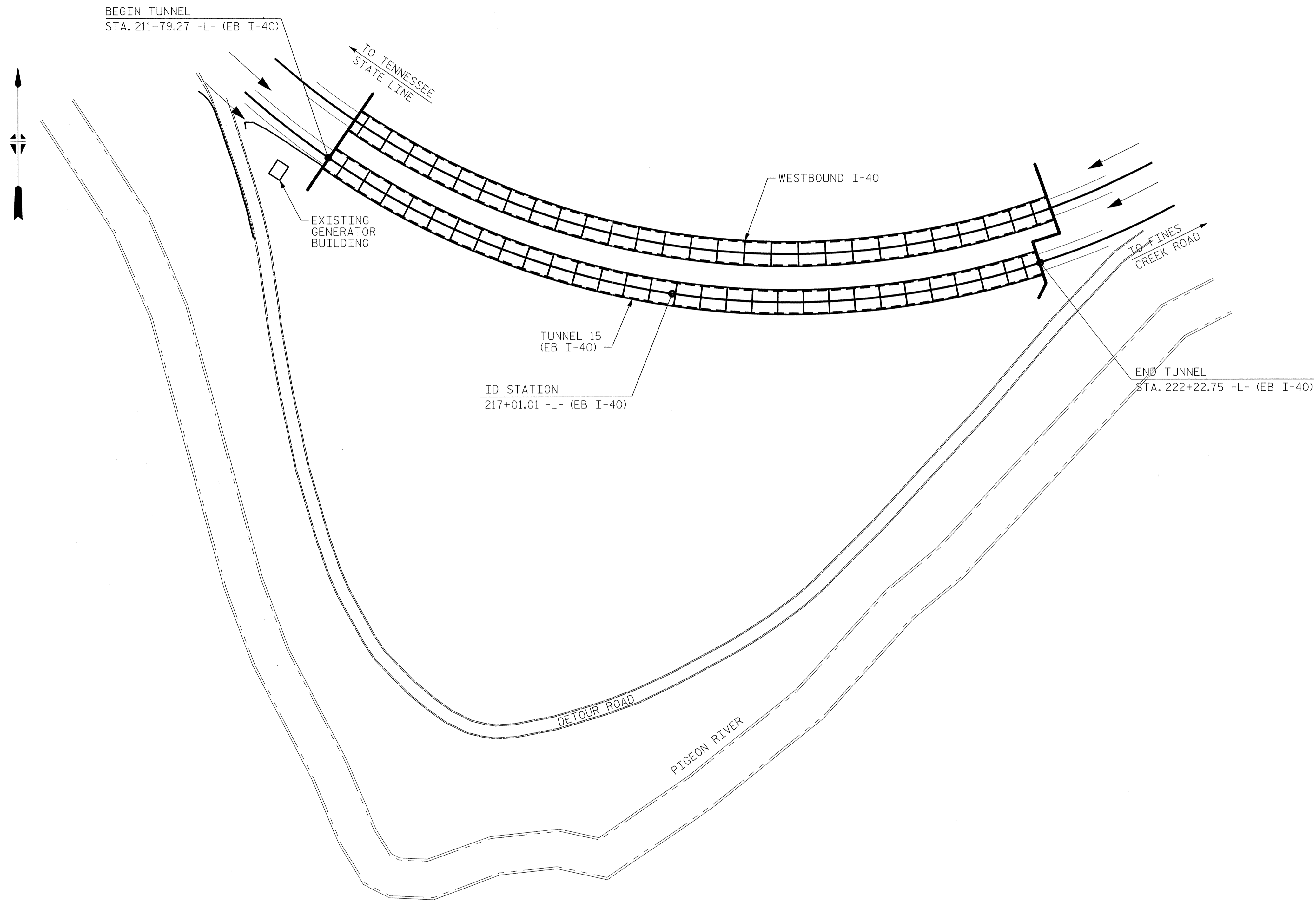
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013



PLAN VIEW

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

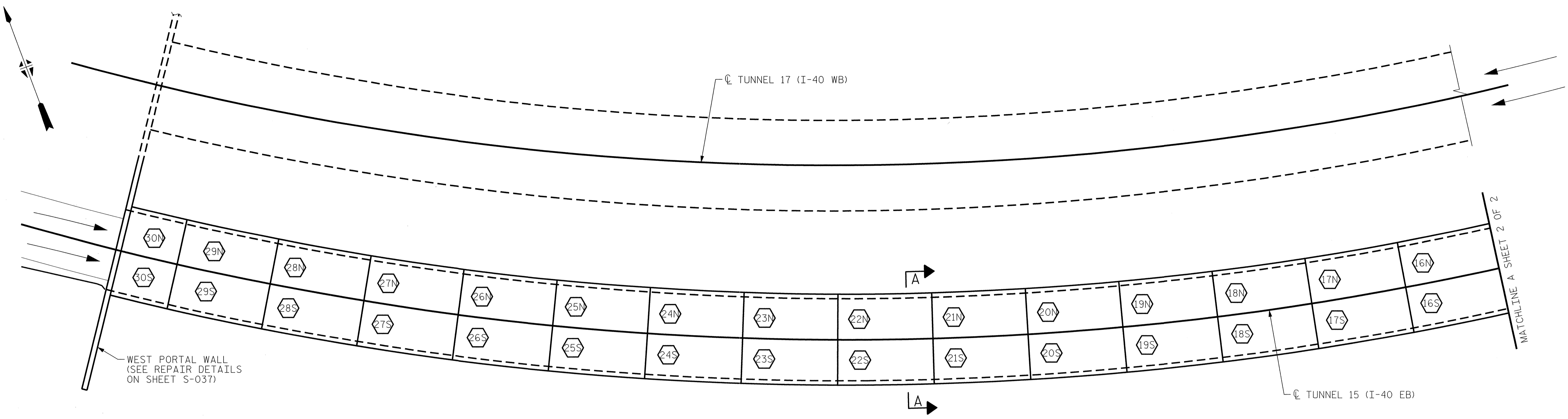
GENERAL PLAN
 (TUNNEL 15)

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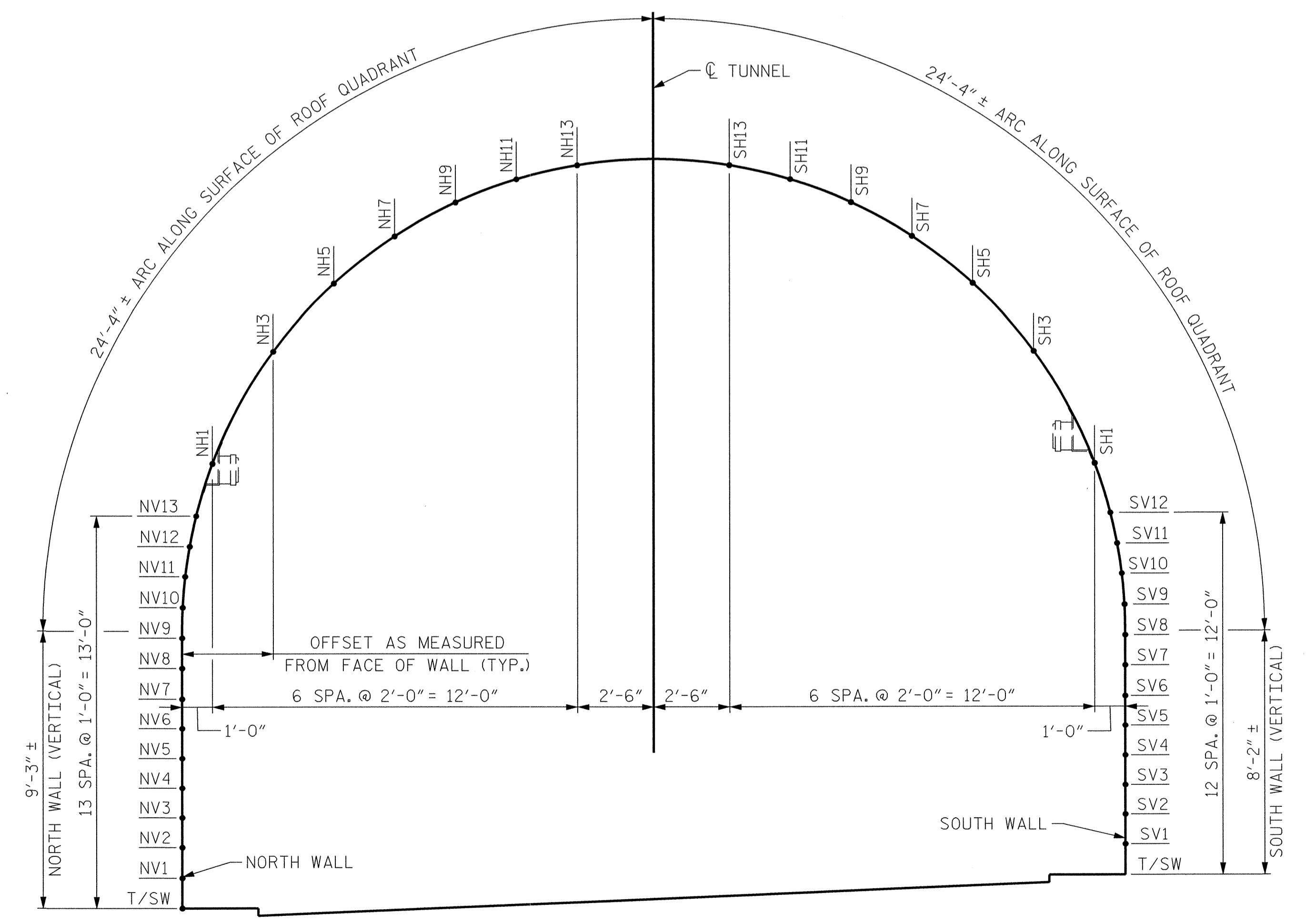
SHEET NO. S-004
 TOTAL SHEETS 110

Professional Engineer Seal for Matthew J. Moyer, License No. 032129, dated 7-23-14.

HDR Engineering, Inc. of the Carolinas
 2733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116



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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 RALEIGH

TUNNEL 15 PLAN OF REPAIR SEGMENTS & GRID REFERENCE DETAIL

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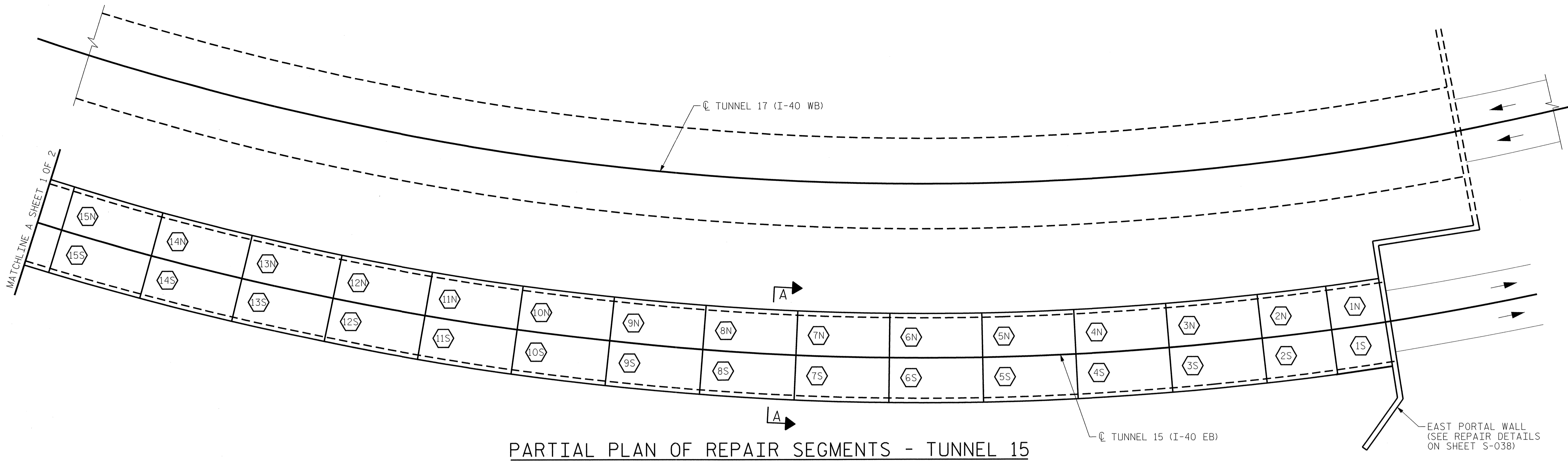
7-23-14

Matthew J. Moyer
 ENGINEER
 032129

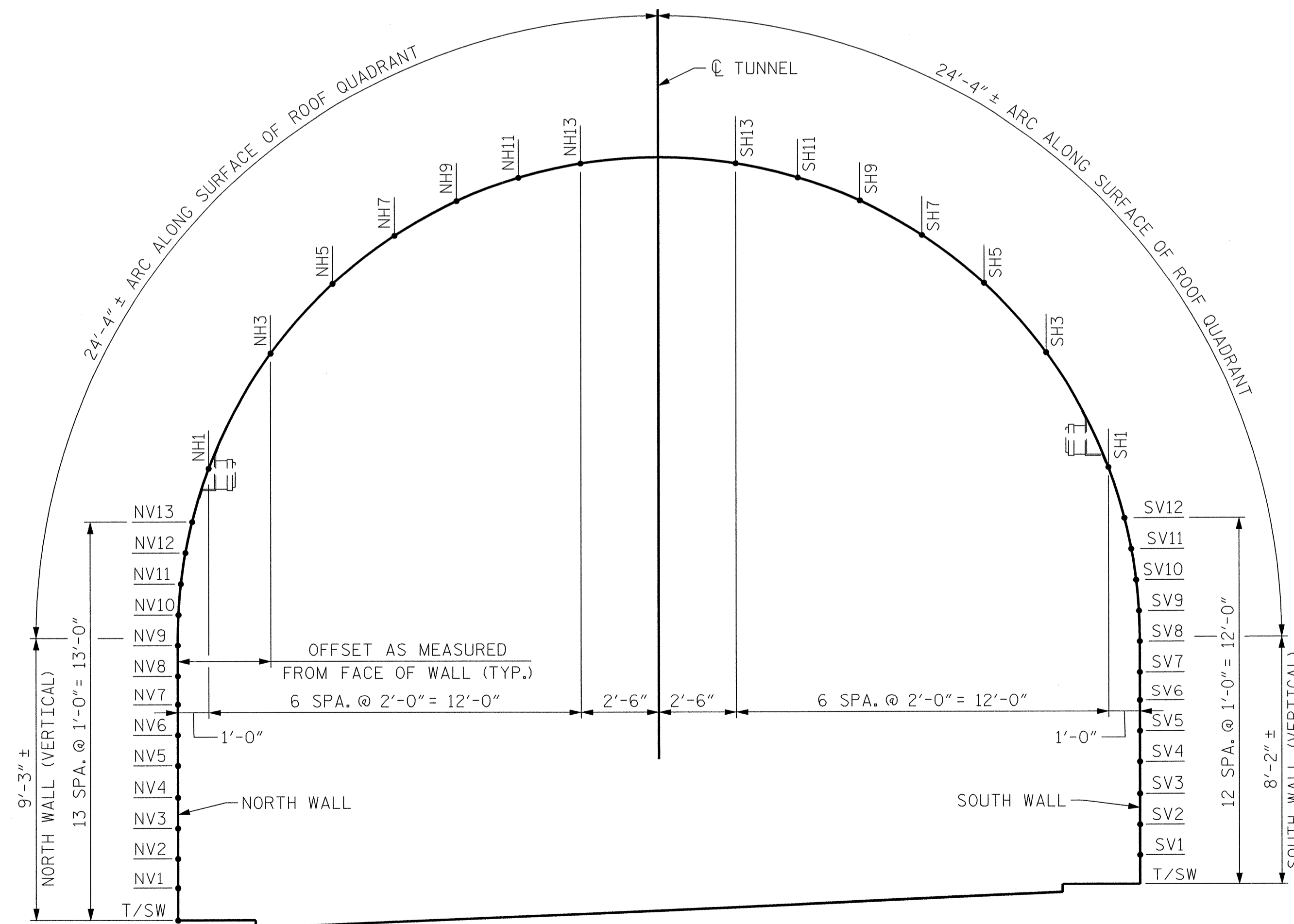
HDR HDR Engineering, Inc. of the Carolinas
 2733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C. E.L.S. License Number: F-0116

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



PARTIAL PLAN OF REPAIR SEGMENTS - TUNNEL 15



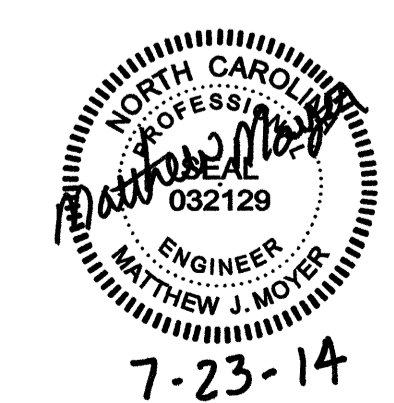
SECTION A-A: REPAIR GRID REFERENCE DETAIL
(LOOKING EAST)

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

SHEET 2 OF 2

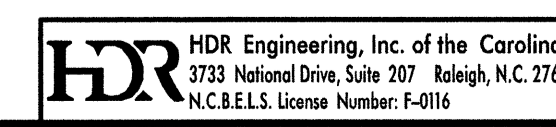
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DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 PLAN OF
REPAIR SEGMENTS & GRID
REFERENCE DETAIL



7-23-14

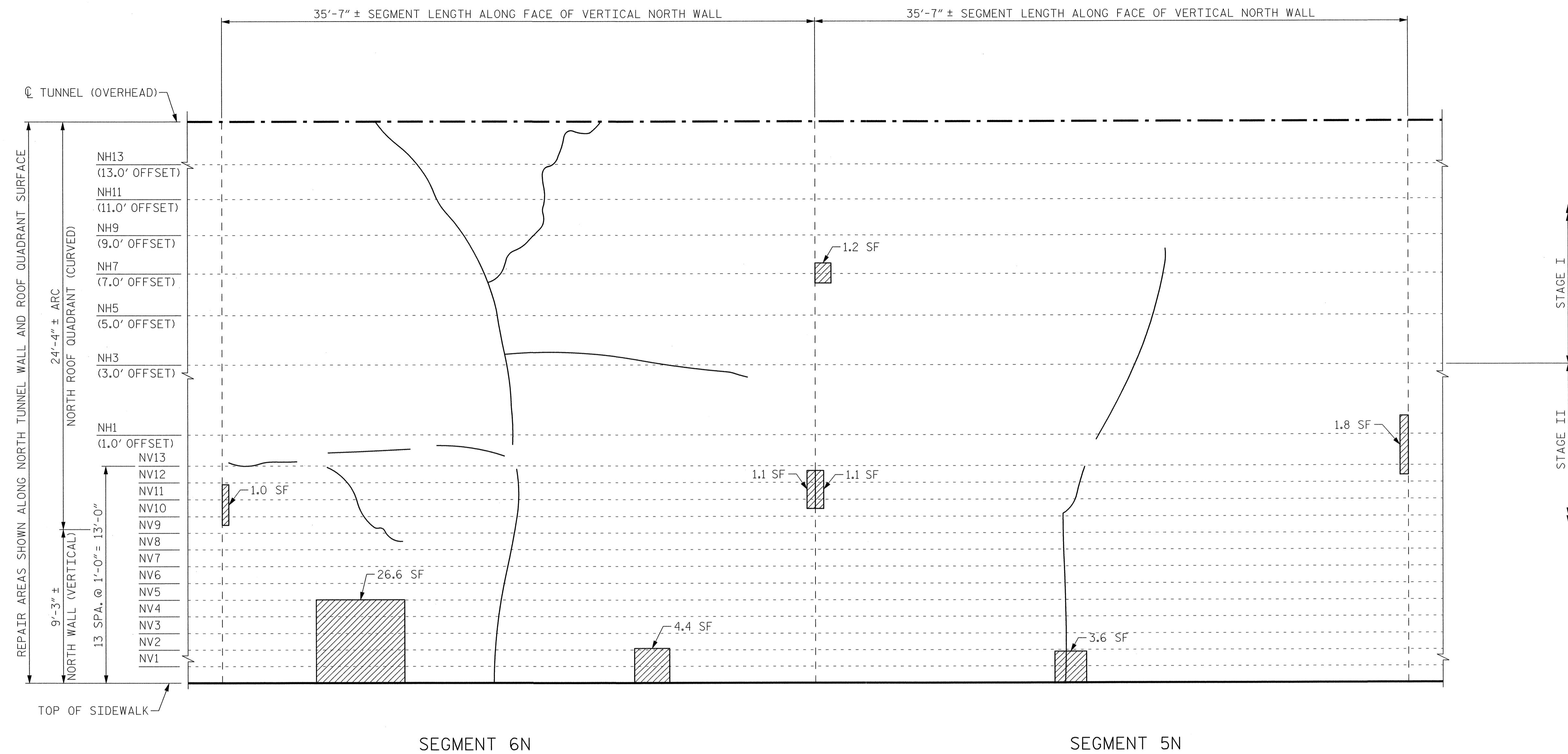
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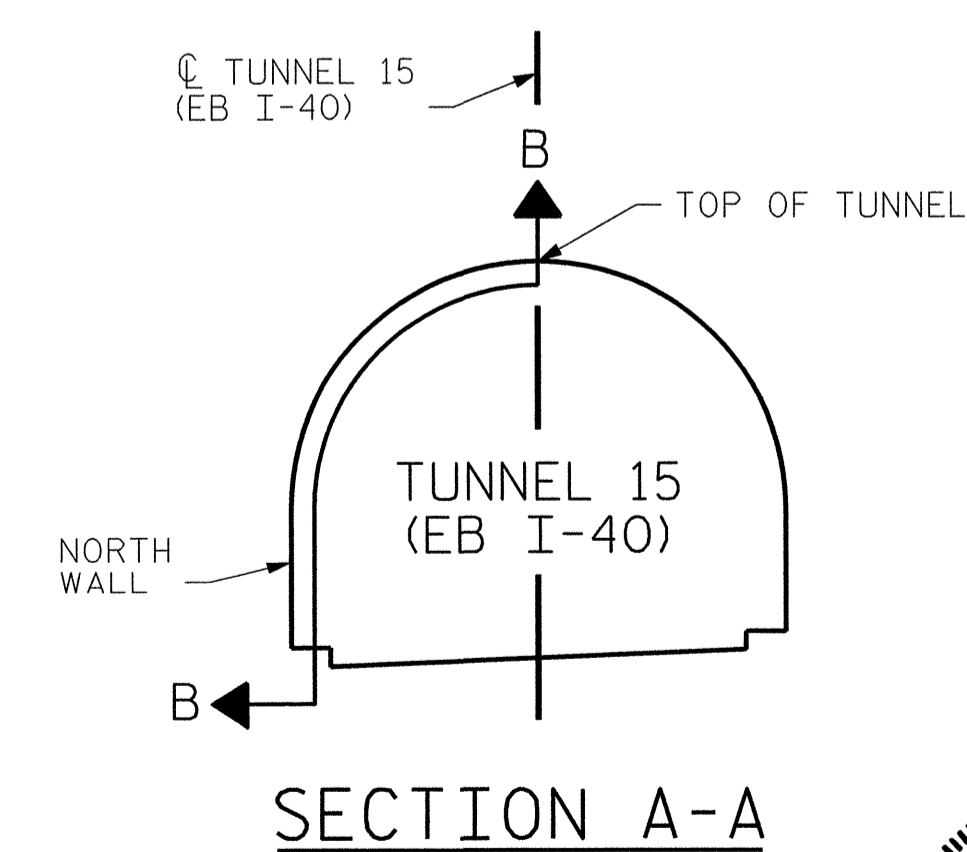
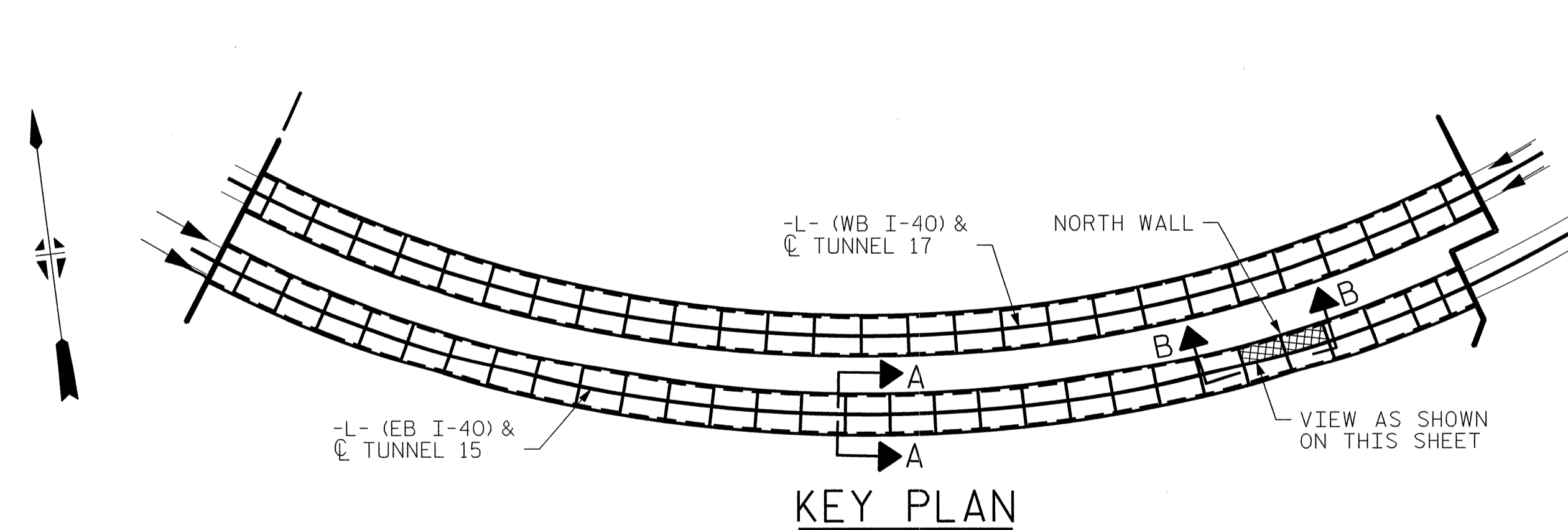
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SHOTCRETE REPAIRS SEGMENT 6N	CF	11.0



SEGMENT 6N

SEGMENT 5N

VIEW B-B: REPAIR SEGMENTS 5N & 6N
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 5N & 6N



REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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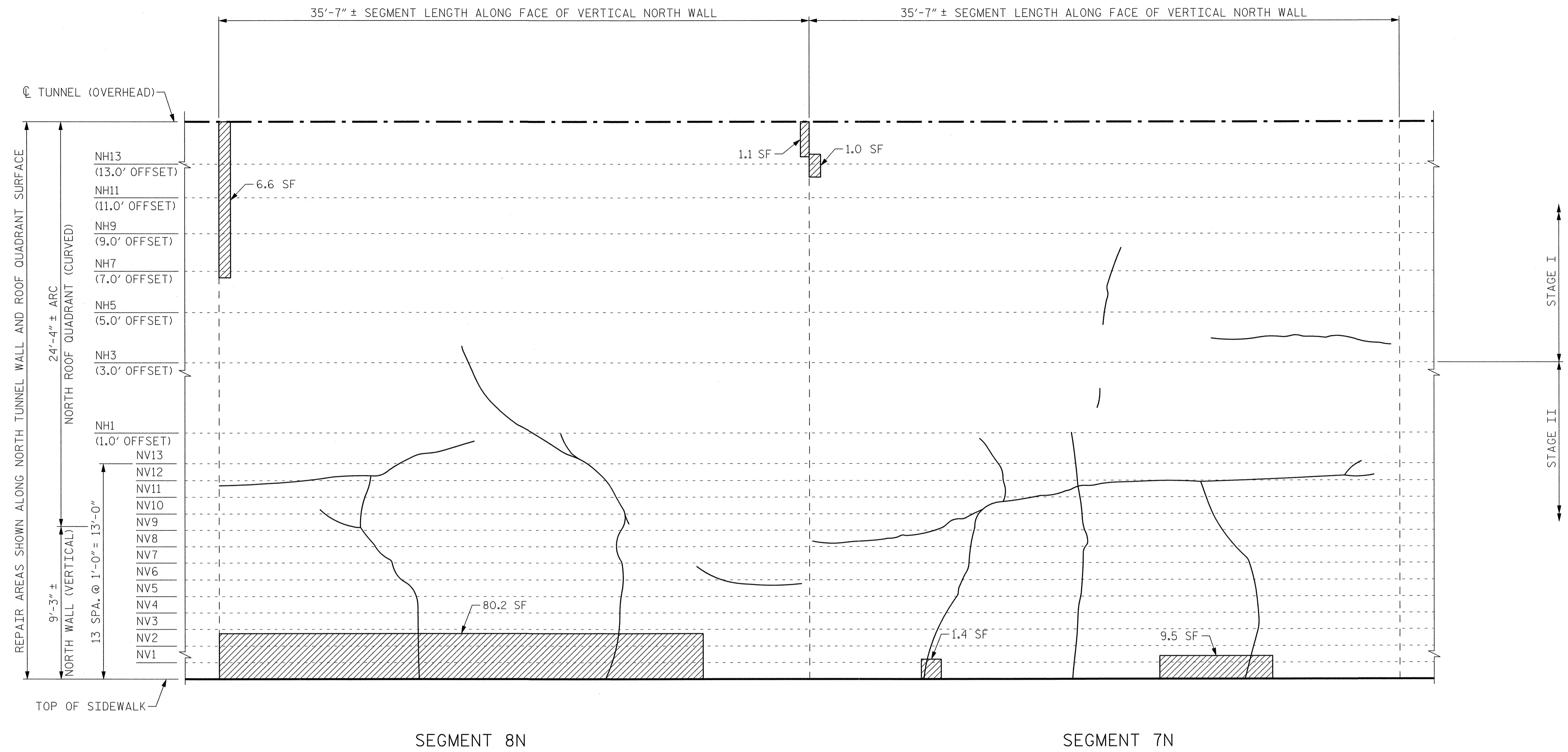
SHEET
NO.
S-009
TOTAL
SHEETS
110

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

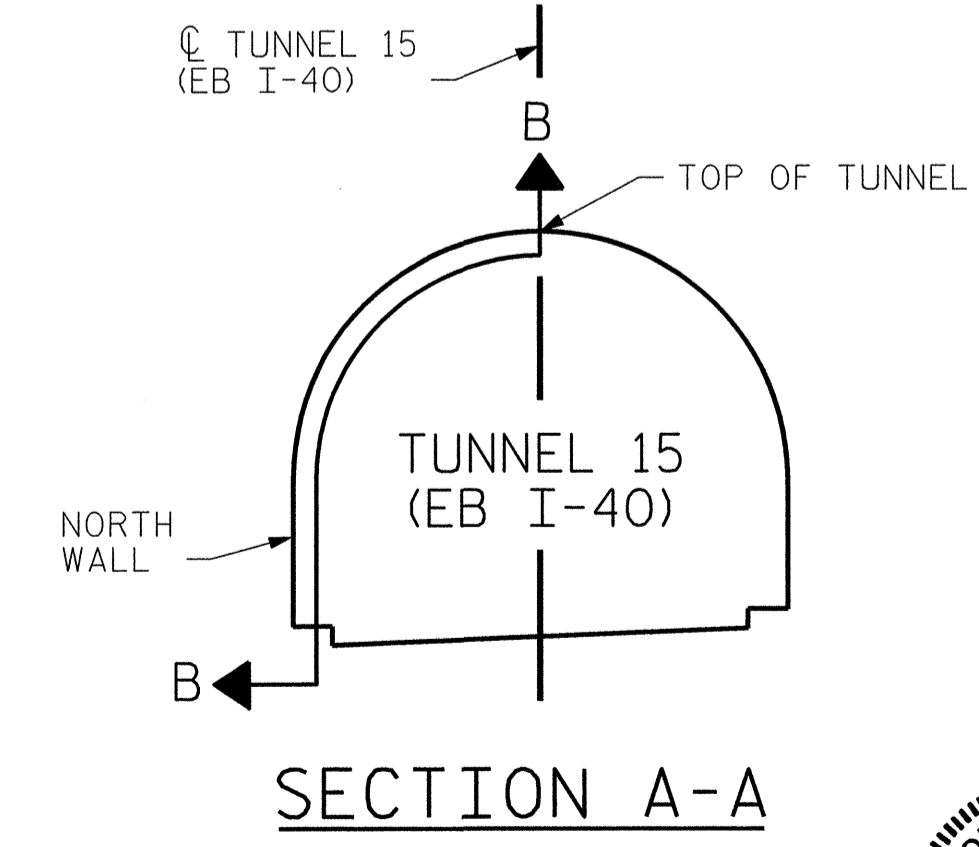
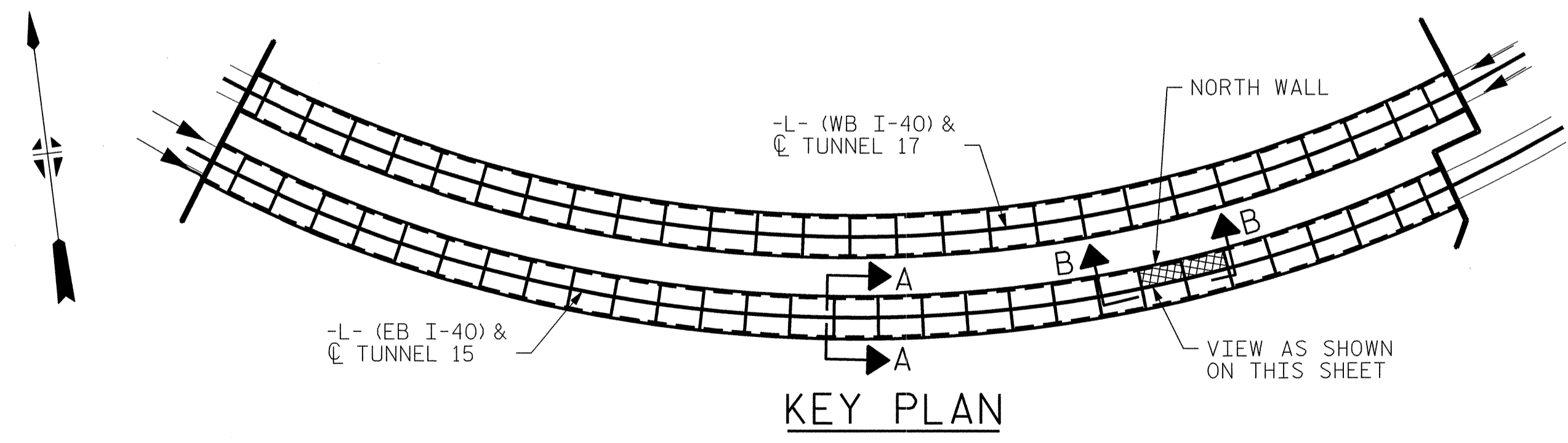
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.S. License Number: F-0116

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SHOTCRETE REPAIRS SEGMENT 7N	CF	4.0
SHOTCRETE REPAIRS SEGMENT 8N	CF	29.3



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
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RALEIGH

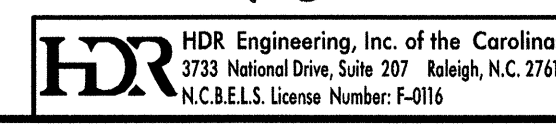
TUNNEL 15 REPAIR AREAS
SEGMENTS 7N & 8N



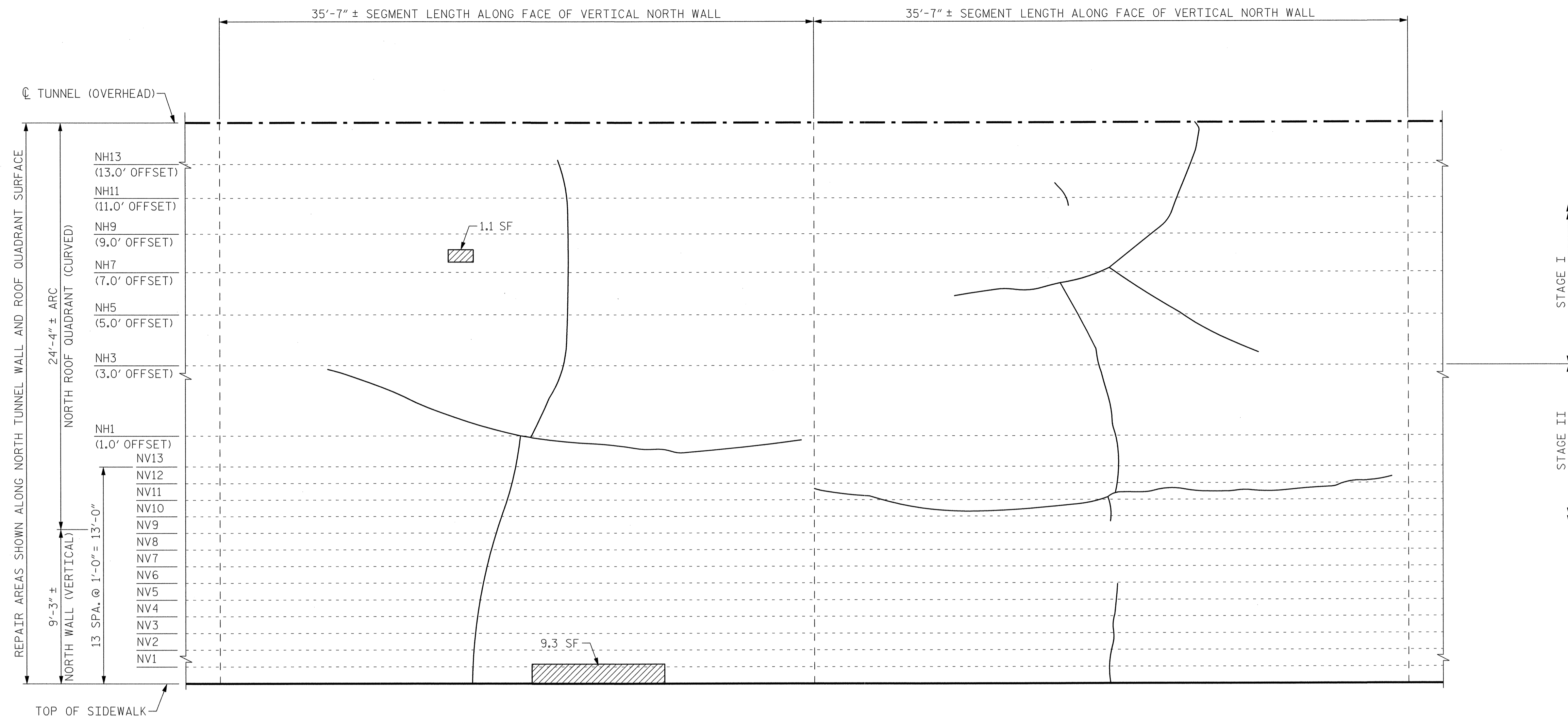
REVISIONS						SHEET NO. S-010
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CHECKED BY: M. MOYER DATE: 07/2013

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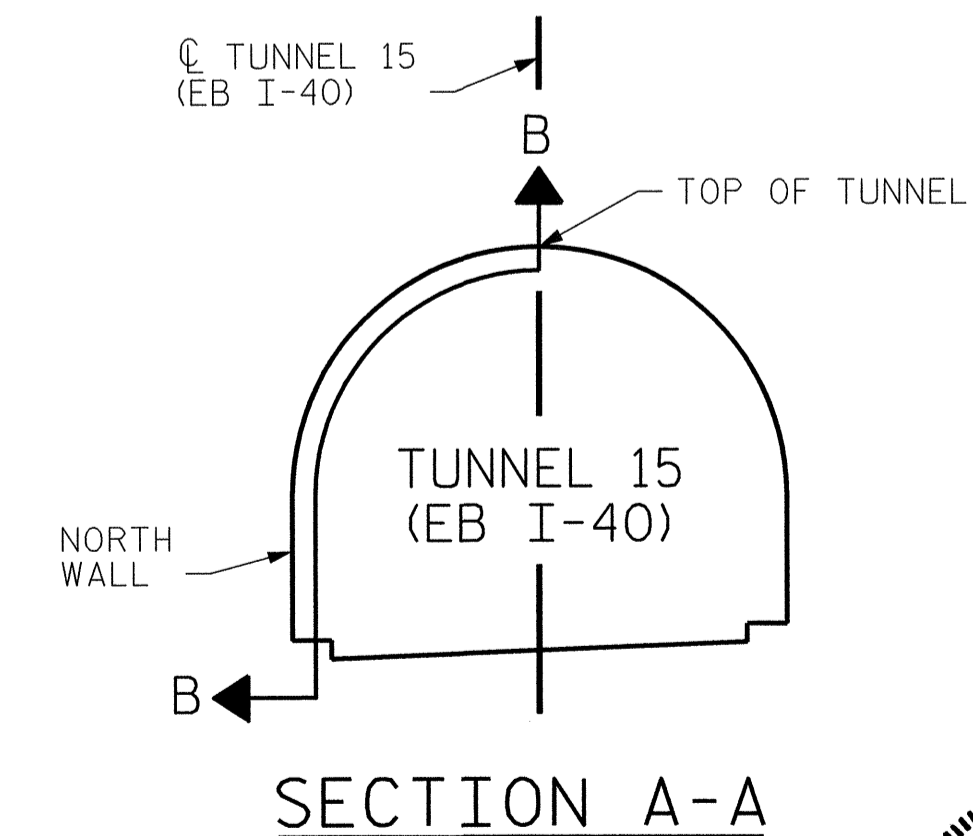
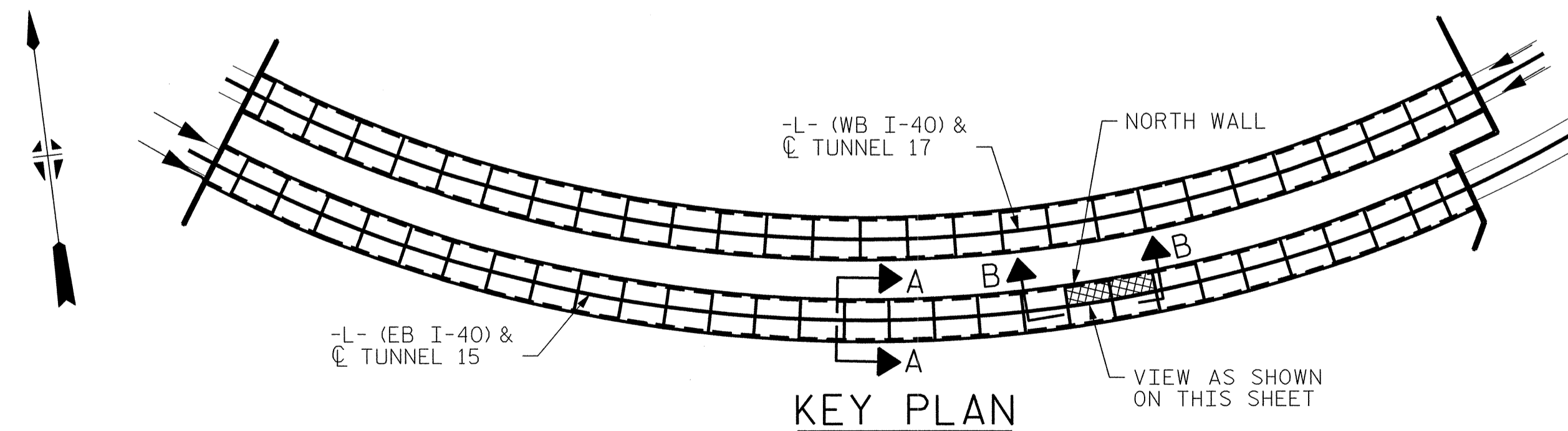
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SHOTCRETE REPAIRS SEGMENT 10N	CF	3.5



SEGMENT 10N

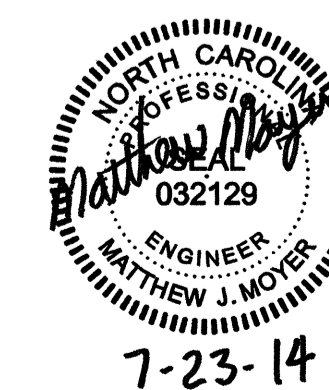
SEGMENT 9N

**VIEW B-B: REPAIR SEGMENTS 9N & 10N
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 9N & 10N					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--



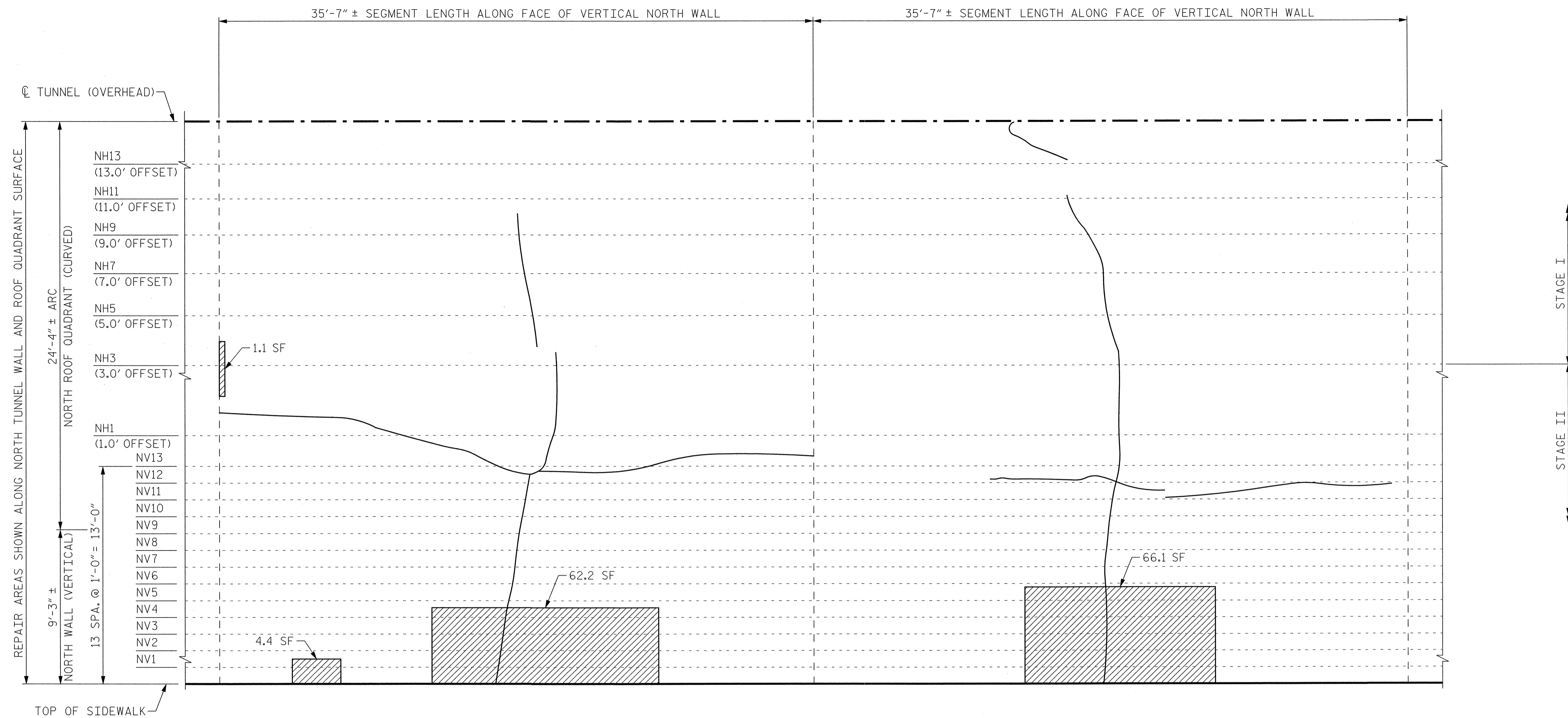
HDR HDR Engineering, Inc. of the Carolinas
 2733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

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

PLOT DRIVER: NCOOT.plt, mono.eng-100.plt
 PENTABLE: I-40 Tunnel.tbl
 USER: msells DATE: 7/22/2014
 FILE: ...\\13.00_CAD\\Tunnel15\\15N-0910 TIME: 12:50:10 PM

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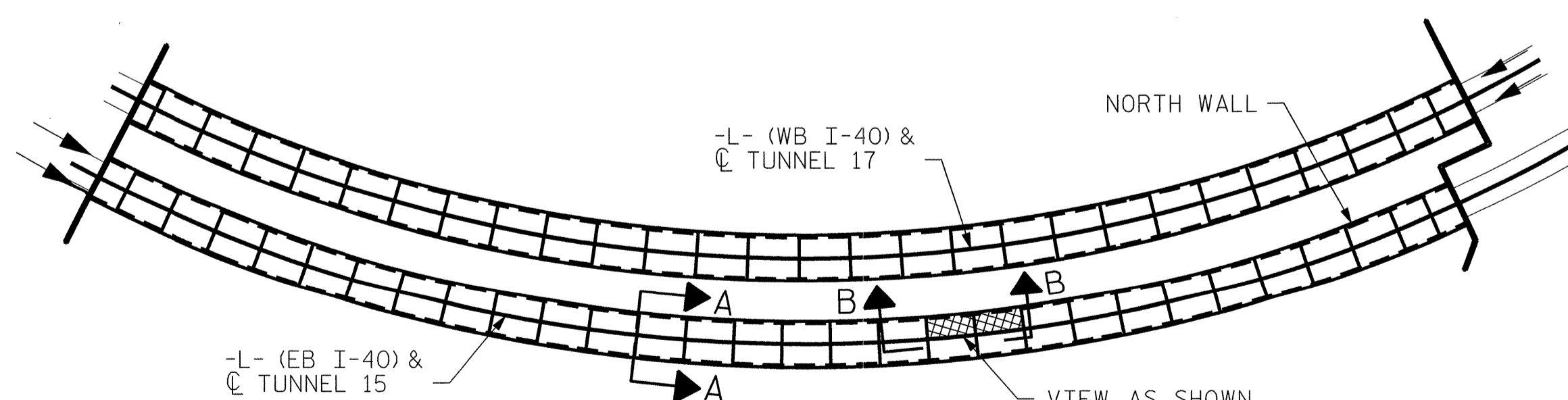
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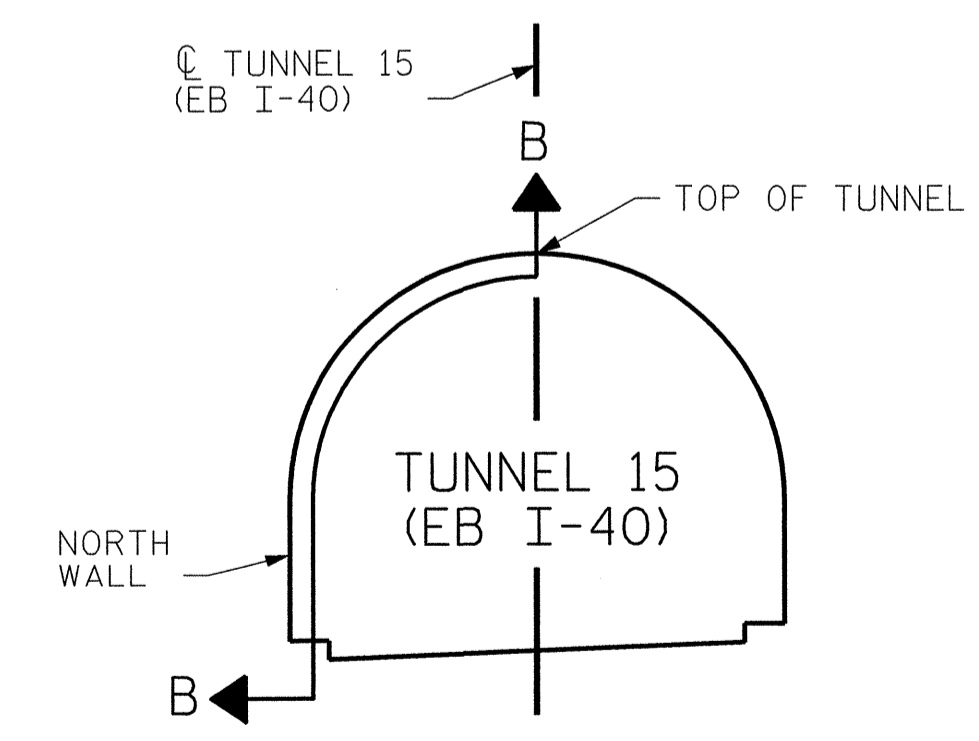
SEGMENT 12N

SEGMENT 11N

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

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TUNNEL 15 REPAIR
 AREAS
 SEGMENTS 11N & 12N



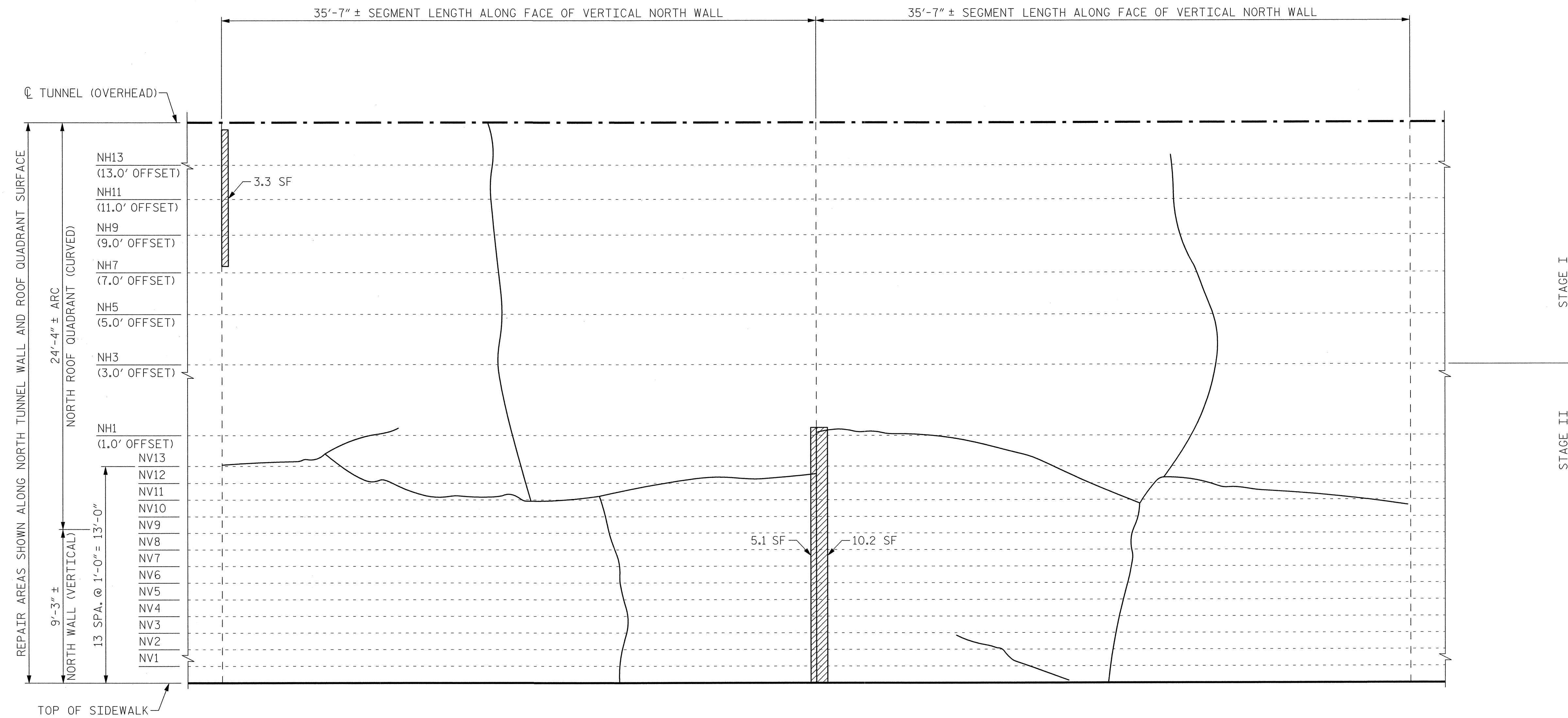
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2	--	--	4	--	--	

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

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

PLOT DRIVER: NCDOT_pdef_mono_eng.100.plt
 PENTABLE: I-40 Tunnel.tbl
 USER: msells DATE: 7/22/2014
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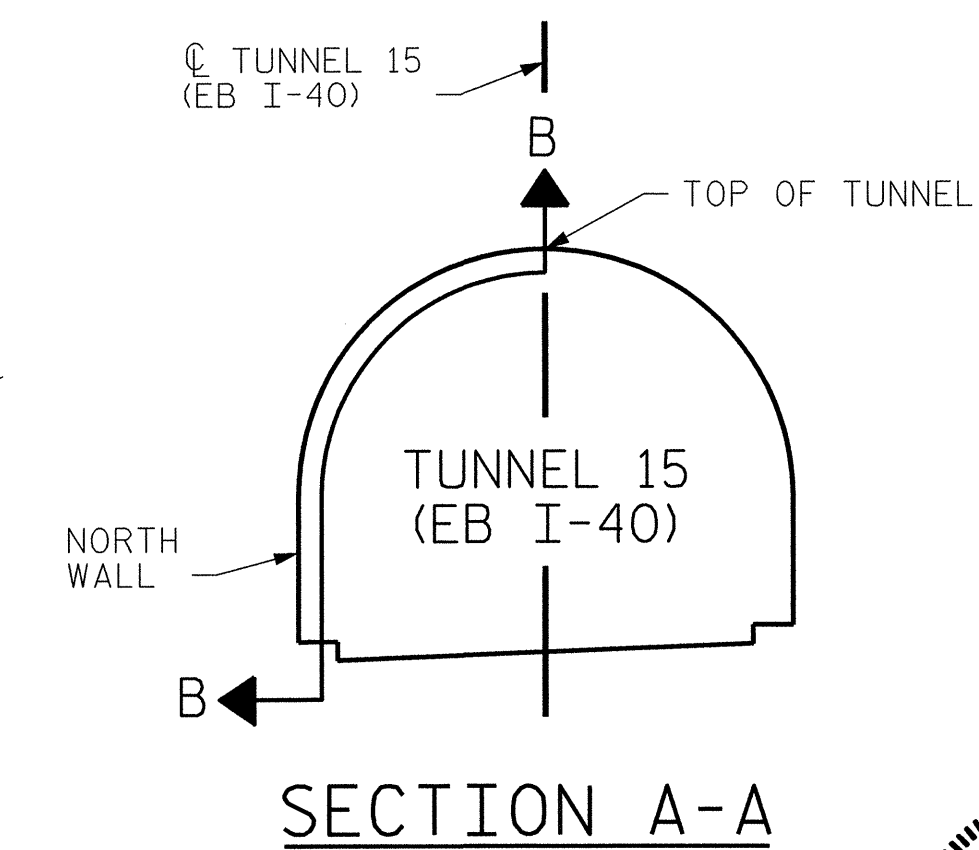
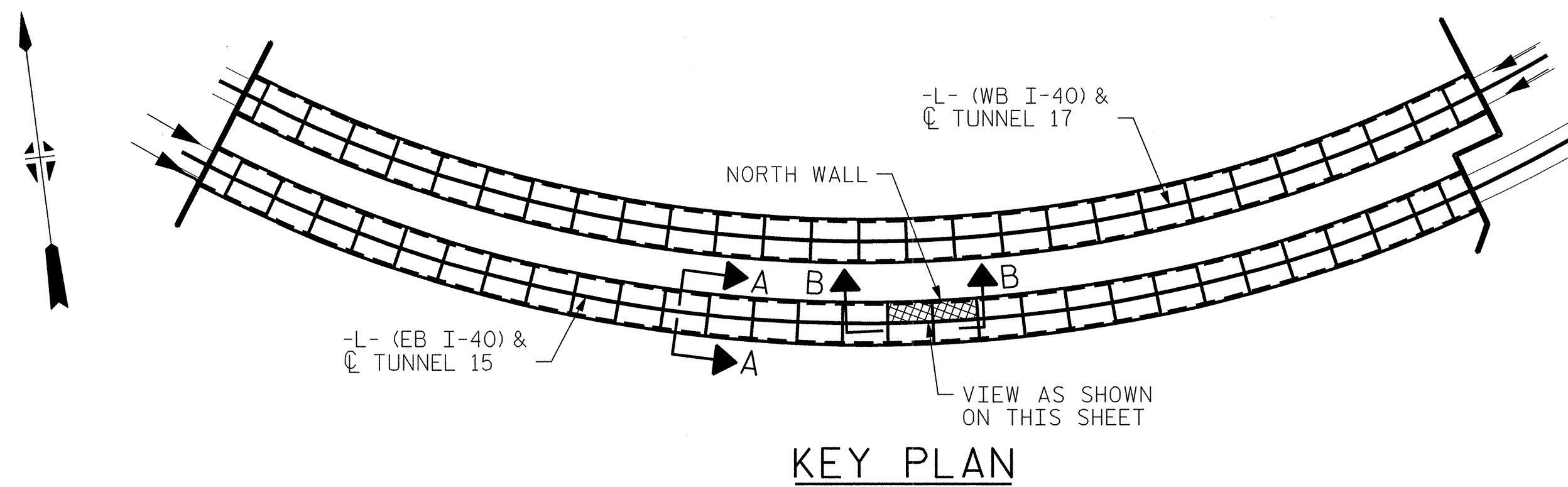
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SHOTCRETE REPAIRS SEGMENT 14N	CF	2.8	



SEGMENT 14N

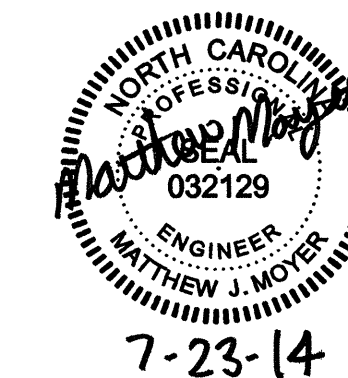
SEGMENT 13N

**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**



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

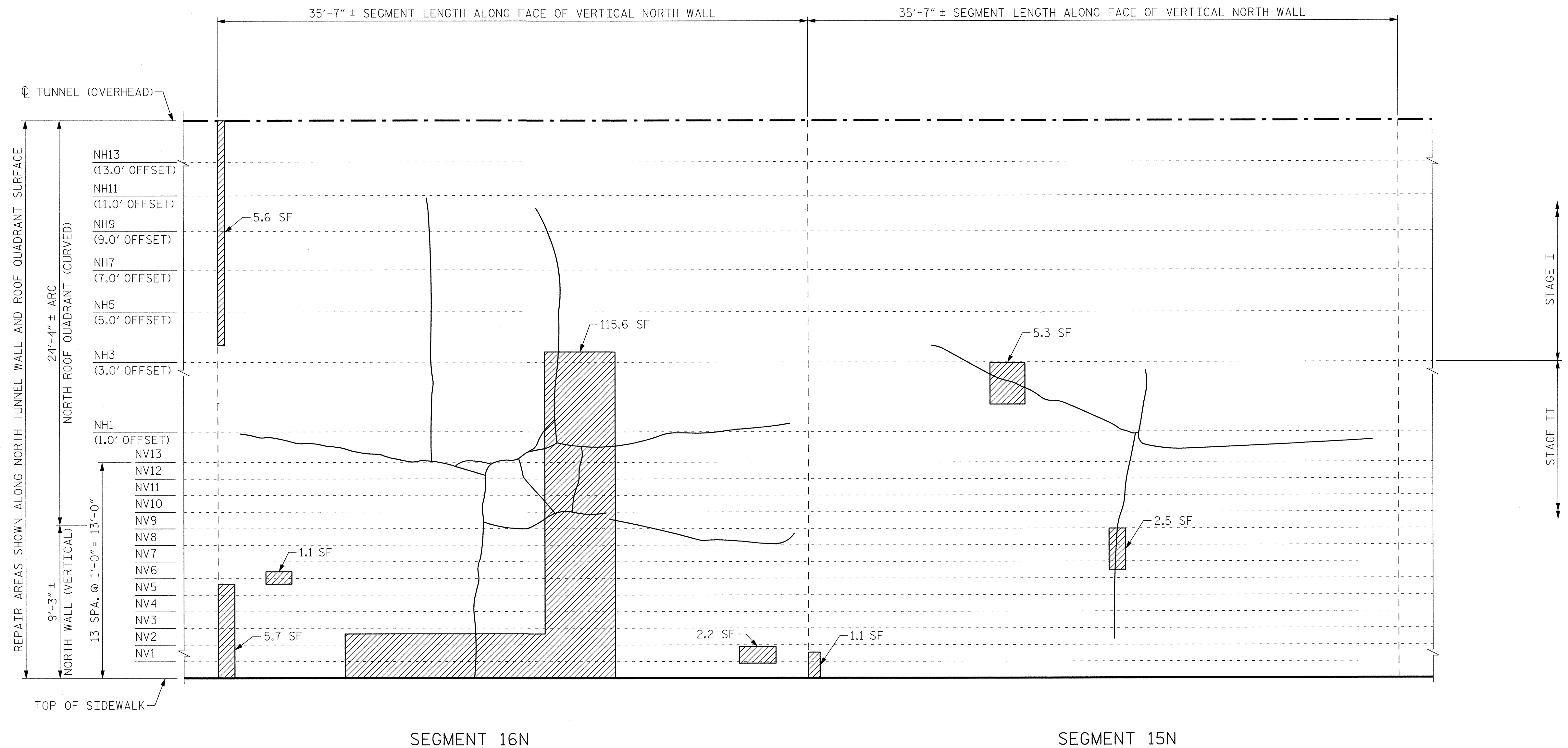
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CHECKED BY: M. MOYER DATE: 07/2013

REVISIONS						SHEET NO. S-013 TOTAL SHEETS 110
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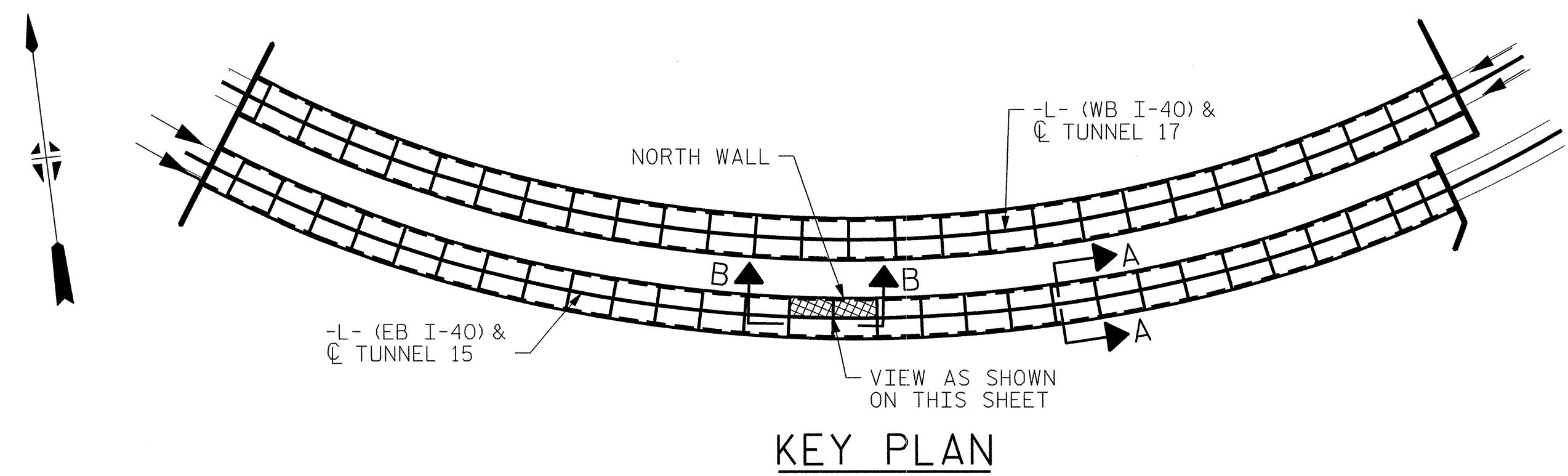
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BILL OF MATERIAL

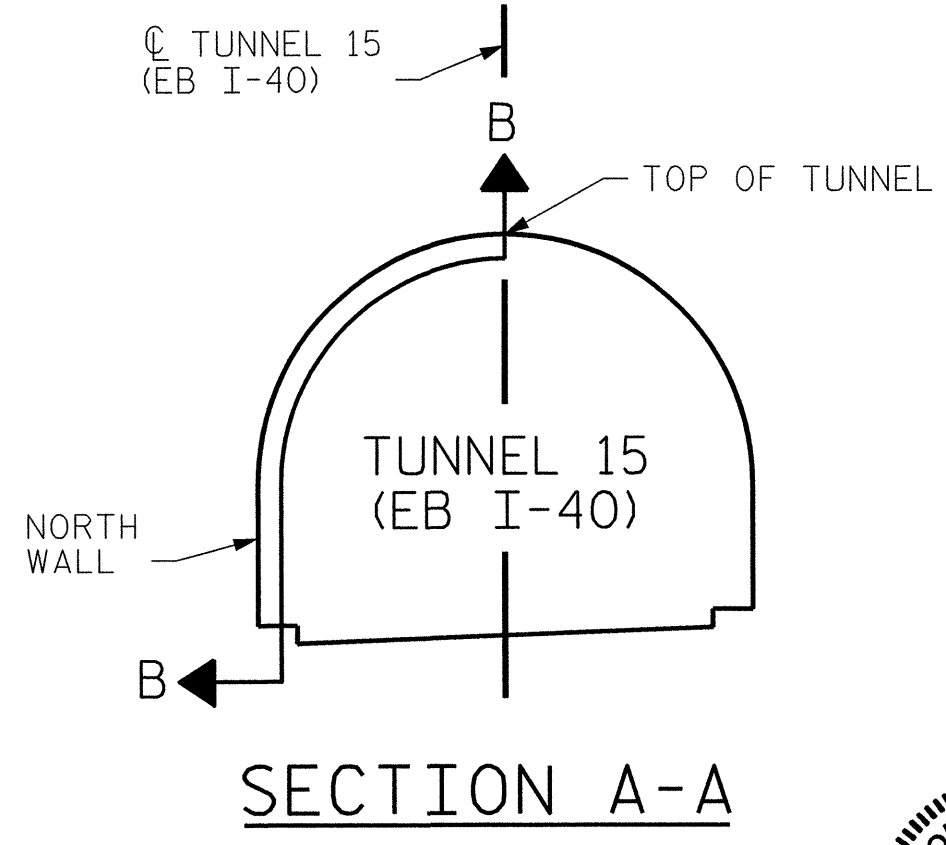
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SHOTCRETE REPAIRS SEGMENT 16N	CF	43.4



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



KEY PLAN



SECTION A-A

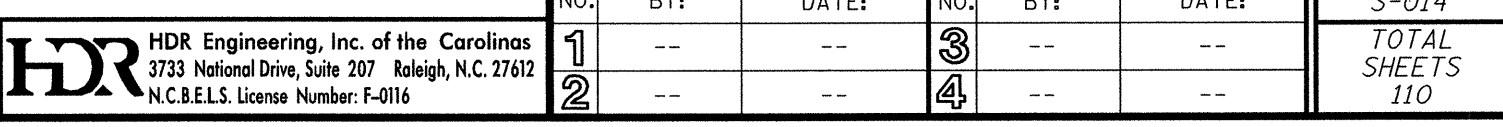
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TUNNEL 15 REPAIR
 AREAS
 SEGMENTS 15N & 16N**



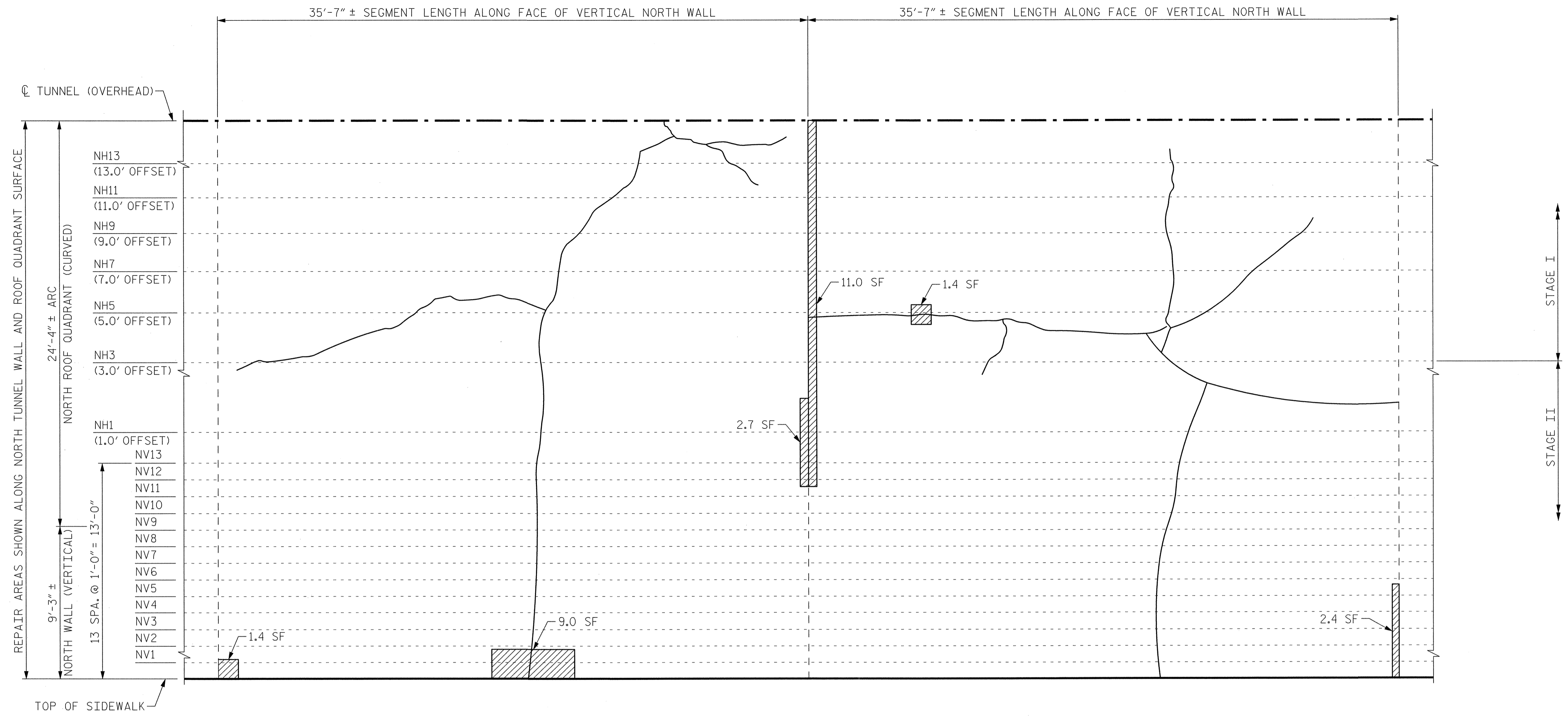
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013



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 DATE: 7/22/2014
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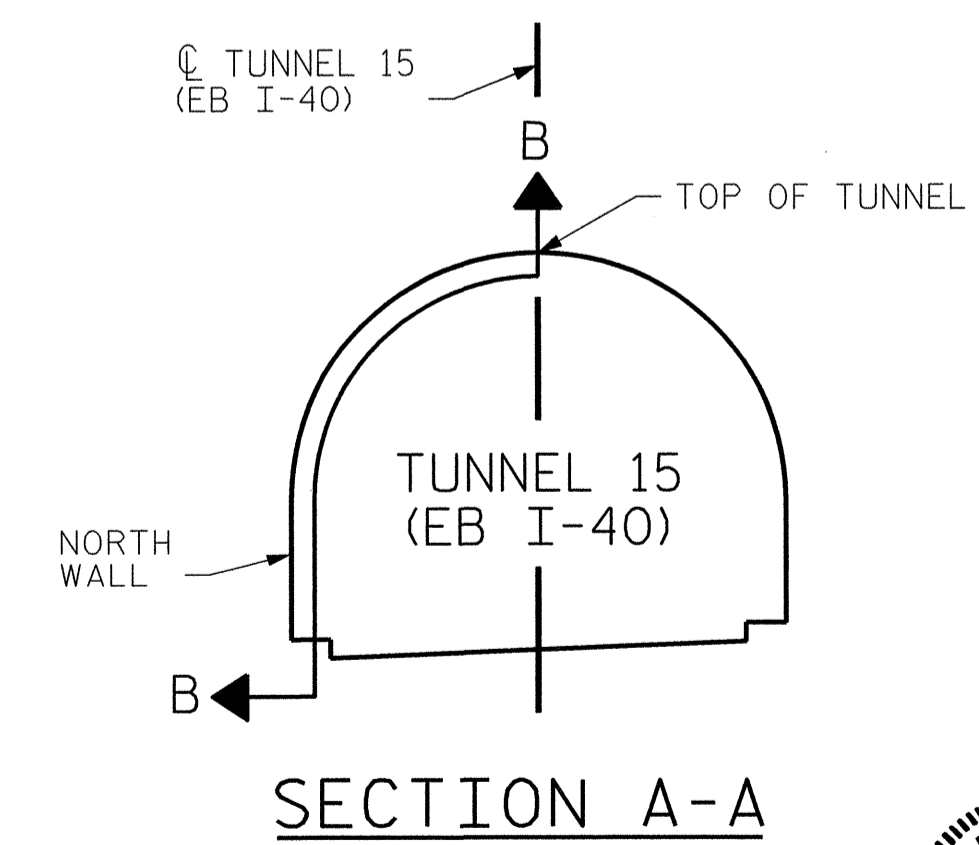
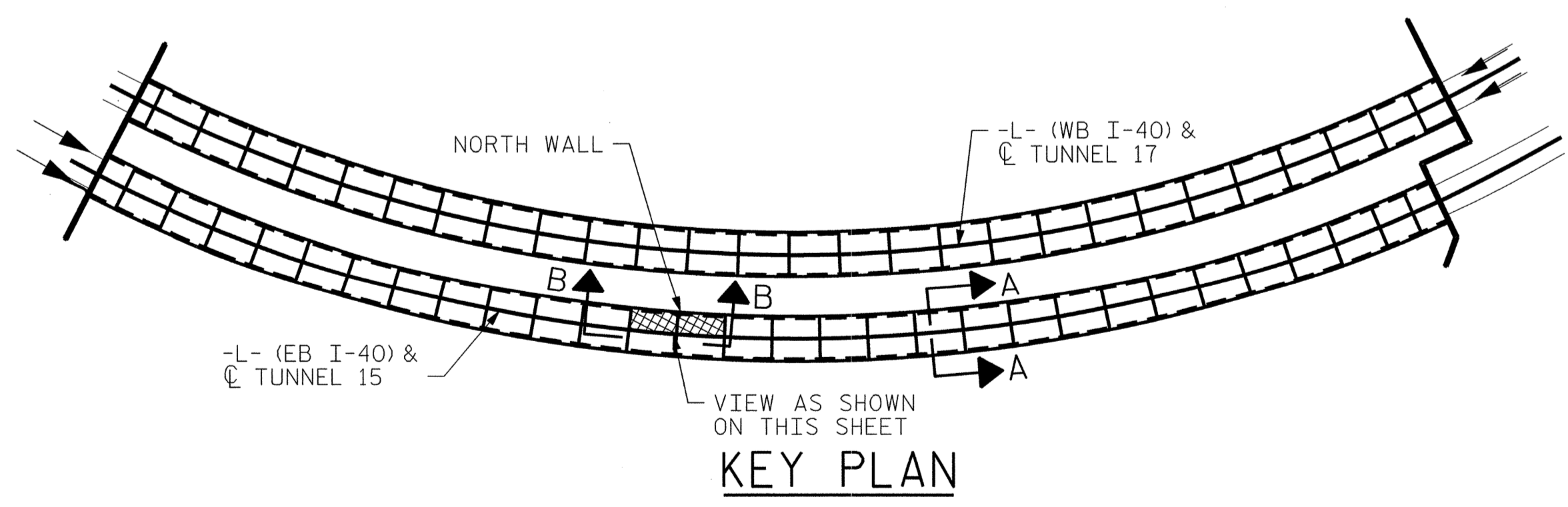
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SHOTCRETE REPAIRS SEGMENT 18N	CF	4.4	



SEGMENT 18N

SEGMENT 17N

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)

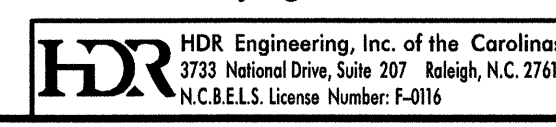
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 17N & 18N



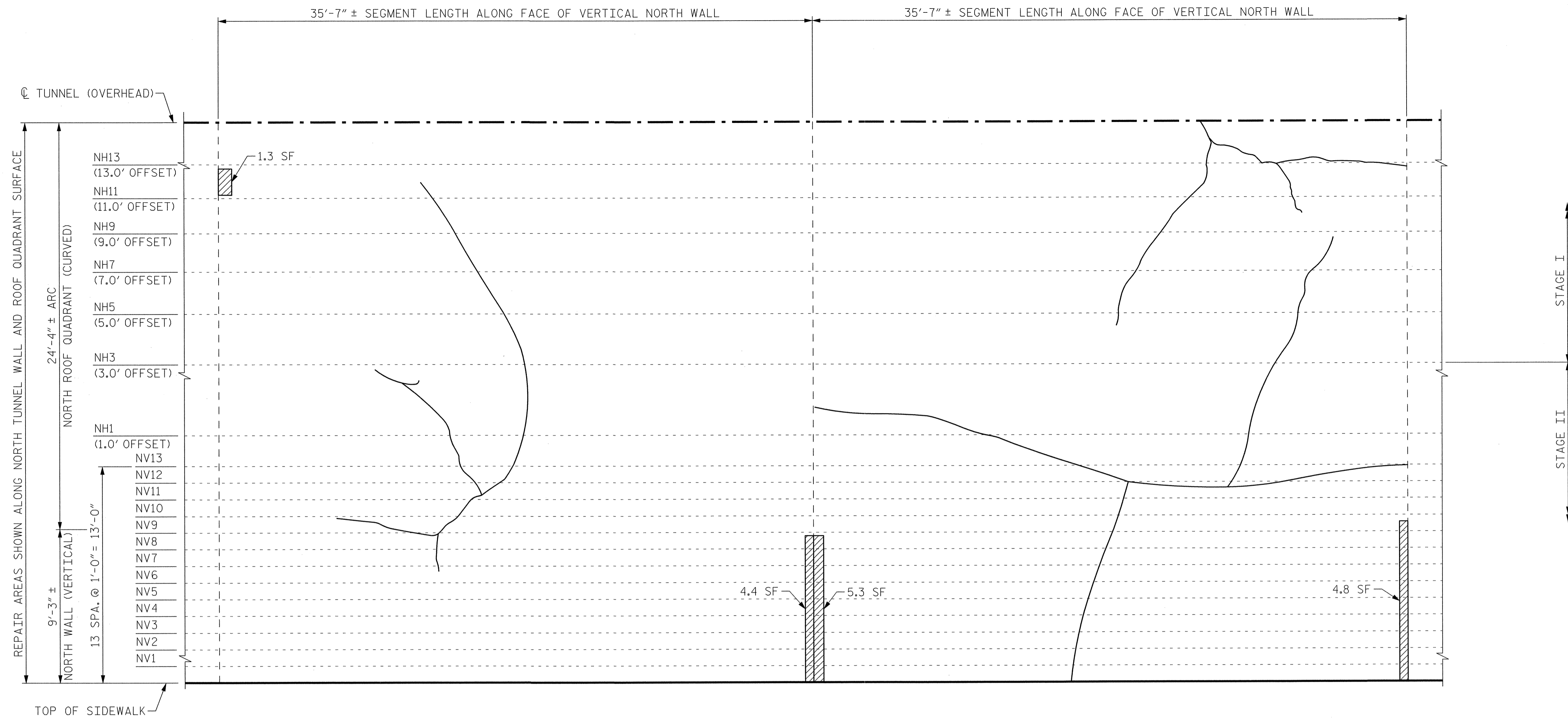
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 110
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013



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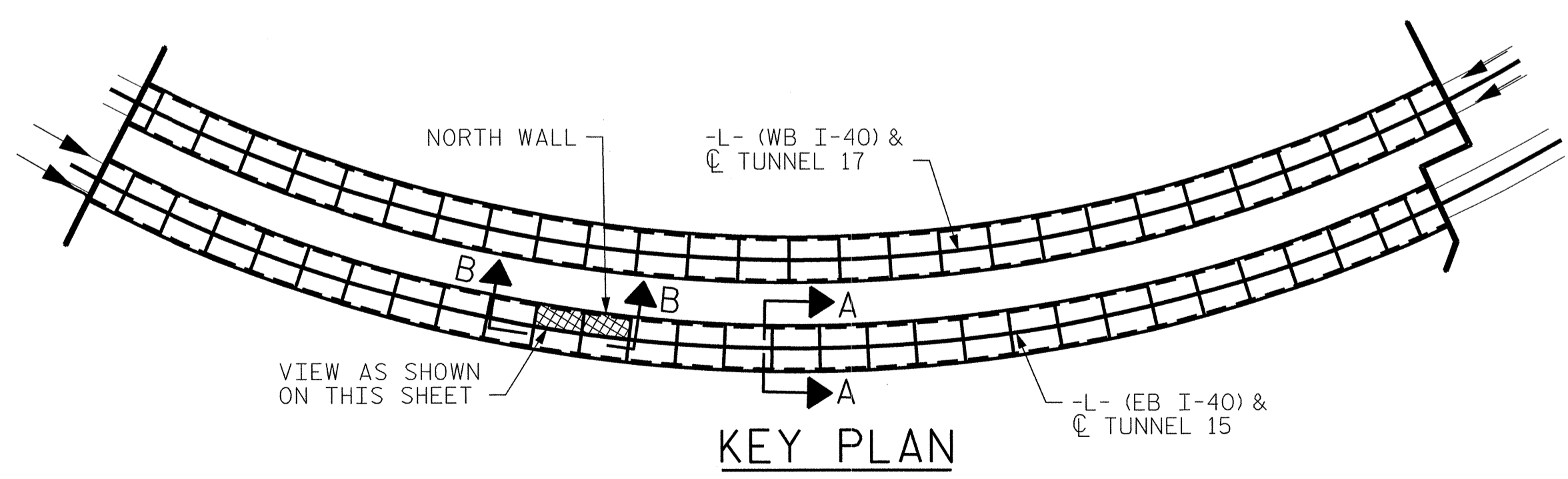
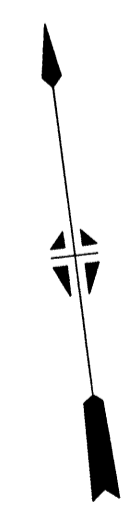
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SHOTCRETE REPAIRS	SEGMENT 20N	CF	1.9



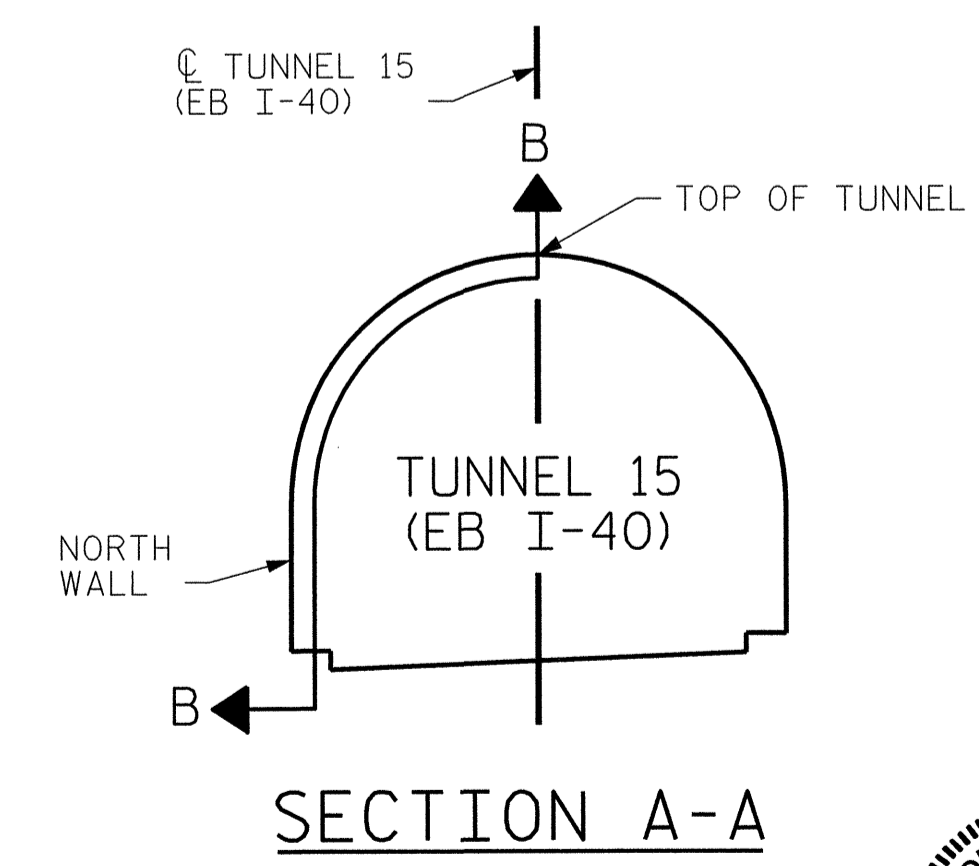
SEGMENT 20N

SEGMENT 19N

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



KEY PLAN



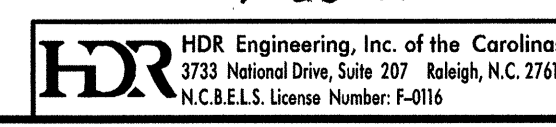
SECTION A-A

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

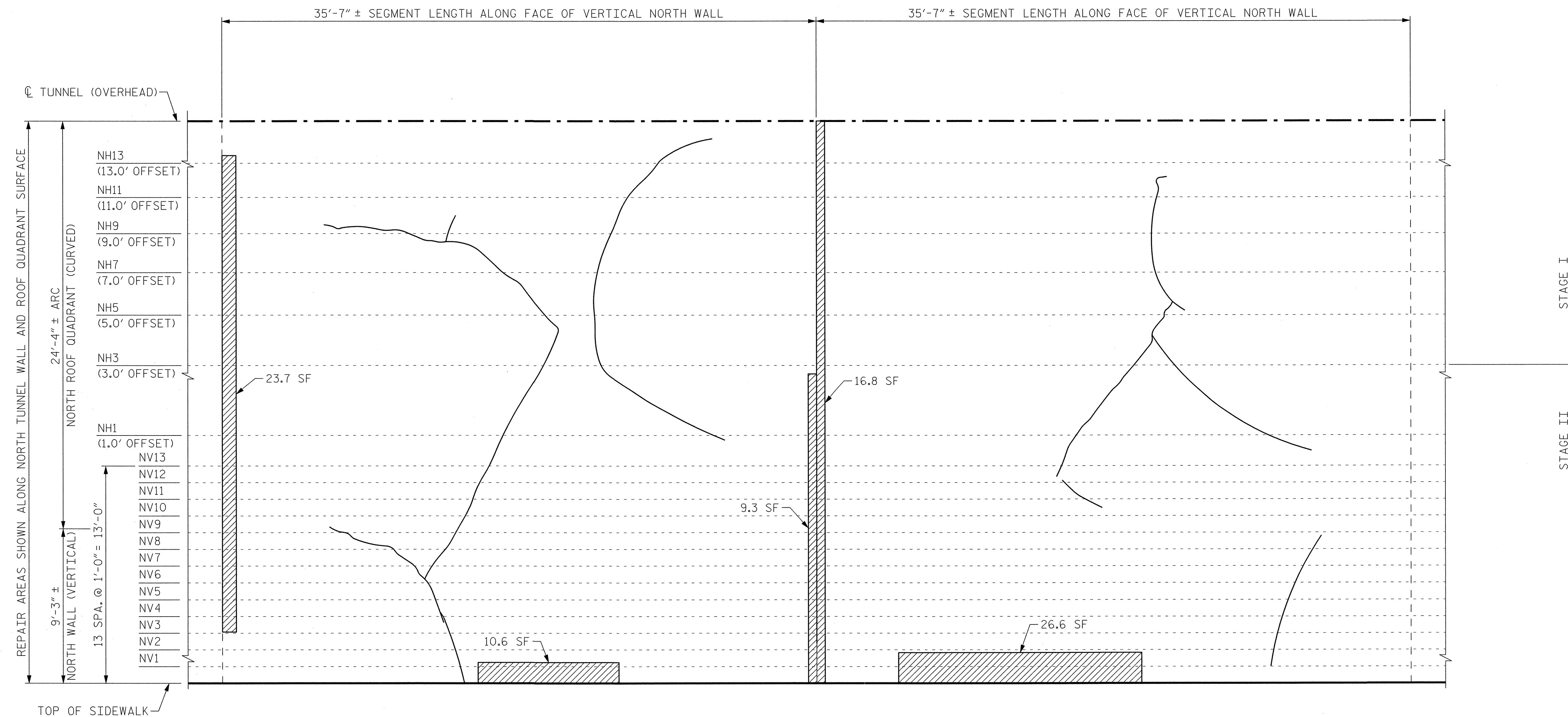


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NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY: B. PETERSON DATE: 07/2013
 CHECKED BY: M. MOYER DATE: 07/2013

PLOT DRIVER: NCOOT.pdf.mono.eng-100.plt
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 USER: msells DATE: 7/22/2014 TIME: 12:50:53 PM
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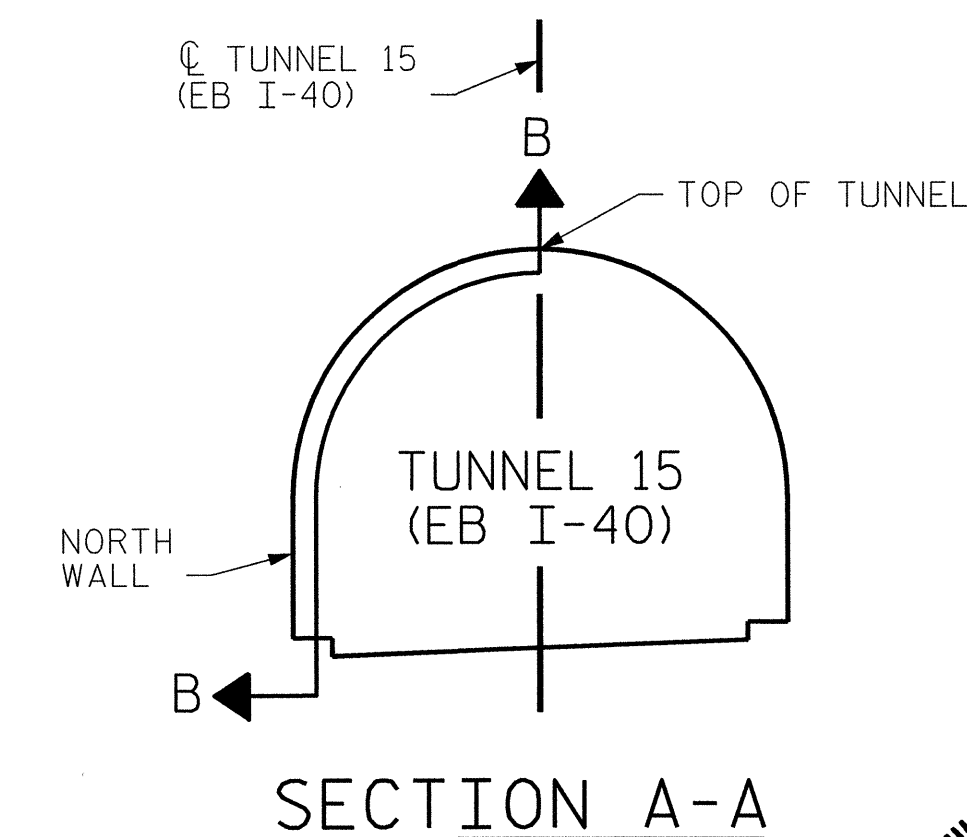
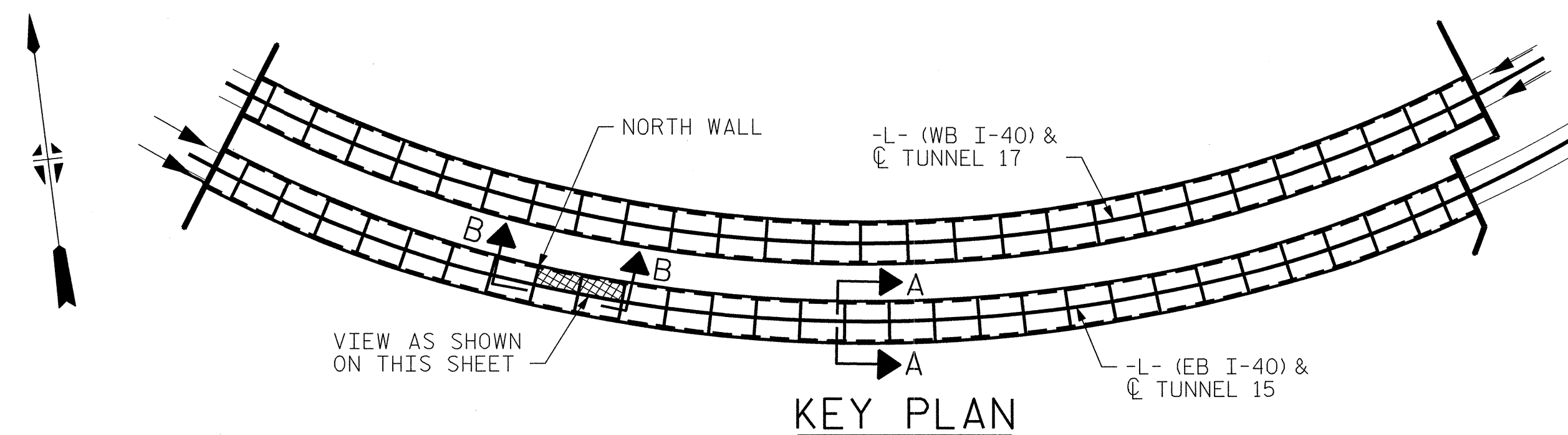
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SEGMENT 22N

SEGMENT 21N

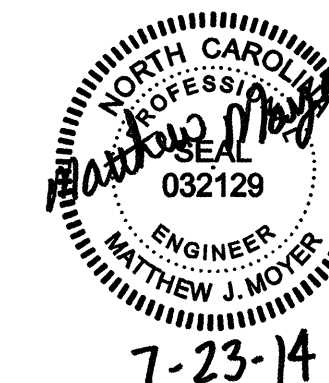
**VIEW B-B: REPAIR SEGMENTS 21N & 22N
TUNNEL SURFACE ELEVATION**



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**



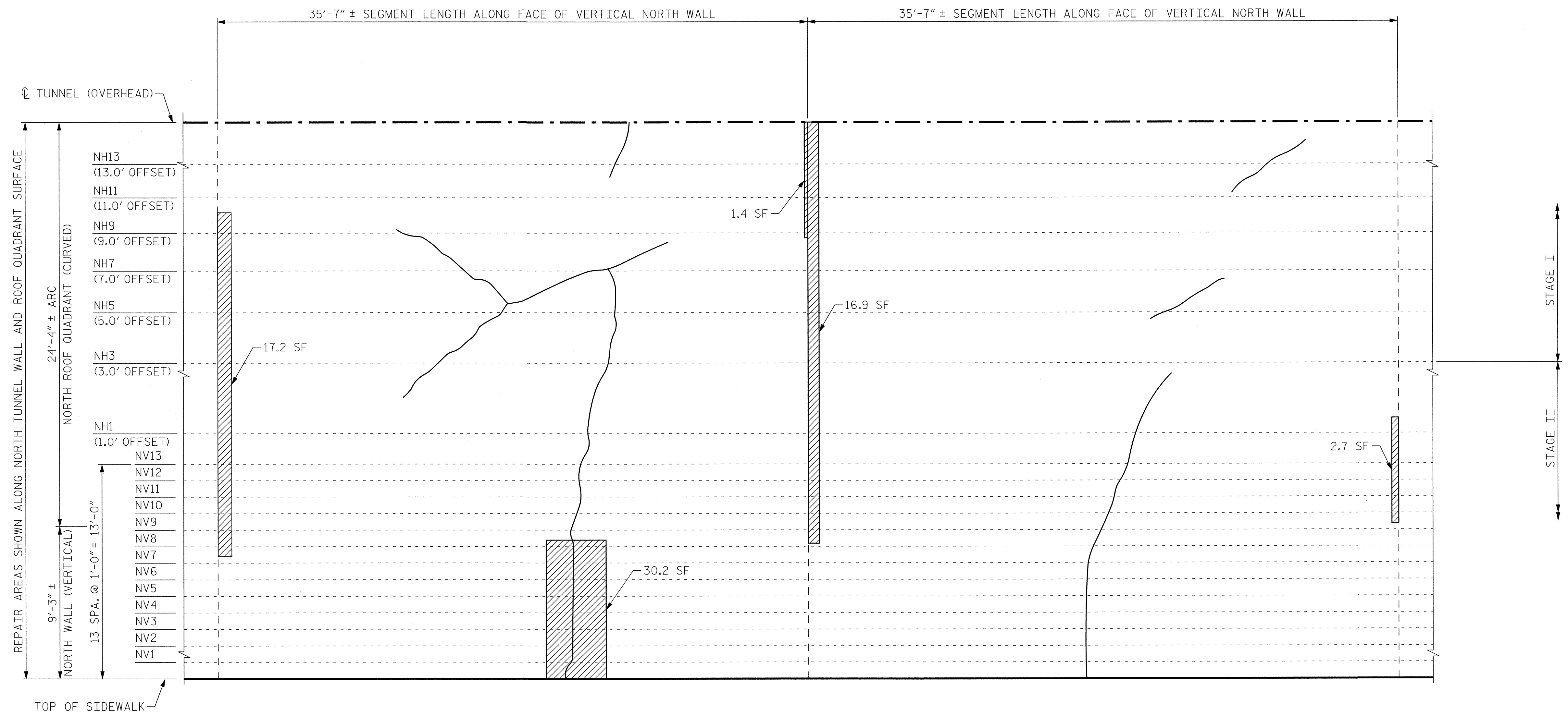
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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HDR HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
 USER: msells DATE: 7/22/2014
 FILE: \\13.000.CAD\Tunnel15\15N-2122

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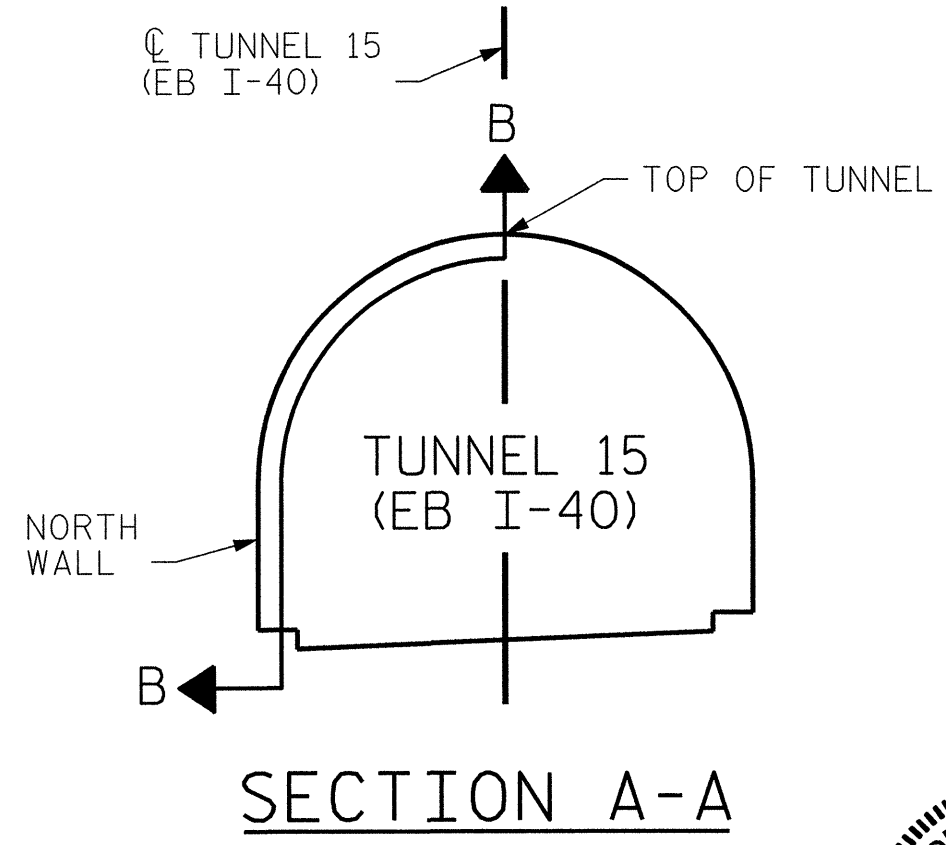
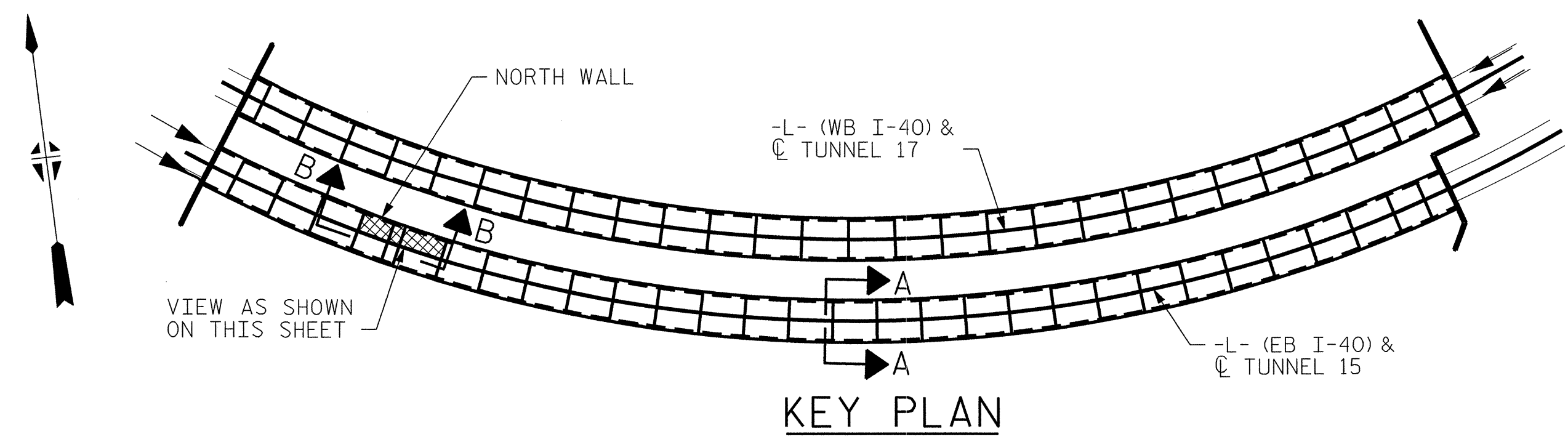


SEGMENT 26N

SEGMENT 25N

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)

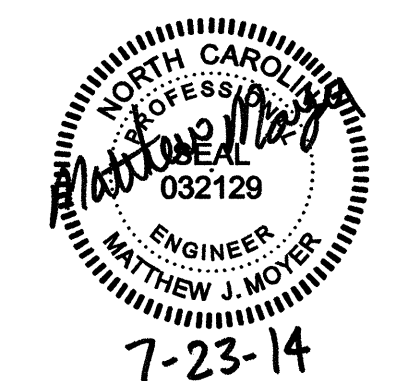
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TUNNEL 15 REPAIR AREAS

SEGMENTS 25N & 26N



REVISIONS						SHEET NO. S-019
NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY : B. PETERSON DATE : 07/2013

CHECKED BY : M. MOYER DATE : 07/2013

HDR Engineering, Inc. of the Carolinas

2723 National Drive, Suite 207 Raleigh, N.C. 27612

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

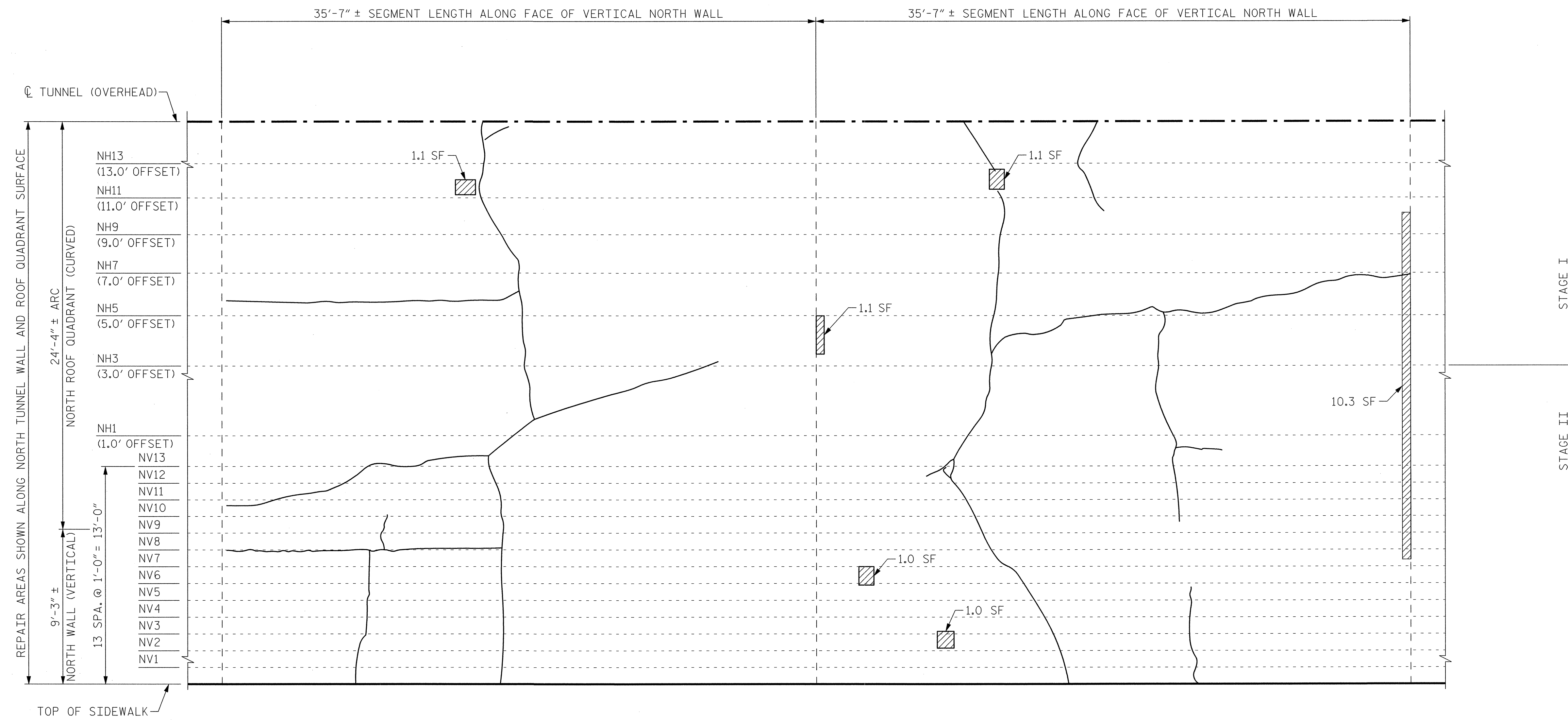
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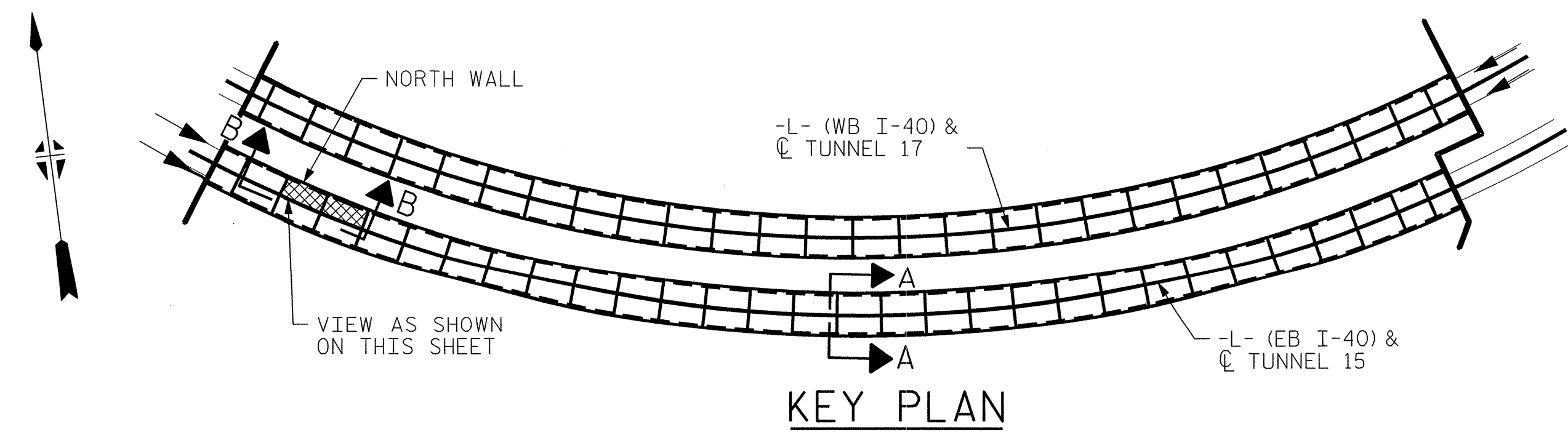
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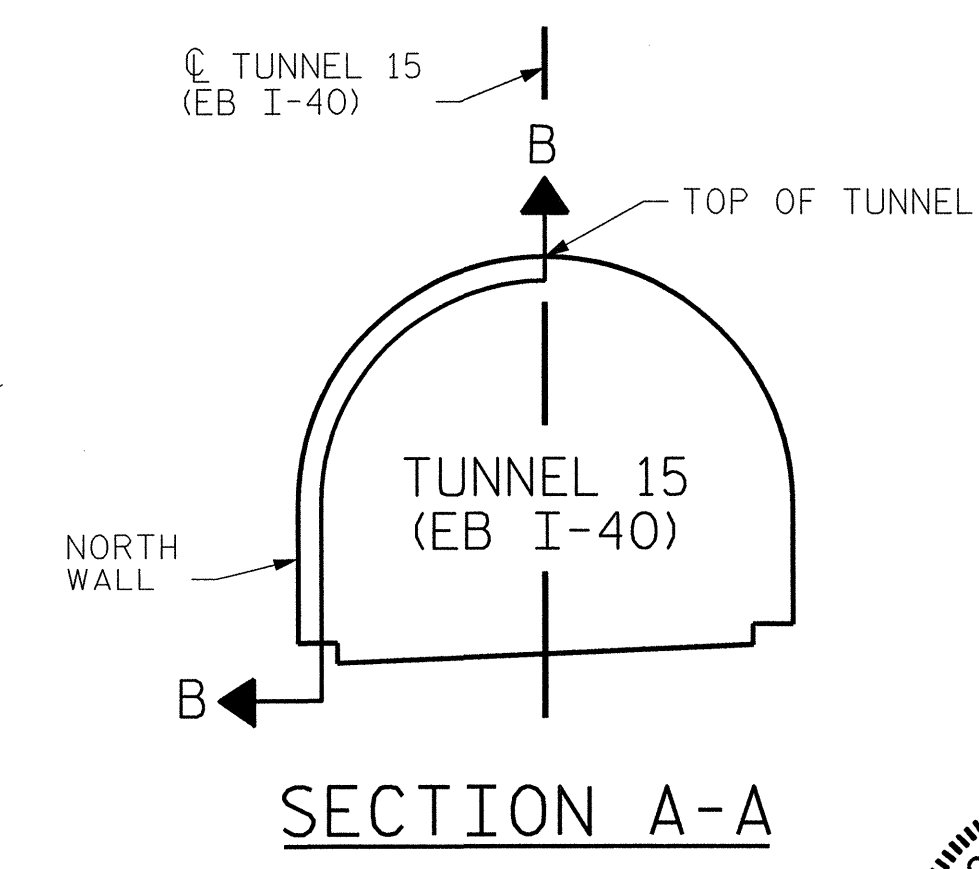
SEGMENT 28N

SEGMENT 27N

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



KEY PLAN



SECTION A-A

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**



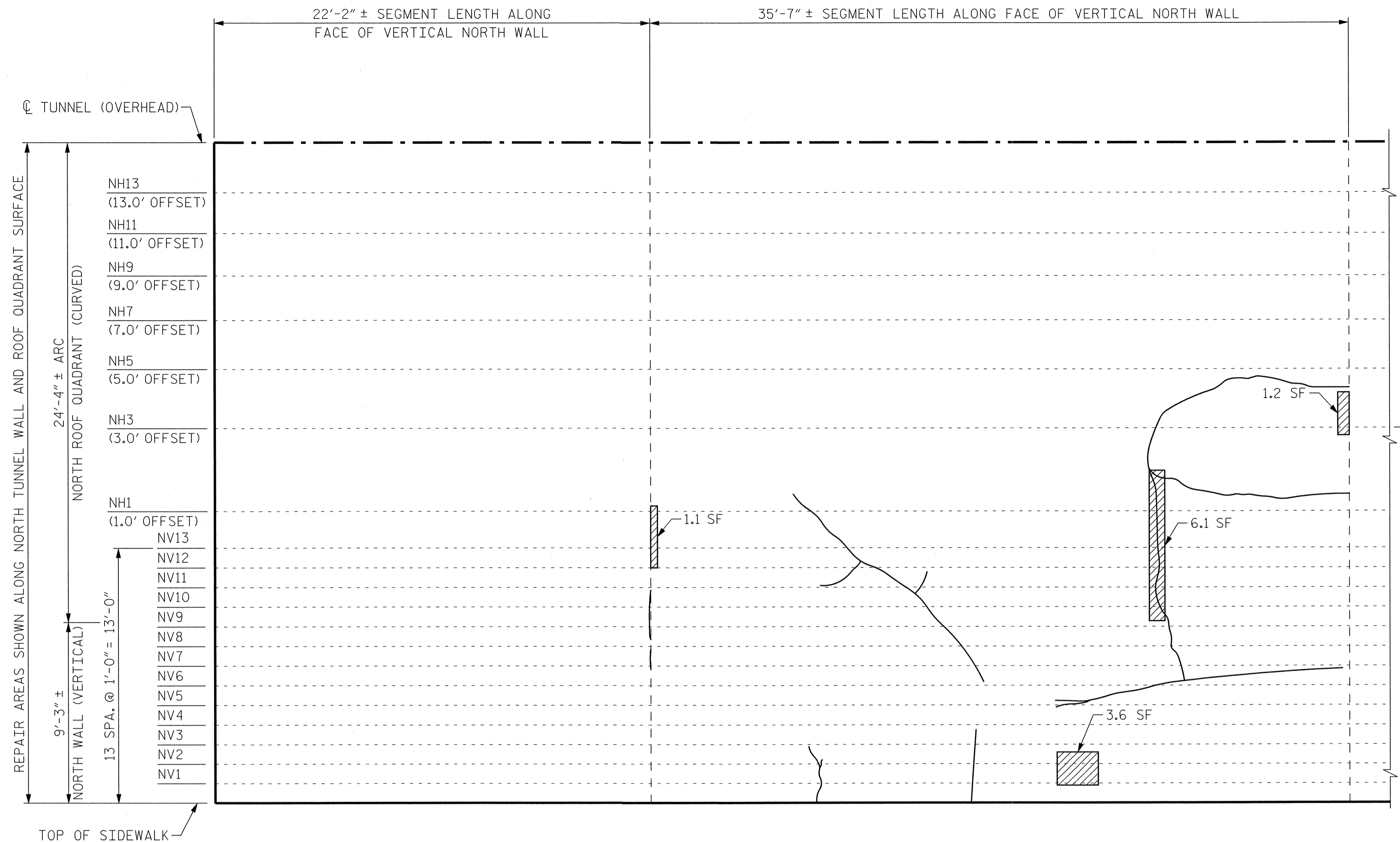
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.E.L.S. License Number: F-2016

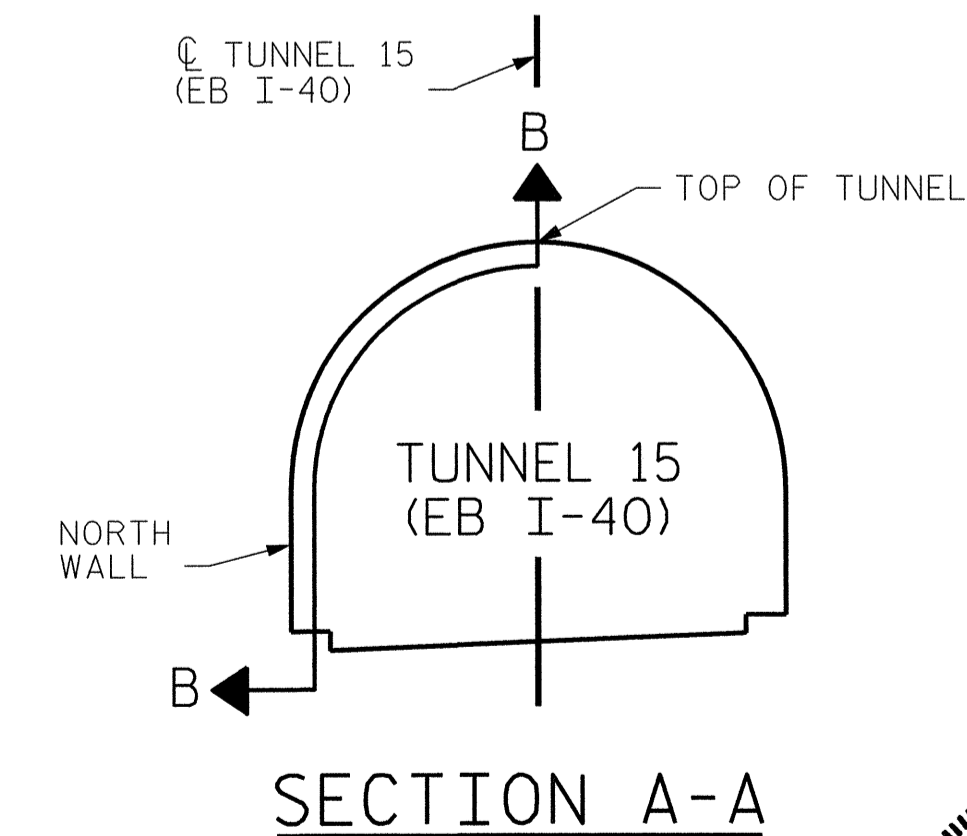
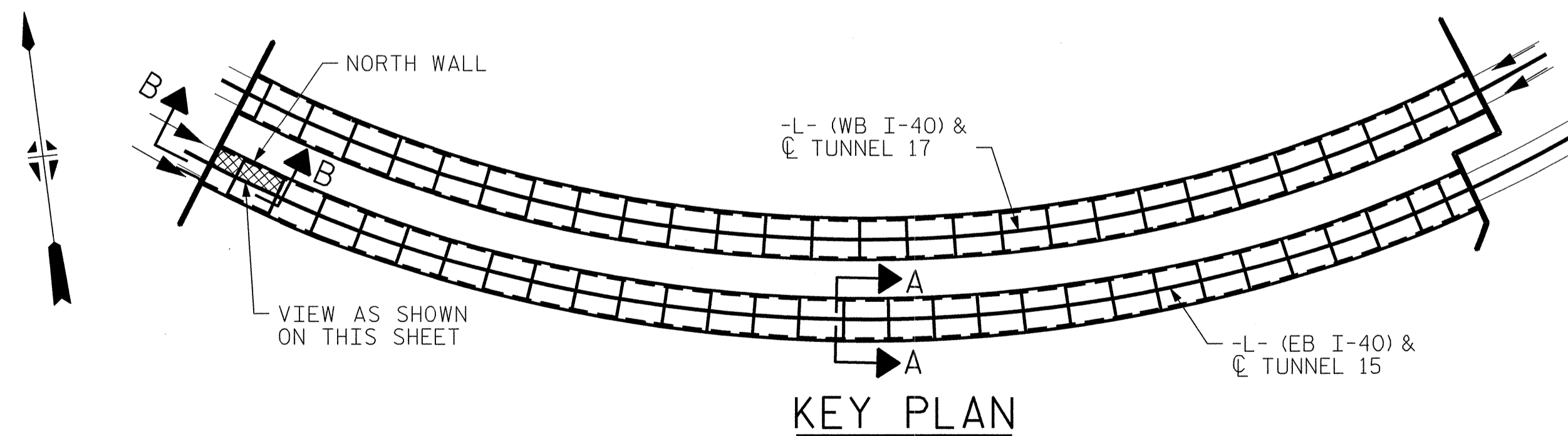
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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BILL OF MATERIAL		
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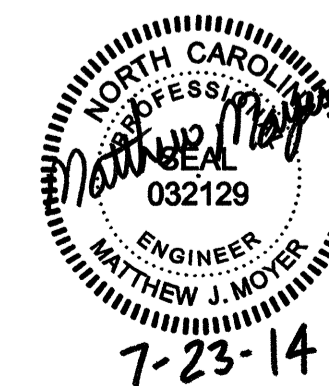
SEGMENT 30N SEGMENT 29N
VIEW B-B: REPAIR SEGMENTS 29N & 30N
TUNNEL SURFACE ELEVATION



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**



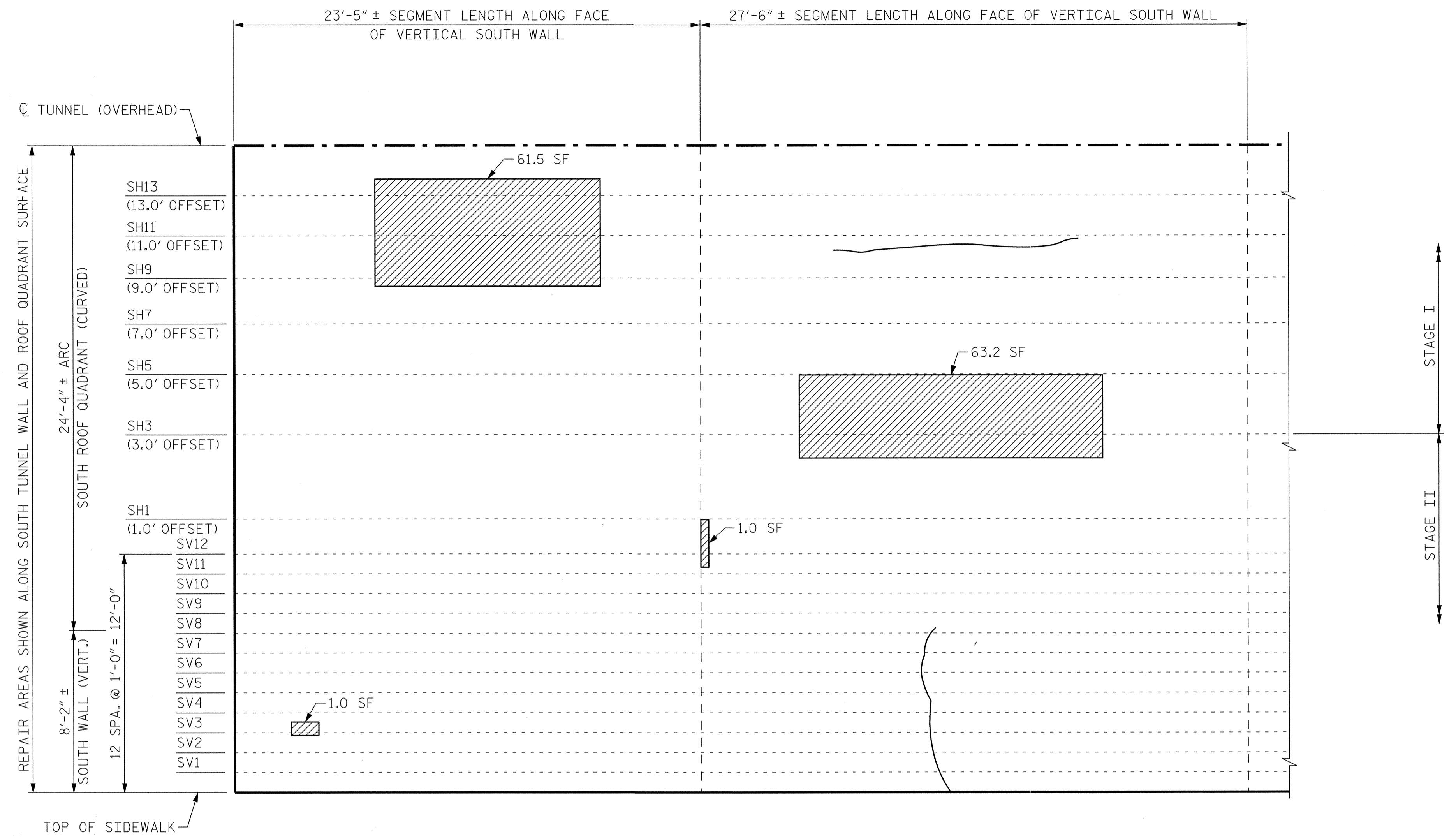
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-021
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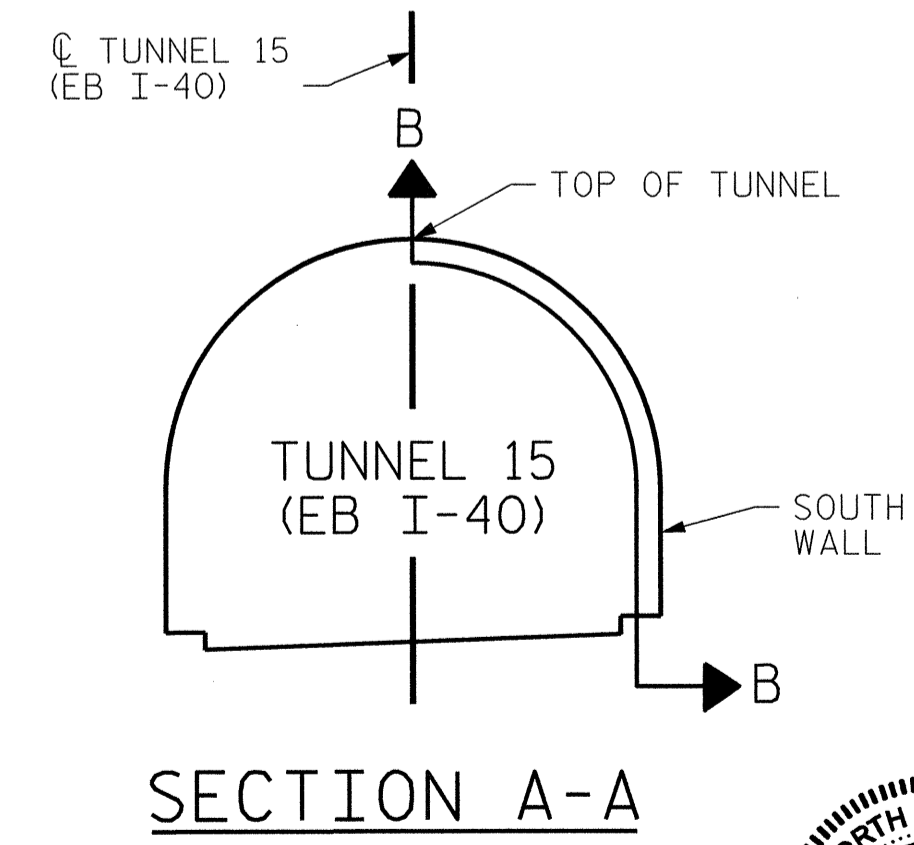
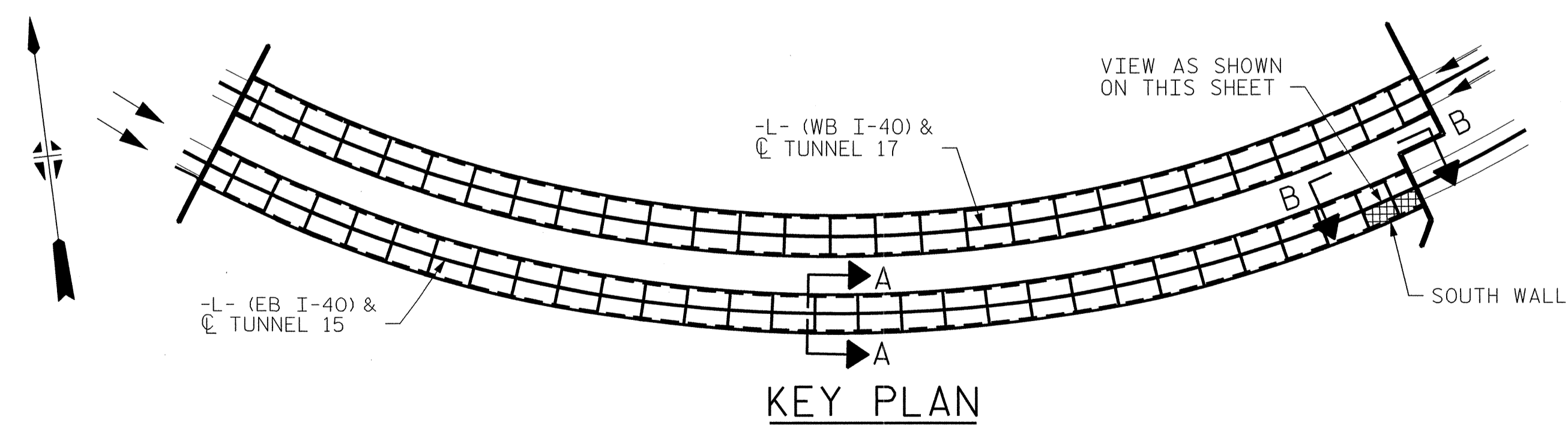
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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BILL OF MATERIAL		
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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**



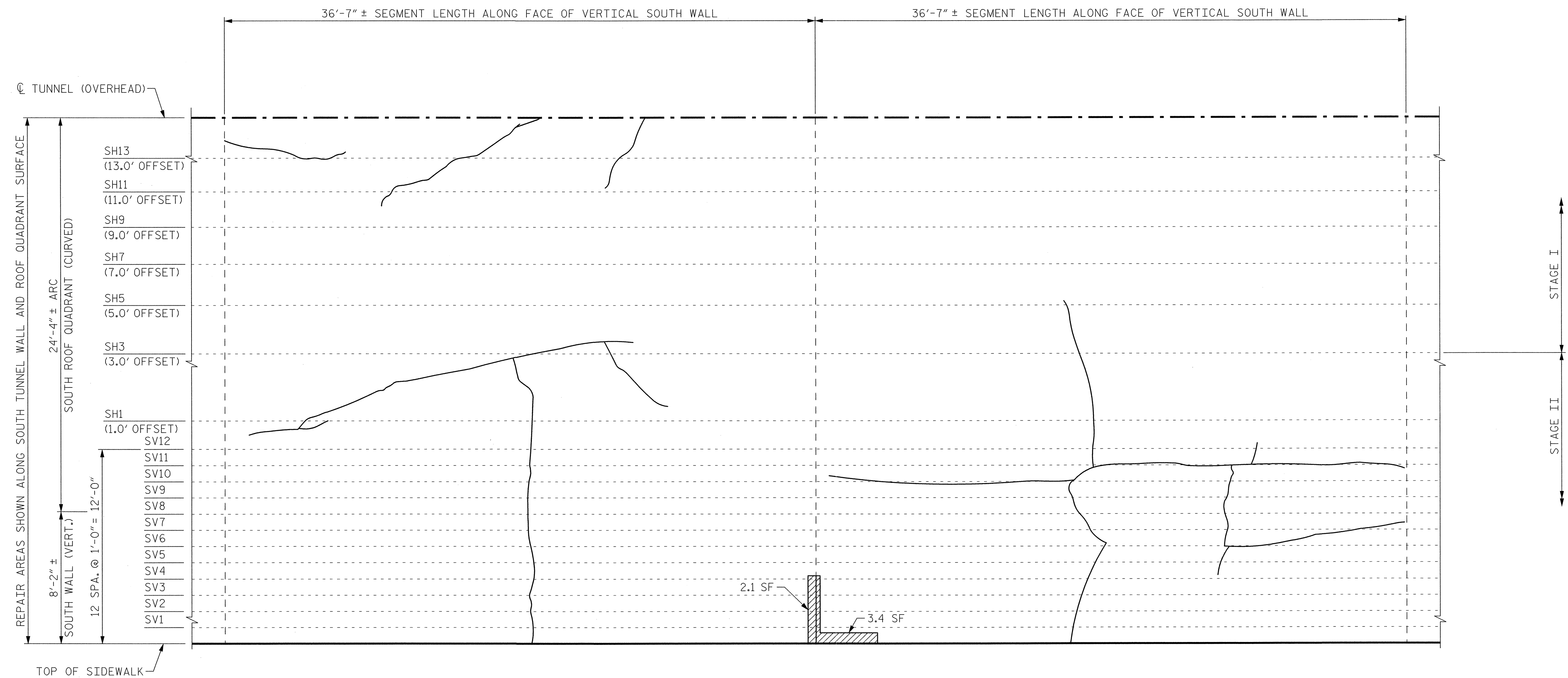
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--

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

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.pht
PENTABLE: I-40 Tunnel.tbl
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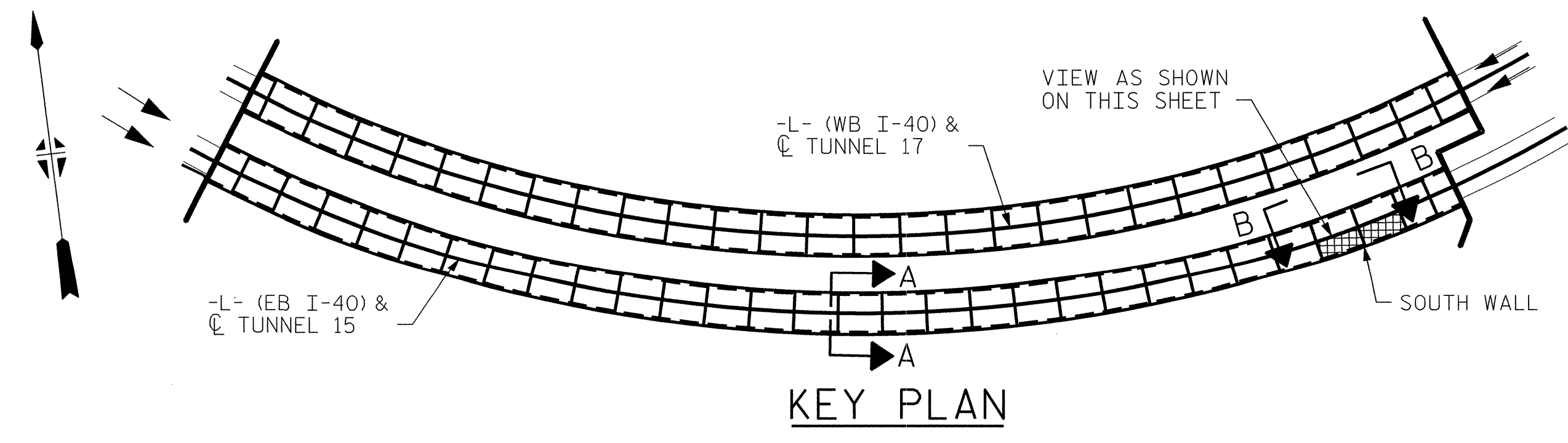
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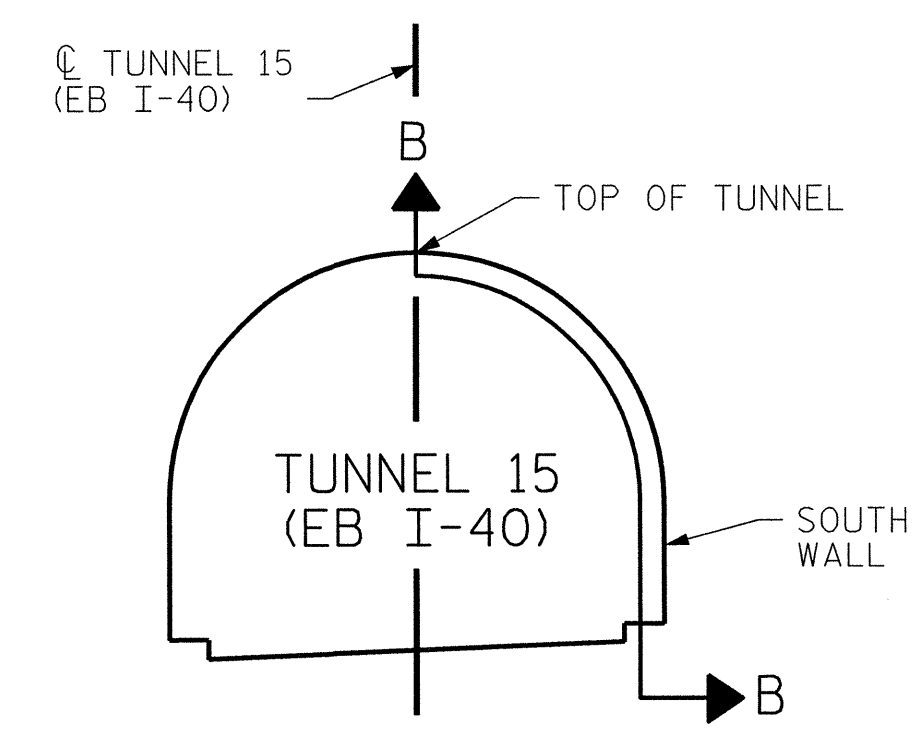
SEGMENT 3S

SEGMENT 4S

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



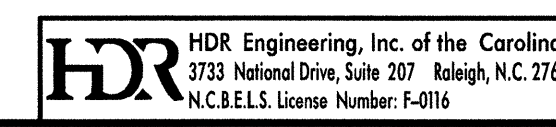
KEY PLAN



SECTION A-A

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

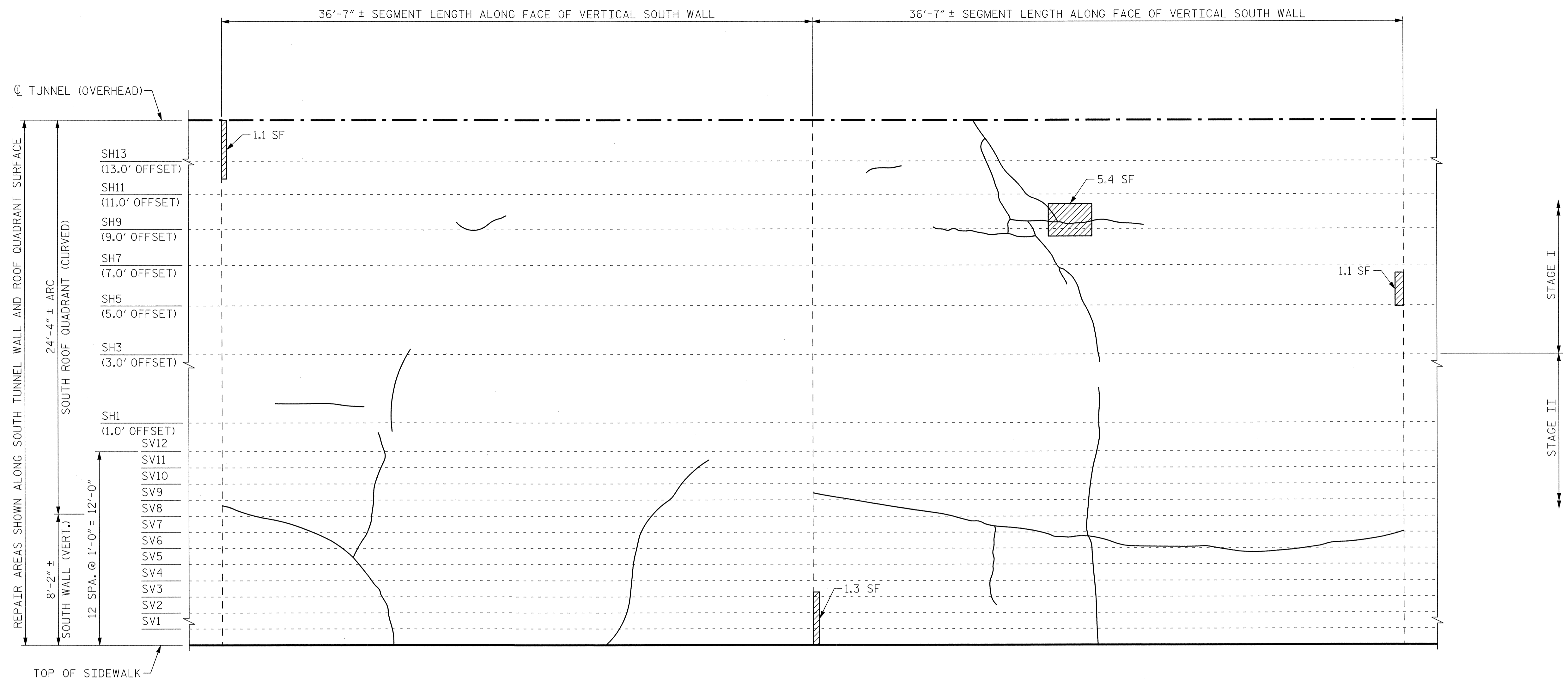
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TUNNEL 15 REPAIR AREAS SEGMENTS 3S & 4S					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--



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

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 USER: msells DATE: 7/22/2014
 FILE: ...\\13.00.CAD\\Tunnel15\\15S-0304

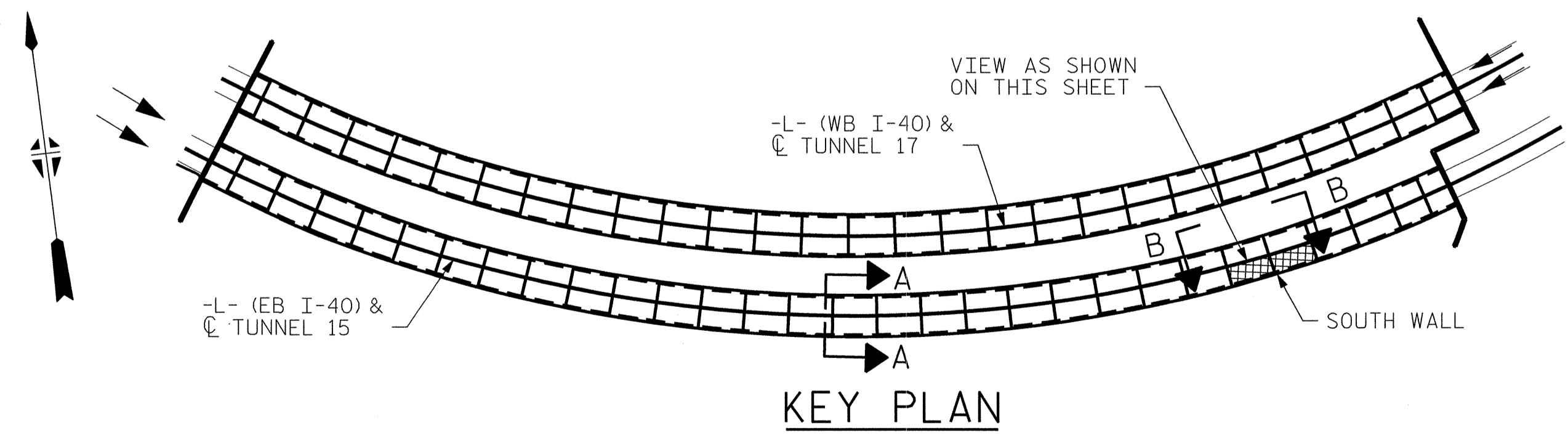
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SHOTCRETE REPAIRS SEGMENT 6S	CF	2.6



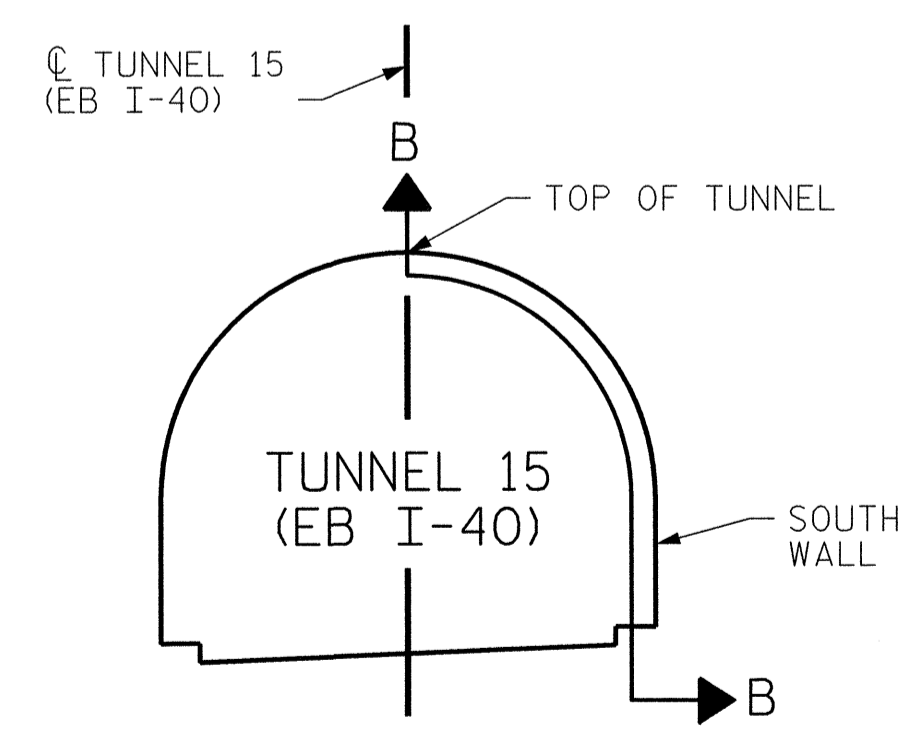
SEGMENT 5S

SEGMENT 6S

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



KEY PLAN



SECTION A-A

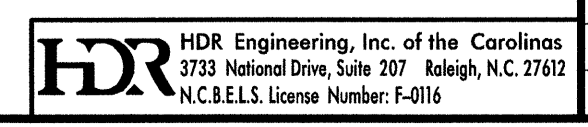
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TUNNEL 15 REPAIR
 AREAS
 SEGMENTS 5S & 6S**



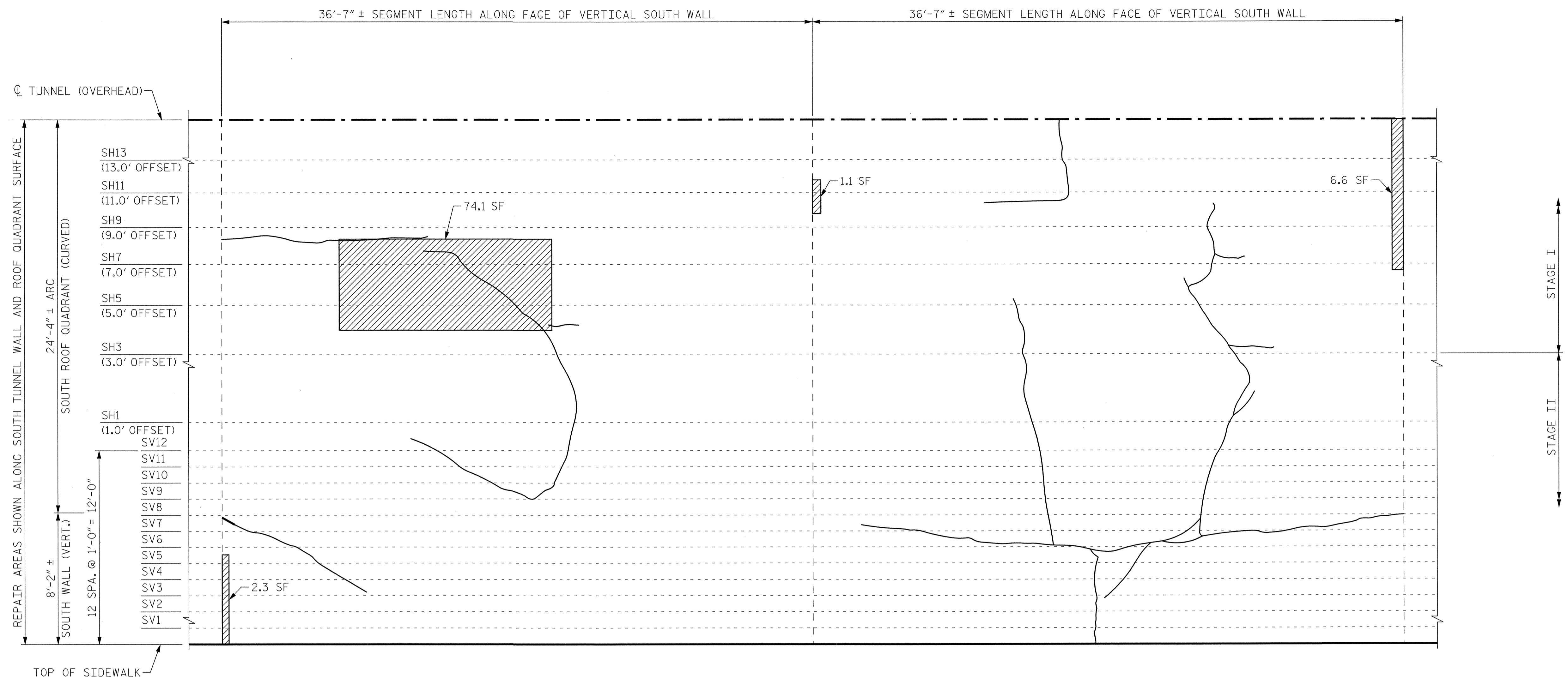
REVISIONS						SHEET NO. S-024 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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



PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
 PENTABLE: I-40 Tunnel.tbl
 USER: msells
 DATE: 7/22/2014
 TIME: 12:52:13 PM
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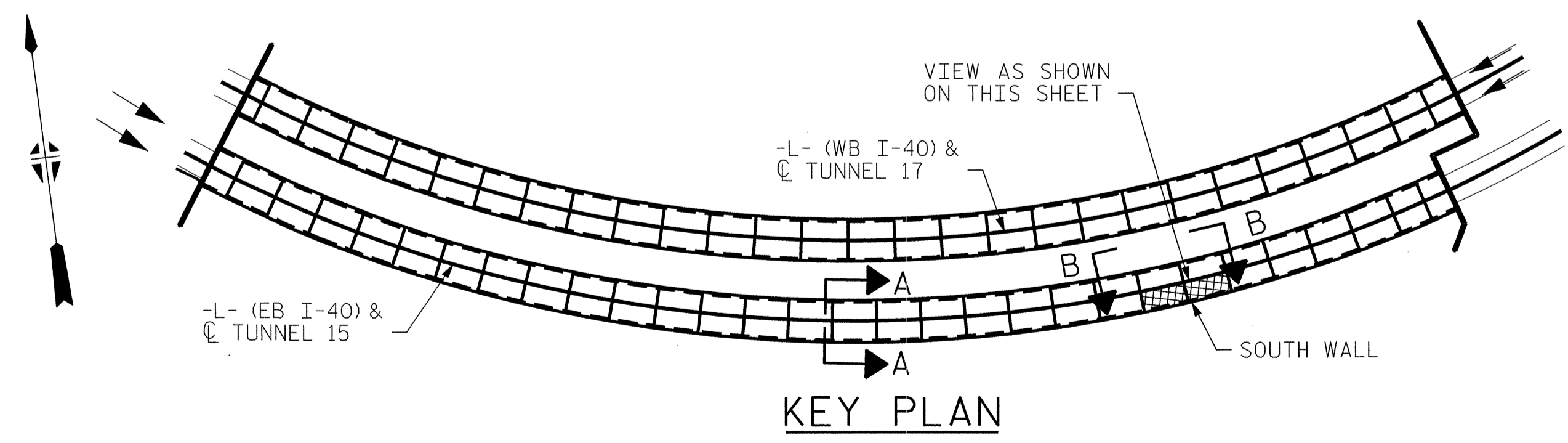
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SHOTCRETE REPAIRS SEGMENT 8S	CF	2.6	



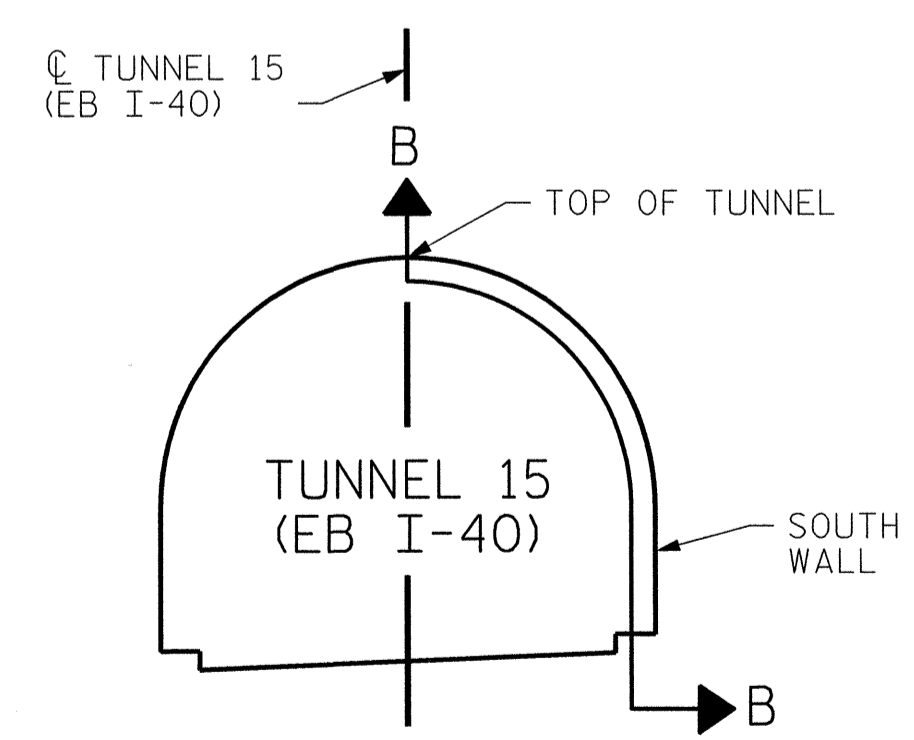
SEGMENT 7S

SEGMENT 8S

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



KEY PLAN



SECTION A-A

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**



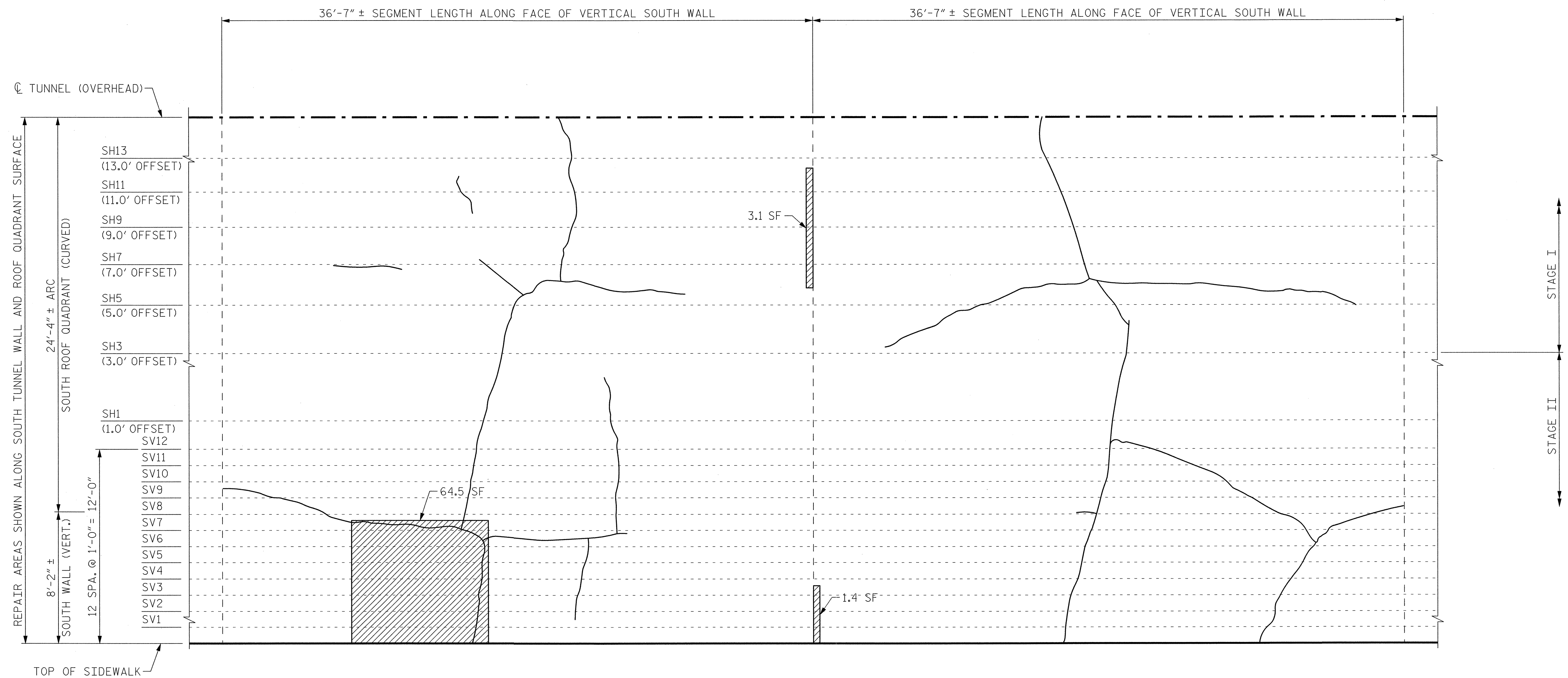
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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 1733 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

PLOT DRIVER: NCD00T_pclm_eng_100.plt PENTABLE: I-40 Tunnel.tbl
 USER: msells DATE: 7/22/2014 TIME: 12:53:07 PM
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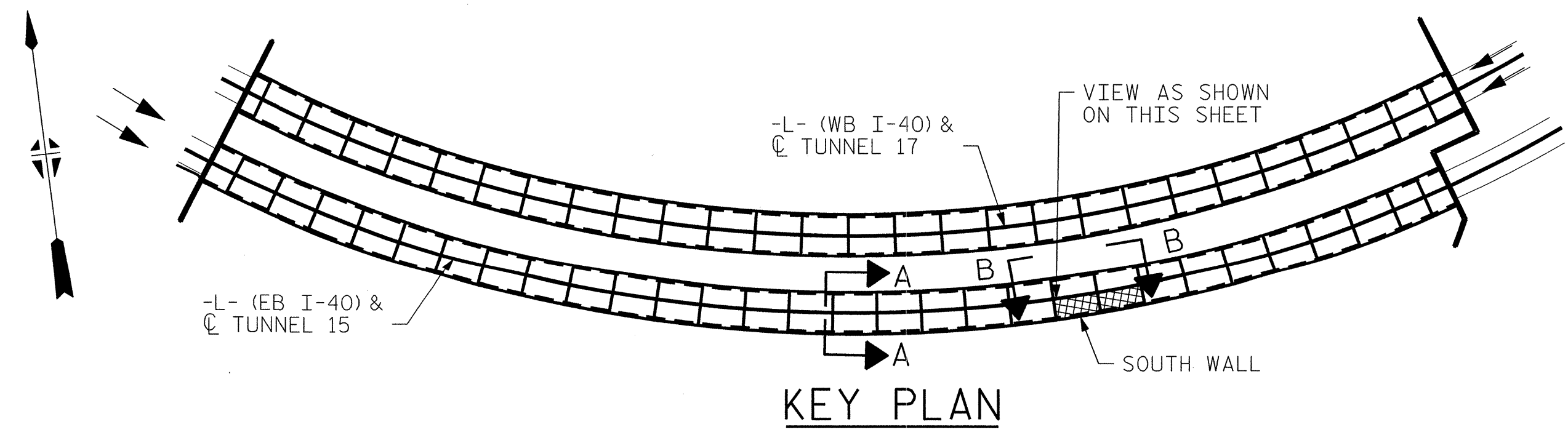
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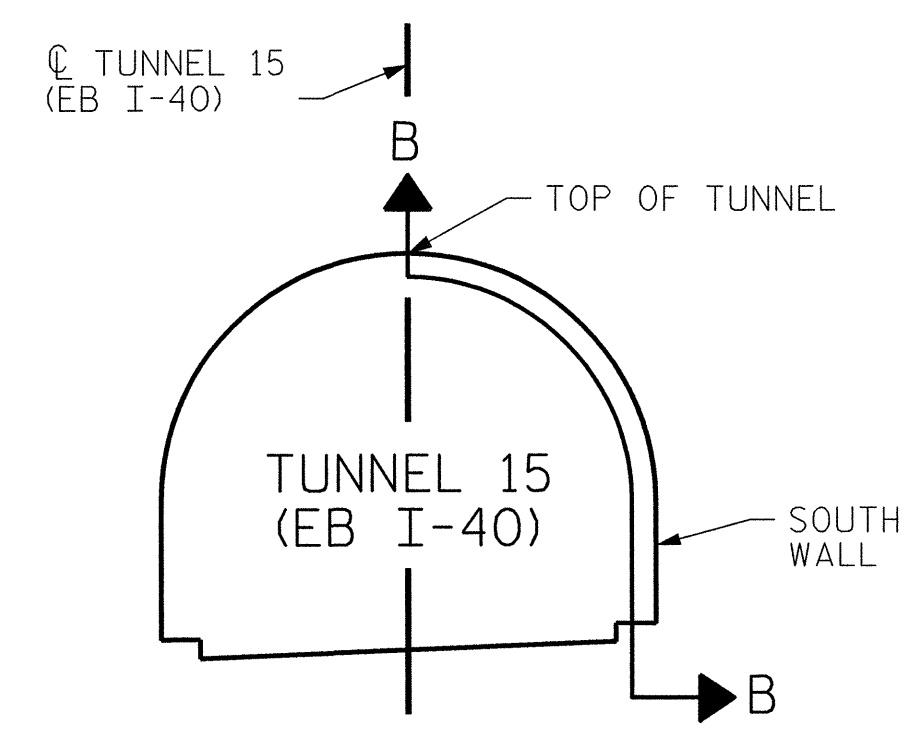
SEGMENT 9S

SEGMENT 10S

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



KEY PLAN



SECTION A-A

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



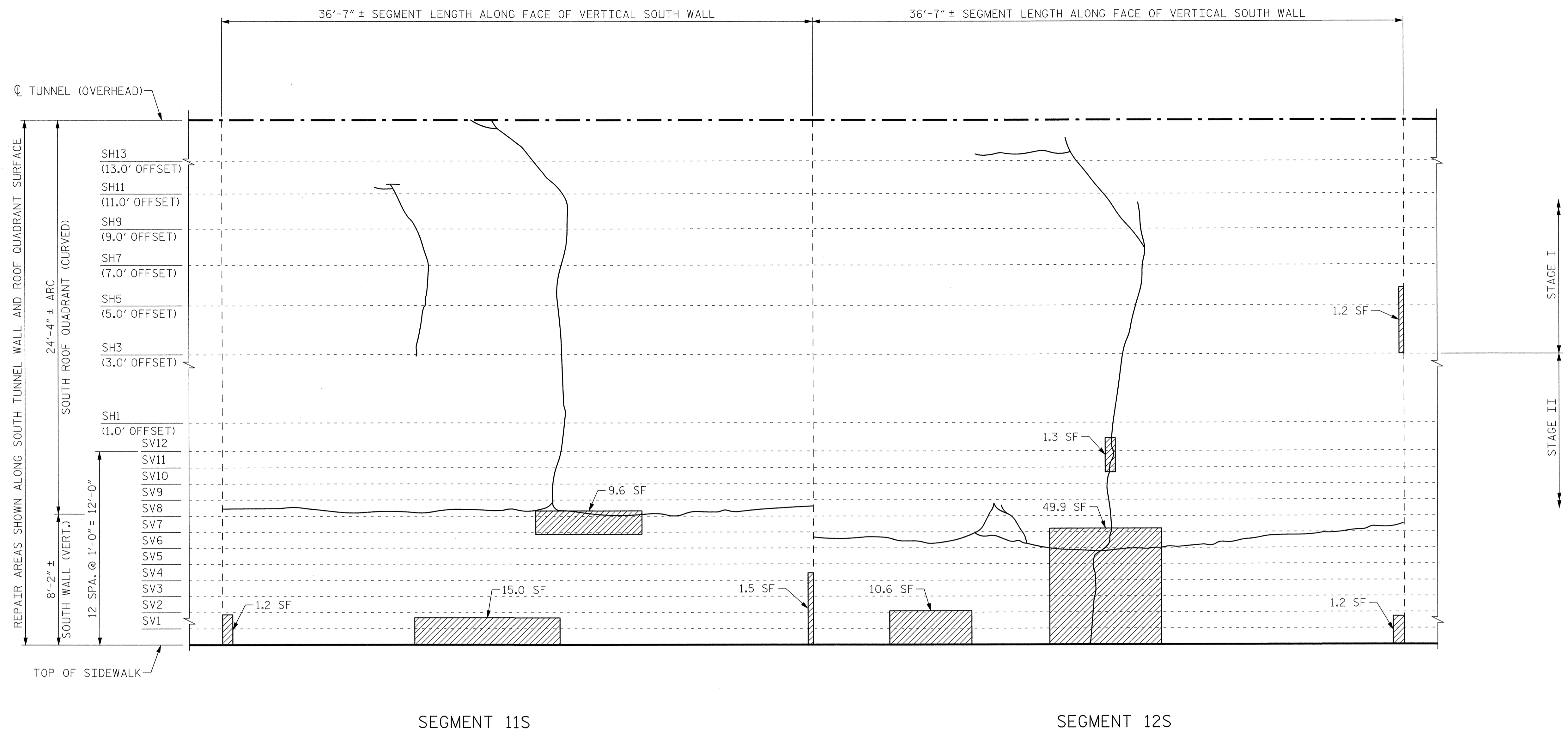
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
R.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-026
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2	--	--	4	--	--	

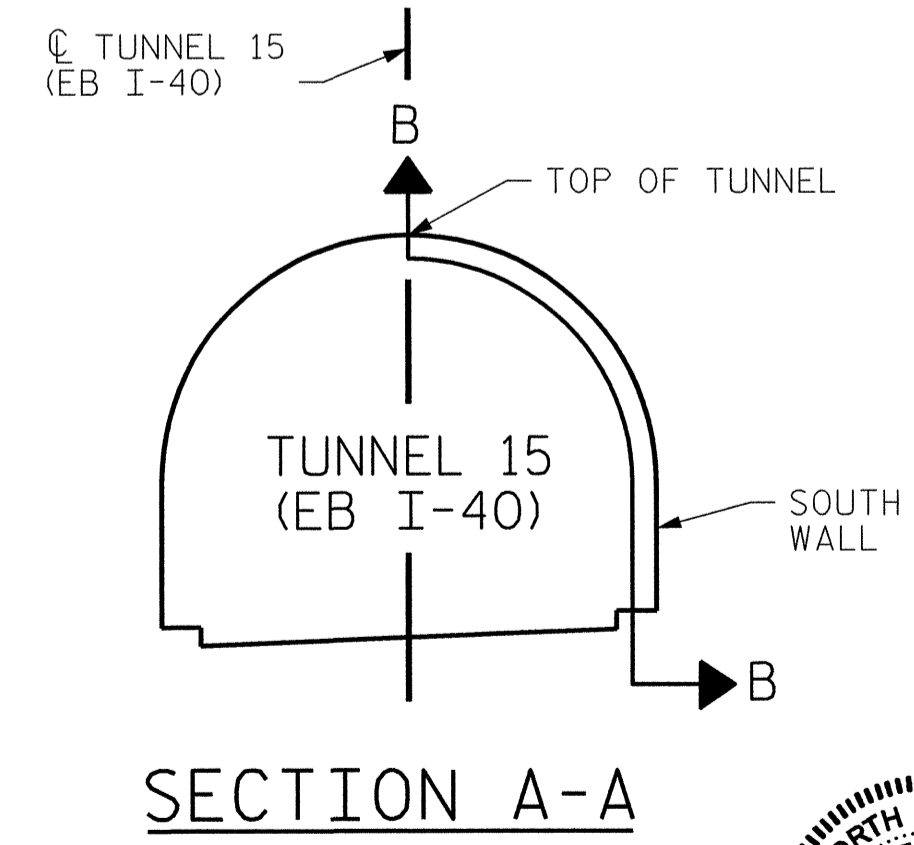
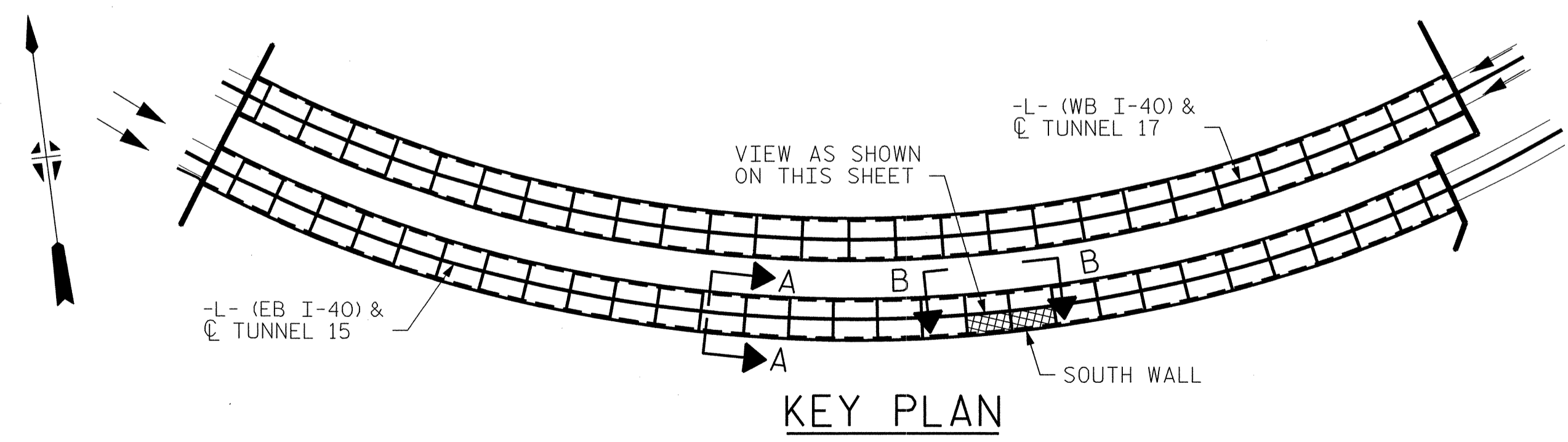
DRAWN BY: B. PETERSON DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013

PLOT DRIVER: NCDOT...pdf_mono_eng_100.plt
PENTABLE: I-40 Tunnel.tbl
USER: msells DATE: 7/22/2014
FILE: ...13.00_CAD\Tunnel15\155-0910

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



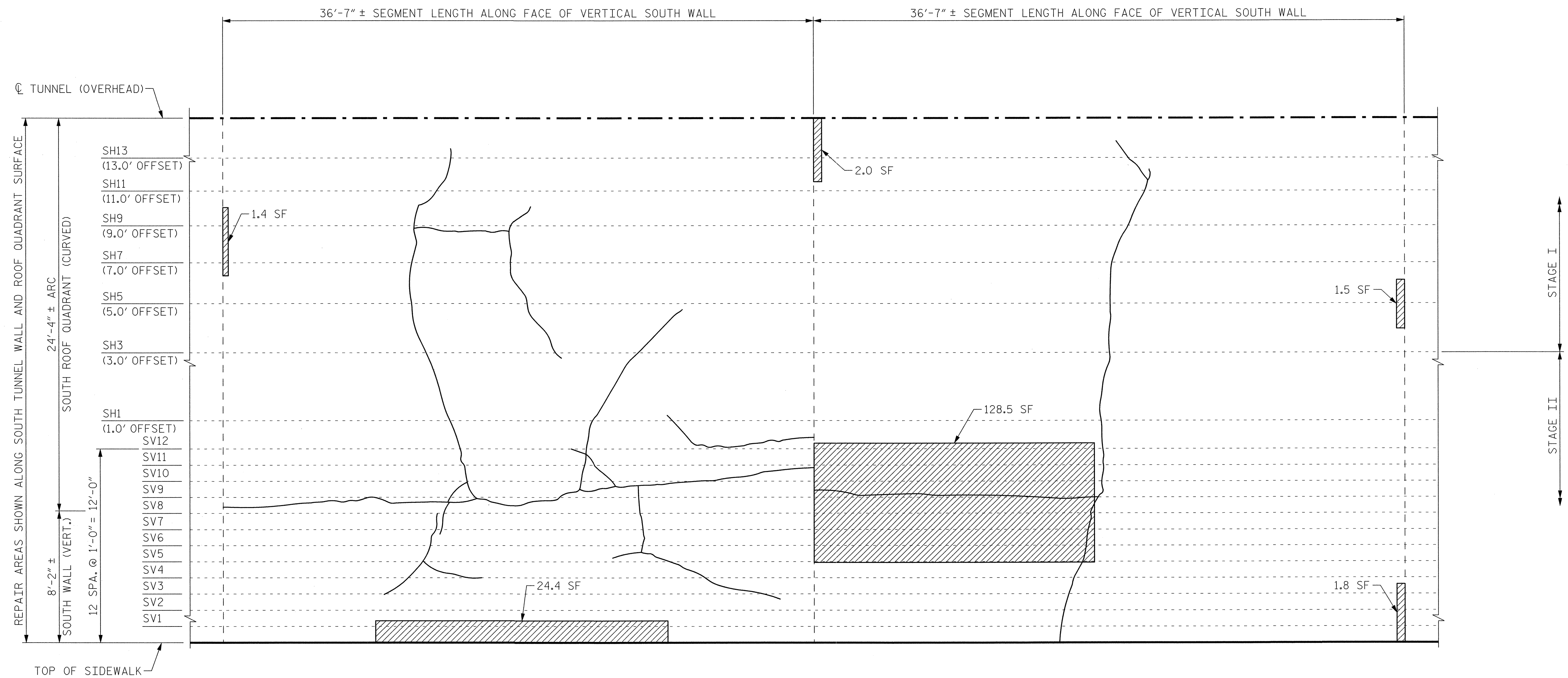
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
PENTABLE: I-40 Tunnel.tbl
USER: msells DATE: 7/22/2014 TIME: 12:53:41 PM
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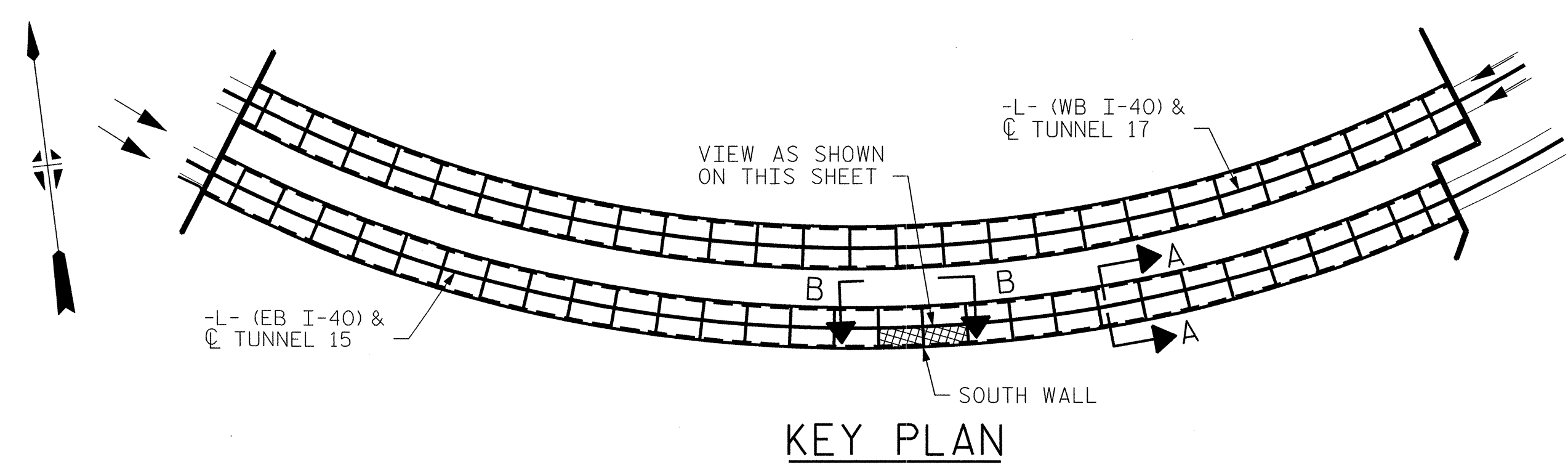
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SHOTCRETE REPAIRS SEGMENT 13S	CF	8.6
SHOTCRETE REPAIRS SEGMENT 14S	CF	44.6



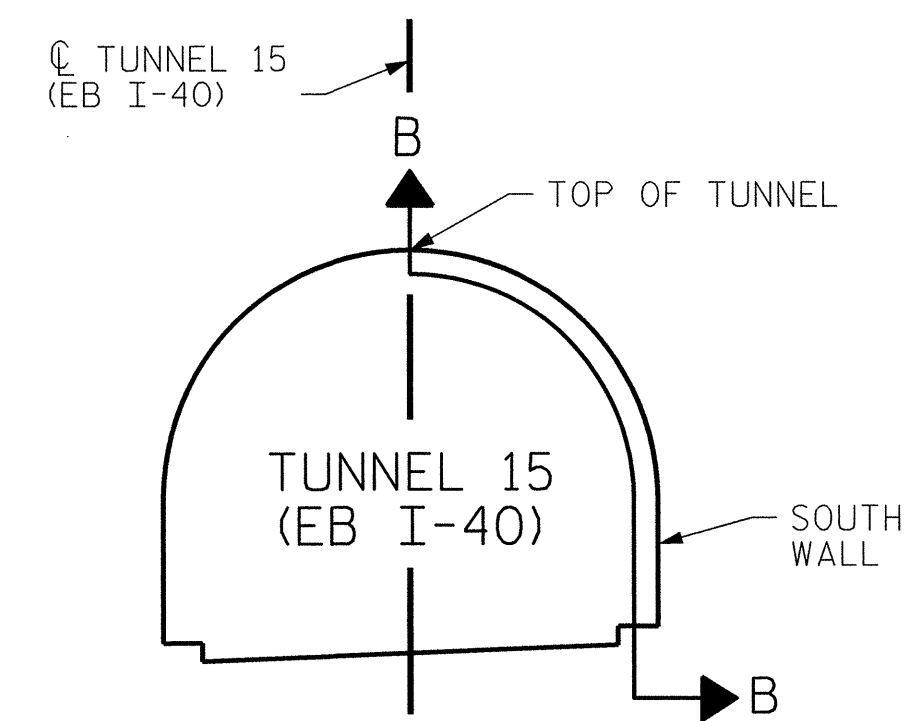
SEGMENT 13S

SEGMENT 14S

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



KEY PLAN

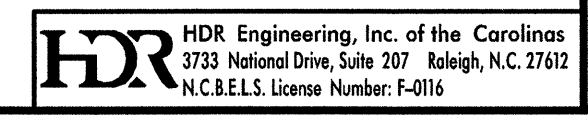


SECTION A-A

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**

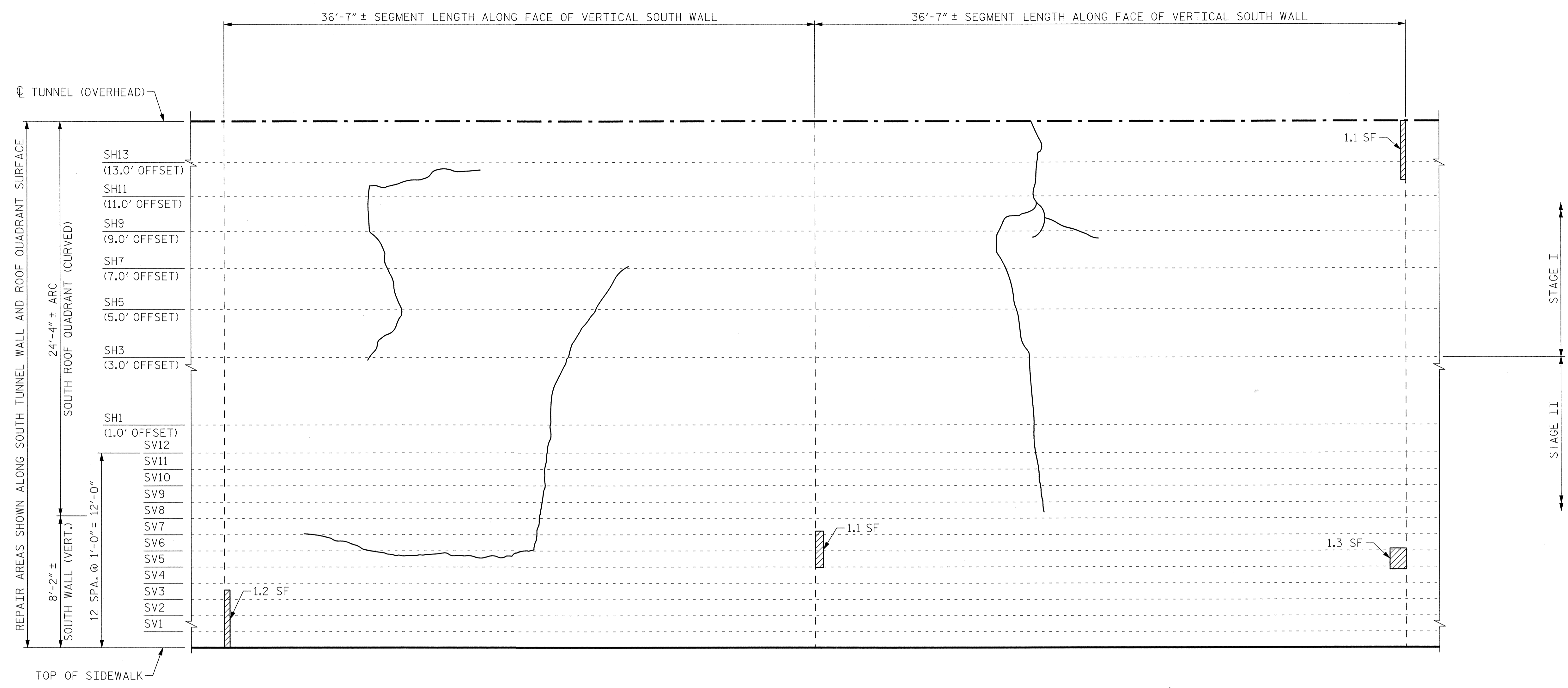


REVISIONS						SHEET NO. S-028 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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

PLOT DRIVER: NCDOT...pdf_mono_eng_100.plt
 PENTABLE: I-40 Tunnel.tbi
 USER: msells DATE: 7/22/2014 TIME: 12:54:59 PM
 FILE: ...13.00.CAD.Tunnel15\15S-1314

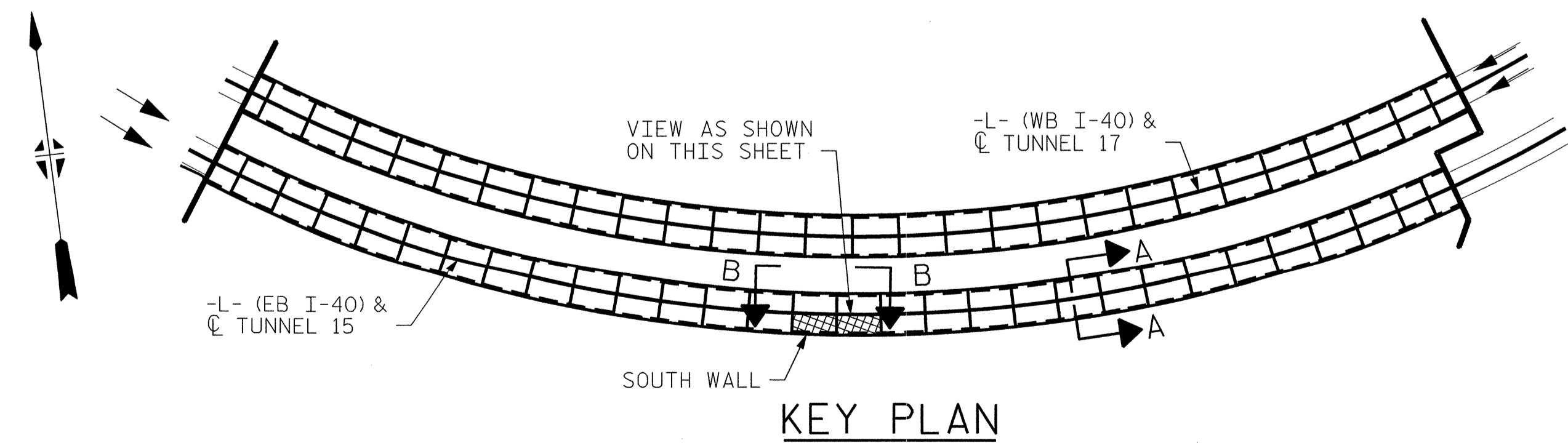
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 15S	CF	0.4
SHOTCRETE REPAIRS SEGMENT 16S	CF	1.2



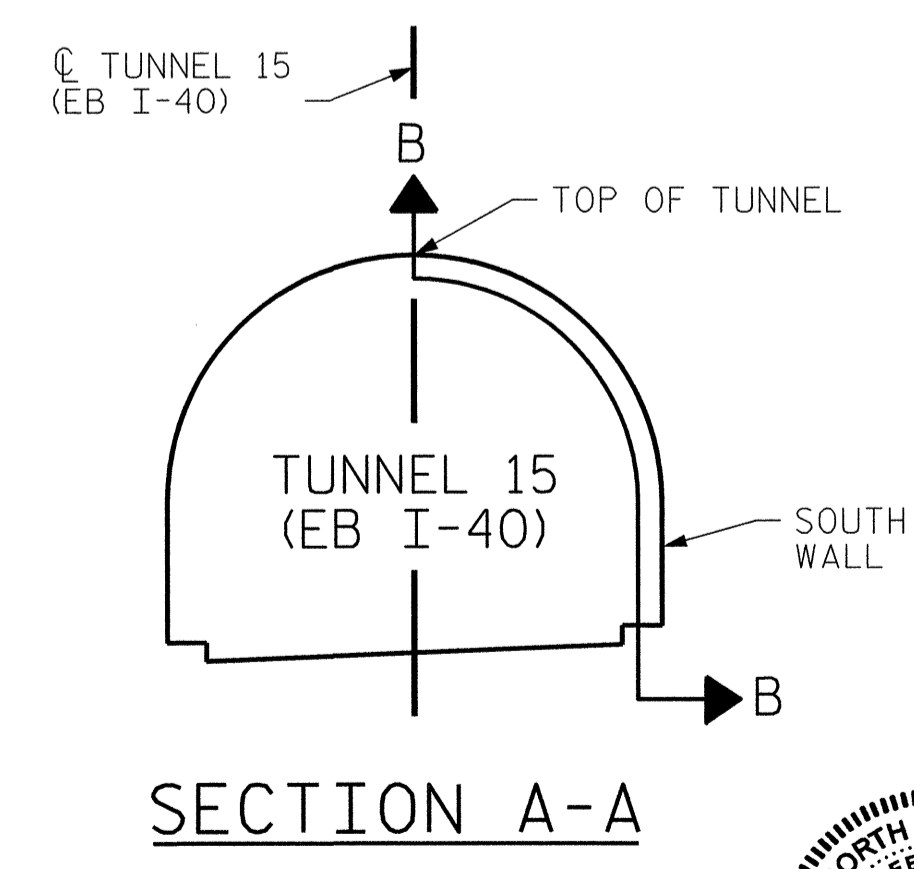
SEGMENT 15S

SEGMENT 16S

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



KEY PLAN



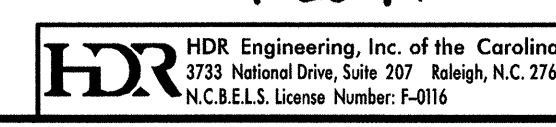
SECTION A-A

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**



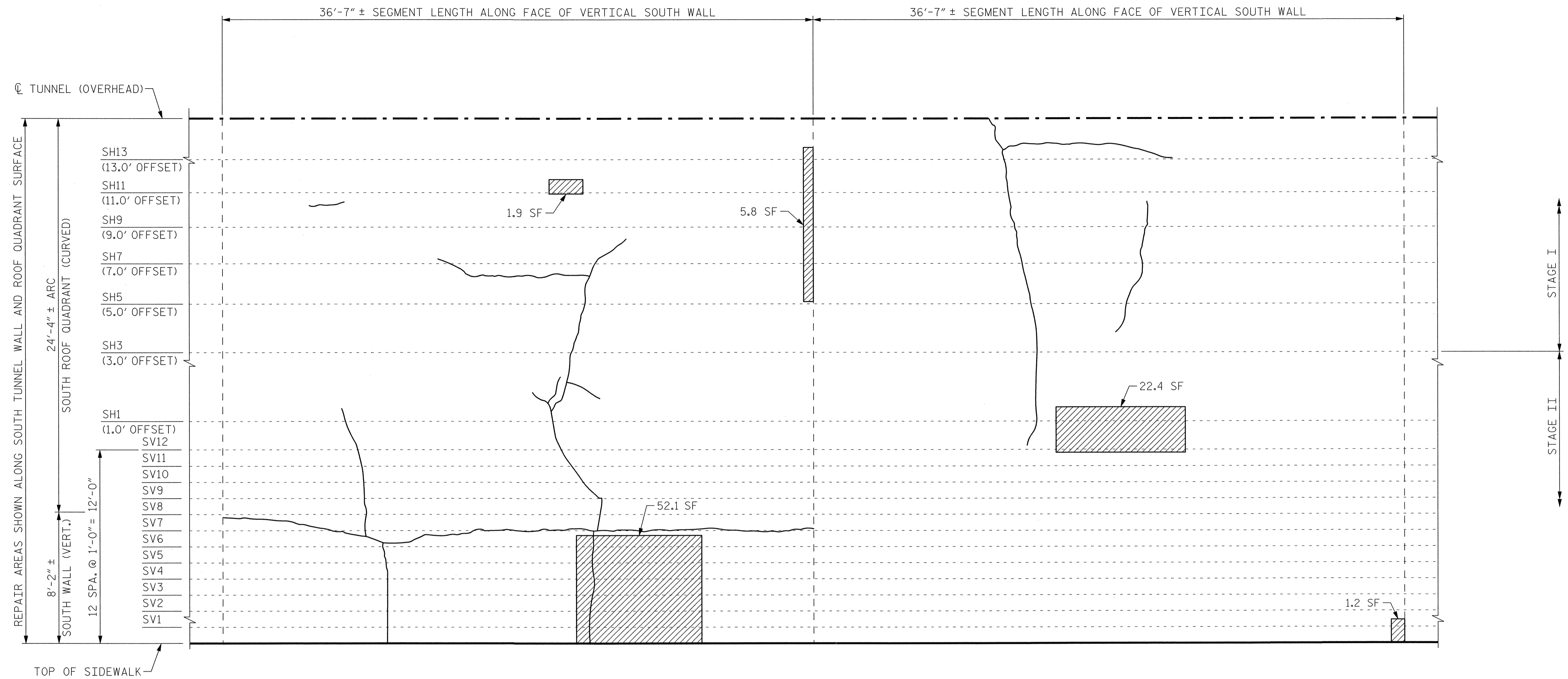
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	



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

PLOT DRIVER: NCDOT...pdf_mono_eng_100.plt
 PENTABLE: I-40 Tunnel.tbl
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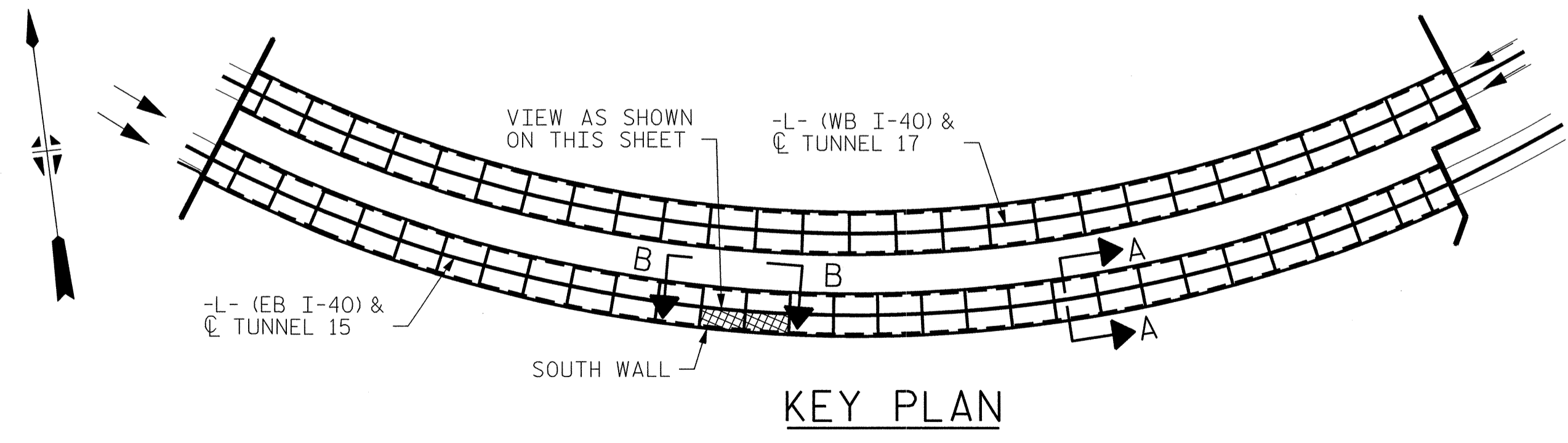
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SHOTCRETE REPAIRS SEGMENT 18S	CF	7.9	



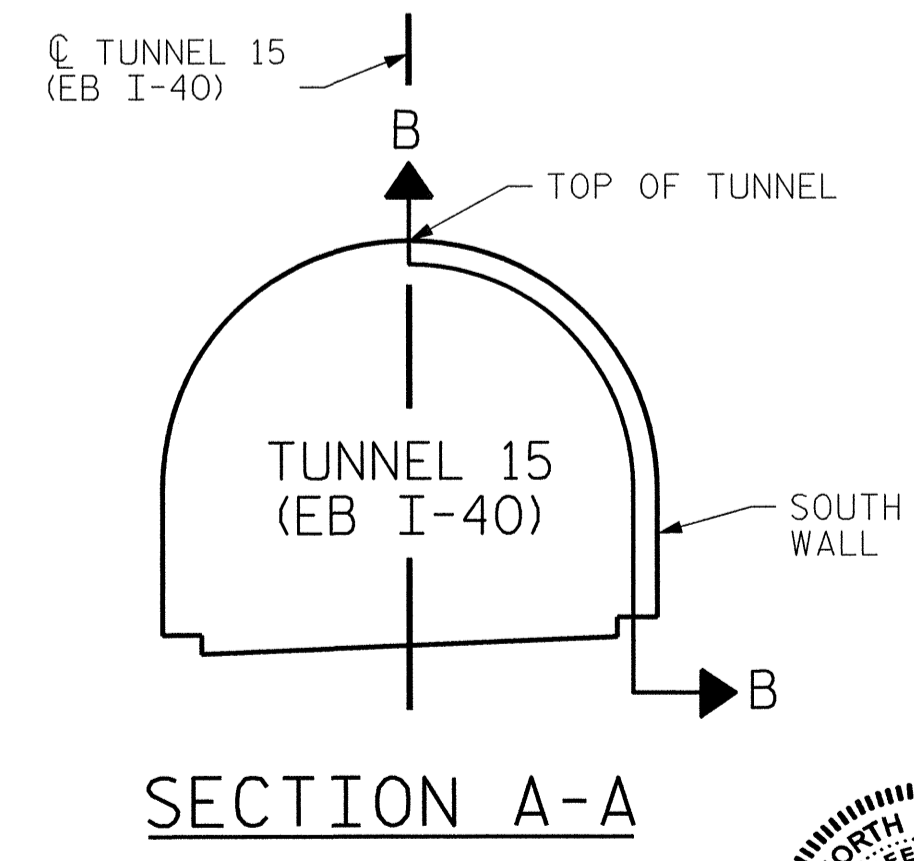
SEGMENT 17S

SEGMENT 18S

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



KEY PLAN



SECTION A-A

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**



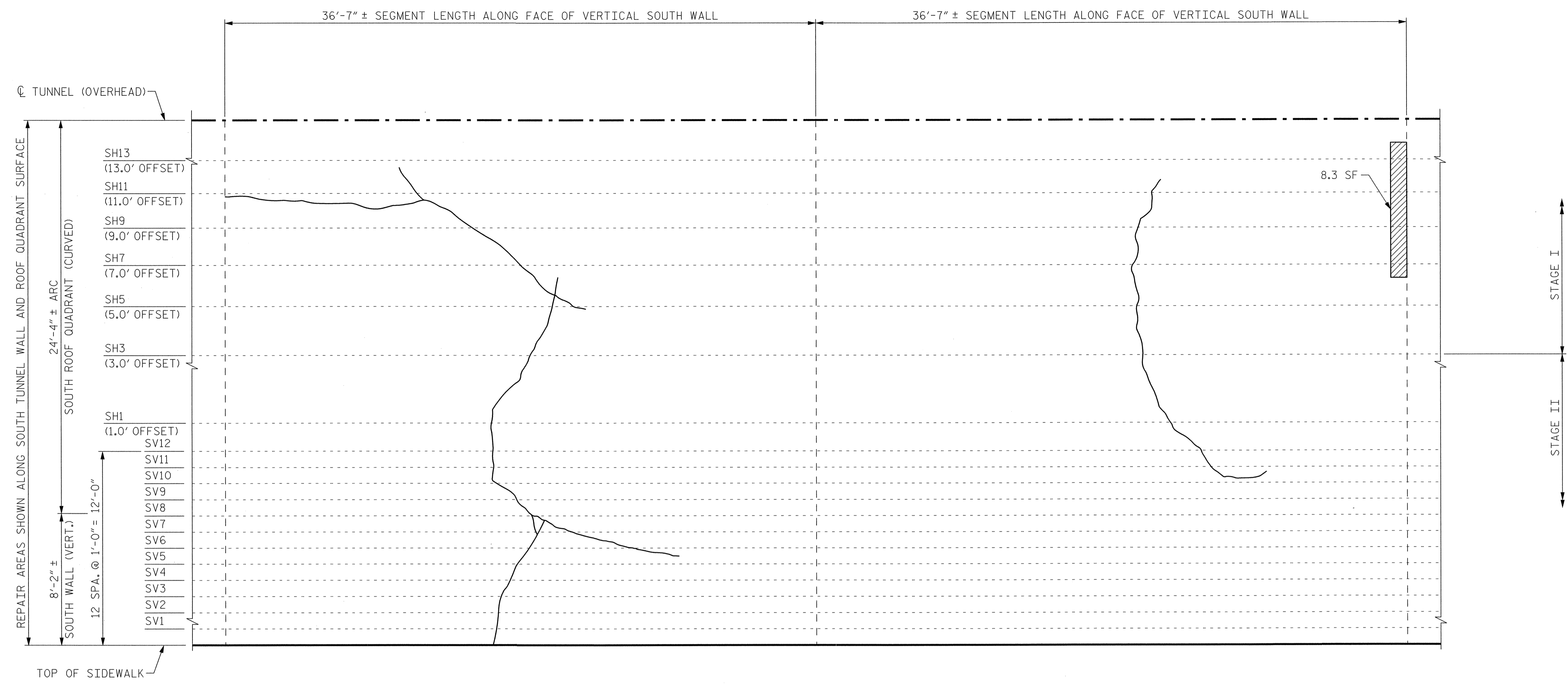
HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27603
 N.C. ELS License Number: F-0116

REVISIONS						SHEET NO. S-030 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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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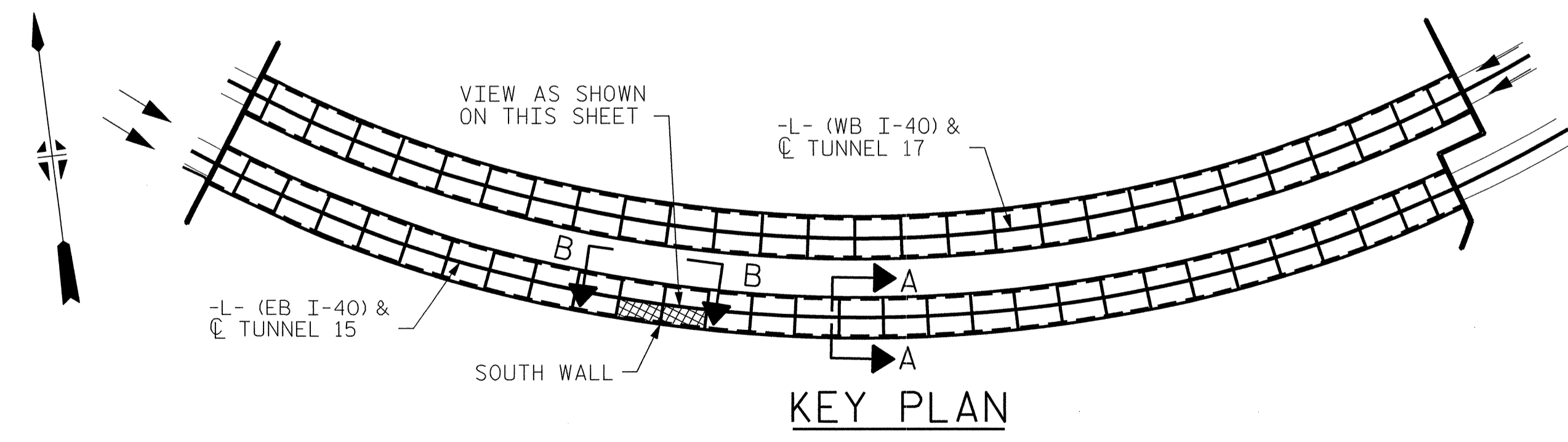
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SHOTCRETE REPAIRS SEGMENT 19S	CF	0.0
SHOTCRETE REPAIRS SEGMENT 20S	CF	2.8



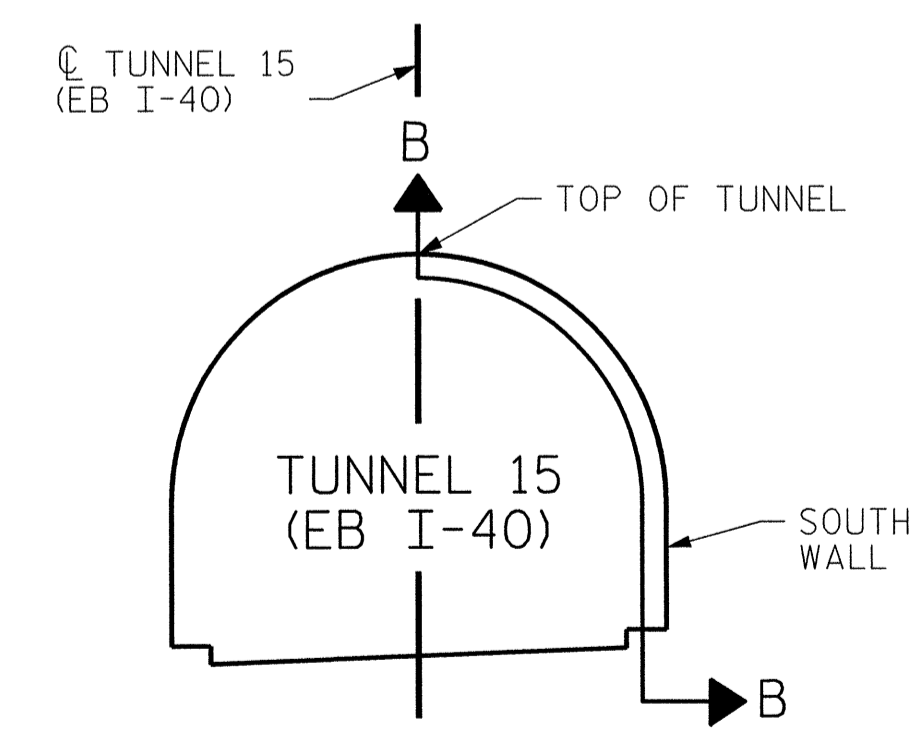
SEGMENT 19S

SEGMENT 20S

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



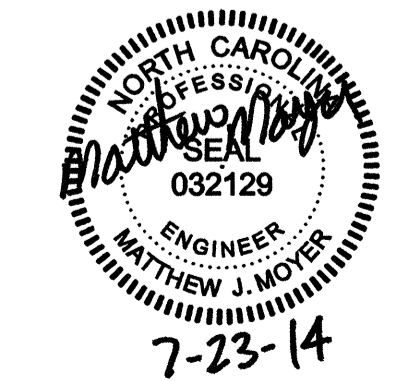
KEY PLAN



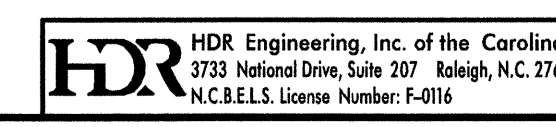
SECTION A-A

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 19S & 20S**



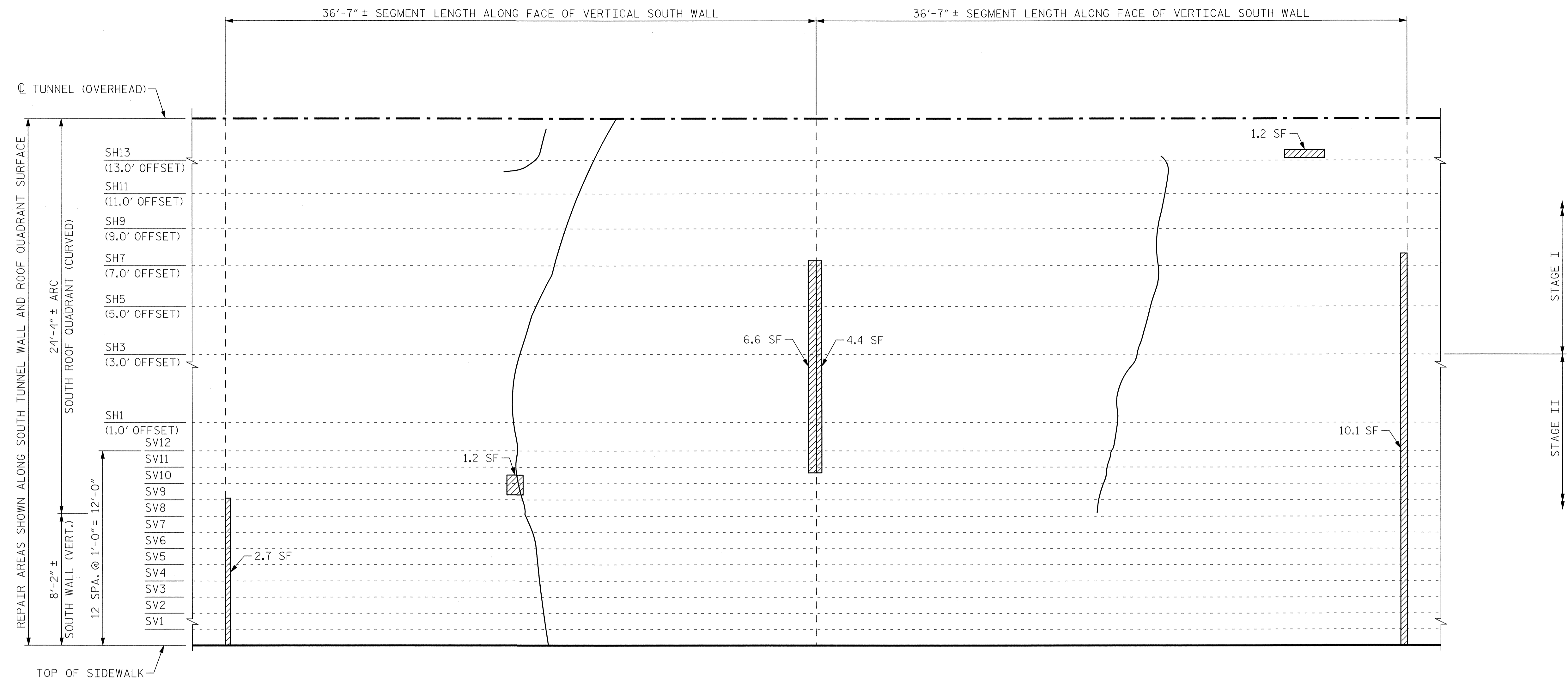
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
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USER: msells DATE: 7/22/2014 TIME: 10:14 PM
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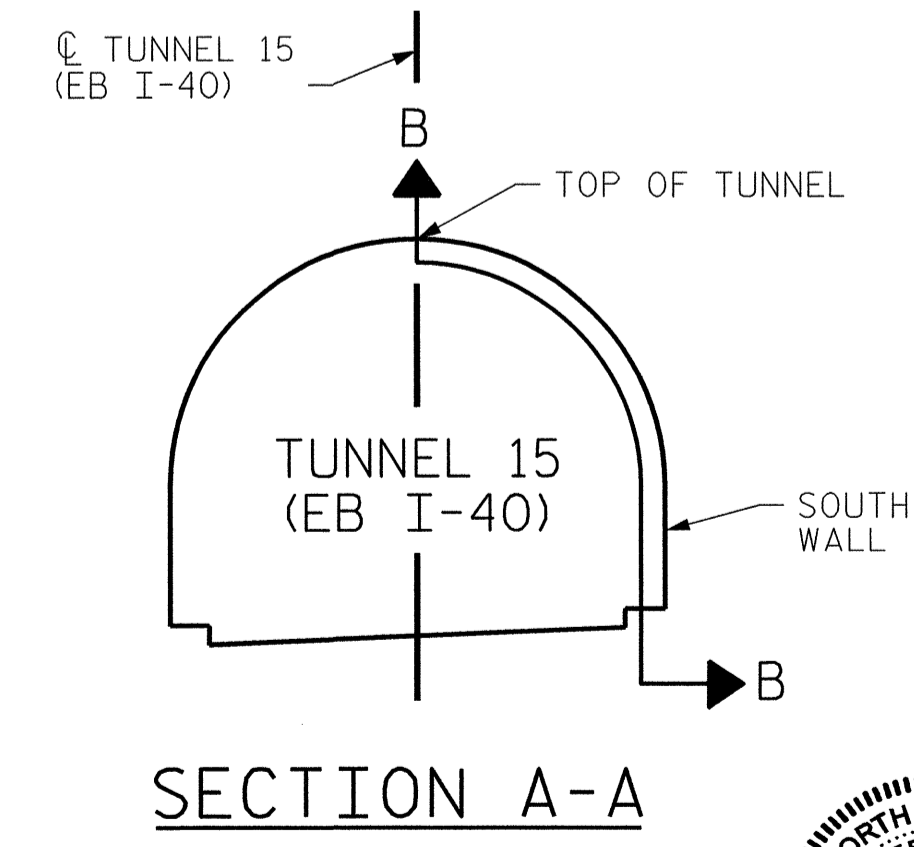
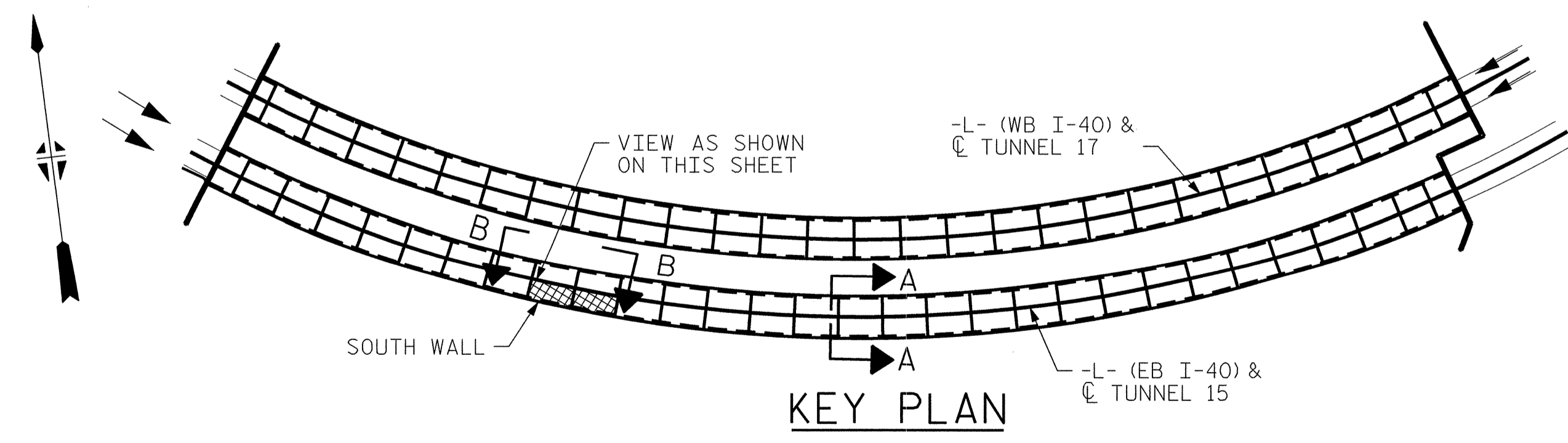
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 21S	CF	3.5
SHOTCRETE REPAIRS SEGMENT 22S	CF	5.2



SEGMENT 21S

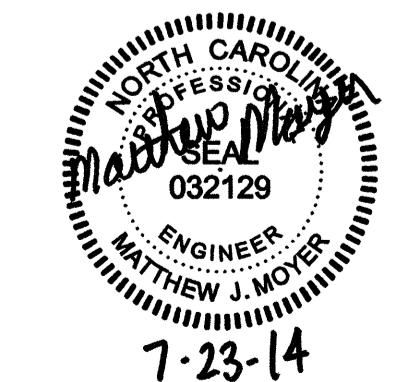
SEGMENT 22S

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



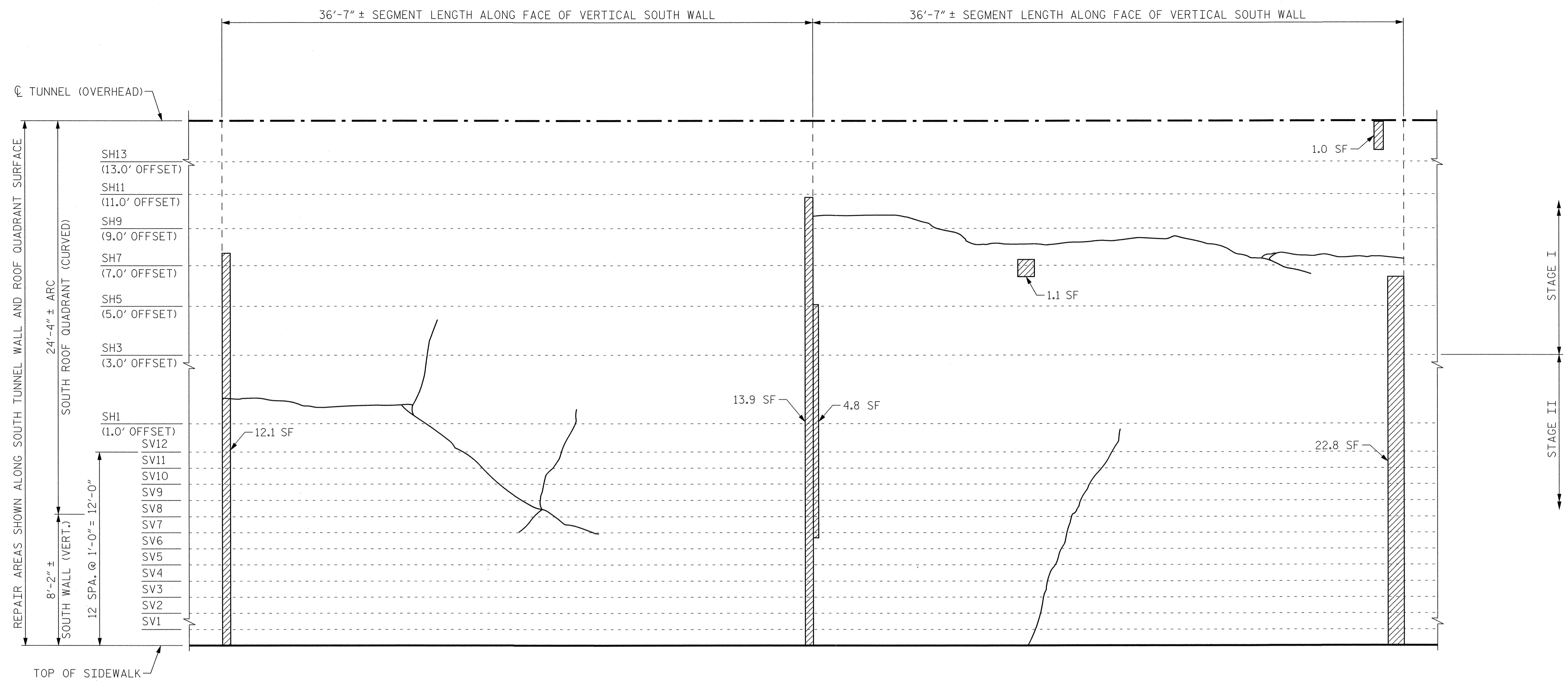
REVISIONS						SHEET NO. S-032
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
 USER: msells DATE: 7/22/2014 TIME: 1:03:00 PM
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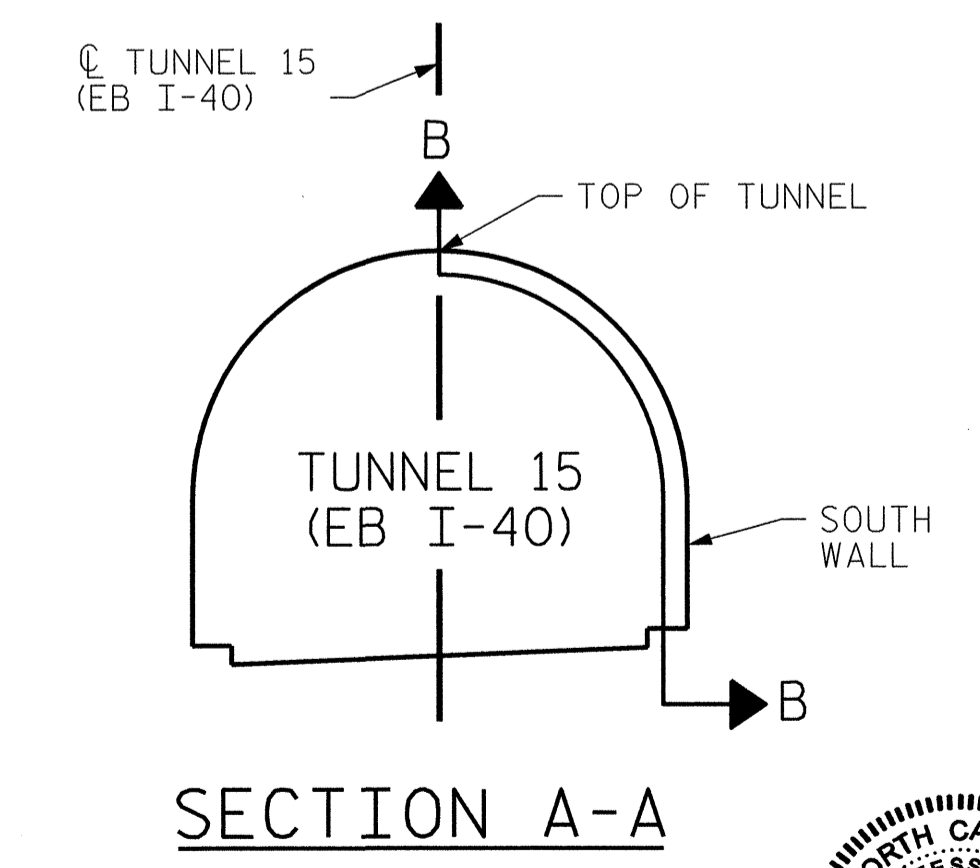
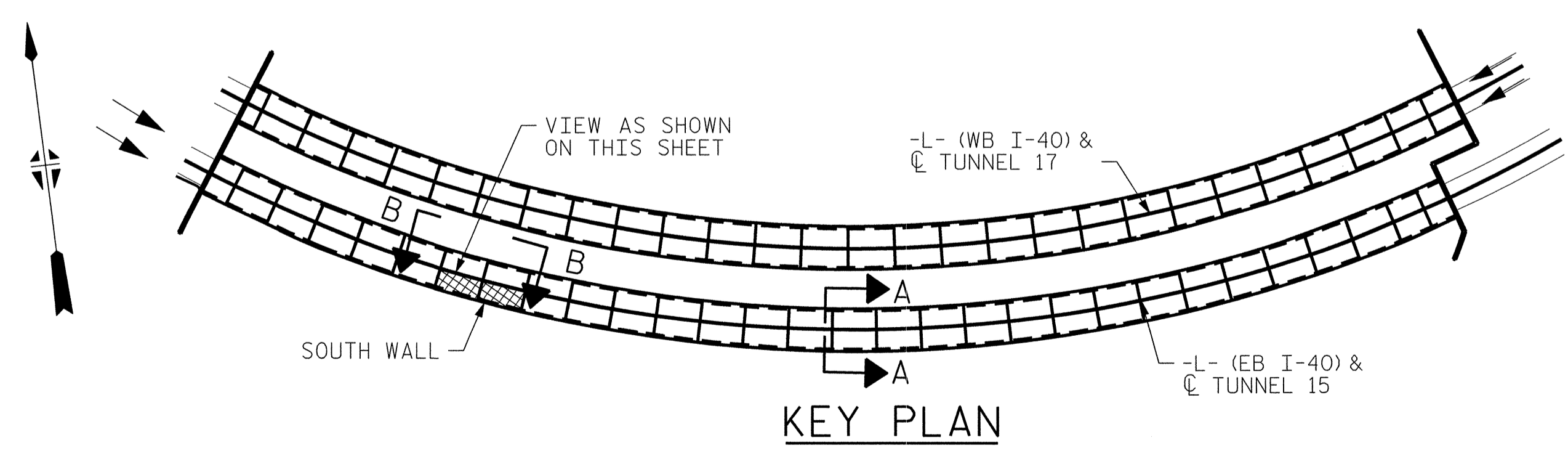
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 23S	CF	8.7
SHOTCRETE REPAIRS SEGMENT 24S	CF	9.9



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)

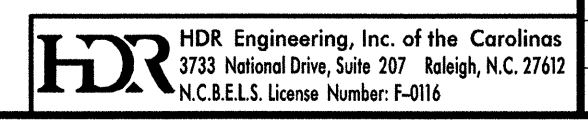
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 15 REPAIR
AREAS
SEGMENTS 23S & 24S



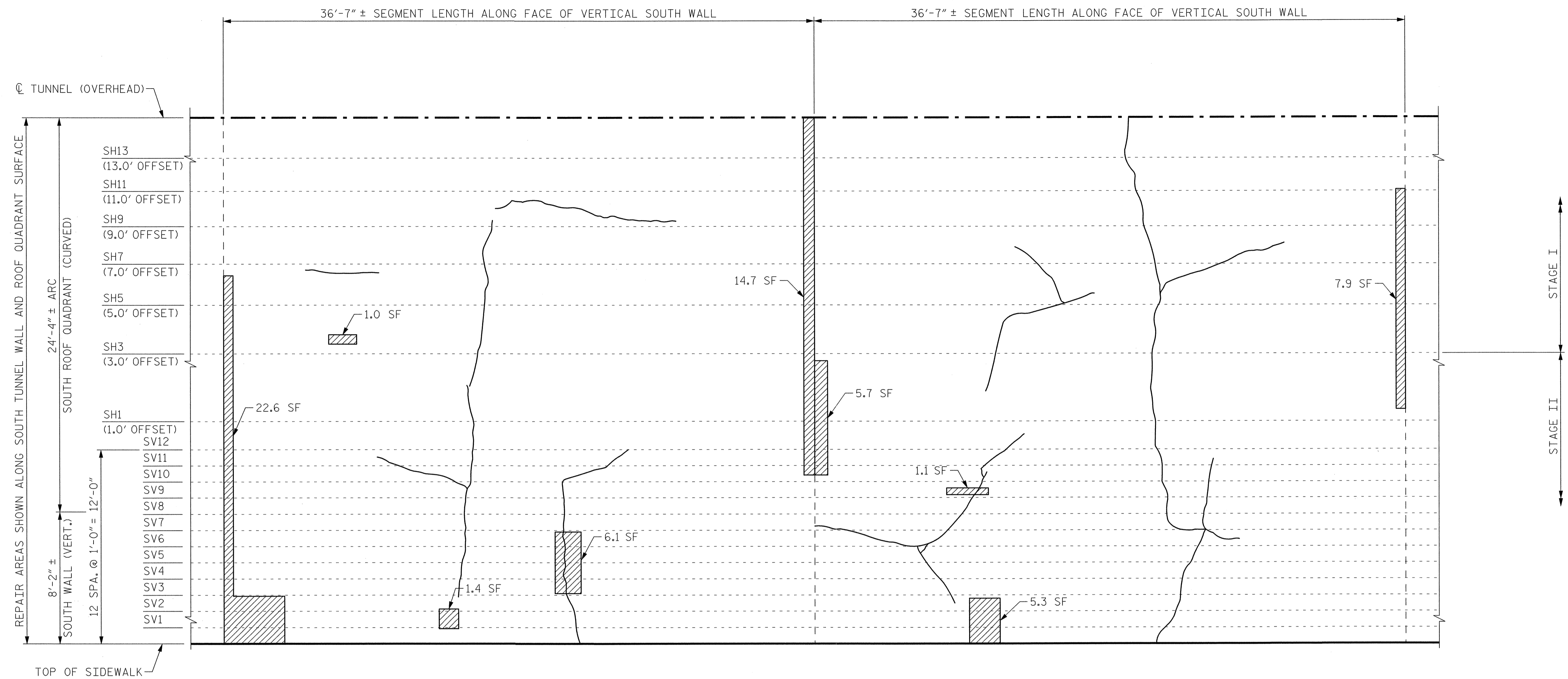
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2	--	--	4	--	--	

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



PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
PENTABLE: I-40 Tunnel.tbl
USER: msells
DATE: 7/22/2014
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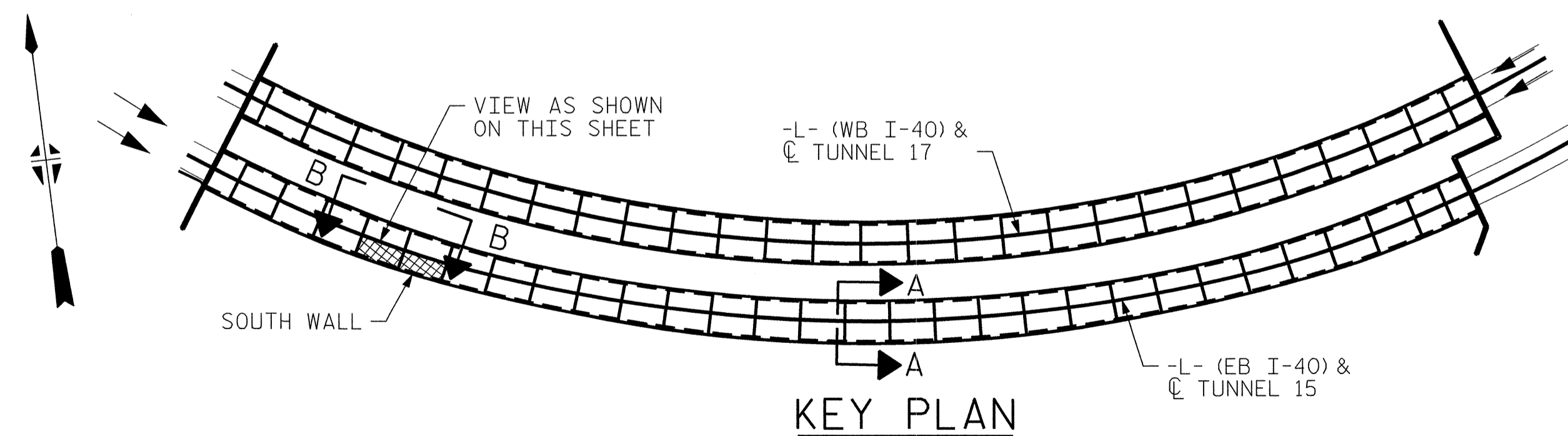
BILL OF MATERIAL		
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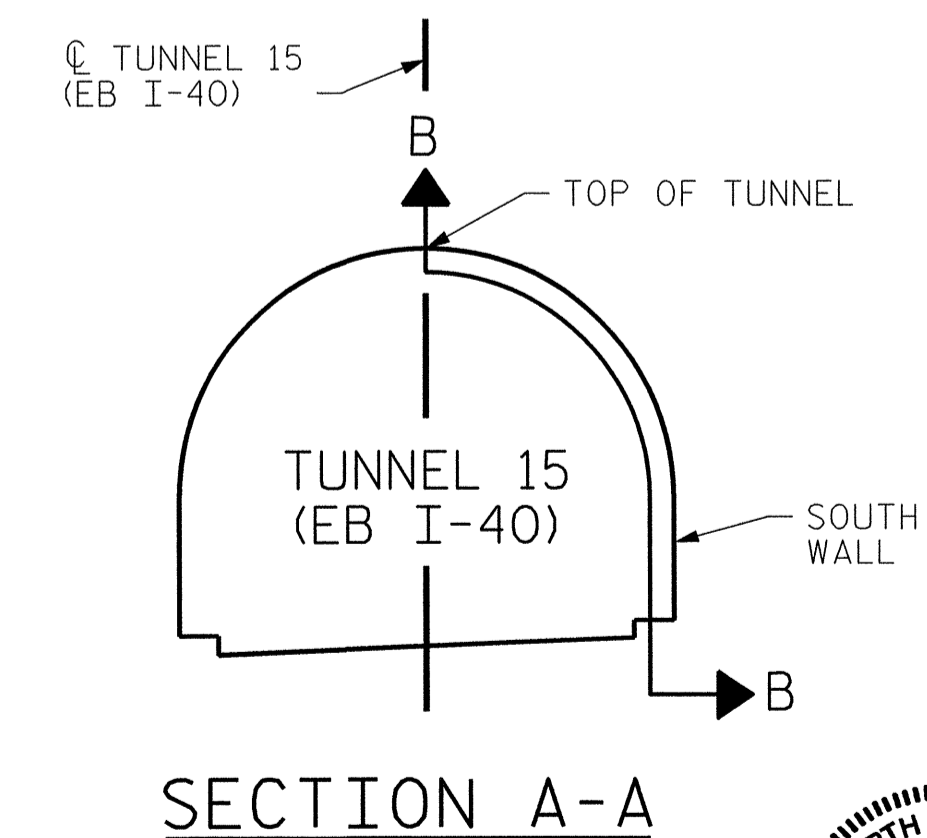
SEGMENT 25S

SEGMENT 26S

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



KEY PLAN

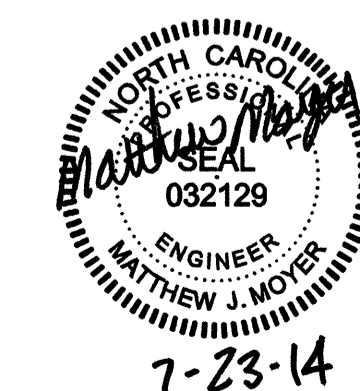


SECTION A-A

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

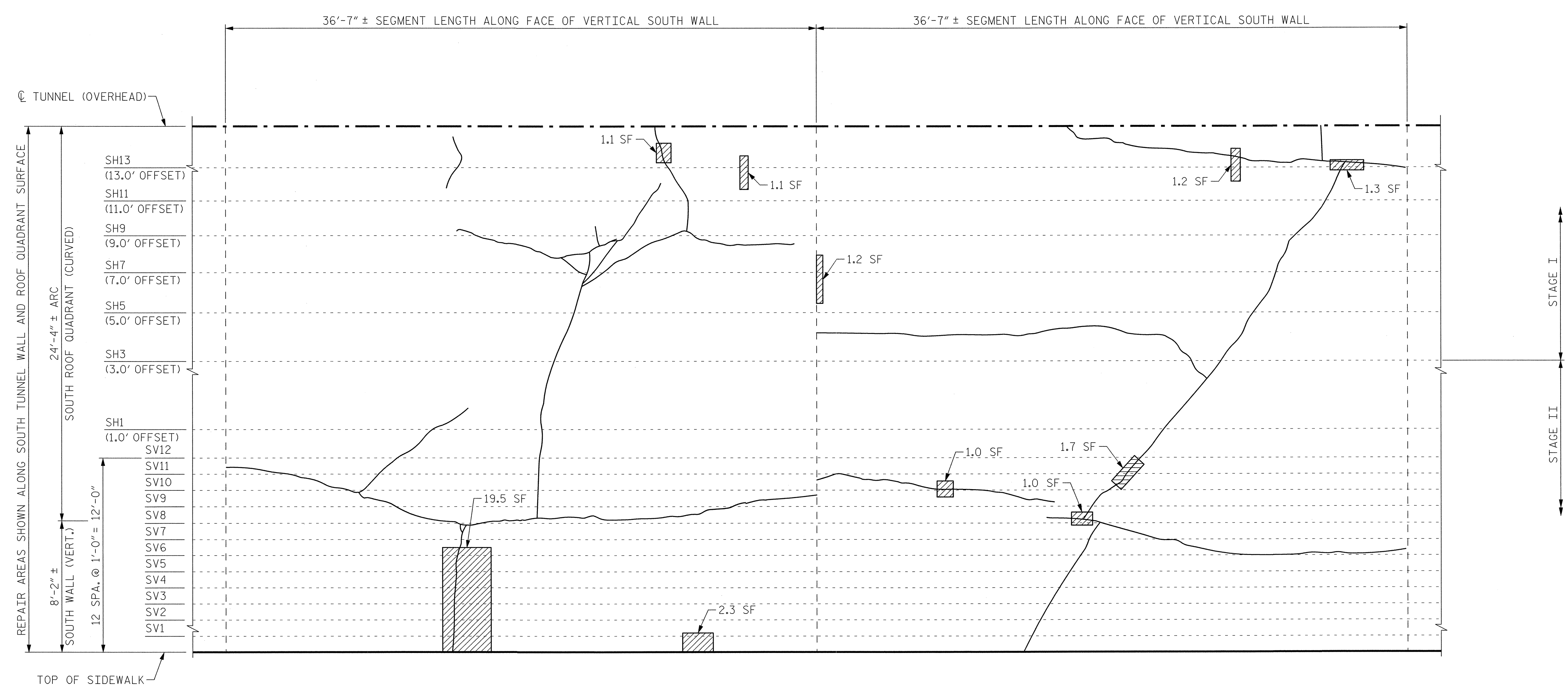


DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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3723 National Drive, Suite 307 Raleigh, N.C. 27612
N.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-034
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 110
2	--	--	4	--	--	

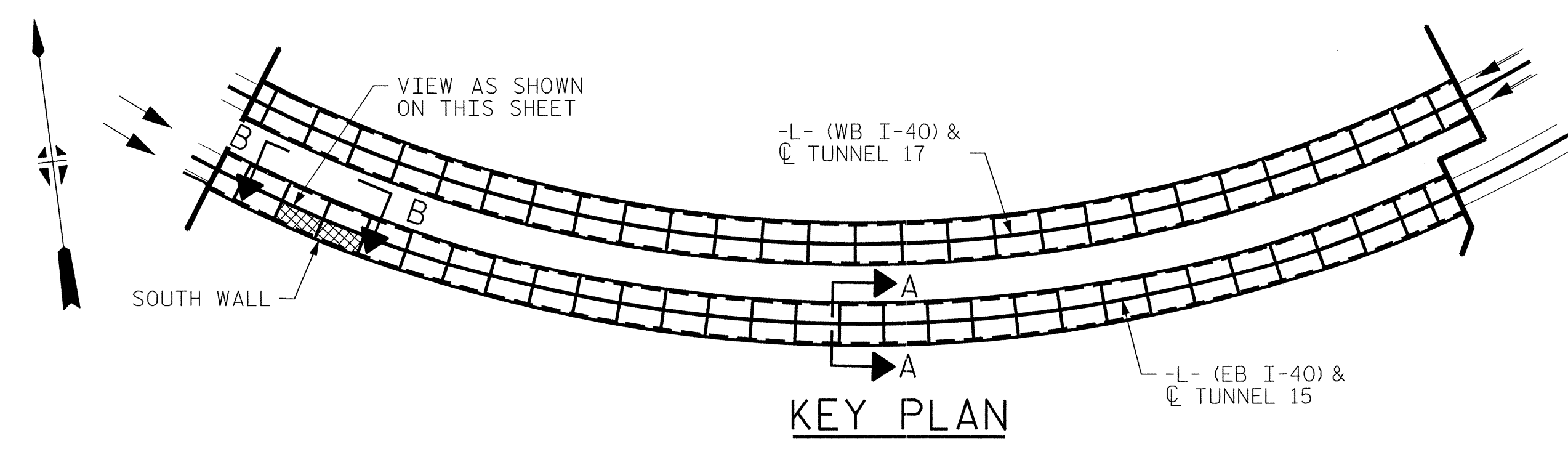
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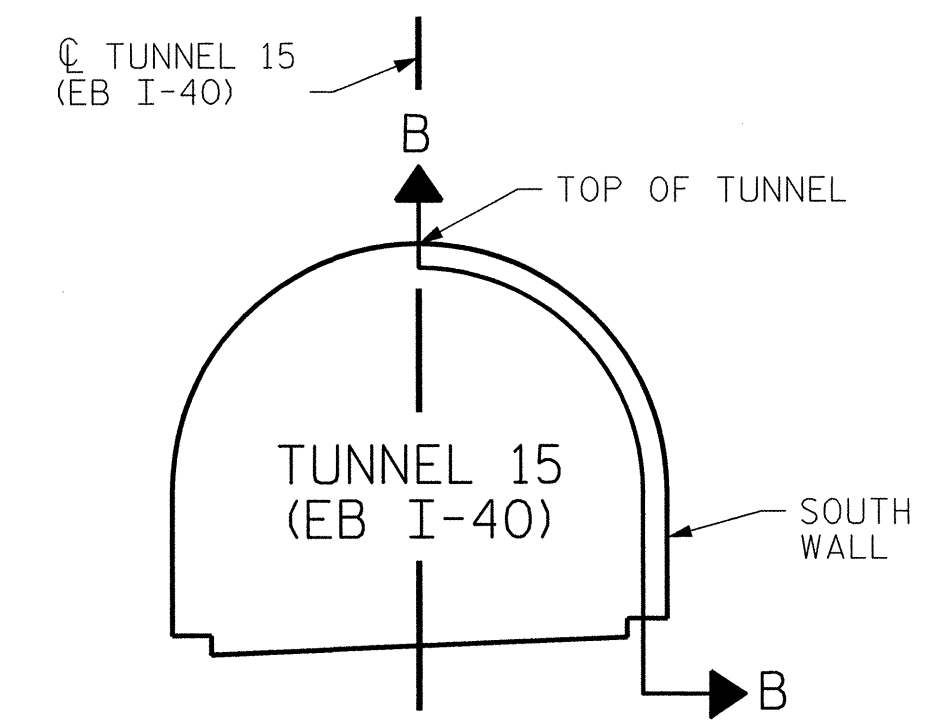
SEGMENT 27S

SEGMENT 28S

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



KEY PLAN



SECTION A-A

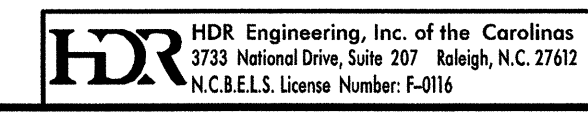
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TUNNEL 15 REPAIR
 AREAS
 SEGMENTS 27S & 28S**



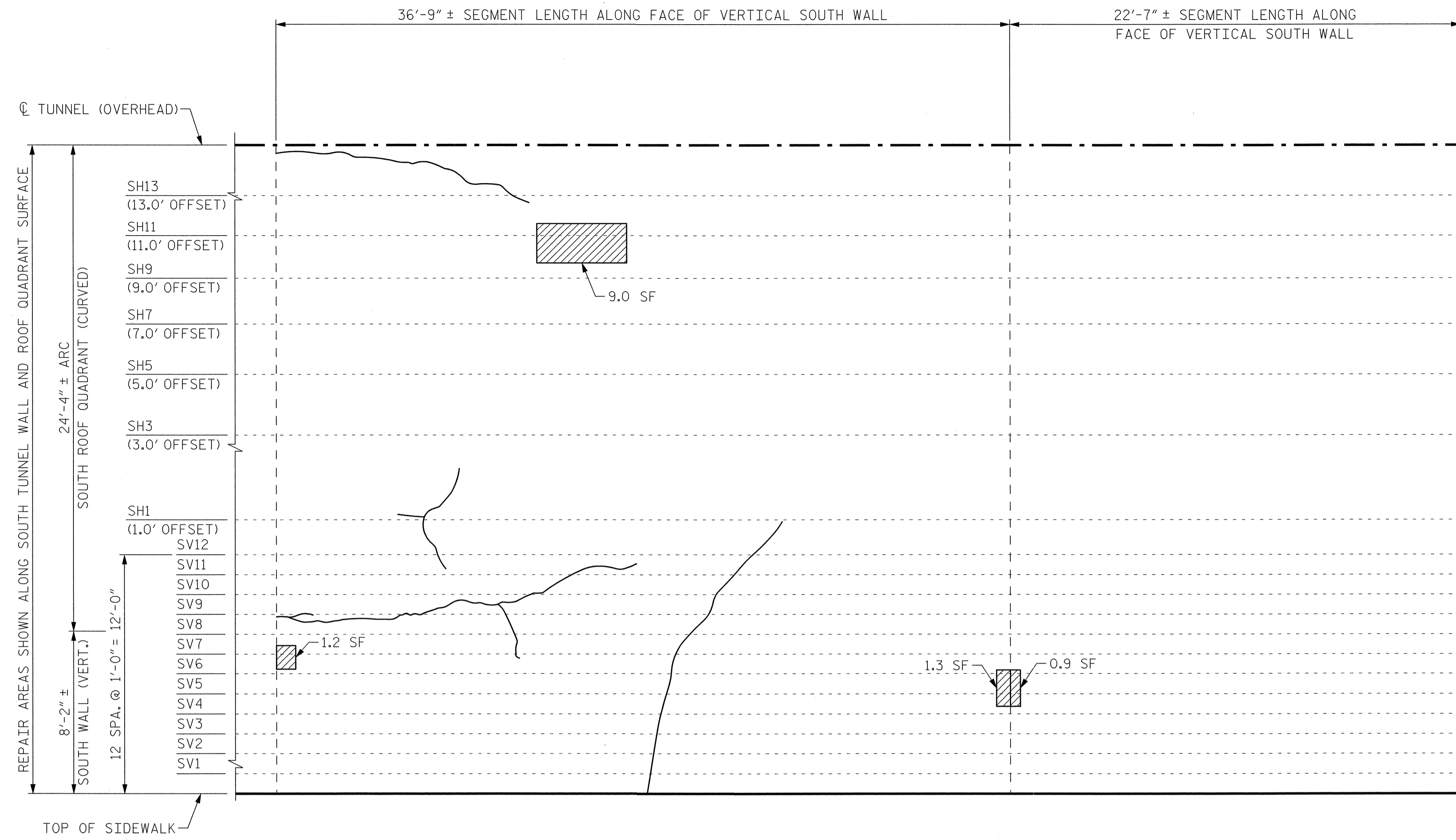
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

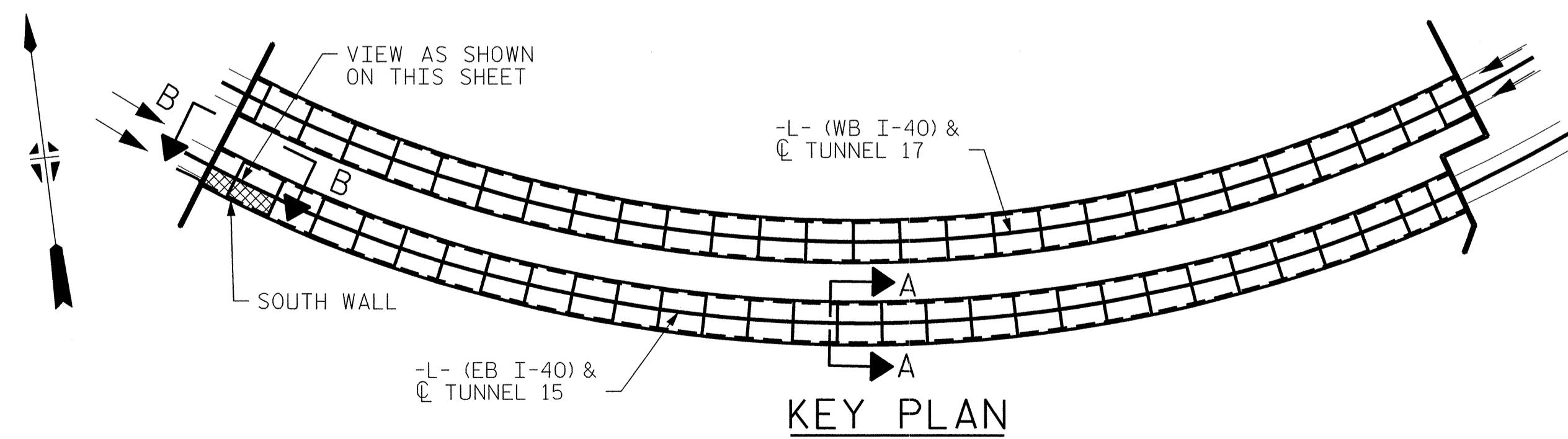
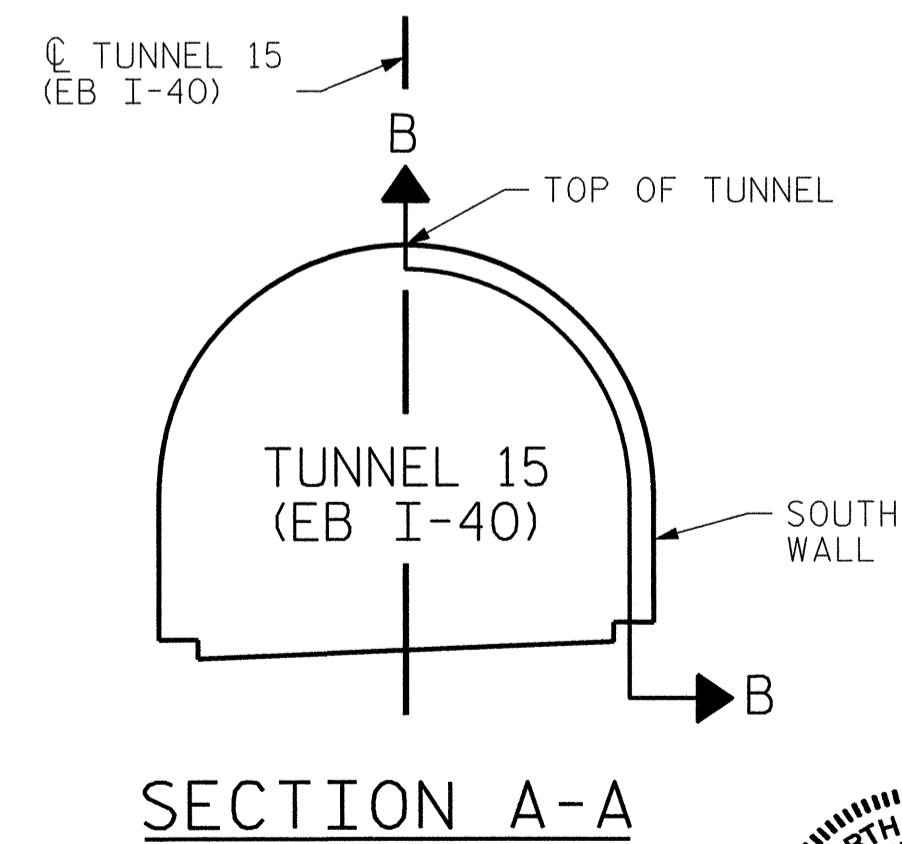


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BILL OF MATERIAL			
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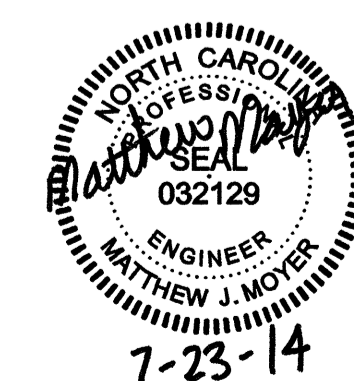
SEGMENT 29S SEGMENT 30S
VIEW B-B: REPAIR SEGMENTS 29S & 30S
TUNNEL SURFACE ELEVATION



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 29S & 30S

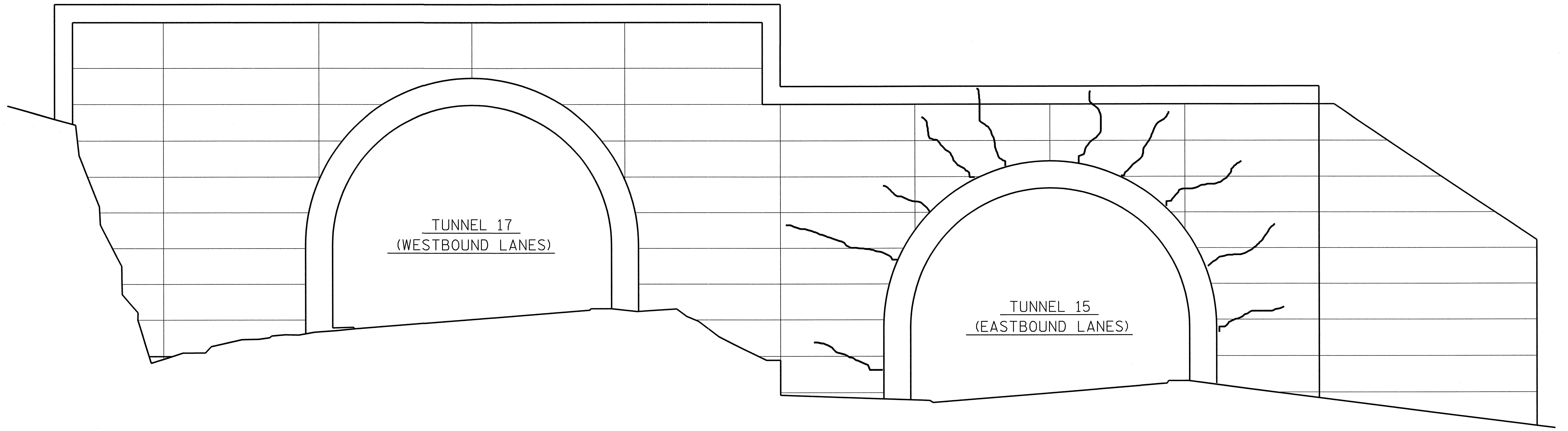


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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt PENTABLE: I-40 Tunnel.tbl
 USER: msells DATE: 7/22/2014 TIME: 1:08:37 PM
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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**

REVISIONS						SHEET NO. S-037
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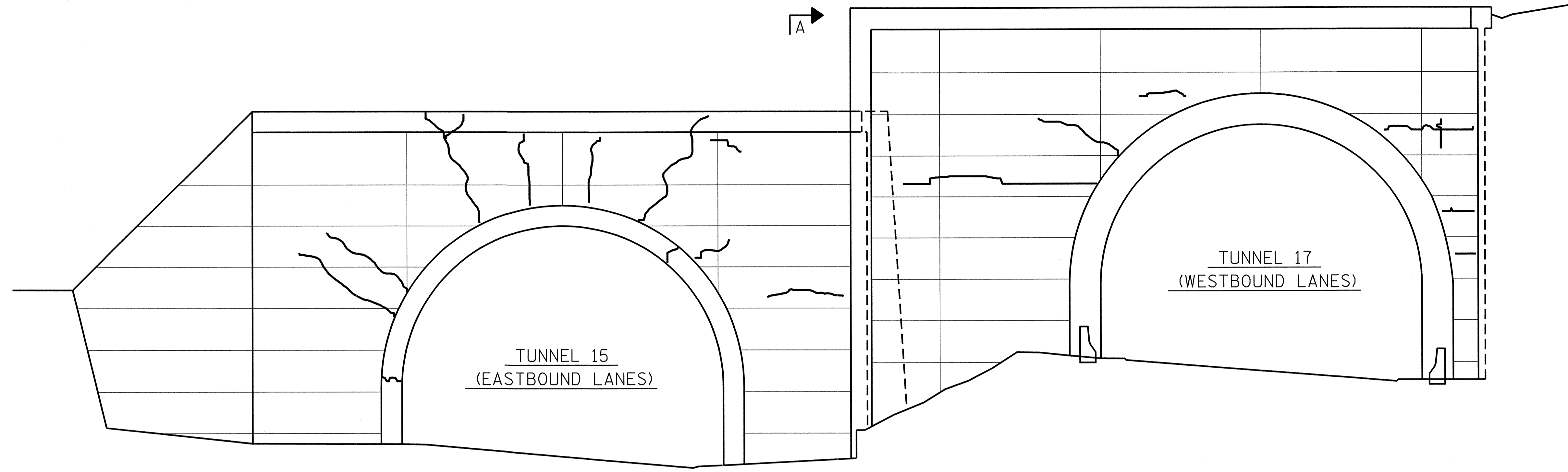
7-23-14

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-8116

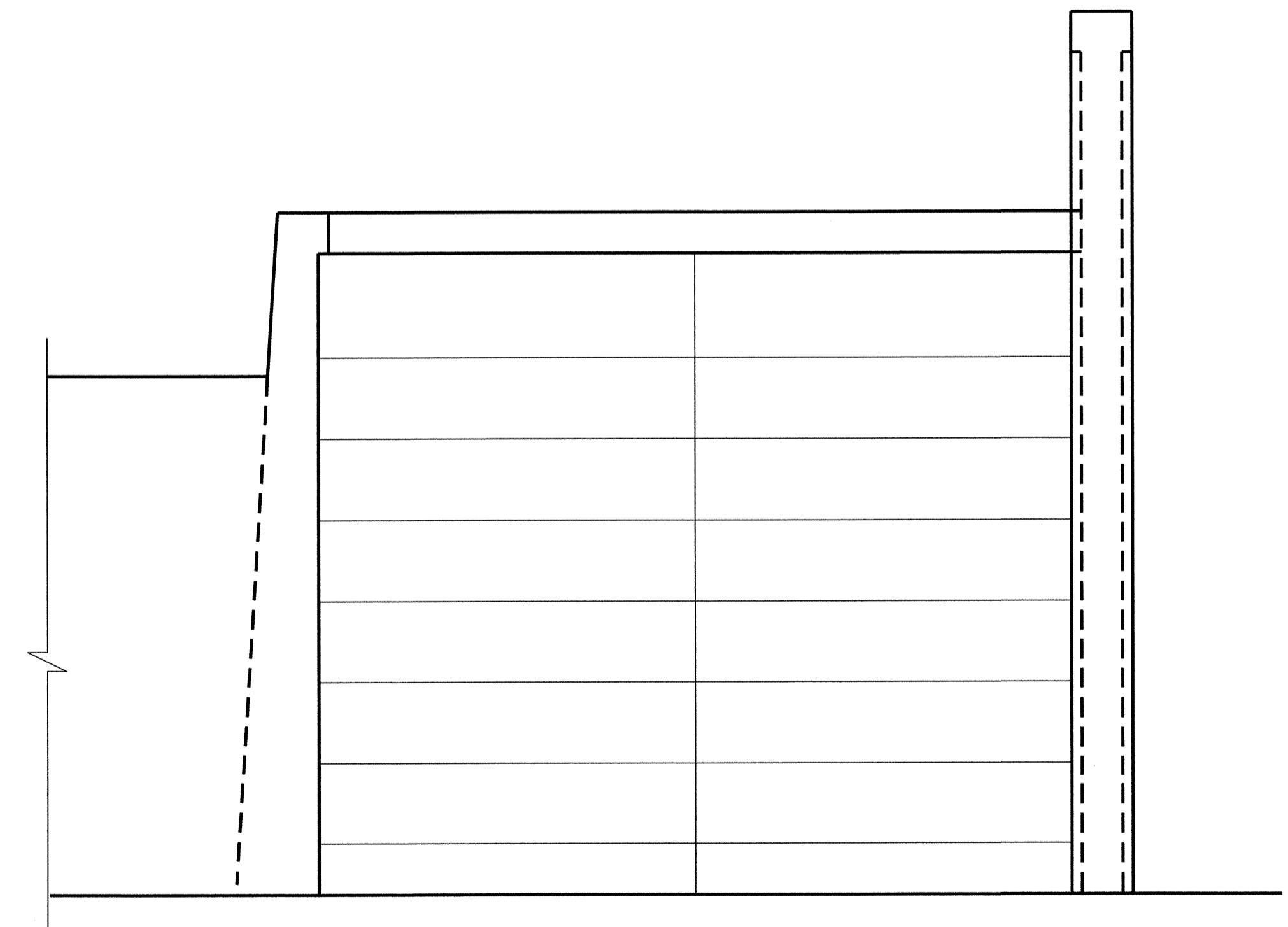
DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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PENTABLE: I-40 Tunnel.tbi
 TIME: 10:20 PM



ELEVATION OF EAST PORTAL WALL



VIEW A-A

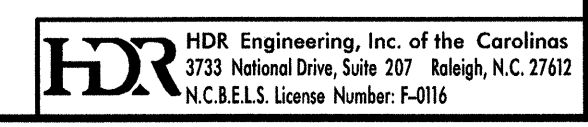
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 217+01.01 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**TUNNEL 15 & 17
 REPAIR AREAS
 EAST PORTAL WALL**

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

SHEET NO. S-038
 TOTAL SHEETS 110



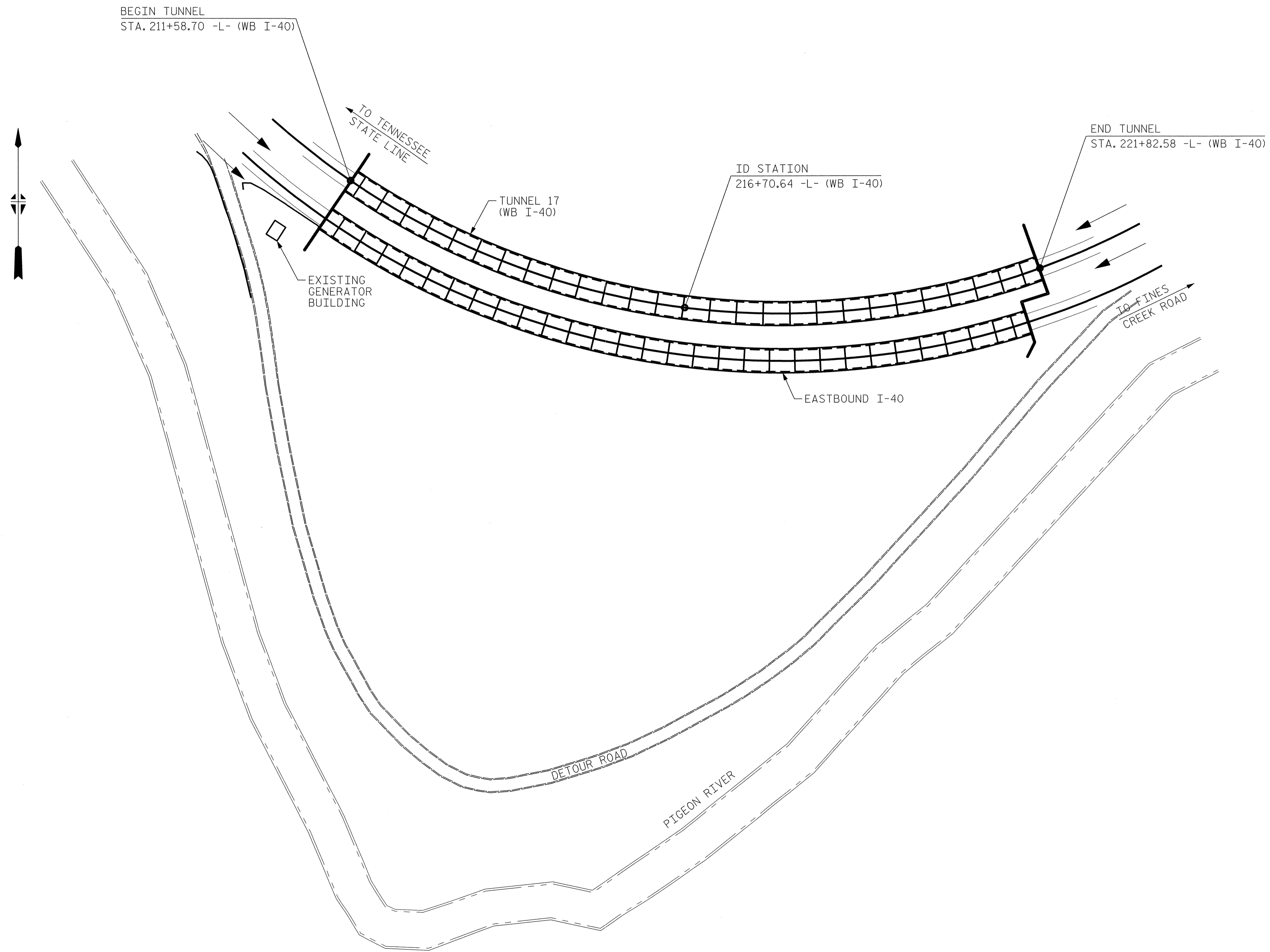
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 CHECKED BY : M. MOYER DATE : 07/2013

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PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
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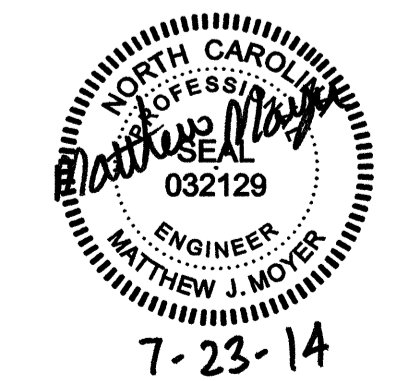
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 DATE: 7/22/2014

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

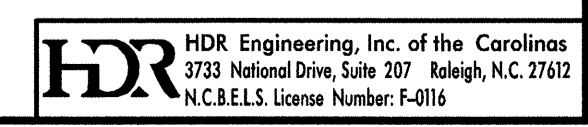


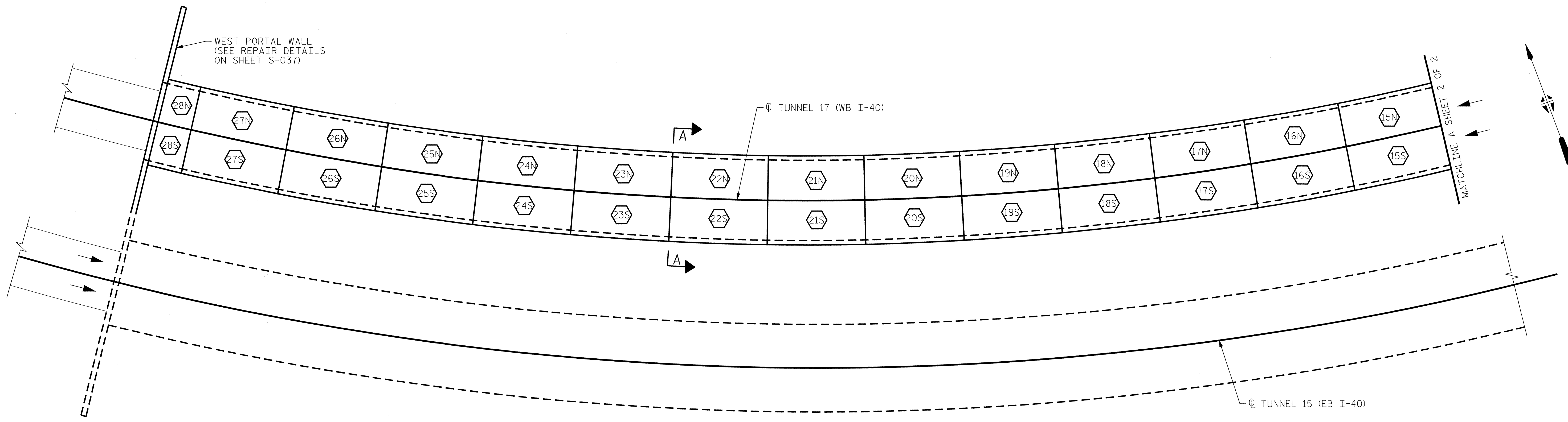
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL PLAN
 (TUNNEL 17)

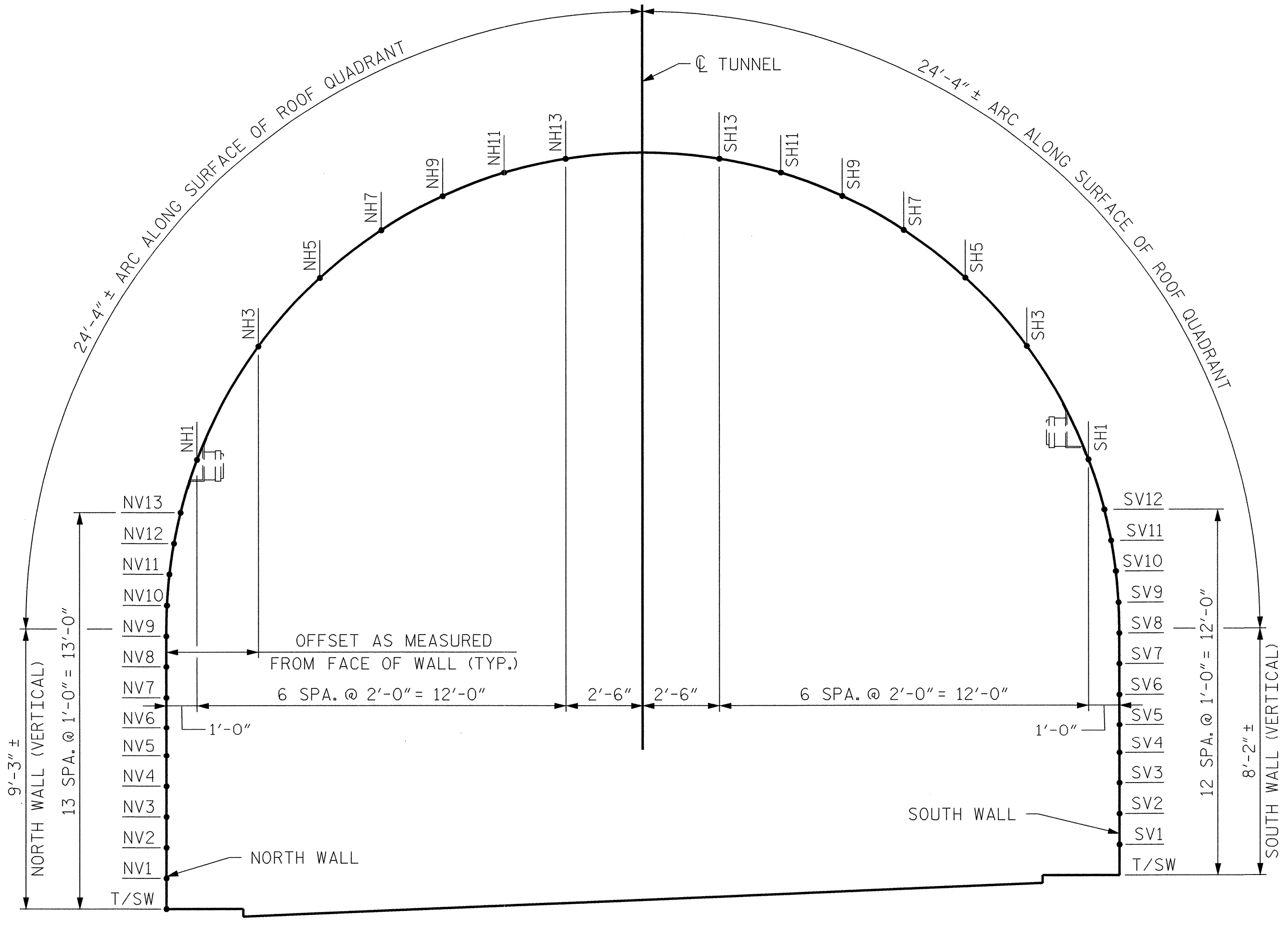
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--

SHEET NO. S-039
TOTAL SHEETS 110





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

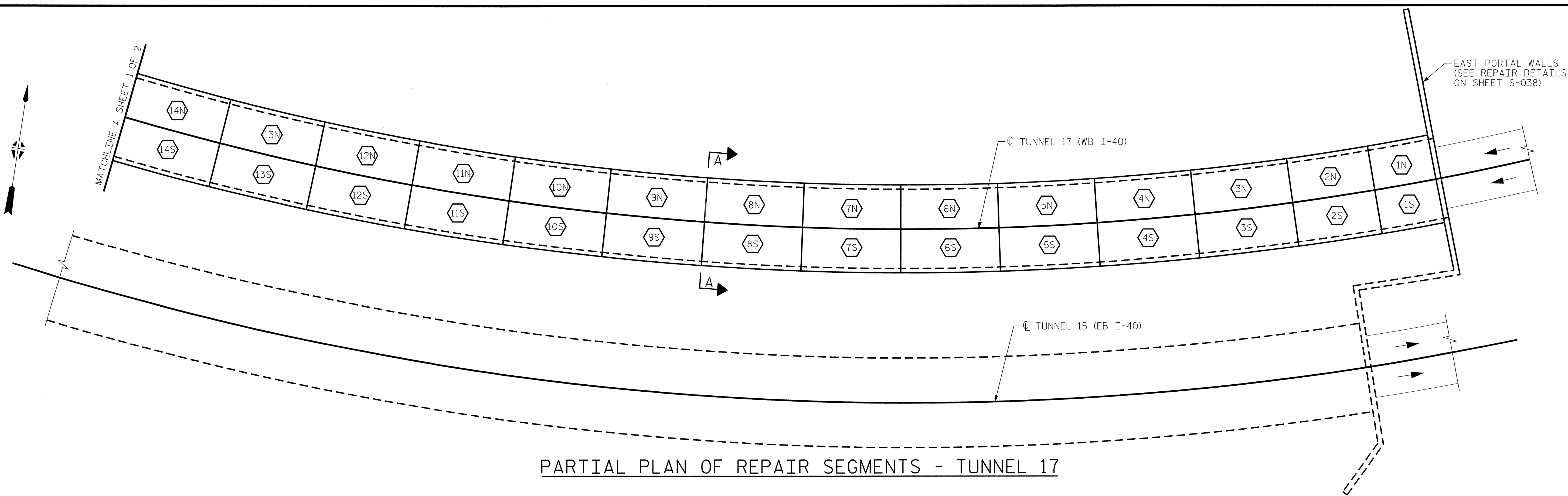


7-23-14
 HDR Engineering, Inc. of the Carolinas
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 N.C. E.L.S. License Number: F-0716

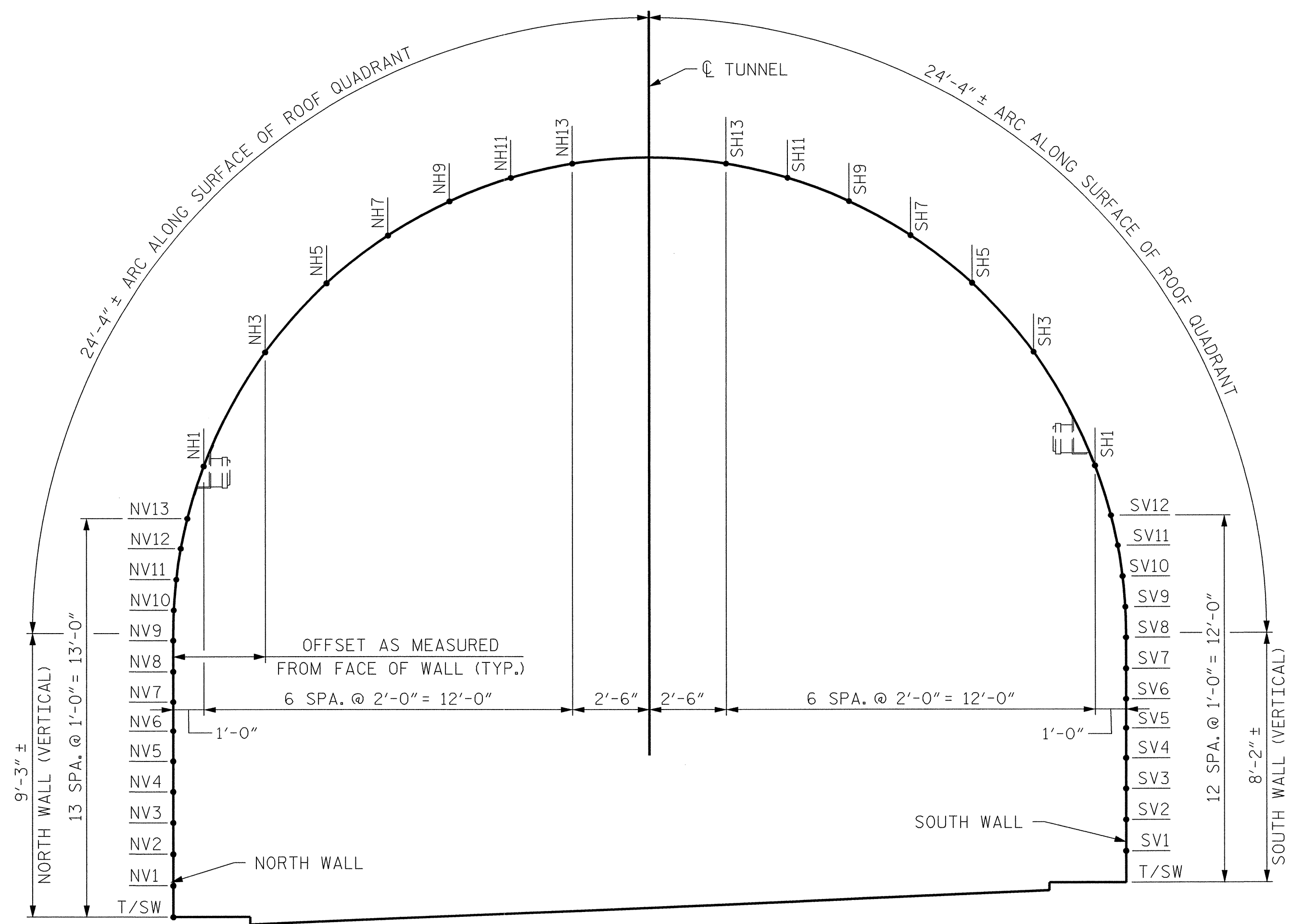
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2			4			

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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						SHEET NO. S-041
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 110
2			4			

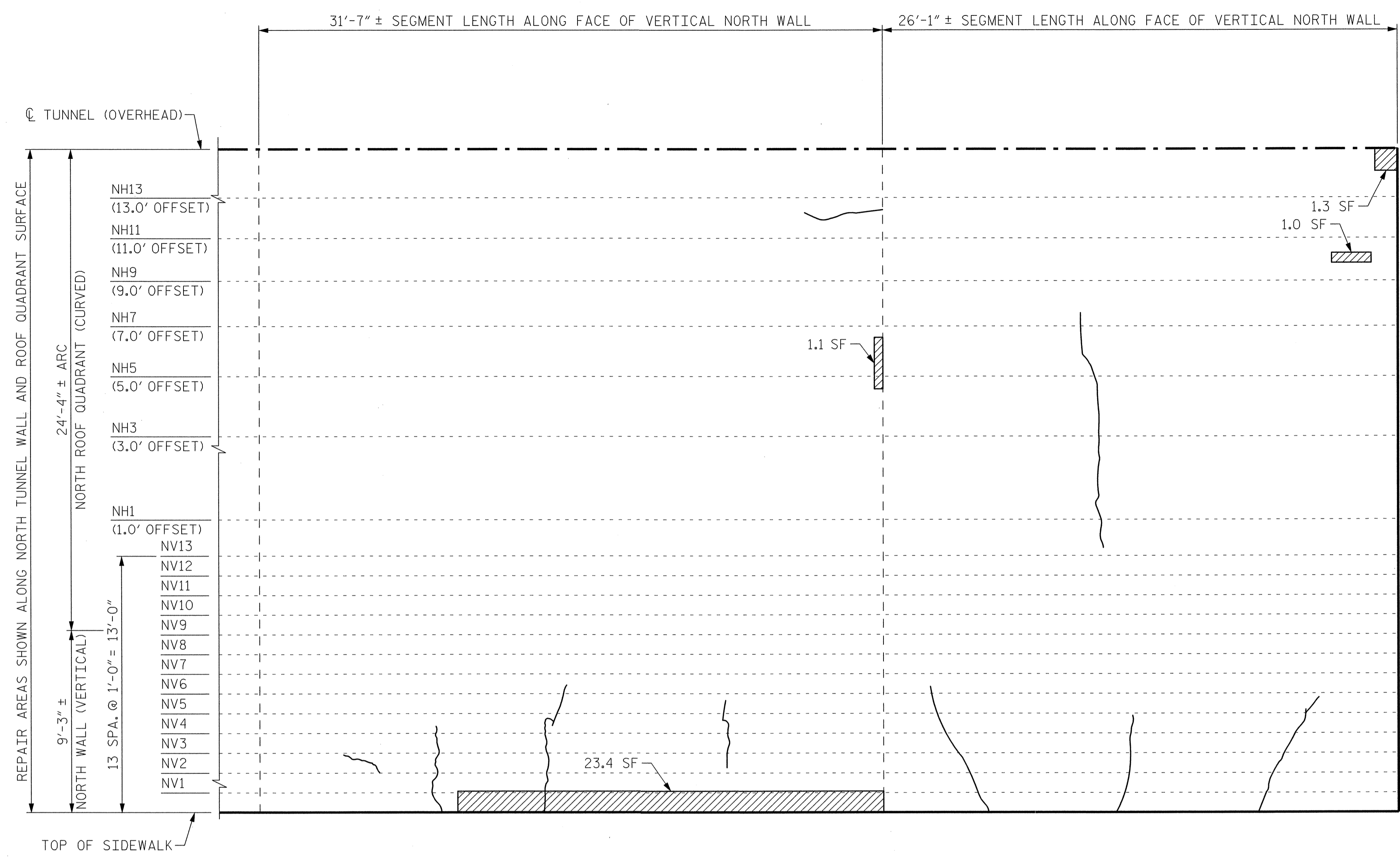
Professional Engineer Seal for Matthew J. Moyer, License No. 032129, dated 7-23-14.

HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C. E.L.S. License Number: F-4014

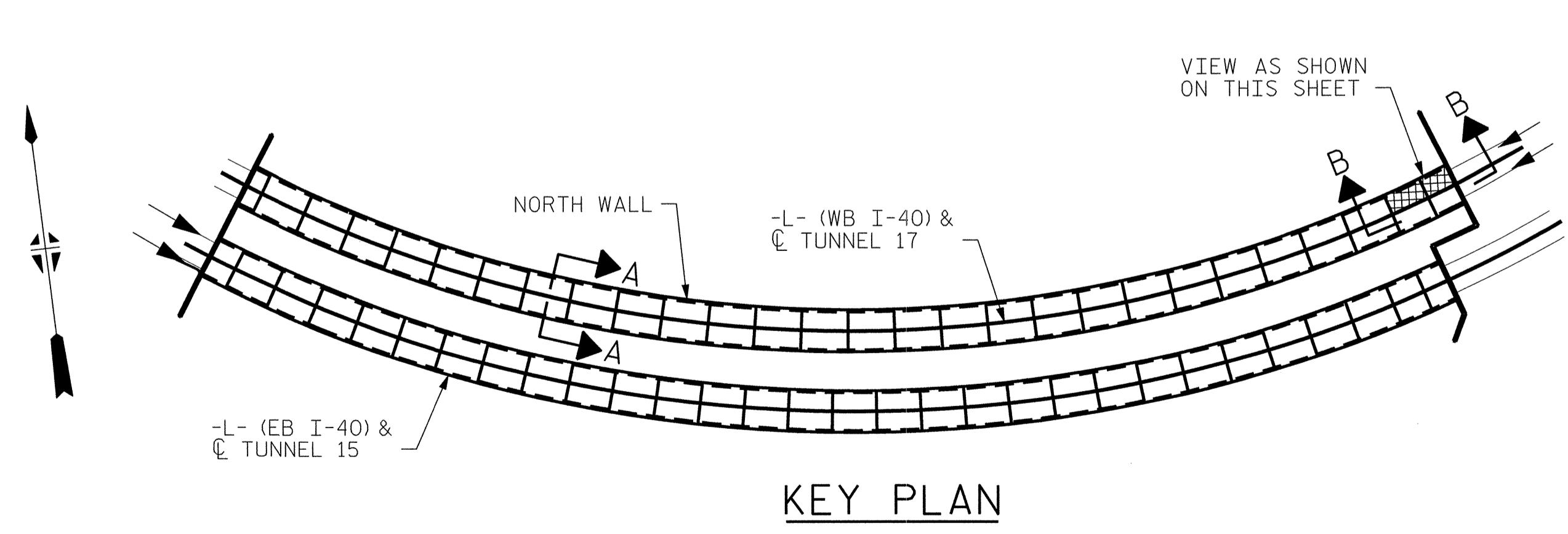
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DRAWN BY: L. PATTERSON DATE: 07/2013
 CHECKED BY: M. MOYER DATE: 07/2013

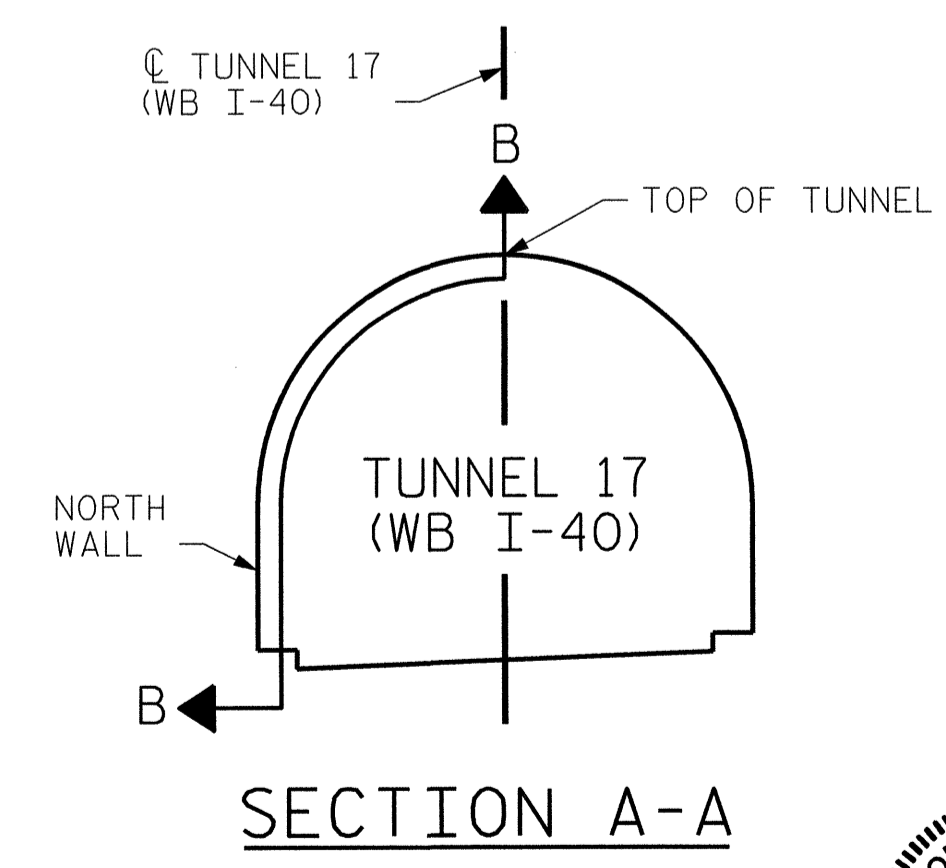
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SHOTCRETE REPAIRS SEGMENT 2N	CF	8.2



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



KEY PLAN



SECTION A-A

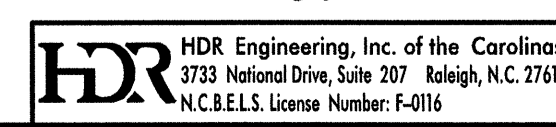
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 1N & 2N



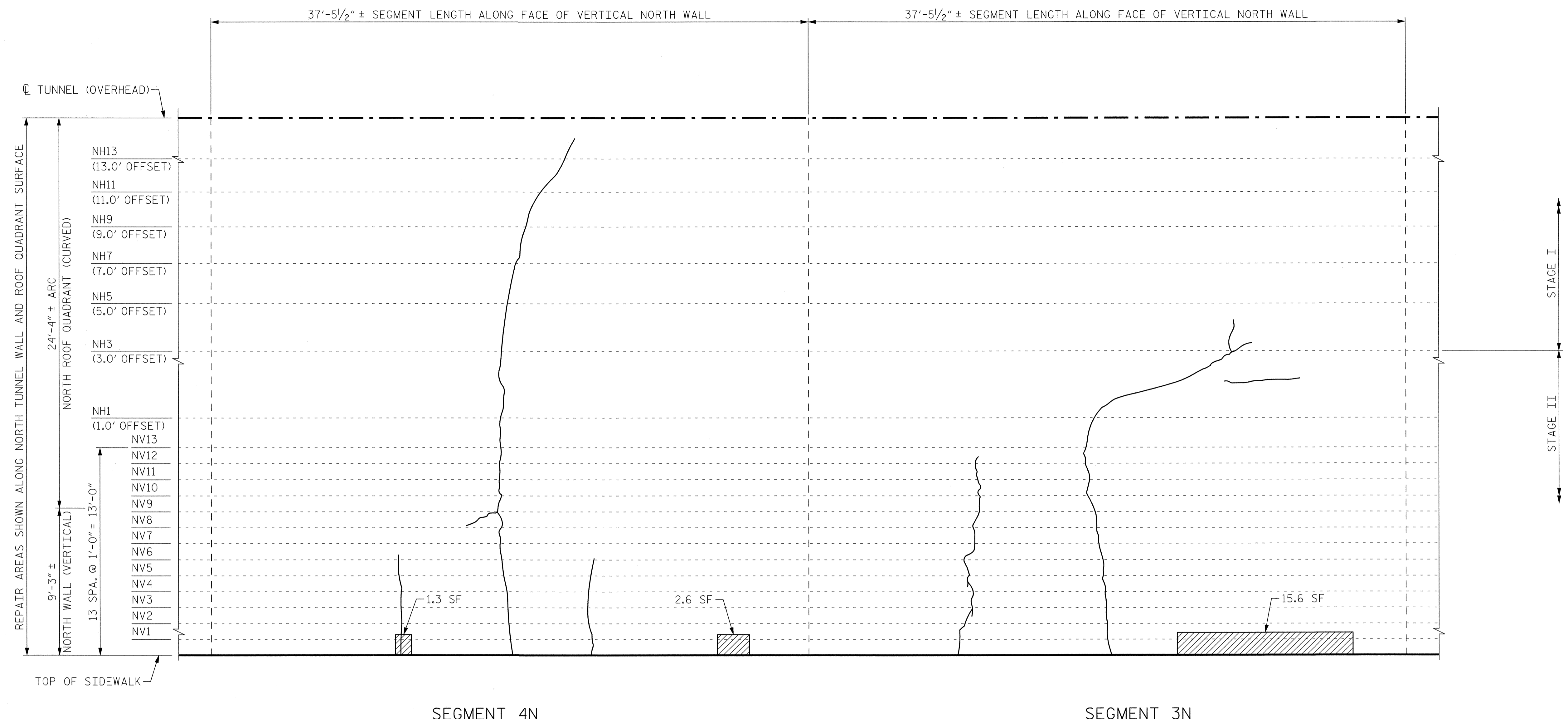
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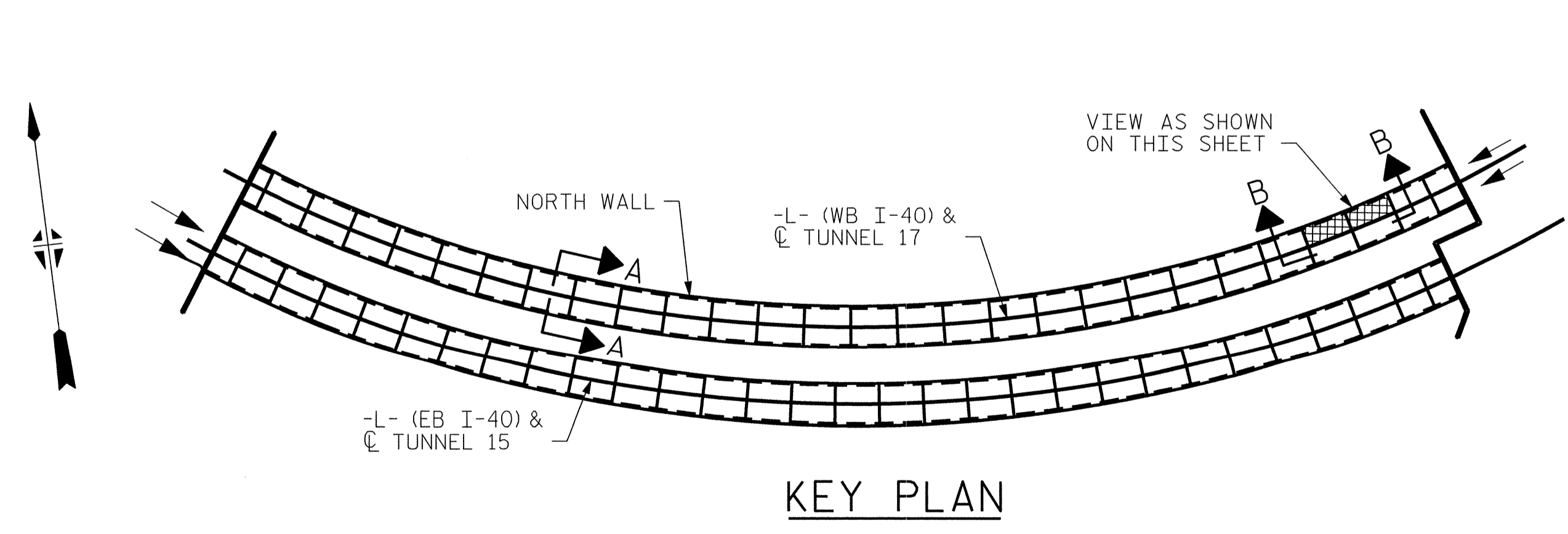
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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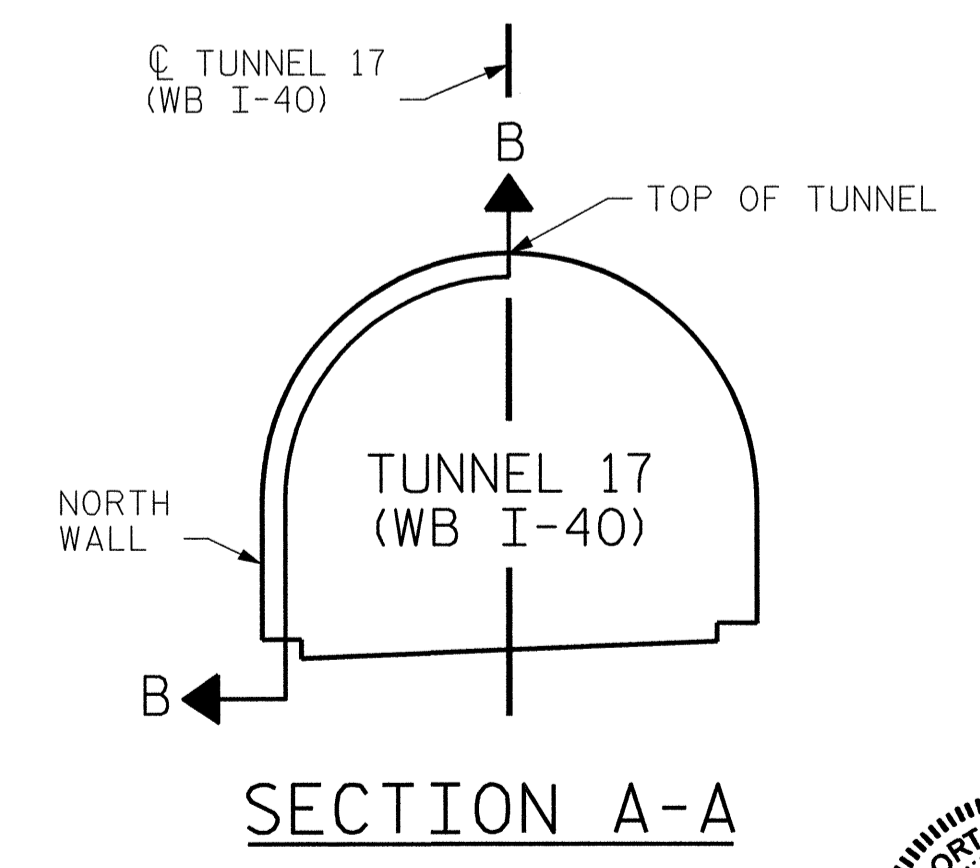
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SHOTCRETE REPAIRS SEGMENT 4N	CF	1.3	



VIEW B-B: REPAIR SEGMENTS 3N & 4N
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 3N & 4N



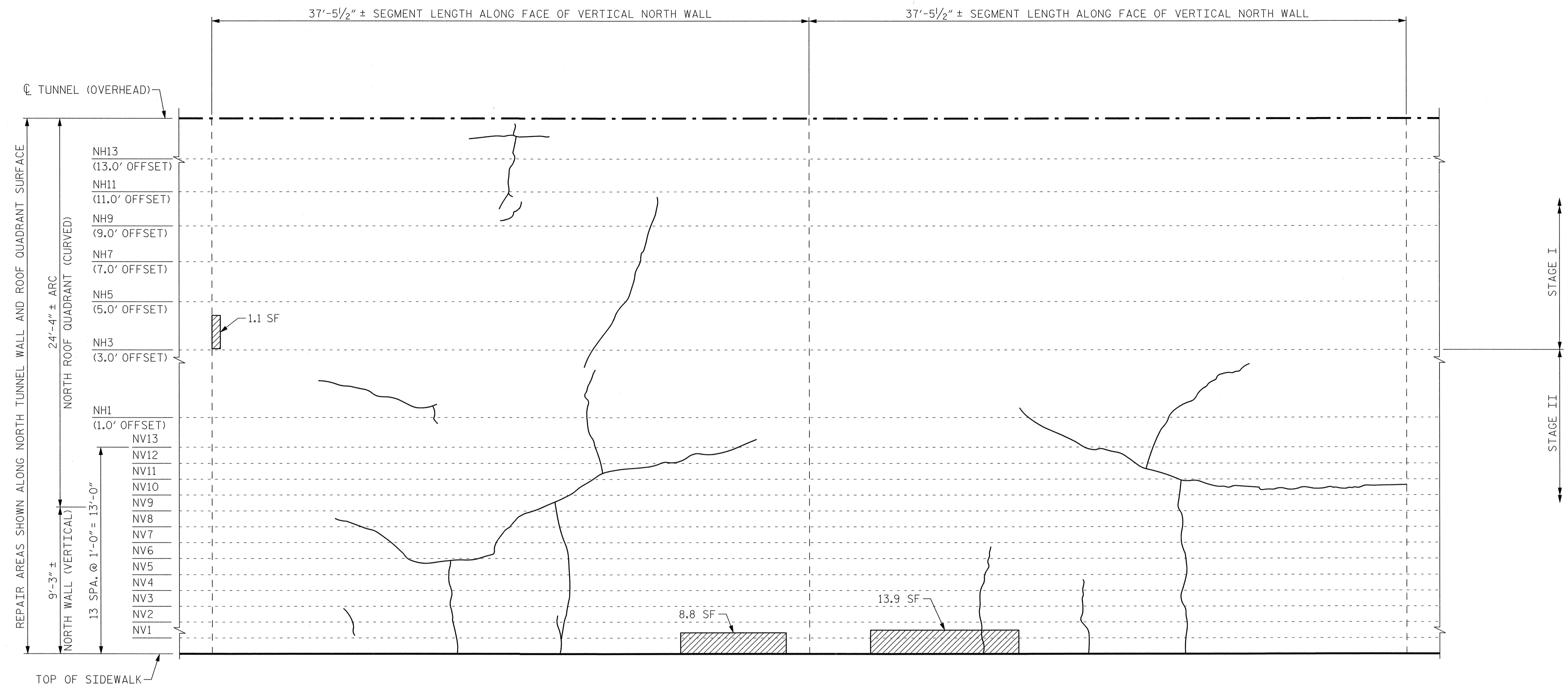
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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

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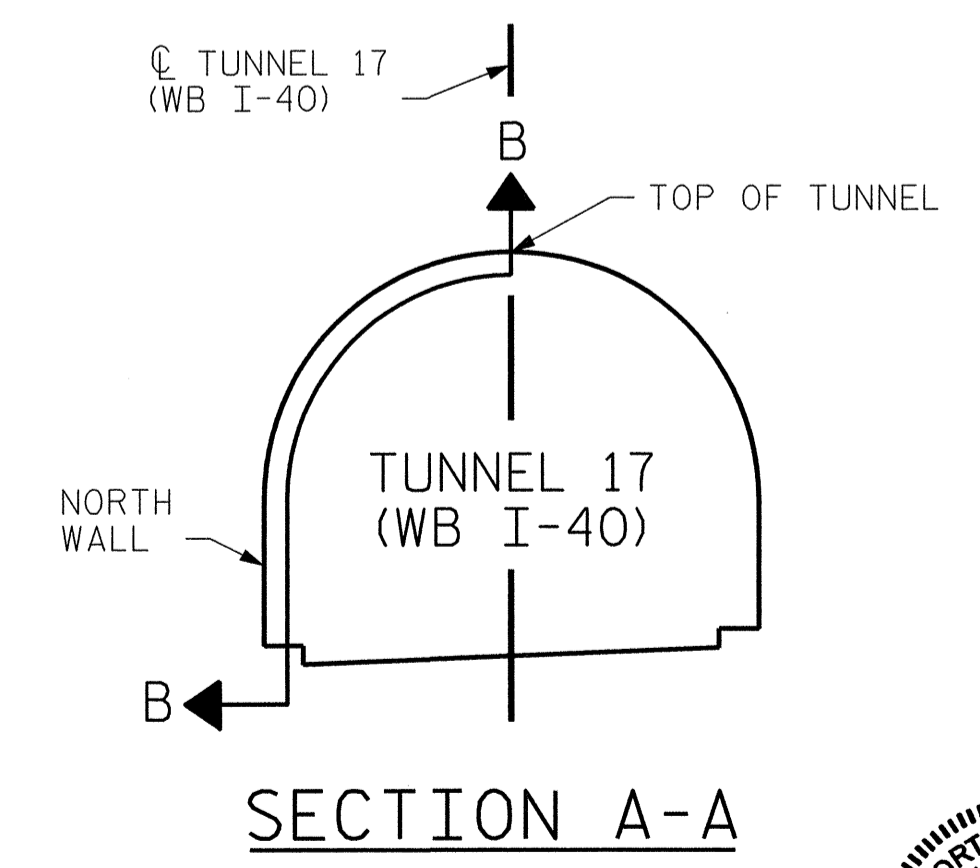
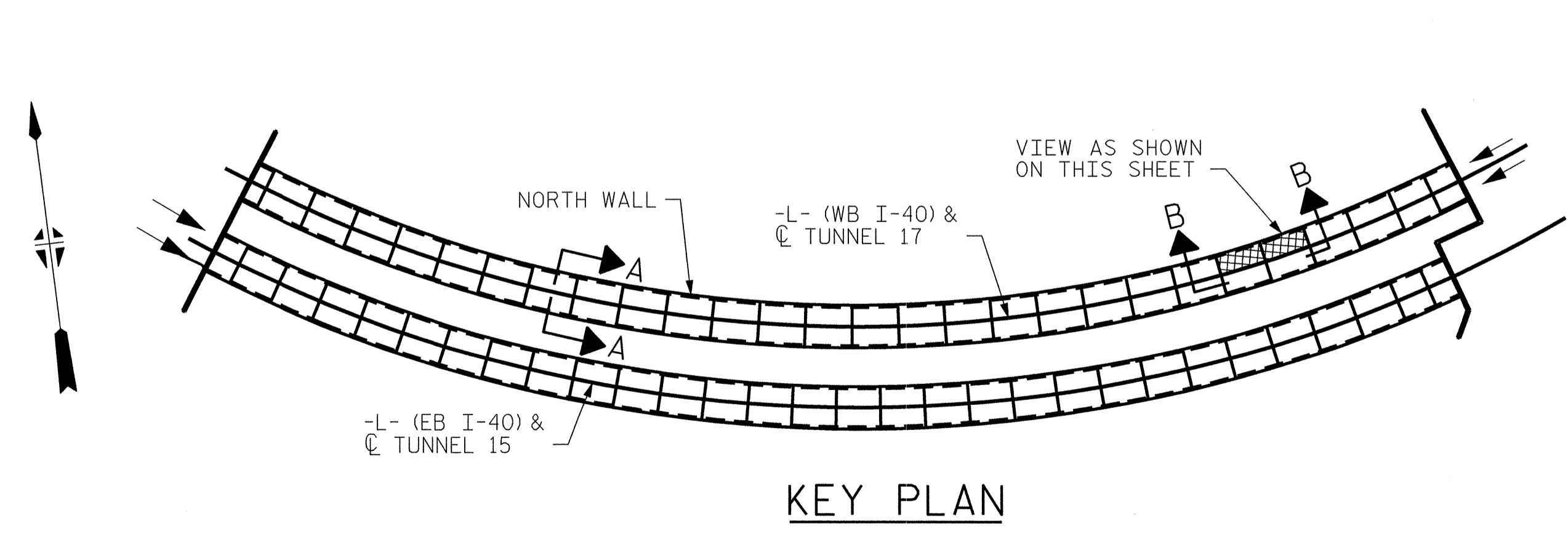
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SHOTCRETE REPAIRS SEGMENT 6N	CF	3.3



SEGMENT 6N

SEGMENT 5N

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**



7-23-14

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

REVISIONS						SHEET NO. S-044
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CHECKED BY: M. MOYER DATE: 07/2013

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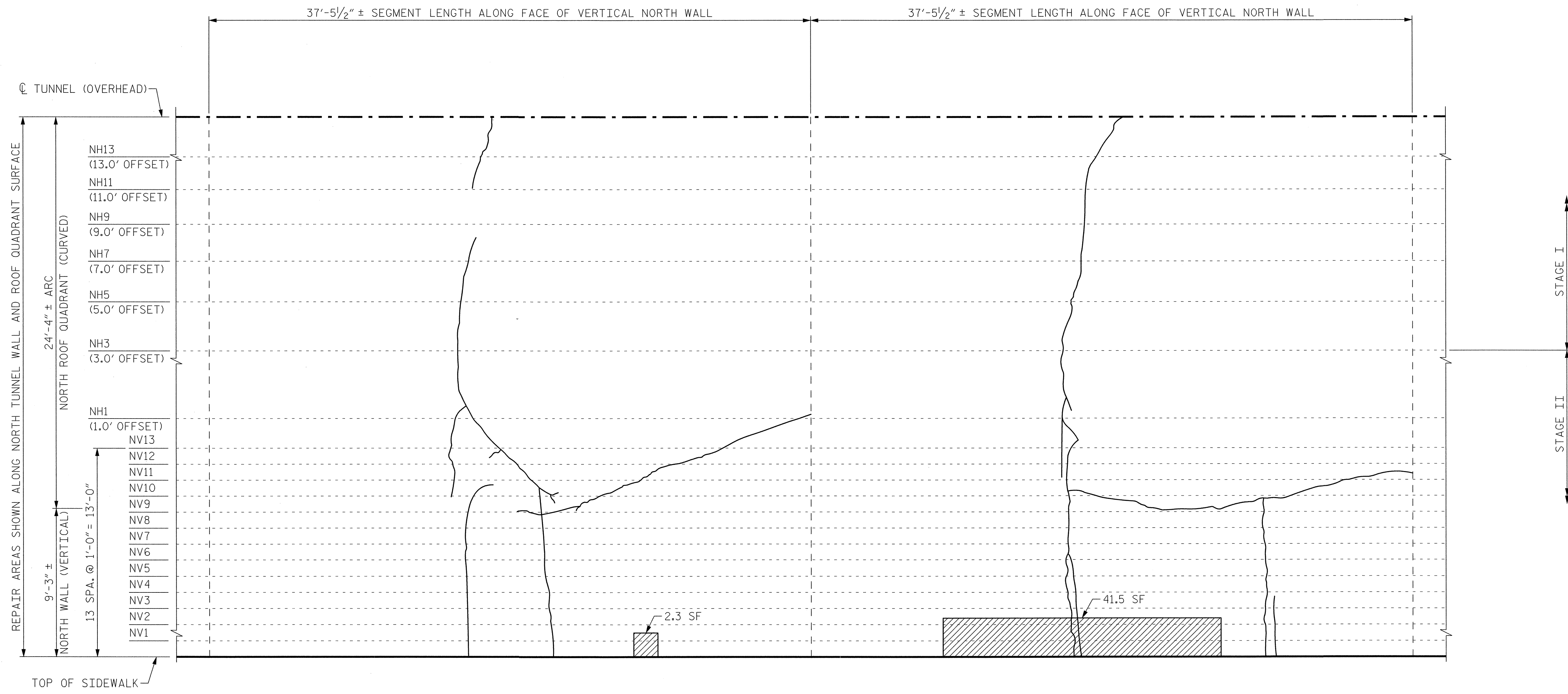
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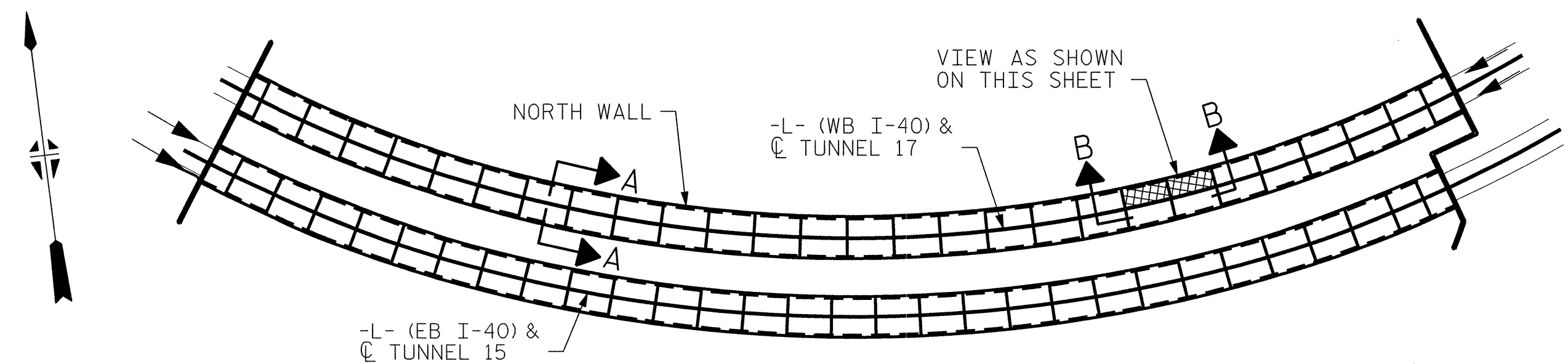
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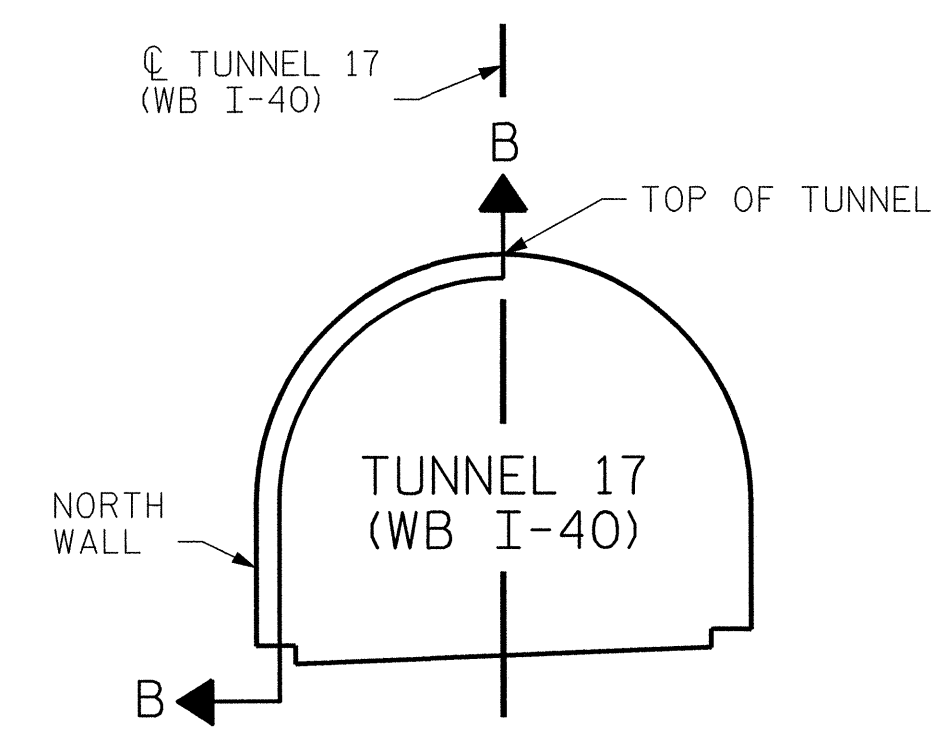
SEGMENT 8N

SEGMENT 7N

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



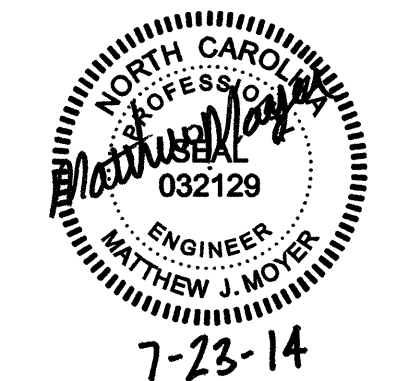
KEY PLAN



SECTION A-A

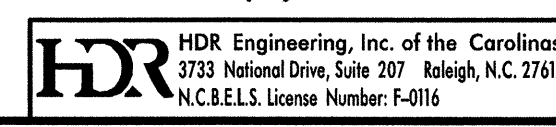
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 216+70.64 -L- (WB I-40)

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



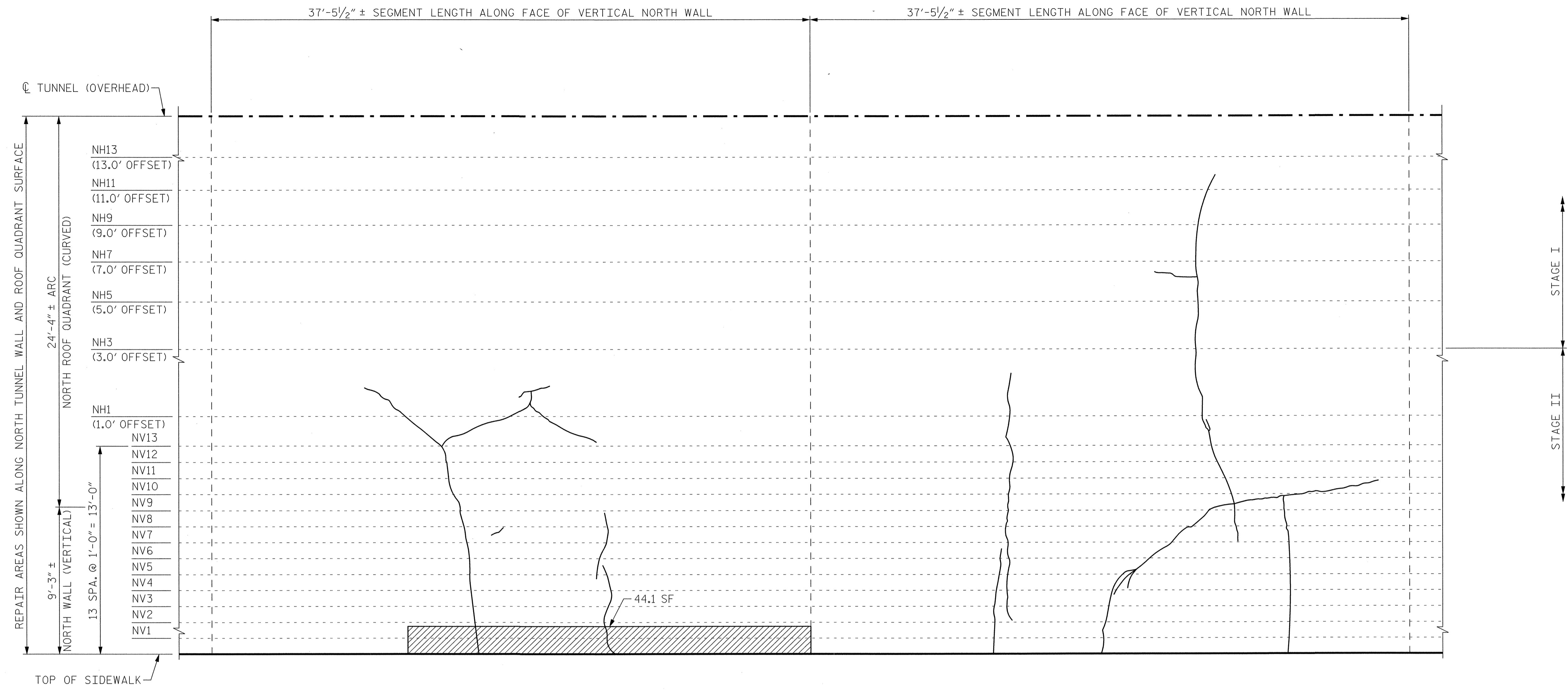
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013



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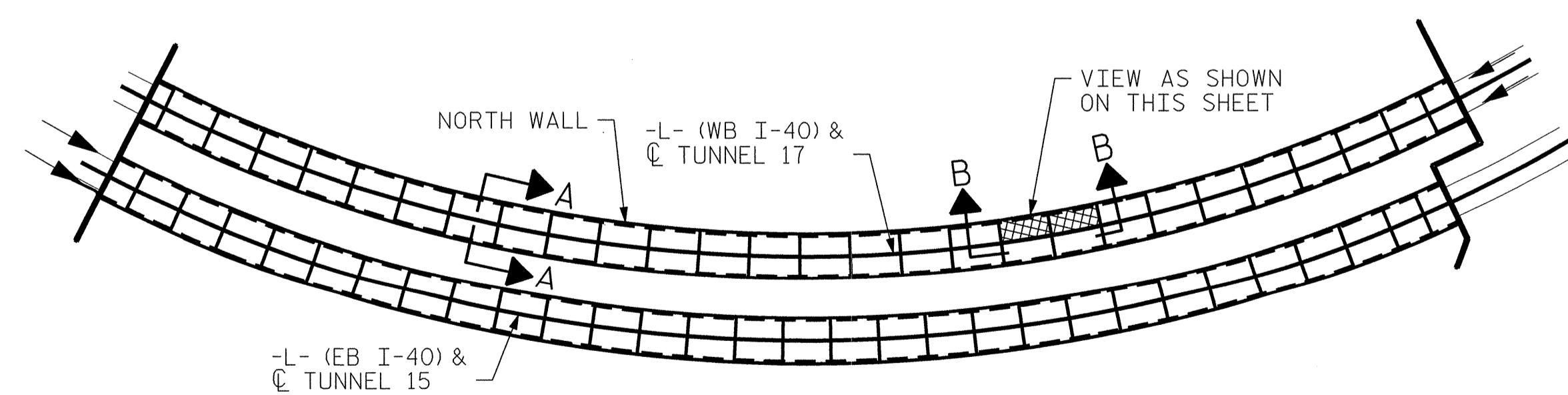
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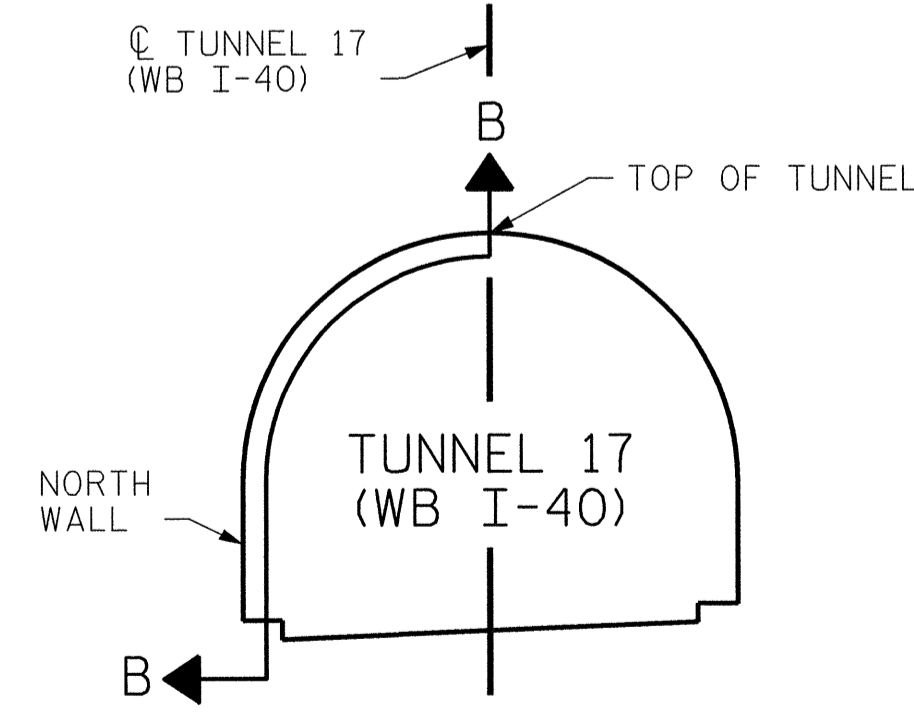
SEGMENT 10N

SEGMENT 9N

**VIEW B-B: REPAIR SEGMENTS 9N & 10N
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 9N & 10N**



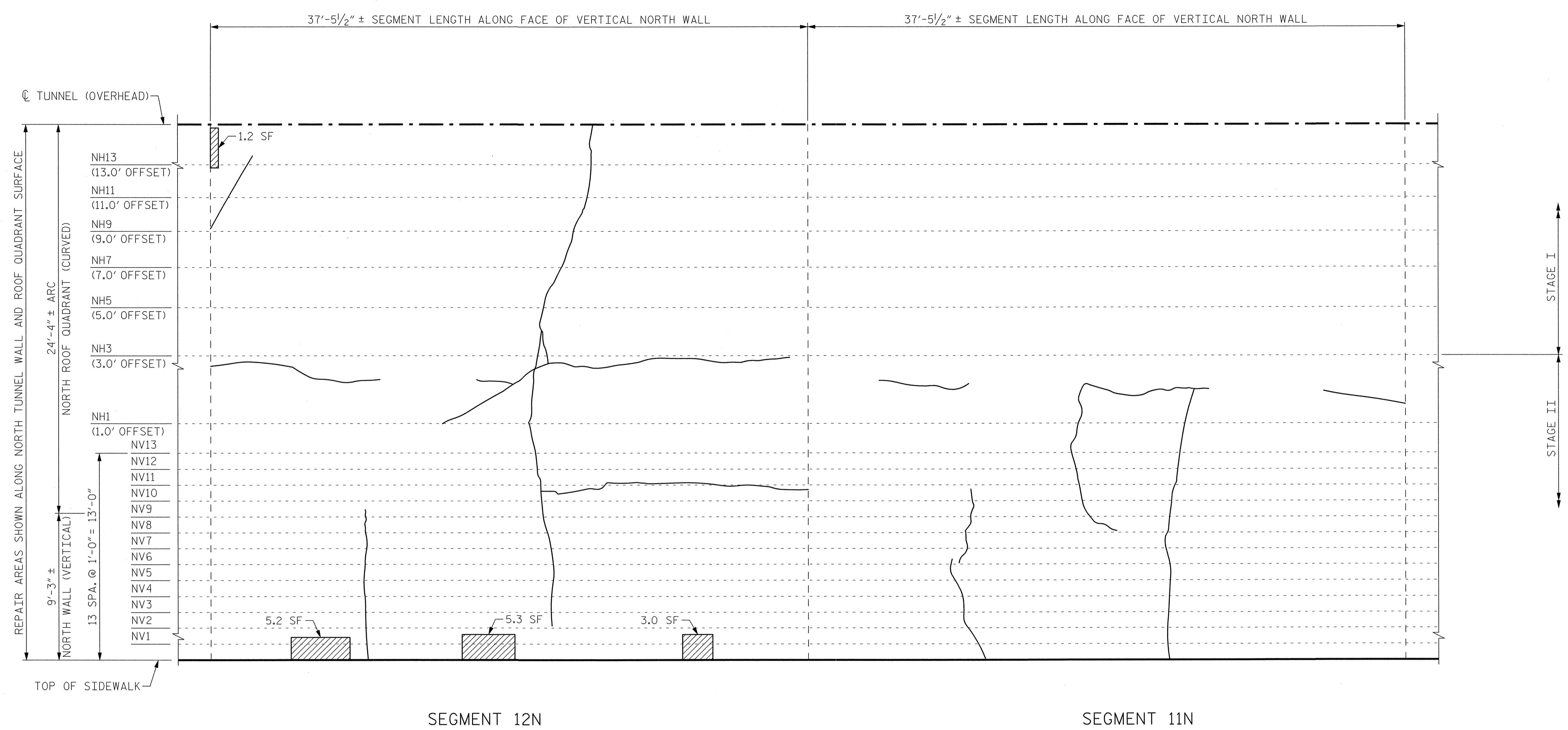
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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N.C.E.L.S. License Number: F-0116

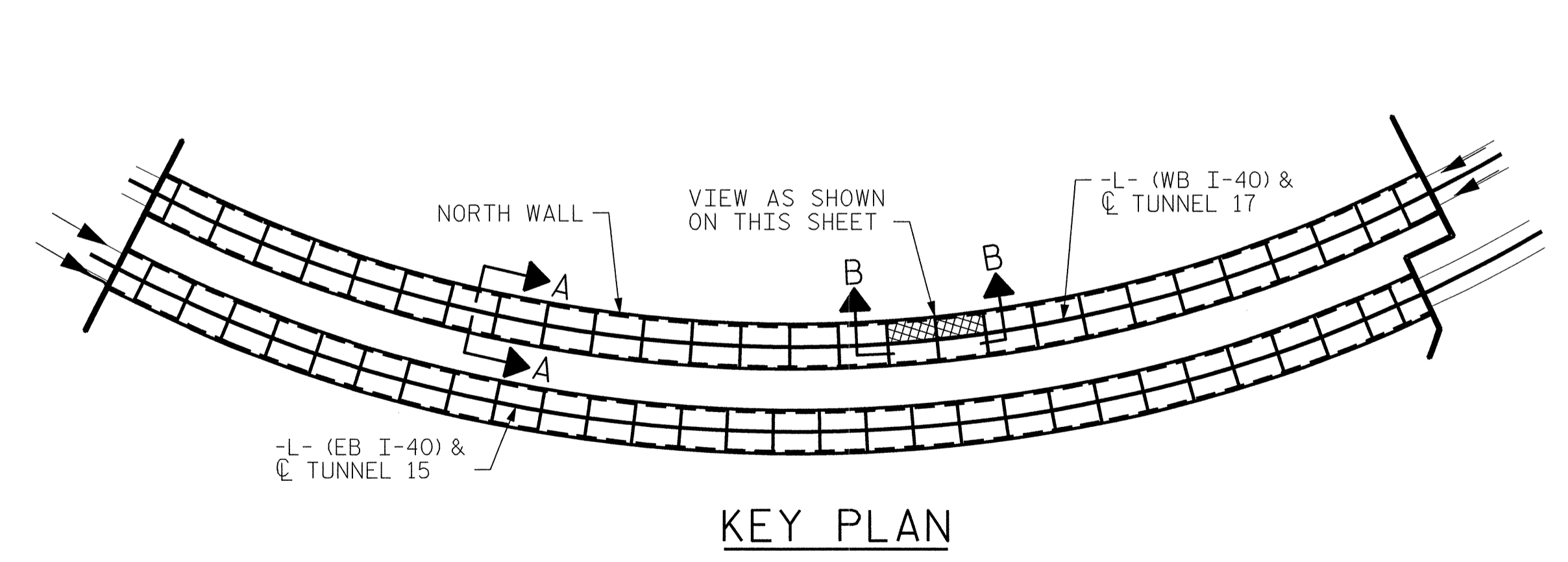
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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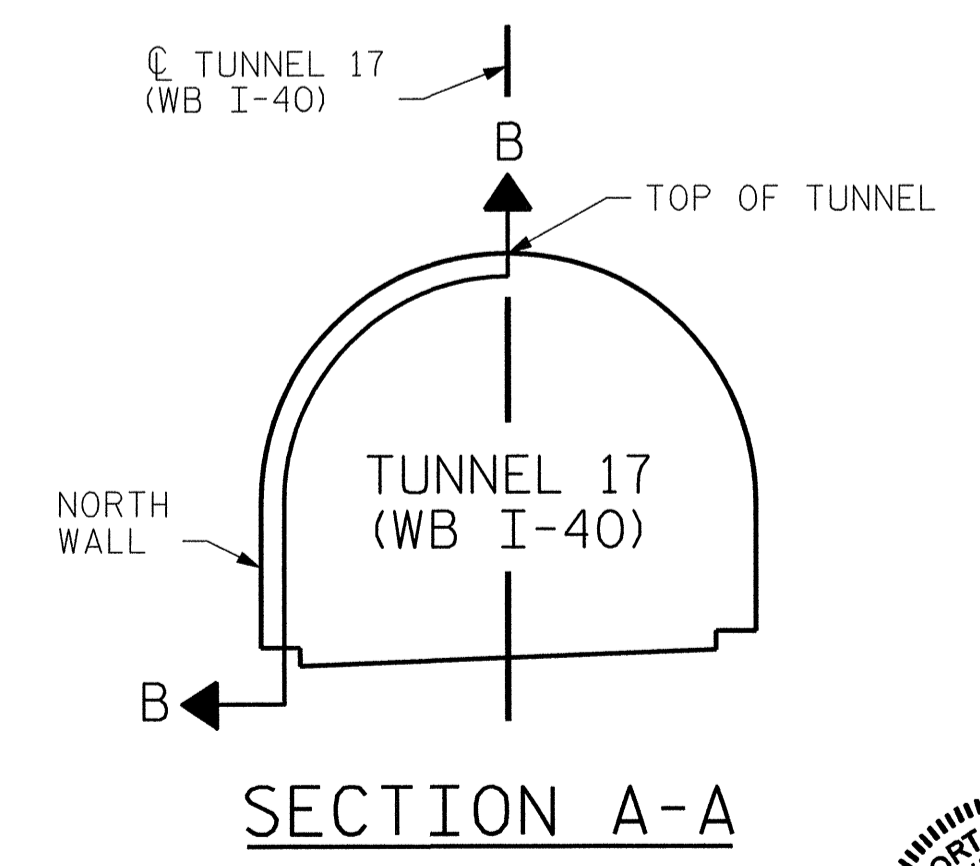
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VIEW B-B: REPAIR SEGMENTS 11N & 12N
TUNNEL SURFACE ELEVATION



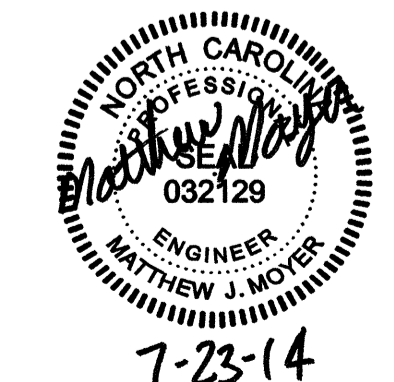
KEY PLAN



SECTION A-A

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

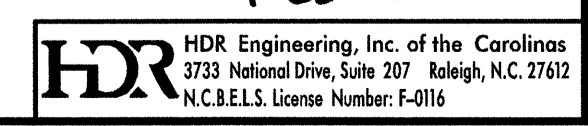
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 17 REPAIR
AREAS
SEGMENTS 11N & 12N



7-23-14

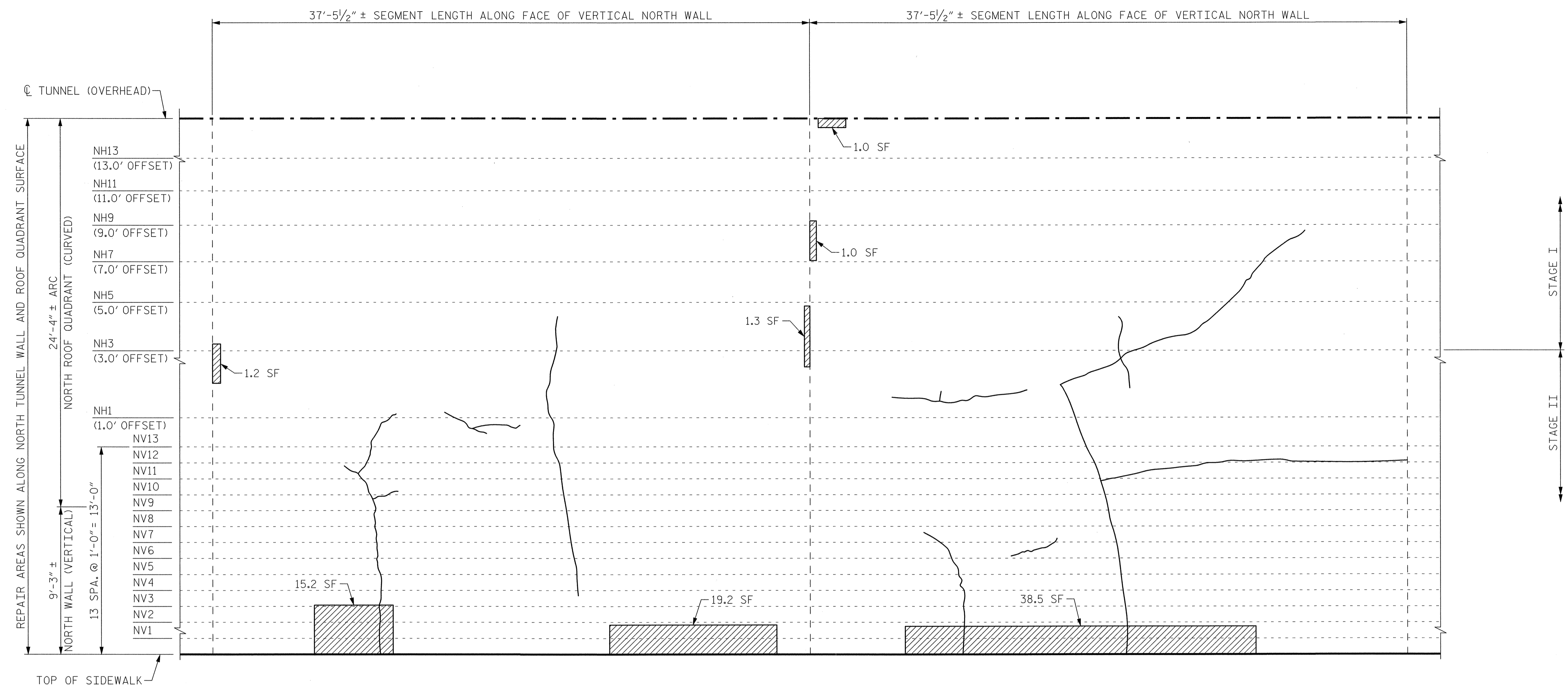
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CHECKED BY: M. MOYER DATE: 07/2013

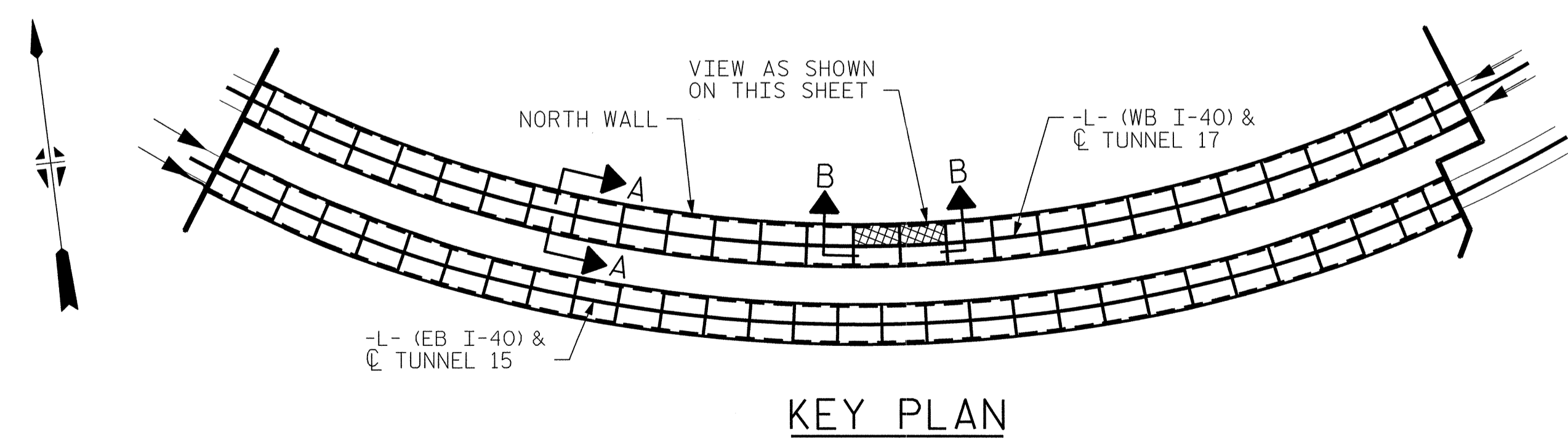


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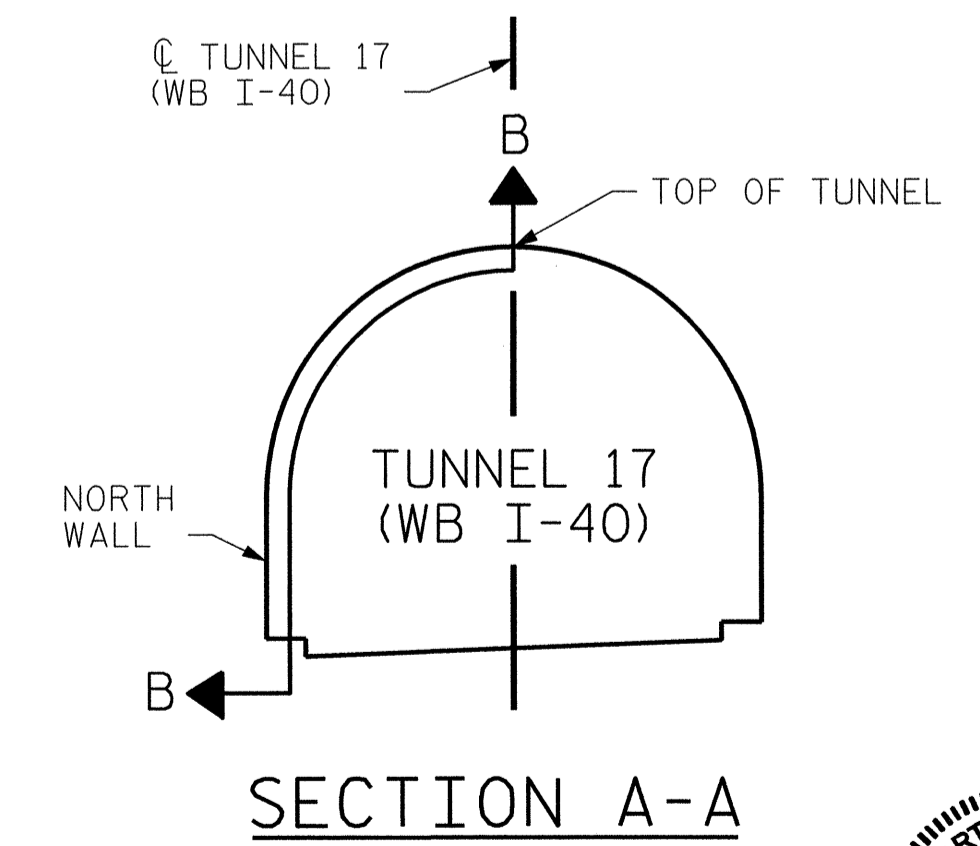
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SHOTCRETE REPAIRS SEGMENT 13N	CF	13.5
SHOTCRETE REPAIRS SEGMENT 14N	CF	12.3



SEGMENT 14N
SEGMENT 13N
VIEW B-B: REPAIR SEGMENTS 13N & 14N
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 13N & 14N



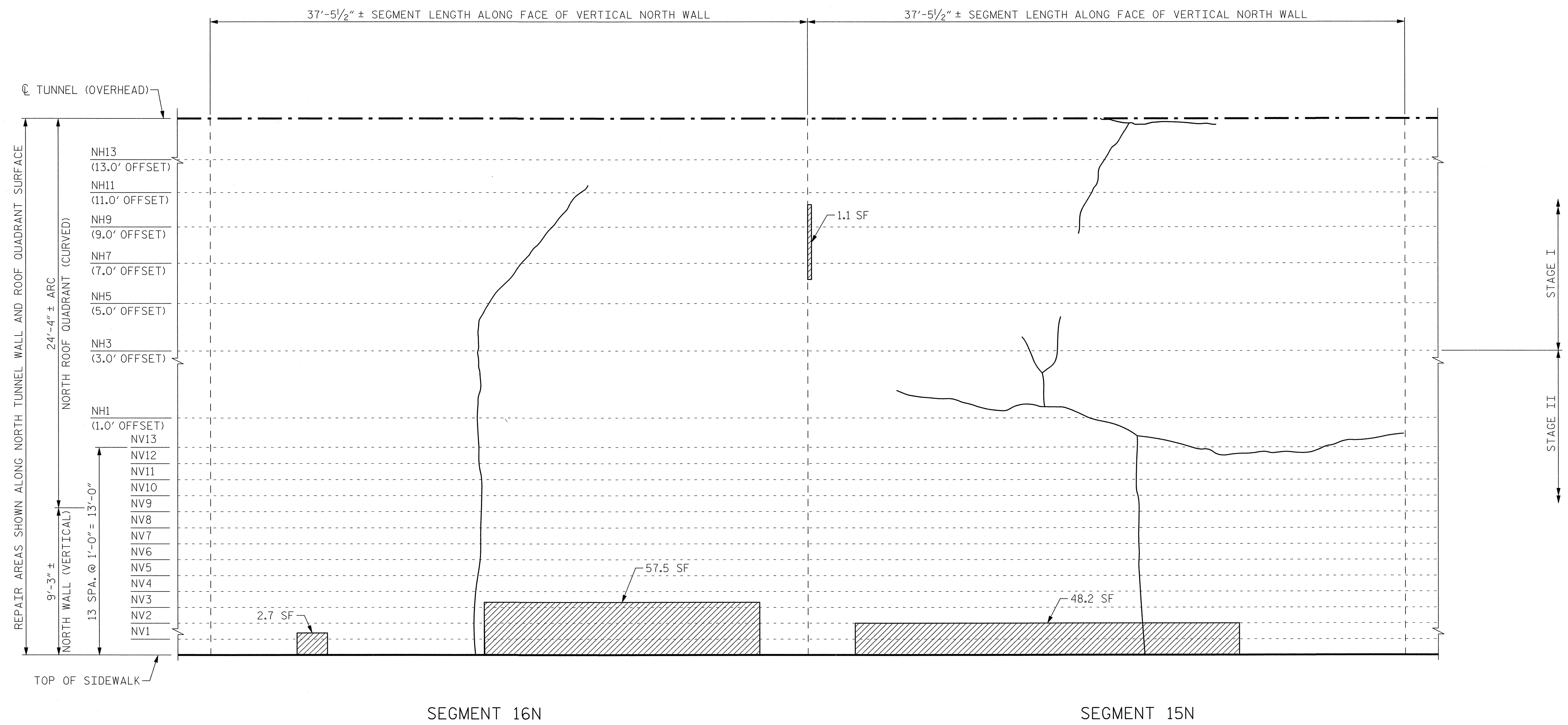
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-048 TOTAL SHEETS 110
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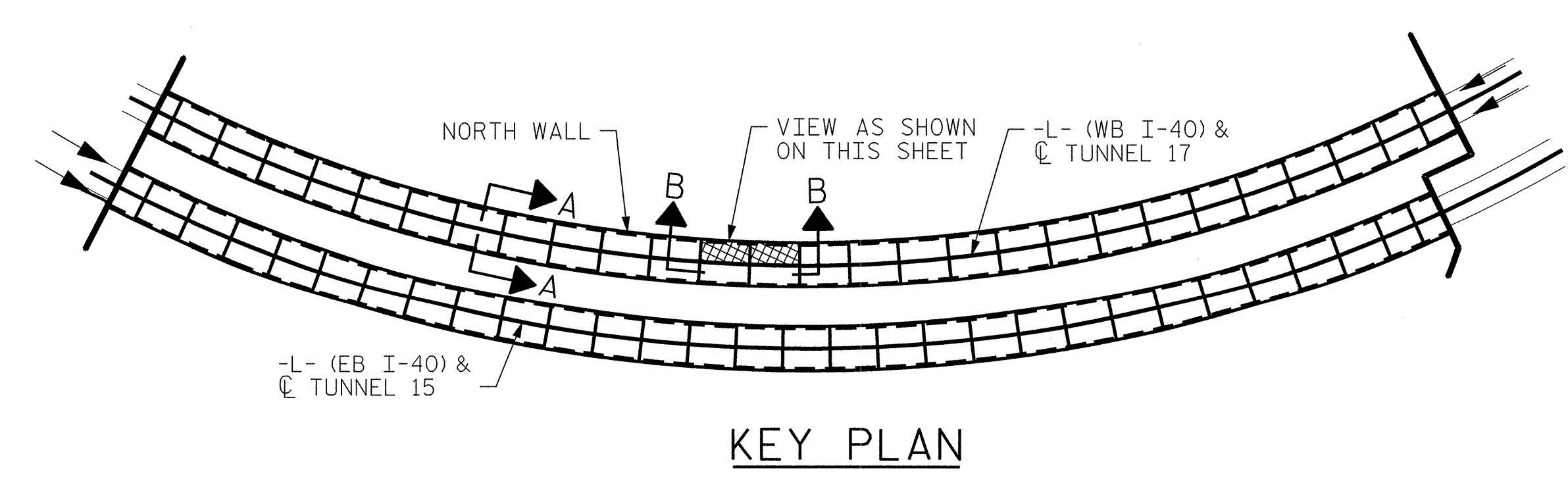
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NCDOT...
PENTABLE: I-40 Tunnel.tbi
USER: msells DATE: 7/22/2014
TIME: 11:18:17 PM
FILE: ...\\13.00.CAD\\Tunnel\\17\\N-1314

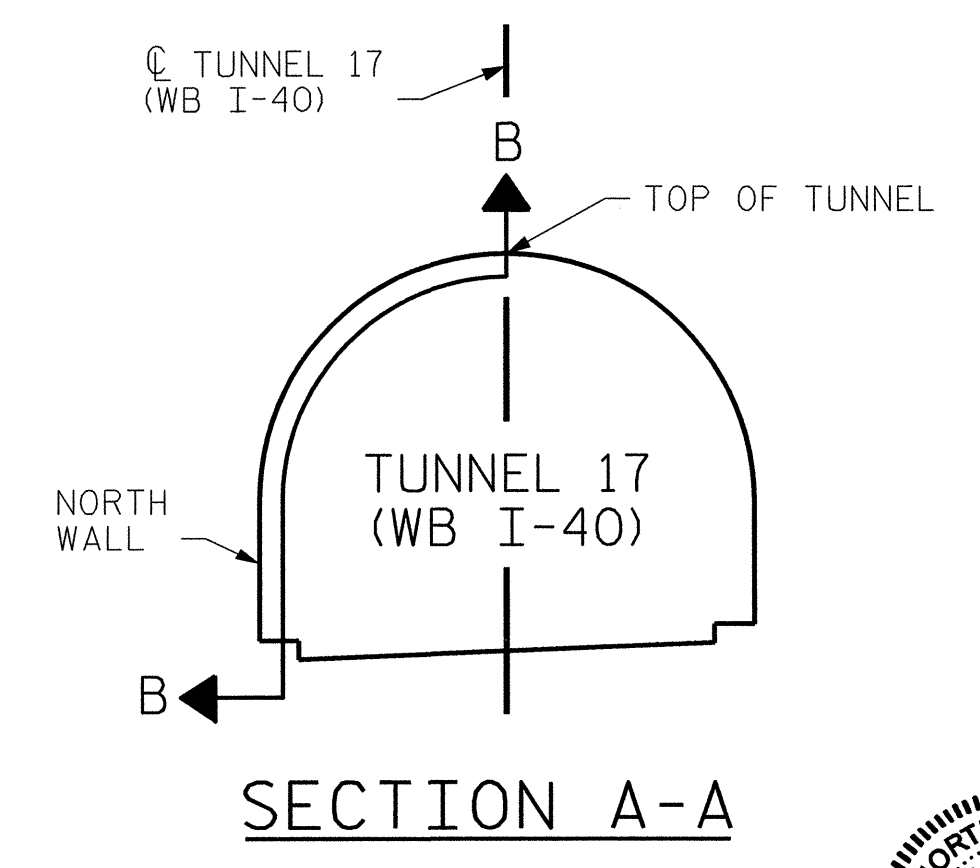
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 15N	CF	16.4
SHOTCRETE REPAIRS SEGMENT 16N	CF	20.1



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



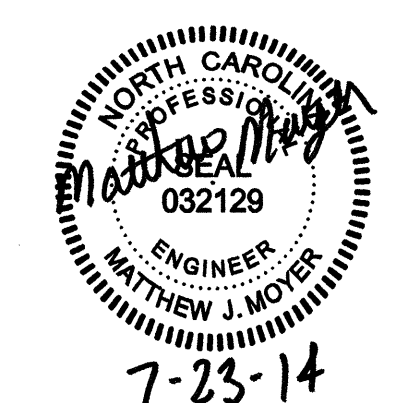
KEY PLAN



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 15N & 16N



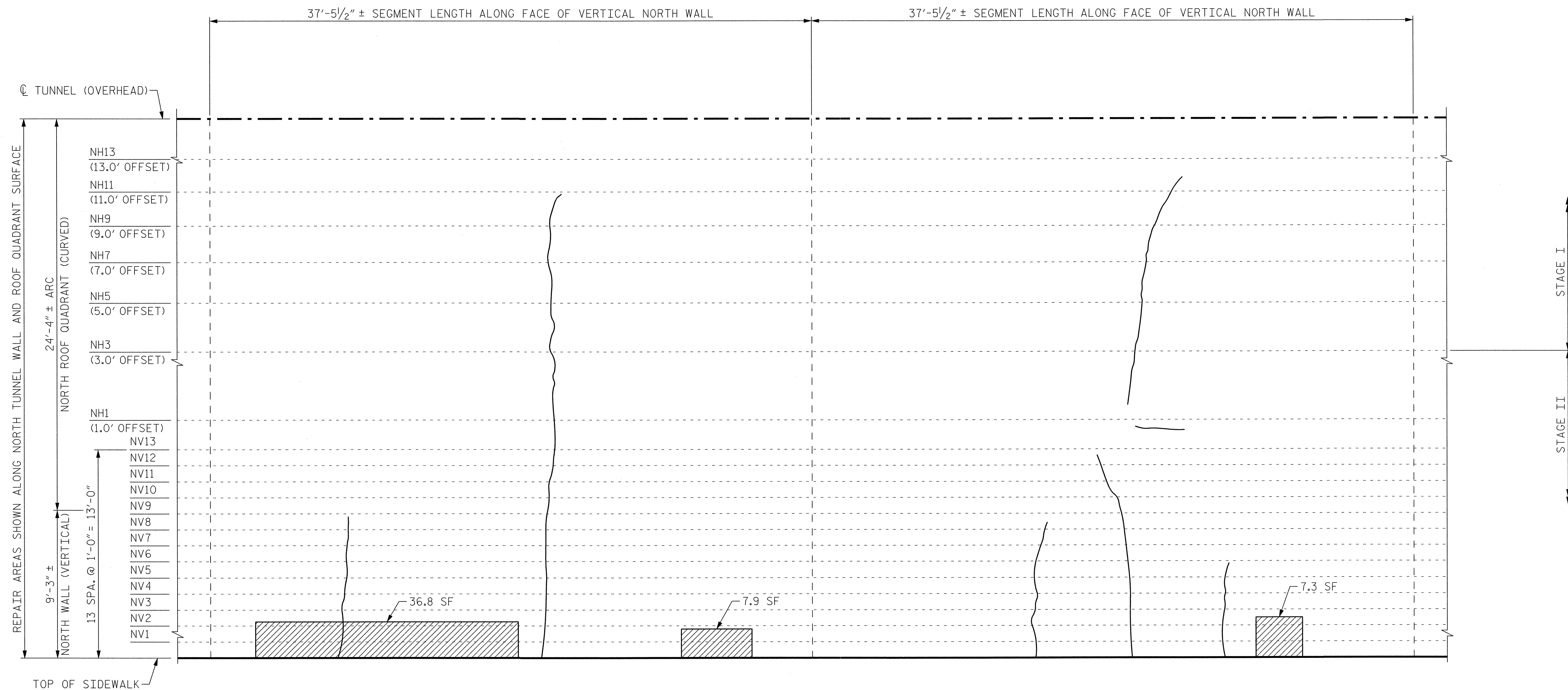
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

HDR Engineering, Inc. of the Carolinas
2733 National Drive, Suite 207 Raleigh, N.C. 27602
N.C. E.L.S. License Number: F-0116

PLOT DRIVER: NCDOT.pdf_mono_eng_100.plt
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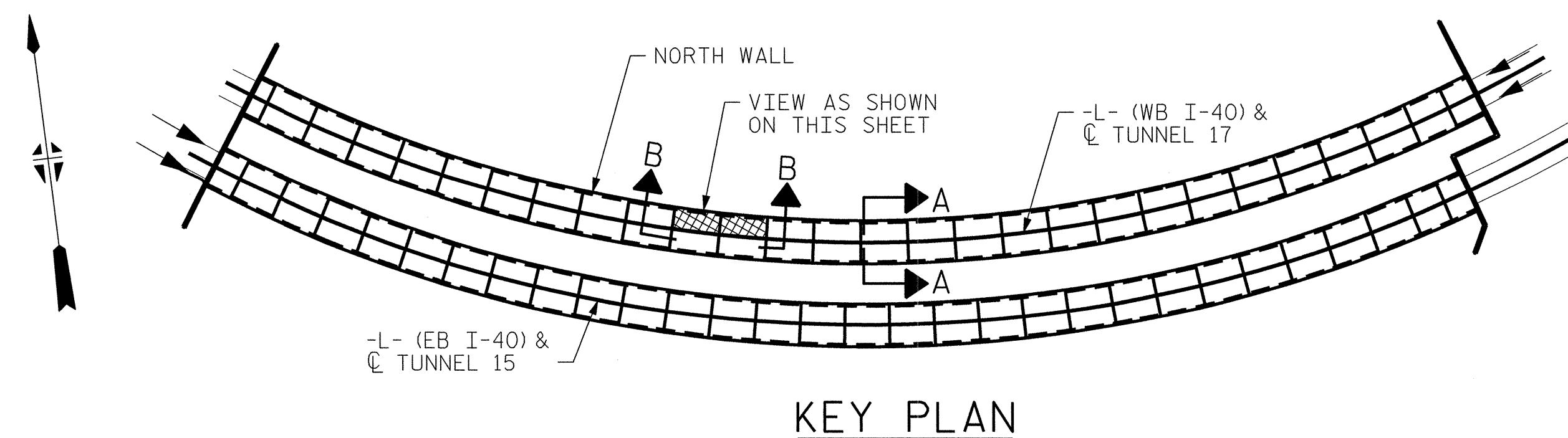
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SHOTCRETE REPAIRS SEGMENT 18N	CF	14.9



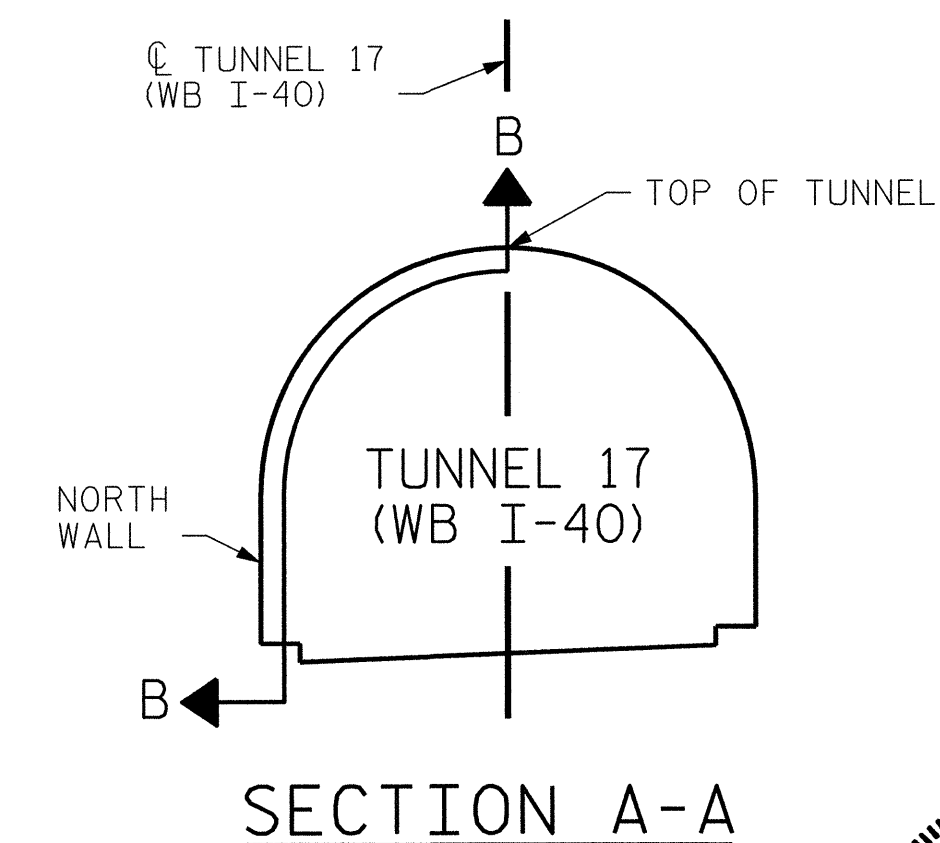
SEGMENT 18N

SEGMENT 17N

**VIEW B-B: REPAIR SEGMENTS 17N & 18N
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 17N & 18N**



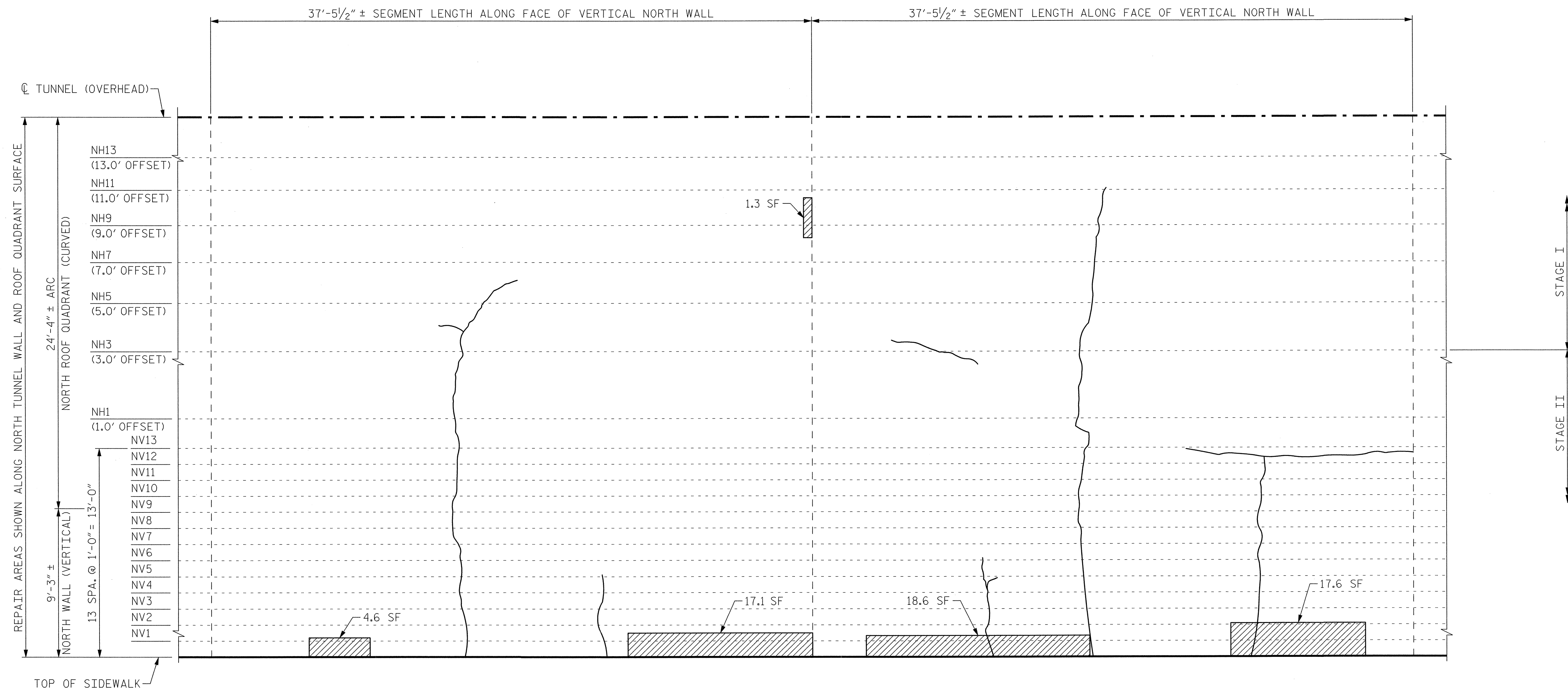
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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

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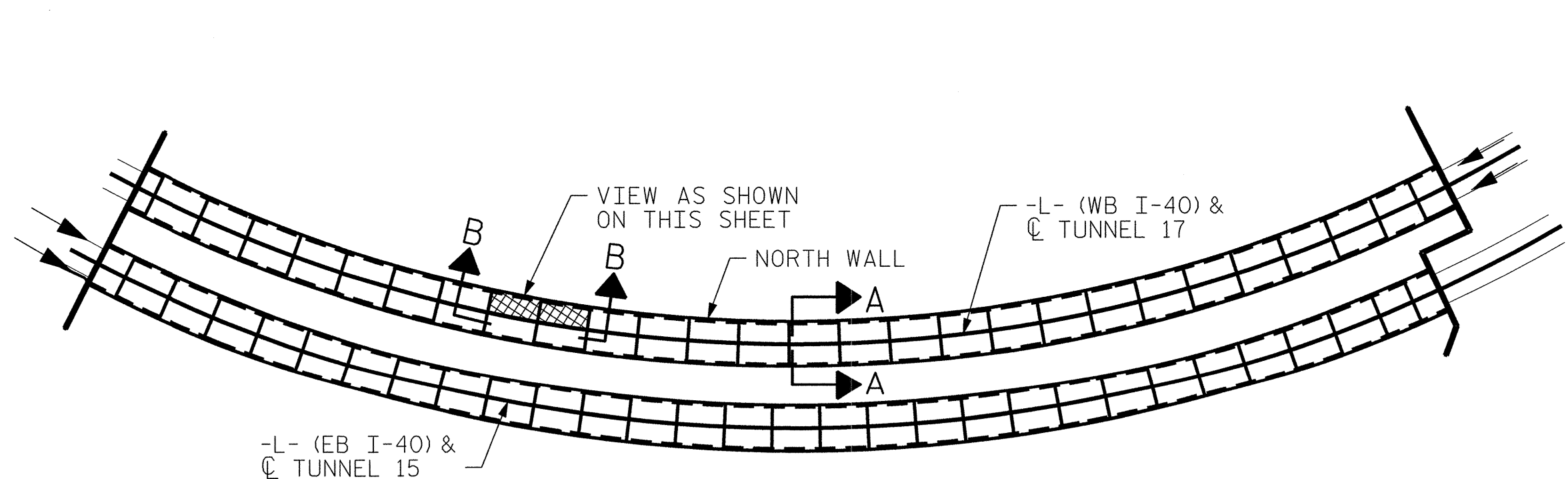
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SHOTCRETE REPAIRS SEGMENT 20N	CF	7.7



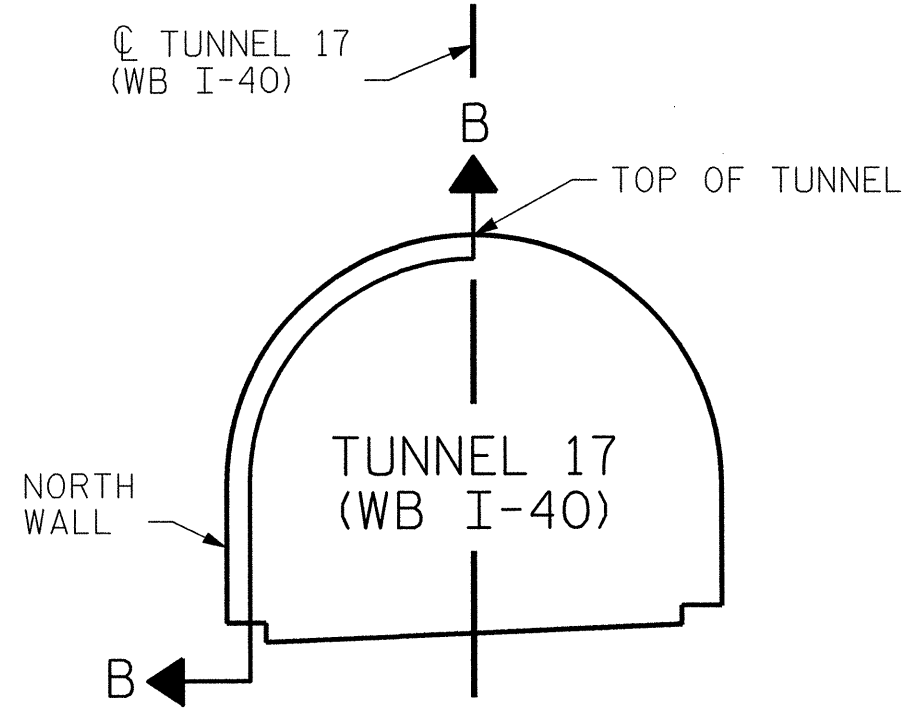
SEGMENT 20N

SEGMENT 19N

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



KEY PLAN



SECTION A-A

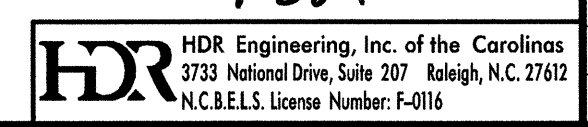
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 17 REPAIR
AREAS
SEGMENTS 19N & 20N



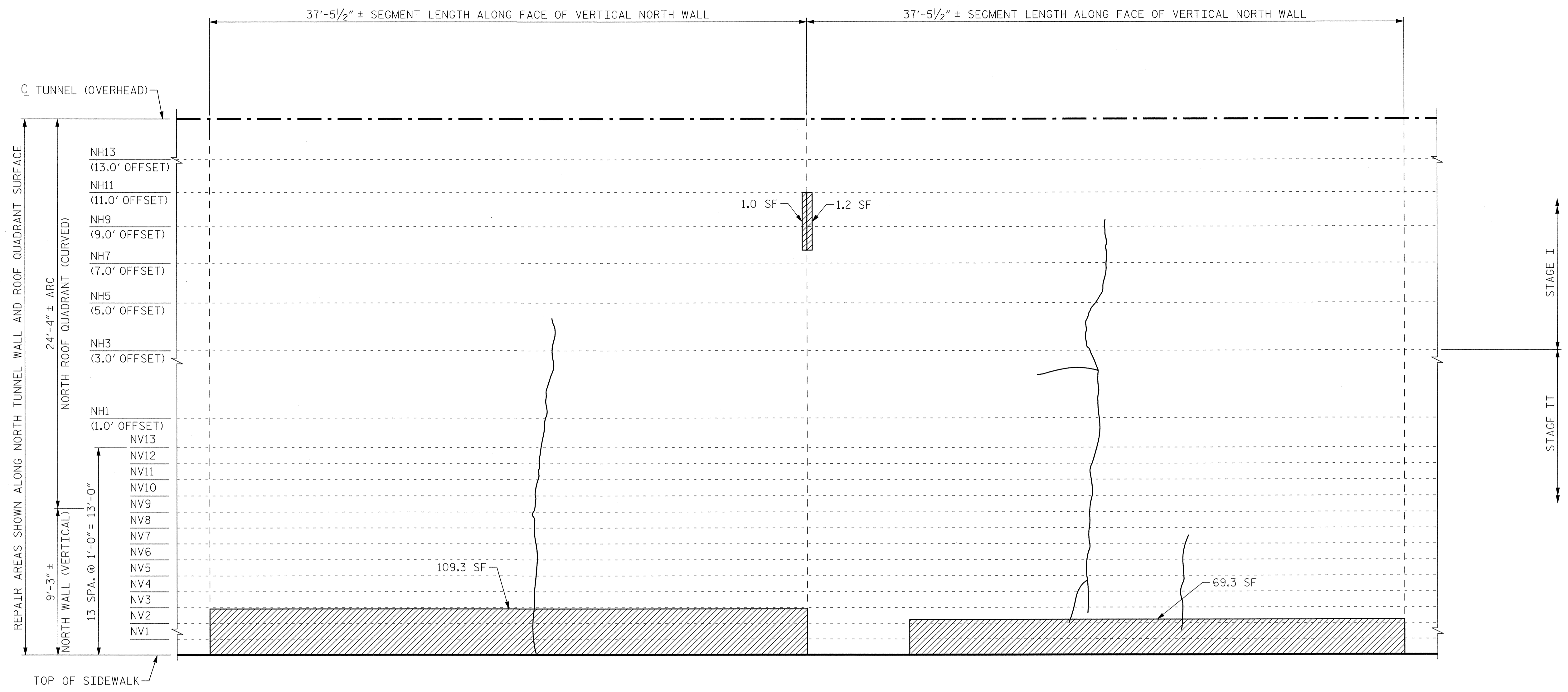
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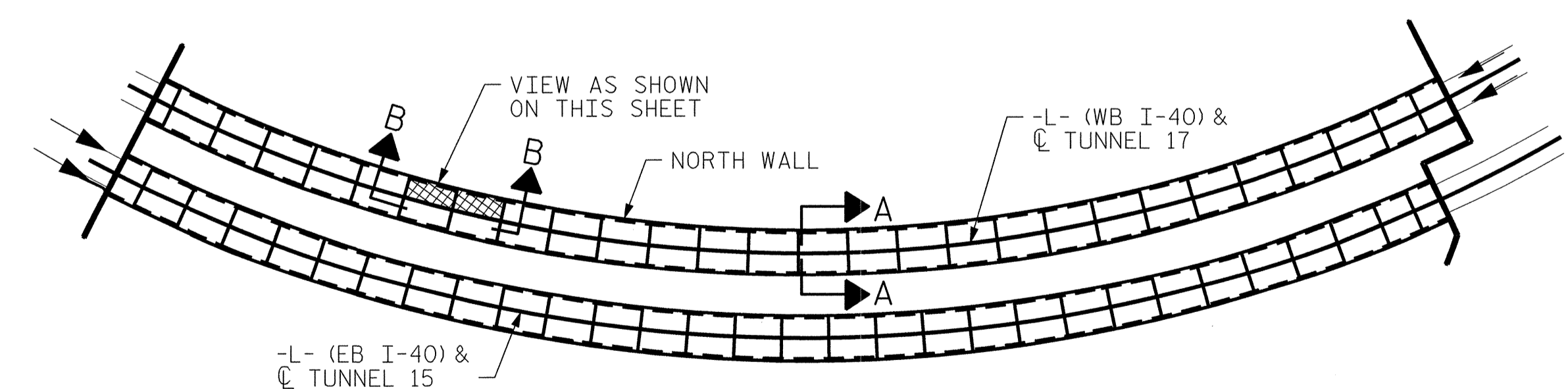
DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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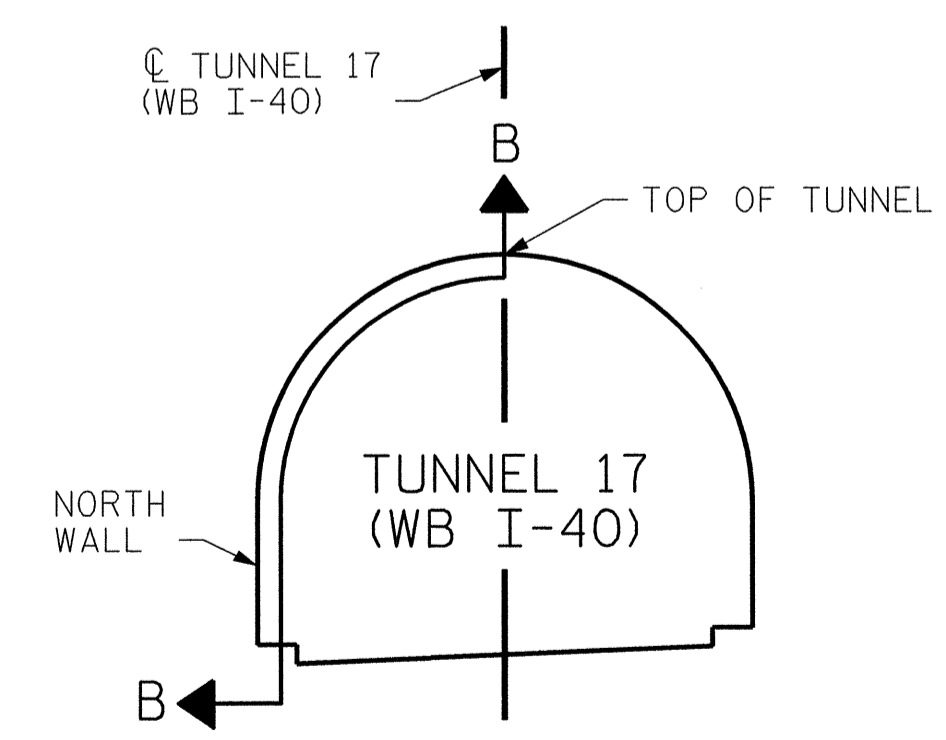
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 21N	CF	23.5
SHOTCRETE REPAIRS SEGMENT 22N	CF	36.8



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



KEY PLAN



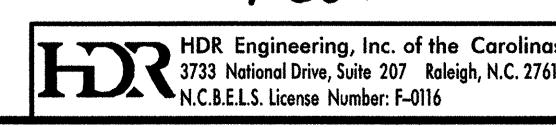
SECTION A-A

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



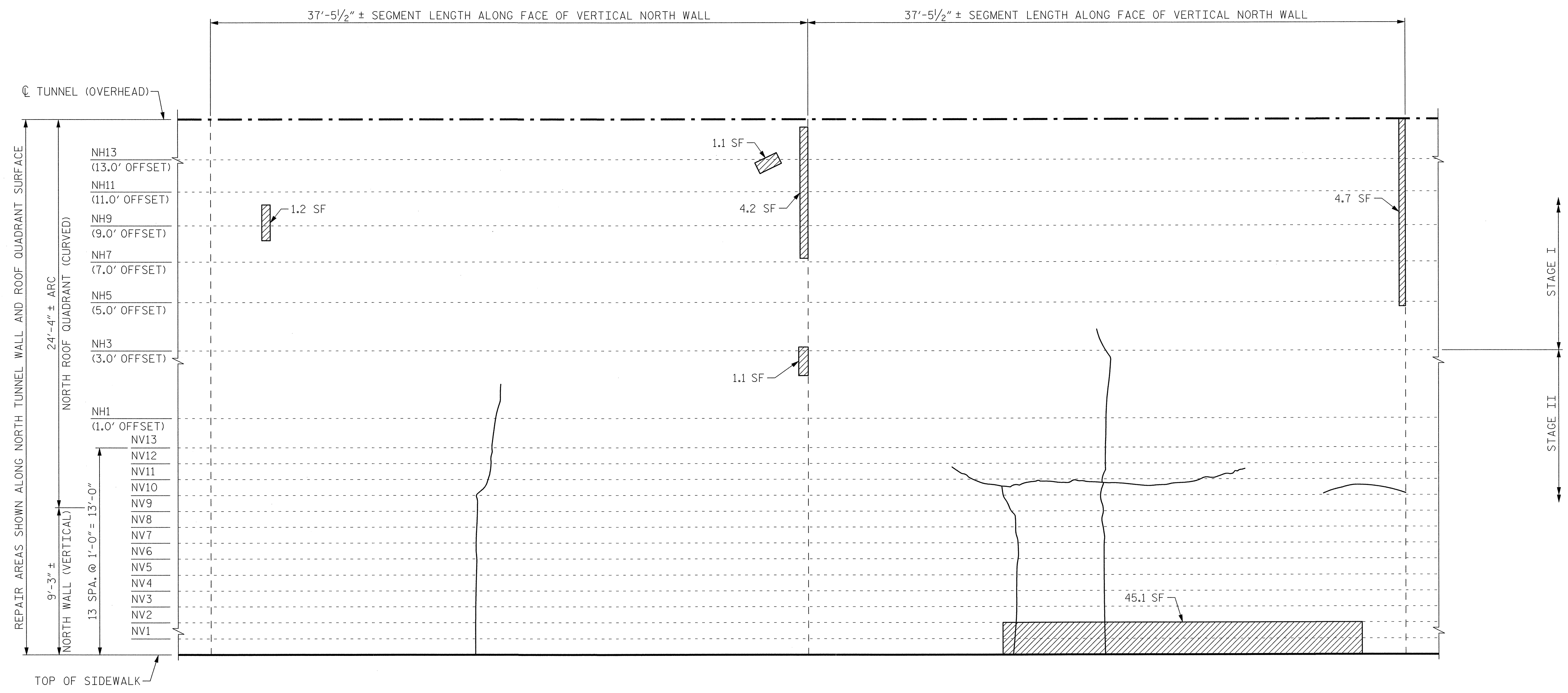
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NCD001_pcf_mono_eng_100.plt PENTABLE: I-40 Tunnel.tbl
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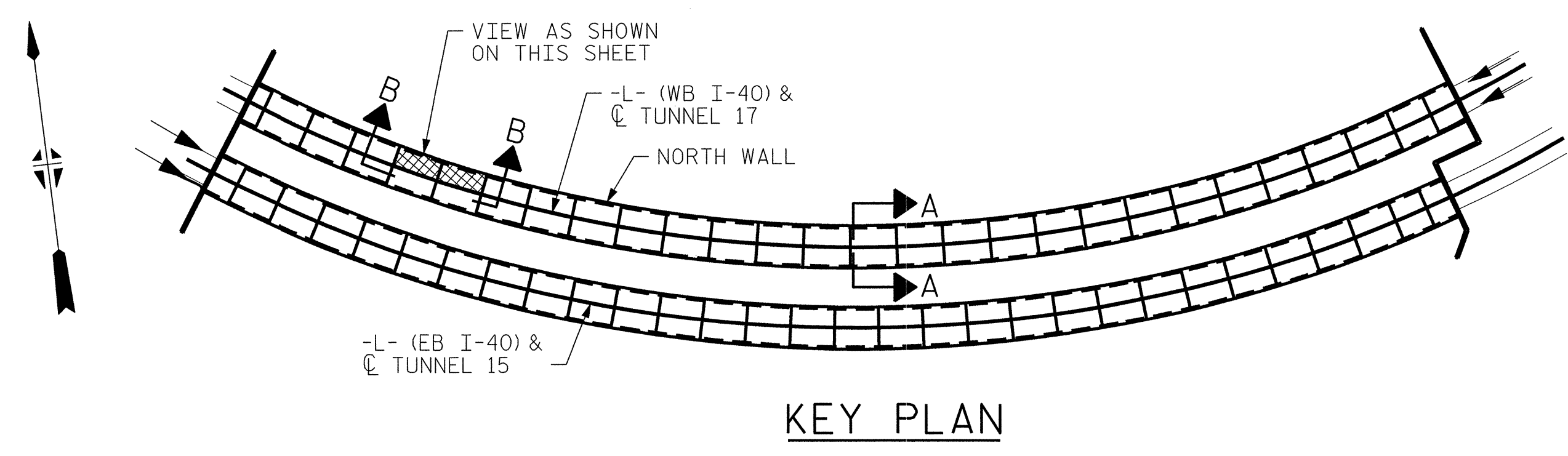
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SHOTCRETE REPAIRS SEGMENT 24N	CF	2.5



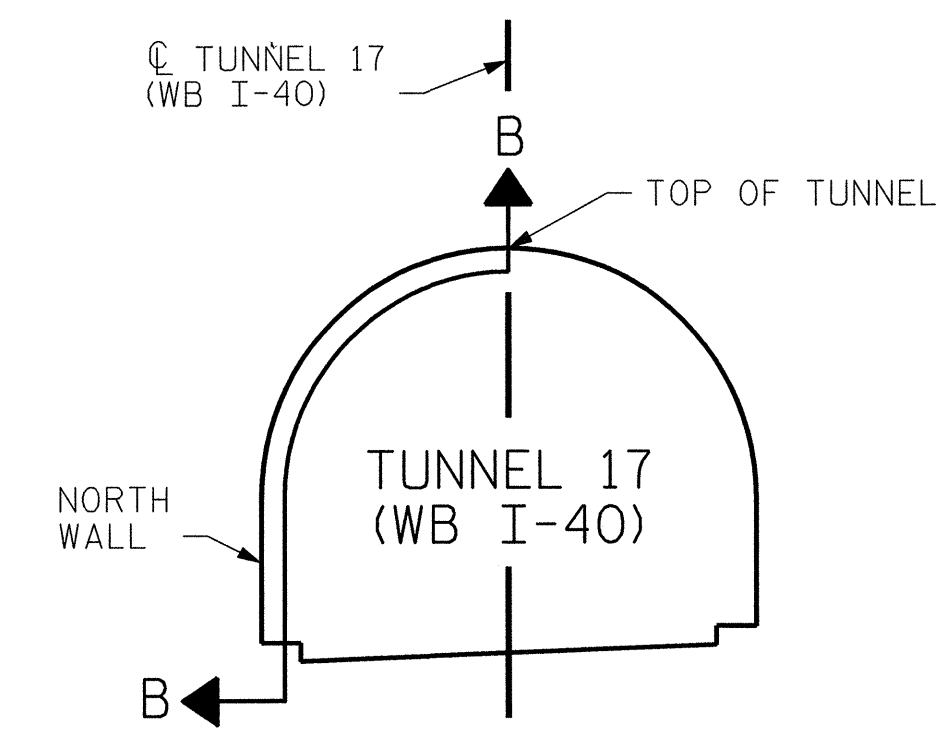
SEGMENT 24N

SEGMENT 23N

**VIEW B-B: REPAIR SEGMENTS 23N & 24N
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 23N & 24N**



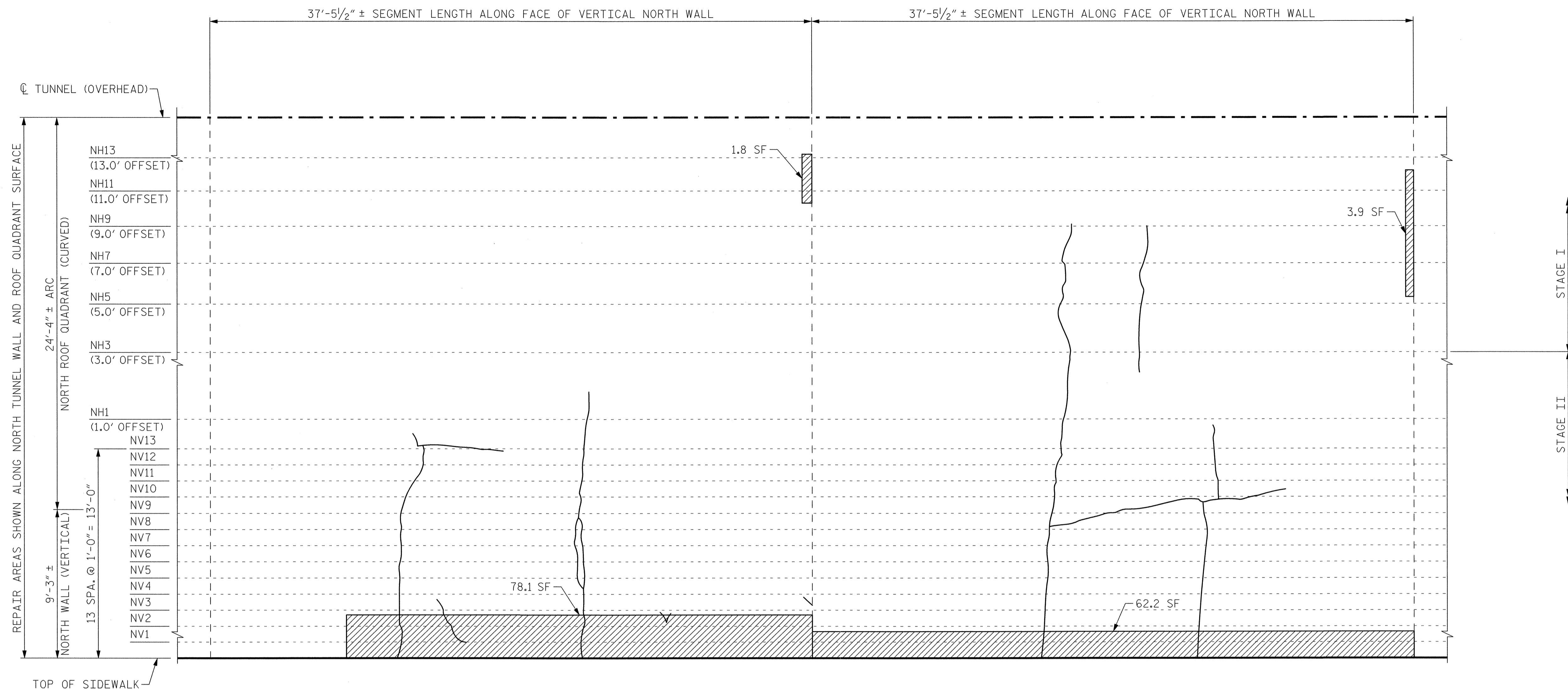
HDR HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 307 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-053 TOTAL SHEETS 110
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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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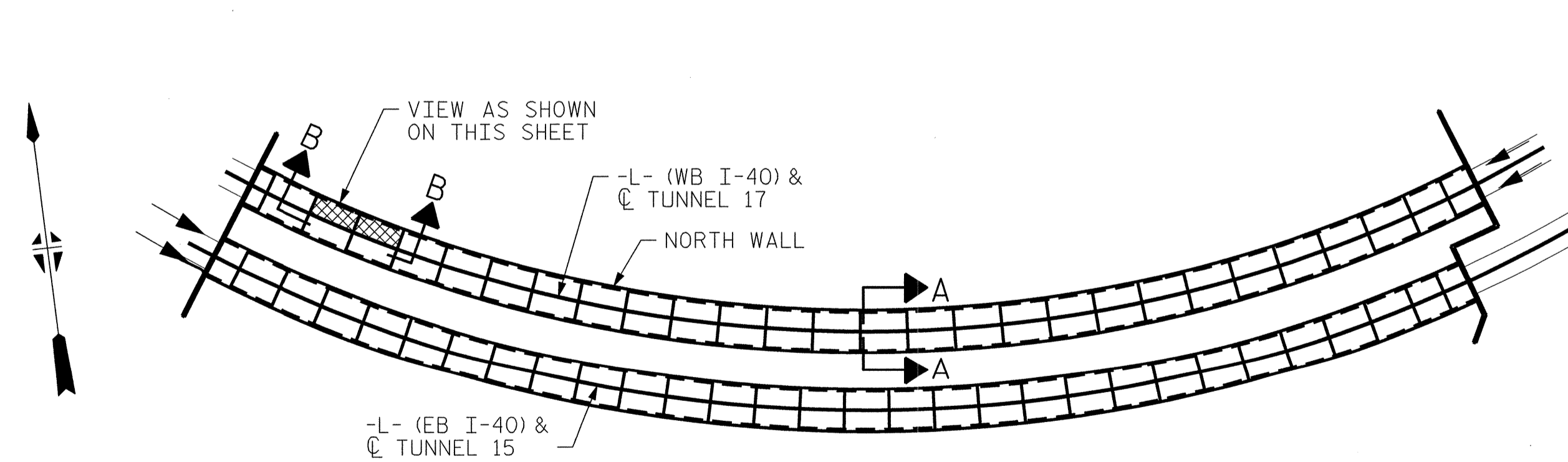
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SHOTCRETE REPAIRS SEGMENT 26N	CF	26.6



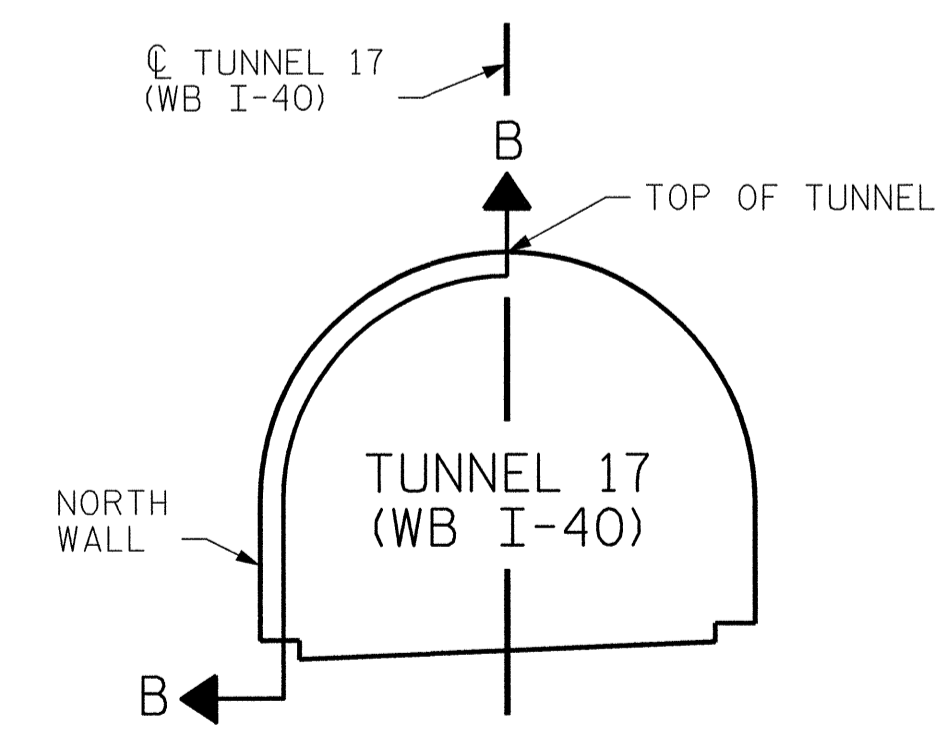
SEGMENT 26N

SEGMENT 25N

**VIEW B-B: REPAIR SEGMENTS 25N & 26N
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 25N & 26N**



7-23-14

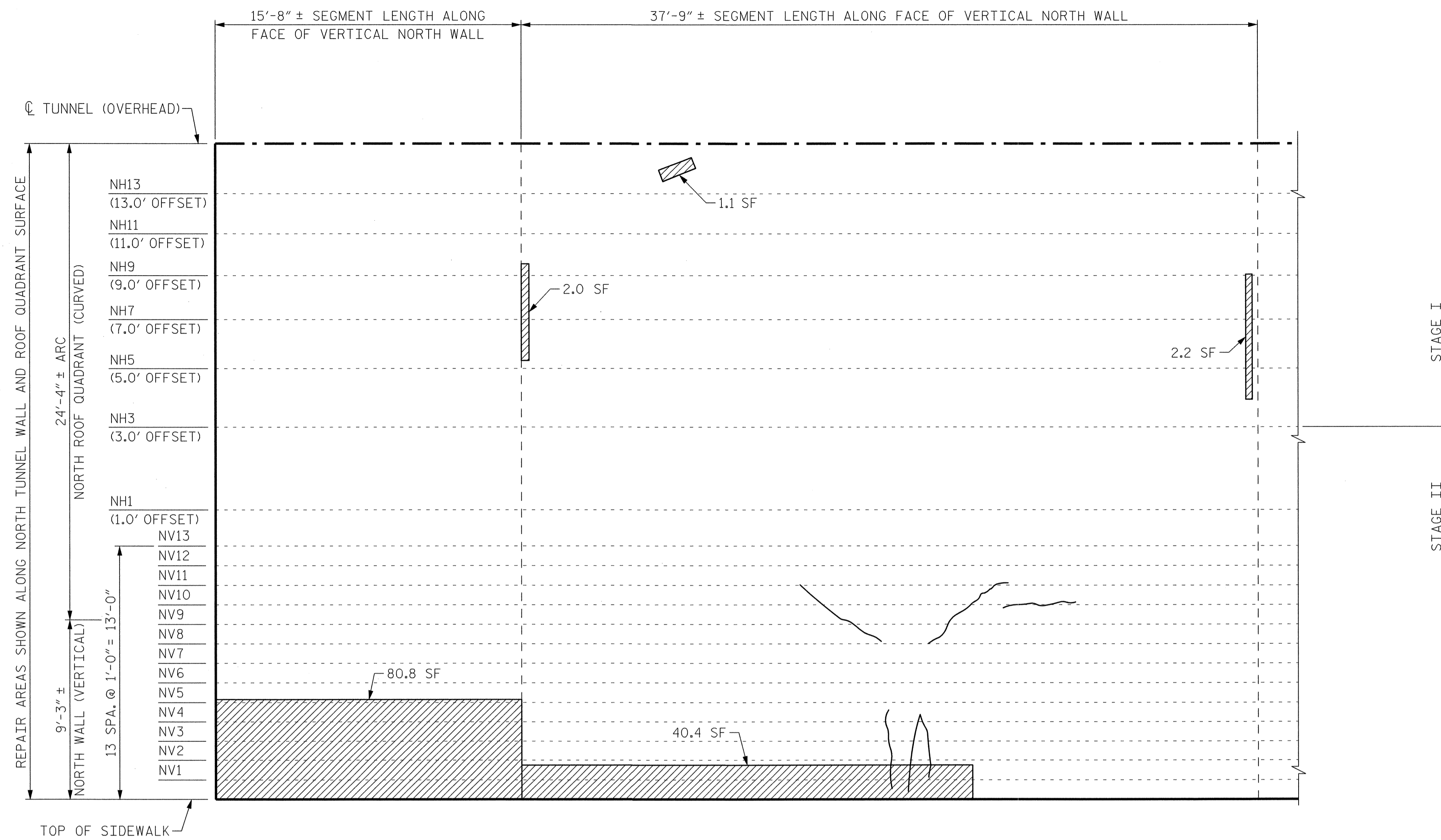
HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C. BEES License Number: F-0116

REVISIONS						SHEET NO. S-054
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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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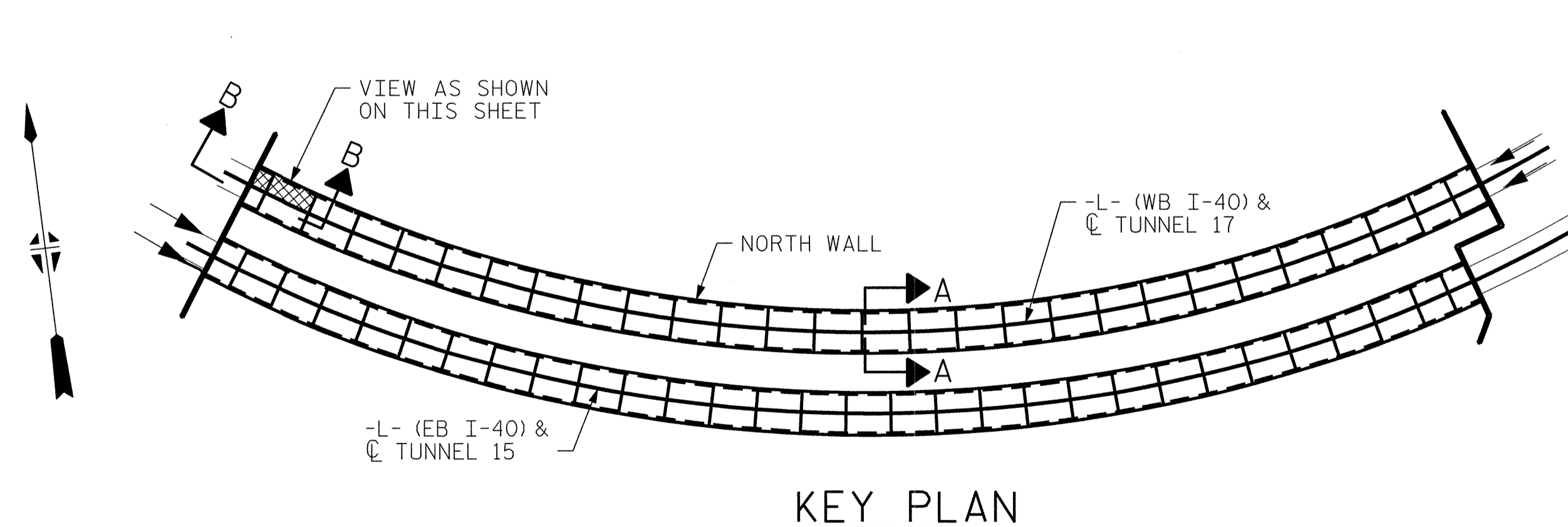
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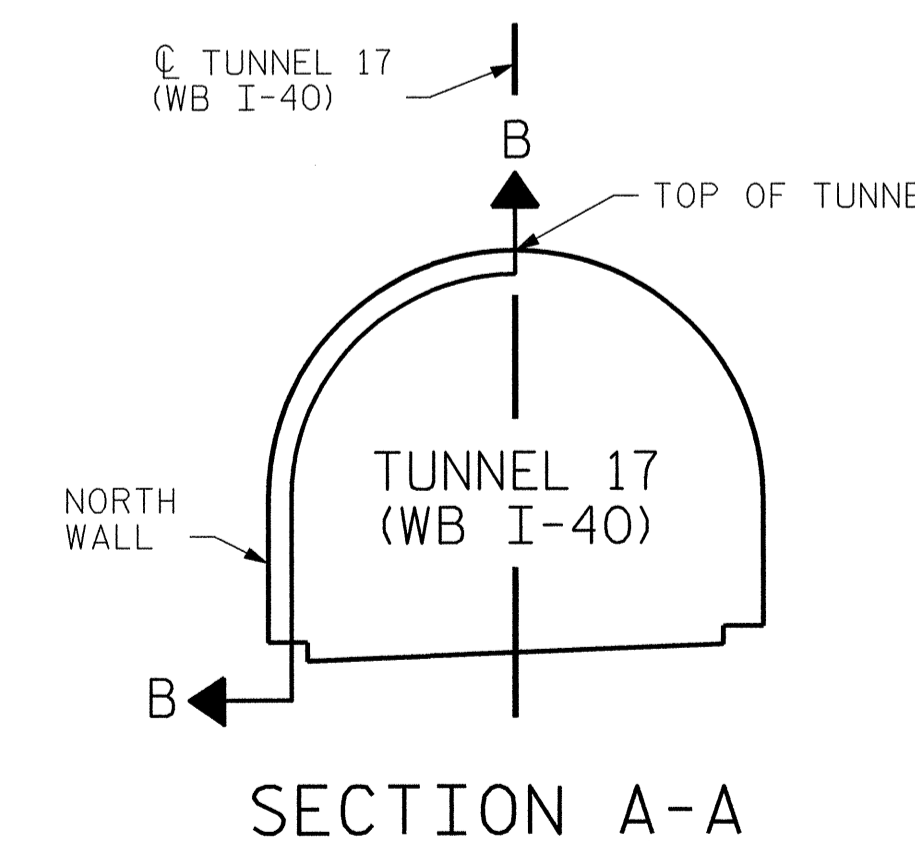
SEGMENT 28N

SEGMENT 27N

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



7-23-14

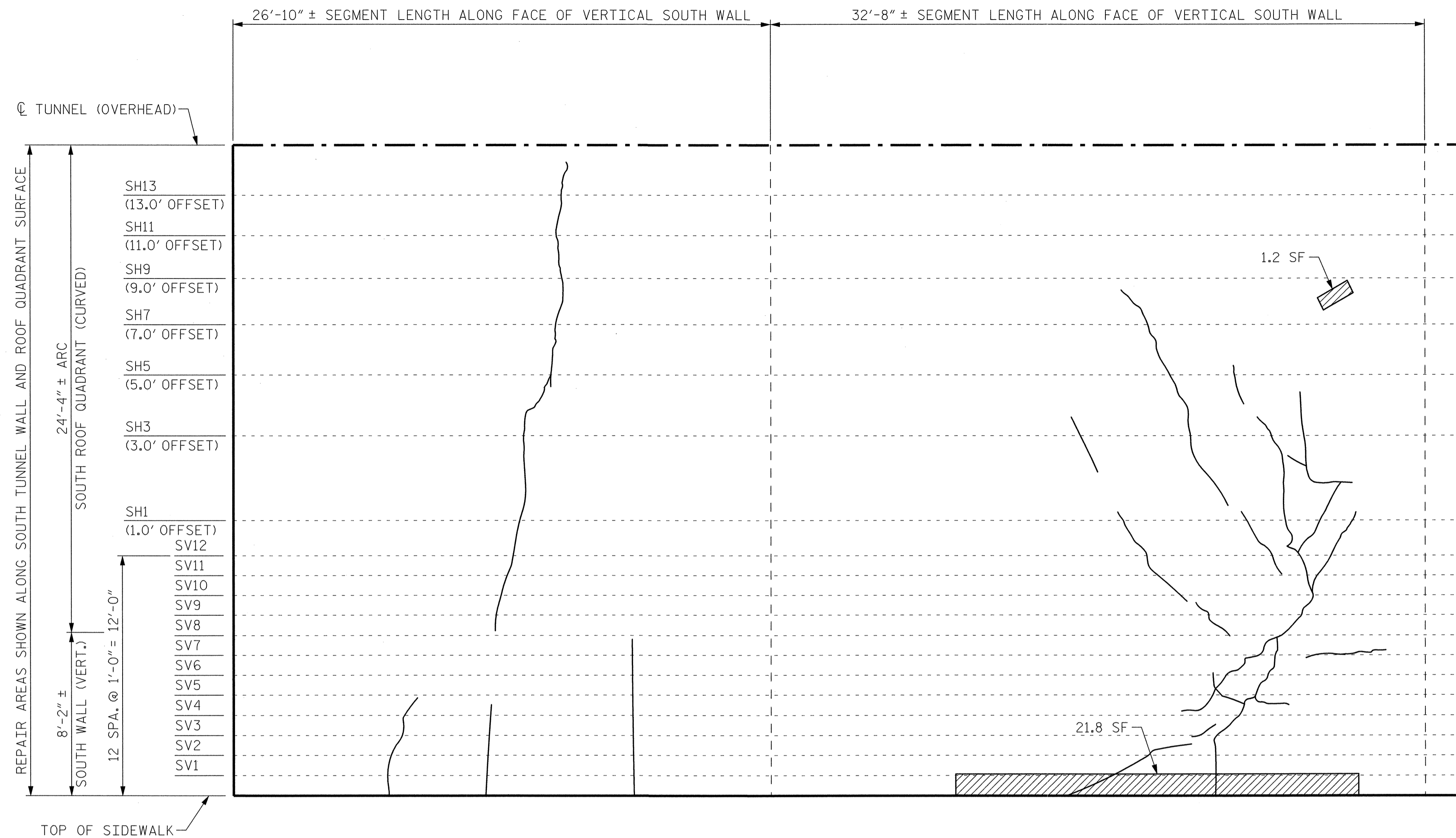
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, NC 27612
N.C. E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-055
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CHECKED BY : M. MOYER DATE : 07/2013

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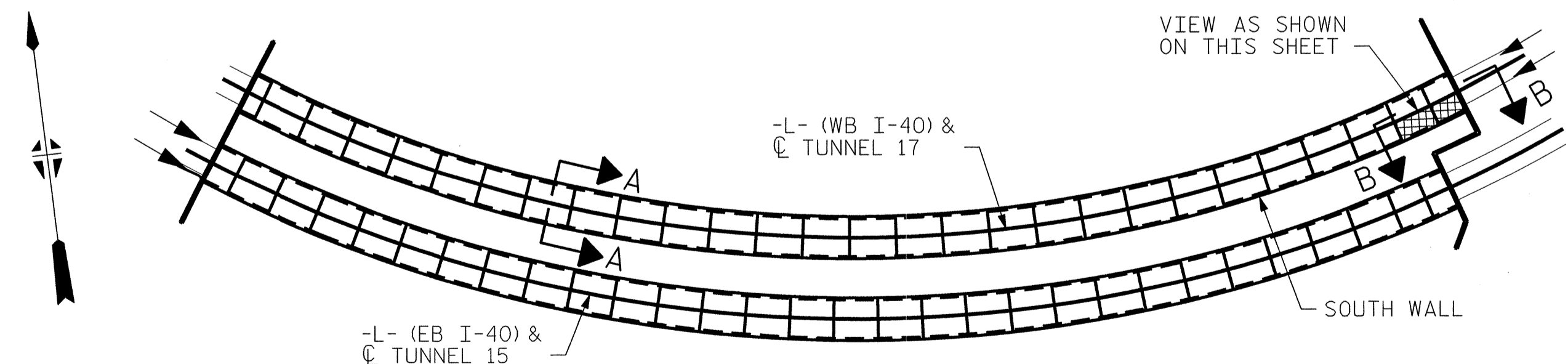
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SHOTCRETE REPAIRS SEGMENT 2S	CF	7.7



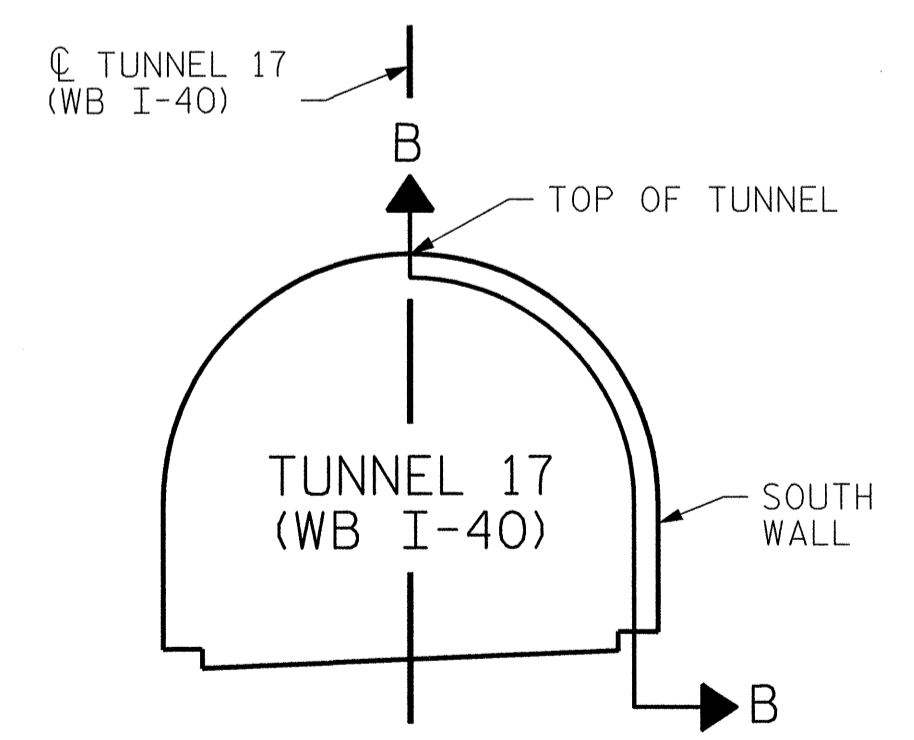
STAGE I
STAGE II

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**



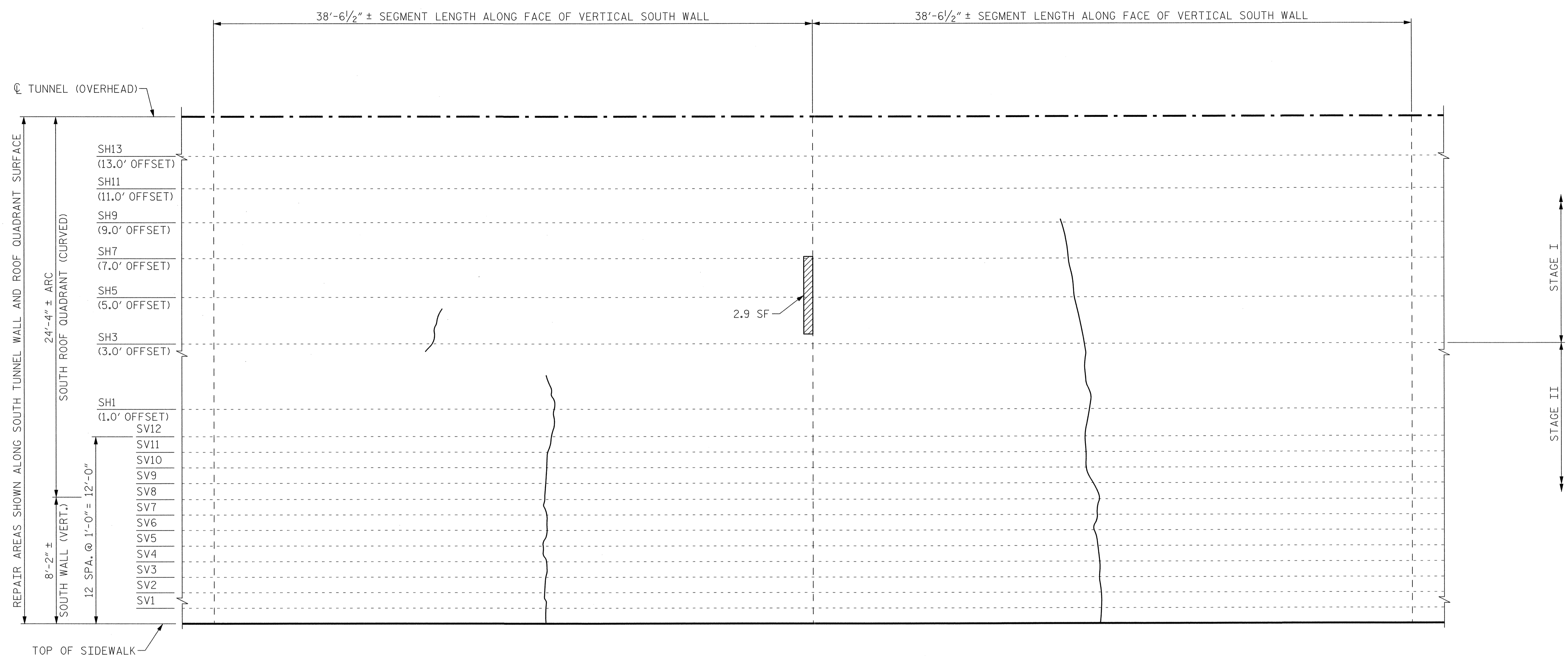
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DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

HDR HDR Engineering, Inc. of the Carolinas
2733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PLOT DRIVER: NCDOT_pdf_mono_end.100.plt PENTABLE: I-40 Tunnel.tbl
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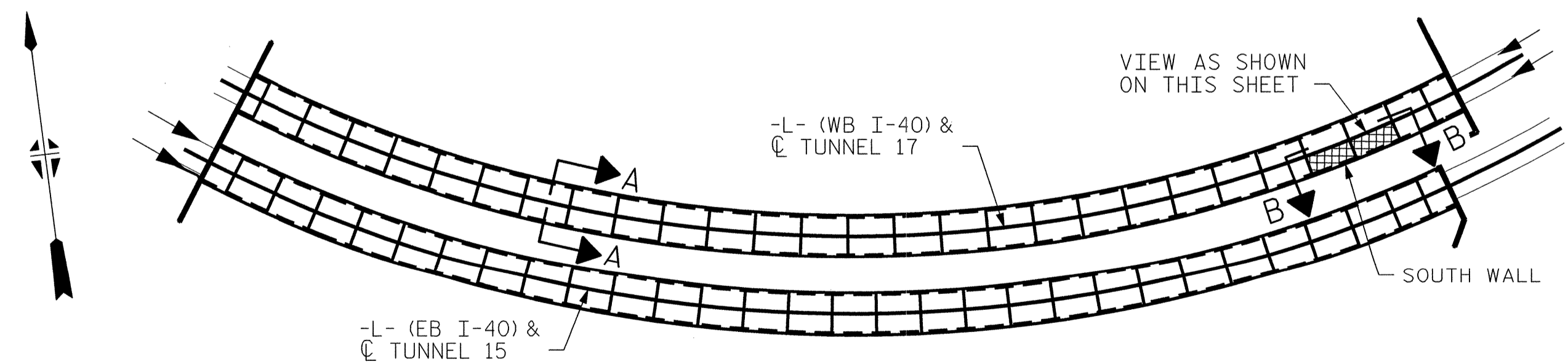
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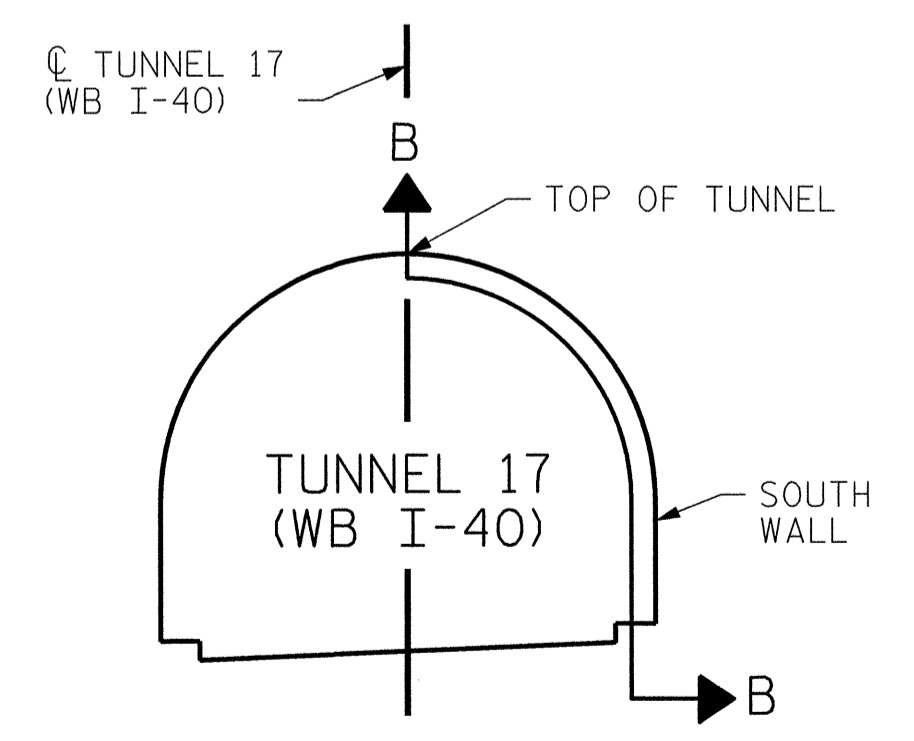
SEGMENT 3S

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**



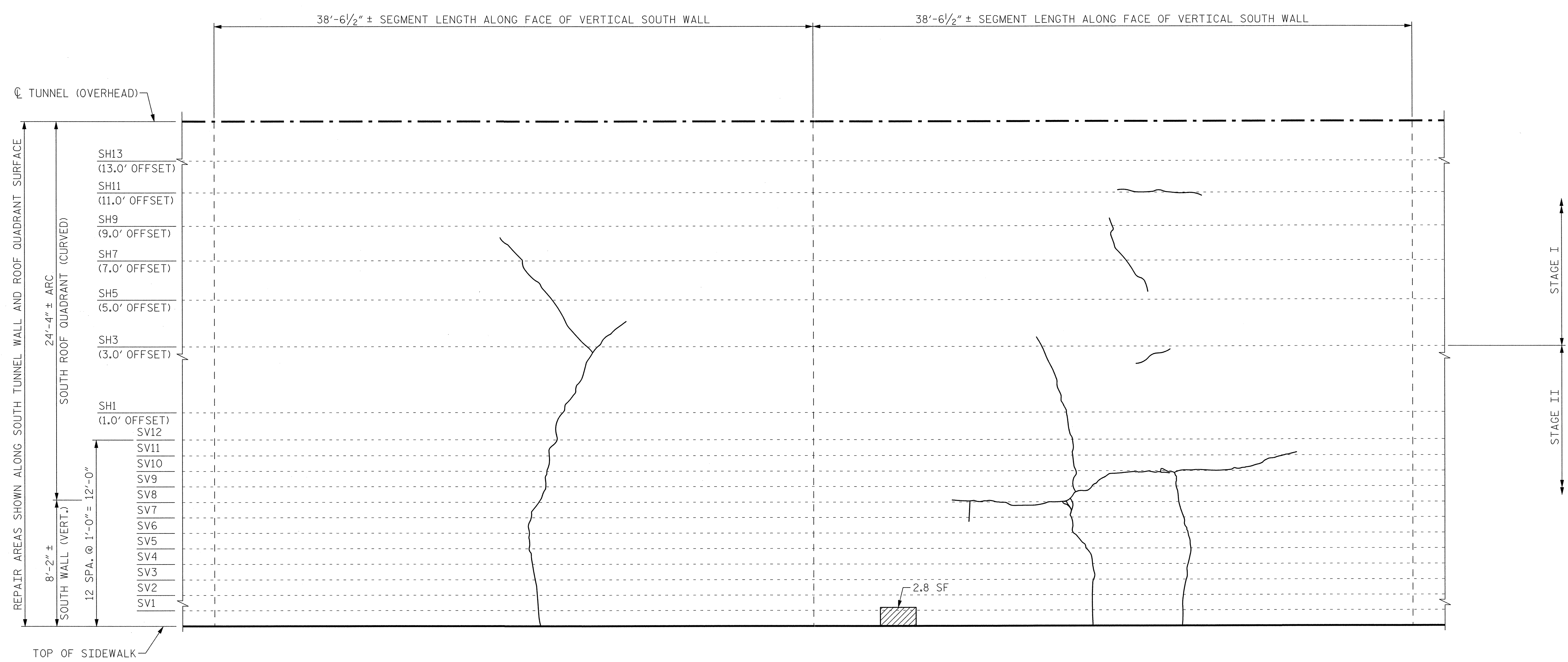
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

HDR HDR Engineering, Inc. of the Carolinas
 1733 National Drive, Suite 207 Raleigh, N.C. 27607
 N.C. REG. LICENSE NUMBER: F-0116

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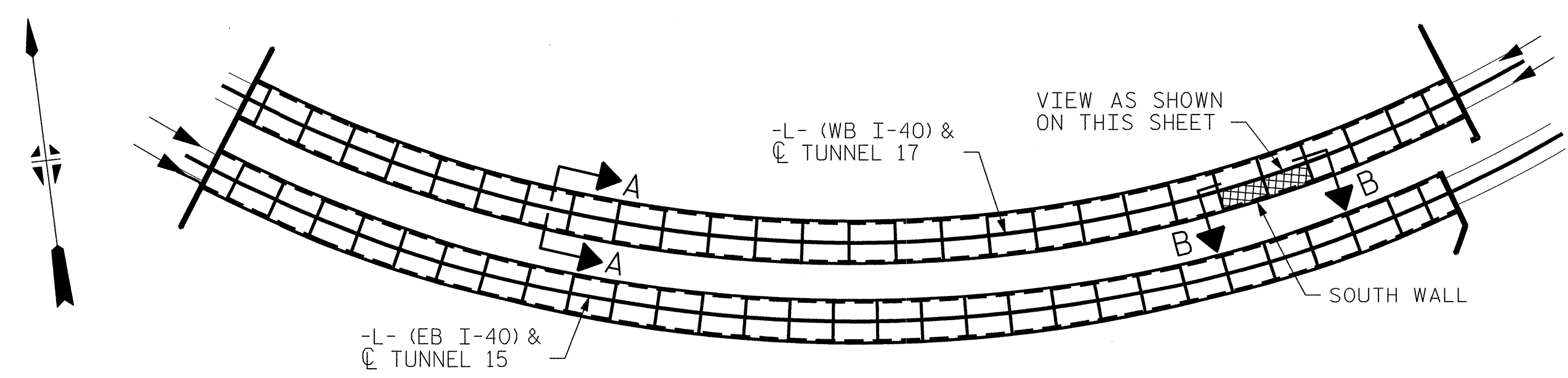
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SHOTCRETE REPAIRS SEGMENT 6S	CF	0.9



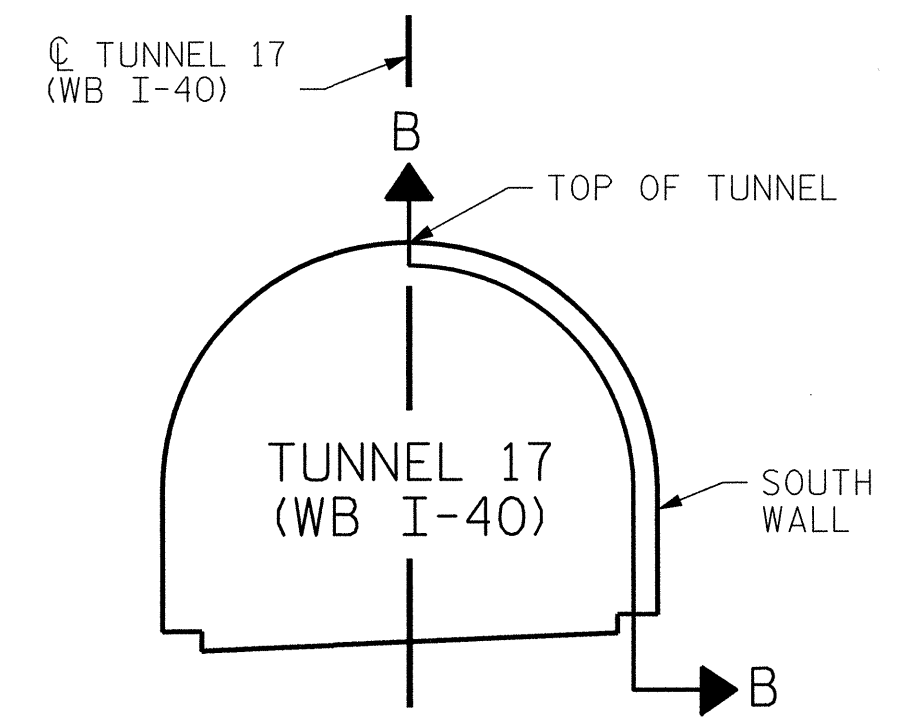
SEGMENT 5S

SEGMENT 6S

**VIEW B-B: REPAIR SEGMENTS 5S & 6S
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 5S & 6S**



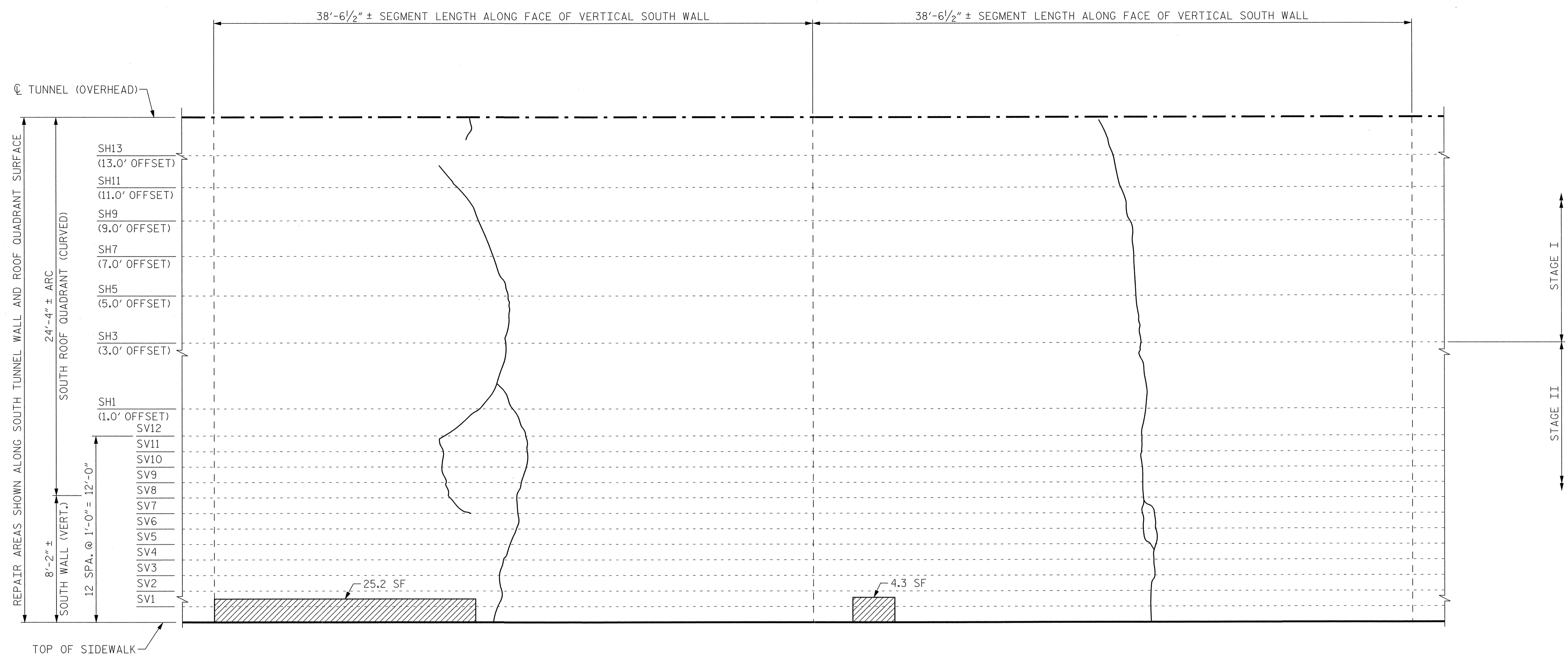
HDR HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-058
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 110
2	--	--	4	--	--	

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 CHECKED BY : M. MOYER DATE : 07/2013

PLOT DRIVER: NCDOT... I-40 Tunnel.tbl
 USER: mealls DATE: 7/22/2014 TIME: 1:23:40 PM
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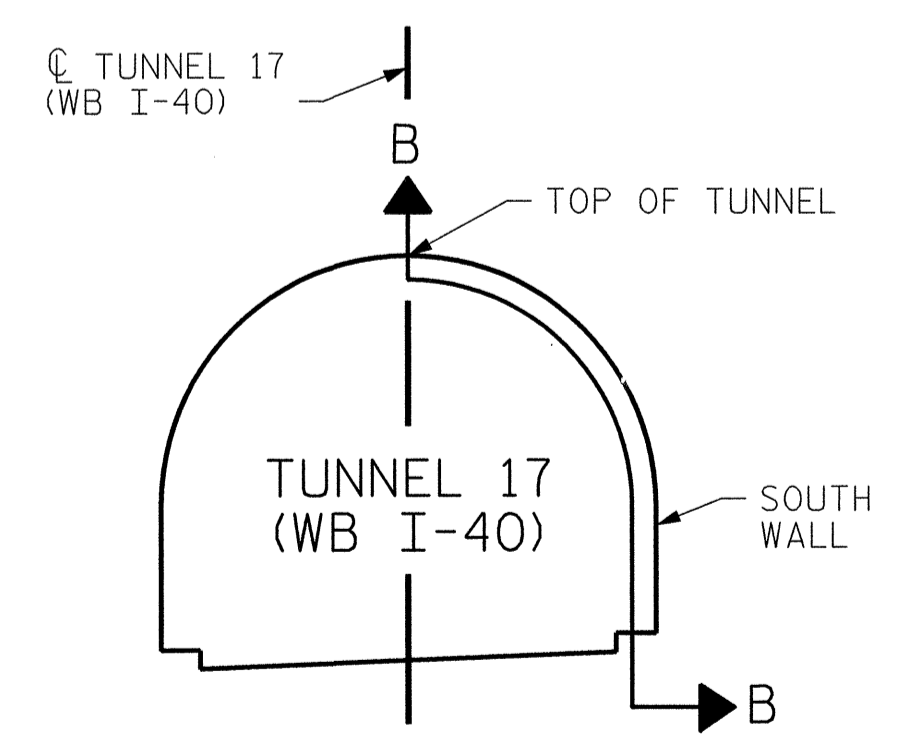
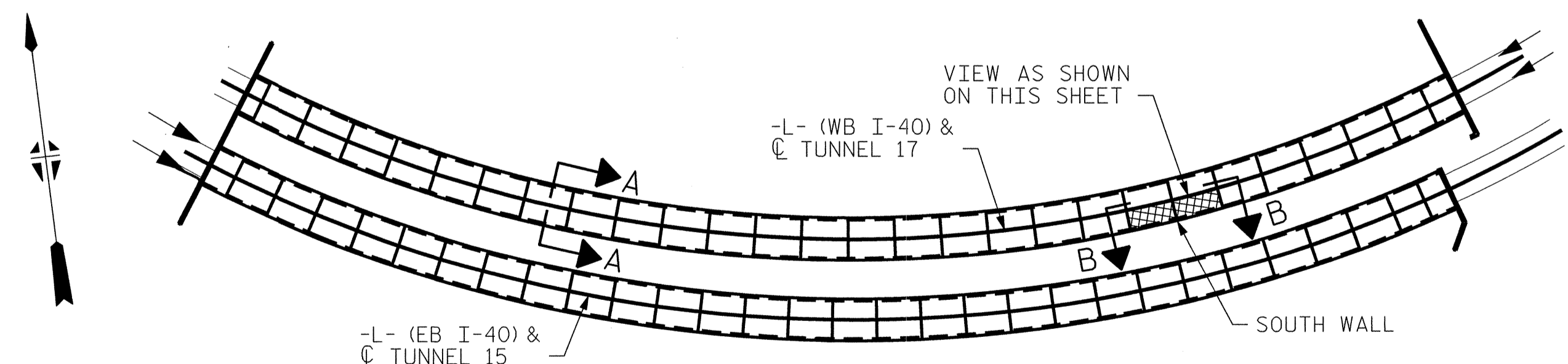
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 7S	CF	8.4
SHOTCRETE REPAIRS SEGMENT 8S	CF	1.4



SEGMENT 7S

SEGMENT 8S

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

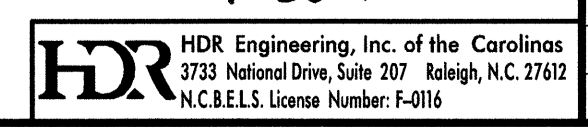
**TUNNEL 17 REPAIR AREAS
SEGMENTS 7S & 8S**



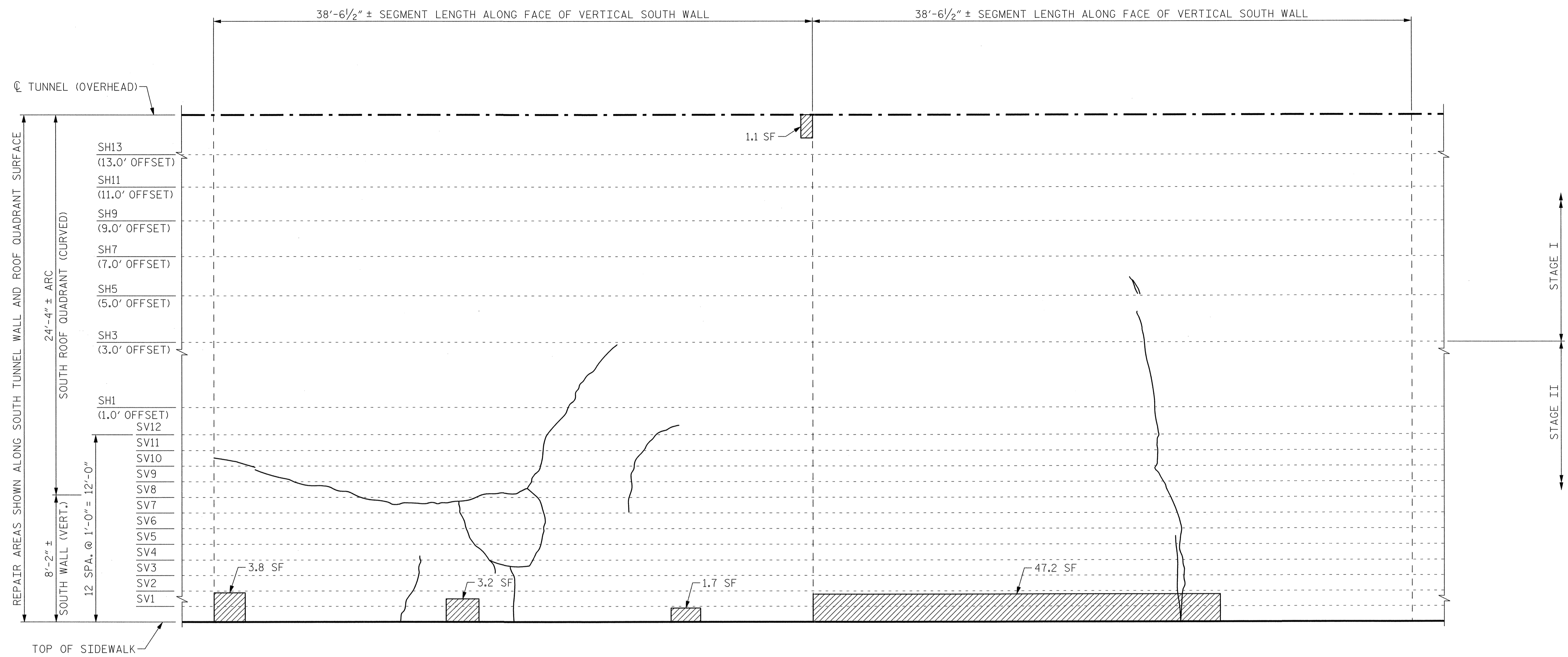
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CHECKED BY : M. MOYER	DATE : 07/2013

REVISIONS						SHEET NO. S-059
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 110
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PLOT DRIVER: NCD00T.pdf; mono_eng_100.pit
 PENTABLE: I-40 Tunnel.tbl
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 DATE: 7/22/2014
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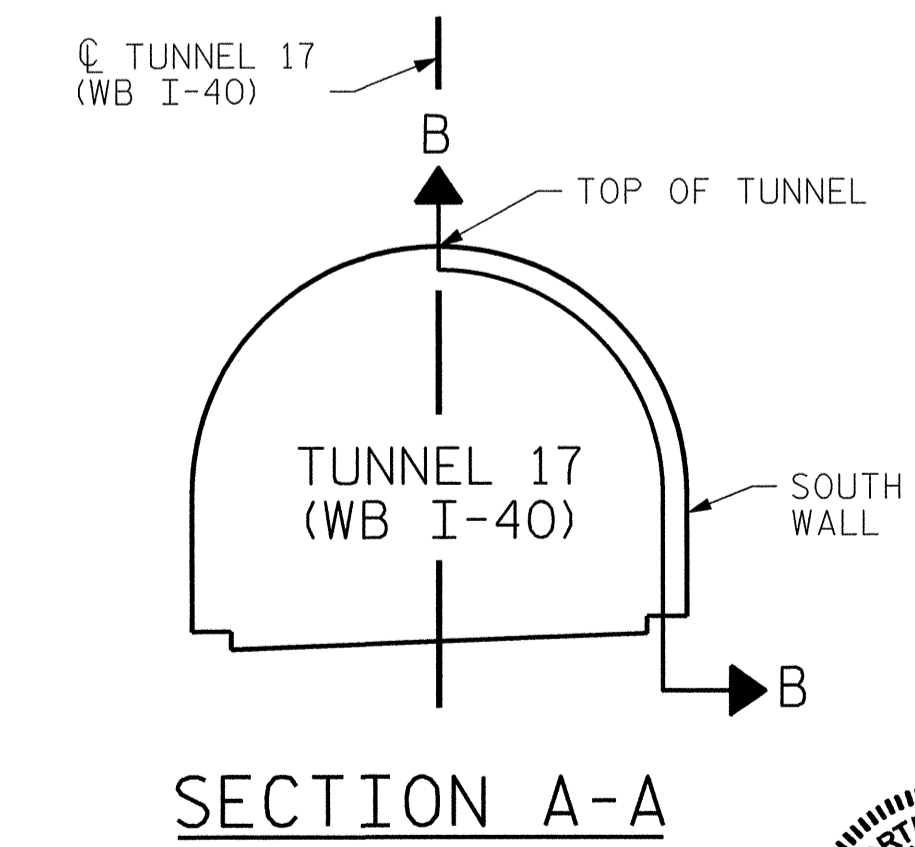
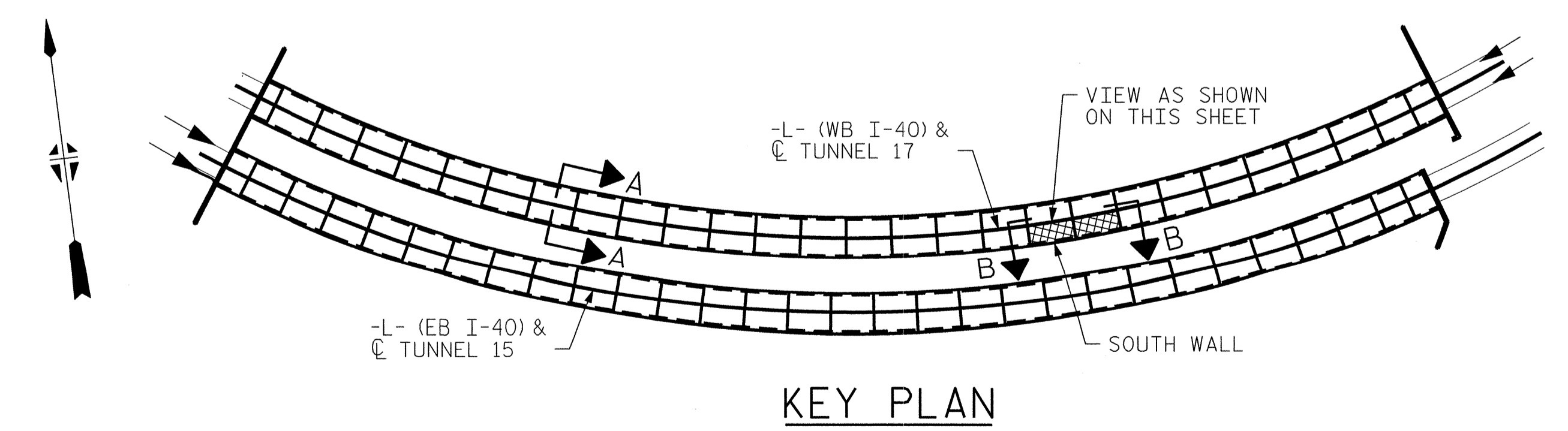
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SHOTCRETE REPAIRS SEGMENT 10S	CF	15.7



SEGMENT 9S

SEGMENT 10S

**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**



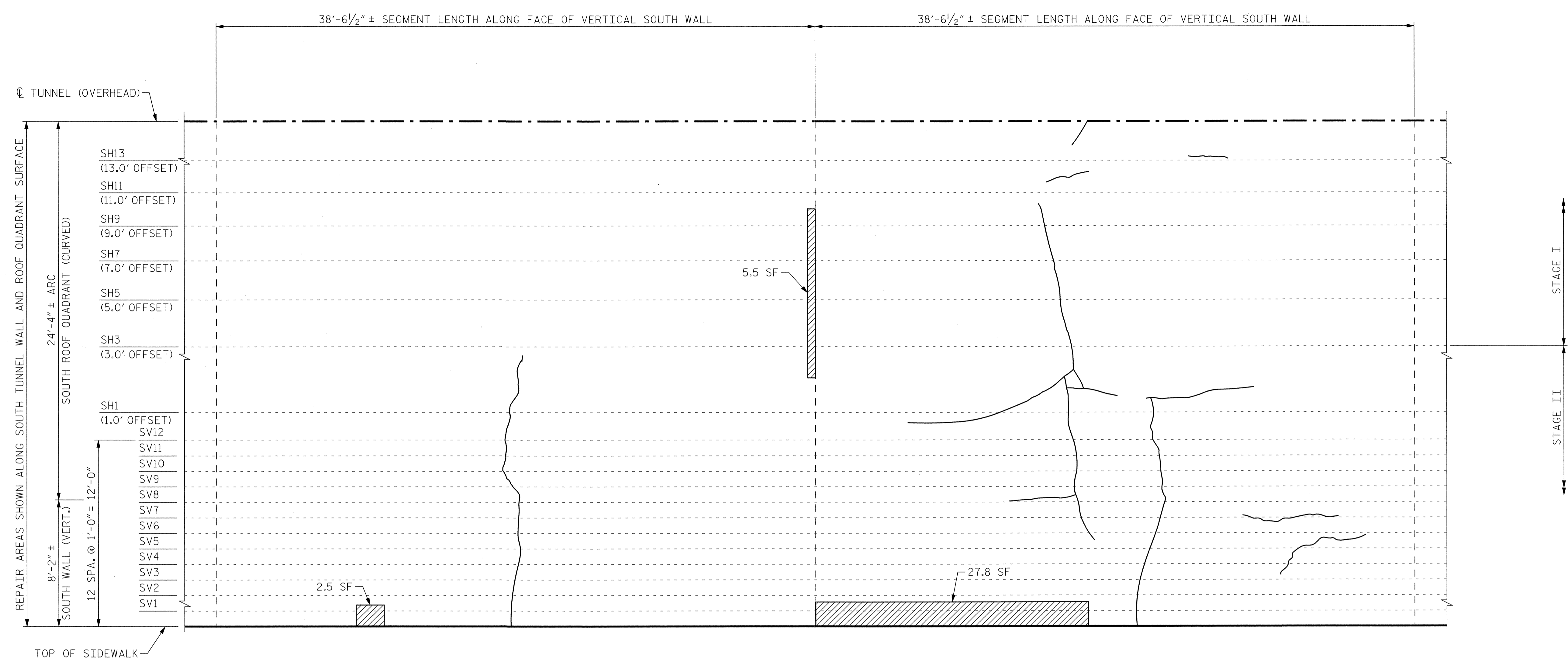
DRAWN BY: B. PETERSON DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013

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3733 National Drive, Suite 207 Raleigh, N.C. 27602
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-060 TOTAL SHEETS 110
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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 PENTABLE: I-40 Tunnel.tbi
 DATE: 7/22/2014
 TIME: 1:24:14 PM

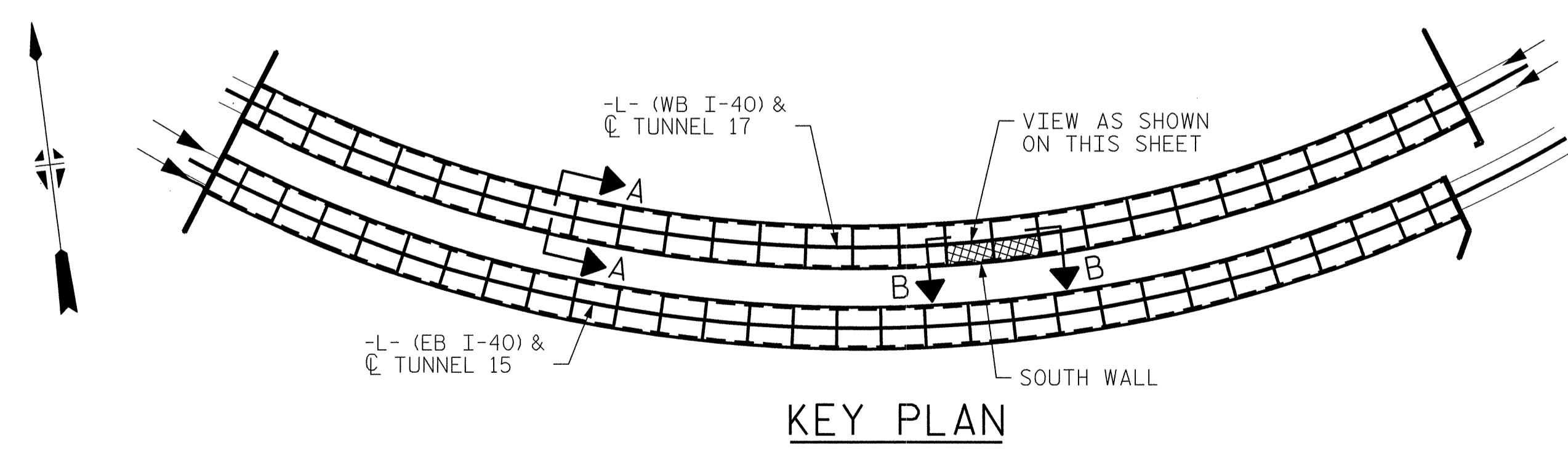
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SHOTCRETE REPAIRS SEGMENT 12S	CF	9.3



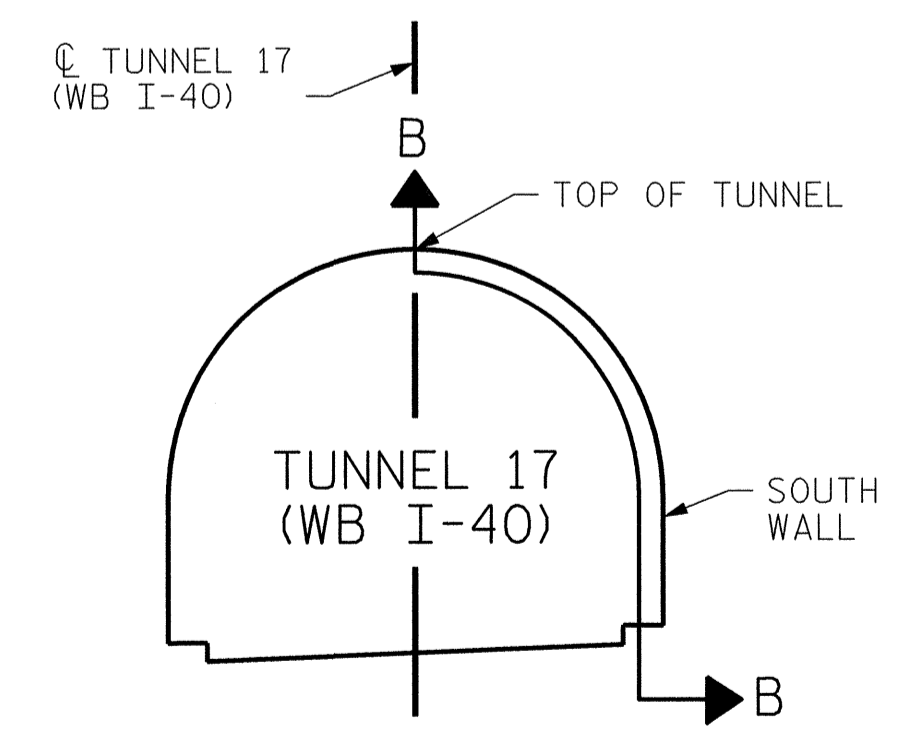
SEGMENT 11S

SEGMENT 12S

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



KEY PLAN



SECTION A-A

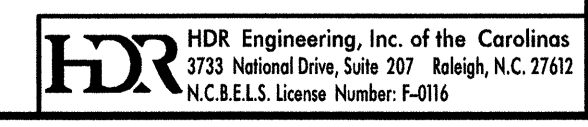
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 216+70.64 -L- (WB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**TUNNEL 17 REPAIR
AREAS
SEGMENTS 11S & 12S**



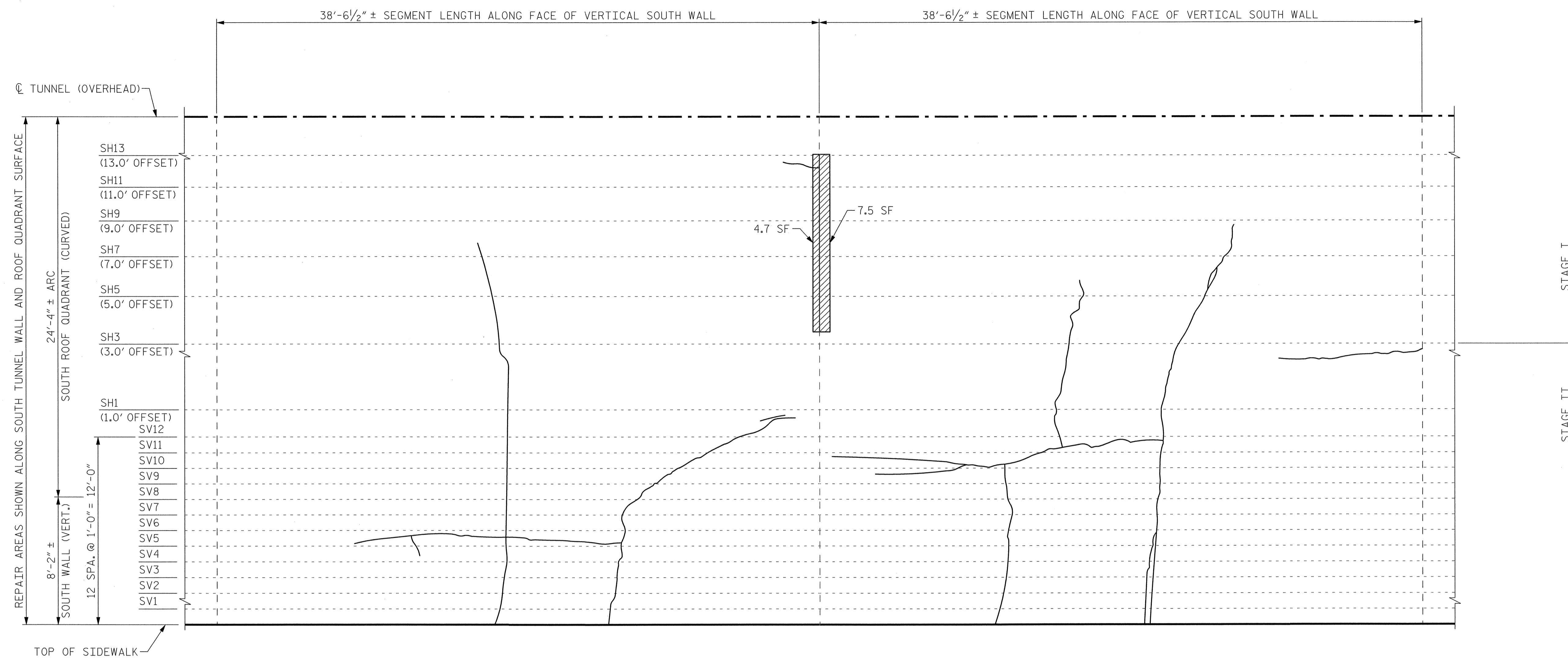
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DRAWN BY: B. PETERSON DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013



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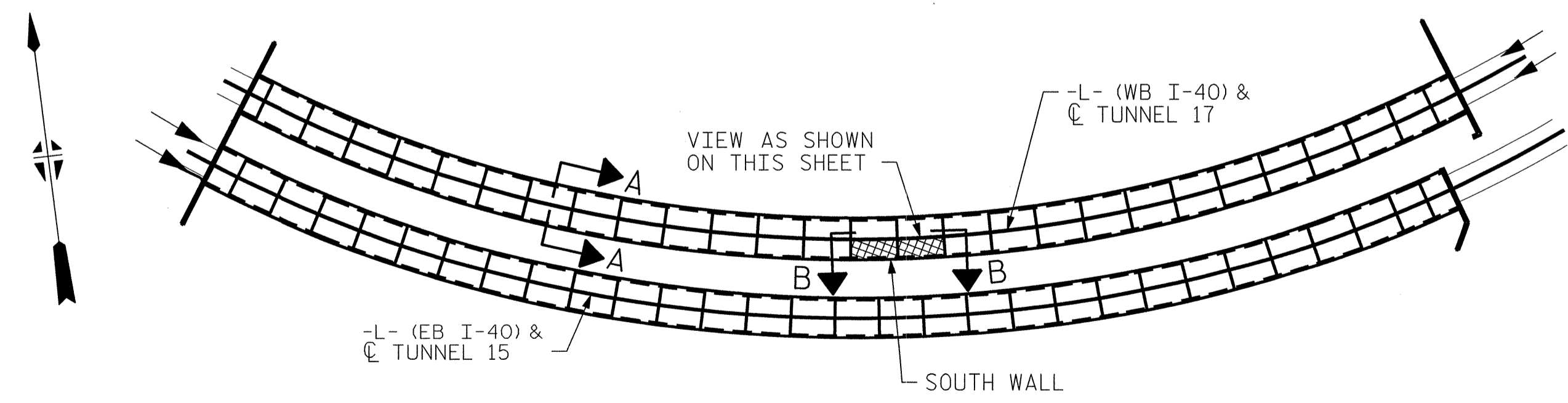
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SHOTCRETE REPAIRS SEGMENT 14S	CF	2.5



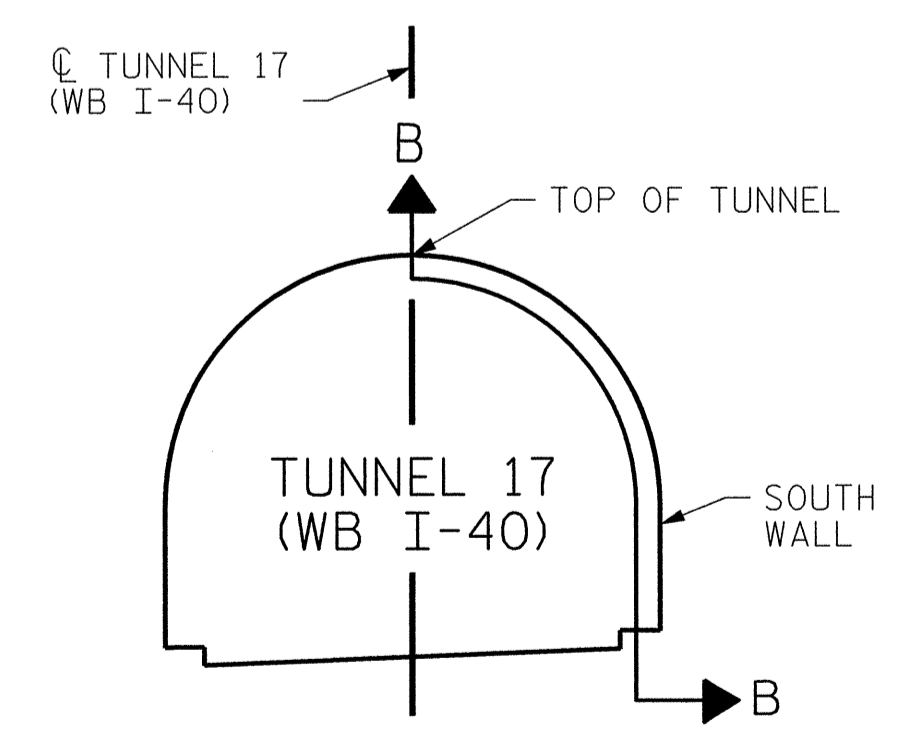
SEGMENT 13S

SEGMENT 14S

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



KEY PLAN



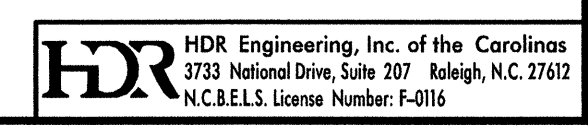
SECTION A-A

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 13S & 14S**



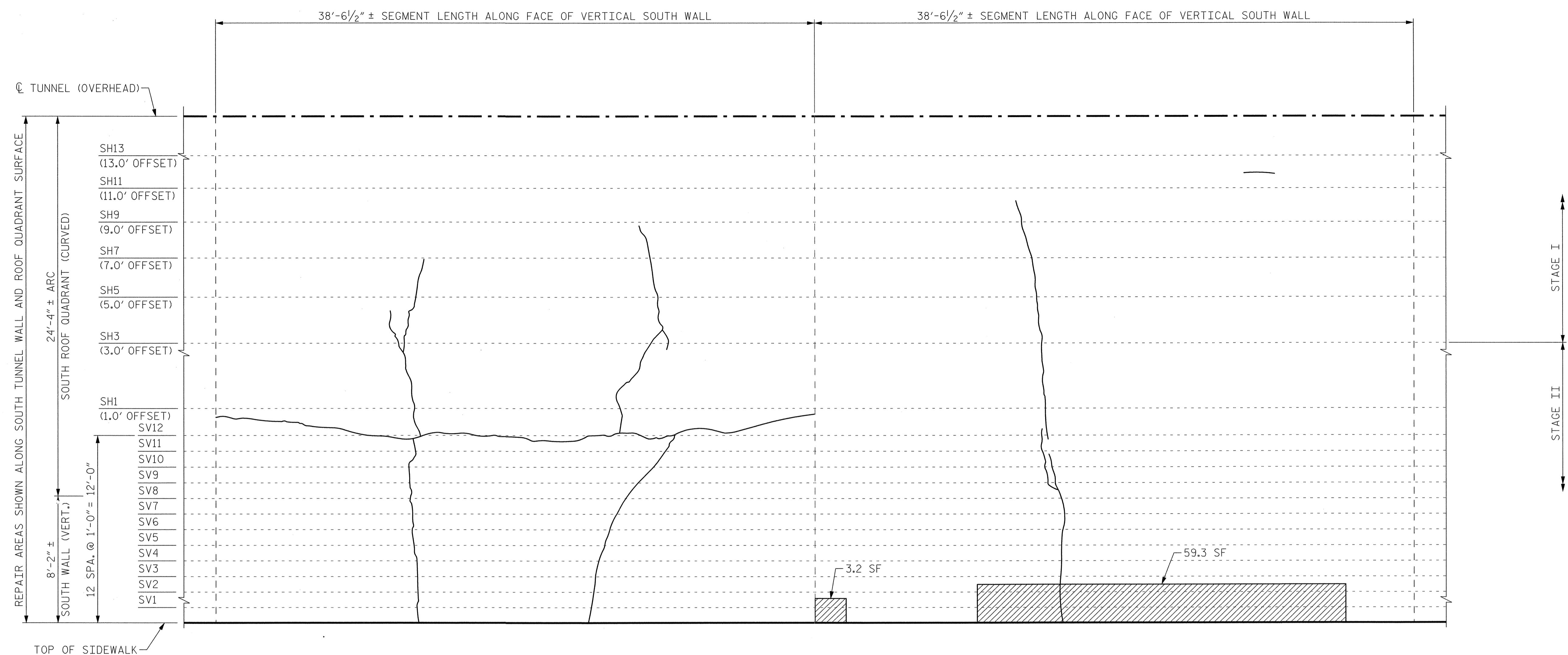
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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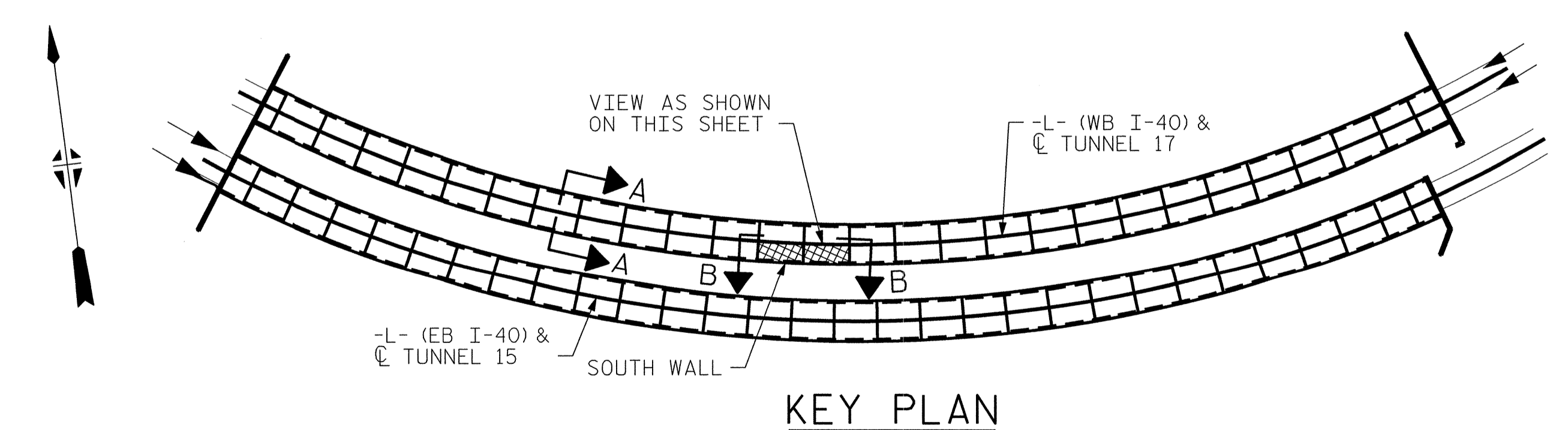
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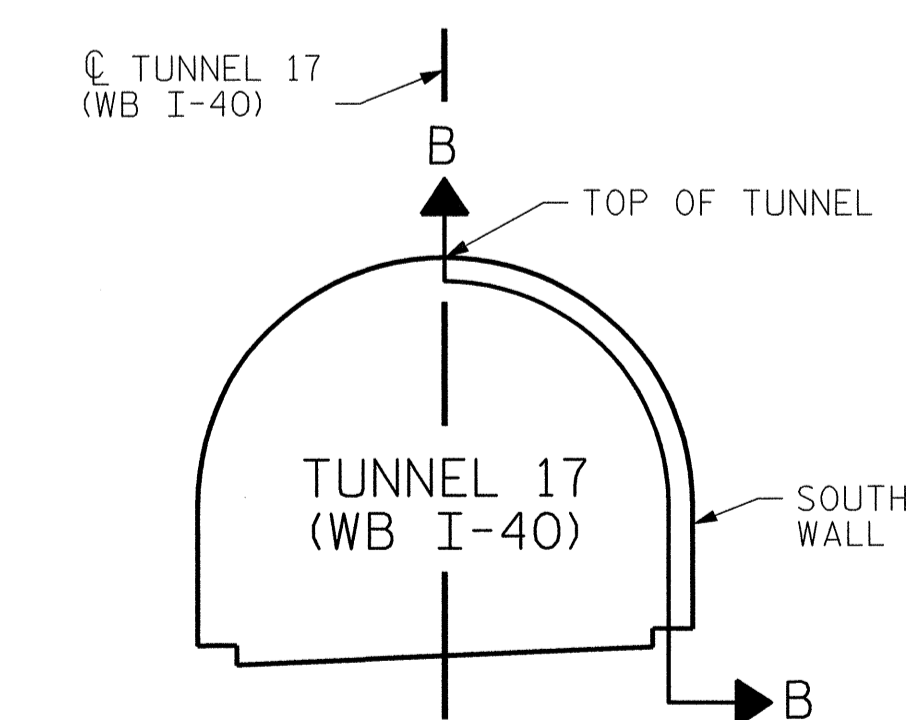
SEGMENT 15S

SEGMENT 16S

VIEW B-B: REPAIR SEGMENTS 15S & 16S
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 15S & 16S



7-23-14

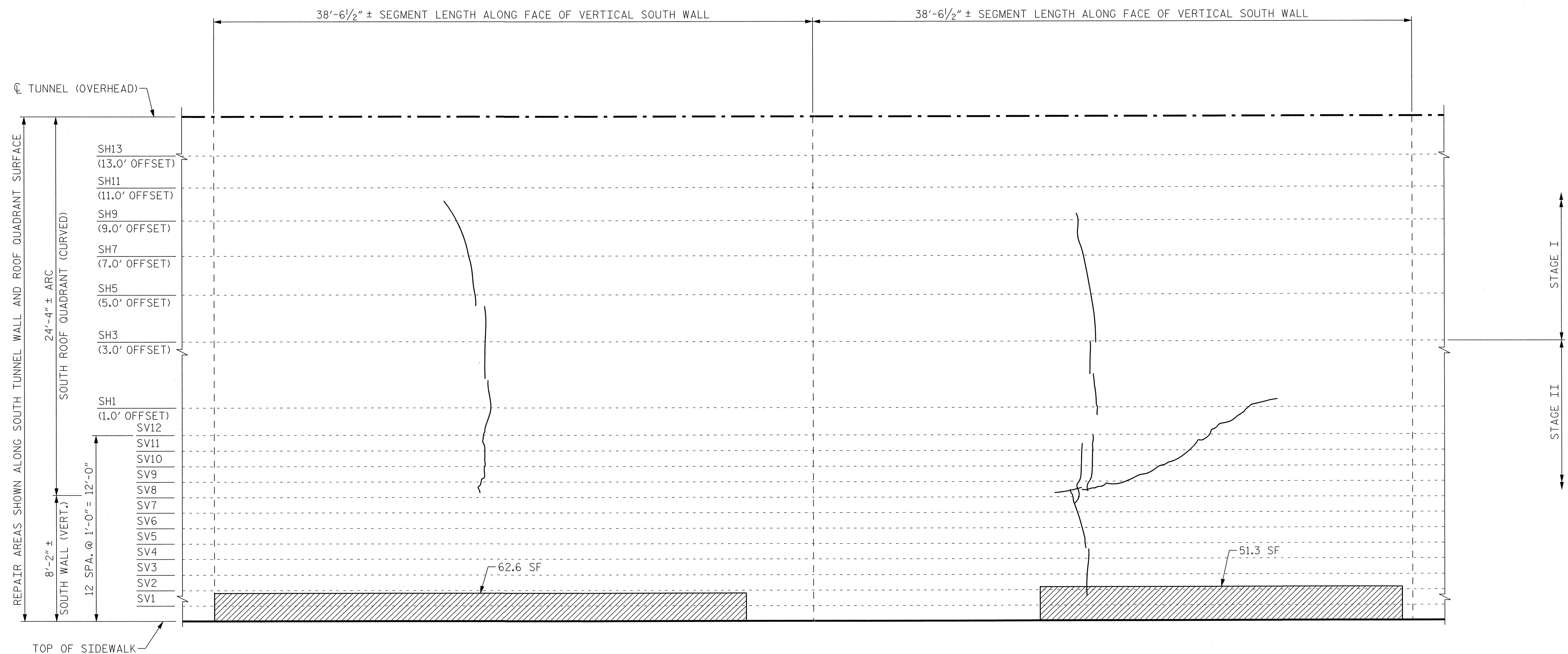
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2	--	--	4	--	--	

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

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt PENTABLE: I-40 Tunnel.tbl
USER: msells DATE: 7/22/2014 TIME: 12:15 PM
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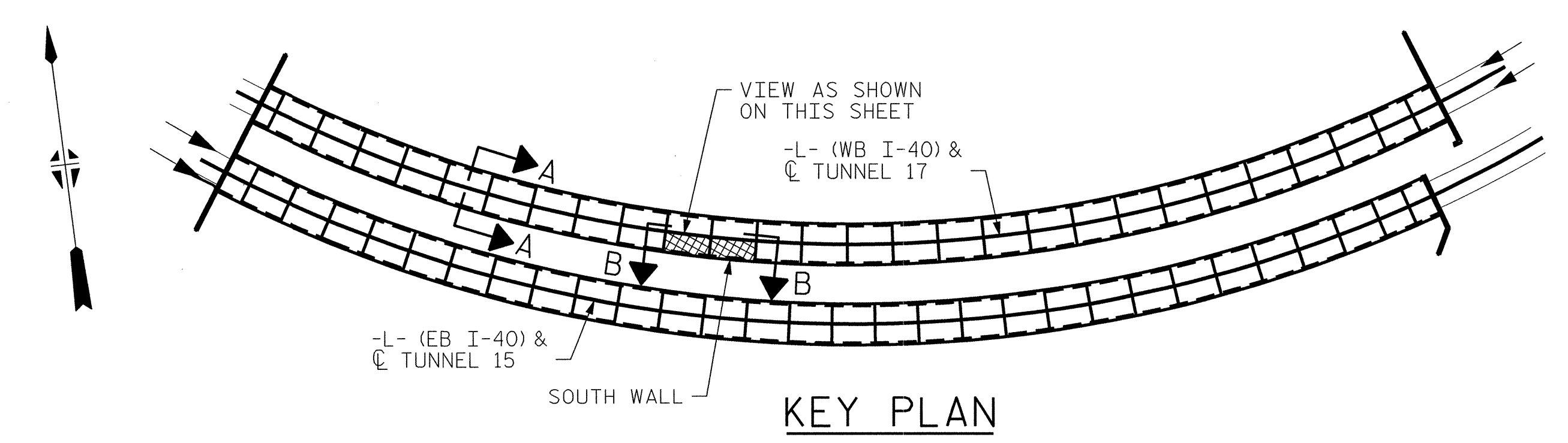
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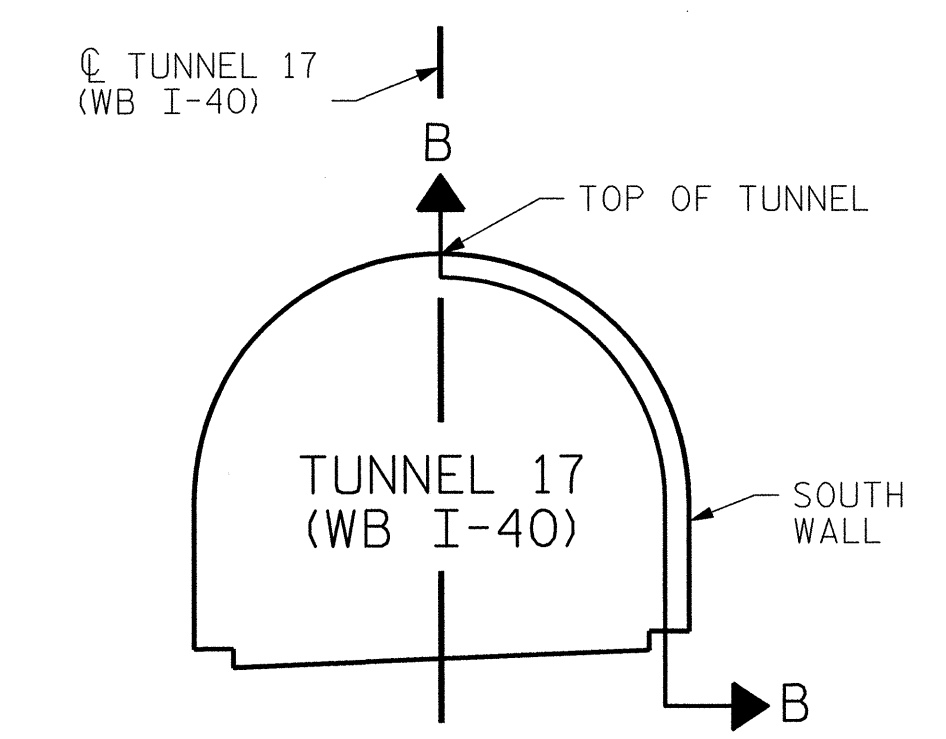
SEGMENT 17S

SEGMENT 18S

**VIEW B-B: REPAIR SEGMENTS 17S & 18S
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 17S & 18S**



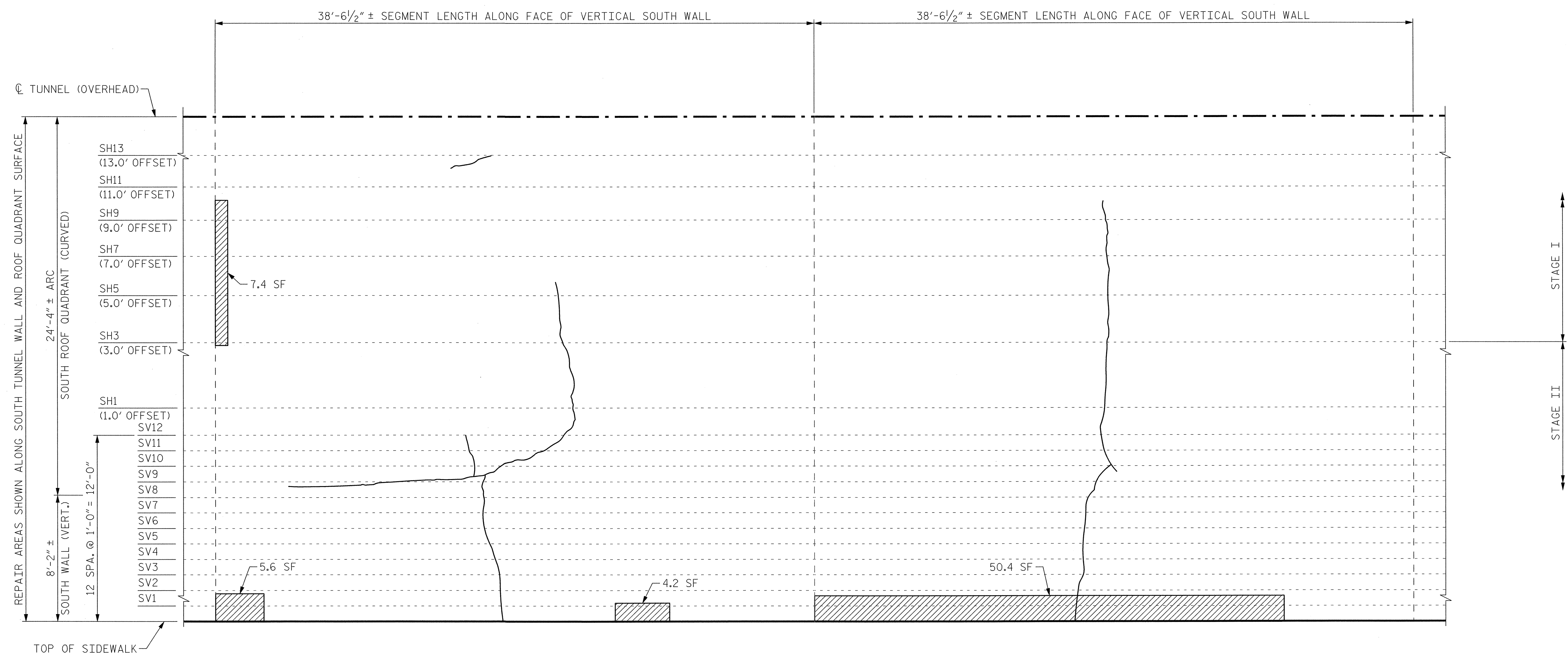
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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

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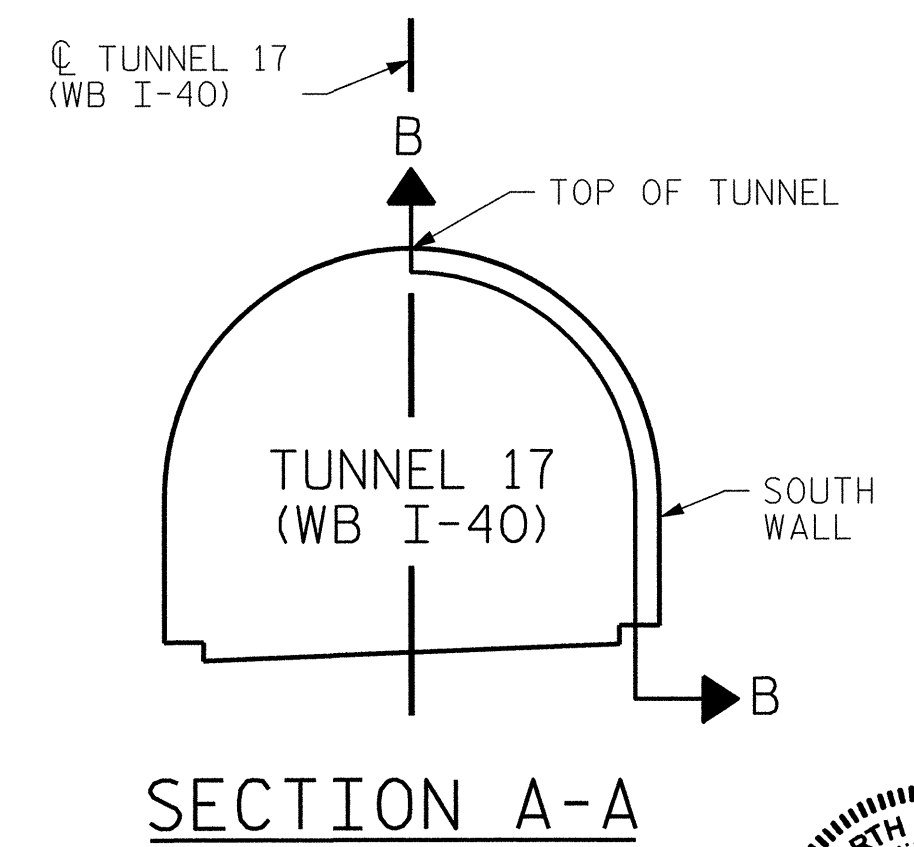
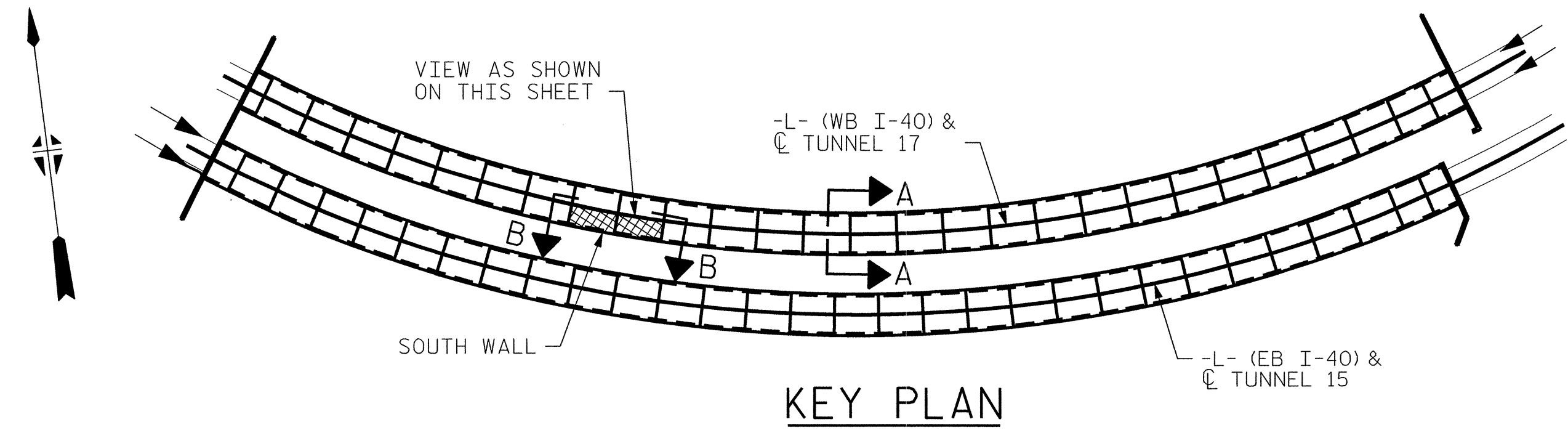
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SHOTCRETE REPAIRS SEGMENT 20S	CF 16.8



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

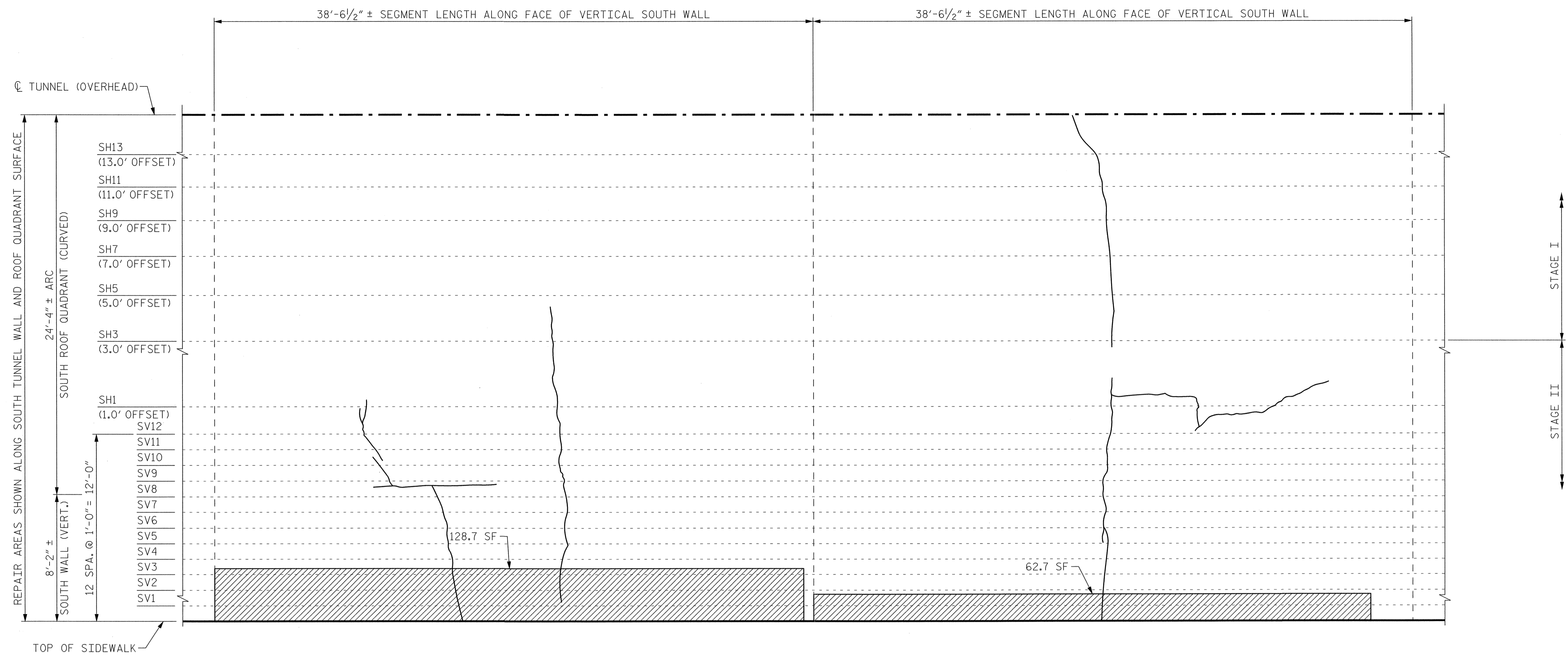
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DRAWN BY: B. PETERSON DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013

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

PLOT DRIVER: NCDOT.pdf_mono_eng_100.plt
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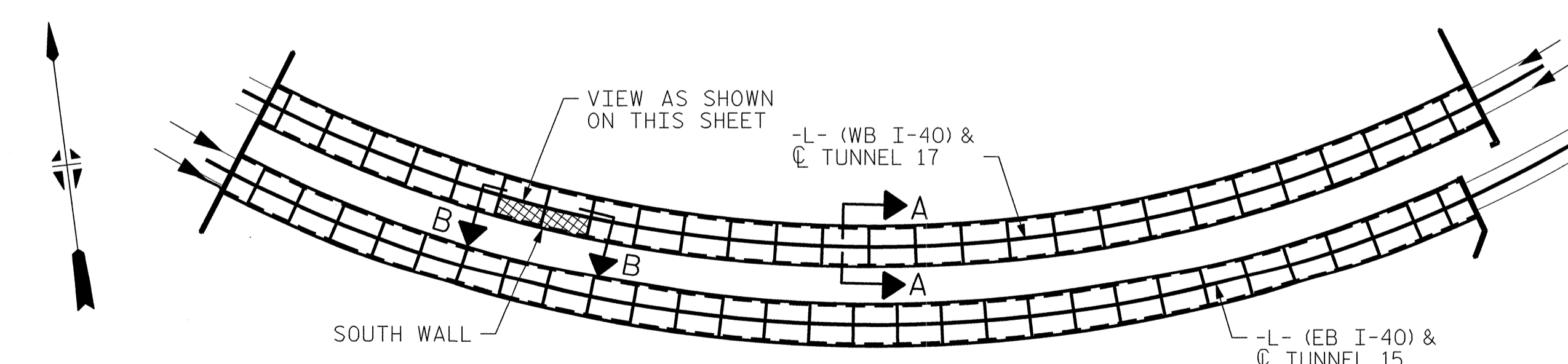
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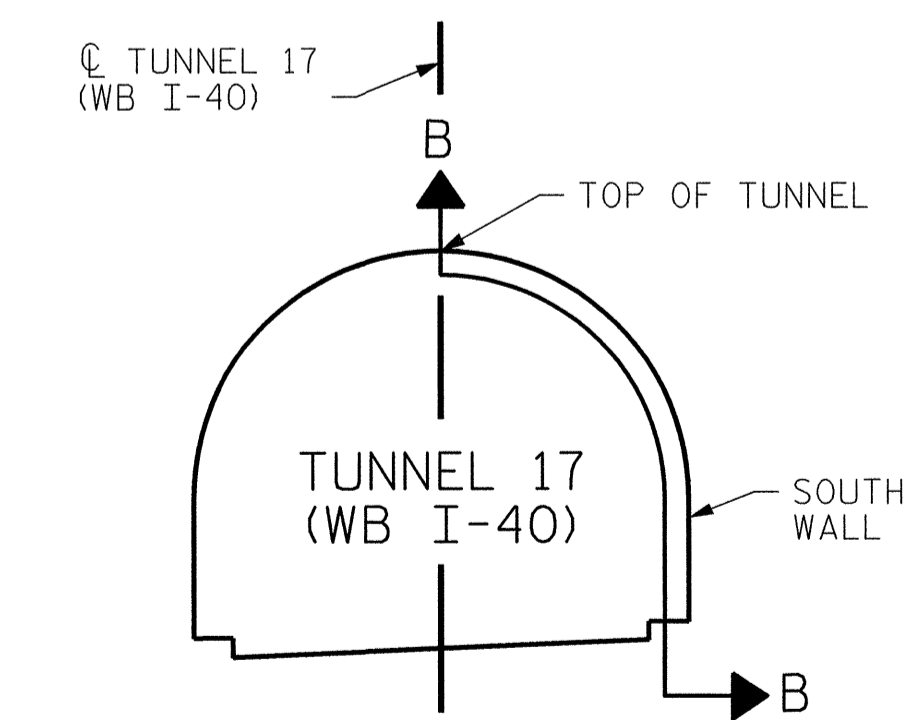
SEGMENT 21S

SEGMENT 22S

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



KEY PLAN

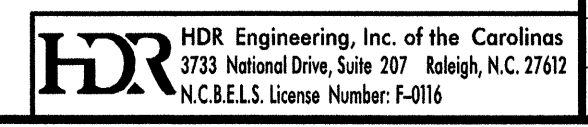


SECTION A-A

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**

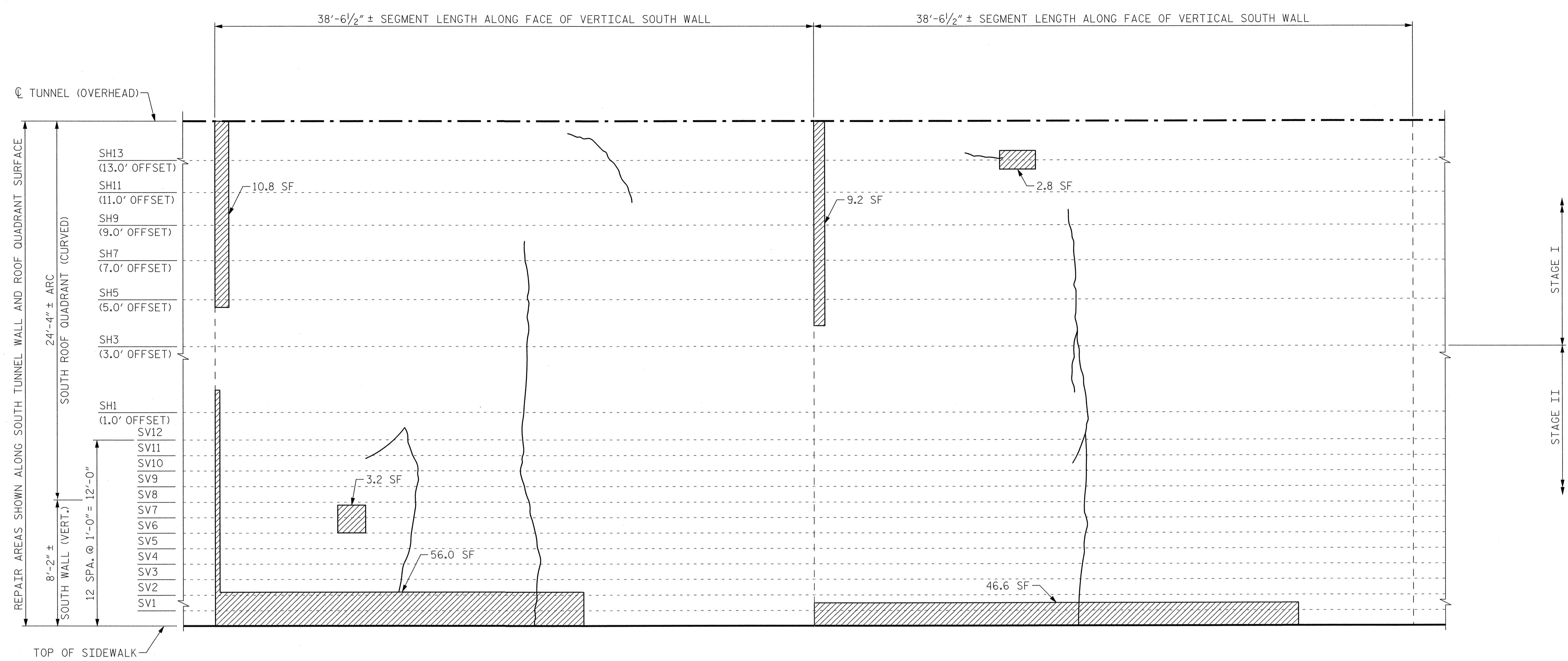


REVISIONS						SHEET NO. 5-066 TOTAL SHEETS 110
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 CHECKED BY: M. MOYER DATE: 07/2013

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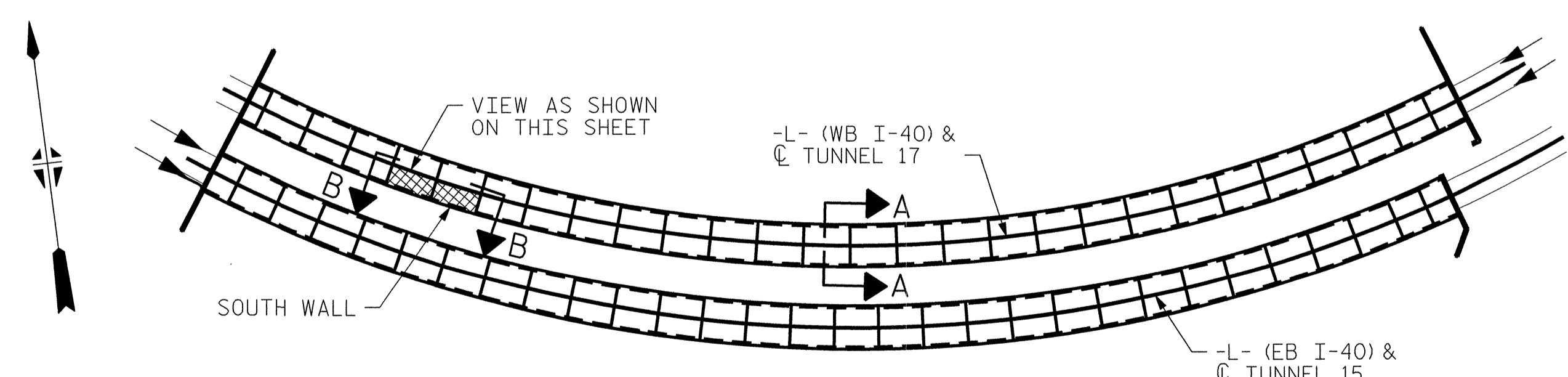
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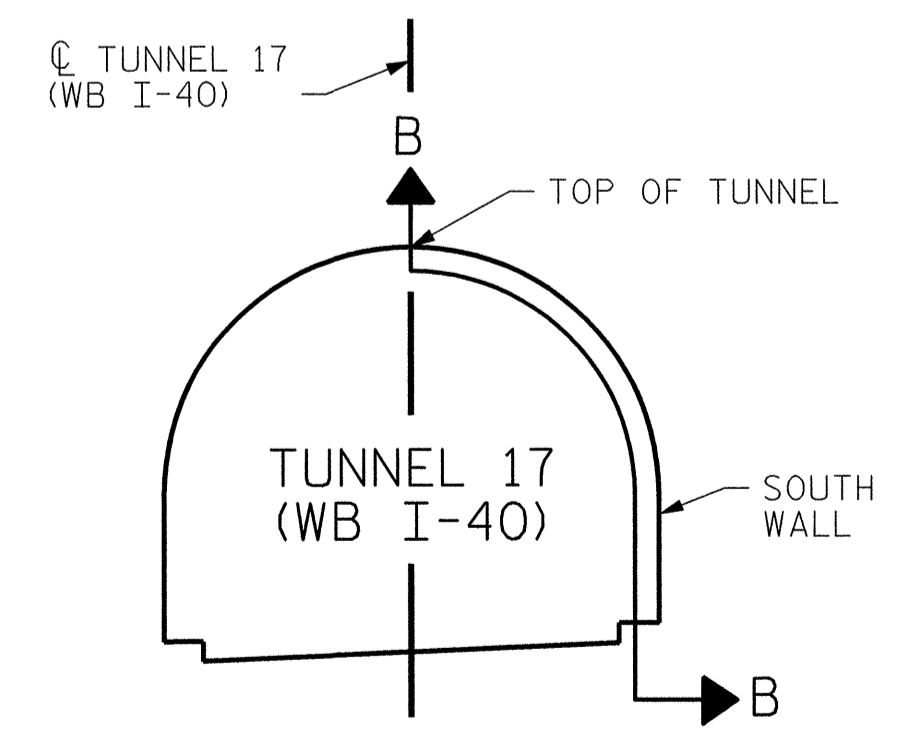
SEGMENT 23S

SEGMENT 24S

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



KEY PLAN

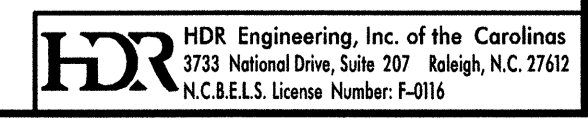
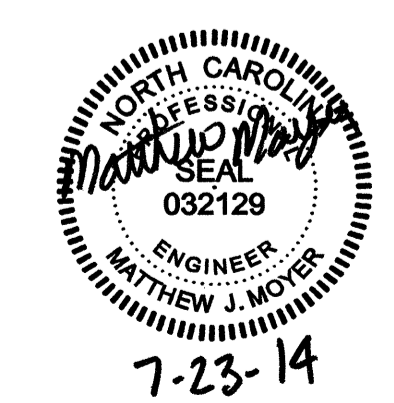


SECTION A-A

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 23S & 24S**

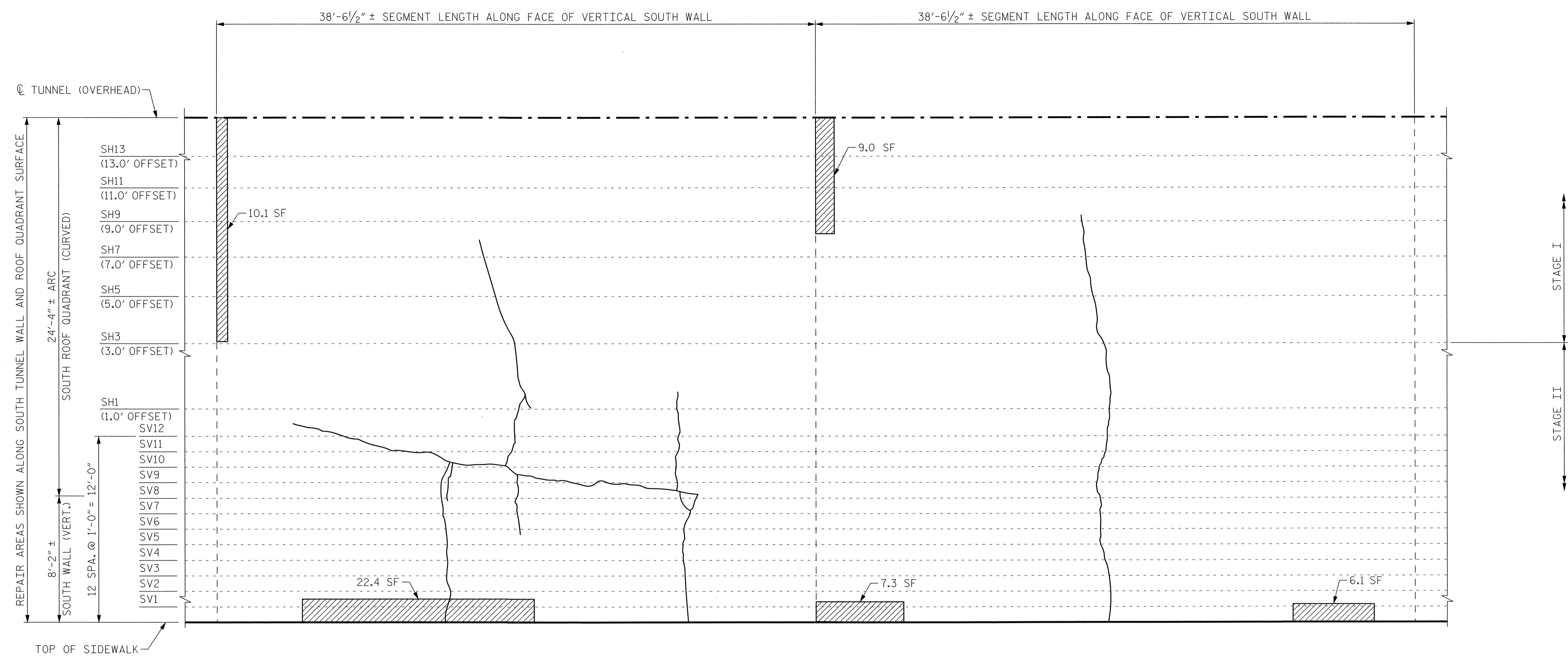


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CHECKED BY: M. MOYER DATE: 07/2013

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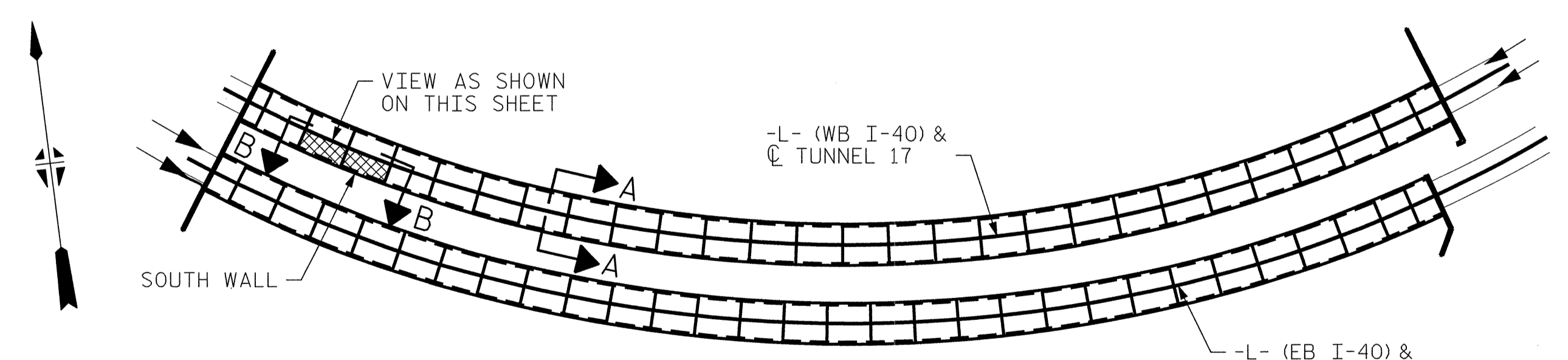
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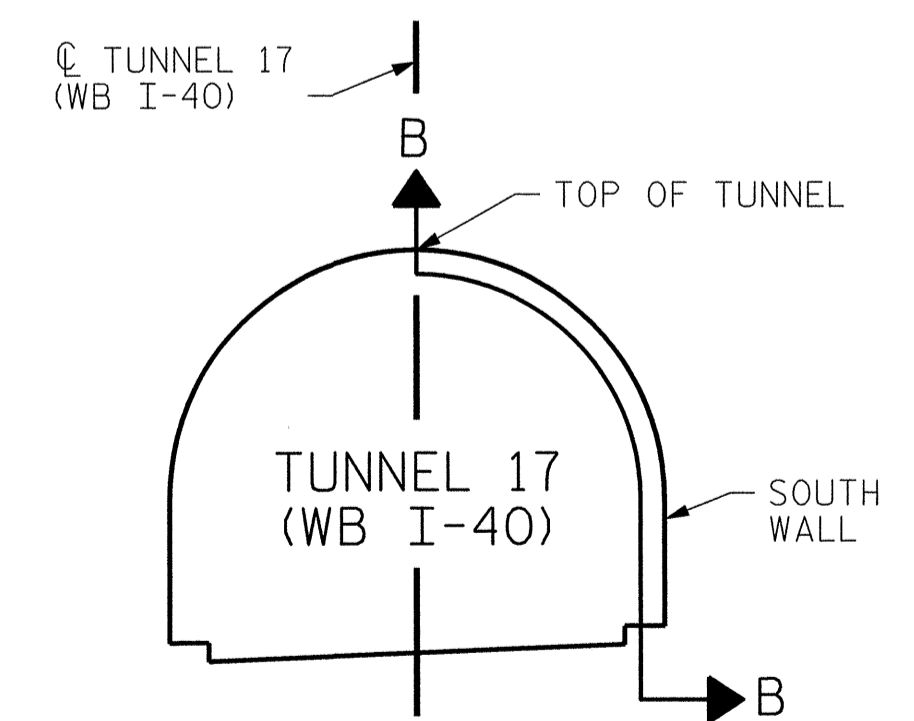
SEGMENT 25S

SEGMENT 26S

**VIEW B-B: REPAIR SEGMENTS 25S & 26S
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 25S & 26S**



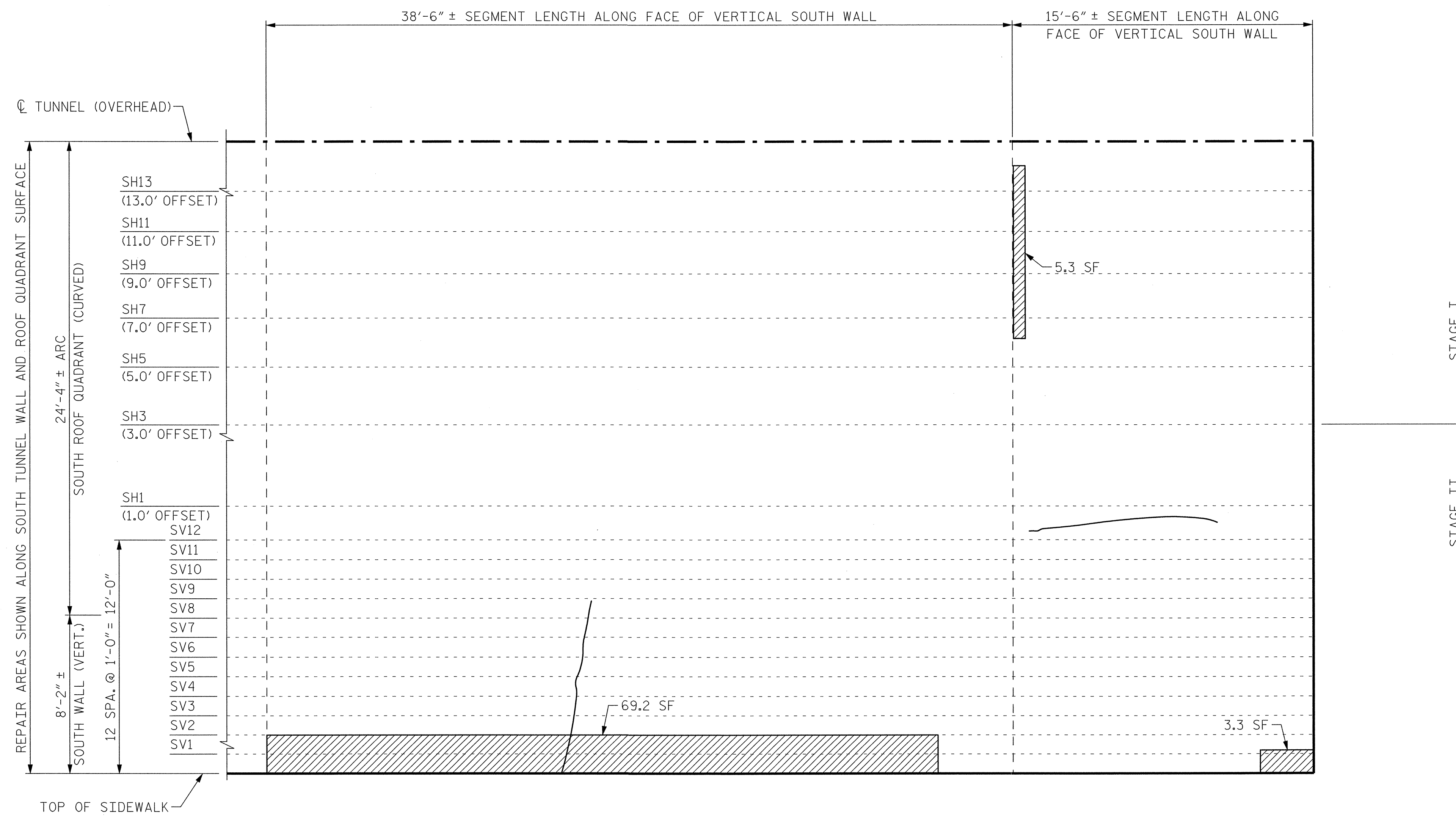
HDR HDR Engineering, Inc. of the Carolinas
9733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-068 TOTAL SHEETS 110
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CHECKED BY : M. MOYER DATE : 07/2013

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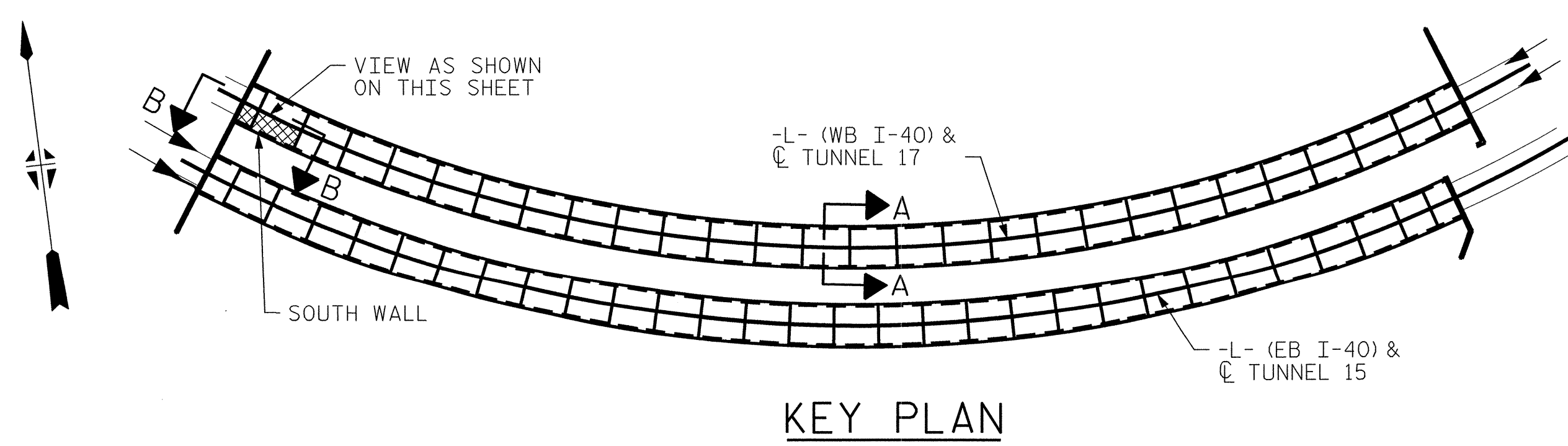
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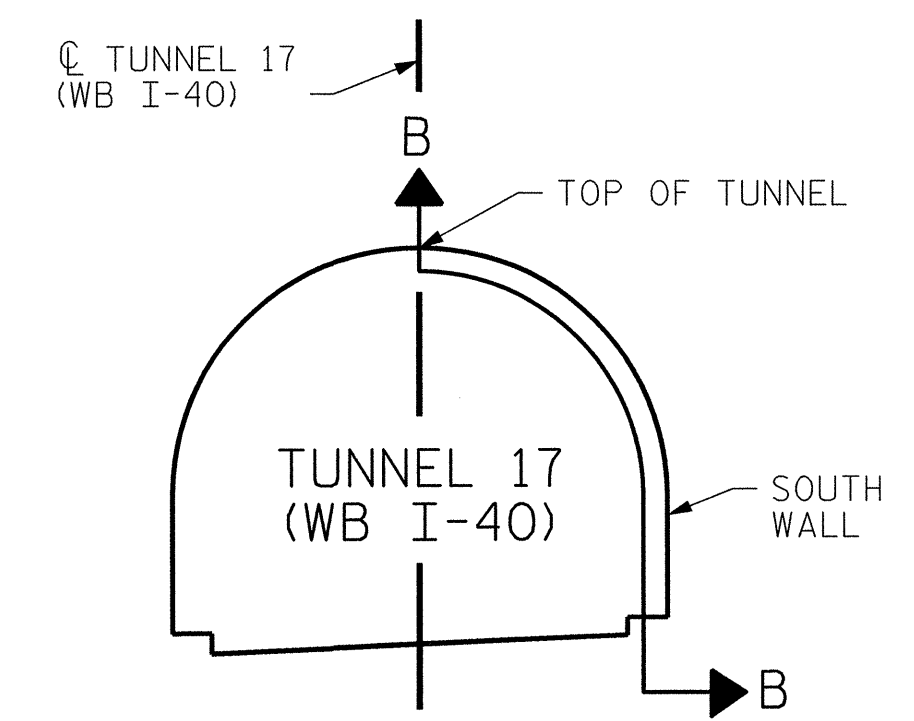
SEGMENT 27S SEGMENT 28S

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

TUNNEL SURFACE ELEVATION



KEY PLAN

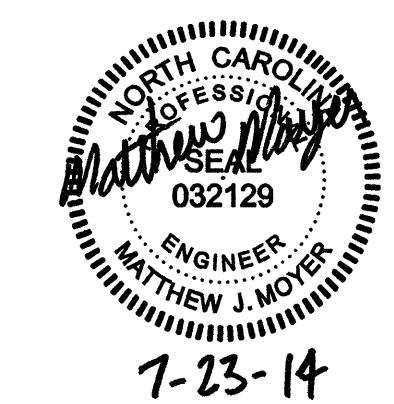


SECTION A-A

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 27S & 28S

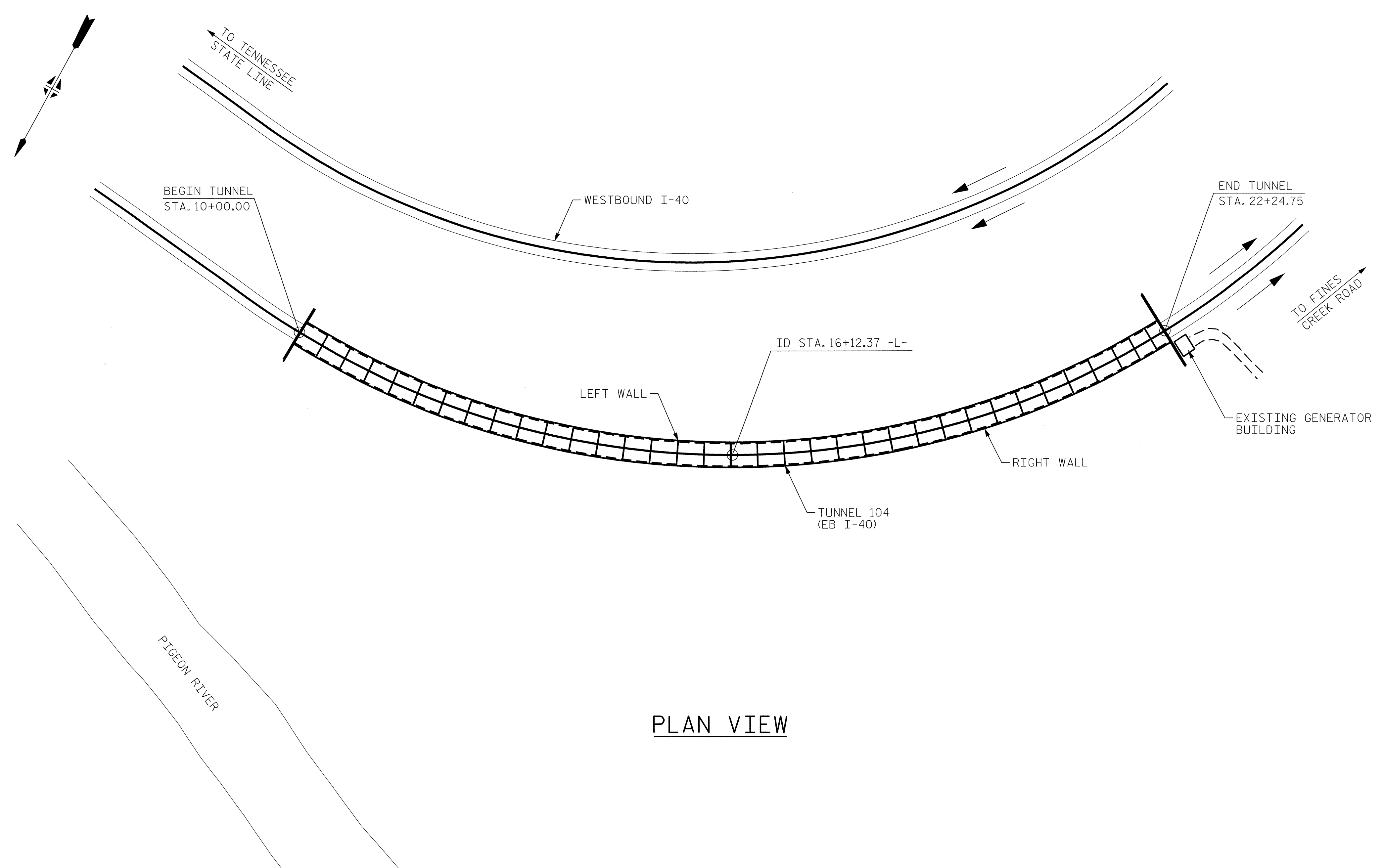


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 N.C.B.E.L.S. License Number: F-4016

REVISIONS						SHEET NO. S-069
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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PLAN VIEW

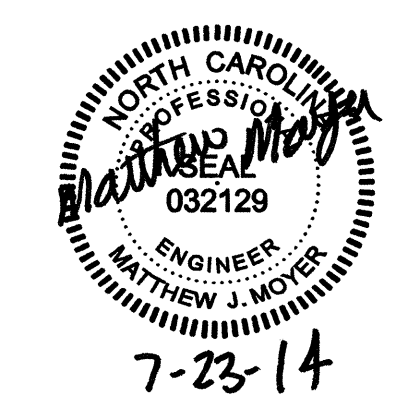
PROJECT NO. I-5512, 50136.3.FS1
 HAYWOOD COUNTY
 STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL PLAN
 (TUNNEL 104)

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

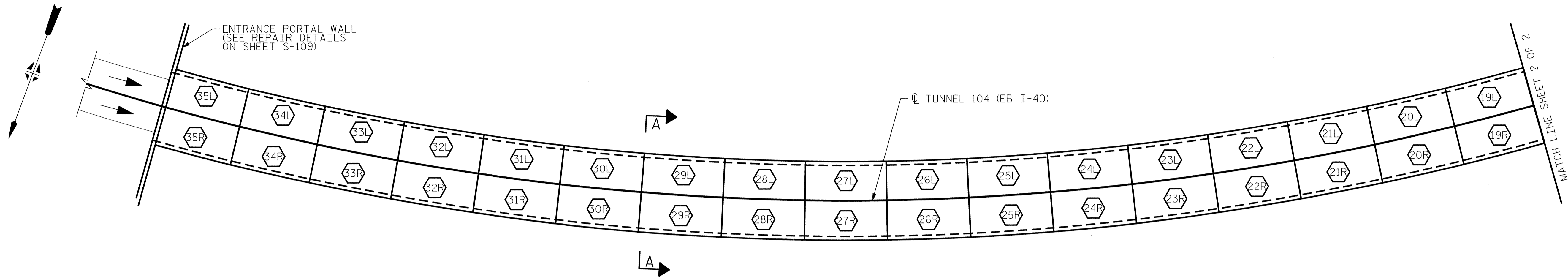
SHEET NO. S-070
TOTAL SHEETS 110



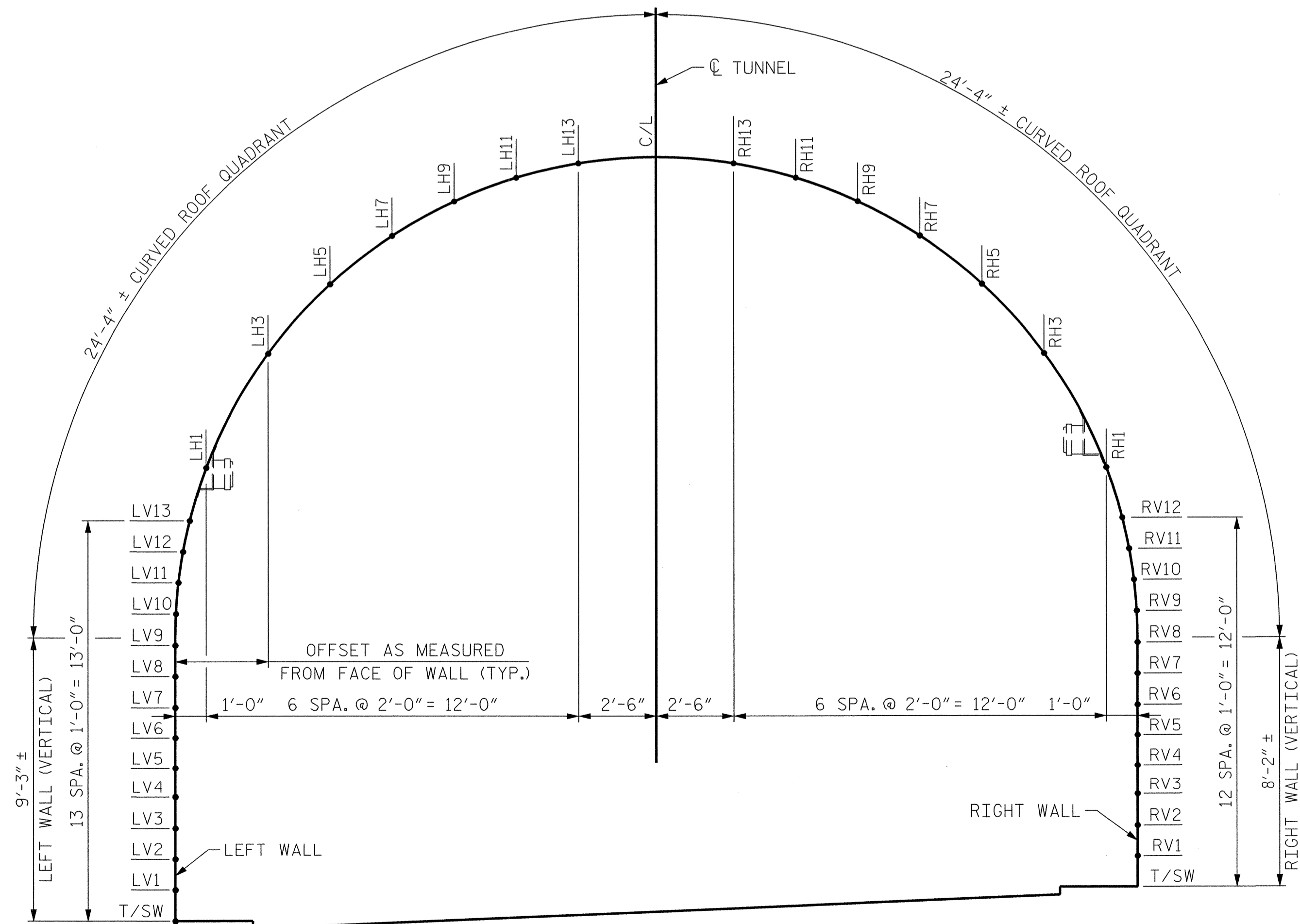
HDR HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

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

PLOT DRIVER: NCDOT_pdf_mono_eng_100.plt
 USER: msells DATE: 7/22/2014
 FILE: ..\13.00_CAD_Tunnel104\104-0100



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

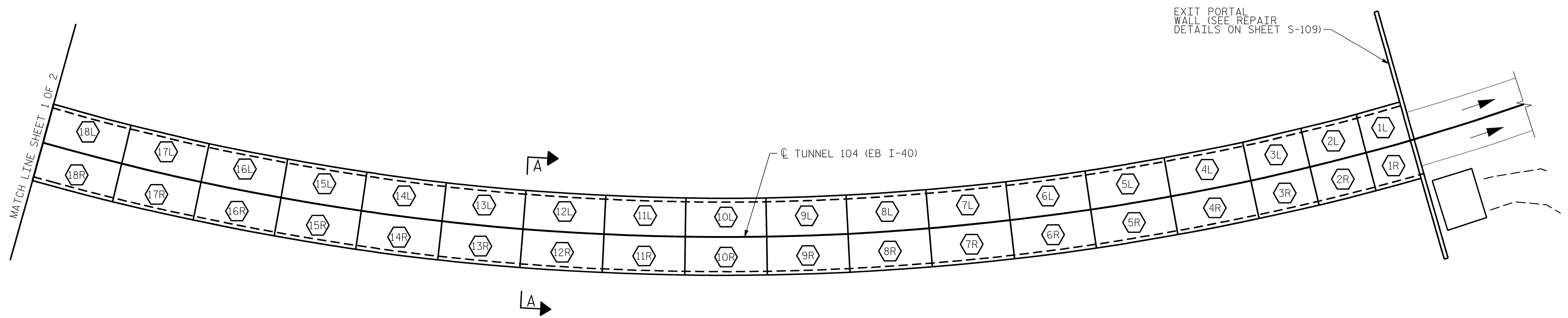
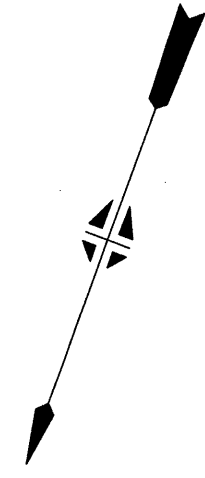


7-23-14

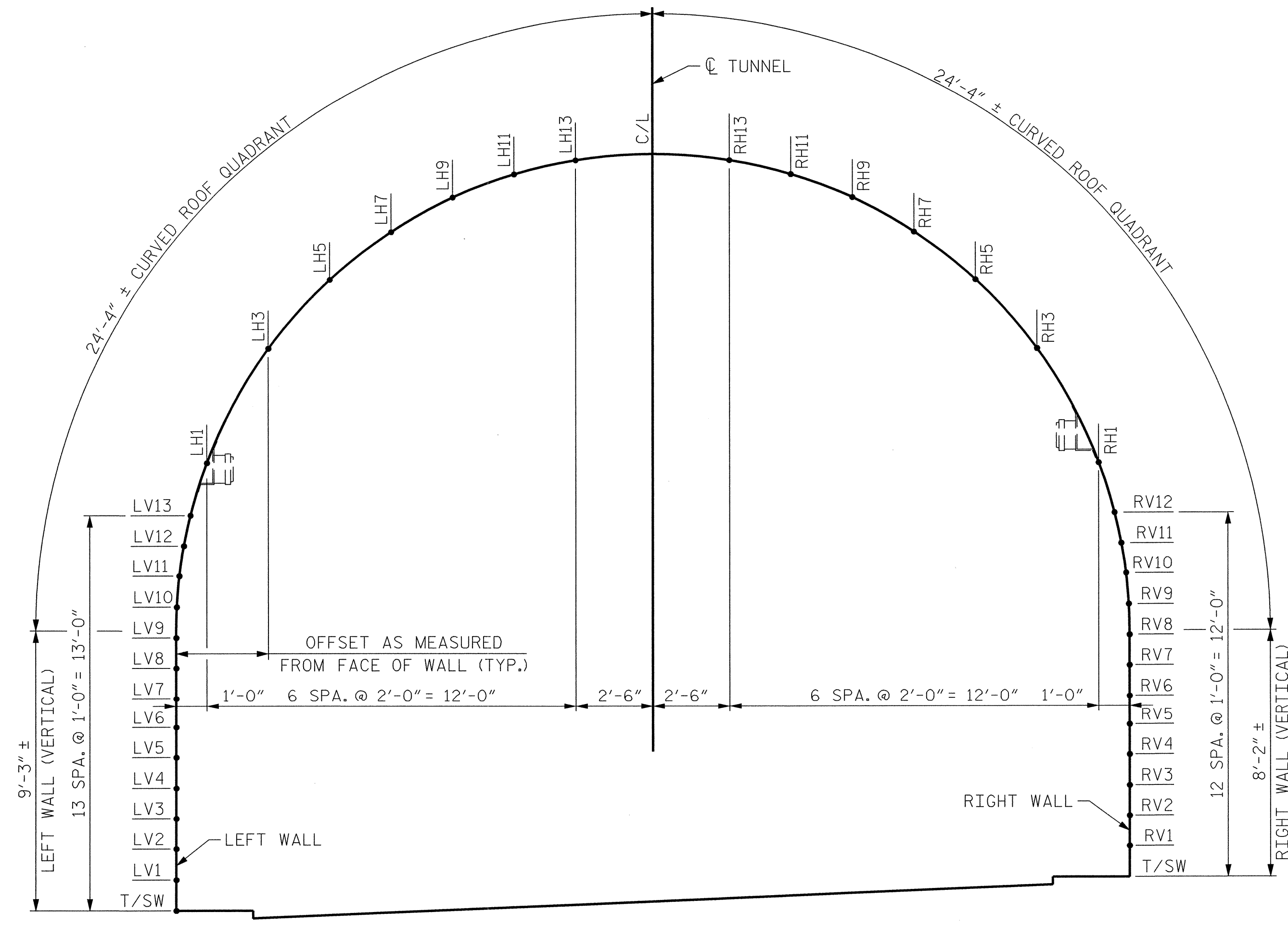
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-071
NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY: L. PATTERSON 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)

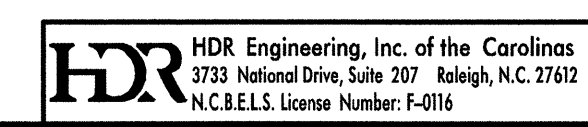
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TUNNEL 104 PLAN OF REPAIR SEGMENTS & GRID REFERENCE DETAIL



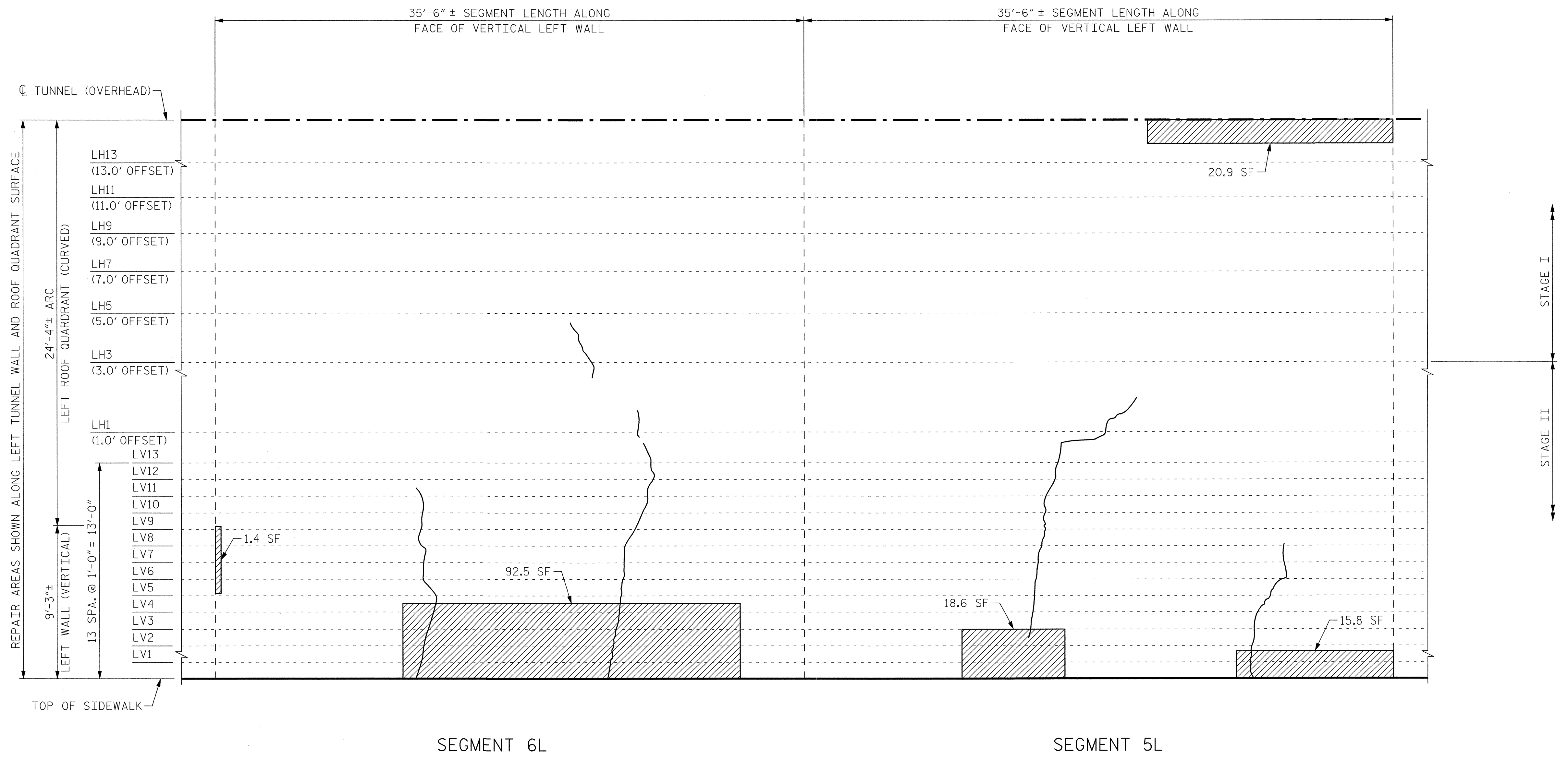
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			



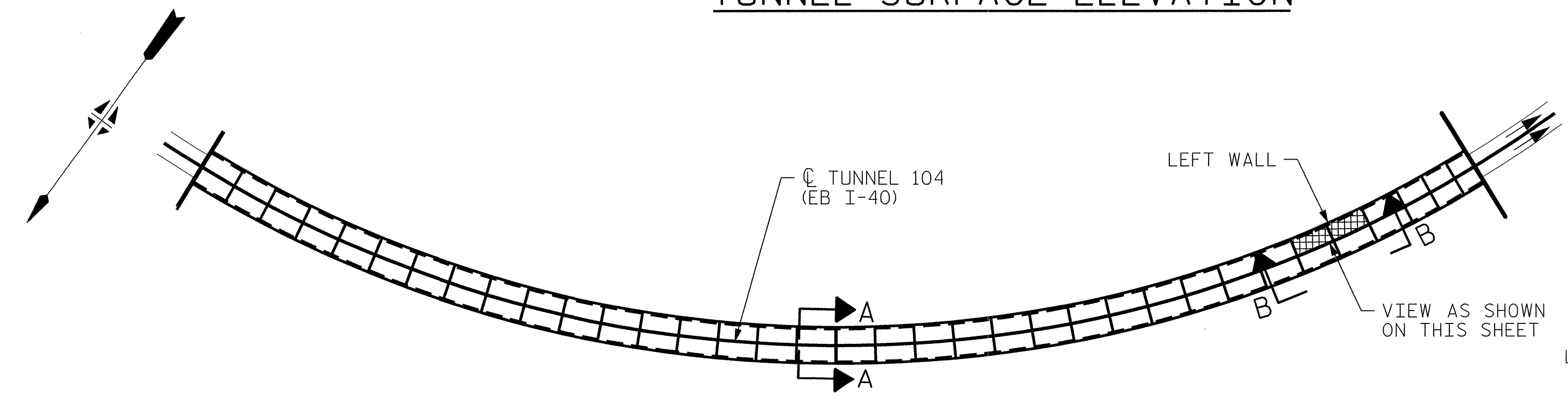
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 USER: msells
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DRAWN BY : L. PATTERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

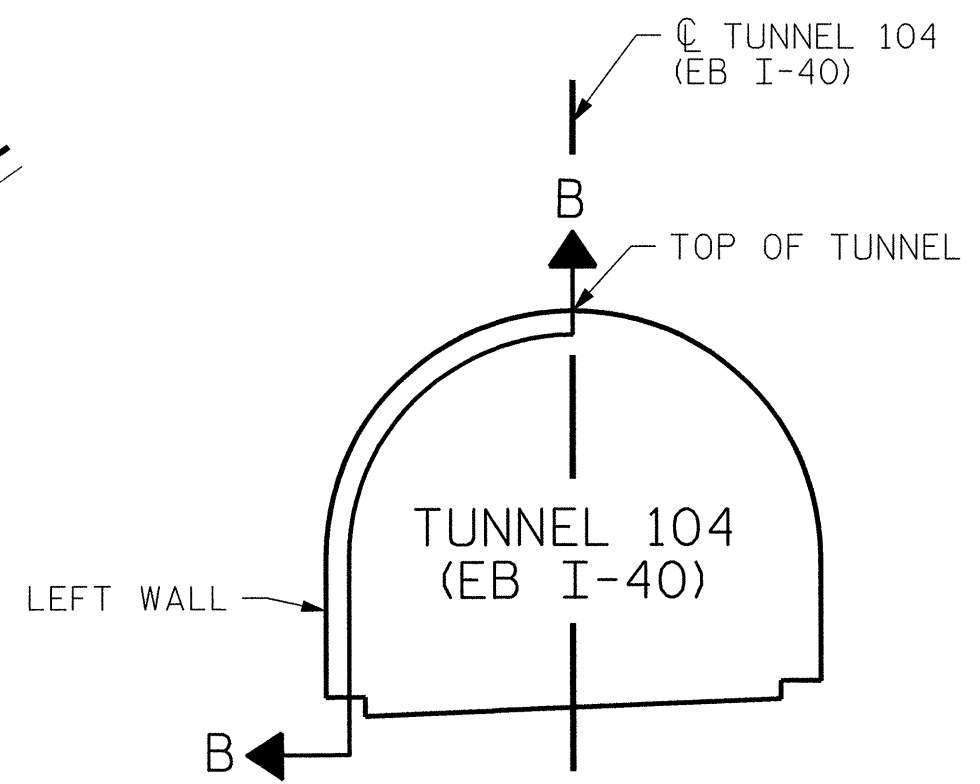
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SHOTCRETE REPAIRS SEGMENT 6L	CF	31.3



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



KEY PLAN



SECTION A-A

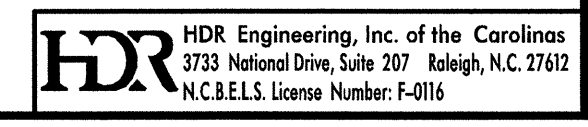
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 5L & 6L



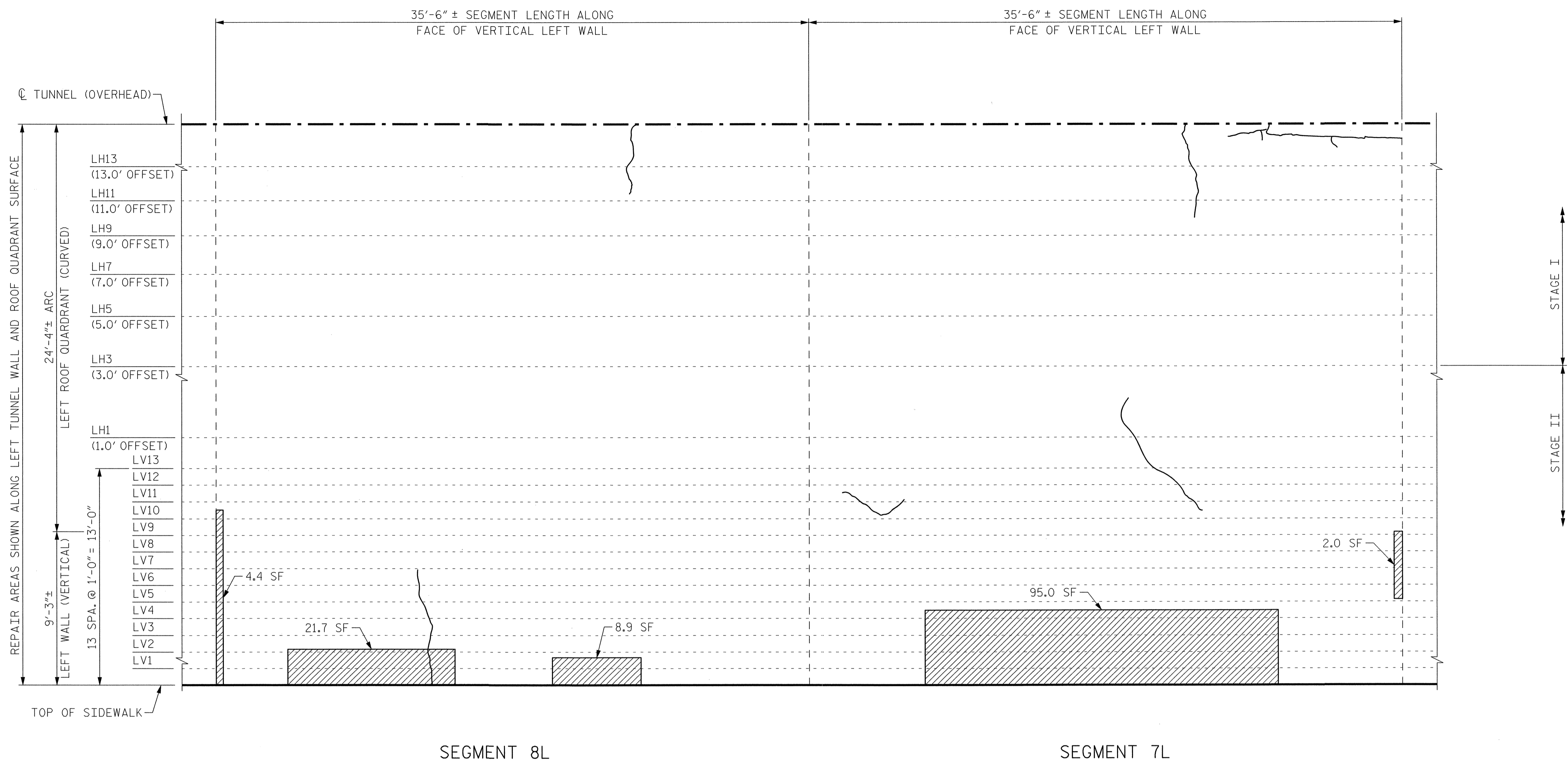
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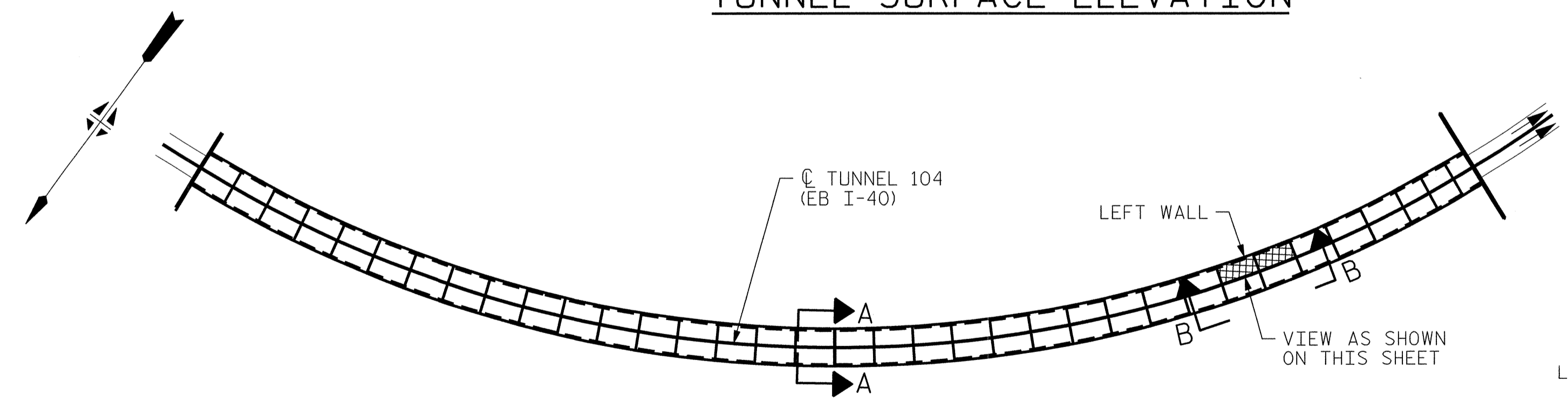
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CHECKED BY: M. MOYER DATE: 07/2013

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 USER: msells DATE: 7/22/2014
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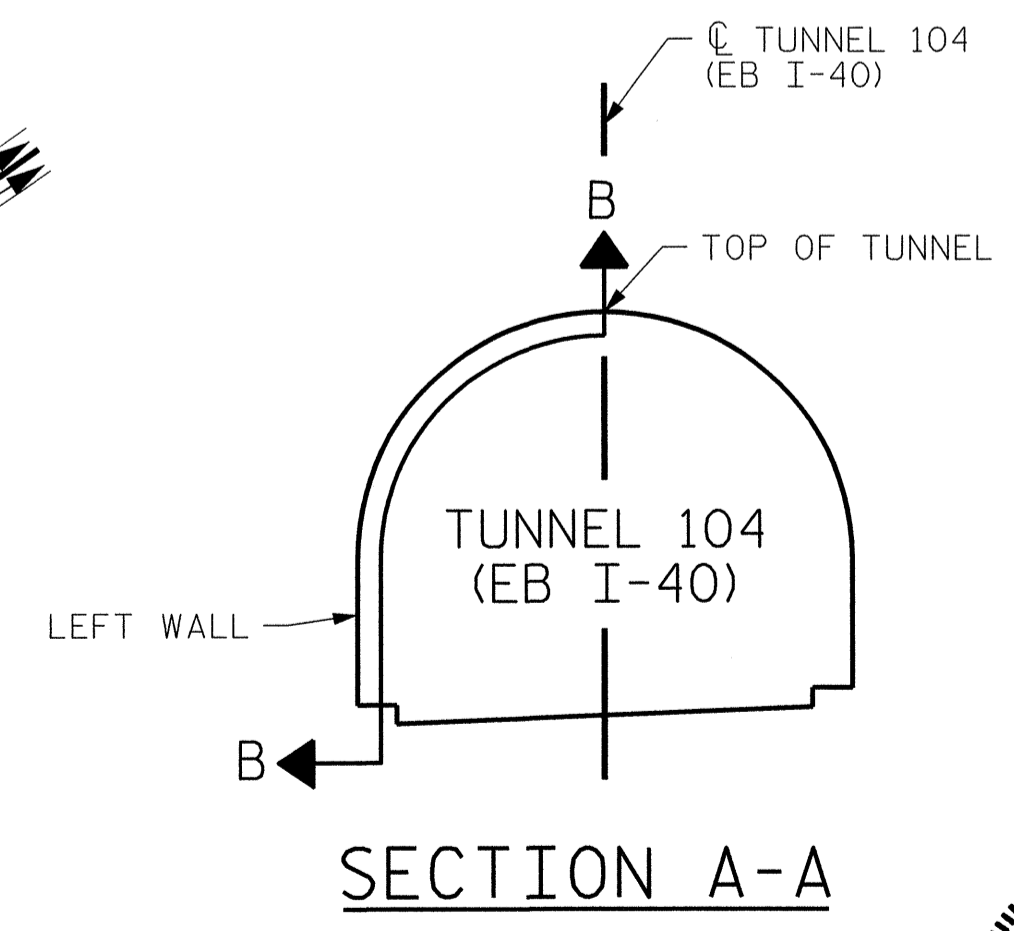
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VIEW B-B: REPAIR SEGMENTS 7L & 8L
TUNNEL SURFACE ELEVATION



KEY PLAN



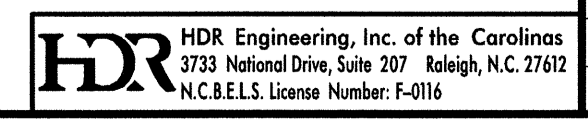
SECTION A-A

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 7L & 8L



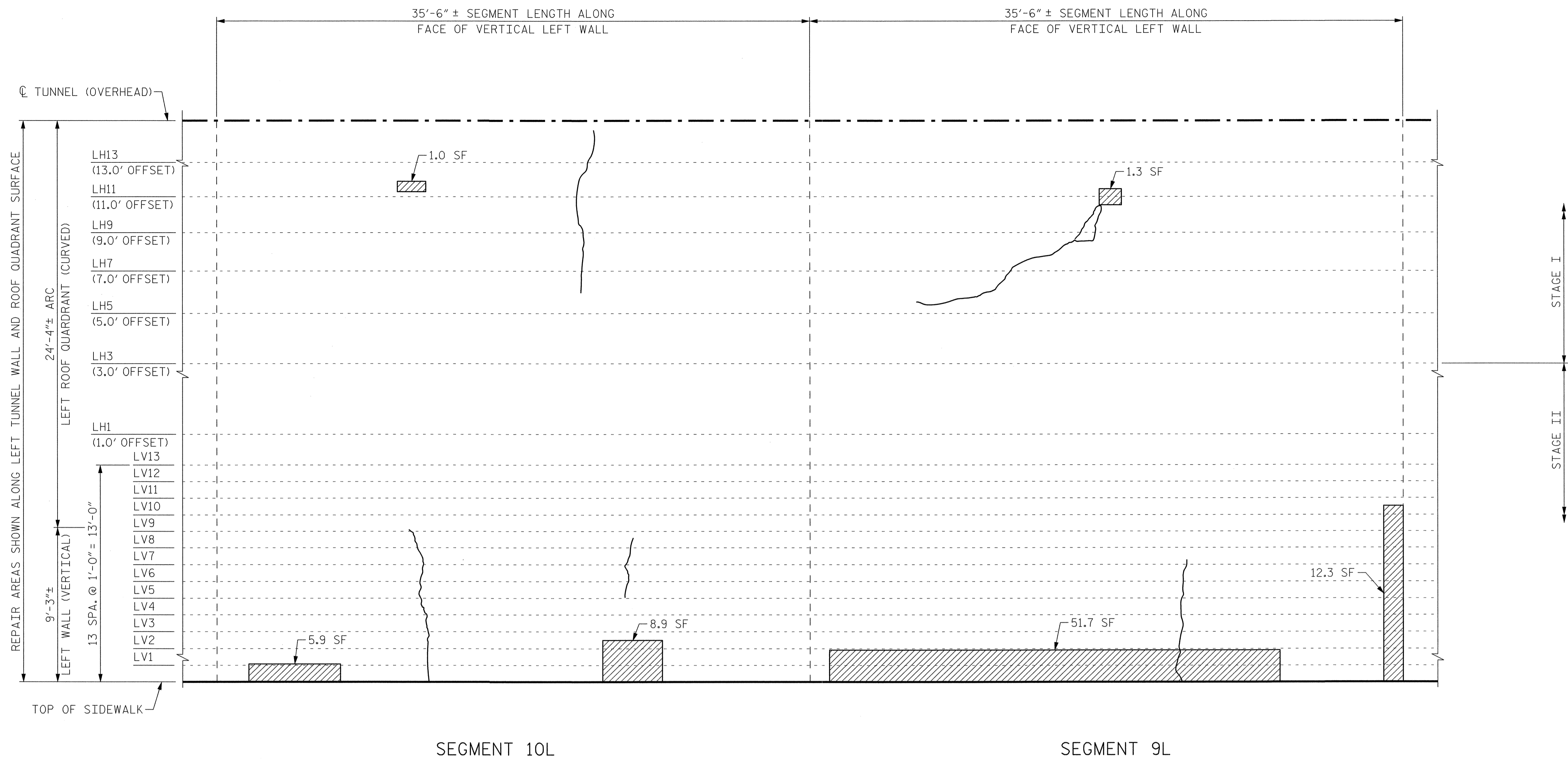
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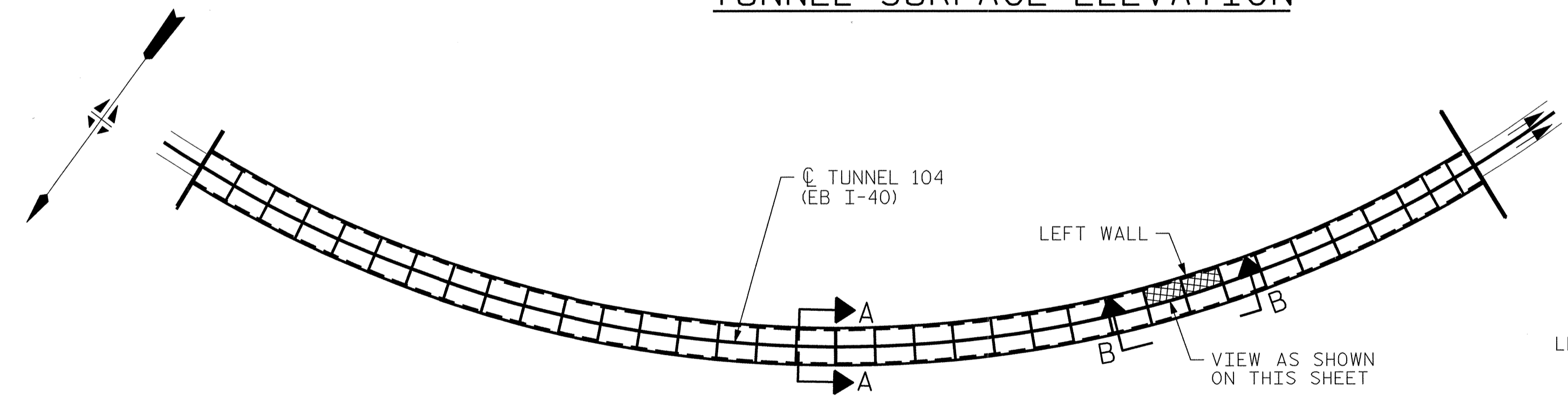
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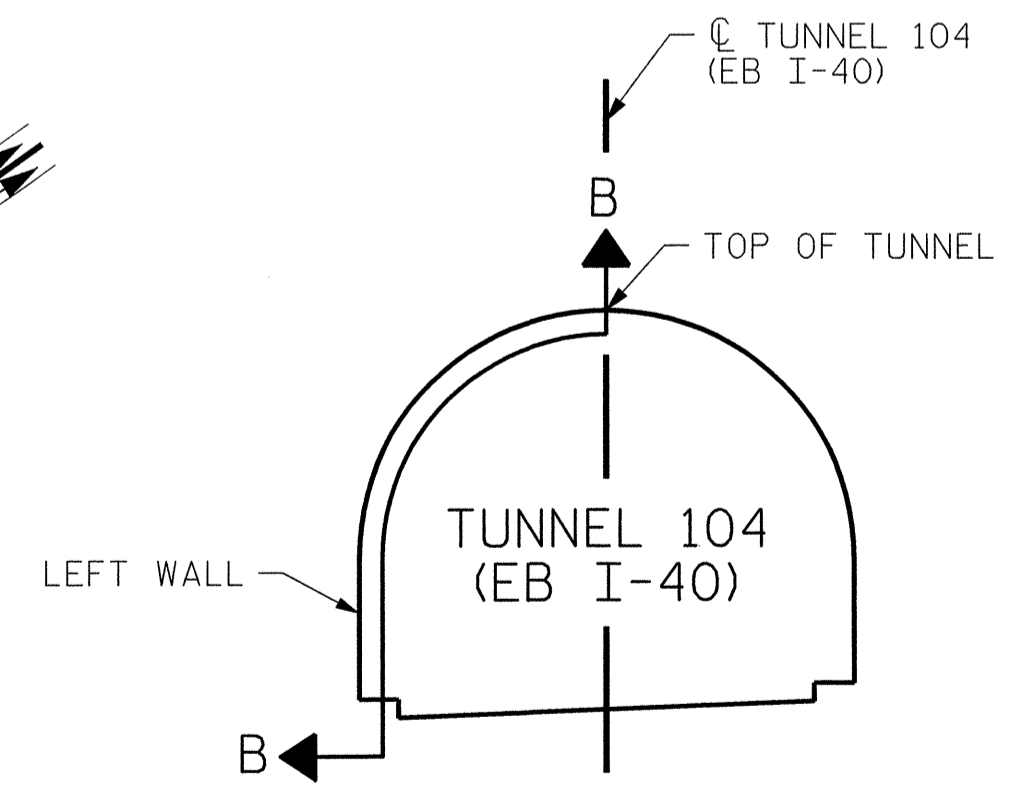
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SHOTCRETE REPAIRS SEGMENT 10L	CF	5.3



VIEW B-B: REPAIR SEGMENTS 9L & 10L
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 9L & 10L



7-23-14

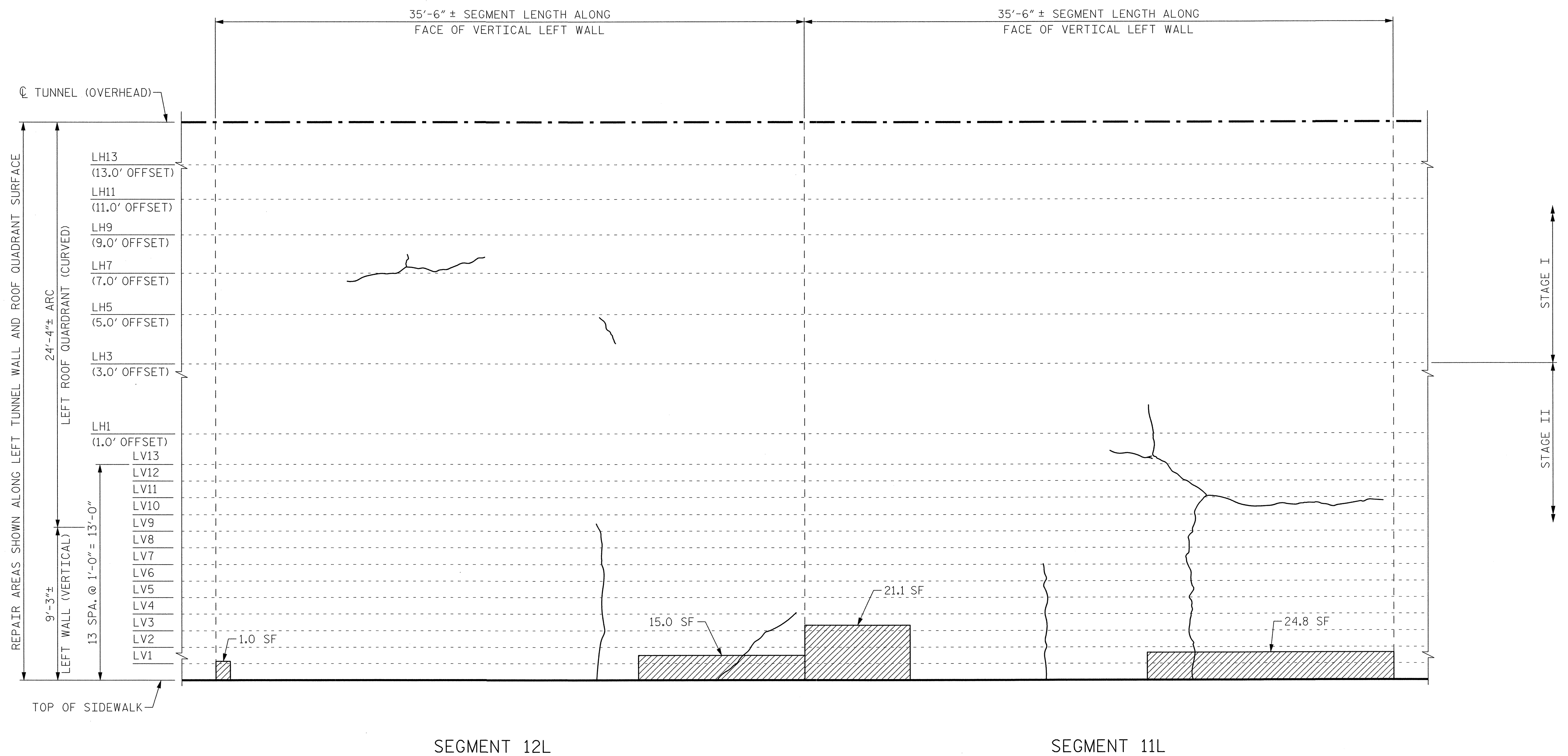
DRAWN BY: M. SELLS DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013

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

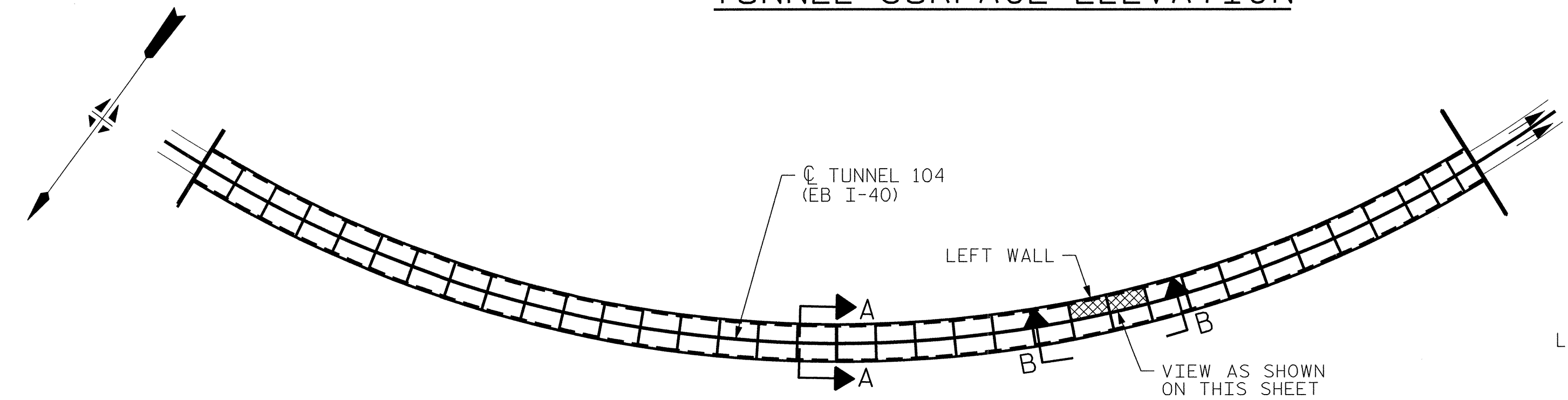
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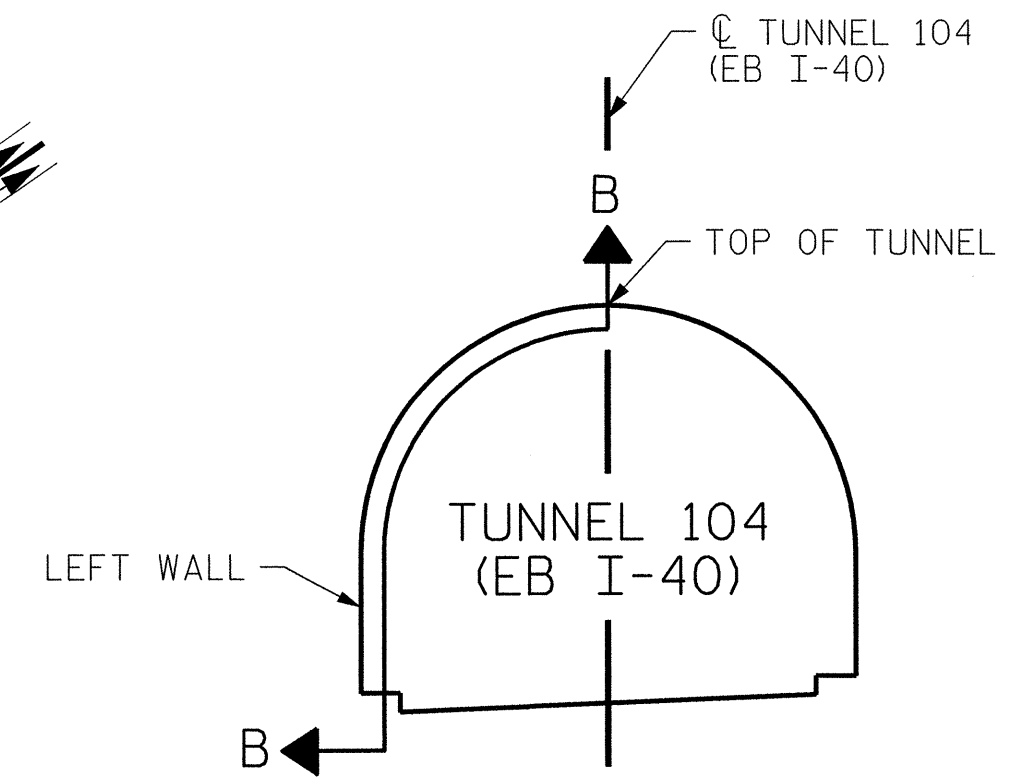
BILL OF MATERIAL		
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VIEW B-B: REPAIR SEGMENTS 11L & 12L
TUNNEL SURFACE ELEVATION



KEY PLAN

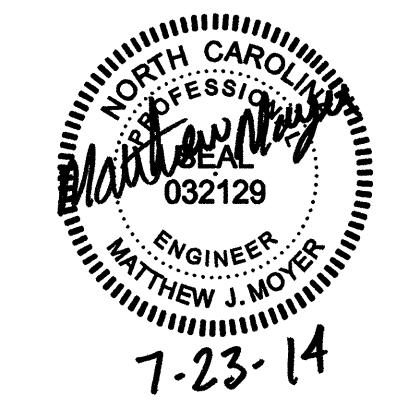


SECTION A-A

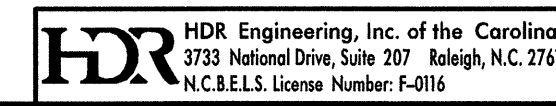
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 11L & 12L



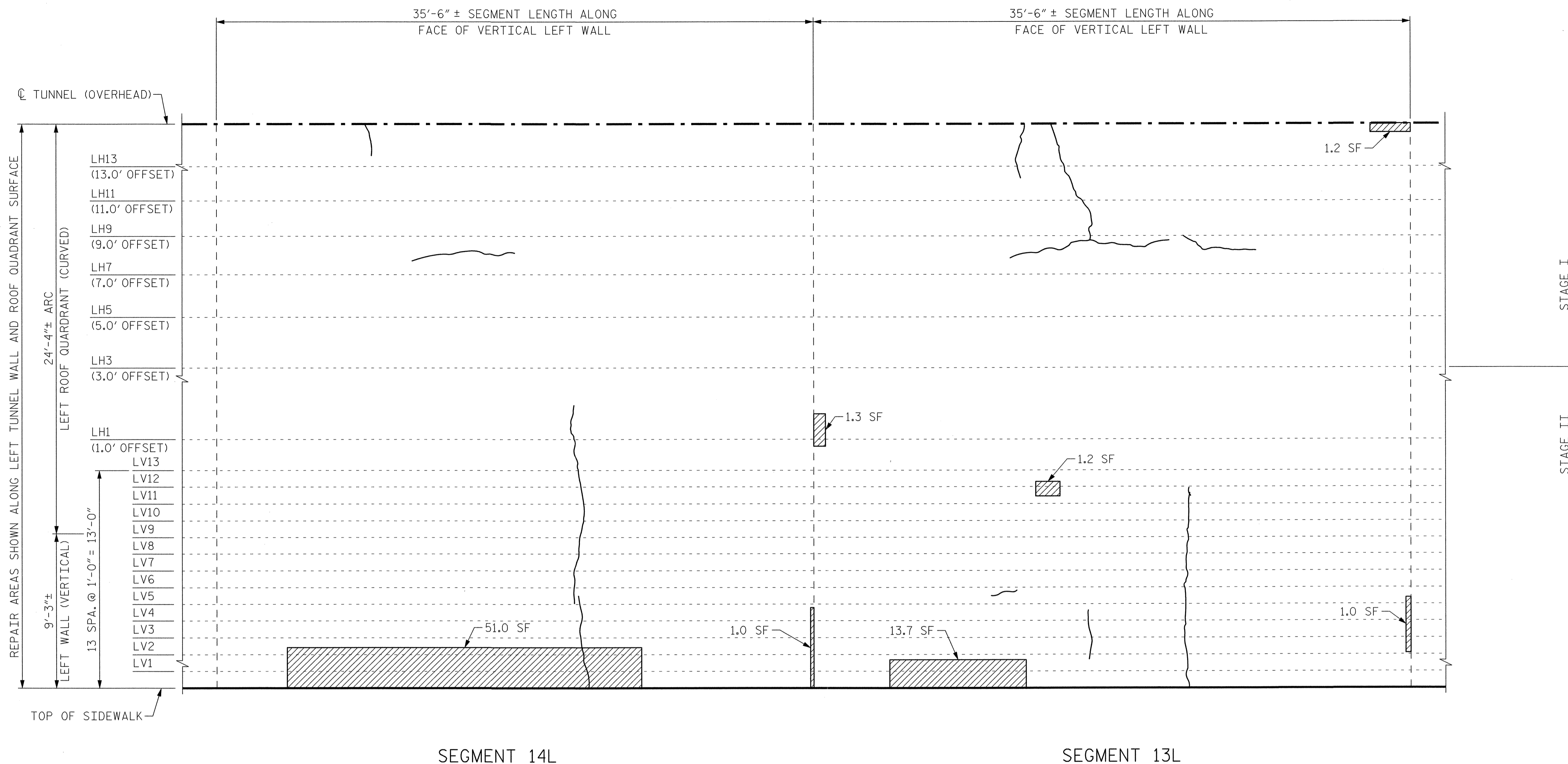
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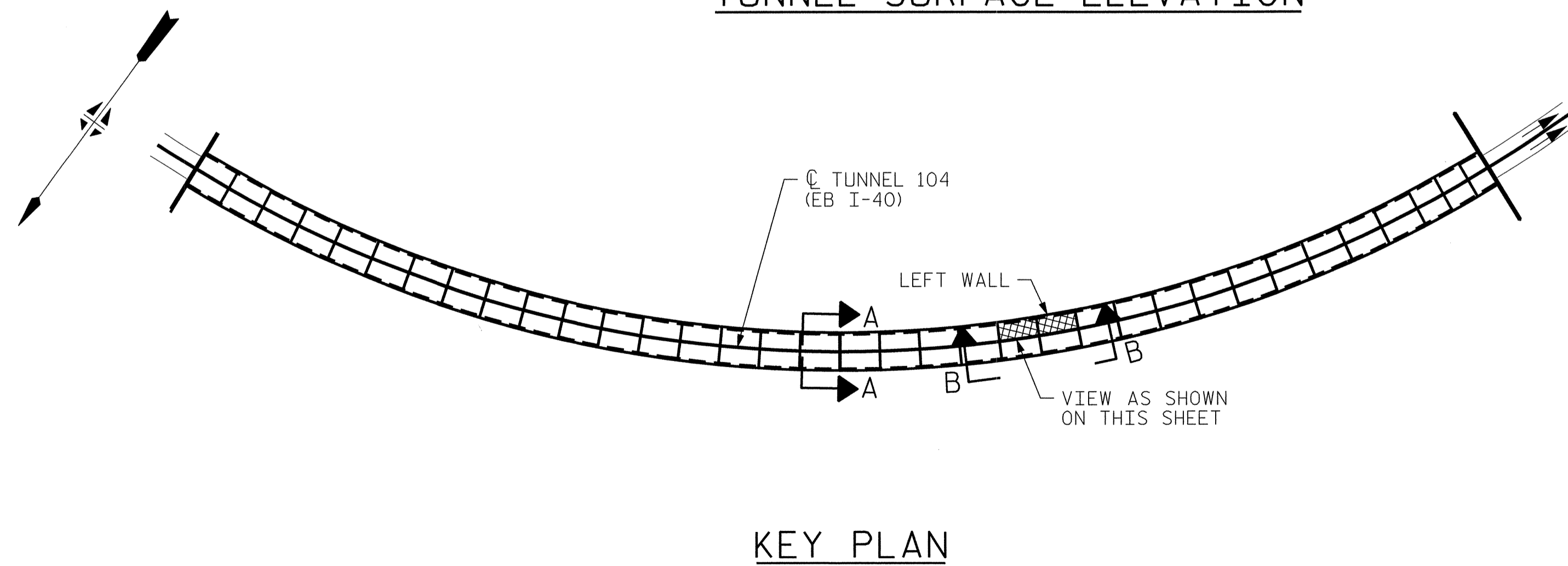
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CHECKED BY: M. MOYER DATE: 07/2013

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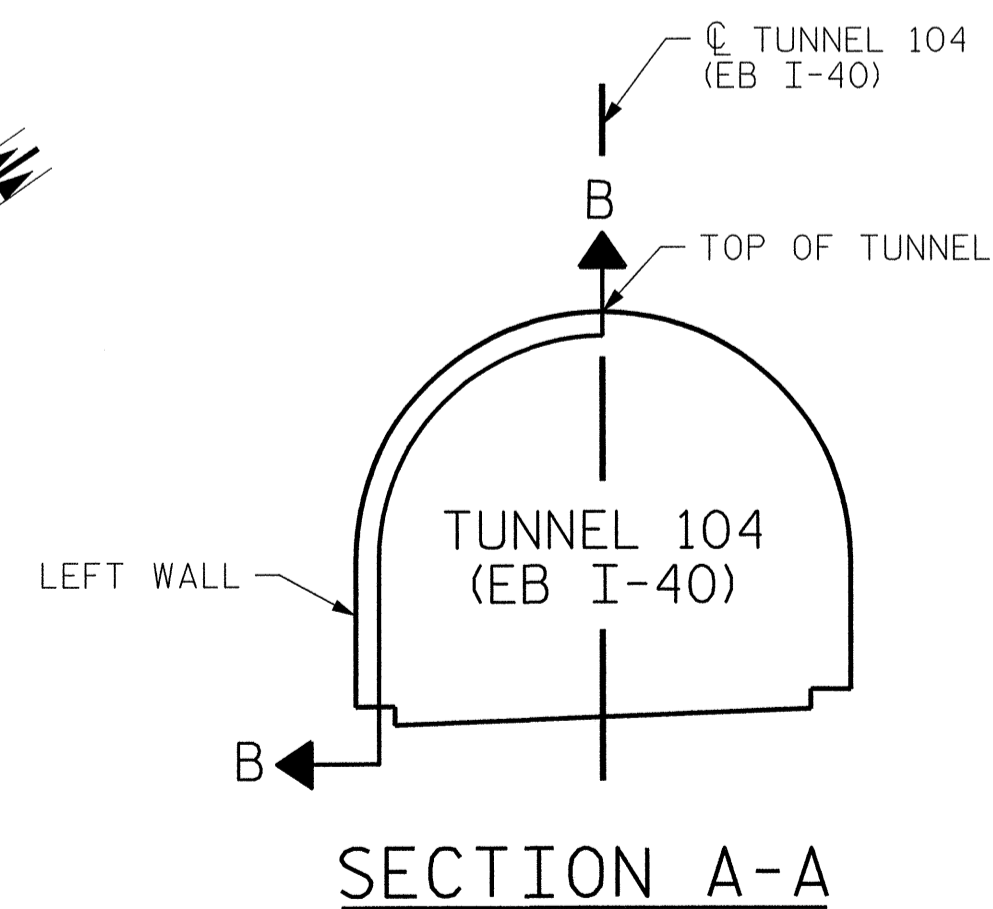
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SHOTCRETE REPAIRS SEGMENT 13L	CF	6.1
SHOTCRETE REPAIRS SEGMENT 14L	CF	17.3



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



KEY PLAN

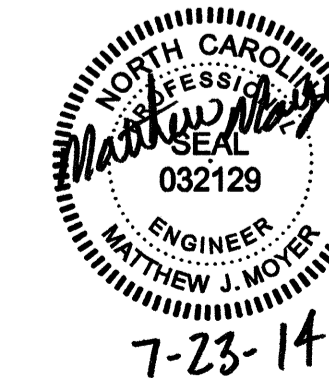


SECTION A-A

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



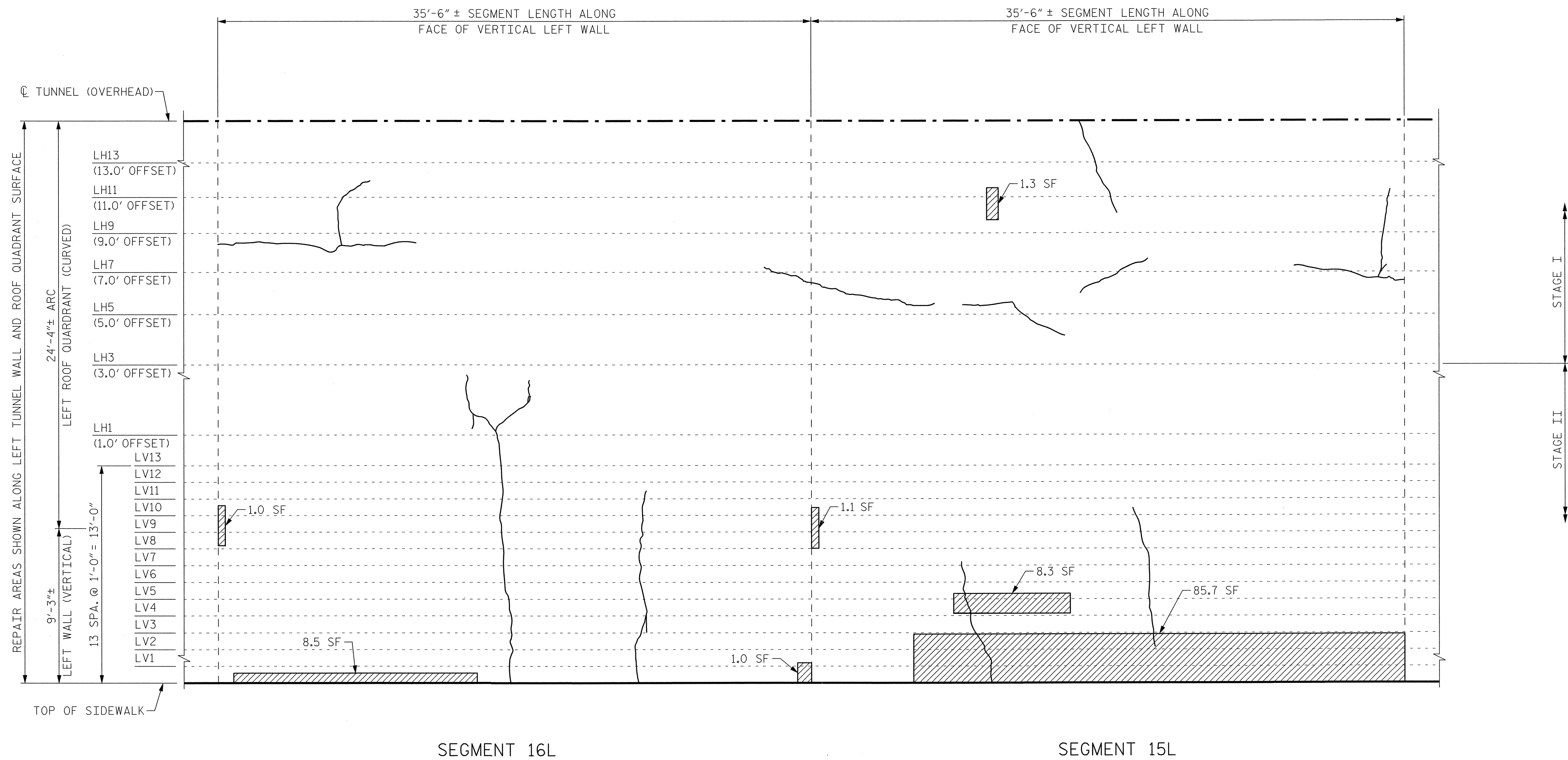
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CHECKED BY : M. MOYER DATE : 07/2013

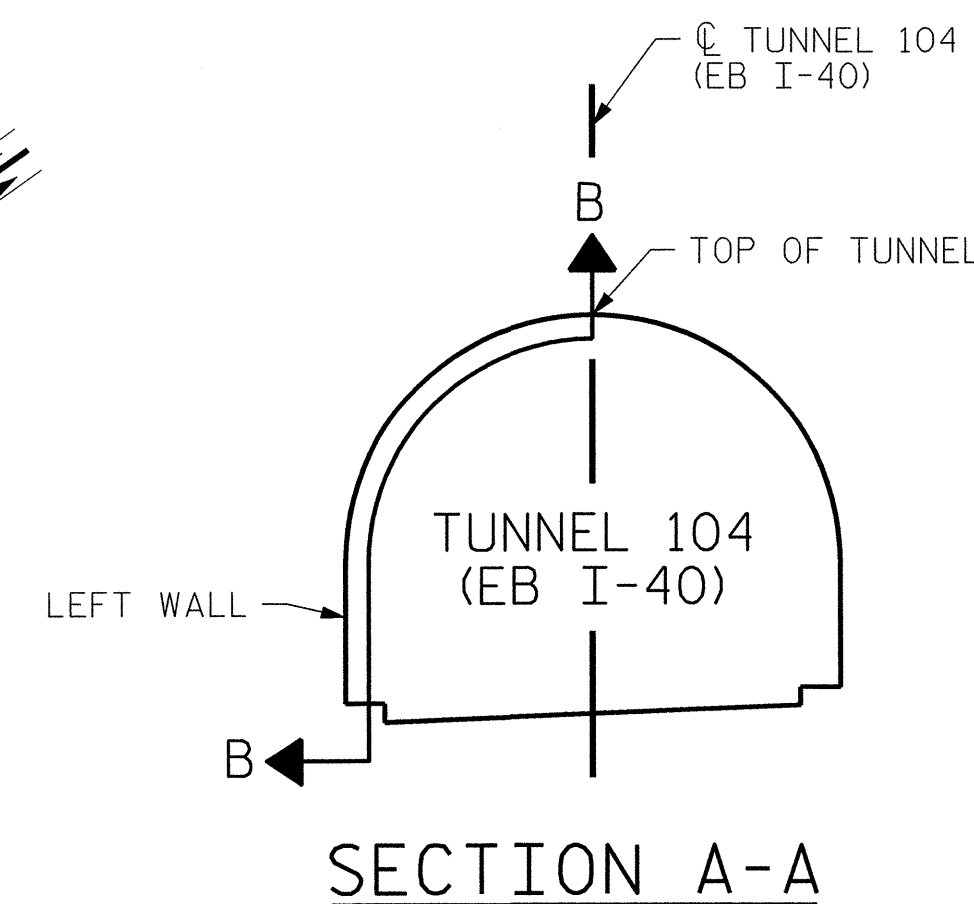
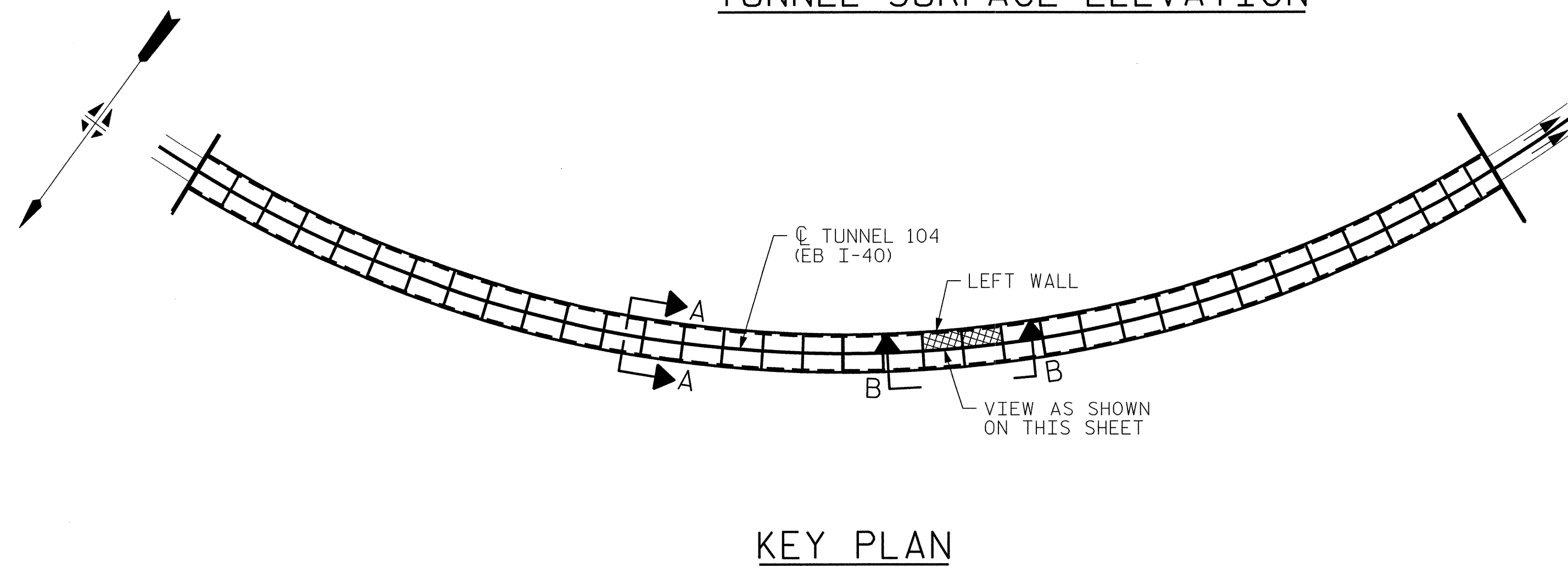
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C. E.L.S. License Number: F-0116

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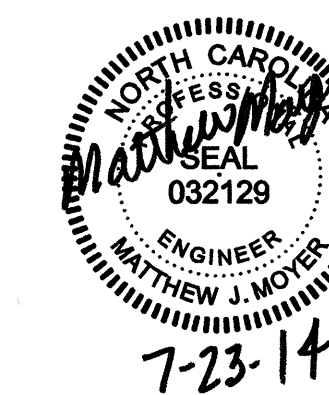
VIEW B-B: REPAIR SEGMENTS 15L & 16L
TUNNEL SURFACE ELEVATION



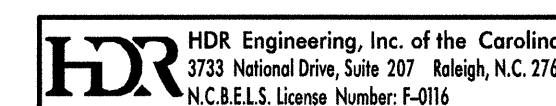
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 15L & 16L



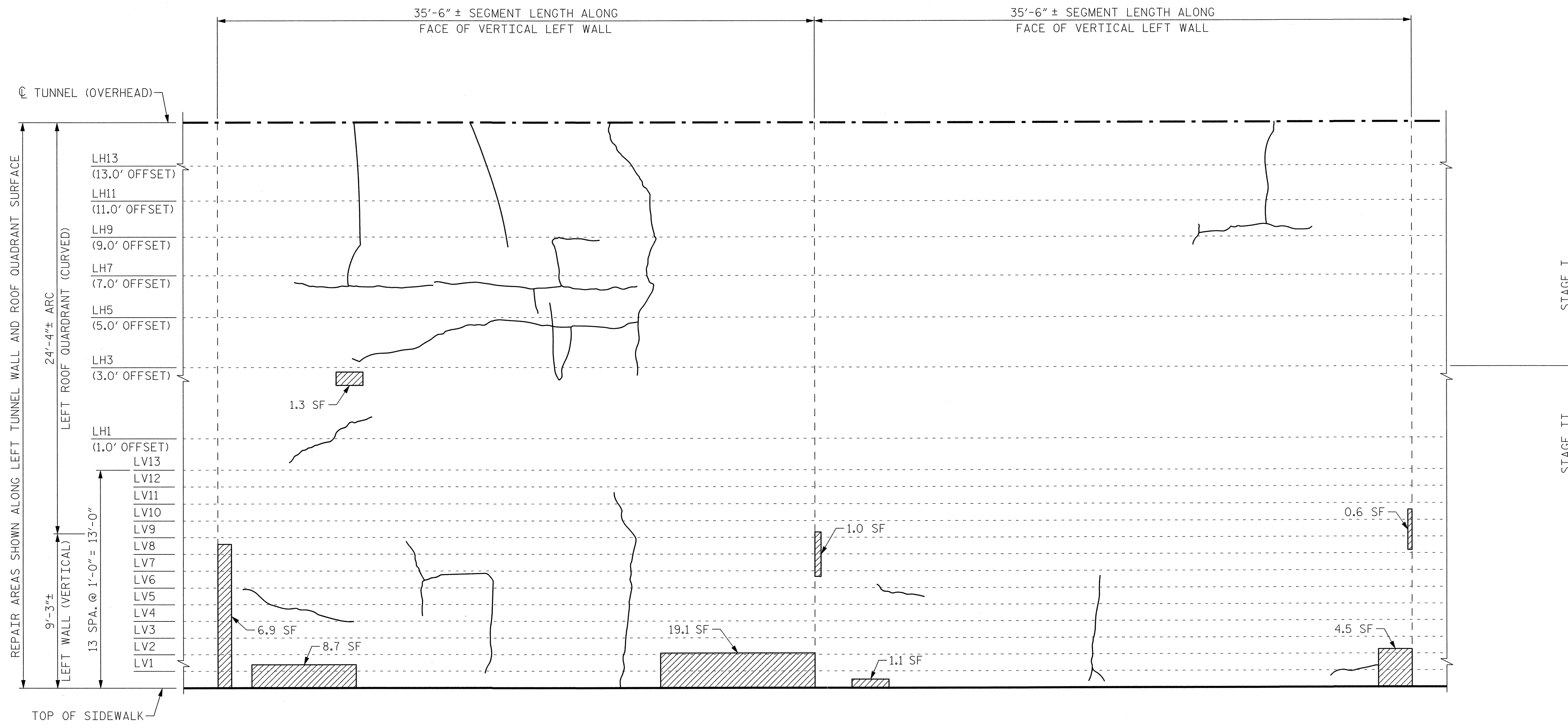
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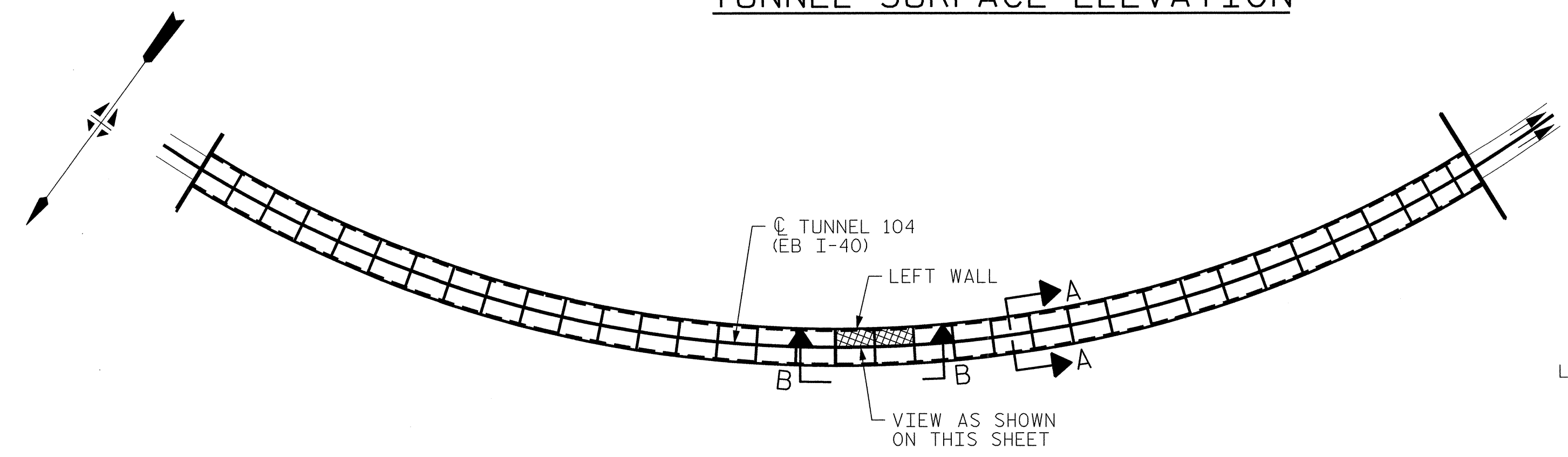
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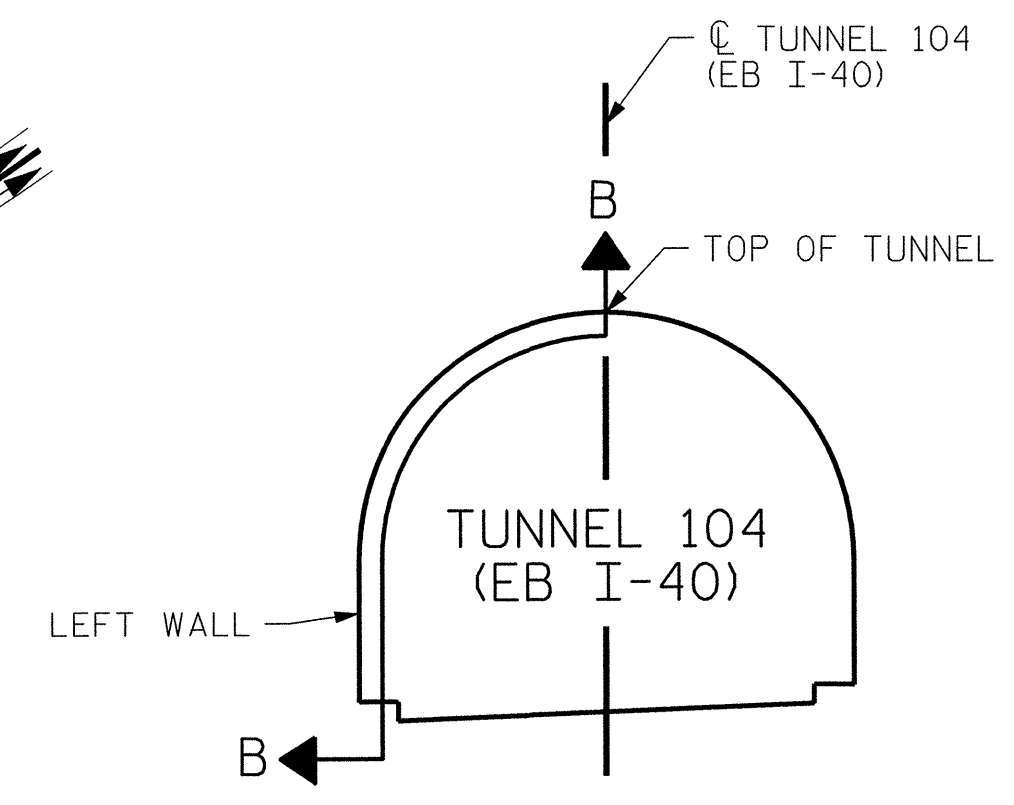
SEGMENT 18L

SEGMENT 17L

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



KEY PLAN



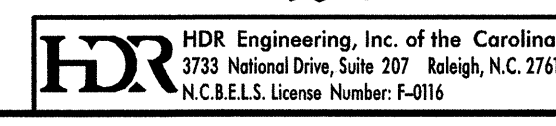
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR AREAS
SEGMENTS 17L & 18L



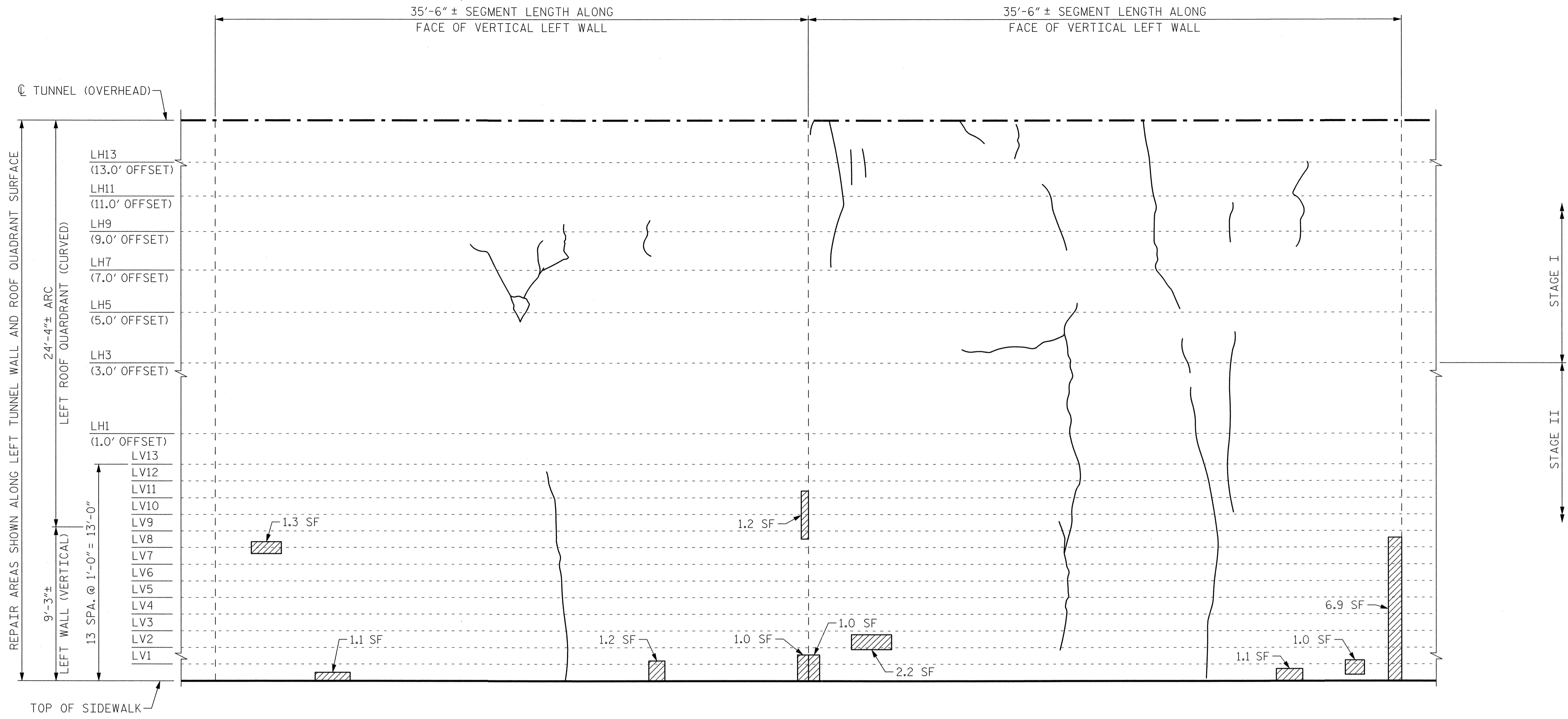
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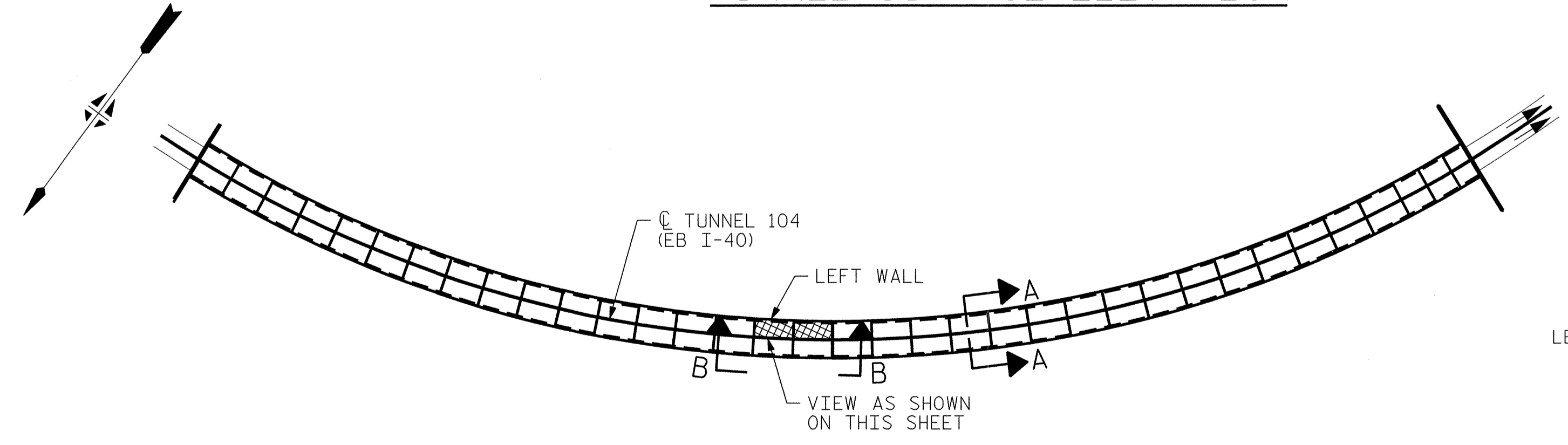
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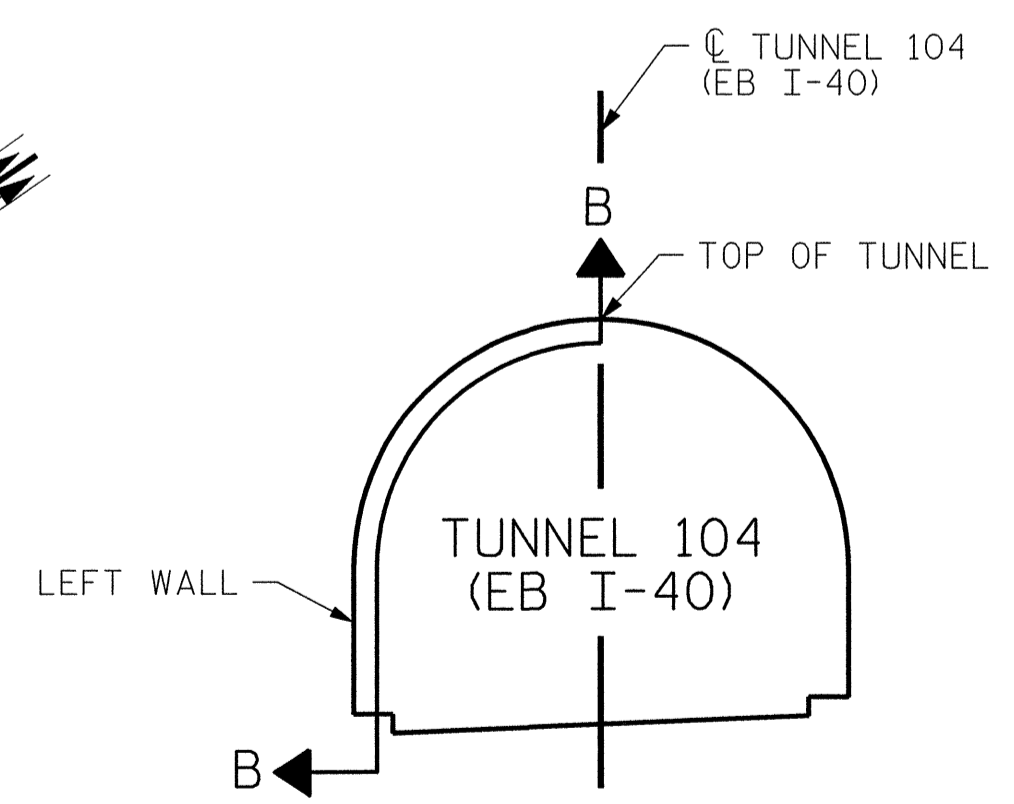
SEGMENT 20L

SEGMENT 19L

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



KEY PLAN



SECTION A-A

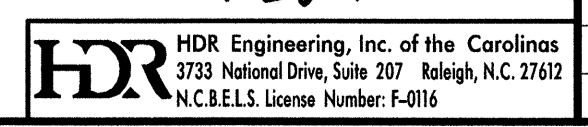
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TUNNEL 104 REPAIR
 AREAS
 SEGMENTS 19L & 20L



7-23-14

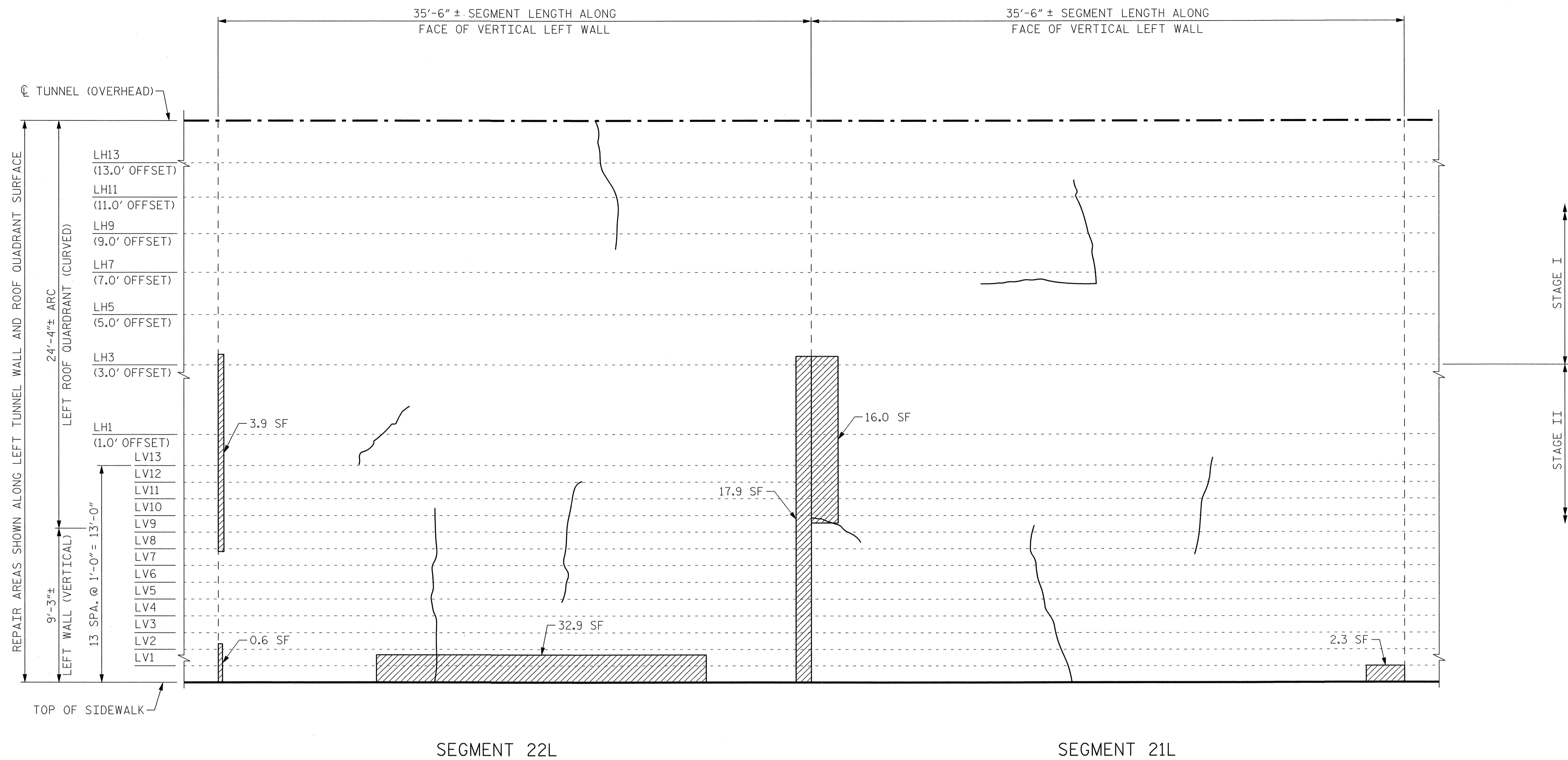
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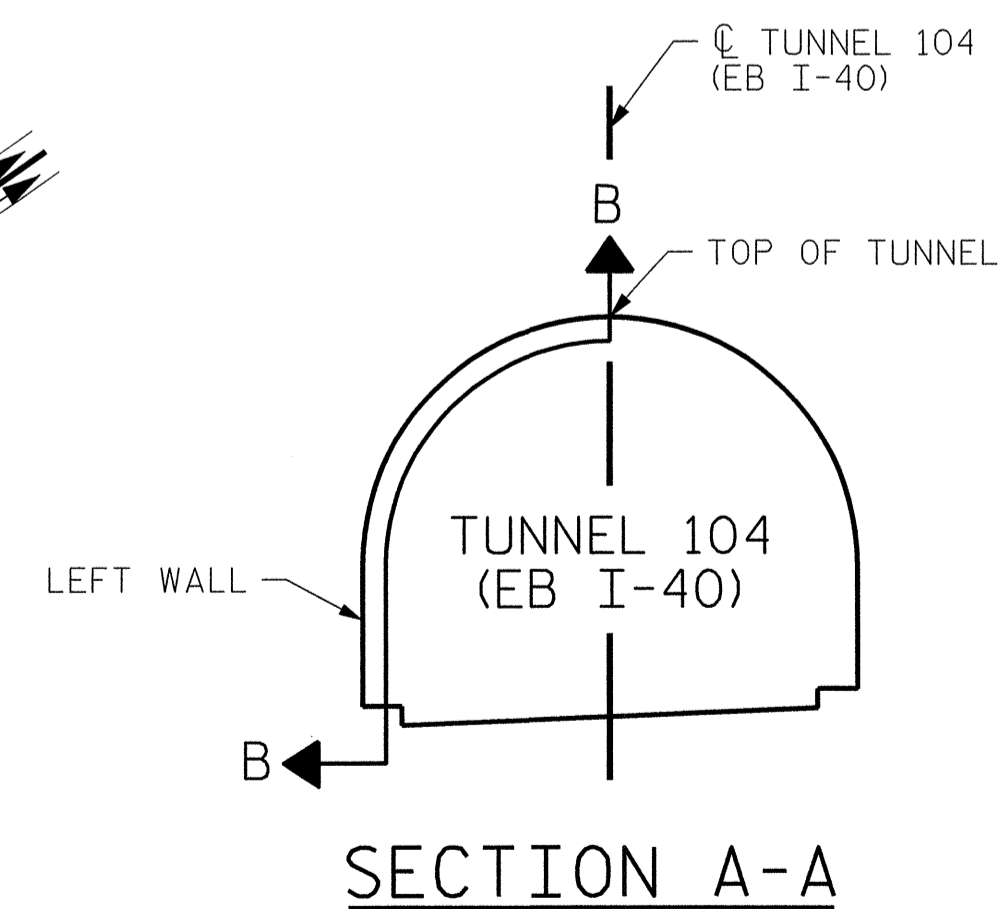
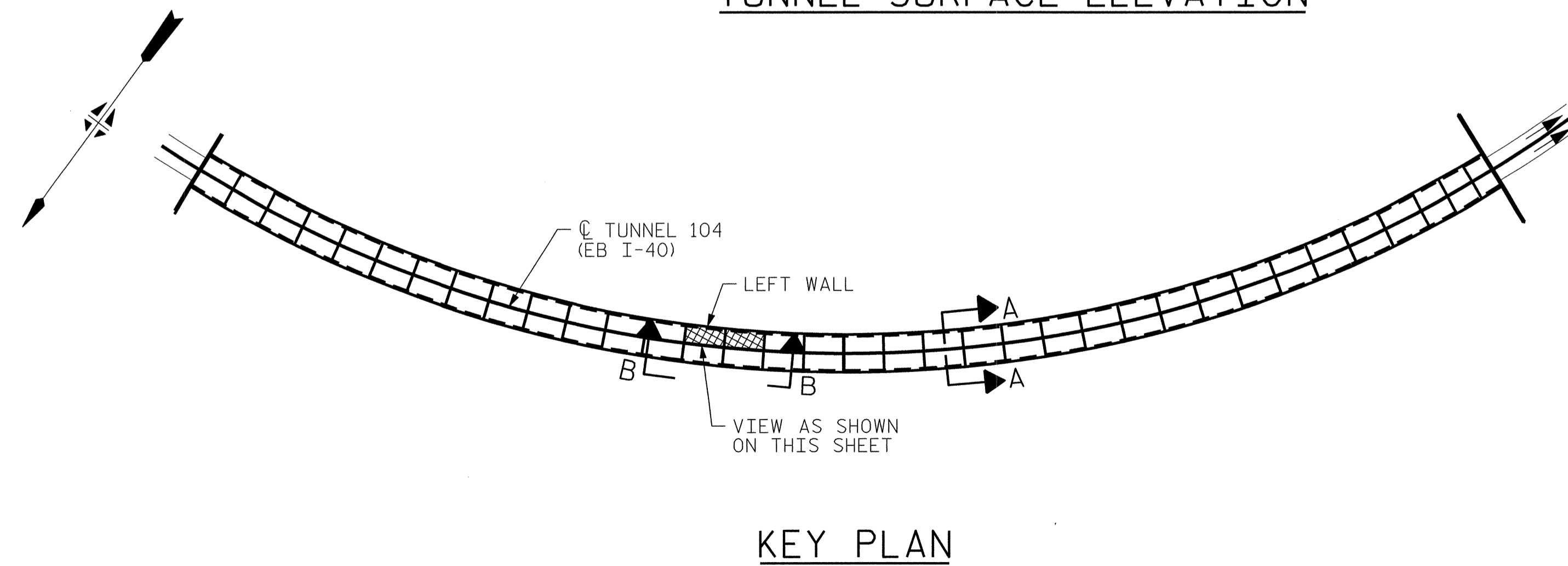
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BILL OF MATERIAL		
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SHOTCRETE REPAIRS SEGMENT 22L	CF	18.4



VIEW B-B: REPAIR SEGMENTS 21L & 22L
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 21L & 22L



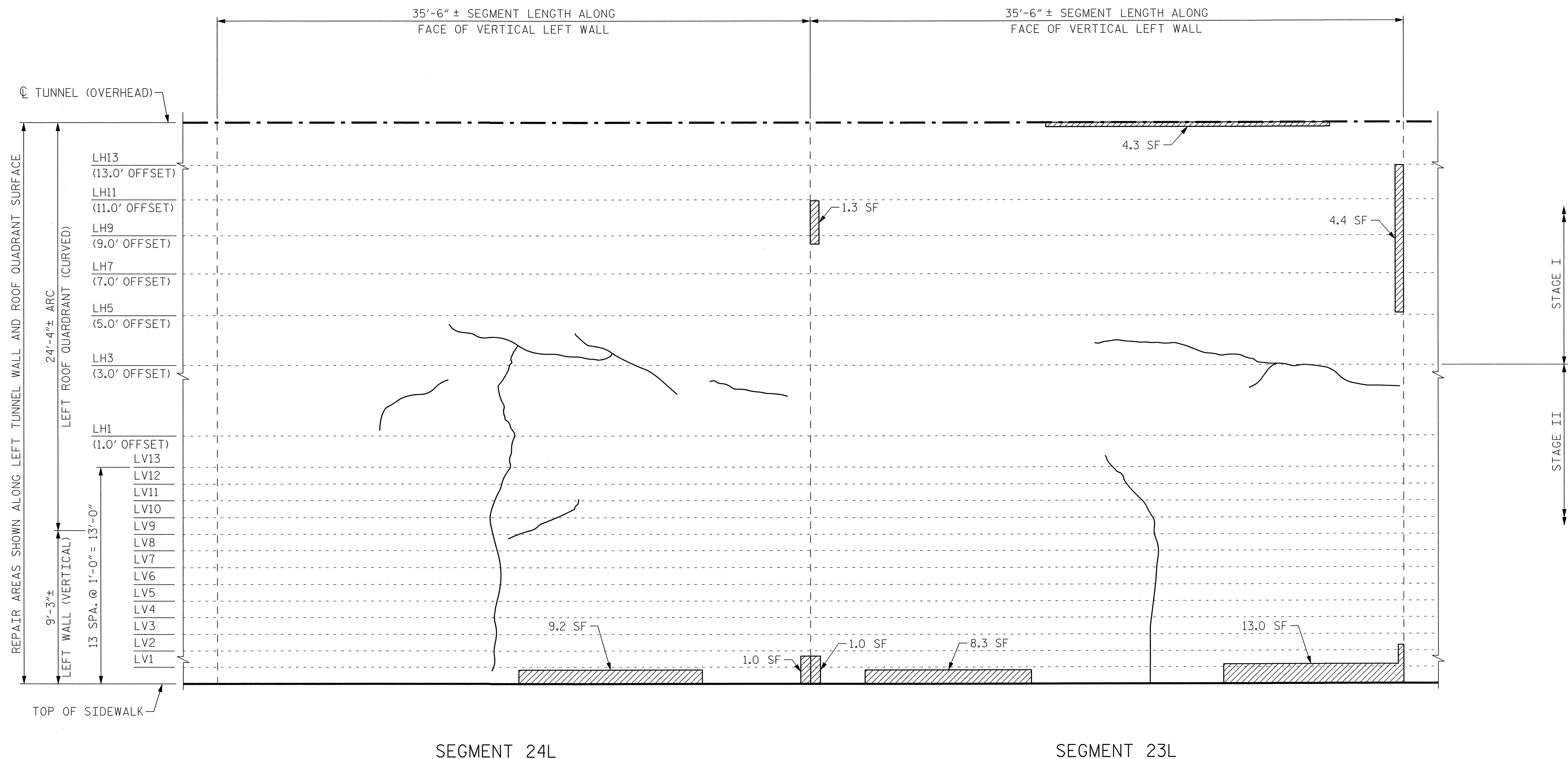
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DRAWN BY: M. SELLS DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013

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

PLOT DRIVER: NCD01.pdf_mono_eng_100.plt
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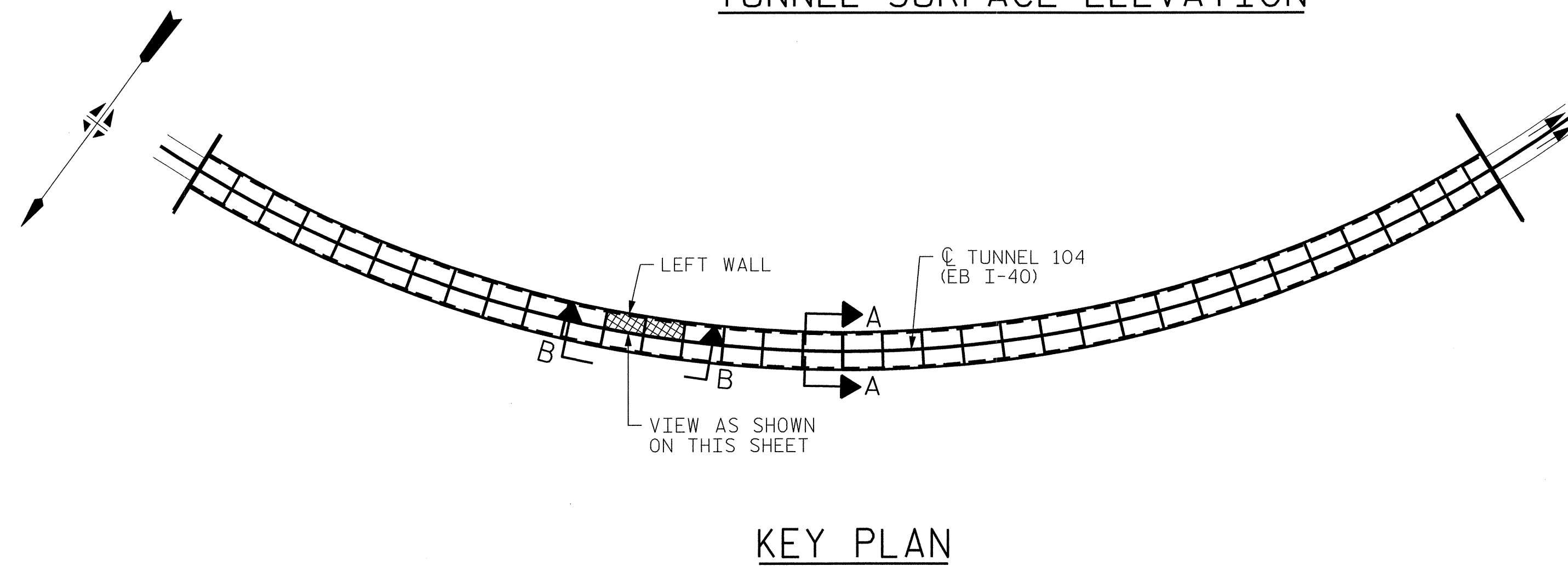
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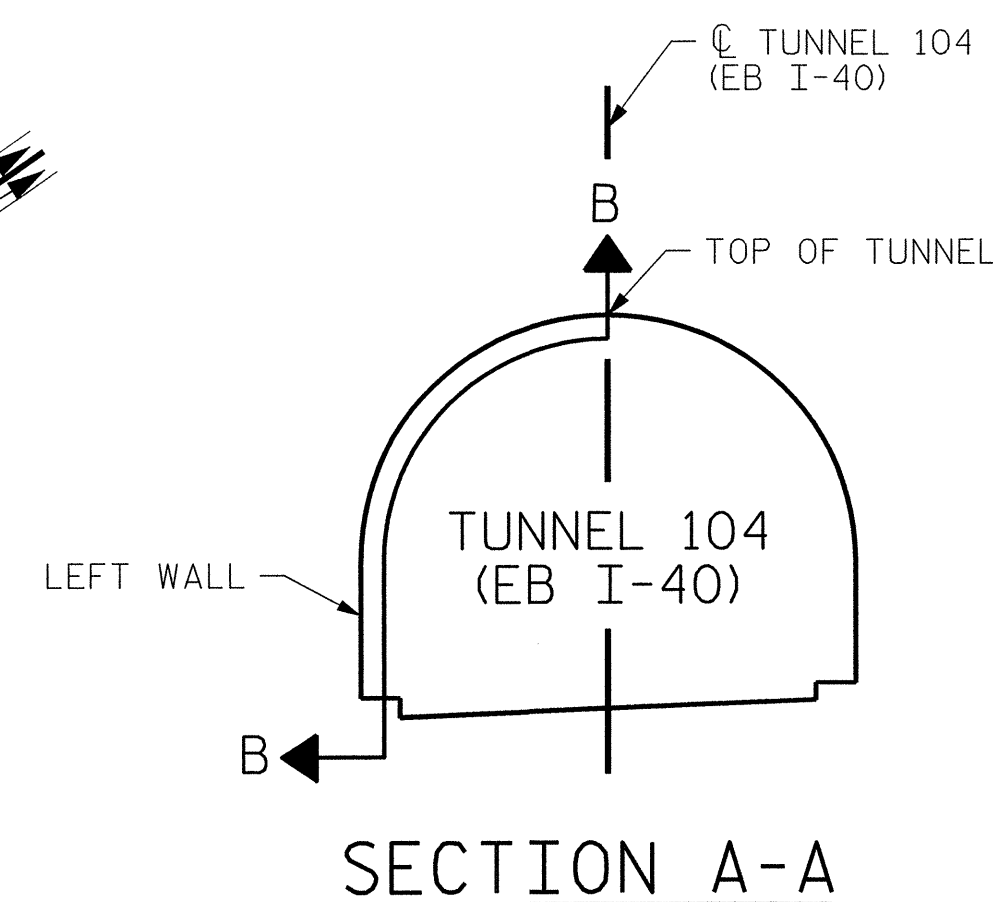
SEGMENT 24L

SEGMENT 23L

**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**

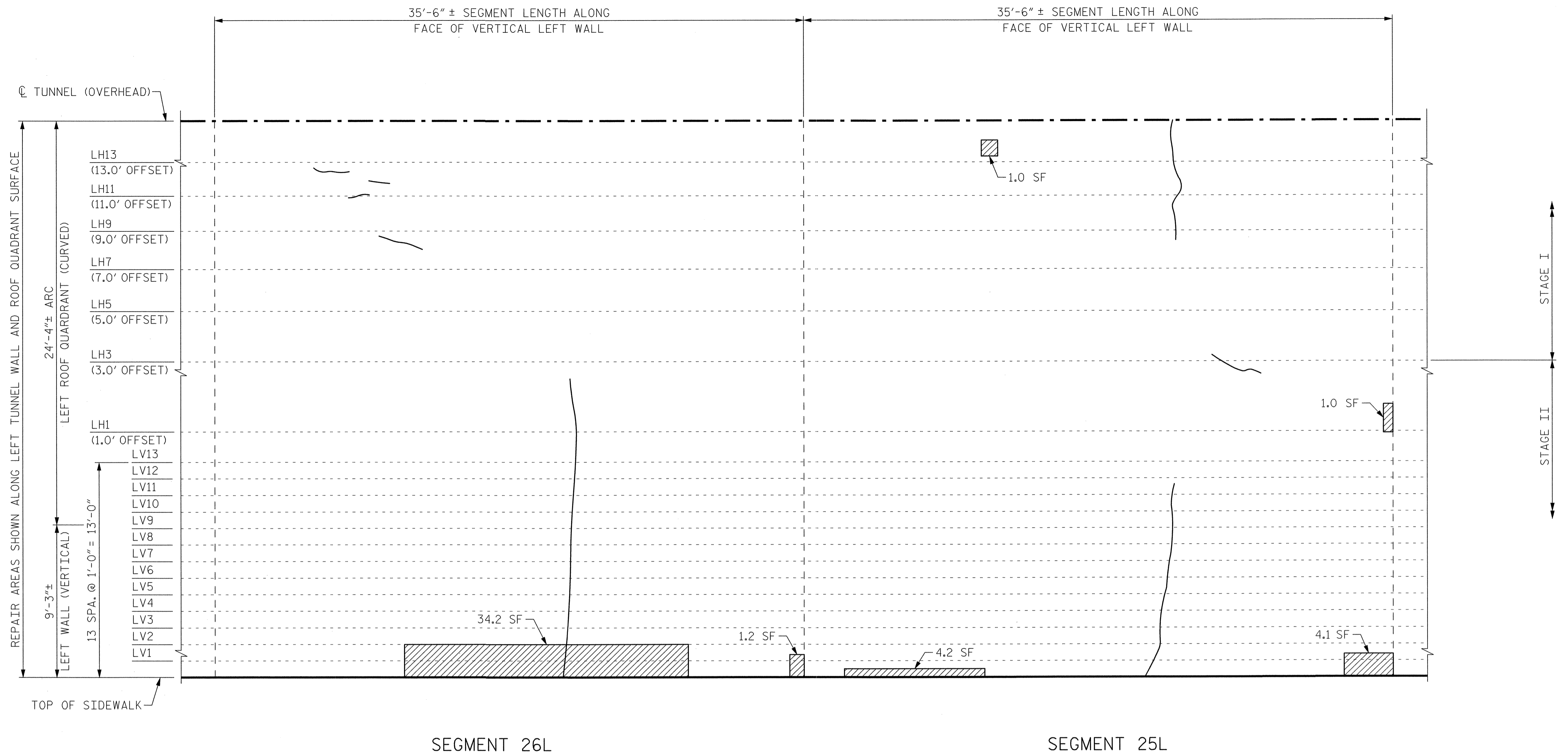


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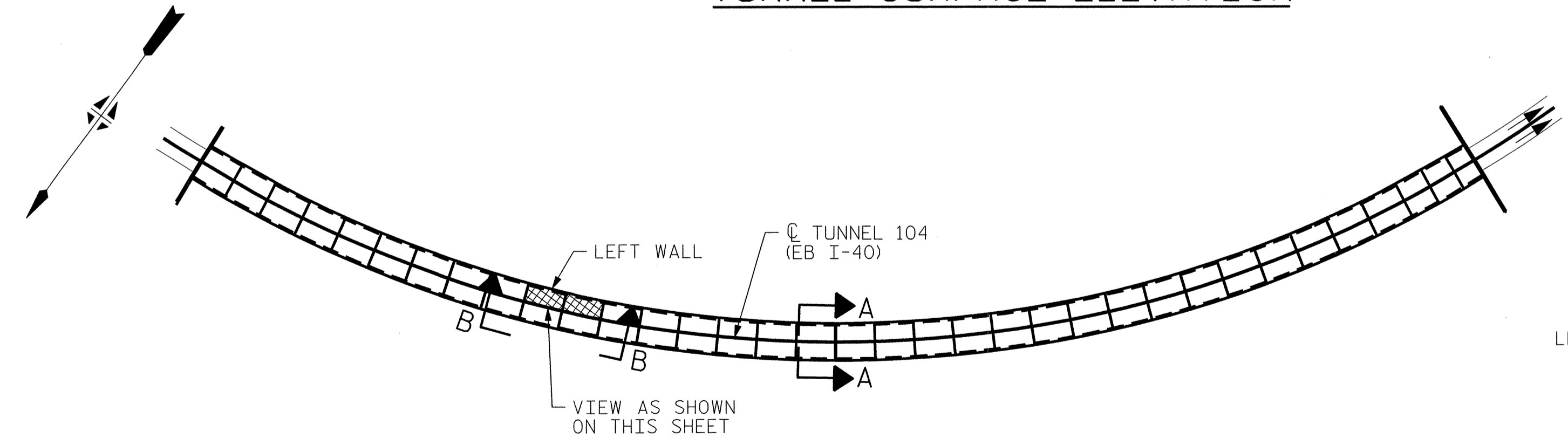
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 3723 National Drive, Suite 307 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

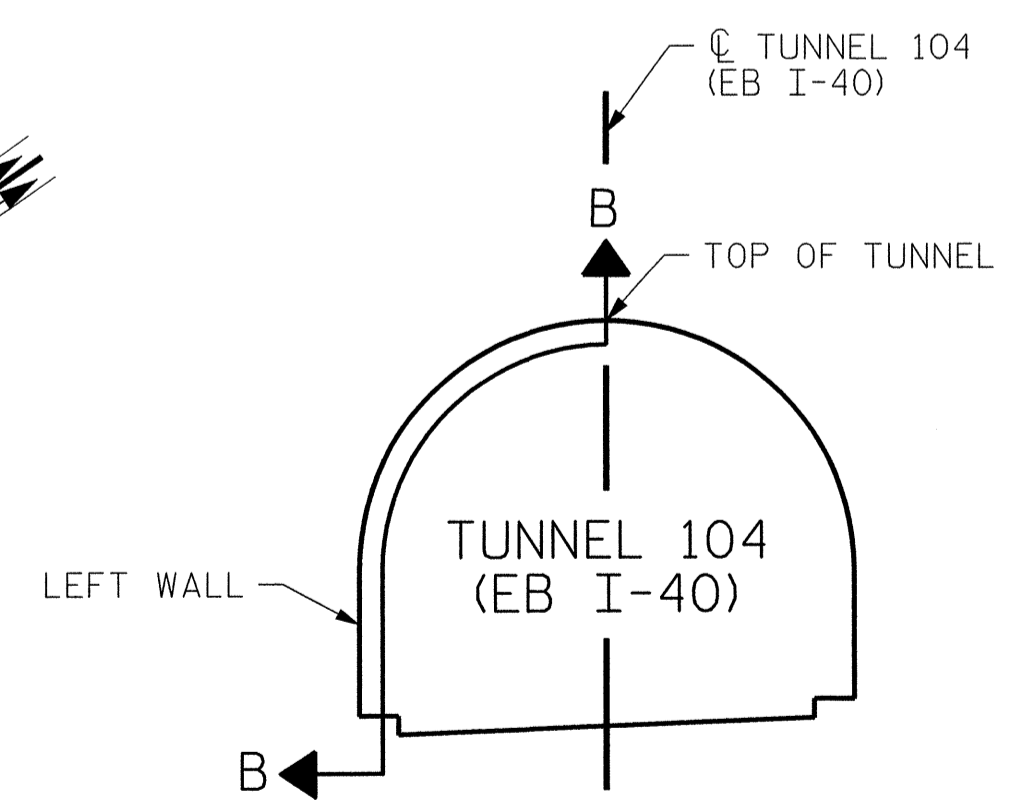
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VIEW B-B: REPAIR SEGMENTS 25L & 26L
TUNNEL SURFACE ELEVATION



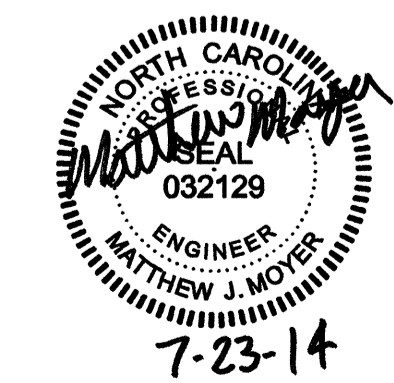
KEY PLAN



SECTION A-A

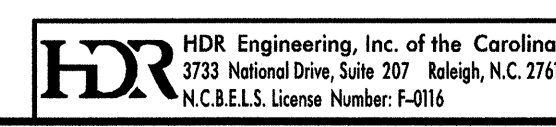
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 104 REPAIR
AREAS
SEGMENTS 25L & 26L



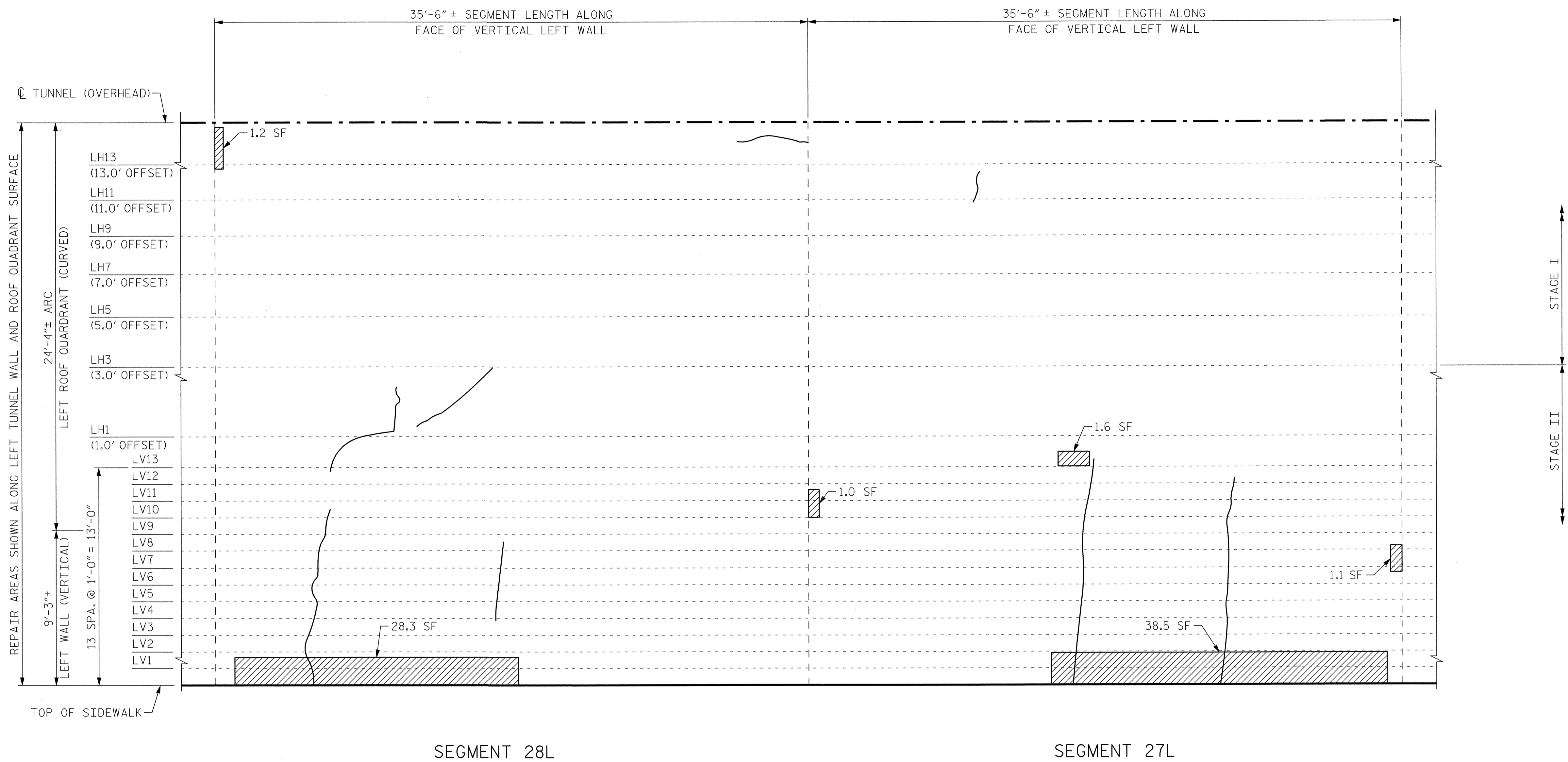
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DRAWN BY: M. SELLS DATE: 07/2013
CHECKED BY: M. MOYER DATE: 07/2013

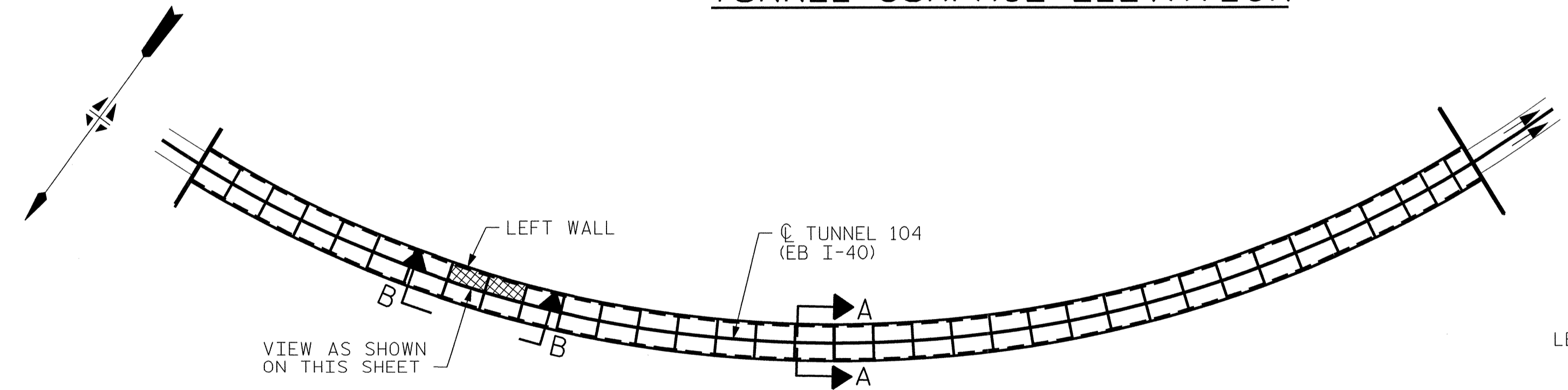


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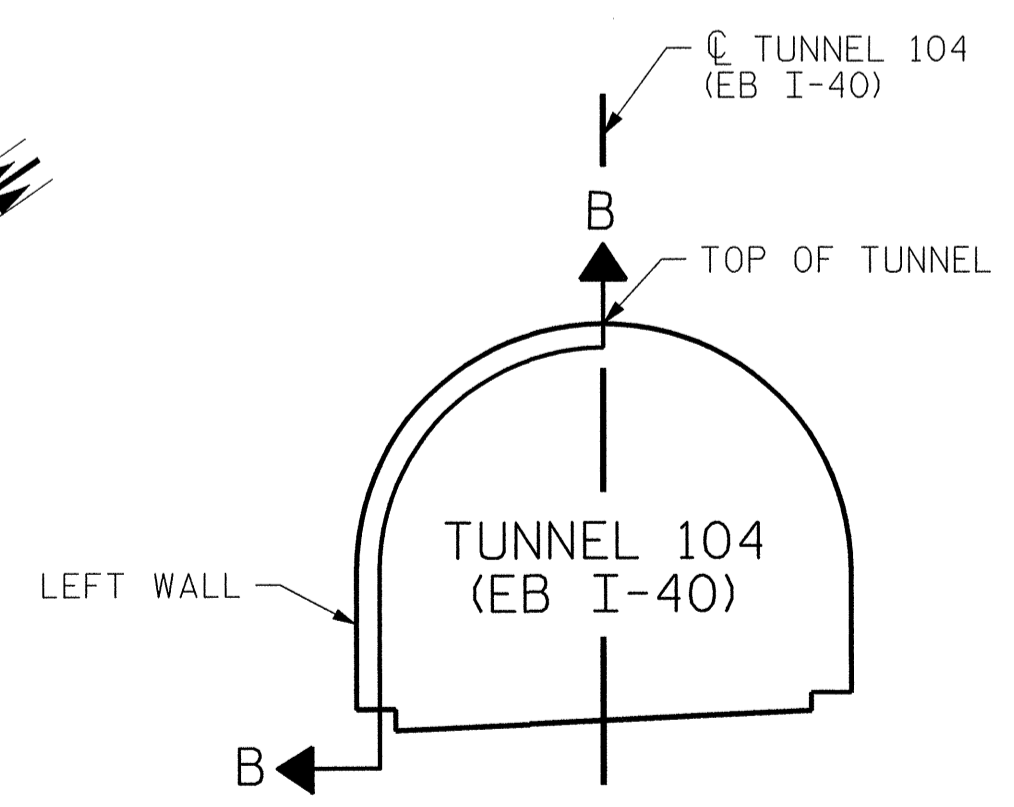
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 27L	CF	14.1
SHOTCRETE REPAIRS SEGMENT 28L	CF	9.8



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



KEY PLAN



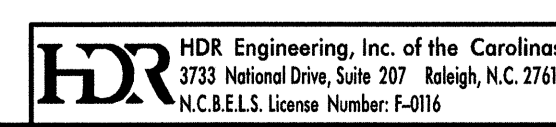
SECTION A-A

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



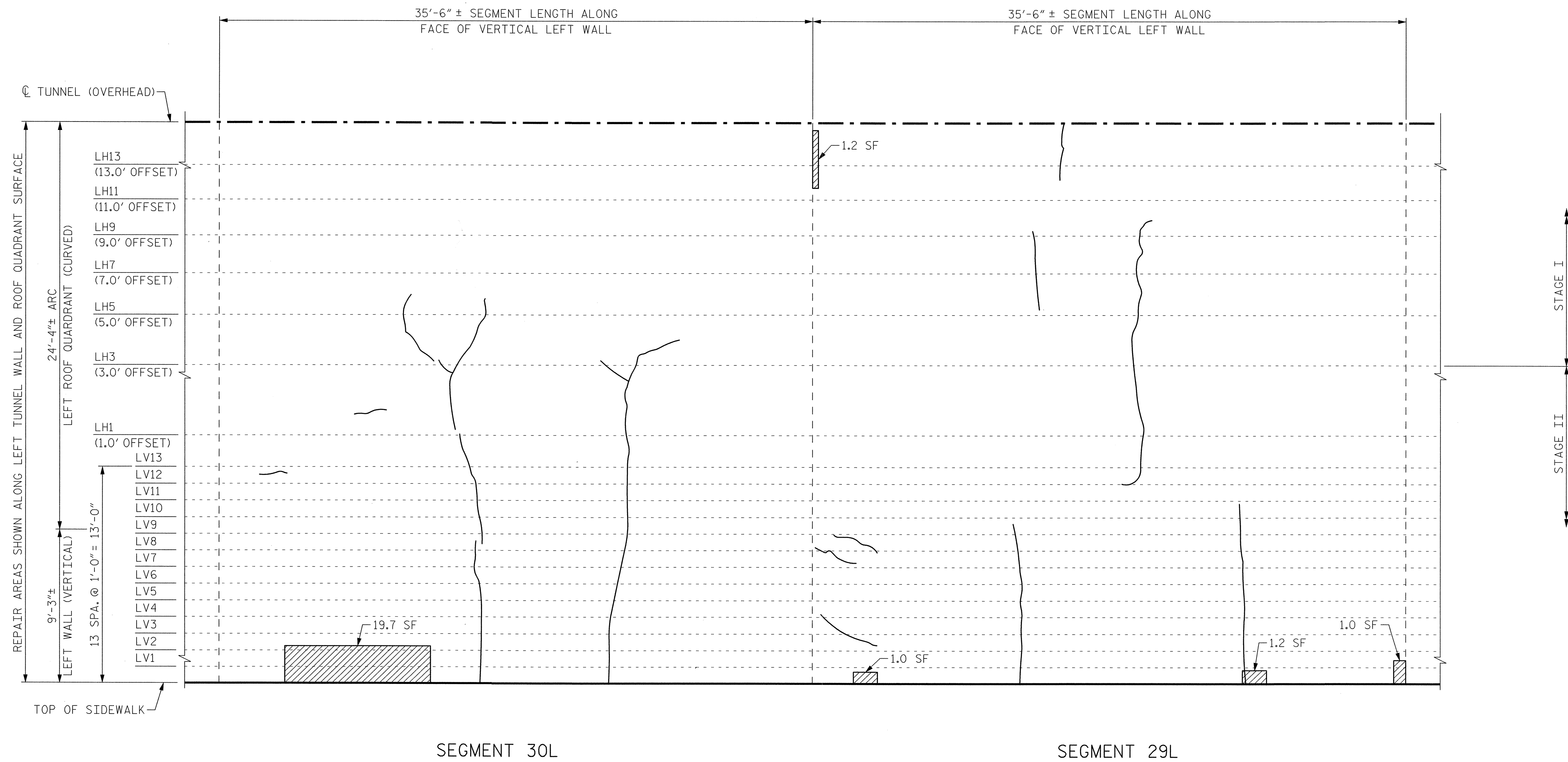
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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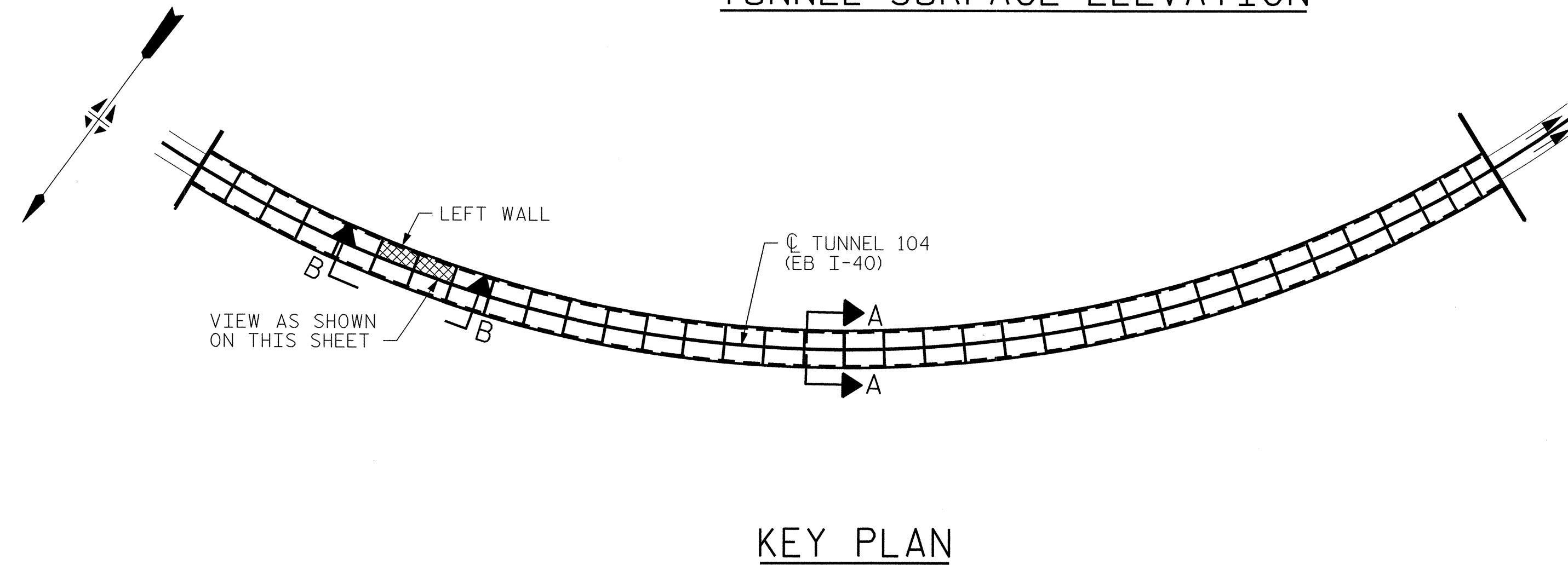
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CHECKED BY : M. MOYER DATE : 07/2013

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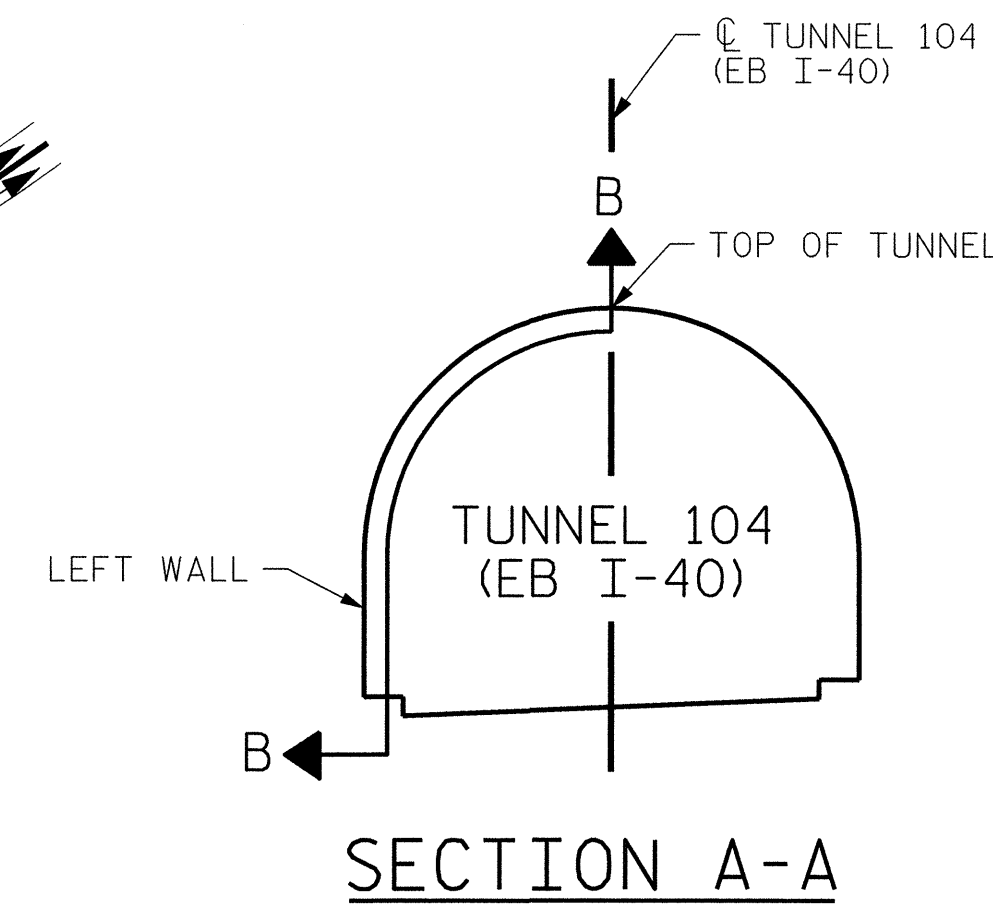
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 29L	CF	1.5
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VIEW B-B: REPAIR SEGMENTS 29L & 30L
TUNNEL SURFACE ELEVATION

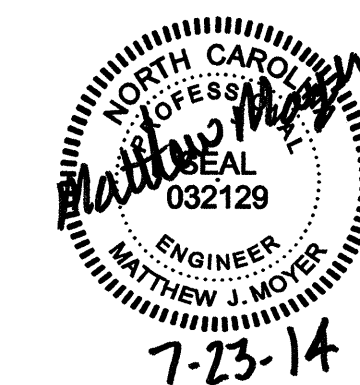


KEY PLAN



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 29L & 30L



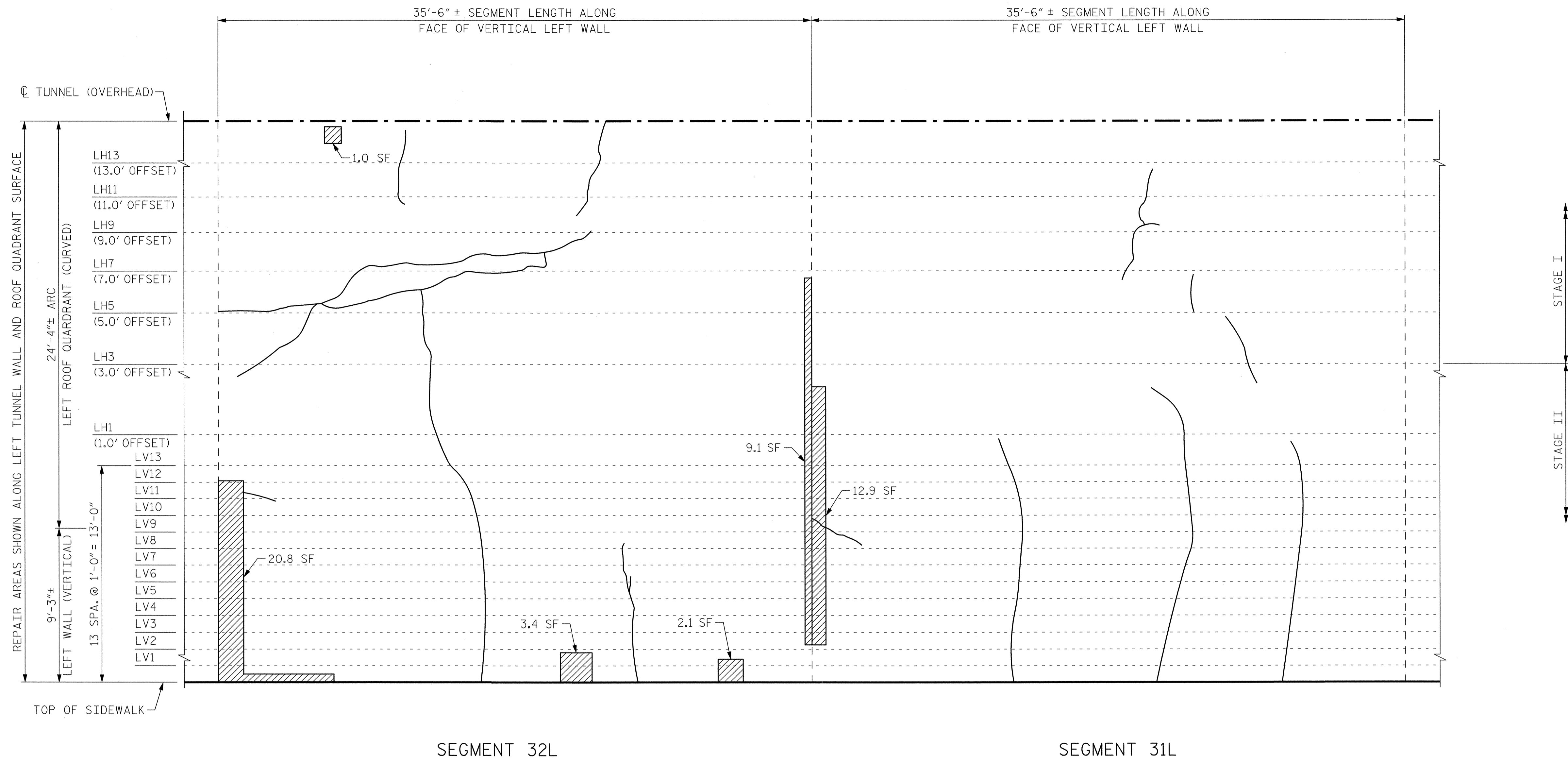
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	

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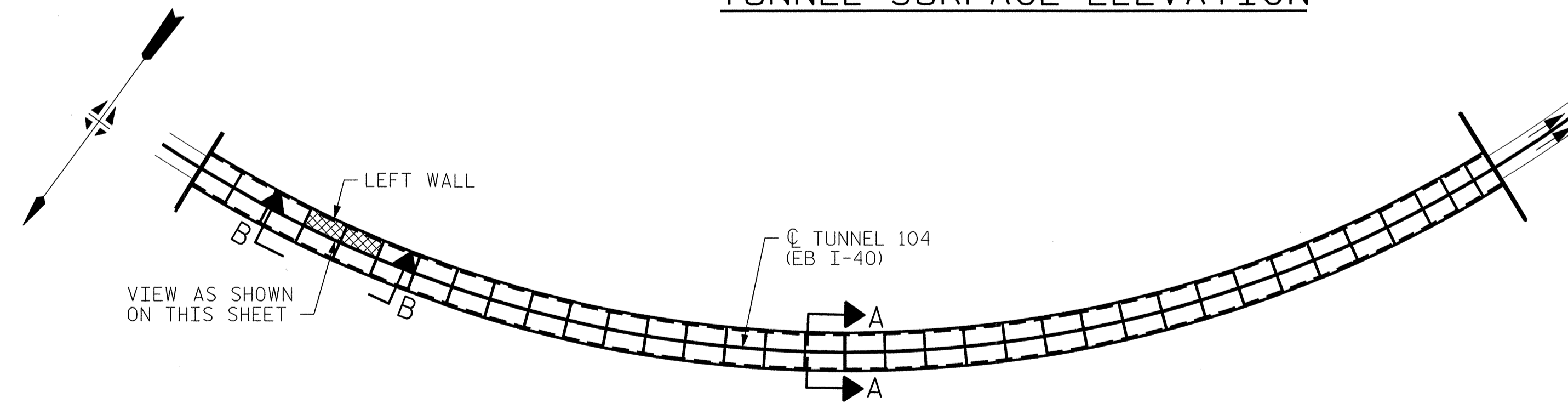
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CHECKED BY: M. MOYER DATE: 07/2013

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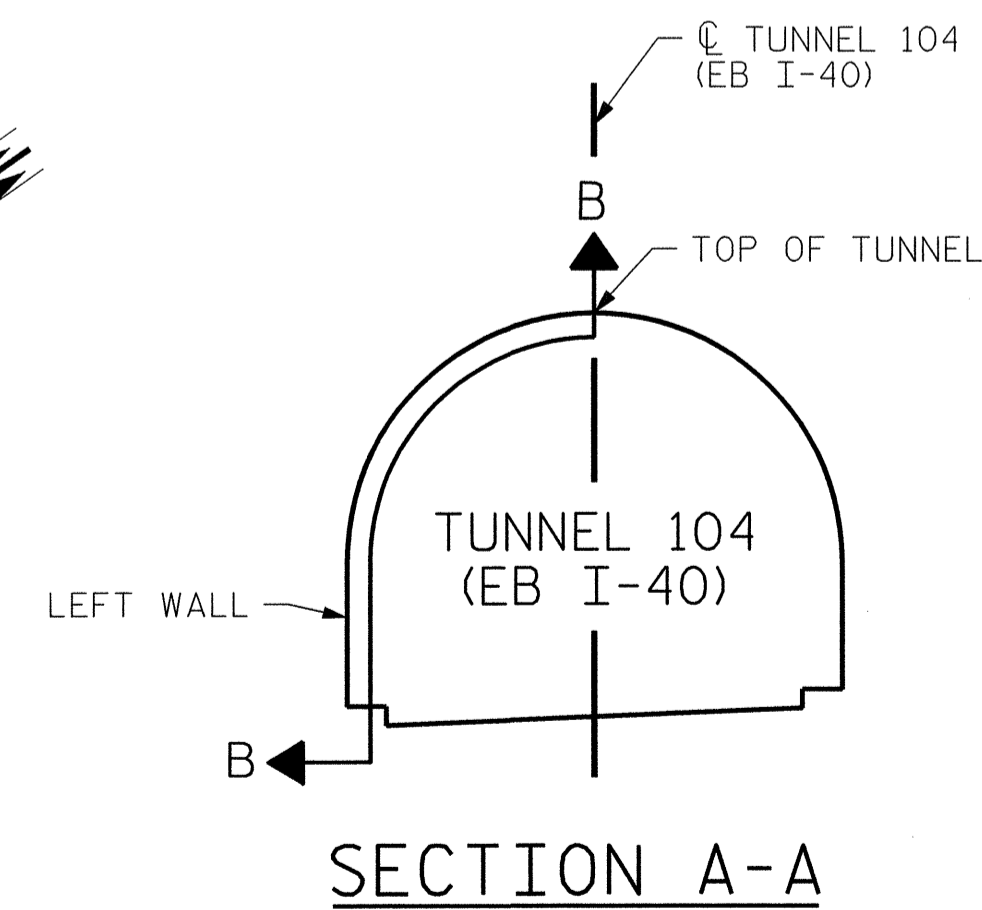
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 31L	CF	4.3
SHOTCRETE REPAIRS SEGMENT 32L	CF	12.1



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



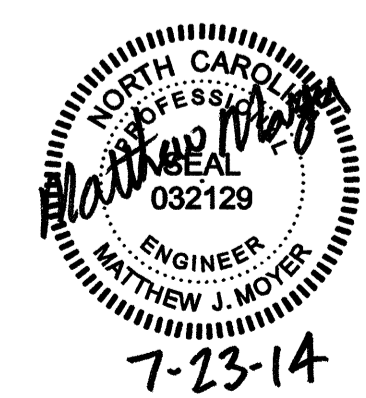
KEY PLAN



SECTION A-A

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 104 REPAIR
AREAS
SEGMENTS 31L & 32L

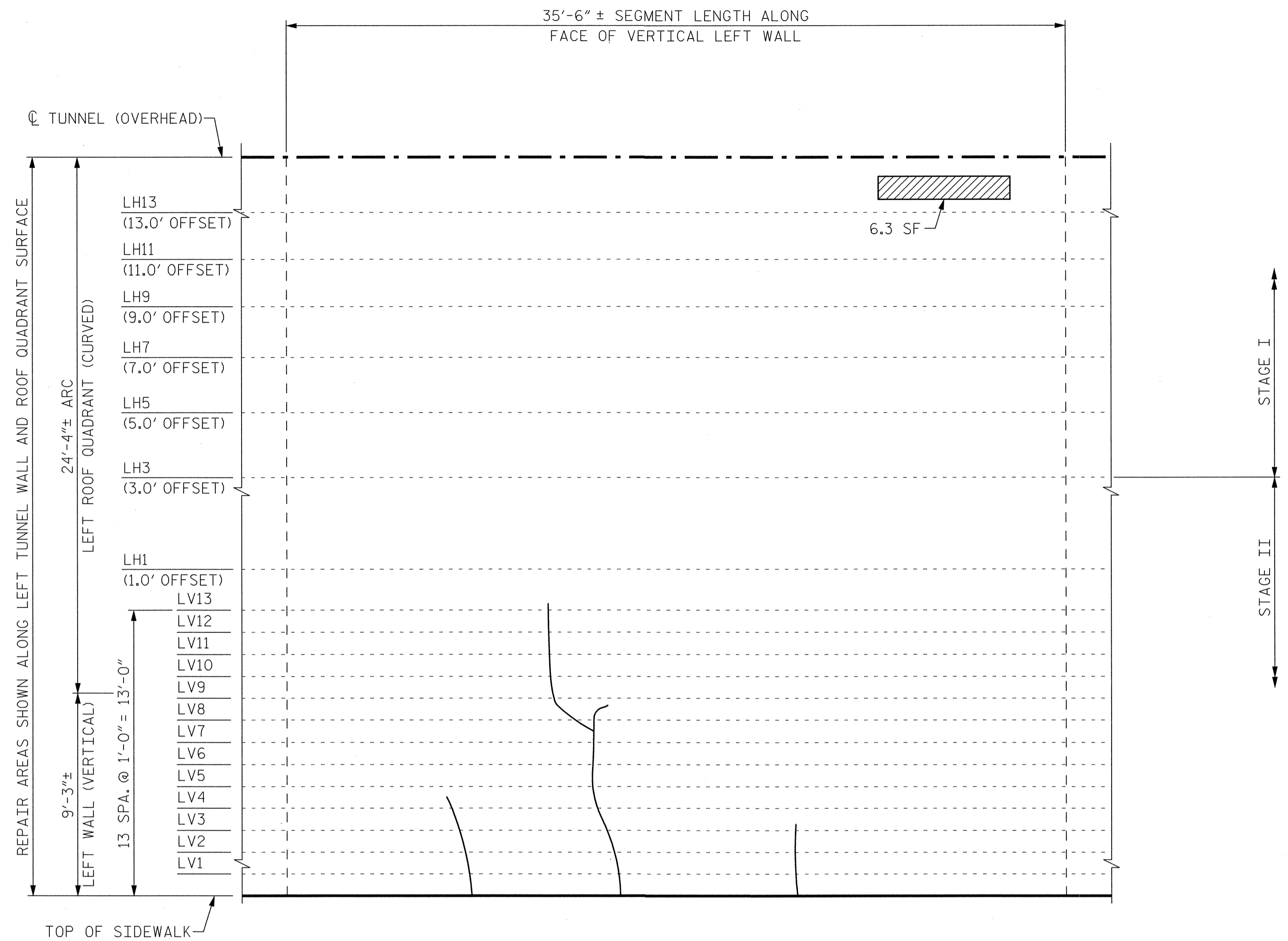


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REVISIONS						SHEET NO. S-088
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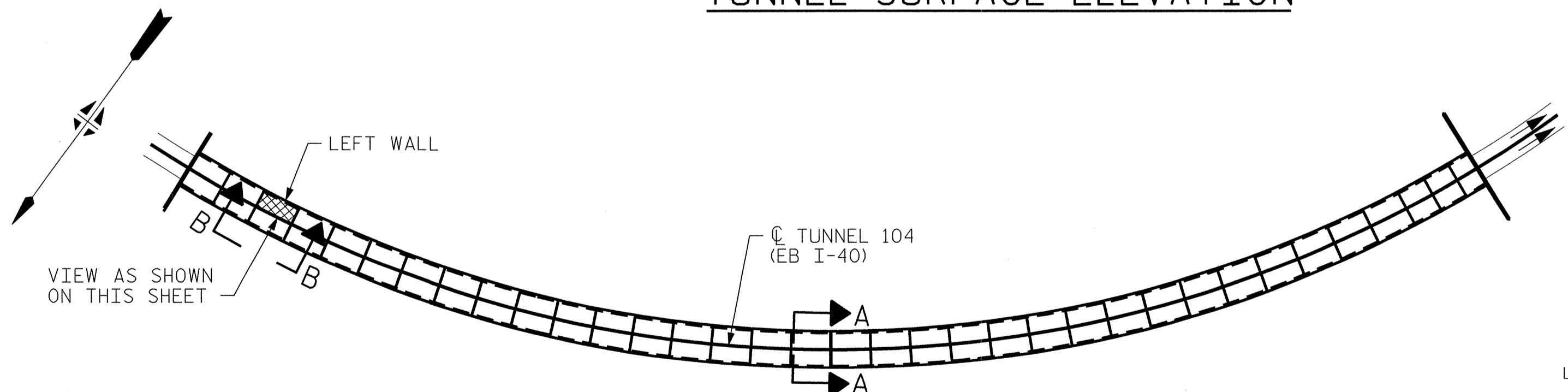
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CHECKED BY: M. MOYER DATE: 07/2013

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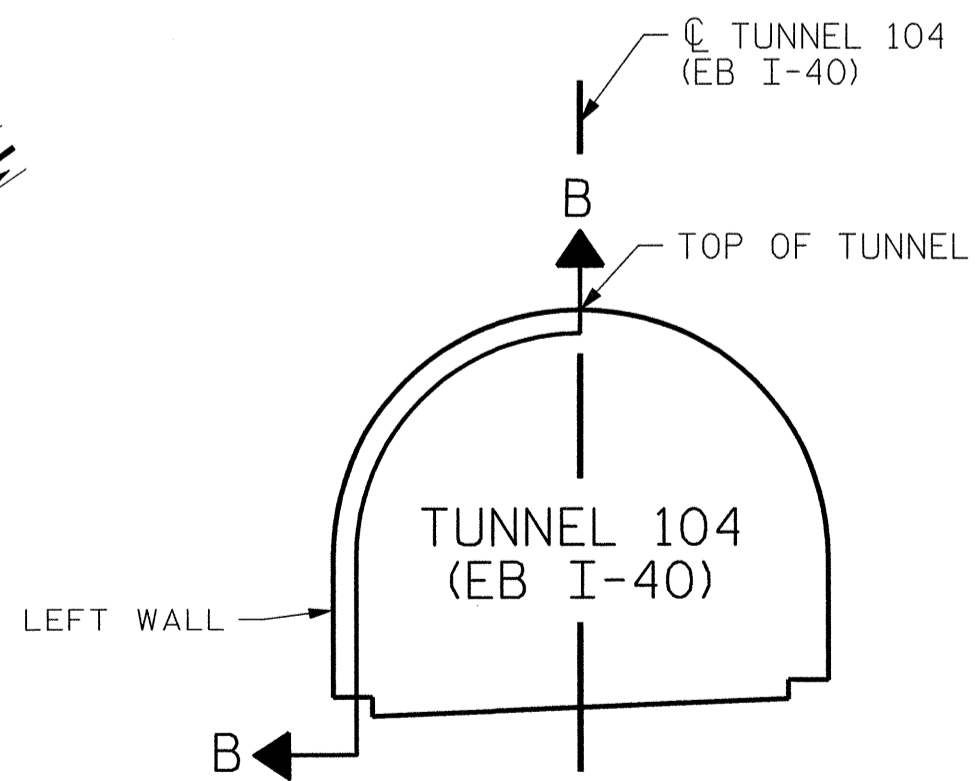


SEGMENT 33L

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



KEY PLAN



SECTION A-A

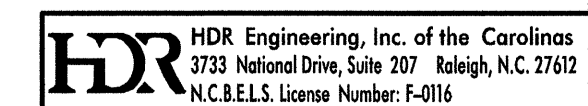
PROJECT NO. I-5512, 50136.3.FS1
 HAYWOOD COUNTY
 STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TUNNEL 104 REPAIR
 AREAS
 SEGMENT 33L



7-23-14

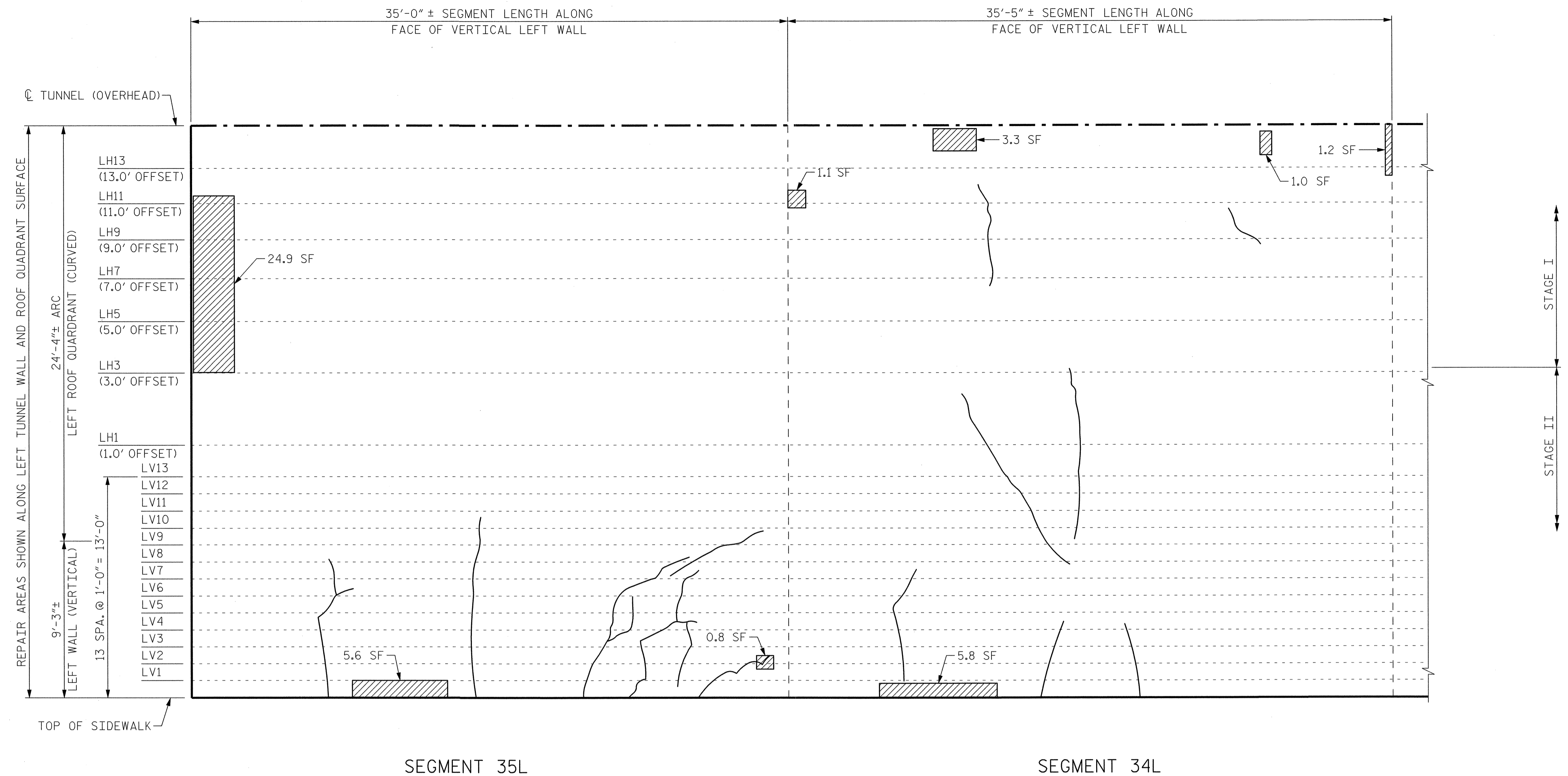
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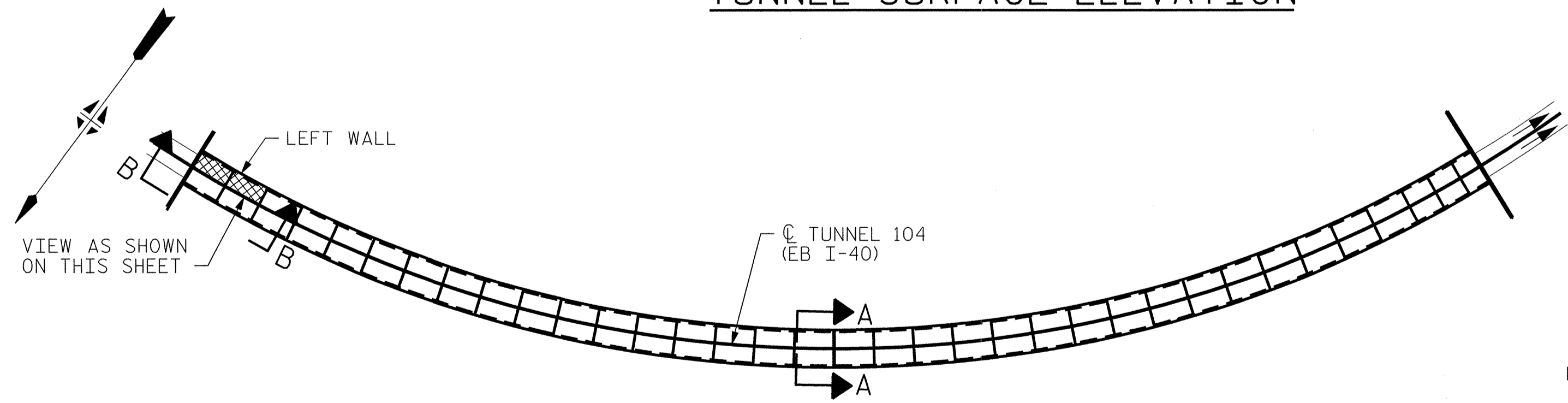
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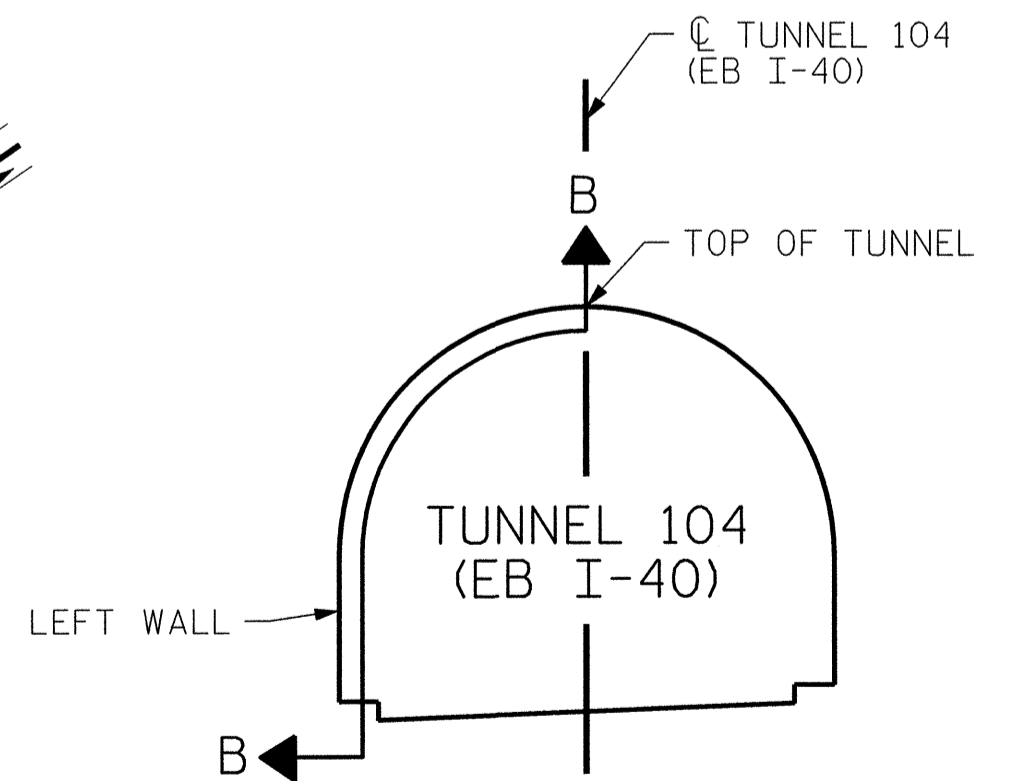
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 34L	CF	4.1
SHOTCRETE REPAIRS SEGMENT 35L	CF	10.4



VIEW B-B: REPAIR SEGMENTS 34L & 35L
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 34L & 35L



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-090	
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2	--	--	4	--	--		

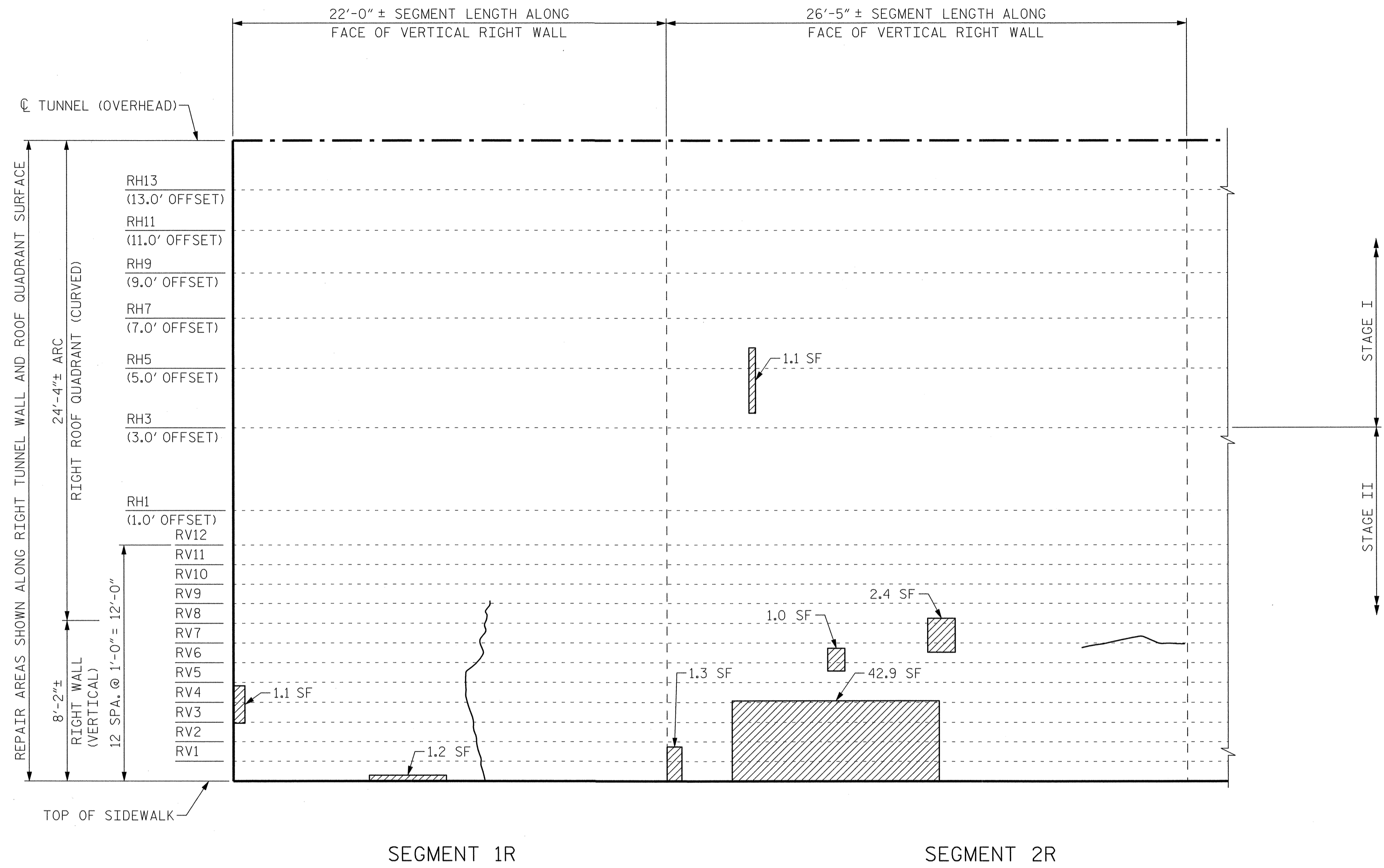
DRAWN BY : M. SELLS DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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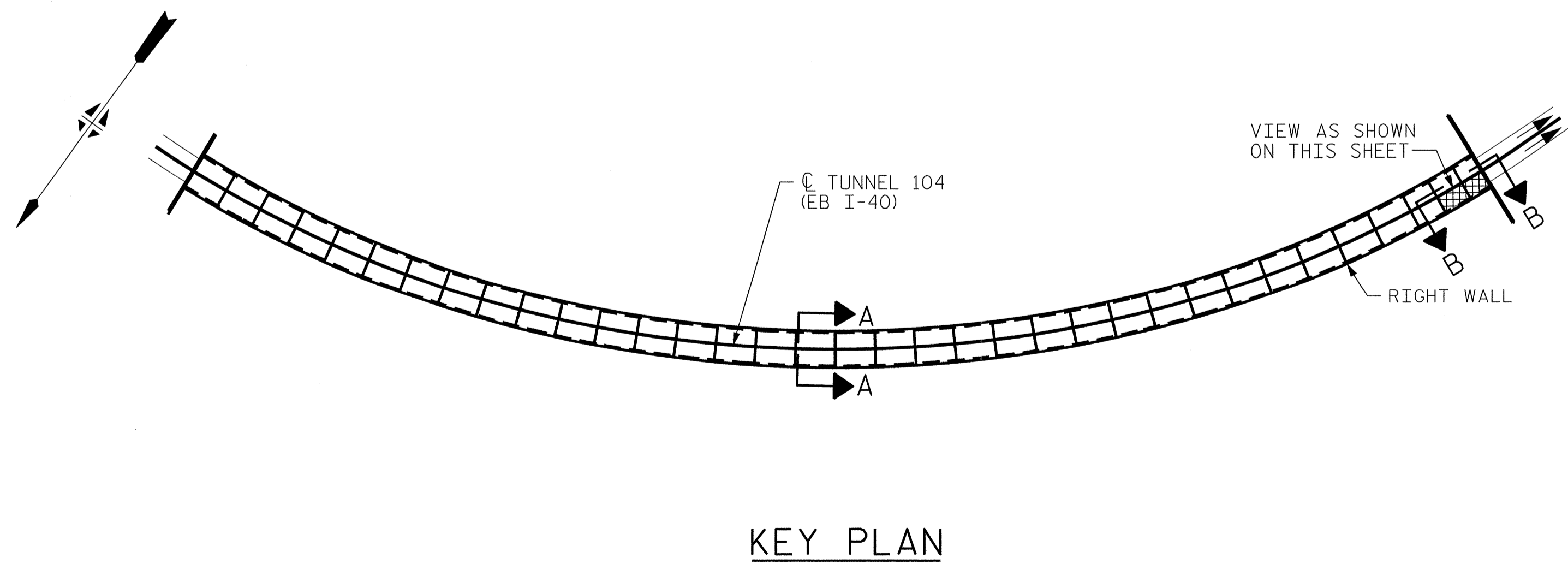
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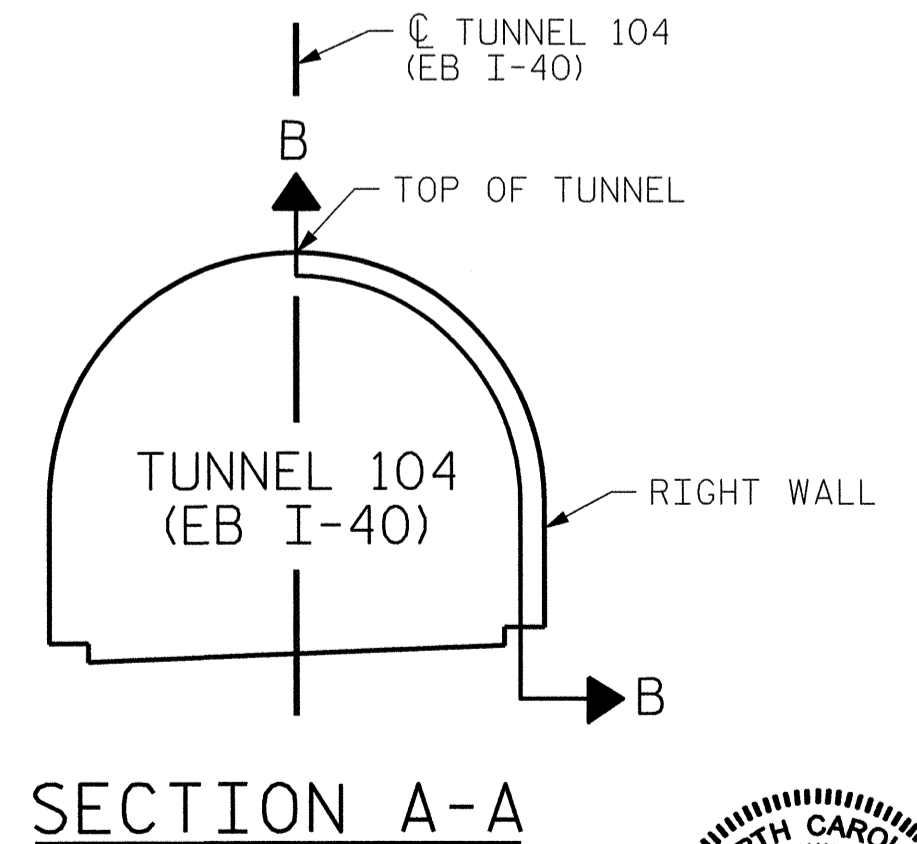
SHOTCRETE REPAIRS SEGMENT 1R	CF	0.8
SHOTCRETE REPAIRS SEGMENT 2R	CF	16.2



SEGMENT 1R SEGMENT 2R
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



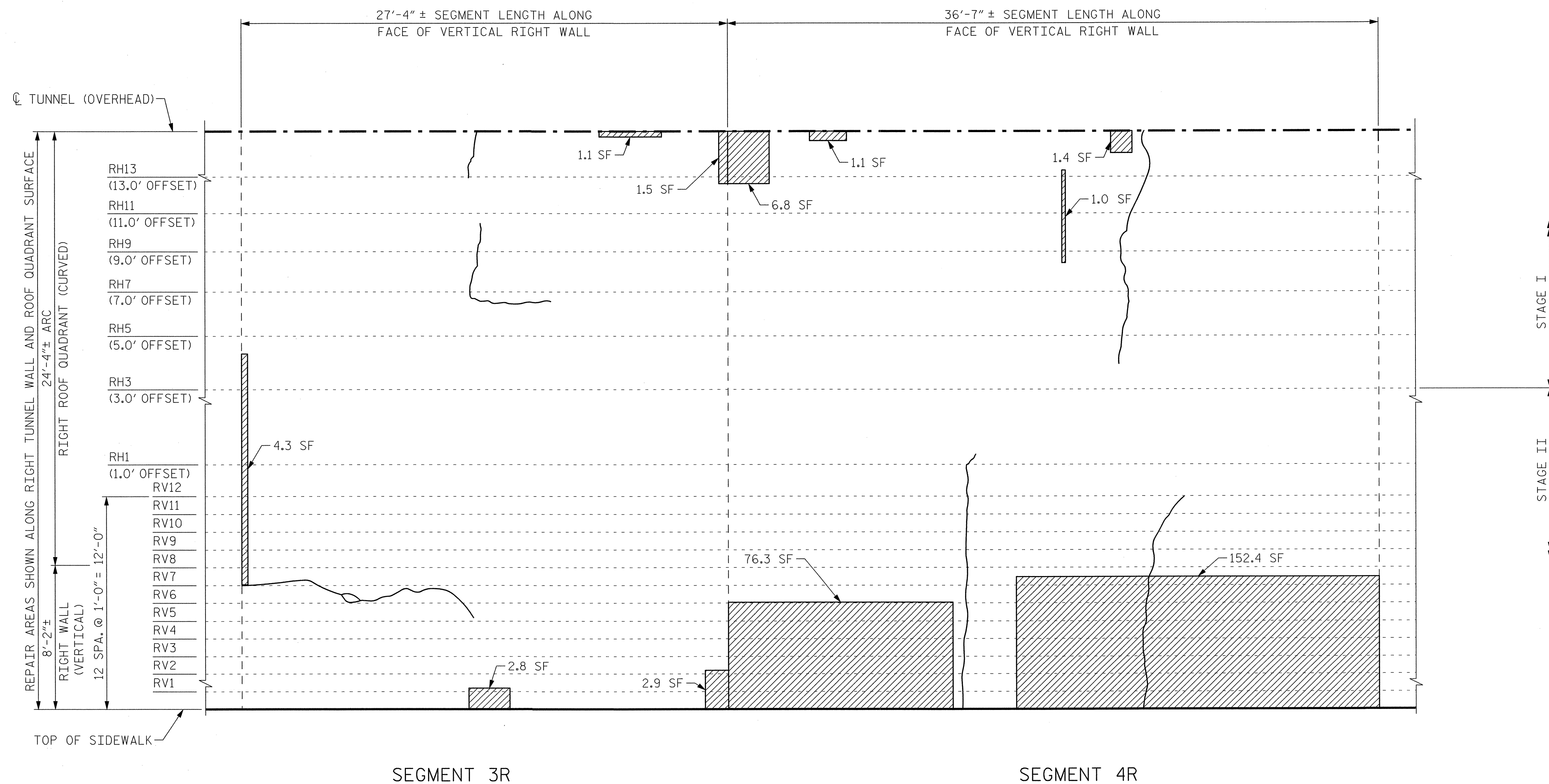
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NO.	BY:	DATE:	NO.	BY:	
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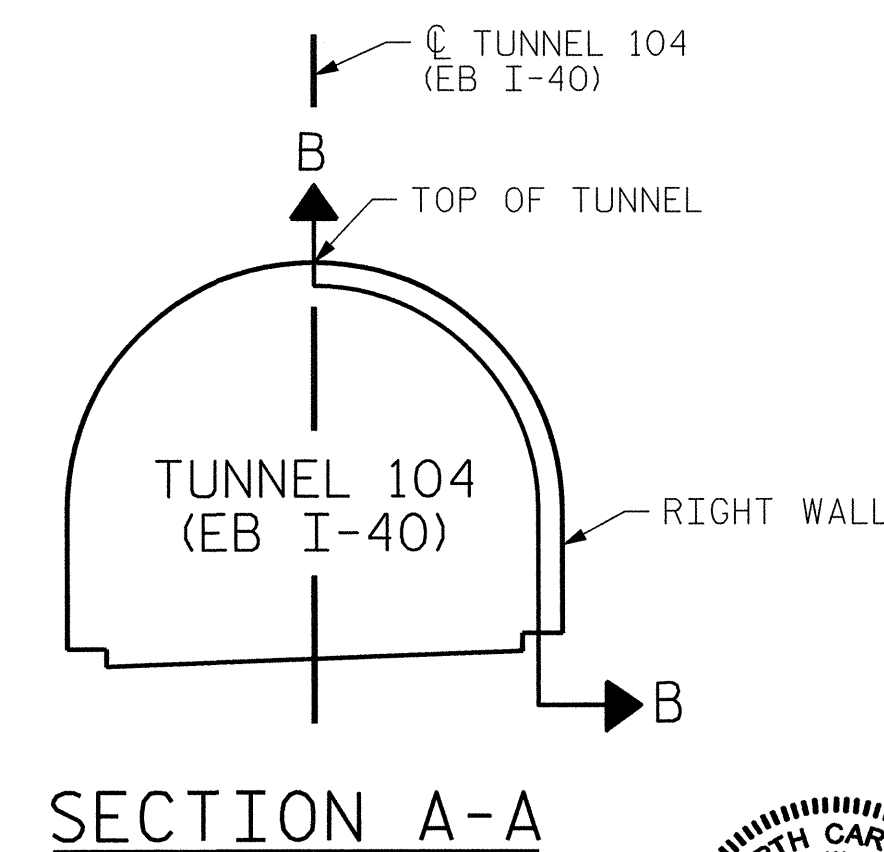
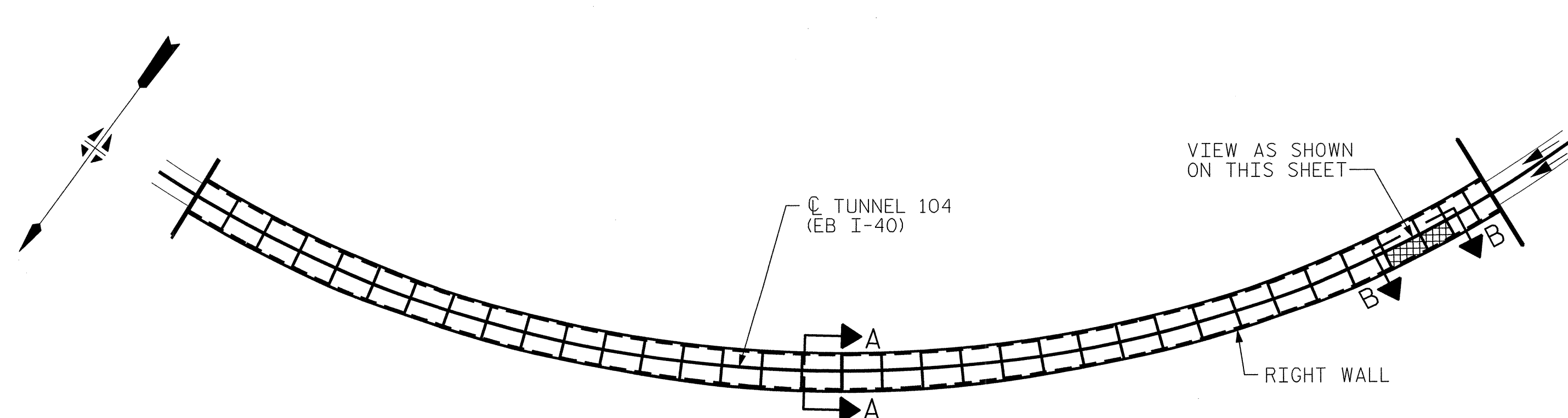
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

SHOTCRETE REPAIRS SEGMENT 3R	CF	4.1
SHOTCRETE REPAIRS SEGMENT 4R	CF	79.7



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



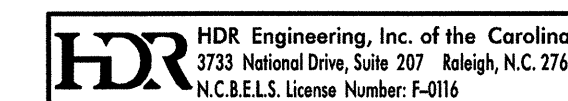
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TUNNEL 104 REPAIR
AREAS
SEGMENTS 3R & 4R



REVISIONS						SHEET NO. S-092 TOTAL SHEETS 110
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2	--	--	4	--	--	

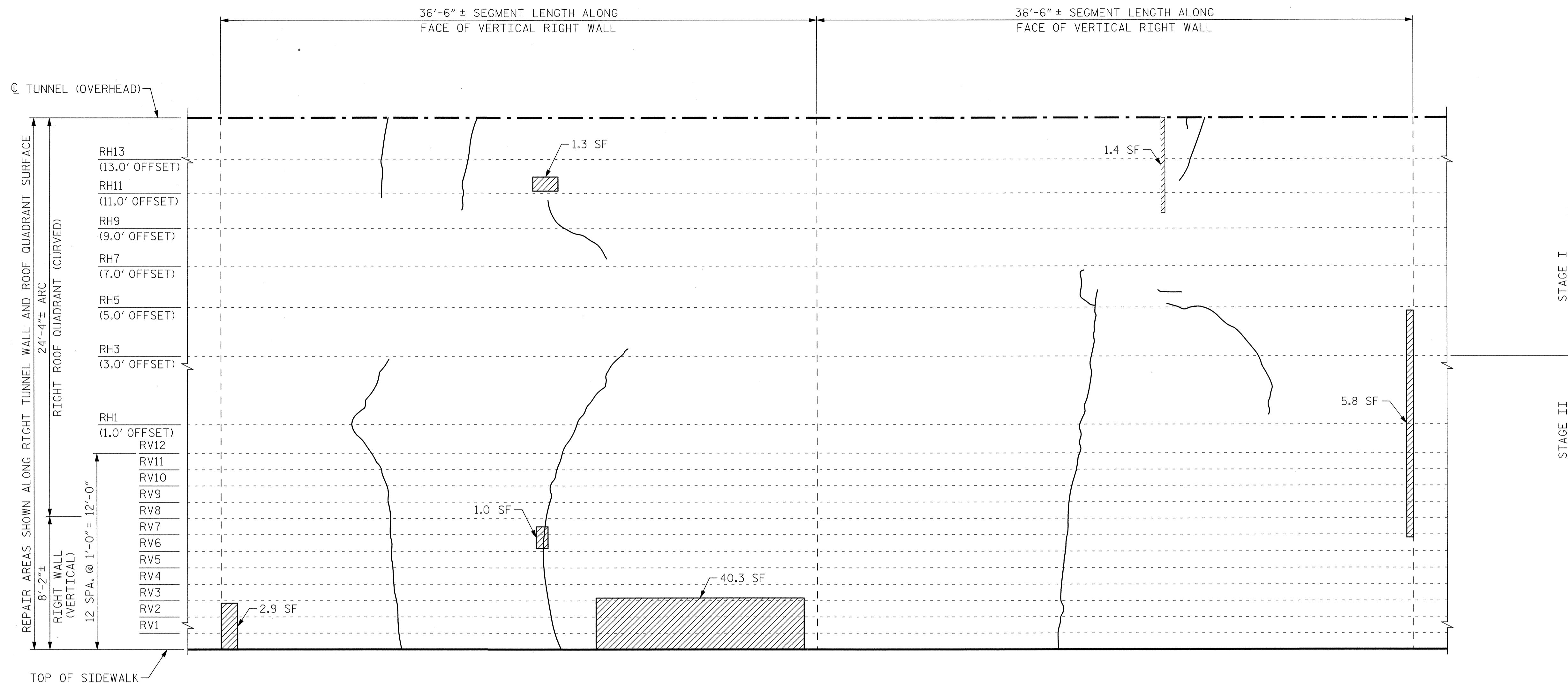


DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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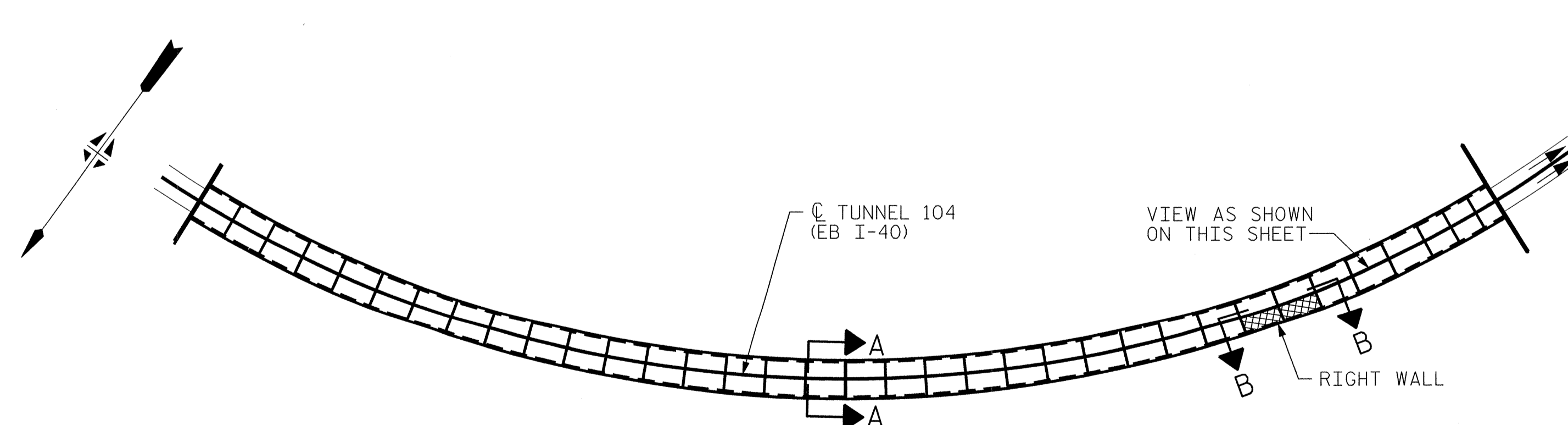
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SHOTCRETE REPAIRS SEGMENT 8R	CF	2.4



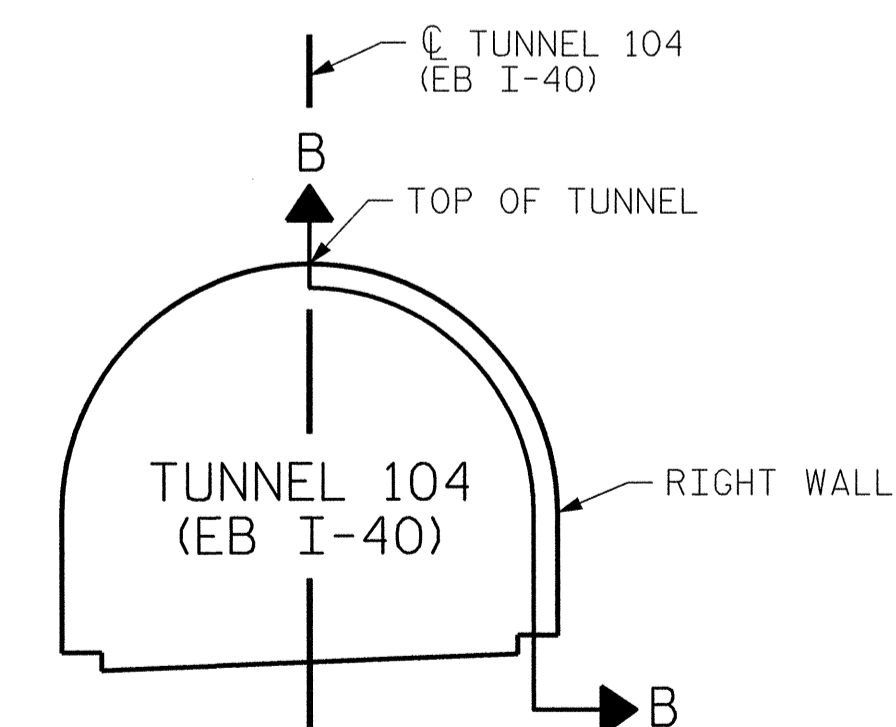
SEGMENT 7R

SEGMENT 8R

**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)

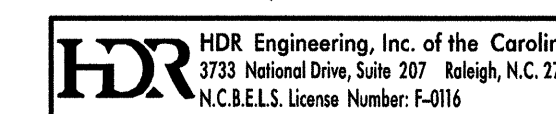
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**TUNNEL 104 REPAIR
AREAS
SEGMENTS 7R & 8R**



7-23-14

REVISIONS						SHEET NO. S-094
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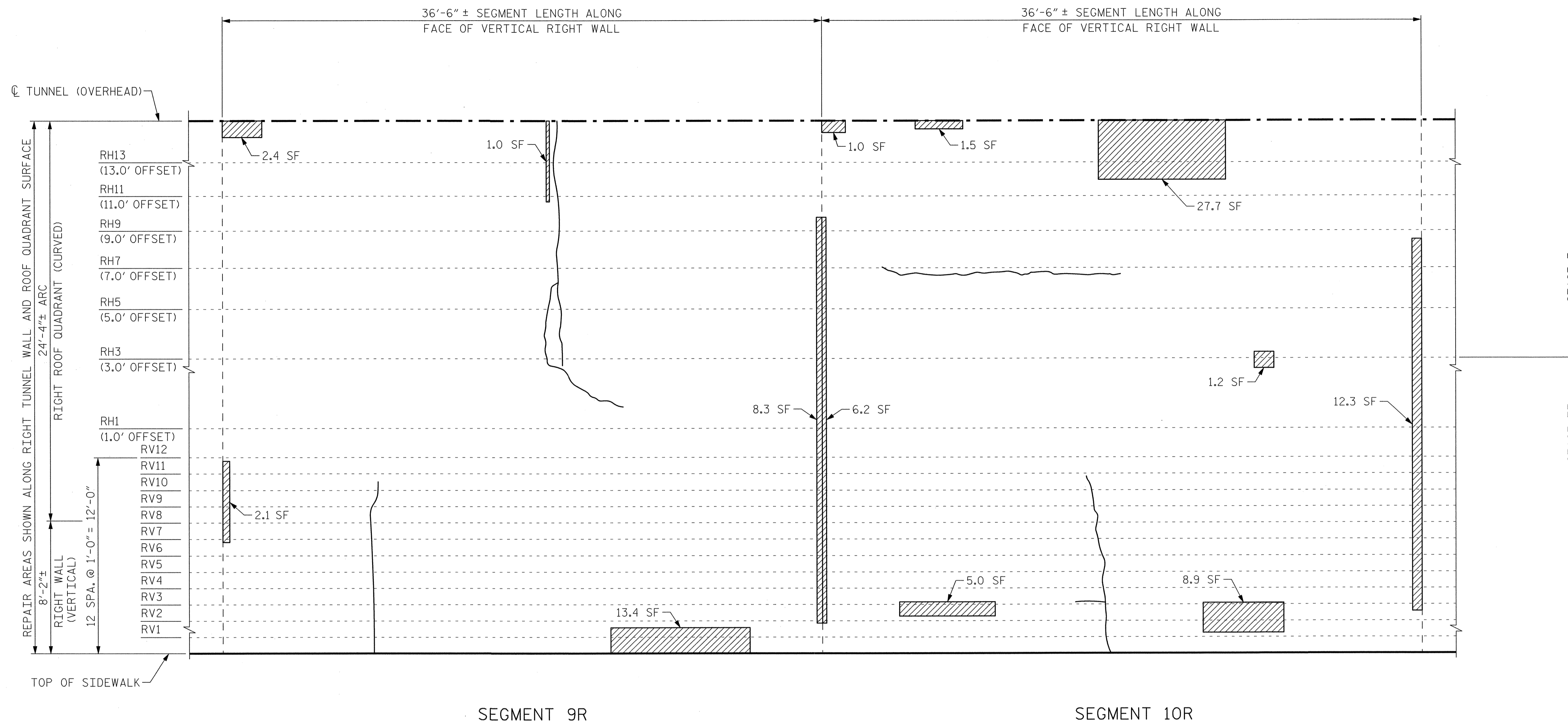


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 CHECKED BY : M. MOYER DATE : 07/2013

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 USER: msellis DATE: 7/22/2014
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BILL OF MATERIAL

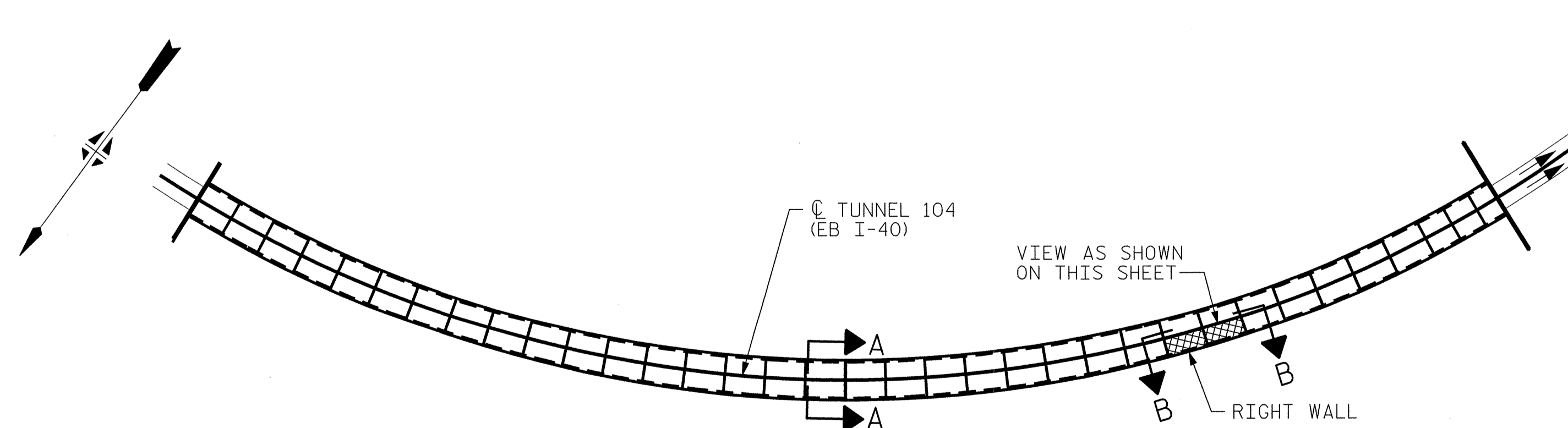
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SHOTCRETE REPAIRS SEGMENT 10R	CF	21.3



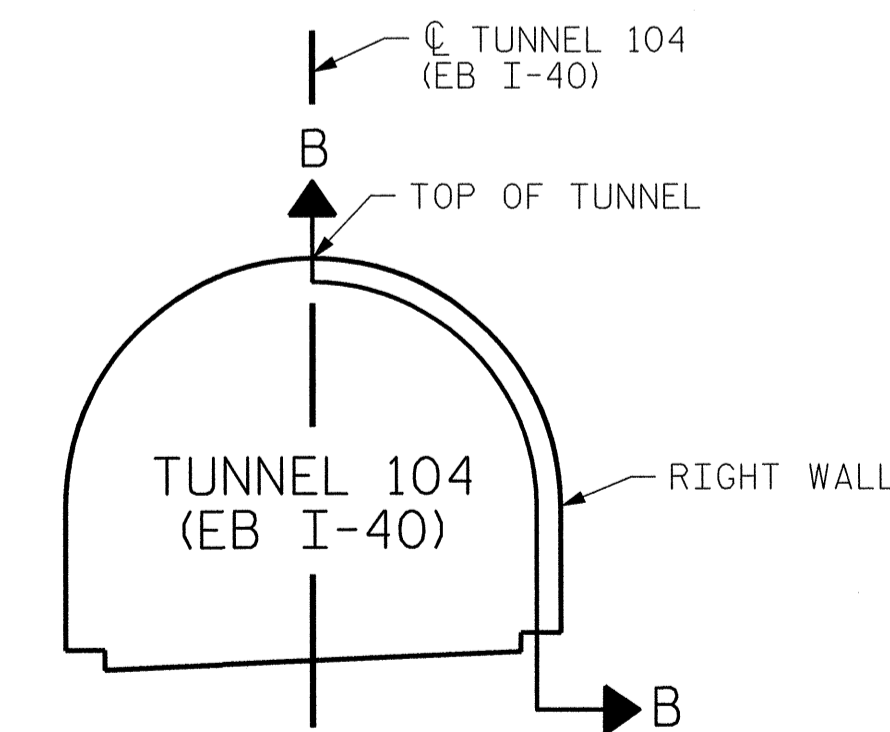
SEGMENT 9R

SEGMENT 10R

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



KEY PLAN

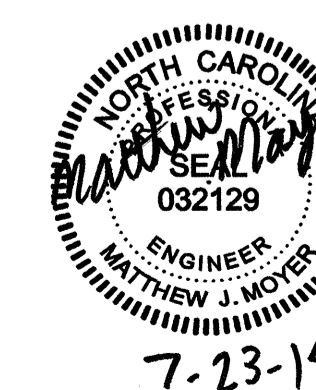


SECTION A-A

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

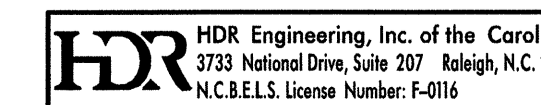
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**TUNNEL 104 REPAIR
 AREAS
 SEGMENTS 9R & 10R**



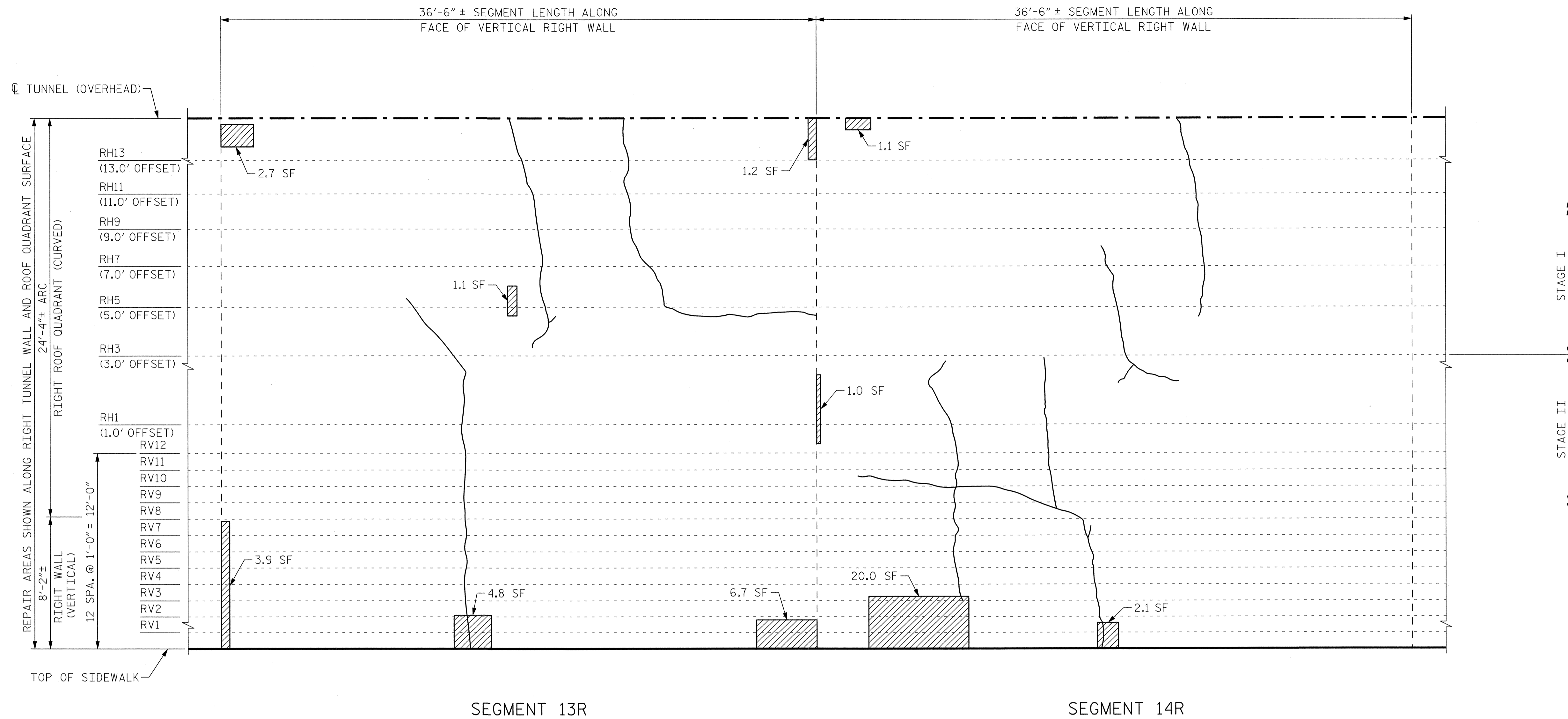
7-23-14

REVISIONS						SHEET NO. S-095
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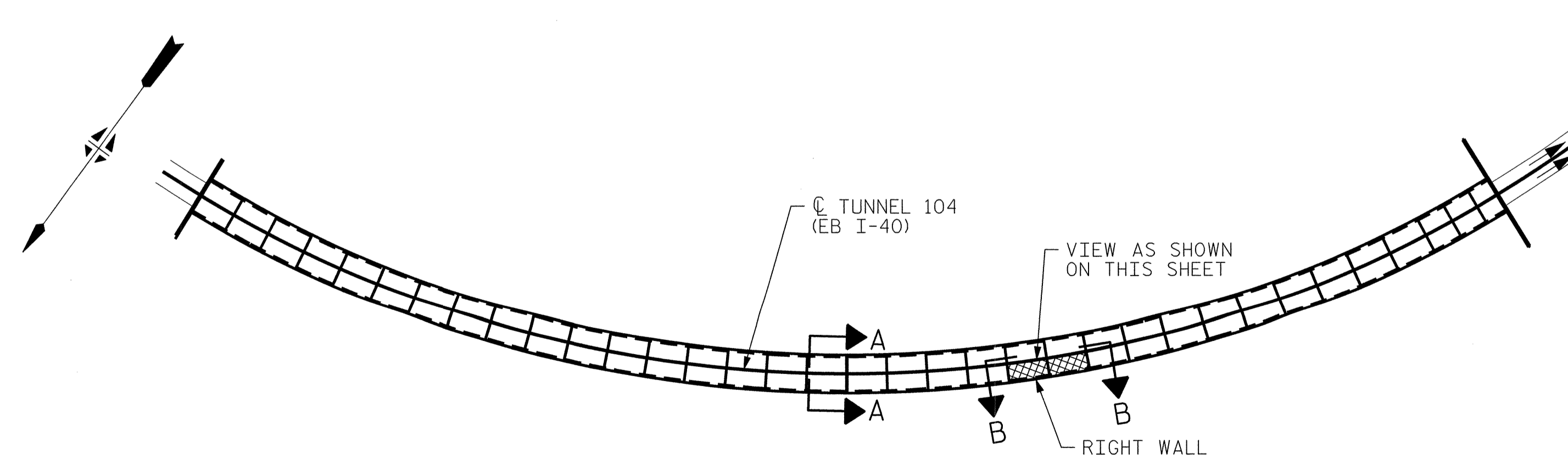


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 CHECKED BY : M. MOYER DATE : 07/2013

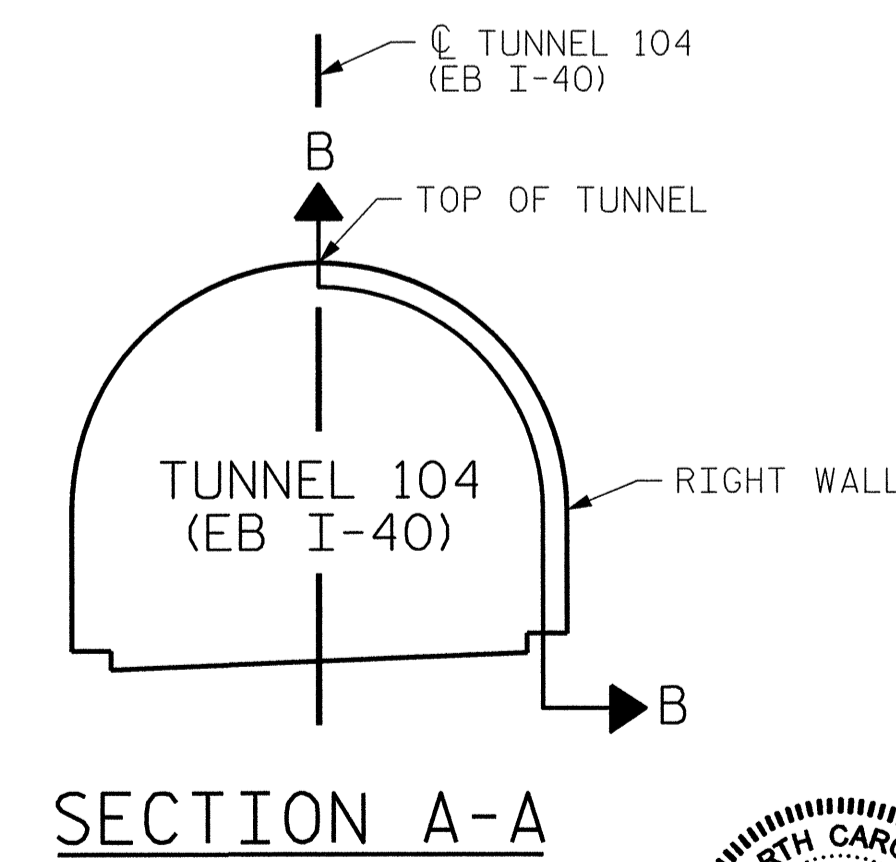
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 13R	CF	6.8
SHOTCRETE REPAIRS SEGMENT 14R	CF	8.1



VIEW B-B: REPAIR SEGMENTS 13R & 14R
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 13R & 14R



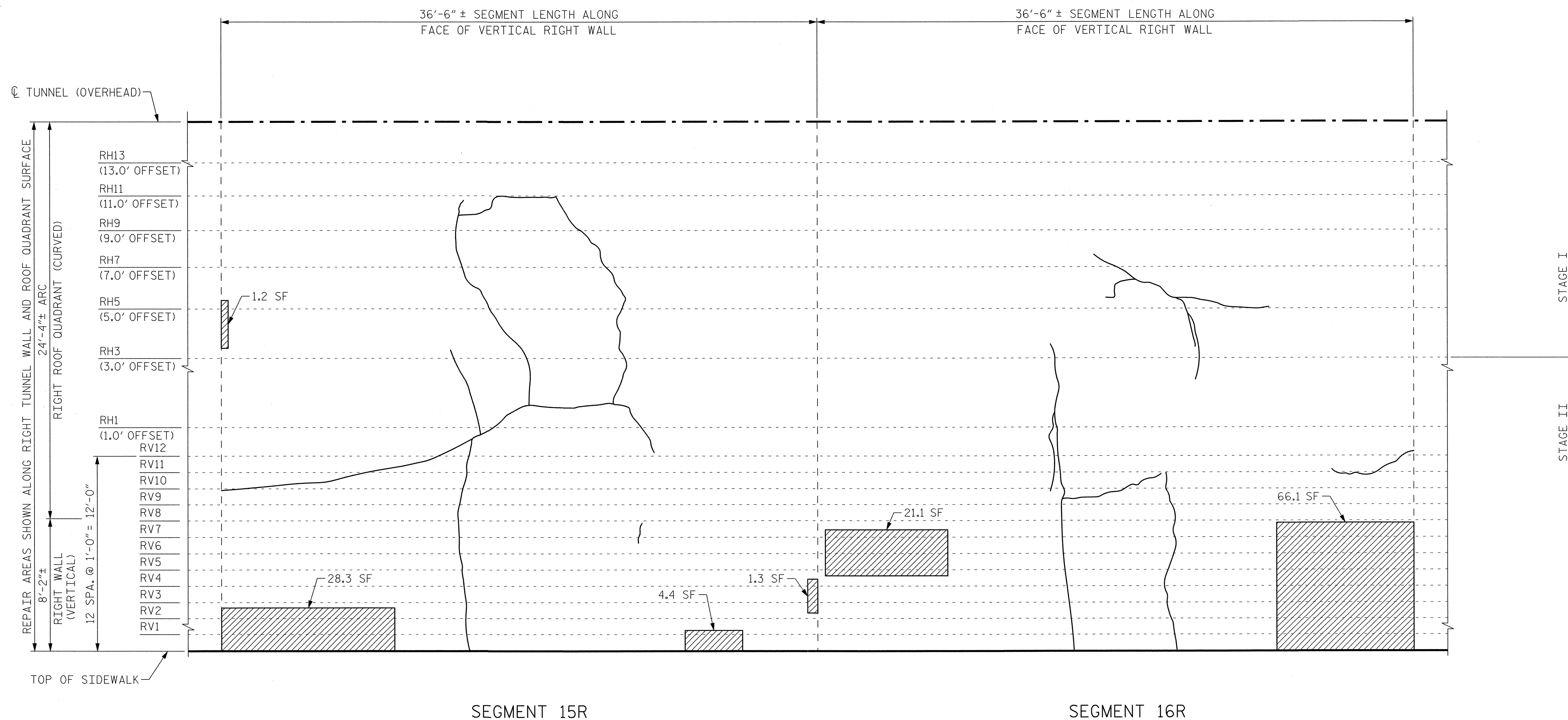
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N.C.B.E.L.S. License Number: F-0116

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

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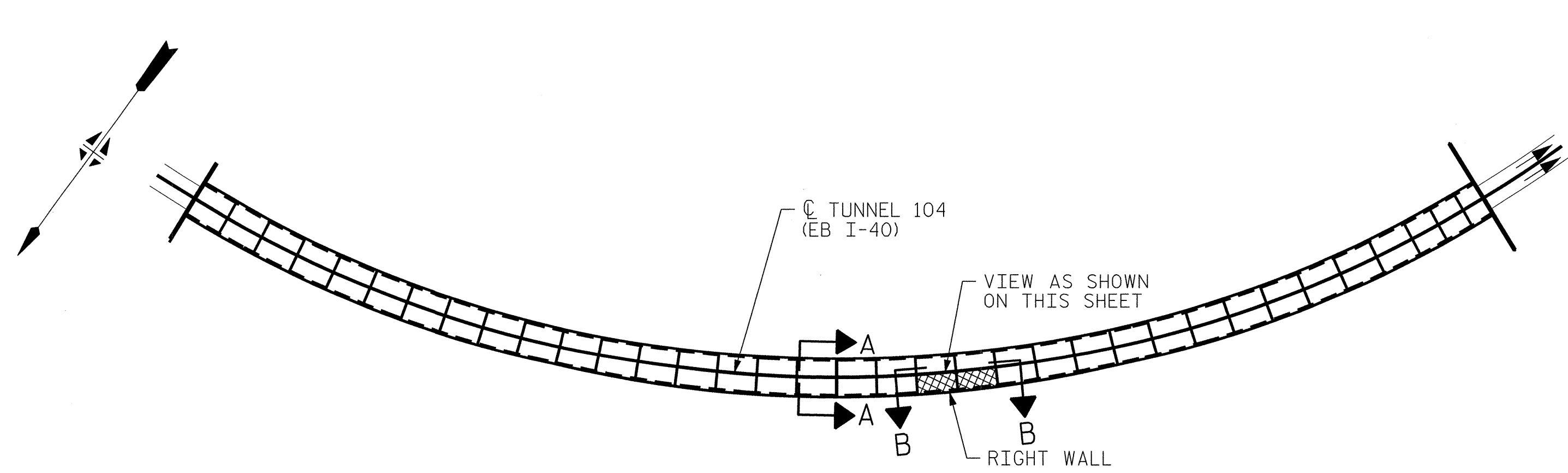
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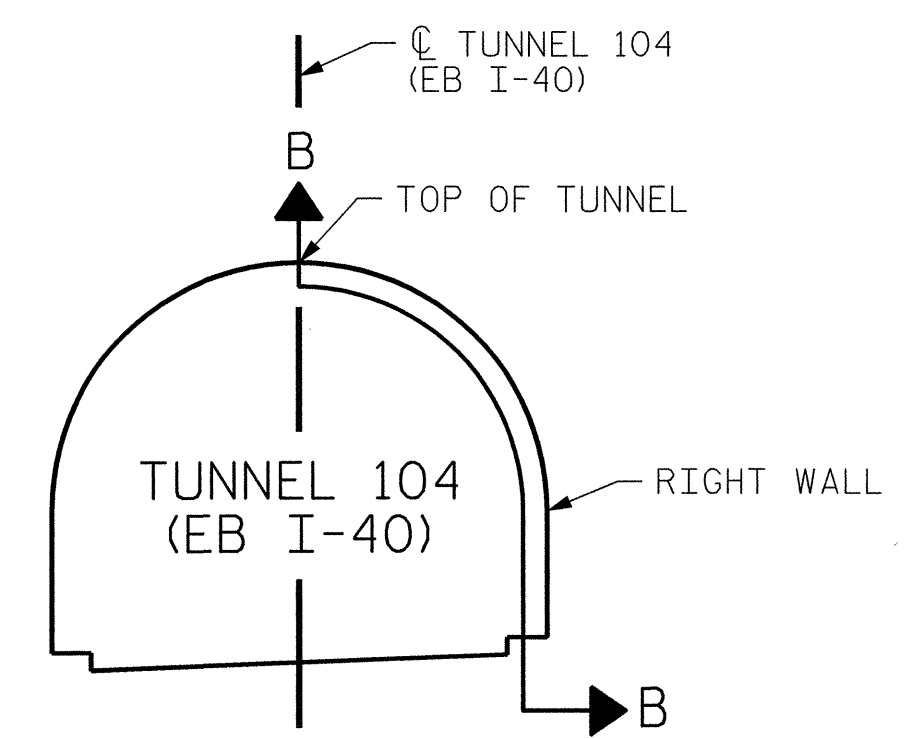
SEGMENT 15R

SEGMENT 16R

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



KEY PLAN



SECTION A-A

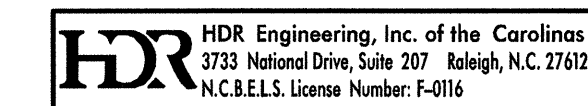
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TUNNEL 104 REPAIR
 AREAS
 SEGMENTS 15R & 16R**



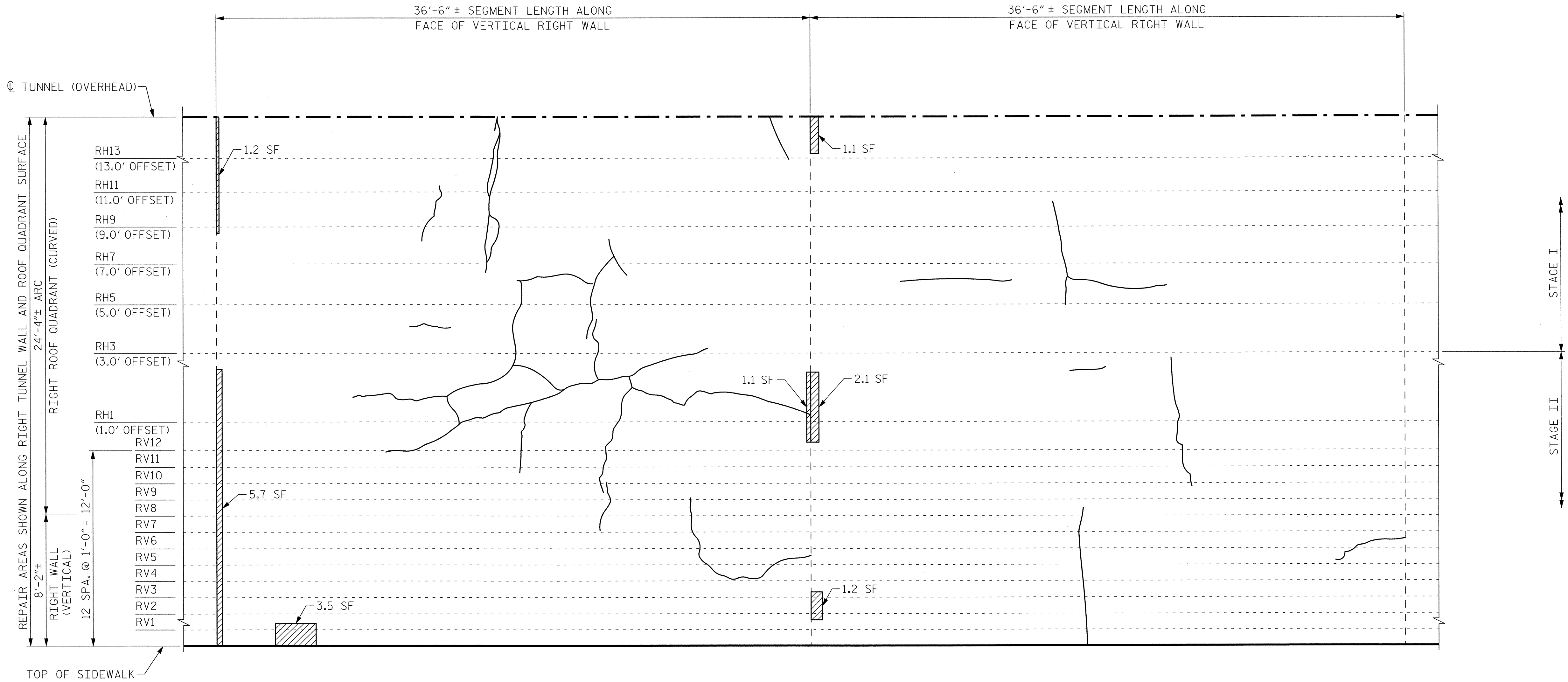
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DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013



PLOT DRIVER: NCDOT_pdf_memo_eng_100.plt
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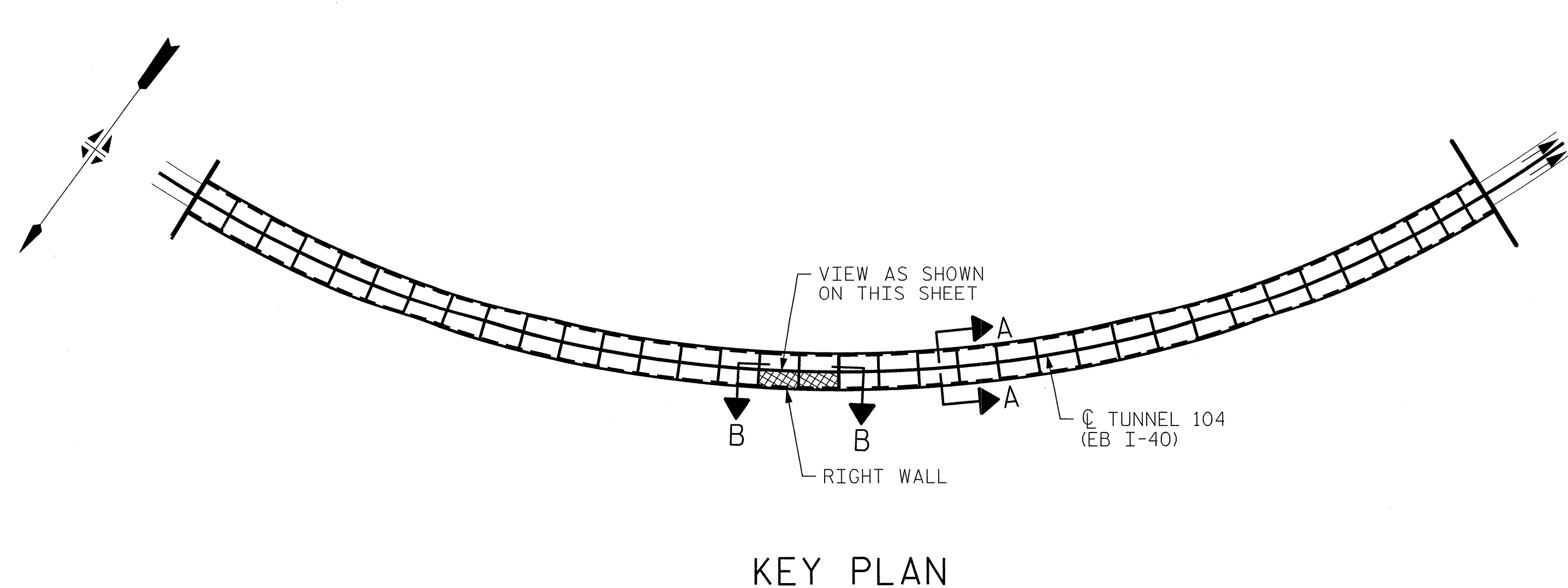
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SHOTCRETE REPAIRS SEGMENT 20R	CF	1.5



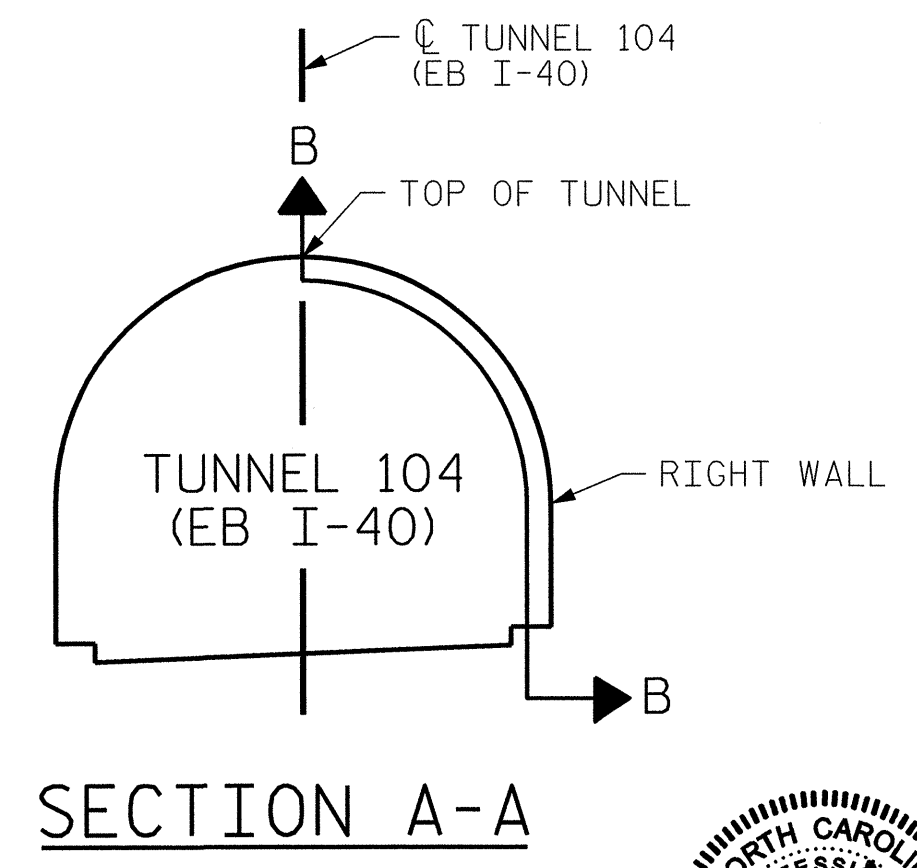
SEGMENT 19R

SEGMENT 20R

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



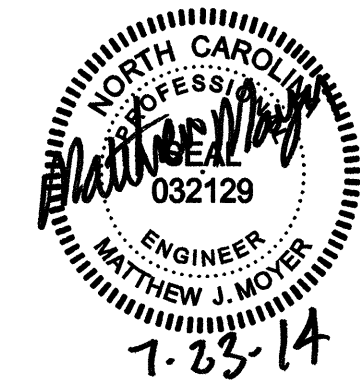
KEY PLAN



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**



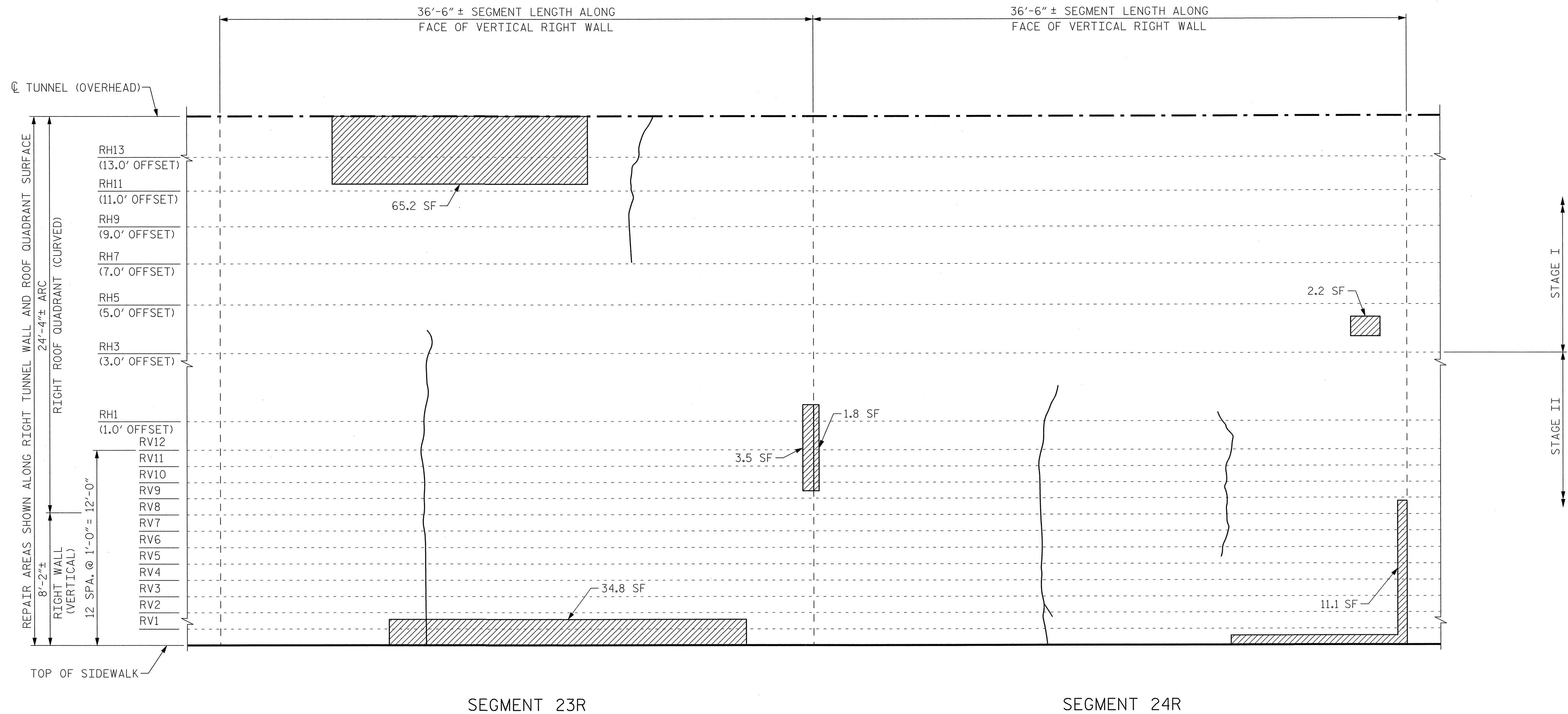
DRAWN BY : B. PETERSON DATE : 07/2013
 CHECKED BY : M. MOYER DATE : 07/2013

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

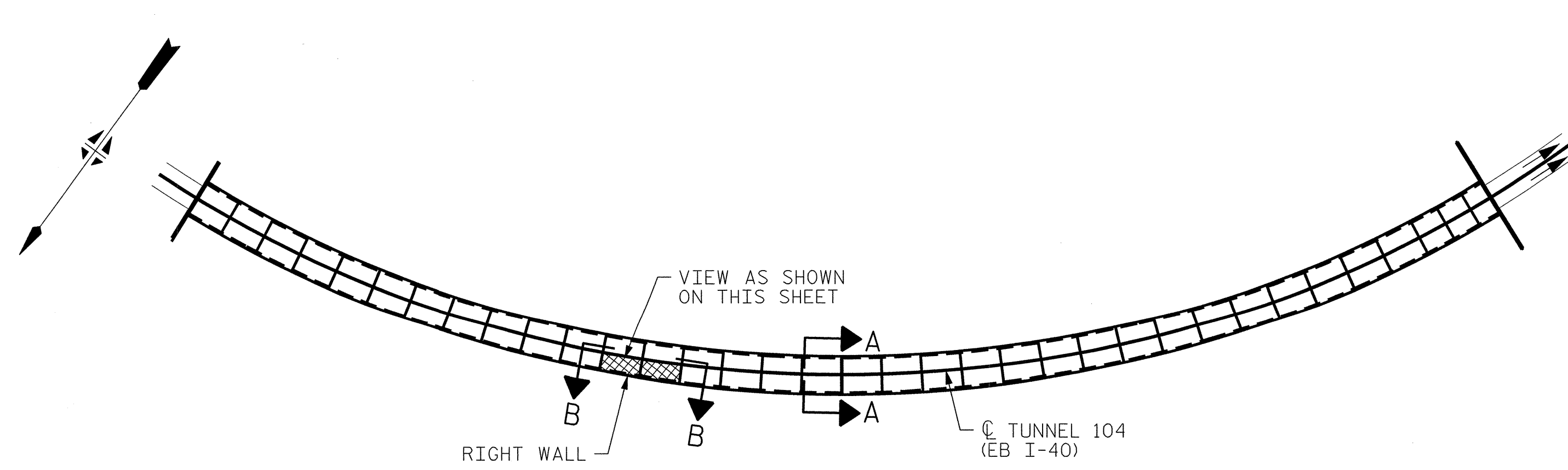
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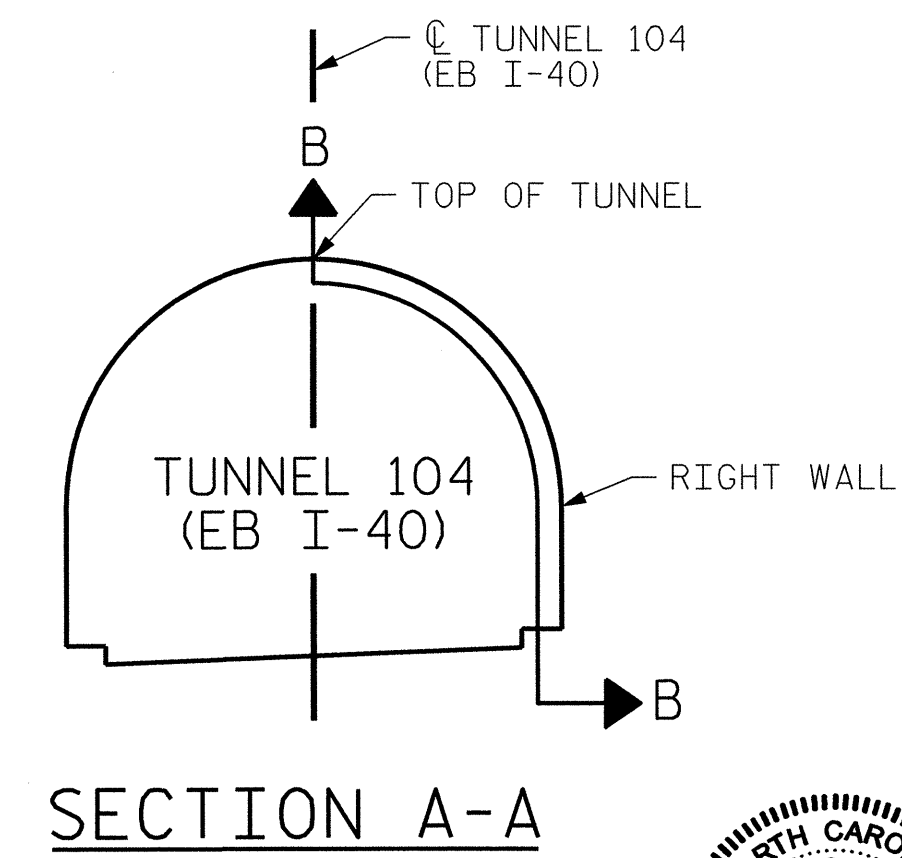
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 23R	CF	34.5
SHOTCRETE REPAIRS SEGMENT 24R	CF	5.0



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



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 23R & 24R



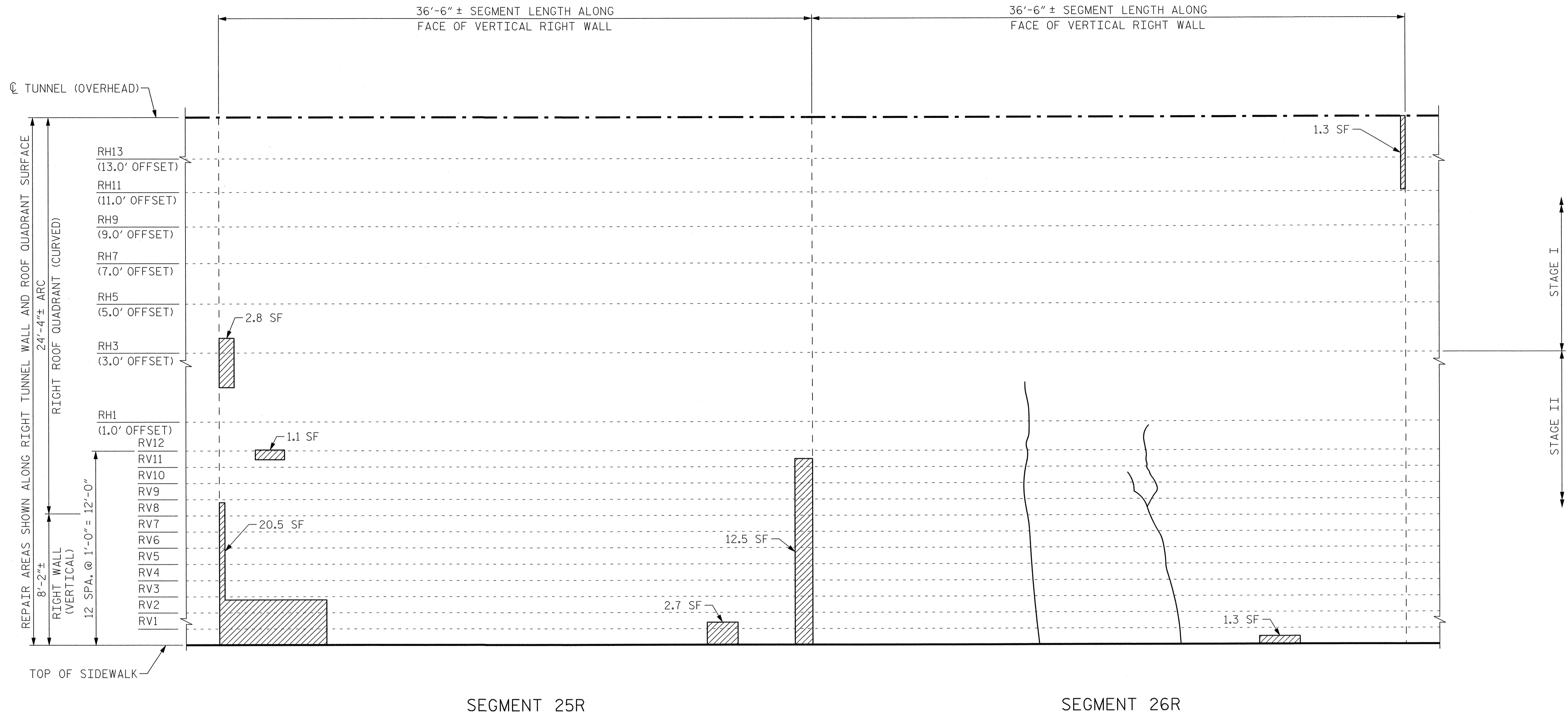
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S-102 TOTAL SHEETS 110
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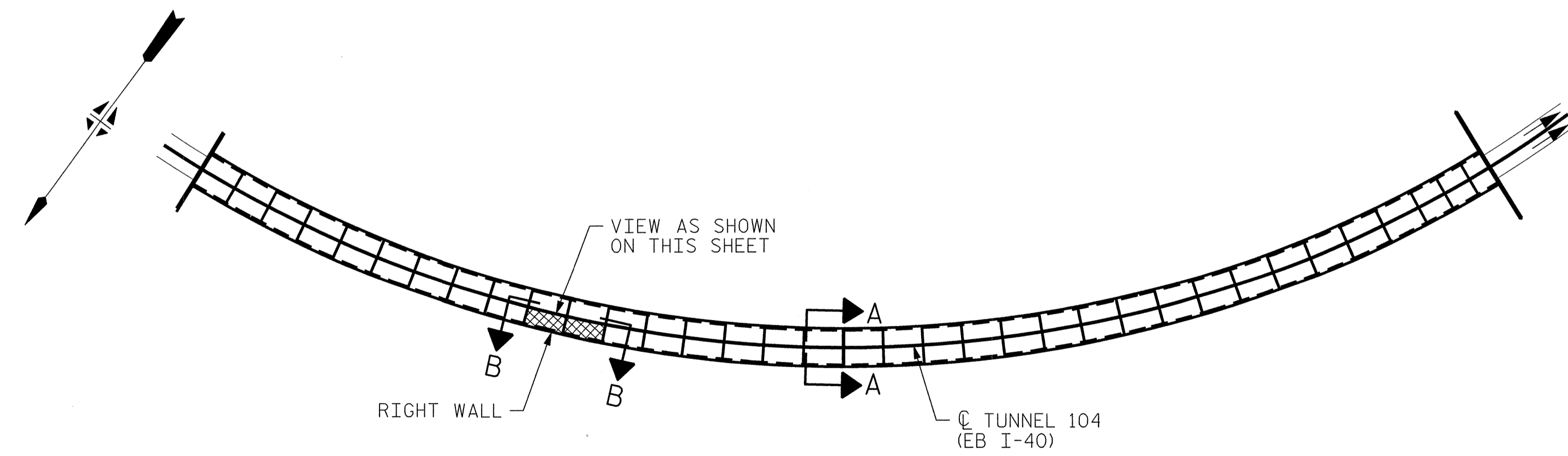
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CHECKED BY : M. MOYER DATE : 07/2013

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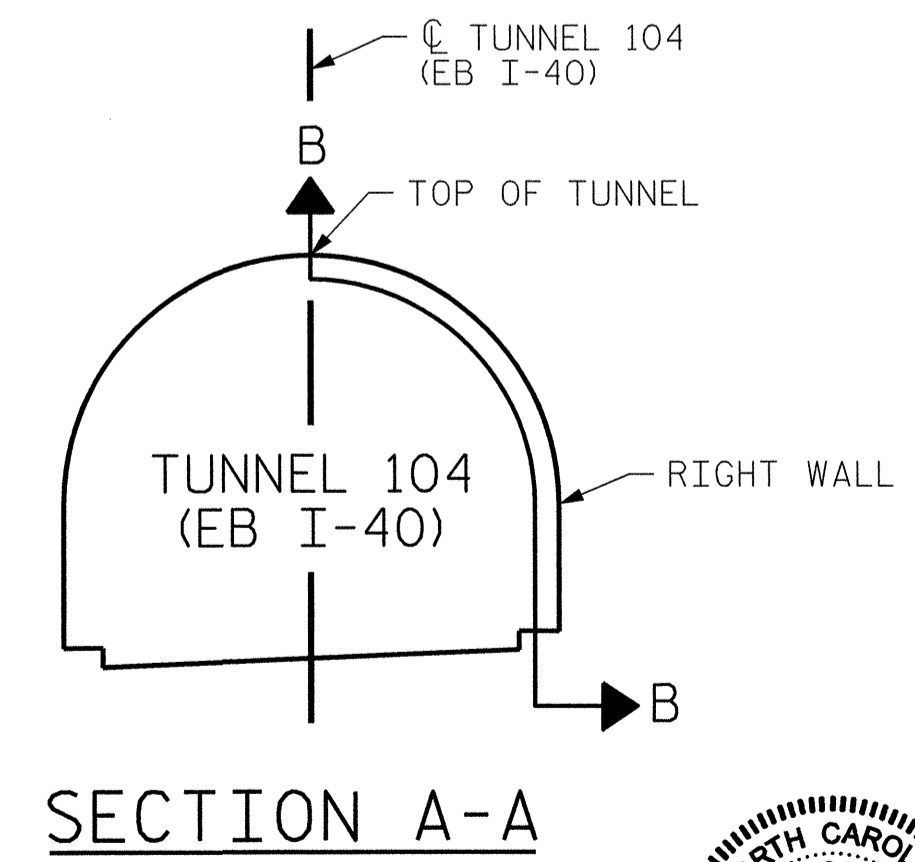
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 25R	CF	13.2	
SHOTCRETE REPAIRS SEGMENT 26R	CF	0.9	



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



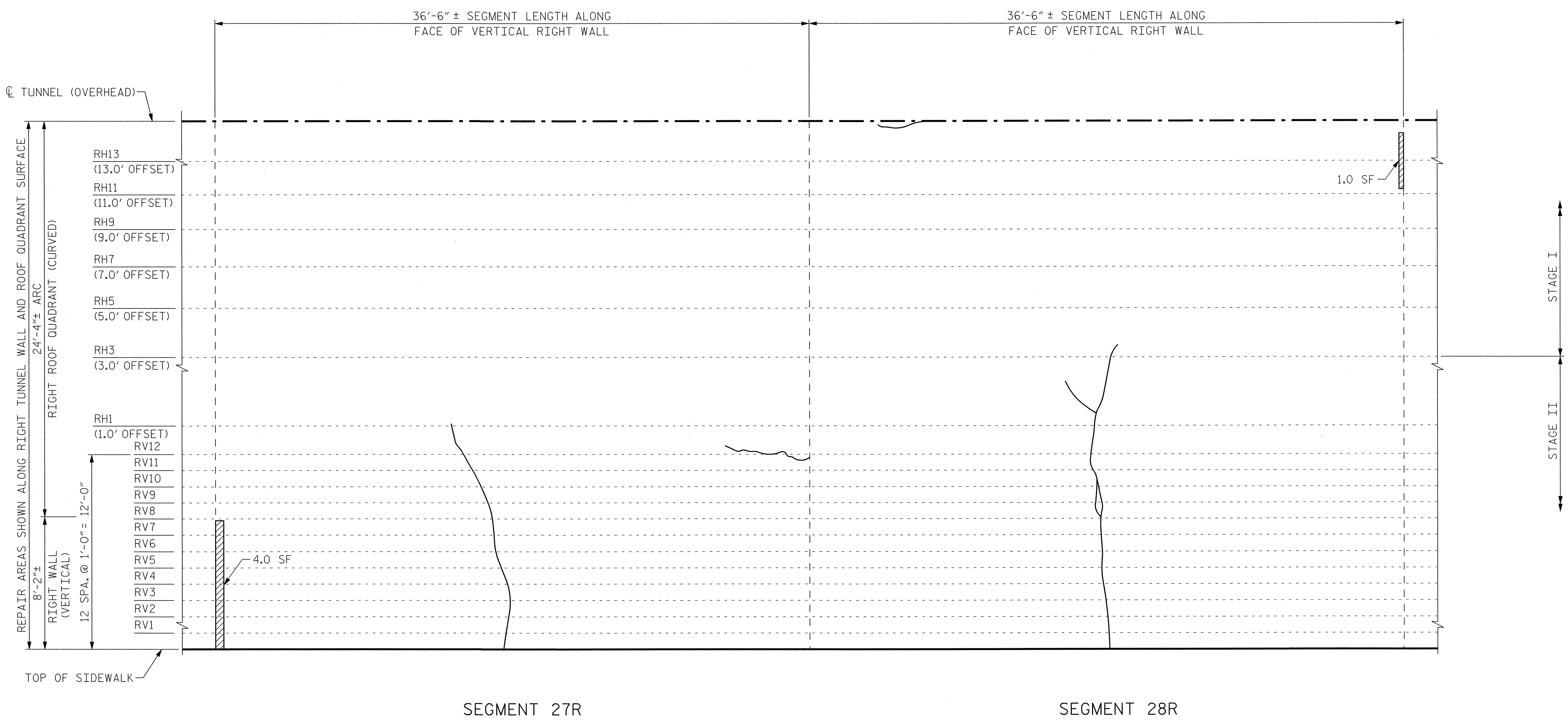
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HDR HDR Engineering, Inc. of the Carolinas
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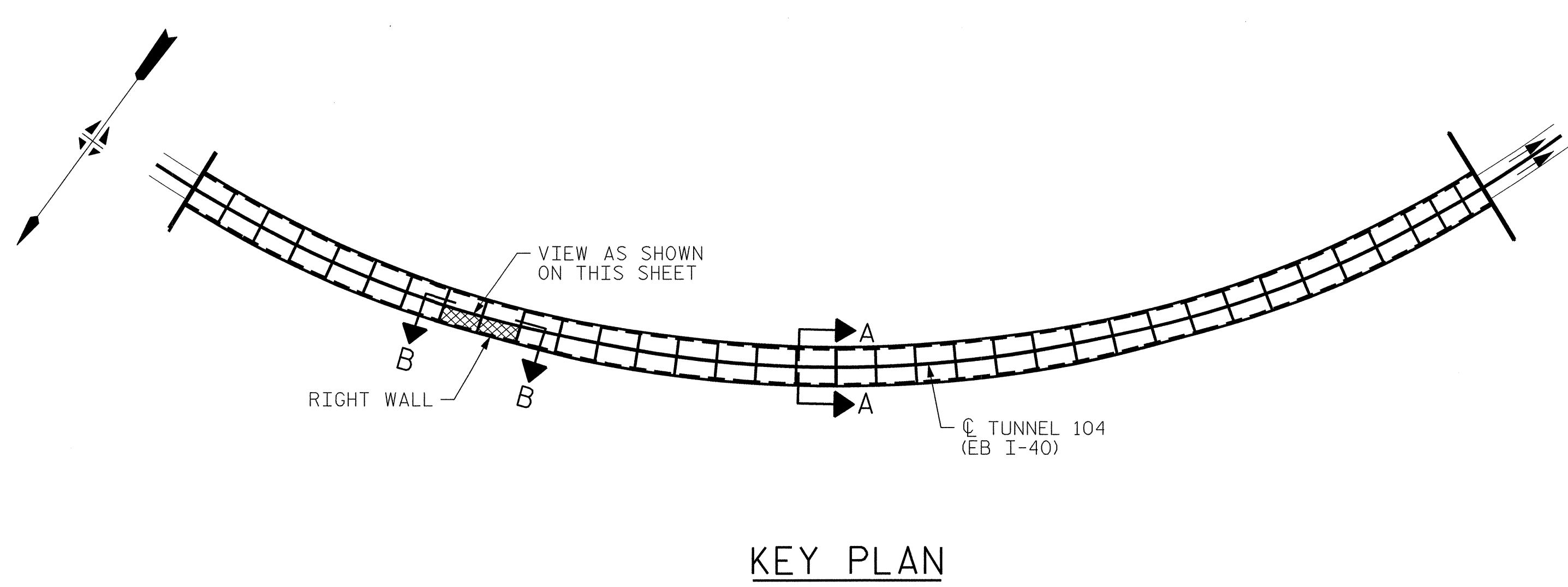
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CHECKED BY : M. MOYER DATE : 07/2013

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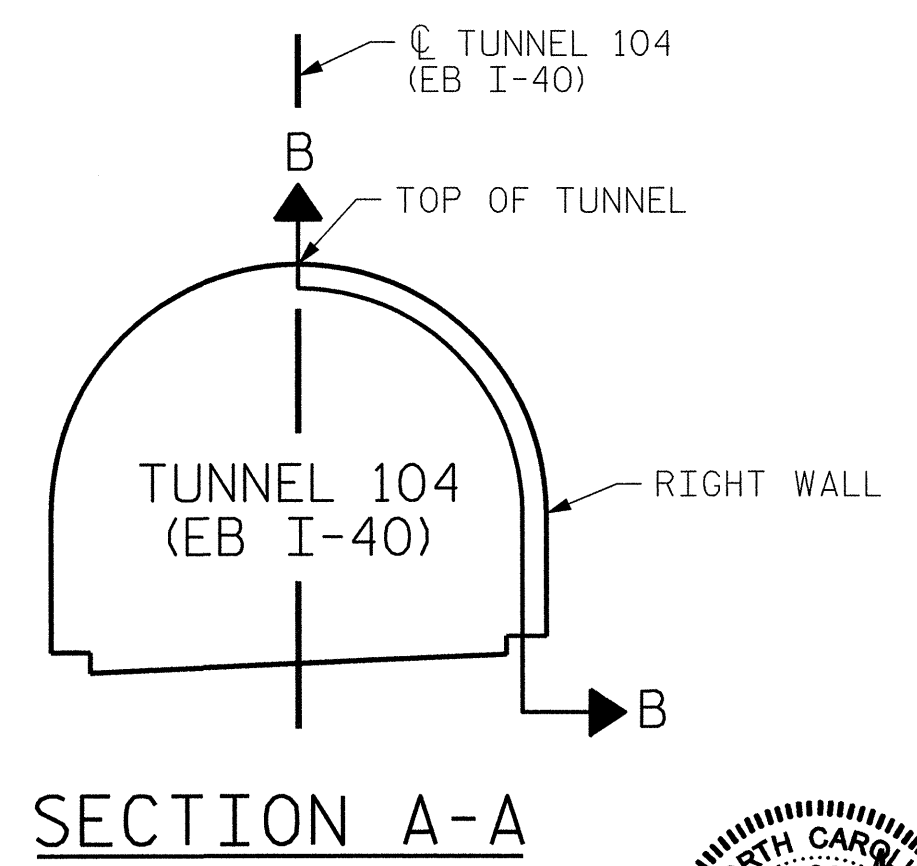
BILL OF MATERIAL			
SHOTCRETE REPAIRS SEGMENT 27R	CF	1.3	
SHOTCRETE REPAIRS SEGMENT 28R	CF	0.3	



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



KEY PLAN



SECTION A-A

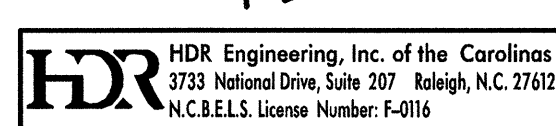
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 104 REPAIR
AREAS
SEGMENTS 27R & 28R



REVISIONS					
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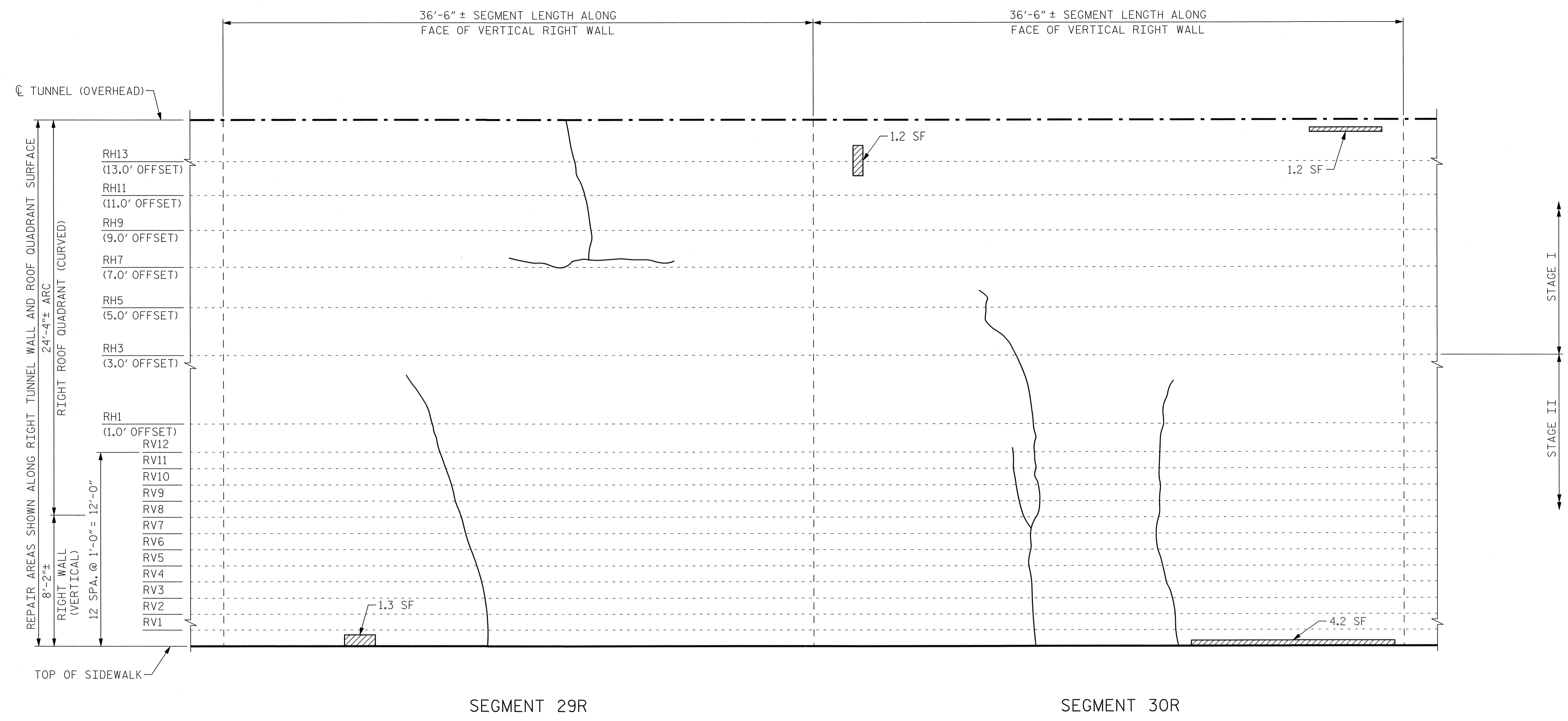
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TOTAL SHEETS 110



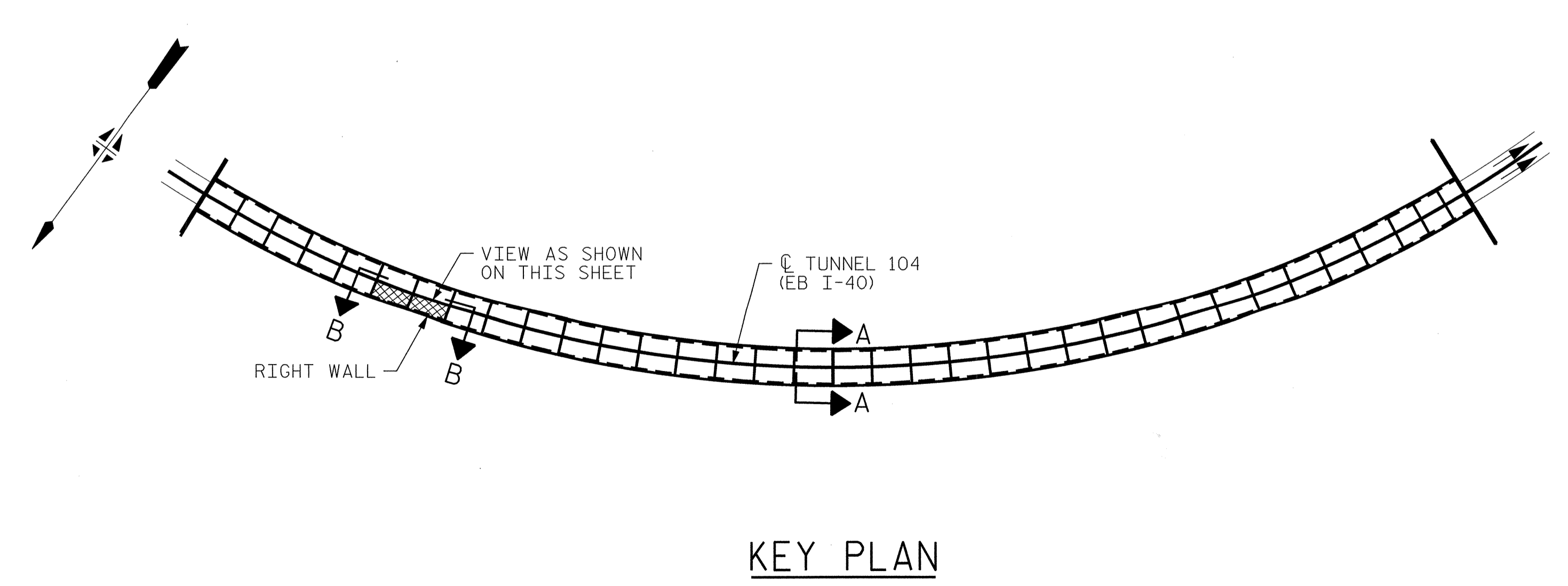
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CHECKED BY : M. MOYER DATE : 07/2013

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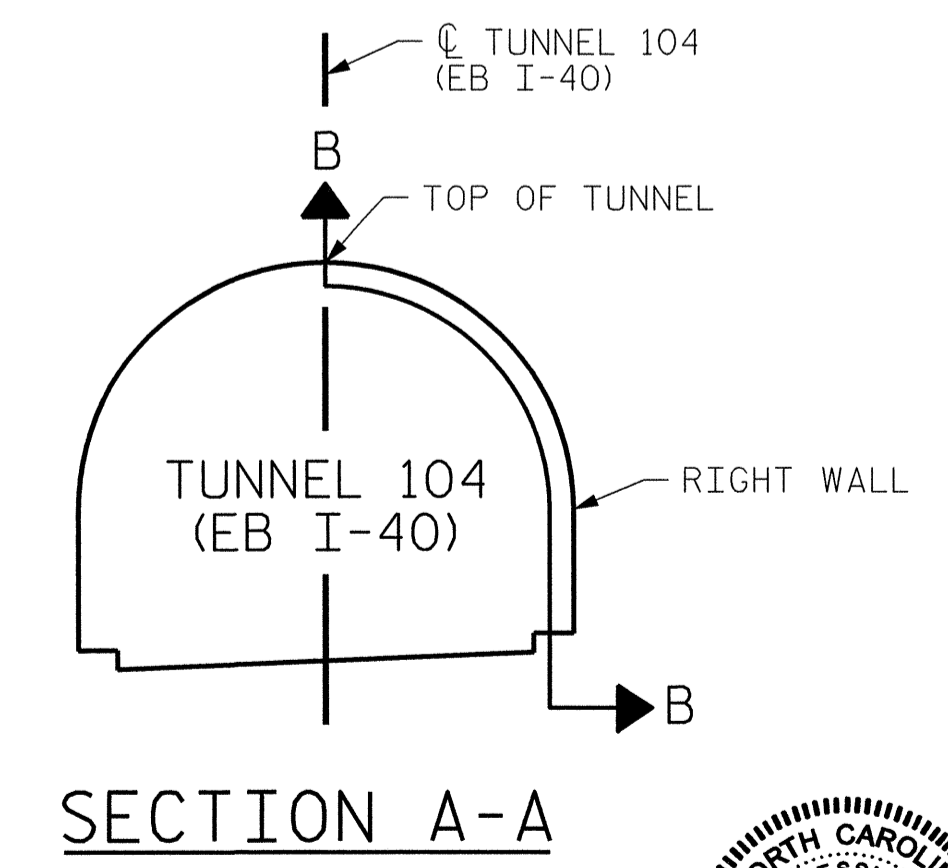
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 29R	CF	0.4
SHOTCRETE REPAIRS SEGMENT 30R	CF	2.2



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



REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
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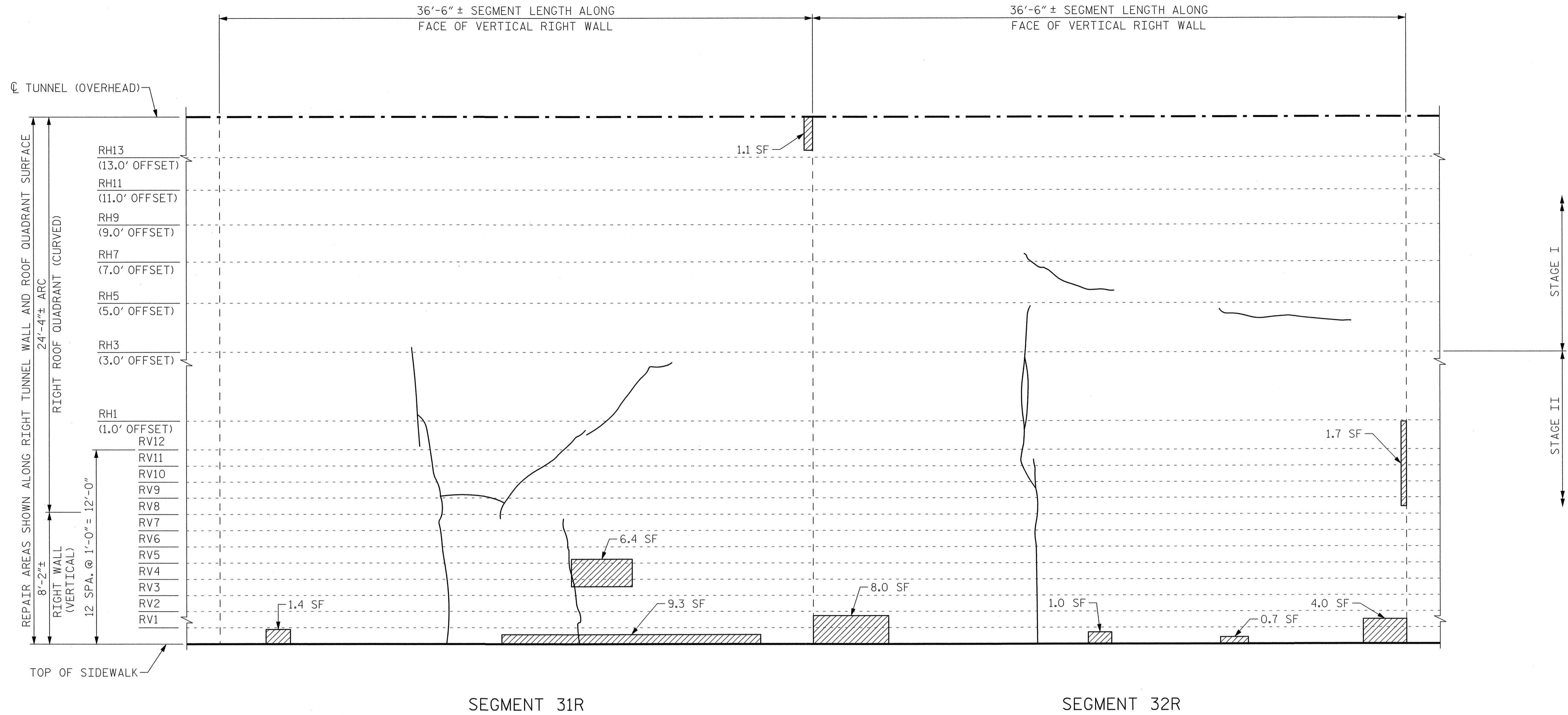
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TOTAL SHEETS 110

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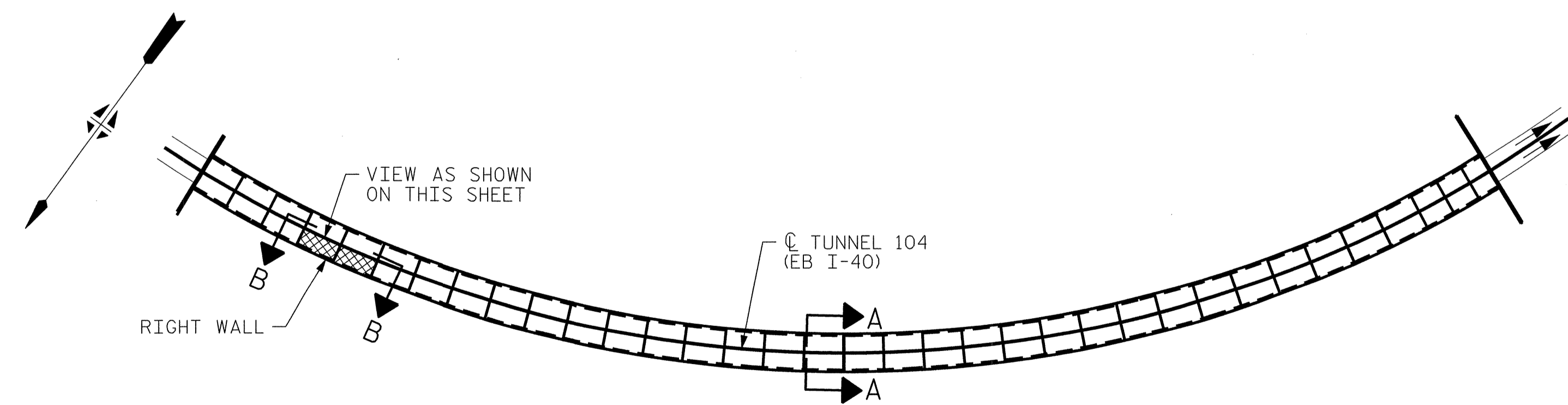
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

PLOT DRIVER: NCD001.pdf_mono_eng_100.pit
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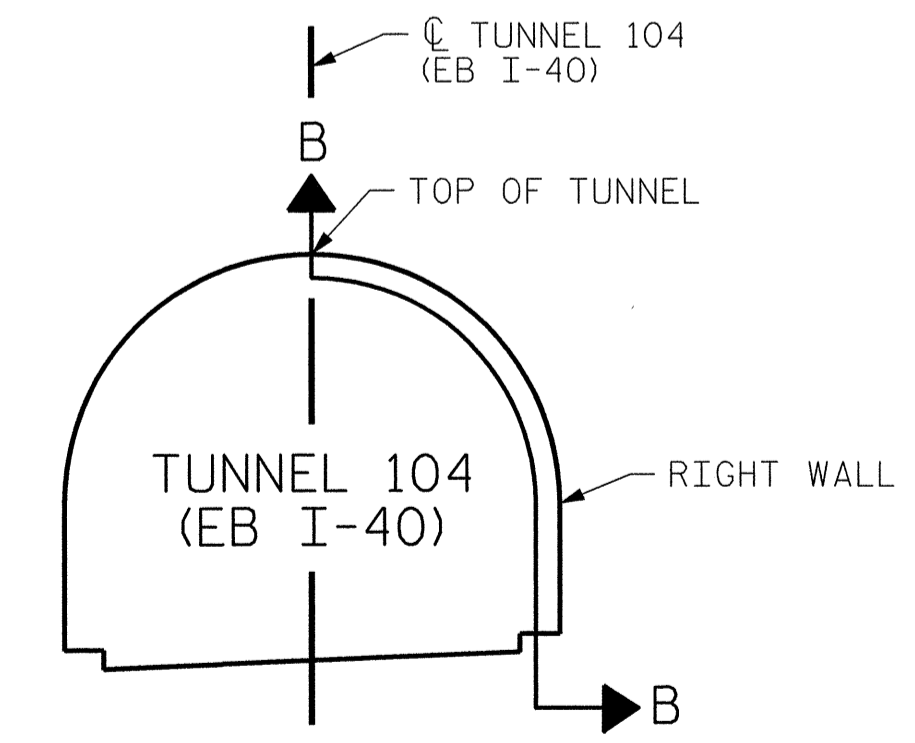
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 31R	CF	6.1
SHOTCRETE REPAIRS SEGMENT 32R	CF	5.1



VIEW B-B: REPAIR SEGMENTS 31R & 32R
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 31R & 32R

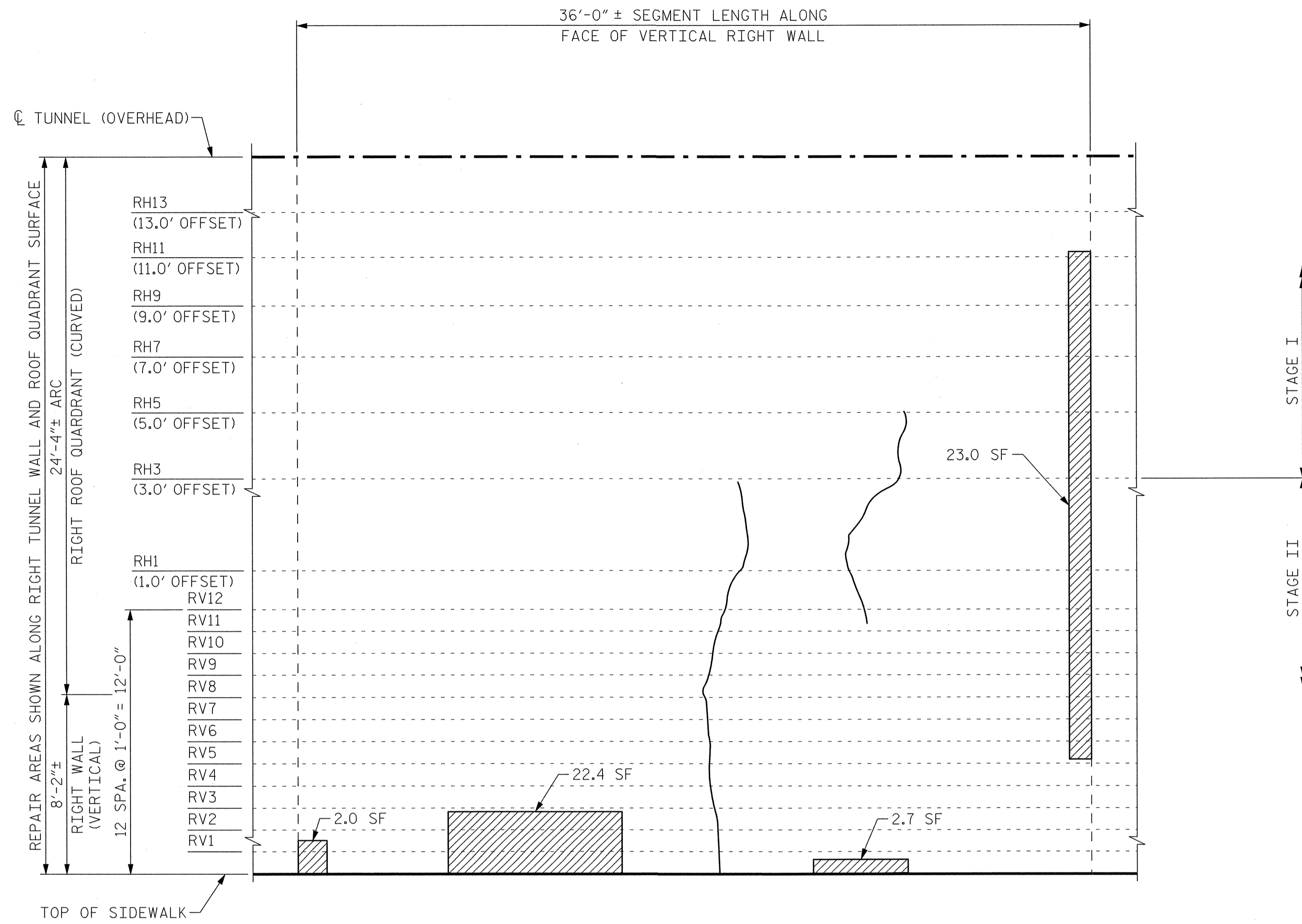


REVISIONS						SHEET NO. S-106
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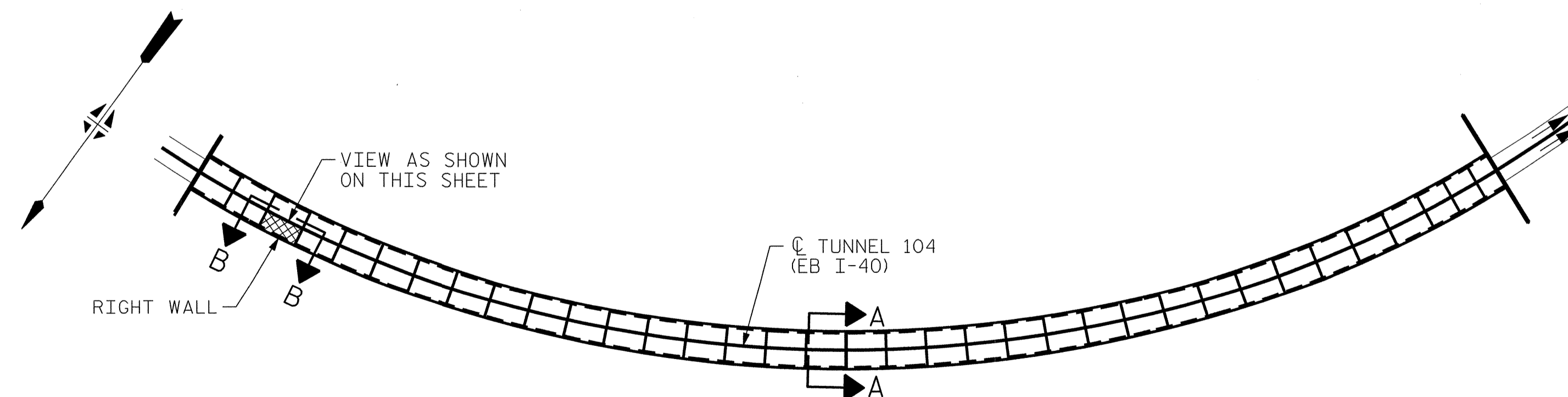
HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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

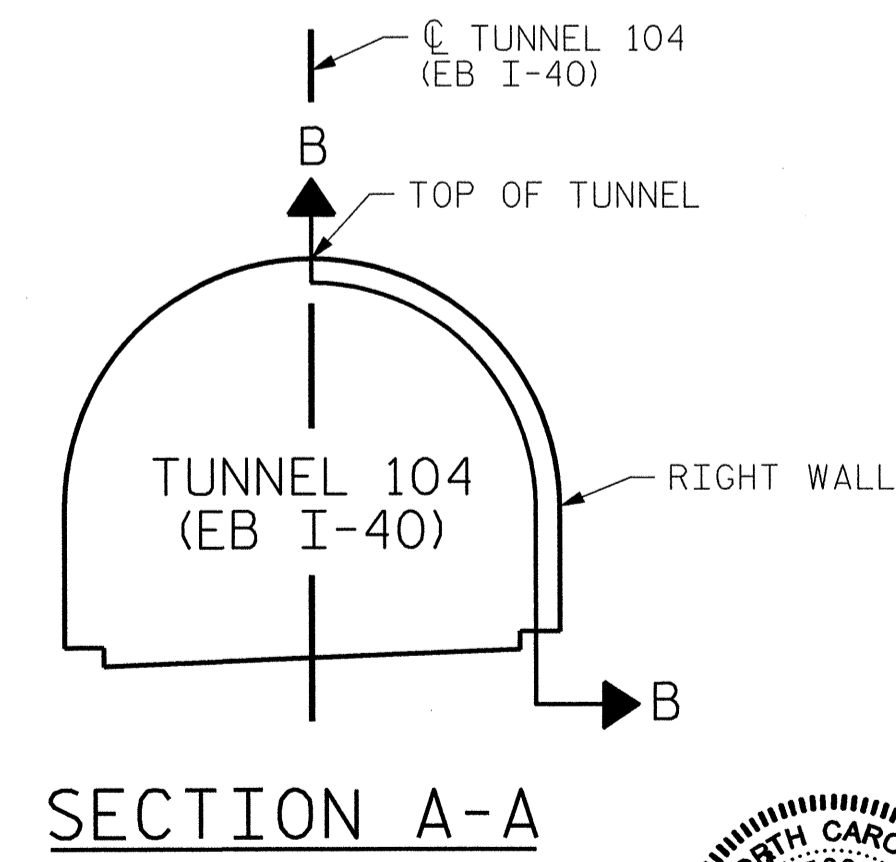
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VIEW B-B: REPAIR SEGMENT 33R
 TUNNEL SURFACE ELEVATION



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 33R



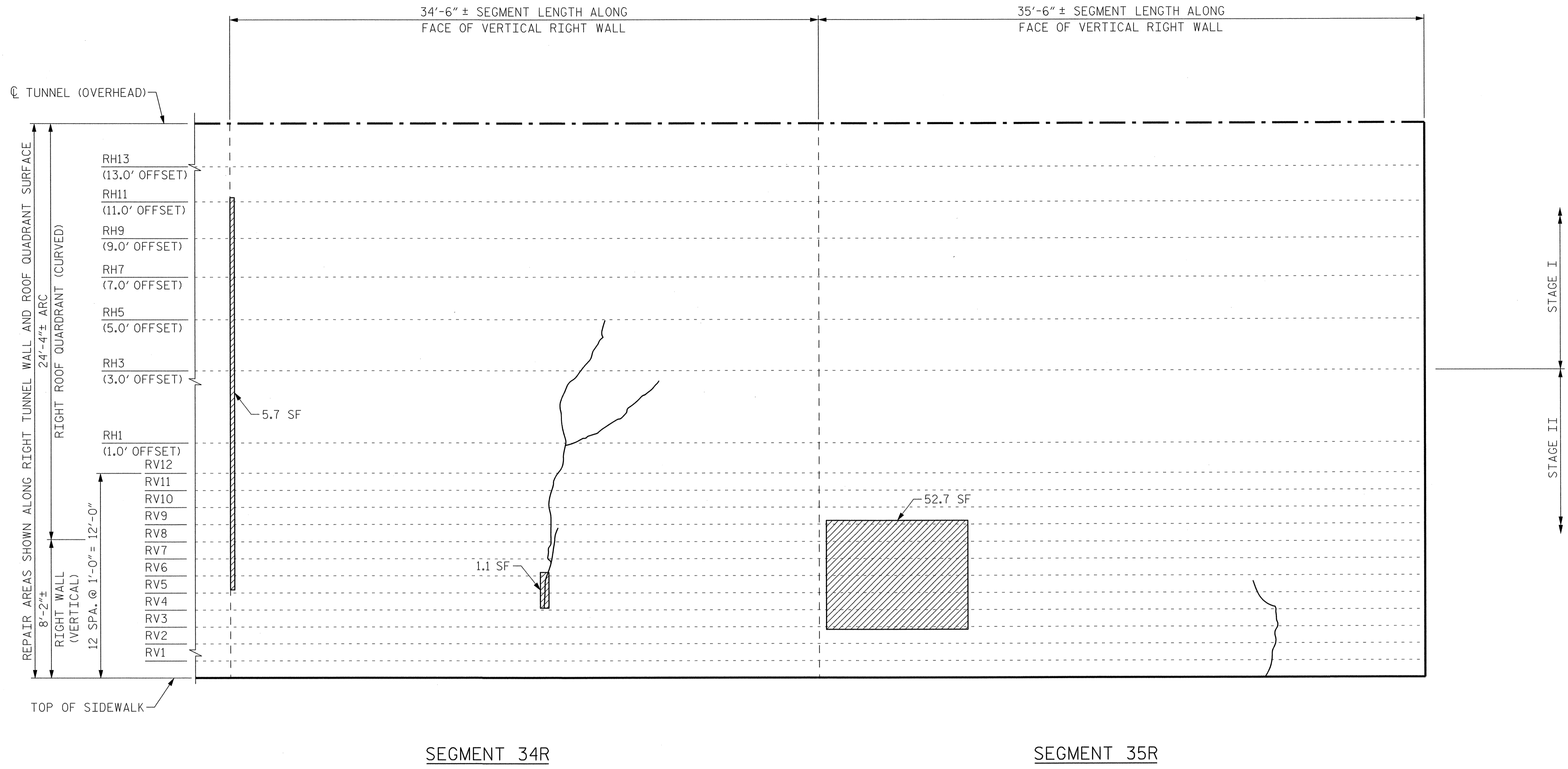
7-23-14

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

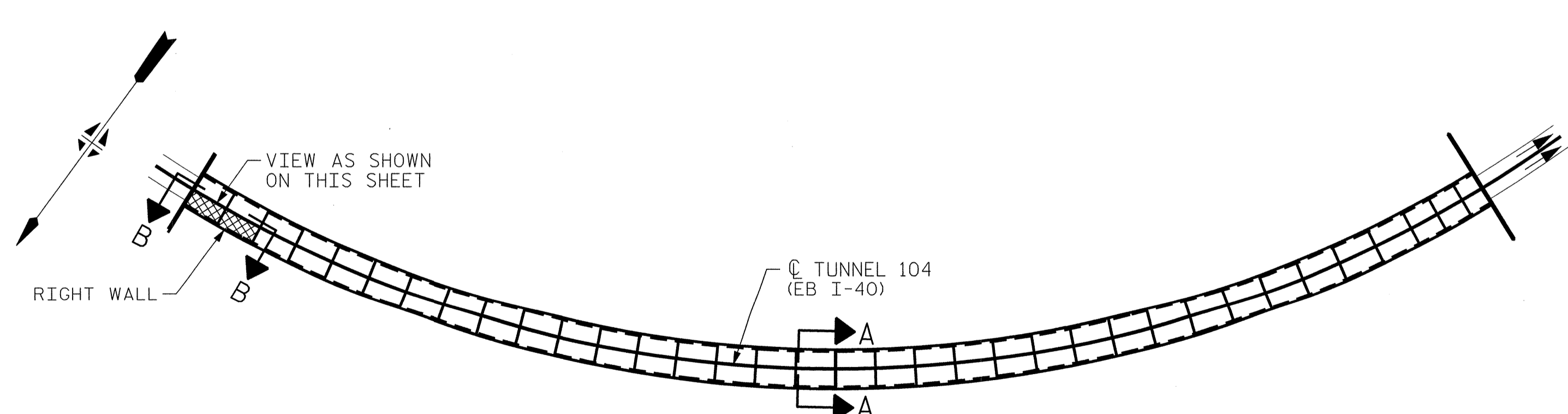
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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 CHECKED BY : M. MOYER DATE : 07/2013

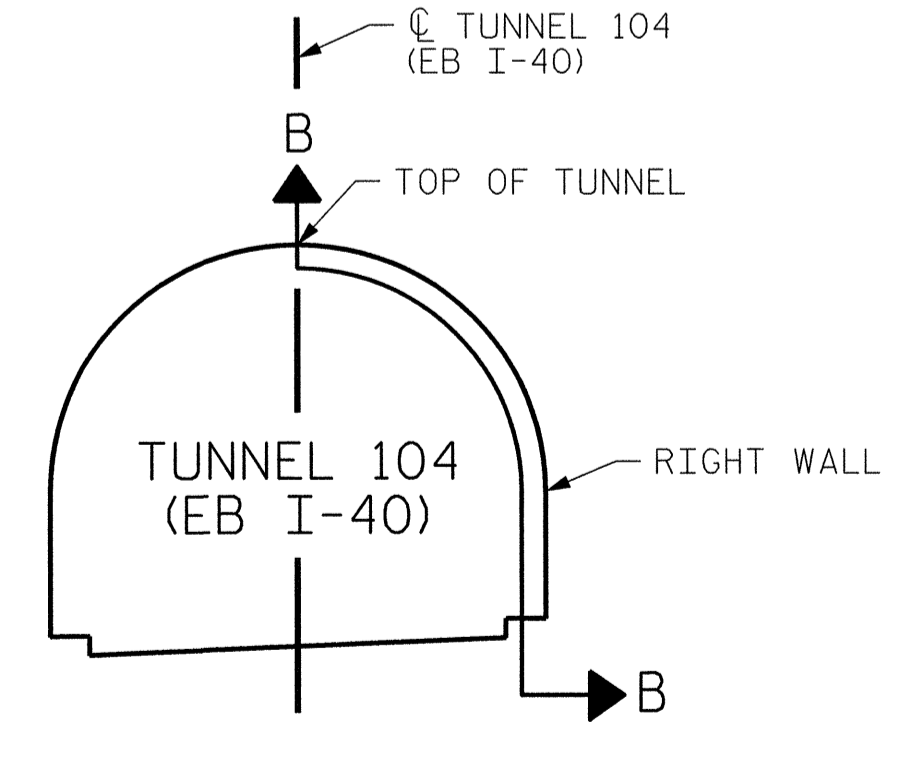
BILL OF MATERIAL		
SHOTCRETE REPAIRS SEGMENT 34R	CF	2.3
SHOTCRETE REPAIRS SEGMENT 35R	CF	17.6



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)

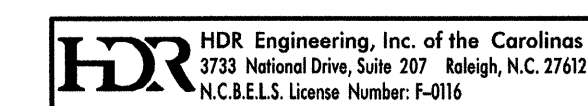
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TUNNEL 104 REPAIR
AREAS
SEGMENTS 34R & 35R



7-23-14

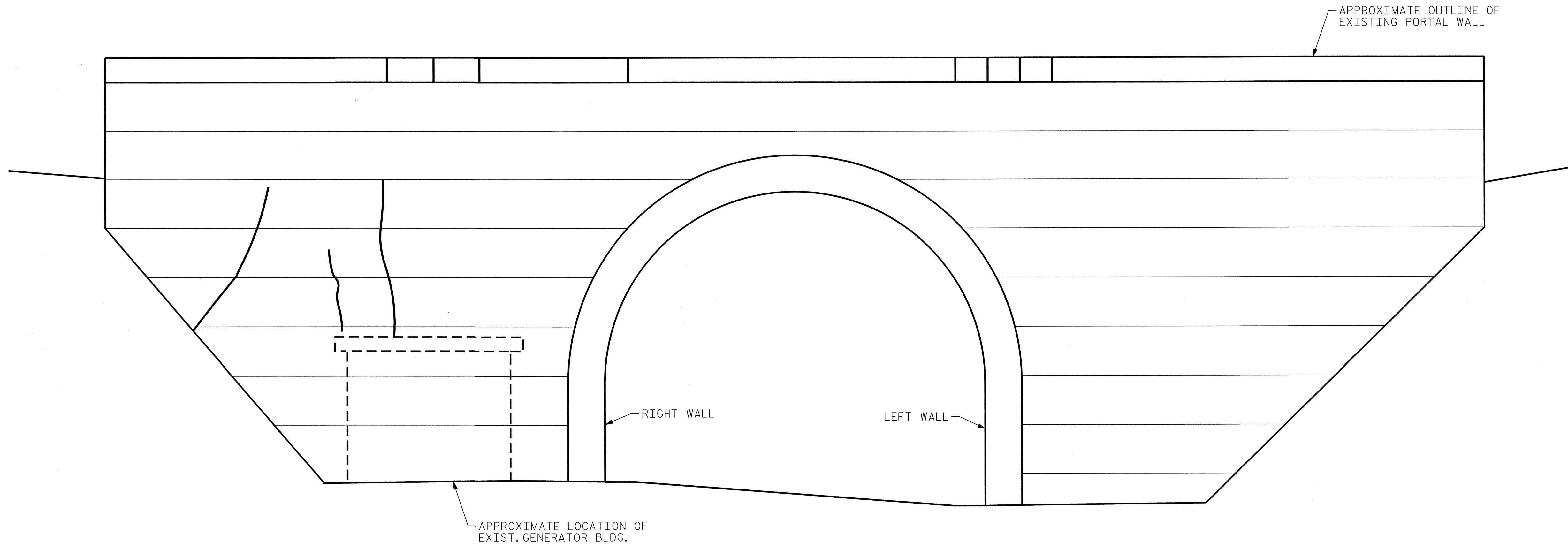
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SHEET NO. S-108
TOTAL SHEETS 110

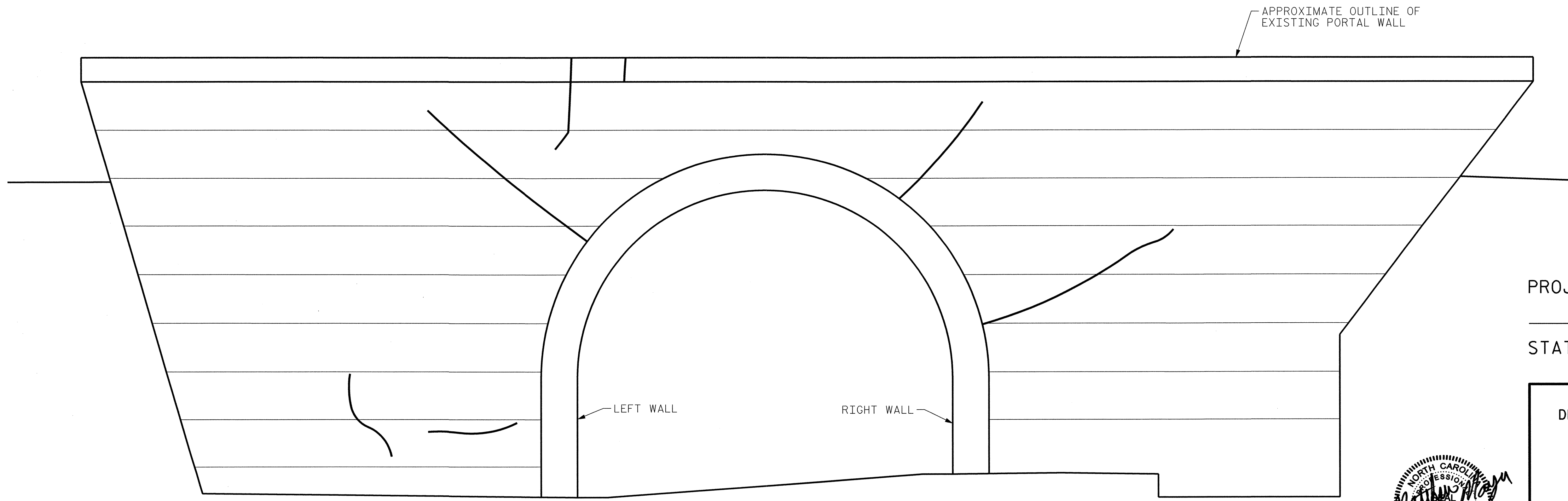


DRAWN BY : B. PETERSON DATE : 07/2013
CHECKED BY : M. MOYER DATE : 07/2013

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PENTABLE: I-40 Tunnel.tbl
USER: msells DATE: 7/22/2014
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EXIT PORTAL WALL
(SOUTH OR EAST END)



ENTRANCE PORTAL WALL
(NORTH OR WEST END)

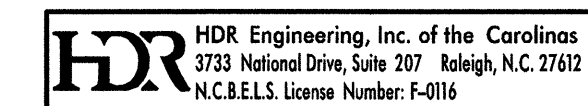
PROJECT NO. I-5512, 50136.3.FS1
HAYWOOD COUNTY
 STATION: 16+12.37 -L- (EB I-40)

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**TUNNEL 104
 PORTAL WALLS**



REVISIONS						SHEET NO. S-109
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 110
2	--	--	4	--	--	



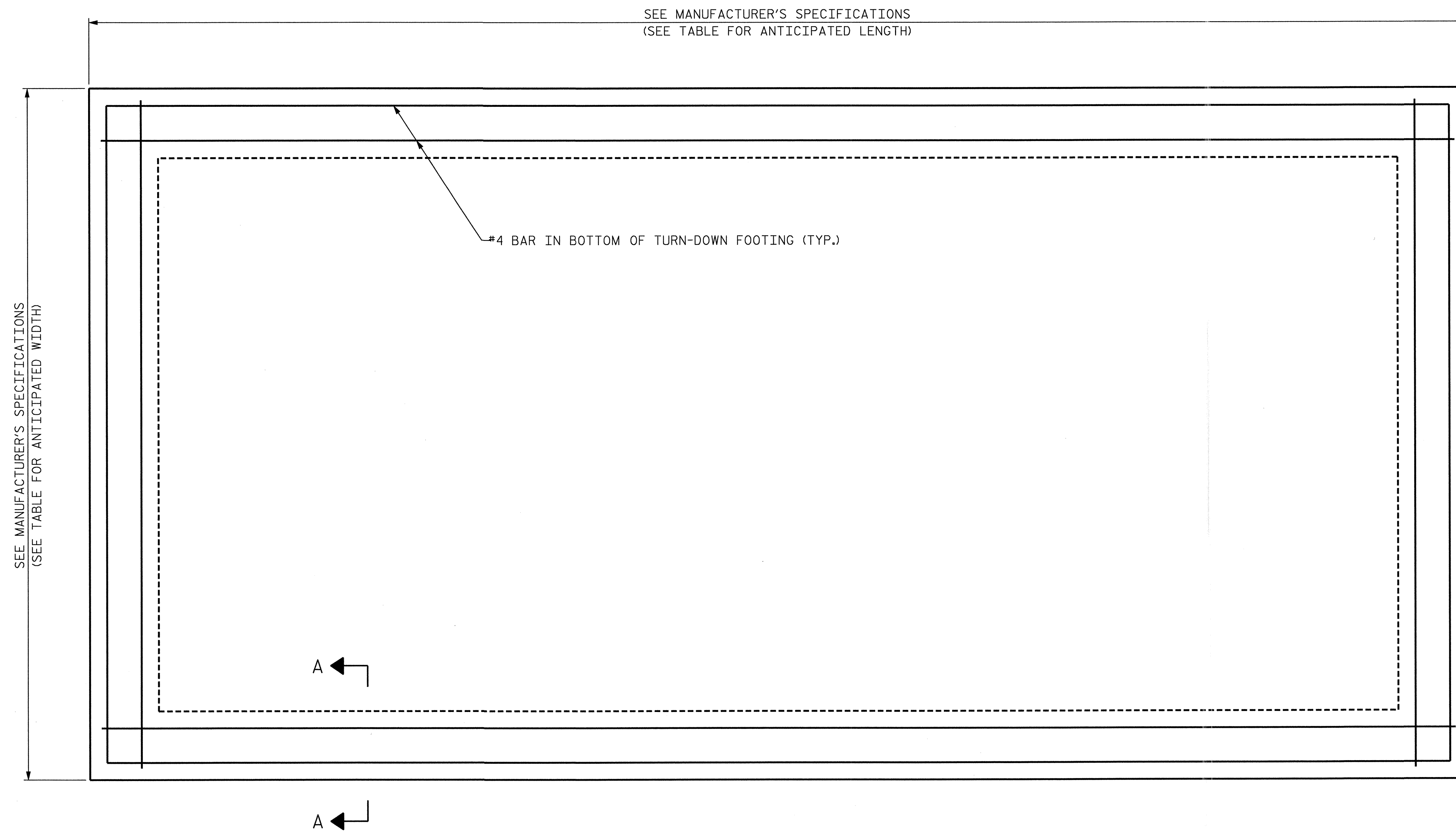
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 CHECKED BY : M. MOYER DATE : 07/2013

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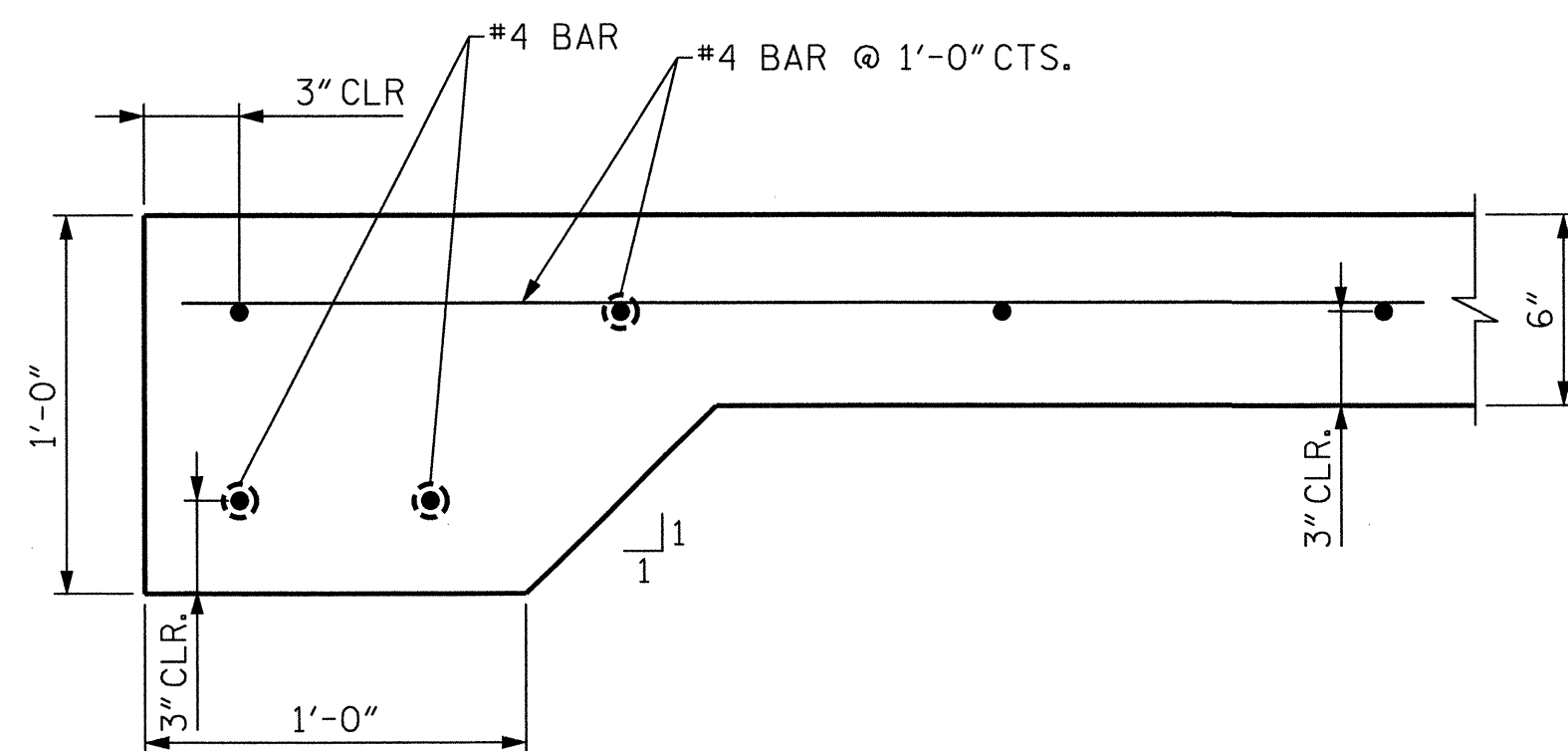
1. THE CONTRACTOR SHALL VERIFY THE CONCRETE PAD DIMENSIONS WITH THE LIGHTING SYSTEM ENCLOSURE MANUFACTURER.
2. THE CONTRACTOR SHALL VERIFY THE CONCRETE PAD DIMENSIONS WITH THE GENERATOR MANUFACTURER.
3. REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE "CONCRETE SLAB" PAY ITEM.
4. 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



PLAN



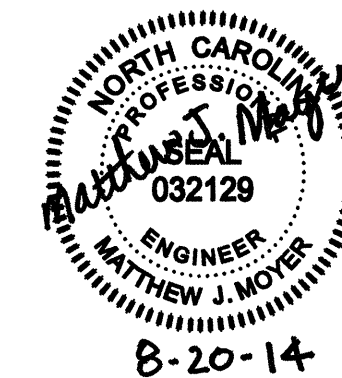
SECTION A-A

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

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

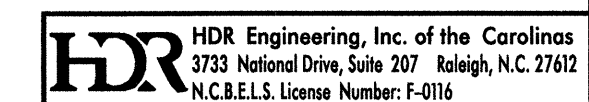
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE PAD DETAILS



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

SHEET NO. S-110
 TOTAL SHEETS 110



DRAWN BY : S. COLLIER DATE : 08/2013
 CHECKED BY : M. MOYER DATE : 08/2013

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. FINISHES 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.

ENGLISH

JANUARY, 1990

STD. NO. 5N