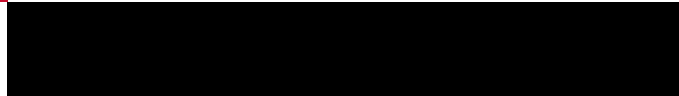




Video Pipe Inspection Report

I-85 Widening Phase III – Cherokee County
From MM 98 to MM 106

Cherokee County, South Carolina
February 24, 2017



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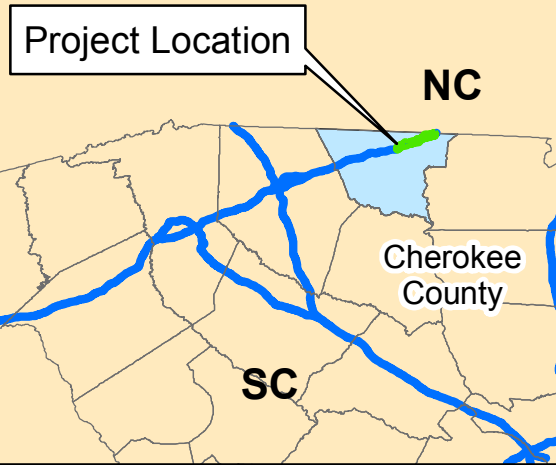
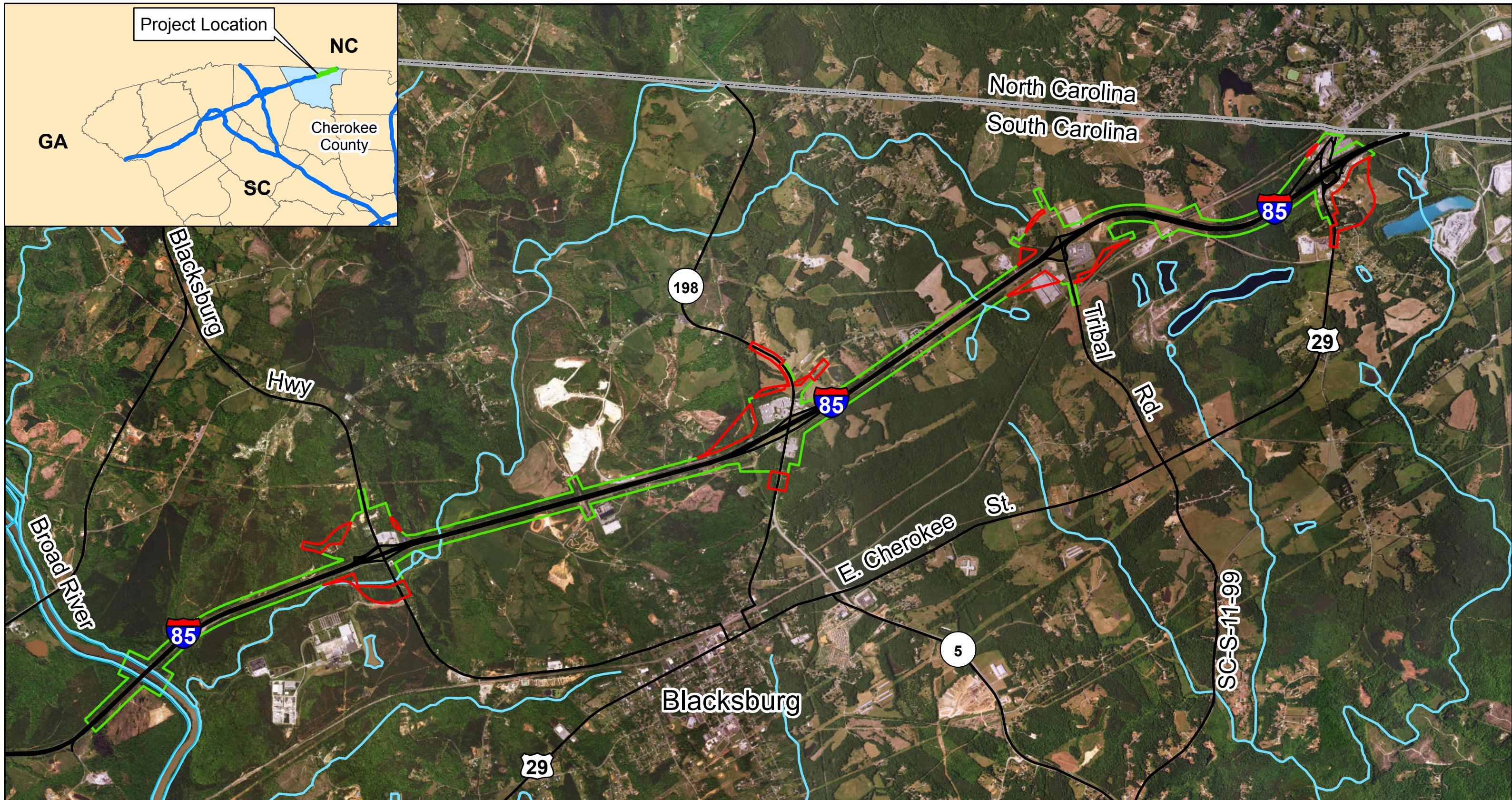
1 Project Summary

The South Carolina Department of Transportation (SCDOT) has proposed the widening of Interstate 85 in Cherokee County, SC. Phase III of the I-85 Widening extends from the Broad River to the NC/SC state line. The project will include widening the northbound and southbound to 3 lanes and improvements to interchanges at Exit 100 (Blacksburg Hwy), Exit 102 (SC-5, N. Mountain St.), Exit 104 (Tribal Rd.) & Exit 106 (US-29). The primary purpose of the project is to improve the operational efficiency of I-85 and correct geometric deficiencies along the interchanges and overpasses by bringing them into compliance with current state and federal design standards.

SCDOT has requested an assessment of the existing drainage structures along the project site for potential use in the proposed design of the project. The assessment was performed through field survey and inspection as well as Video Pipe Inspection. Video pipe inspection was completed along the project corridor between July and August 2016 by AET Services. Recommendations of the structural stability of the existing pipes as well as potential remediation techniques are provided in this report. Recommendations in this report are based solely on the condition of the pipe, please refer to the “*I-85 Widening Phase 3 MM 98 TO MM 106 Stormwater Management Design Report*” prepared by Civil Engineering Consulting Services, regarding hydraulic capacity recommendations.

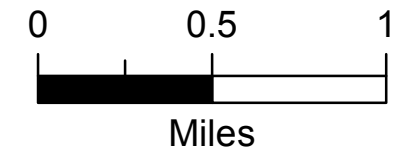
Project location maps are provided in Section 2 and recommendations are presented in Section 3 of this report. Information in this report is based on field survey, visual inspection and robotic inspections as of February 24th, 2017 for SCDOT review and concurrence.

2 Project Location Maps



Legend

- Roads
- I-85
- Streams
- ▭ County Boundary
- Project Boundary
- Additional Project Limits



**FIGURE 1:
INTERSTATE I-85 WIDENING
FROM MM 98 TO MM 106
STUDY AREA MAP**

3 Summary of Recommendations

Recommendations of the structural stability of the existing pipes as well as potential remediation techniques are provided in this section. Recommendations in this report are based solely on the condition of the pipe, please refer to the “*I-85 Widening Phase 3 MM 98 TO MM 106 Stormwater Management Design Report*” prepared by Civil Engineering Consulting Services, regarding hydraulic capacity recommendations. Common issues apparent with the existing pipes along and under I-85 include:

- Joint offsets/separations
- Cracking
- Debris accumulation
- Root intrusion
- Water and sediment Infiltration/exfiltration
- Exposed rebar (box culverts)

Recommendations on pipe replacement or repair were based on three specific factors: 1) type of the issue, 2) severity of the issue, and 3) location of the issue.

Replacement was recommended in areas where the defects caused noticeable problems in the pipe, such as a joint separation with sediment infiltration. In most cases, severe joint separations occurred at the outfall end of the pipe within the last joint or two of the pipe outside of the roadway pavement. In these cases, partial pipe replacement was recommended.

Normal debris accumulation was considered minor and in most cases debris removal was recommended without further improvements to the pipe.

Slip lining was recommended in pipes where joint issues or cracking with groundwater infiltration were apparent and could potentially lead to further issues, such as large joint offsets or exposed gaskets.

Repair was recommended for large pipes and box culverts where access is achievable to make repairs to damaged joints, typically located within a few joints of the median catch basins.

Pipes identified as cracked that had no apparent deficiencies (i.e. infiltration) were retained.

Field and Video Inspection Summary for MM 96 - MM 106					
Scope Site ID	Hydro Reference Number	Station	Pipe / Culvert Type and Size (W x H)	Length (ft)	Evaluation of Pipe (based on video and field inspections)
9	Site 7	1834+32	8' x 8'	158	Clean culvert. Culvert is in good condition.
9a		1833+50	18"	145.1	Slip line pipe due to joint issues.
9b		1832+50	18"	146.7	Remove debris from pipe. Slip line pipe due to joint issues and cracking.
9c		1831+50	18"	118.4	Remove debris from pipe. Pipe in good condition.
9d		1830+00	18"	94.8	Remove debris from pipe. Pipe in good condition.
9e		1829+50	18"	74.7	Remove debris from pipe and downstream inlet. Pipe is in good condition.
9f		1829+00	18"	45.9	Slip line pipe due to joint issues.
10		1834+50	18"	88.5	Remove debris and slip line. The last joint at 84' should be replaced.
10a		1836+00	18"	137.3	Numerous cracks and offset joints/separations throughout length of pipe. Pipe should be replaced.
10c	Site 8	1839+52	15"	84.8	Slip line pipe due to joint issues.
10d		1838+50	18"	85.6	Remove debris from pipe. Pipe in good condition.
11a	Site 9	1847+93	30"	76.7	Remove debris near downstream end of pipe causing obstruction. Pipe in good condition.
11b		1847+93	30"	75	Pipe in good condition.
11c		1849+00	24"	145.2	Slip line pipe due to joint issues.
13	Site 10	1854+69	18"	148.5	Replace first 12.6' of pipe and slip line the remaining sections.
14a	Site 12	1858+83	24"	54.5	Remove debris from pipe and replace the first section of pipe (Frontage Road).
14b		1858+83	24"	178.9	Slip line pipe due to cracking/infiltration.
15	Site 13	1863+58	4' x 6' Box Culvert	256.4	Culvert in good condition. Seal cracks as noted in Pipe Inventory Summary.
16	Site 14	1865+79	18"	88	Replace first 18' of pipe from upstream end. Otherwise, the pipe is in good condition.
17	Site 15	1873+79	18"	159.6	Replace last joint of pipe under Frontage Road. Clean and retain remainder.
18	Site 16	1874+88	4' x 6' Box Culvert	263.4	Remove debris from culvert and seal cracks as noted in Pipe Inventory Summary.
19	Site 17	1884+43	30"	337.9	Remove debris from pipe. Pipe in good condition.

20	Site 18	1890+37	First three (3) sections are 72" pipe and the rest is 4' x 6' Box Culvert	168	Remove debris near downstream end of culvert. Pipe/culvert in good condition.
21	Site 19	1898+40	18"	92.6	Slip line pipe due to joint issues.
22	Site 20	1900+14	7'x7' Box Culvert	360	Cracking along top, right, and left. Repair cracks and retain.
23		1906+00	15"	57	The last section of pipe should be replaced because of a separated joint. Pipe in good condition, otherwise.
24	Site 21	1909+86	4' x 6' Box Culvert	278	Remove debris from culvert and repair wide displaced seam at 108'.
25a		1913+00	18"	222.5	Remove debris throughout pipe especially at downstream end and slip line due to joint issues.
25b		1914+00	18"	222.2	Slip line pipe due to joint issues.
25c	Site 23	1917+16	18"	174.6	Remove debris near downstream end of pipe. Pipe in good condition.
25d		1918+50	18"	146.2	Slip line pipe due to joint issues.
25e		1920+00	18"	87.9	Slip line pipe due to cracking/infiltration.
25f		1920+50	24"	63.4	Remove debris near downstream end of pipe. Pipe in good condition.
25g		1921+50	24"	153.3	Slip line pipe due to joint issues.
25h		1923+00	24"	159.2	Slip line pipe due to joint issues.
25I-North		1919+00	24"	228.8	Remove debris from pipe. Pipe in good condition.
25I-South		1919+00	24"	18.6	Remove debris from pipe. Pipe in good condition.
26		1918+00	24"	178.8	Pipe not accessible. Pipe not inspected
27a		1928+00	24"	151.2	Replace pipe.
27b		1931+00	24"	200.9	Slip line pipe due to joint issues.
27c		1933+00	18"	158.6	Slip line pipe due to joint issues.
27d		1934+00	18"	160.2	Slip line pipe due to joint issues.
27e		1936+00	18"	170.7	Slip line pipe due to joint issues.
27f		1937+00	18"	72.8	Remove debris from pipe. Retain existing pipe.
27g		1939+00	18"	145.7	Remove debris from pipe. Retain existing pipe.
28		1942+00	18"	75	Remove debris from pipe. Retain existing pipe.
29	Site 24	1945+56	12' x 10' Box Culvert	143	Box culvert in good condition.
30		1953+00	15"	66.7	Remove debris from pipe. Pipe in good condition.
31	Site 25	1958+06	18"	64.6	Remove debris from pipe and replace last section of pipe due to a joint separation.

33	Site 27	1969+45	4' x 6' Box Culvert	133	Seal cracks and repair exposed rebar.
34a	Site 28	1973+13	18"	41	Remove debris. Pipe in good condition.
34b		1973+13	18"	44.3	Remove debris from pipe. Pipe in good condition.
35b-a	Site 29	1976+02	24"	121.6	Remove debris from pipe. Pipe in good condition.
35c		1976+00	18"	110.2	The pipe should be replaced and debris on the upstream inlet should be removed.
36a	Site 30	1982+48	18"	85.8	Pipe in good condition.
36b		1982+48	18"	64.6	Slip line pipe due to joint issues.
37a	Site 31	1989+06	24"	85.1	Replace the last section of pipe due to a joint separation.
37b		1989+06	24"	67.3	Pipe in good condition.
38a	Site 32	1998+61	18"	94.4	Pipe in good condition.
38b		1998+61	18"	62.2	Pipe in good condition.
39a	Site 33	2006+38	18"	64.7	Replace first and last joints of pipe due to joint separations.
39b		2006+38	18"	73.9	Pipe in good condition.
40a	Site 34	2010+43	18"	73.5	Replace pipe from 63.5' to the end due to a joint separation.
40b		2010+43	18"	66.7	Pipe in good condition.
41	Site 35	2015+03	18"	76.1	Pipe in good condition. The outlet needs to be cleaned.
42	Site 36	2018+40	36"	345.8	Replace pipe.
43	Site 37	2022+99	18"	59.5	Replace last 10' of pipe due to broken pipe.
45a-b	Site 38A, Site 38B	2029+09	42"	272.3	Pipe in good condition.
47a	Site 41	2040+58	30"	77.3	Replace last 15' of pipe.
47b	Site 40	2040+58	30"	88	Pipe in good condition.
47c		2040+58	30"	69.6	Pipe in good condition.
47d		2040+58	30"	68.5	Pipe in good condition.
50		2046+00	18"	63	Pipe in good condition.
51a	Site 44	2055+19	24"	47.6	Pipe in good condition.
51b		2055+19	24"	58.3	Replace first and last sections of pipe.
51c		2055+19	18"	71.4	Slip line pipe due to cracking/infiltration.
52	Site 45	2058+62	18"	91.6	Replace pipe.
53	Site 46	2064+48	72" - 4' x 6' Box Culvert	240 (305)	Inspection abandoned due to excessive debris. Remove debris and inspect.
54	Site 47	2066+16	18"	104.8	Pipe in good condition.
55	Site 48	2075+51	18"	74.9	Pipe in good condition.
56	Site 49	2076+39	4' x 6' Box Culvert	232	Excessive cracking, breaks, and exposed rebar throughout. Repair culvert.
57	Site 50	2082+58	4' x 4' Box Culvert	331	Cracking along most of the length with some rebar exposed. Repair culvert.
58a		2083+50	18"	83.3	Pipe in good condition.
58b		2083+50	18"	69.5	Pipe in good condition. Replace last section of pipe due to joint separation.

59	Site 52	2097+13	36"	253	Pipe in good condition.
60		2097+13	36"	388.4	VPI not complete due to pipe collapsing. Replace the last section of pipe.
61	Site 53	2114+83	6'x6' Box Culvert	318	Cracking along most of the length with some rebar exposed. Repair culvert.
62	Site 54	2116+00	18"	158.2	Pipe in good condition.
63	Site 55	2124+50	4' x 6' Box Culvert	130	Minor cracking and exposed rebar. Repair culvert.
64a	Site 56	2130+20	30"	139.6	Slip line pipe due to joint issues.
64b		2130+20	30"	78.3	Pipe in good condition. Repair/replace last 12' of pipe.
64c		2130+20	30"	78.7	Pipe is in good condition.
65a	Site 57	2142+75	24"	63	Clean outfall and reinspect.
65b-c		2142+75	24"	179.6	Slip line due to joint separations and cracking.
65d		2142+75	24"	86.3	Pipe is in good condition. No apparent issues from cracking.
66	Site 58	2147+84	30"	185	Major debris accumulation. Pipe not inspected. Clean pipe and inspect.
67a	Site 59	2148+92	18"	72.8	Replace from joint separation to end of pipe. Retain under pavement.
67b		2148+92	18"	56.5	Pipe is in good condition.
67c		2148+75	18"	65	Repair connection to drainage box. Pipe is in good condition.
67d		2148+50	18"	48.9	Remove debris. Pipe is in good condition.
67e		2148+00	18"	60.9	Pipe is in good condition. No apparent issues from cracking.
68a	Site 60	2152+05	30"	69.4	Pipe is in good condition. No apparent issues from chip.
68b		2152+05	30"	71.6	Pipe is in good condition.
68c		2152+05	30"	86.1	Replace pipe due to joint separations and hydraulic issues.
69a		2160+00	24"	127.8	Remove debris. Pipe is in good condition.
69b		2161+00	24"	94	Remove debris. Pipe is in good condition.
69c		2162+00	24"	94.1	Remove debris. Pipe is in good condition.
69d		2163+00	24"	154	Replace pipe due to breaks.
69e	Site 61	2163+97	15"	73.1	Replace 16 LF from downstream end. Retain remainder.
70	Site 62	2164+36	4' x 6' Box Culvert	132	Culvert is in good condition.
70a		2165+00	24"	78	Remove debris and inspect pipe.
71a	Site 63	2170+41	36"	63.8	Major joint separation under travel lanes. Replace pipe.
71b		2170+41	36"	69.9	Pipe is in good condition.
72a	Site 64	2174+88	30"	104.4	Replace upstream segment and slip line.
72b		2175+00	30"	103.1	Replace downstream segment and slip line.
73		2177+44	15"	75.5	Major debris accumulation. Pipe not inspected. Clean pipe and inspect.

74		2182+41	15"	96.4	Pipe is in good condition. No apparent issues from cracking.
75		2198+60	15"	91.6	Remove debris and roots. Slip line.
76a		2204+23	15"	144.9	Replace pipe due to severe cracking.
76b	Site 65	2204+44	36"	243.1	Replace pipe due to severe cracking.
79	Site 66	2218+40	36"	215.3	Replace pipe due to severe cracking.
80	Site 67	2218+40	18"	108.2	Pipe is in good condition. No apparent issues from cracking.
82	Site 68	2223+93	36"	336.1	Replace pipe due to severe cracking.
83a-b		2224+64	18"	149.1	Repair upstream joint and slip line.
83c	Site 69	2226+83	18"	169.3	Major structural and hydraulic issues. Replace pipe.
84a-b	Site 70	2232+56	24"	208.4	Remove debris. Pipe is in good condition. No apparent problems with joint offsets.
85a	Site 71	2243+23	30"	97.4	The pipe should be replaced due to excessive cracking.
85b		2243+23	30"	204	Repair exposed gasket. Remove debris.
86a		2245+45	15"	71.4	Pipe is in good condition.
86b		2245+45	15"	155.5	Pipe is in good condition. No apparent problems with joint offsets.
87		2255+00	18"	75.7	Pipe is in good condition.
88		2257+15	48"	269.9	Pipe not accessible. Pipe not inspected
89		2261+00	18"	84.9	Replace last pipe segment outside of I-85 roadway due to joint offset. Retain remainder of pipe.
90a		2268+50	42"	42.3	Pipe in good condition.
90b		2268+50	42"	59.5	Replace last pipe segment in I-85 median due to major cracking and joint offset. Retain remainder of pipe.
90c		2268+50	42"	66.3	Pipe is in good condition. Repair last joint offset with grout.

4 Pipe Summaries

PIPE INVENTORY SUMMARY - PIPE 9

<u>BASIC INFORMATION</u>			
Pipe No:	<u>9</u>	Pipe Size:	<u>8' x 8' Box</u> Pipe Length: <u>158</u> LF
Date Inspected:	<u>7/4/2016</u>	Inspection Started:	_____
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1834+32</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 9 is a 8' x 8' box culvert near I-85 Sta. 1834+50.</u>
<u>It drains from the left side of I-85 SB to the right side of I-85 NB.</u>

<u>DEFICIENCIES</u>

<u>RECOMMENDATION</u>
<u>Pipe 9 should be cleaned and retained.</u>

PIPE INVENTORY SUMMARY - PIPE 9A

BASIC INFORMATION			
Pipe No:	<u>9A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>145.1</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1833+50</u>		

HYDRAULIC INFORMATION
Pipe 9A is part of a closed drainage system ranging from Sta. 1828+50 to 1834+50 along I-85.

DEFICIENCIES
There is a misaligned joint at 87.6' and 104.2'.
There is a major structural crack (> 12") at 105'.

RECOMMENDATION
Pipe is located in paved median section. Slip line pipe.



Misaligned Joint at 104.2'

PIPE INVENTORY SUMMARY - PIPE 9B

BASIC INFORMATION			
Pipe No:	<u>9B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>146.7</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1832+50</u>		

HYDRAULIC INFORMATION
Pipe 9B is part of a closed drainage system ranging from Sta. 1828+50 to 1834+50 along I-85.

DEFICIENCIES
Obstruction (debris) throughout
30.5' (top) - hole in the pipe adjacent to a major longitudinal structural crack (>12")
64.6' (left) - major longitudinal structural crack (>12")
137.5' - joint separated by >1"

RECOMMENDATION
The pipe is located within the existing paved median. Clean pipe and slip line.



CRACK >12" AT 30.5' (TOP)

PIPE INVENTORY SUMMARY - PIPE 9C

BASIC INFORMATION			
Pipe No:	<u>9C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>118.4</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1831+50</u>		

HYDRAULIC INFORMATION
Pipe 9C is part of a closed drainage system ranging from Sta. 1828+50 to 1834+50 along I-85.

DEFICIENCIES
Obstruction (debris) at the last 35' of the downstream end of the pipe.
46' - misaligned joint

RECOMMENDATION
The pipe is located within the existing paved median. Clean pipe and retain. No apparent issues with misaligned joint.



46' - MISALIGNED JOINT

PIPE INVENTORY SUMMARY - PIPE 9D

BASIC INFORMATION			
Pipe No:	<u>9D</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>94.8</u> LF
Date Inspected:	<u>6/27/16</u> <u>9/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1830+00</u>		

HYDRAULIC INFORMATION
Pipe 9D is part of a closed drainage system ranging from Sta. 1828+50 to 1834+50 along I-85.

DEFICIENCIES
Obstruction (debris) at 81 ft; VPI incomplete
70' - Multidirectional crack

RECOMMENDATION
The pipe is located within the existing paved median. No apparent issues from cracks.
Clean and retain pipe.



70' - MULTIDIRECTIONAL CRACK

PIPE INVENTORY SUMMARY - PIPE 9E

BASIC INFORMATION			
Pipe No:	<u>9E</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>74.7</u> LF
Date Inspected:	<u>9/27/16</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1829+50</u>		

HYDRAULIC INFORMATION
Pipe 9E is part of a closed drainage system ranging from Sta. 1828+50 to 1834+50 along I-85.

DEFICIENCIES
Obstruction (debris) at downstream end.

RECOMMENDATION
The pipe is located within the existing paved median. Clean pipe and retain.



DEBRIS AT DS END CAUSING PONDING IN PIPE

PIPE INVENTORY SUMMARY - PIPE 9F

BASIC INFORMATION			
Pipe No:	<u>9F</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>45.9</u> LF
Date Inspected:	<u>9/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1829+00</u>		

HYDRAULIC INFORMATION
Pipe 9F is part of a closed drainage system ranging from Sta. 1828+50 to 1834+50 along I-85.

DEFICIENCIES
37' - JOINT GASKET EXPOSED

RECOMMENDATION
The pipe is located within the existing paved median. Exposed gasket poses potential future issues. Slip line.



37' - JOINT GASKET EXPOSED

PIPE INVENTORY SUMMARY - PIPE 10

BASIC INFORMATION			
Pipe No:	<u>10</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>88.5</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1834+50</u>		

HYDRAULIC INFORMATION
Pipe 10 is part of a closed drainage system ranging from Sta. 1834+50 to 1836+50 along I-85.

DEFICIENCIES
57.2' (TOP) - MAJOR STRUCTURAL CRACK (> 12")
84' - JOINT SEPERATED >1"

RECOMMENDATION
Joint separation occurs outside of roadway pavement behind guardrail.
Replace last joint of pipe. Slip line remainder.



84' - JOINT SEPERATED >1"

PIPE INVENTORY SUMMARY - PIPE 10A

BASIC INFORMATION			
Pipe No:	<u>10A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>137.3</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1836+00</u>		

HYDRAULIC INFORMATION
<u>Pipe 10A is part of a closed drainage system ranging from Sta. 1834+50 to 1836+50 along I-85.</u>

DEFICIENCIES
<u>Numerous cracks and offset joints/separations throughout the length of the pipe.</u>

RECOMMENDATION
<u>Pipe is located in grassed median. Replace pipe due to number of deficiencies.</u>



30.3' - JOINT OFFSET IN THE PIPE

PIPE INVENTORY SUMMARY - PIPE 10C

BASIC INFORMATION			
Pipe No:	<u>10C</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>84.8</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1839+52</u>		

HYDRAULIC INFORMATION
Pipe 10C is part of a closed drainage system near 1839+50 along I-85.

DEFICIENCIES
63.1' - CRACK > 12"; 64.7' - JOINT OFFSET IN PIPE;
69' - JOINT OFFSET IN PIPE; 74.2' - ANGULAR JOINT;
78.3' - GASKET EXPOSED

RECOMMENDATION
The pipe is located under I-85 NB. Slip line.



69' - JOINT OFFSET IN PIPE

PIPE INVENTORY SUMMARY - PIPE 10D

BASIC INFORMATION			
Pipe No:	<u>10D</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>85.6</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>Rt. I-85/Lt. Ramp</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1838+50</u>		

HYDRAULIC INFORMATION
Pipe 10D is part of a closed drainage system near 1839+00 along I-85.
The pipe is located under the Exit 98 slip ramp.

DEFICIENCIES
4.5' - JOINT > 1";
44.1' - CHIP;
Water and Debris at downstream end

RECOMMENDATION
The pipe is located outside of I-85 pavement and the exit ramp will be closed.
No apparent issues with pipe joints. Clean and retain pipe.



4.5' - JOINT > 1"

PIPE INVENTORY SUMMARY - PIPE 11A

BASIC INFORMATION			
Pipe No:	<u>11A</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>76.7</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1847+93</u>		

HYDRAULIC INFORMATION
Pipe 11A is part of a closed drainage system near Sta. 1848+00 along I-85.

DEFICIENCIES
Obstruction (debris) near the downstream end of pipe.

RECOMMENDATION
Based on the Video Pipe Inspection, Pipe 11A should be cleaned and retained.



DEBRIS NEAR PIPE OUTLET

PIPE INVENTORY SUMMARY - PIPE 11B

BASIC INFORMATION			
Pipe No:	<u>11B</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>75</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1847+93</u>		

HYDRAULIC INFORMATION
Pipe 11B is part of a closed drainage system near Sta. 1848+00 along I-85.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Based on the Video Pipe Inspection, Pipe 11B should be retained.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 11C

BASIC INFORMATION			
Pipe No:	<u>11C</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>145.2</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>Off I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1849+00</u>		

HYDRAULIC INFORMATION
Pipe 11C is part of a closed drainage system near Sta. 1848+00 along I-85.

DEFICIENCIES
94.1 - CRACK > 12"
118.5' - JOINT OFFSET
124' - MULTIDIRECTIONAL CRACK

RECOMMENDATION
Pipe is located outside of I-85 pavement. Slip line.



124' - MULTIDIRECTIONAL CRACK

PIPE INVENTORY SUMMARY - PIPE 13

BASIC INFORMATION			
Pipe No:	<u>13</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>148.5</u> LF
Date Inspected:	<u>7/6/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1854+69</u>		

HYDRAULIC INFORMATION
Pipe 13 is a pipe cross-line near Sta. 1855+00 on I-85.

DEFICIENCIES
4.6' - JOINT SEPARATED; 12.6' - JOINT GASKET EXPOSED; 41.6' - INFILTRATION;
57.4' - CRACK > 12"; 86.4' - INFILTRATION; 97.5'-CRACK > 12"; 102.6' CRACK > 12";

RECOMMENDATION
Joint separation located at pipe end. Repair/replace joint separation and slip line remainder.



4.6' - JOINT SEPARATED

PIPE INVENTORY SUMMARY - PIPE 14A

BASIC INFORMATION			
Pipe No:	<u>14A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>54.5</u> LF
Date Inspected:	<u>7/6/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85 Frontage Rd - Exit 98/I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1858+83</u>		

HYDRAULIC INFORMATION
Pipe 14A is part of a cross-line draining from left of I-85 SB to the right of I-85 NB Frontage Rd. across I-85.

DEFICIENCIES
2.5' - JOINT SEPARATED > 1"
44' - CRACK > 12"

RECOMMENDATION
Based on the Video Pipe Inspection, Pipe 14A should be cleaned and retained.
Joint separation along Frontage Road, replace the first section of pipe.



2.5' - JOINT SEPARATED > 1"

PIPE INVENTORY SUMMARY - PIPE 14B

BASIC INFORMATION			
Pipe No:	<u>14B</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>178.9</u> LF
Date Inspected:	<u>7/6/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB and NB</u>		
Alignment & STA:	<u>I-85 STA. 1858+83</u>		

HYDRAULIC INFORMATION
Pipe 14B is part of a cross-line draining from left of I-85 SB to right of I-85 NB Frontage Rd. across I-85.

DEFICIENCIES
24.8' - CRACK > 12" (ENTIRE LENGTH OF PIPE)
117.6' - INFILTRATION

RECOMMENDATION
Pipe is located under I-85 SB. Slip line pipe due to infiltration and cracking.



24.8' - CRACK > 12" (ENTIRE LENGTH OF PIPE)

PIPE INVENTORY SUMMARY - PIPE 15

BASIC INFORMATION	48"X72"	
Pipe No: <u>15</u>	Pipe Size: <u>in.</u>	Pipe Length: <u>256.4</u> LF
Date Inspected: <u>7/6/16</u>	Inspection Started: <u>RT</u>	
Road Over Pipe: <u>I-85 SB and NB and NB Frontage Rd</u>		
Alignment & STA: <u>I-85 STA. 1863+58</u>		

HYDRAULIC INFORMATION
Pipe 15 is a 4' x 6' box culvert of a cross-line draining from left of I-85 SB to right of NB Frontage Rd. across I-85.

DEFICIENCIES
59.1' - CRACK > 12" - LT. SIDEWALL
74.8' - CRACK > 12" - LT. SIDEWALL
102.3' - CRACK > 12" - LT. SIDEWALL

RECOMMENDATION
Based on the video pipe inspection, Pipe 14B should be retained.
Repair the cracks at 59', 75', and 102'.



59.1' - CRACK > 12" - LT. SIDEWALL

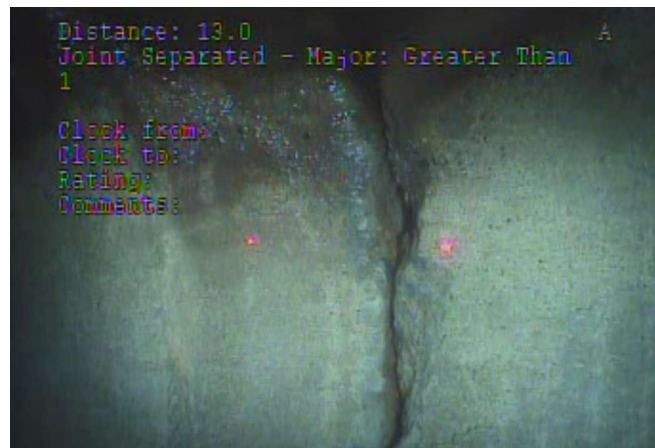
PIPE INVENTORY SUMMARY - PIPE 16

BASIC INFORMATION			
Pipe No:	<u>16</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>88</u> LF
Date Inspected:	<u>6/30/2016</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1865+79</u>		

HYDRAULIC INFORMATION
<u>Pipe 16 is an 18" cross-line draining from left of I-85 NB to right of I-85 NB.</u>

DEFICIENCIES
<u>13' - JOINT SEPARATED > 1"</u>
<u>18' - CHIP</u>
<u>50.4' - SEALING GROUT</u>

RECOMMENDATION
<u>Based on the Video Pipe Inspection, Pipe 16 should be retained.</u>
<u>Replace first 18' of pipe from the upstream end.</u>



13' - JOINT SEPARATED > 1"

PIPE INVENTORY SUMMARY - PIPE 17

BASIC INFORMATION			
Pipe No:	<u>17</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>159.6</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB and NB Frontage Rd</u>		
Alignment & STA:	<u>I-85 STA. 1873+79</u>		

HYDRAULIC INFORMATION
Pipe 17 is an 18" cross-line draining from the median near Sta. 1874+00 along I-85 to the right side of the I-85 NB Frontage Rd.

DEFICIENCIES
15.2' - CHIP
50.8' - CRACK > 12"
66.1' - SEALING GROUT
159.6' - LAST PIPE JOINT FAILED

RECOMMENDATION
No apparent issues from chip or cracking. Clean and retain pipe. Replace last joint outside of pavement.



15.2' - CHIP

PIPE INVENTORY SUMMARY - PIPE 18

BASIC INFORMATION	48"x72"	
Pipe No: <u>18</u>	Pipe Size: <u>in.</u>	Pipe Length: <u>263.4</u> LF
Date Inspected: <u>7/6/16</u>	Inspection Started: <u>RT</u>	
Road Over Pipe: <u>I-85 SB and NB and NB Frontage Rd</u>		
Alignment & STA: <u>I-85 STA. 1874+88</u>		

HYDRAULIC INFORMATION
Pipe 18 is a 4' x 6' box culvert cross-line draining from the left side near Sta. 1875+00 along I-85 to the right side of the I-85 NB Frontage Rd.

DEFICIENCIES
32.2' - CRACK > 12";
78.6' - CRACK > 12";
148.3' - CRACK > 12"

RECOMMENDATION
Remove debris and seal cracks.



148.3' - CRACK > 12"

PIPE INVENTORY SUMMARY - PIPE 19

BASIC INFORMATION			
Pipe No:	<u>19</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>337.9</u> LF
Date Inspected:	<u>9/20/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85/I-85 NB Frontage Rd</u>		
Alignment & STA:	<u>I-85 STA. 1884+43</u>		

HYDRAULIC INFORMATION
<u>Pipe 19 is a 30" RCP cross-line draining from the left side of I-85 to the right side of the I-85 NB Frontage Rd.</u>

DEFICIENCIES
<u>Multidirectional cracks, 28.9'</u>

RECOMMENDATION
<u>No apparent issues from cracking. Clean and retain pipe.</u>



28.9' - Multidirectional Crack

PIPE INVENTORY SUMMARY - PIPE 20

BASIC INFORMATION	48"x72"	
Pipe No: <u>20</u>	Pipe Size: <u>in.</u>	Pipe Length: <u>168</u> LF
Date Inspected: <u>9/20/16</u>	Inspection Started: <u>LT</u>	
Road Over Pipe: <u>I-85</u>		
Alignment & STA: <u>I-85 STA. 1890+37</u>		

HYDRAULIC INFORMATION
Pipe 20 is a 4' x 6' box culvert cross-line draining from the left side near Sta. 1890+50 along I-85 to the right side of I-85 NB.

DEFICIENCIES
DEBRIS NEAR THE DOWNSTREAM END.

RECOMMENDATION
Clean and retain.



DEBRIS NEAR DOWNSTREAM END

PIPE INVENTORY SUMMARY - PIPE 21

BASIC INFORMATION			
Pipe No:	<u>21</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>92.6</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB & FRONTAGE RD.</u>		
Alignment & STA:	<u>I-85 STA. 1898+40</u>		

HYDRAULIC INFORMATION
Pipe 21 is an 18" RCP cross-line draining from the median near Sta. 1898+50 along I-85 to the right side of the I-85 NB Frontage Rd.

DEFICIENCIES
2.0' - JOINT OFFSET; 6.4' - JOINT OFFSET > 1"; 28.9' - CRACK > 12";
44.2' - CRACK > 12" (BOTTOM OF PIPE);
53.2' - CRACK > 12" (BOTTOM OF PIPE); 87.6' - JOINT OFFSET

RECOMMENDATION
Slip line pipe due to cracking and joint issues.



6.4' - JOINT OFFSET > 1"

PIPE INVENTORY SUMMARY - PIPE 22

BASIC INFORMATION	84"x84"	
Pipe No: <u>22</u>	Pipe Size: <u>7'x7'</u>	Pipe Length: <u>360</u> LF
Date Inspected: <u>7/12/2016</u>	Inspection Started: <u>LT</u>	
Road Over Pipe: <u>I-85 and I-85 NB Frontage Rd.</u>		
Alignment & STA: <u>I-85 STA. 1900+14</u>		

HYDRAULIC INFORMATION
<u>Pipe 22 is a 7' x 7' Box Culvert cross-line draining from left side near Sta. 1900+00 along I-85 to the right side of the I-85 NB Frontage Rd.</u>

DEFICIENCIES
<u>14.0' - CRACKING; 92' - SEPARATION AT SEAM; 172" - CRACKING AT SEAM;</u>
<u>255' - CRACKING</u>

RECOMMENDATION
<u>Repair cracks. Retain culvert.</u>

PIPE INVENTORY SUMMARY - PIPE 23

BASIC INFORMATION			
Pipe No:	<u>23</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>57</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1906+00</u>		

HYDRAULIC INFORMATION
Pipe 23 is a 15" RCP cross-line draining from the median at Sta. 1906+00 along I-85 to the right side of I-85 NB.

DEFICIENCIES
Joint Offset & Obstruction (debris) at 51 ft; VPI incomplete

RECOMMENDATION
Replace last section of pipe outside of pavement. Clean and retain remainder.



51.1' - JOINT SEPARATED > 1"; DEBRIS

PIPE INVENTORY SUMMARY - PIPE 24

BASIC INFORMATION	48"x72"	
Pipe No: <u>24</u>	Pipe Size: <u>4'x6'</u>	Pipe Length: <u>278</u> LF
Date Inspected: <u>6/27/2016</u>	Inspection Started: <u>LT</u>	
Road Over Pipe: <u>I-85</u>		
Alignment & STA: <u>I-85 STA. 1909+86</u>		

HYDRAULIC INFORMATION
Pipe 24 is a 4' x 6' box culvert cross-line that drains from the left side of I-85 SB to the right side of I-85 NB ramp.

DEFICIENCIES
108' - Wide Displaced Seam

RECOMMENDATION
Based on the Video Pipe Inspection, Pipe 24 should be cleaned and retained.
Repair the wide displaced seam at 108'.



108' - WIDE DISPLACED SEAM (LT.)

PIPE INVENTORY SUMMARY - PIPE 25A

BASIC INFORMATION			
Pipe No:	<u>25A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>222.5</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1913+00</u>		

HYDRAULIC INFORMATION
Pipe 25A is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.

DEFICIENCIES
26.1' - Joint Offset; 42.9' - Joint Offset; 42.9' - Crack > 12"; 83.2' - Joint Offset;
179.3' - Crack > 12"; 181.7' - Joint Offset; 213.6' - Joint Offset

RECOMMENDATION
Pipe located in existing paved median. Clean and slip line pipe due to multiple joint offsets.



42.9' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 25B

BASIC INFORMATION			
Pipe No:	<u>25B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>222.2</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1914+00</u>		

HYDRAULIC INFORMATION
Pipe 25B is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.

DEFICIENCIES
67.8' - Joint Gasket Exposed; 190.4' - Joint Gasket Exposed; 214.6' - Joint Offset

RECOMMENDATION
Pipe is located in an existing paved median, slip line.



67.8' - JOINT GASKET EXPOSED

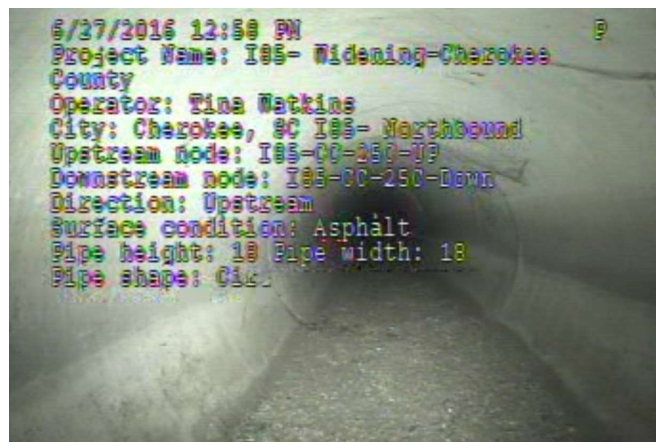
PIPE INVENTORY SUMMARY - PIPE 25C

BASIC INFORMATION			
Pipe No:	<u>25C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>174.6</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1917+16</u>		

HYDRAULIC INFORMATION
Pipe 25C is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.

DEFICIENCIES
DEBRIS NEAR THE DOWNSTREAM END.

RECOMMENDATION
Pipe is located in existing paved median, clean and retain.



PIPE 25C BEGIN - DOWNSTREAM END

PIPE INVENTORY SUMMARY - PIPE 25D

BASIC INFORMATION			
Pipe No:	<u>25D</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>146.2</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1918+50</u>		

HYDRAULIC INFORMATION
<u>Pipe 25D is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.</u>

DEFICIENCIES
<u>55.5' - JOINT OFFSET;</u>
<u>64.8' - JOINT OFFSET;</u>
<u>129.6' - JOINT OFFSET</u>

RECOMMENDATION
<u>Pipe is located in existing paved median. Slip line pipe due to multiple joint issues.</u>



55.5' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 25E

BASIC INFORMATION			
Pipe No:	<u>25E</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>87.9</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1920+00</u>		

HYDRAULIC INFORMATION
Pipe 25E is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.

DEFICIENCIES
11.7' - CRACK > 12"

RECOMMENDATION
Pipe is located in existing paved median. Slip line due to cracking.



35.9' - CRACK > 12"

PIPE INVENTORY SUMMARY - PIPE 25F

BASIC INFORMATION			
Pipe No:	<u>25F</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>63.4</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1920+50</u>		

HYDRAULIC INFORMATION
Pipe 25F is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.

DEFICIENCIES
DEBRIS NEAR THE DOWNSTREAM END.

RECOMMENDATION
Pipe is located in existing paved median. Clean and retain.



63.4' - PIPE 25F END - UPSTREAM END

PIPE INVENTORY SUMMARY - PIPE 25G

BASIC INFORMATION			
Pipe No:	<u>25G</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>153.3</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1921+50</u>		

HYDRAULIC INFORMATION
<u>Pipe 25G is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.</u>

DEFICIENCIES
<u>100.4' - Crack > 12";</u>
<u>115.6' - Crack > 12";</u>
<u>128.7' - Joint Offset;</u>
<u>136.9' - Joint Offset</u>

RECOMMENDATION
<u>Pipe is located in existing paved median. Slip line pipe due to multiple deficiencies.</u>



136.9' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 25H

BASIC INFORMATION			
Pipe No:	<u>25H</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>159.2</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1923+00</u>		

HYDRAULIC INFORMATION
Pipe 25H is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.

DEFICIENCIES
26' - CRACK > 12";
37' - JOINT GASKET EXPOSED;
68.3' - CRACK > 12";
142' - CRACK, JOINT GASKET EXPOSED

RECOMMENDATION
Pipe is located in existing paved median. Slip line pipe due to multiple deficiencies.



26' - CRACK > 12"

PIPE INVENTORY SUMMARY - PIPE 25I-NORTH

<u>BASIC INFORMATION</u>			
Pipe No:	<u>25I-N</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>228.8</u> LF
Date Inspected:	<u>7/11/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB-Exit 100</u>		
Alignment & STA:	<u>I-85 SB FRONTAGE RD STA. 1919+00</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 25I-N is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.</u>

<u>DEFICIENCIES</u>

<u>RECOMMENDATION</u>
<u>Based on the Video Pipe Inspection, Pipe 25I-N should be cleaned and retained.</u>

PIPE INVENTORY SUMMARY - PIPE 25I-SOUTH

<u>BASIC INFORMATION</u>			
Pipe No:	<u>25I-S</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>18.6</u> LF
Date Inspected:	<u>7/11/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB-Exit 100</u>		
Alignment & STA:	<u>I-85 SB FRONTAGE RD STA. 1919+00</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 25I-S is part of a closed drainage system ranging from Sta. 1911+50 to 1924+50 along I-85.</u>

<u>DEFICIENCIES</u>

<u>RECOMMENDATION</u>
<u>Based on the Video Pipe Inspection, Pipe 25I-S should be cleaned and retained.</u>

PIPE INVENTORY SUMMARY - PIPE 26

<u>BASIC INFORMATION</u>		
Pipe No:	<u>26</u>	Pipe Size: <u>36 in.</u> Pipe Length: _____ LF
Date Inspected:	<u>7/11/16</u>	Inspection Started: _____
Road Over Pipe:	<u>I-85 SB-Exit 100</u>	
Alignment & STA:	<u>I-85 SB FRONTAGE RD STA. 1918+00</u>	

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 26 is part of a 36" RCP cross-line at Sta. 1916+60 across I-85.</u>

<u>DEFICIENCIES</u>
<u>Pipe was not accessible</u>

<u>RECOMMENDATION</u>
<u>Pipe not accessible. Pipe was not inspected</u>

PIPE INVENTORY SUMMARY - PIPE 27A

BASIC INFORMATION			
Pipe No:	<u>27A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>151.2</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1928+00</u>		

HYDRAULIC INFORMATION
Pipe 27A is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.

DEFICIENCIES
5.8' - Joint offset and pipe is broken; 12.5' - Joint offset; 38.5' - Crack < 12";
45.4' - Joint offset; 109.5' - Joint offset; 118.1' - Joint offset; 128.3' - Crack > 12";
142.6' - Joint offset; Debris and ponding throughout pipe

RECOMMENDATION
Pipe is located in existing paved median. Replace pipe.



5.8' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 27B

BASIC INFORMATION			
Pipe No:	<u>27B</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>200.9</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1931+00</u>		

HYDRAULIC INFORMATION
Pipe 27B is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.

DEFICIENCIES
General - Debris and ponding throughout.
Hole at 147'.
Deformation at 147'.
Joint offset at 191'.

RECOMMENDATION
Pipe is located in existing paved median. Slip line due to deficiencies.



191.2' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 27C

BASIC INFORMATION			
Pipe No:	<u>27C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>158.6</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1933+00</u>		

HYDRAULIC INFORMATION
Pipe 27C is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.

DEFICIENCIES
6' - JOINT GASKET EXPOSED; 30' - JOINT OFFSET; 46.2' - JOINT OFFSET
55.8' - JOINT OFFSET; 63.3' - JOINT OFFSET; 71' - CRACK > 12";
78.8' - JOINT OFFSET; 132.9' - CRACK > 12"; 136' - CRACK > 12"

RECOMMENDATION
Pipe is located in existing paved median. Slip line due to multiple deficiencies.



30' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 27D

BASIC INFORMATION			
Pipe No:	<u>27D</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>160.2</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1934+00</u>		

HYDRAULIC INFORMATION
Pipe 27D is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.

DEFICIENCIES
13.5' - Joint Offset; 20.7' - Joint Misaligned; 28.9' - Joint Offset;
45.6' - Joint Gasket Exposed; 117.8' - Joint Misaligned; 143.7' - Joint Offset

RECOMMENDATION
Pipe is located in existing paved median. Slip line due to multiple deficiencies.



45.6' - JOINT GASKET EXPOSED

PIPE INVENTORY SUMMARY - PIPE 27E

BASIC INFORMATION			
Pipe No:	<u>27E</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>170.7</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA.1936+00</u>		

HYDRAULIC INFORMATION
Pipe 27E is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.

DEFICIENCIES
General - Debris Throughout; 55.3' - Joint Offset; 64.2' - Joint Offset/Broken; 72.7' - Joint Offset

RECOMMENDATION
Pipe is located in existing paved median. Slip line due to multiple deficiencies.



64.2' - JOINT OFFSET/BROKEN

PIPE INVENTORY SUMMARY - PIPE 27F

BASIC INFORMATION			
Pipe No:	<u>27F</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>72.8</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1937+00</u>		

HYDRAULIC INFORMATION
<u>Pipe 27F is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.</u>

DEFICIENCIES
<u>General - Debris Throughout; 6.9' - Joint Offset; 40.2' - Joint Offset; 48.1' - Joint Offset</u>

RECOMMENDATION
<u>No apparent issues from joint offset. Clean and retain pipe.</u>



6.9' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 27G

BASIC INFORMATION			
Pipe No:	<u>27G</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>145.7</u> LF
Date Inspected:	<u>6/27/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1939+00</u>		

HYDRAULIC INFORMATION
<u>Pipe 27G is part of a closed drainage system ranging from Sta. 1927+50 to 1939+00 along I-85.</u>

DEFICIENCIES
<u>General - Debris Throughout; 38.9' - Joint Offset; 104.1' - Joint Offset; 137.2' - Joint Offset</u>

RECOMMENDATION
<u>No apparent issues from joint offset. Clean and retain pipe.</u>



38.9' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 28

BASIC INFORMATION			
Pipe No:	<u>28</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>75</u> LF
Date Inspected:	<u>9/20/2016</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1942+00</u>		

HYDRAULIC INFORMATION
<u>Pipe 28 collects median runoff and drains under I-85 NB.</u>

DEFICIENCIES
<u>There is standing water towards the end of the pipe.</u>
<u>There is a joint offset at 71.2'.</u>

RECOMMENDATION
<u>No apparent issues from joint offset. Clean and retain pipe.</u>



71.2' - Joint Offset

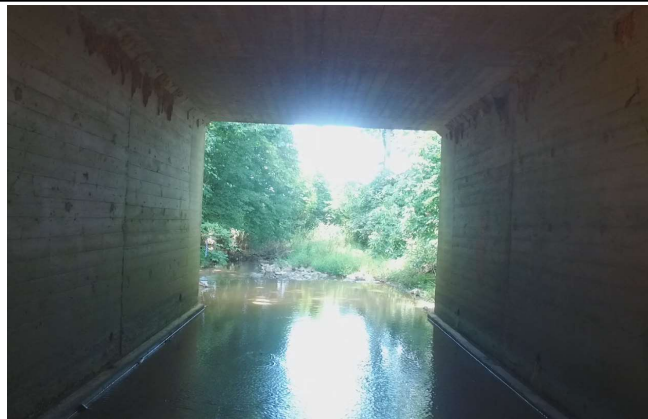
PIPE INVENTORY SUMMARY - PIPE 29

BASIC INFORMATION	144" x 120"					
Pipe No:	29	Pipe Size:	12'x10'	Pipe Length:	143	LF
Date Inspected:	6/27/2016	Inspection Started:	RT			
Road Over Pipe:	I-85					
Alignment & STA:	I-85 STA. 1945+56					

HYDRAULIC INFORMATION
Pipe 29 is a 12' x 10' Box Culvert cross-line near I-85 Sta. 1945+50.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Retain culvert



PIPE 29 BEGIN - DOWNSTREAM OUTLET

PIPE INVENTORY SUMMARY - PIPE 30

BASIC INFORMATION			
Pipe No:	<u>30</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>66.7</u> LF
Date Inspected:	<u>9/21/2016</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1953+00</u>		

HYDRAULIC INFORMATION
Pipe 30 is a 15" RCP cross-line that drains from the median of I-85 to Rt. Sta. 1953+00 of I-85 NB.

DEFICIENCIES
58.7' - Root in Joint

RECOMMENDATION
Based on the Video Pipe Inspection, Pipe 30 should be cleaned and retained.



58.7' - Root in Joint

PIPE INVENTORY SUMMARY - PIPE 31

BASIC INFORMATION			
Pipe No:	<u>31</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>64.6</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1958+06</u>		

HYDRAULIC INFORMATION
Pipe 31 is an 18" RCP cross-line that drains from the median of I-85 to near Rt. Sta. 1958+00 of I-85 NB.

DEFICIENCIES
General - Debris Throughout;
61' - Joint Separated > 1"

RECOMMENDATION
Joint separation located outside of pavement. Repair joint. Clean and retain remainder.



61' - JOINT > 1"

PIPE INVENTORY SUMMARY - PIPE 33

BASIC INFORMATION	48"X72"		
Pipe No:	<u>33</u>	Pipe Size:	<u>4'x6'</u> Pipe Length: <u>133</u> LF
Date Inspected:	<u>7/8/2016</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1969+45</u>		

HYDRAULIC INFORMATION
Pipe 33 is a 4' x 6' box culvert cross-line that drains from the left side of I-85 SB to the right side of I-85 NB near 1969+50.

DEFICIENCIES
SEWER PIPE RUNS THE LENGTH OF THE CULVERT ON THE BOTTOM LEFT.
29' - CRACK IN THE RT. WALL, TOP, AND LT. WALL.
59' - CRACK IN THE RT. WALL, TOP, AND LT. WALL.
121' - 125' - REBAR IS EXPOSED AT THE TOP.

RECOMMENDATION
Repair cracks. Retain Culvert.



59' - CRACK (RT. WALL - TOP - LT. WALL)

PIPE INVENTORY SUMMARY - PIPE 34A

BASIC INFORMATION			
Pipe No:	<u>34A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>41</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1973+13</u>		

HYDRAULIC INFORMATION
Pipe 34A is a part of a closed drainage system that drains from the right side of I-85 NB to the left side of I-85 SB near 1973+00.

DEFICIENCIES
GENERAL - DEBRIS THROUGHOUT

RECOMMENDATION
Clean and Retain. Pipe is in good condition.



Debris throughout

PIPE INVENTORY SUMMARY - PIPE 34B

BASIC INFORMATION			
Pipe No:	<u>34B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>44.3</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1973+13</u>		

HYDRAULIC INFORMATION
Pipe 34B is a part of a closed drainage system that drains from the right side of I-85 NB to the left side of I-85 SB near 1973+00.

DEFICIENCIES
GENERAL - DEBRIS THROUGHOUT

RECOMMENDATION
Clean and Retain. Pipe is in good condition.



GENERAL - DEBRIS THROUGHOUT

PIPE INVENTORY SUMMARY - PIPE 35B-A

BASIC INFORMATION			
Pipe No:	<u>35B-A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>121.6</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 1976+02</u>		

HYDRAULIC INFORMATION
Pipe 35B-A is part of a closed drainage system near I-85 Sta. 1976+00.
It crosses under I-85 from the right side of I-85 NB and discharges left of I-85 SB.

DEFICIENCIES
89.6' - CRACK > 12";
104.6' - CRACK > 12";
117.3' - JOINT OFFSET

RECOMMENDATION
Clean and Retain. Pipe is in good condition.



89.6' - CRACK > 12"

PIPE INVENTORY SUMMARY - PIPE 35C

BASIC INFORMATION			
Pipe No:	<u>35C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>110.2</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85 NB Frontage Rd</u>		
Alignment & STA:	<u>I-85 STA. 1976+00</u>		

HYDRAULIC INFORMATION
Pipe 35C is part of a closed drainage system near I-85 Sta. 1976+00.
It crosses under I-85 NB frontage road draining from right to left.

DEFICIENCIES
4' - JOINT OFFSET/SEPARATED > 2"; 10.2' - JOINT OFFSET; 10.2' - BORE CABLE;
10.3' - CRACK > 12"; 10.3' - CRACK > 12"; 11.6' - HOLE; 15.8' - JOINT OFFSET;
18.6' - CRACK > 12"; 52.7' - JOINT OFFSET; 61.4' - JOINT MISALIGNED;
66.3' - CRACK > 12"; 74.2' - CRACK > 12"; 77.1' - JOINT OFFSET

RECOMMENDATION
Pipe is located outside of Interstate pavement in right shoulder and under Frontage Road. Replace pipe due to significant structural issues.



10.2' - BORE CABLE

PIPE INVENTORY SUMMARY - PIPE 36A

BASIC INFORMATION			
Pipe No:	<u>36A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>85.8</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1982+48</u>		

HYDRAULIC INFORMATION
Pipe 36A is part of a closed drainage system near I-85 Sta. 1982+50.
It crosses under I-85 SB draining right to left.

DEFICIENCIES
27.1' - CIRCUMFERENTIAL CRACK
38.3' - CIRCUMFERENTIAL CRACK
50.7' - CIRCUMFERENTIAL CRACK
55.4' - CIRCUMFERENTIAL CRACK

RECOMMENDATION
No apparent issues from cracking. Retain pipe.



27.1' - CIRCUMFERENTIAL CRACK

PIPE INVENTORY SUMMARY - PIPE 36B

BASIC INFORMATION			
Pipe No:	<u>36B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>64.6</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1982+48</u>		

HYDRAULIC INFORMATION
Pipe 36B is part of a closed drainage system near I-85 Sta. 1982+50.
It crosses under I-85 NB draining right to left.

DEFICIENCIES
2' - JOINT BROKEN
3.5' - JOINT SEPARATED > 1"
60.1' - JOINT SEPARATED > 1"

RECOMMENDATION
Joint separation located at edge of pavement. Slip line due to joint issues.



60.1' - Joint Separated

PIPE INVENTORY SUMMARY - PIPE 37A

BASIC INFORMATION			
Pipe No:	<u>37A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>85.1</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1989+06</u>		

HYDRAULIC INFORMATION
<u>Pipe 37A is part of a cross-line draining from right of I-85 NB to left of I-85 SB.</u>

DEFICIENCIES
<u>9.1' - CRACK > 12"; 14.2' - CRACK > 12"; 59.5' - CRACK > 12"; 68.9' - JOINT OFFSET;</u>
<u>76.3' - JOINT OFFSET; 81.8' - JOINT SEPARATED > 1"</u>

RECOMMENDATION
<u>No apparent issues from joint offsets and cracking. Replace last section of pipe at</u>
<u>joint separation. Retain remainder of pipe.</u>



68.9' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 37B

BASIC INFORMATION			
Pipe No:	<u>37B</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>67.3</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1989+06</u>		

HYDRAULIC INFORMATION
Pipe 37B is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
62.2' - The joint is offset in the pipe.

RECOMMENDATION
No apparent issues from joint offset. Pipe is in good condition.



62.2' - JOINT OFFSET

PIPE INVENTORY SUMMARY - PIPE 38A

BASIC INFORMATION			
Pipe No:	<u>38A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>94.4</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 1998+61</u>		

HYDRAULIC INFORMATION
Pipe 38A is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
27' - Aggregate showing
51' - Circumferential Crack
59.6' - Crack greater than 12"

RECOMMENDATION
No apparent issues from cracking. Clean and retain pipe. Pipe is in good condition.



59.6' - CRACK > 12"

PIPE INVENTORY SUMMARY - PIPE 38B

BASIC INFORMATION			
Pipe No:	<u>38B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>62.2</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 1998+61</u>		

HYDRAULIC INFORMATION
Pipe 38B is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Based on the Video Pipe Inspection, Pipe 38B should be retained.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 39A

BASIC INFORMATION			
Pipe No:	<u>39A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>64.7</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2006+38</u>		

HYDRAULIC INFORMATION
Pipe 39A is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
2' - Joint Separated
60.9' - Joint Separated > 1"

RECOMMENDATION
Joint separations located outside of roadway pavement. Replace separated sections. Retain remainder.



60.9' - Joint Separated > 1"

PIPE INVENTORY SUMMARY - PIPE 39B

BASIC INFORMATION			
Pipe No:	<u>39B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>73.9</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2006+38</u>		

HYDRAULIC INFORMATION
Pipe 39B is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 40A

BASIC INFORMATION			
Pipe No:	<u>40A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>73.5</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2010+43</u>		

HYDRAULIC INFORMATION
Pipe 40A is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
59.6' - Joint Gasket Exposed
63.5' - Joint Offset
63.5' - Root Problem

RECOMMENDATION
Joint offset located outside of interstate pavement. Replace from joint offset to pipe end. Retain remainder.



63.5' - Root Problem

PIPE INVENTORY SUMMARY - PIPE 40B

BASIC INFORMATION			
Pipe No:	<u>40B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>66.7</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2010+43</u>		

HYDRAULIC INFORMATION
Pipe 40B is part of a cross-line draining from right of I-85 NB to left of I-85 SB.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 41

BASIC INFORMATION			
Pipe No:	<u>41</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>76.1</u> LF
Date Inspected:	<u>9/21/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2015+03</u>		

HYDRAULIC INFORMATION
Pipe 41 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
2' - Joint Offset
51.2' - Crack > 12"

RECOMMENDATION
No apparent issues from cracking. Clean and Retain. Pipe is in good condition.



2' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 42

BASIC INFORMATION			
Pipe No:	<u>42</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>345.8</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB Frontage Rd., Exit 102/I-85 SB/I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2018+40</u>		

HYDRAULIC INFORMATION
Pipe 42 is a cross-line draining from the right of I-85 NB to the left of I-85 SB Frontage Rd., Exit 102.

DEFICIENCIES
5' - Joint Collapsed; 84.4' - Broken Pipe; 90.6' - Joint Separated > 1";
106.8' - Multidirectional Crack; 141.5' - Crack > 12"; 150.7' - Crack > 12";
168.3' - Crack > 12"; 168.4' - Chip; 190.5' - Hole; 232.3' - Crack > 12"

RECOMMENDATION
Replace pipe due to structural issues.



5' - Joint Collapsed

PIPE INVENTORY SUMMARY - PIPE 43

BASIC INFORMATION			
Pipe No:	<u>43</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>59.5</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2022+99</u>		

HYDRAULIC INFORMATION
Pipe 43 collects median drainage and outlets on the left side of I-85 SB.

DEFICIENCIES
50.4' - Pipe Broken
53.8' - Joint Separated > 1"

RECOMMENDATION
Replace broken pipe outside of roadway pavement.



50.4' - Pipe Broken

PIPE INVENTORY SUMMARY - PIPE 45A-B

BASIC INFORMATION			
Pipe No:	<u>45A-B</u>	Pipe Size:	<u>42 in.</u> Pipe Length: <u>272.3</u> LF
Date Inspected:	<u>7/6/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85/I-85 SB Frontage Rd., Exit 102</u>		
Alignment & STA:	<u>I-85 STA. 2029+09</u>		

HYDRAULIC INFORMATION
Pipe 45A-B is a cross-line draining from the right of I-85 NB to the left of I-85 SB Frontage Rd., Exit 102.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 47A

BASIC INFORMATION			
Pipe No:	<u>47A</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>77.3</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Lt Ramp</u>
Road Over Pipe:	<u>I-85 SB Frontage Rd., Exit 102</u>		
Alignment & STA:	<u>I-85 STA. 2040+58</u>		

HYDRAULIC INFORMATION
<u>Pipe 47A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>11' - Aggregate Showing</u>
<u>63.7' - Hole</u>
<u>69.3' - Joint Offset</u>

RECOMMENDATION
<u>Pipe is located under frontage road. Replace 15' of pipe due to structural issues at pipe end.</u>



63.7' - Hole

PIPE INVENTORY SUMMARY - PIPE 47B

BASIC INFORMATION			
Pipe No:	<u>47B</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>88</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB On-Ramp</u>		
Alignment & STA:	<u>I-85 STA. 2040+58</u>		

HYDRAULIC INFORMATION
<u>Pipe 47B is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>8' - Aggregate Showing.</u>

RECOMMENDATION
<u>Pipe is in good condition.</u>



8' - Aggregate Showing

PIPE INVENTORY SUMMARY - PIPE 47C

BASIC INFORMATION			
Pipe No:	<u>47C</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>69.6</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2040+58</u>		

HYDRAULIC INFORMATION
<u>Pipe 47C is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>There were no deficiencies observed during the inspection.</u>

RECOMMENDATION
<u>Pipe is in good condition.</u>



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 47D

BASIC INFORMATION			
Pipe No:	<u>47D</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>68.5</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2040+58</u>		

HYDRAULIC INFORMATION
<u>Pipe 47D is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>There were no deficiencies observed during the inspection.</u>

RECOMMENDATION
<u>Pipe is in good condition.</u>



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 50

BASIC INFORMATION			
Pipe No:	<u>50</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>63</u> LF
Date Inspected:	<u>9/28/2016</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2046+00</u>		

HYDRAULIC INFORMATION
Pipe 50 is part of a closed-drainage system that conveys runoff from the median of I-85 to the left side of I-85 SB.

DEFICIENCIES
43' - Root in Joint
52' - Root in Joint

RECOMMENDATION
Pipe is in good condition.



43' - Root in Joint

PIPE INVENTORY SUMMARY - PIPE 51A

BASIC INFORMATION			
Pipe No:	<u>51A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>47.6</u> LF
Date Inspected:	<u>9/23/2016</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB Ramp</u>		
Alignment & STA:	<u>I-85 STA. 2055+19</u>		

HYDRAULIC INFORMATION
<u>Pipe 51A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of I-85 SB Ramp.</u>

DEFICIENCIES
<u>38.7' - Root in Joint</u>
<u>38.7' - Chip</u>
<u>43.7' - Root in Joint</u>

RECOMMENDATION
<u>Pipe is in good condition.</u>



38.7' - Root in Joint

PIPE INVENTORY SUMMARY - PIPE 51B

BASIC INFORMATION			
Pipe No:	<u>51B</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>58.3</u> LF
Date Inspected:	<u>9/22/2016</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2055+19</u>		

HYDRAULIC INFORMATION
<u>Pipe 51A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of I-85 SB Ramp.</u>

DEFICIENCIES
<u>5' - Root in Joint</u>
<u>54.5' - Joint is Misaligned; Root in Joint; Joint Separated</u>

RECOMMENDATION
<u>Deficiencies located outside of roadway pavement. Replace first and las section of pipe. Retain remainder.</u>



5' - Root in Joint

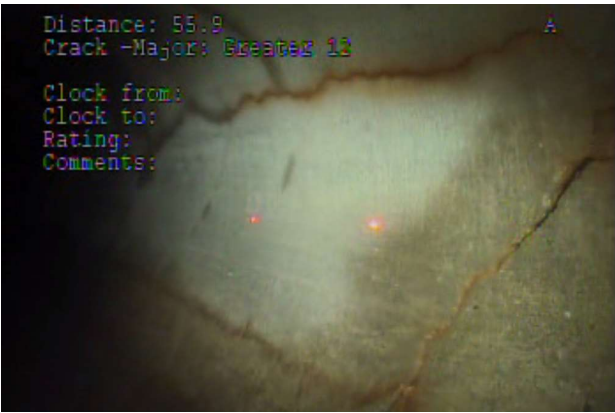
PIPE INVENTORY SUMMARY - PIPE 51C

BASIC INFORMATION			
Pipe No:	<u>51C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>71.4</u> LF
Date Inspected:	<u>9/22/2016</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2055+19</u>		

HYDRAULIC INFORMATION
<u>Pipe 51A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of I-85 SB Ramp.</u>

DEFICIENCIES
<u>2' - Joint Separated > 2"; Chip</u>
<u>4' - Joint Offset</u>
<u>56' - Chip; Crack > 12"</u>
<u>65' - Chip</u>

RECOMMENDATION
<u>Pipe is located under I-85 NB. Slip line pipe due to cracking.</u>



56' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 52

BASIC INFORMATION			
Pipe No:	<u>52</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>91.6</u> LF
Date Inspected:	<u>9/23/2016</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2058+62</u>		

HYDRAULIC INFORMATION
<u>Pipe 52 collects median drainage and outlets on the left side of I-85 SB.</u>

DEFICIENCIES
<u>Crack at 9'.</u>
<u>Roots in joints at 67', 75', 80', 86' & 88'.</u>

RECOMMENDATION
<u>Replace pipe due to excessive root intrusion.</u>



9' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 53

BASIC INFORMATION	72" - 4' x 6' Box Culvert		
Pipe No:	<u>53</u>	Pipe Size:	<u> </u>
		Pipe Length:	<u>240 (305)</u> LF
Date Inspected:	<u>7/4/2016</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2064+48</u>		

HYDRAULIC INFORMATION
Pipe 53 is 72" pipe that transitions to a 4' x 6' box culvert near I-85 Sta. 2064+50.
It drains from the right side of I-85 NB to the left side of I-85 SB.

DEFICIENCIES
Survey abandoned due to excessive debris throughout the pipe.

RECOMMENDATION
Clean and reinspect.

PIPE INVENTORY SUMMARY - PIPE 54

BASIC INFORMATION			
Pipe No:	<u>54</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>104.8</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2066+16</u>		

HYDRAULIC INFORMATION
Pipe 54 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
4.6' - Joint Separated > 1";
86.8' - Joint Offset/Gasket Exposed;
94.9' - Joint Offset

RECOMMENDATION
No apparent issues from joint offsets. Retain pipe.



4.6' - Joint Separated > 1"

PIPE INVENTORY SUMMARY - PIPE 55

BASIC INFORMATION			
Pipe No:	<u>55</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>74.9</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2075+51</u>		

HYDRAULIC INFORMATION
Pipe 55 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 56

<u>BASIC INFORMATION</u>			
Pipe No:	<u>56</u>	Pipe Size:	<u>4' x 6' Box</u> Pipe Length: <u>232</u> LF
Date Inspected:	<u>7/4/2016</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2076+39</u>		

<u>HYDRAULIC INFORMATION</u>
Pipe 56 is a 4' x 6' box culvert near I-85 Sta. 2076+50.
It drains from the right side of I-85 NB to the left side of I-85 SB.

<u>DEFICIENCIES</u>
Excessive cracking, breaks, and exposed rebar throughout.

<u>RECOMMENDATION</u>
Repair cracks.

PIPE INVENTORY SUMMARY - PIPE 57

<u>BASIC INFORMATION</u>			
Pipe No:	<u>57</u>	Pipe Size:	<u>4' x 4' Box</u> Pipe Length: <u>331</u> LF
Date Inspected:	<u>7/4/2016</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85 and I-85 NB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2082+58</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 57 is a 4' x 4' box culvert near I-85 Sta. 2082+50.</u>
<u>It drains from the right side of I-85 NB Frontage Rd. to the left side of I-85 SB.</u>

<u>DEFICIENCIES</u>
<u>Cracking along most of the length of pipe with some rebar exposed.</u>

<u>RECOMMENDATION</u>
<u>Repair cracks and exposed rebar.</u>

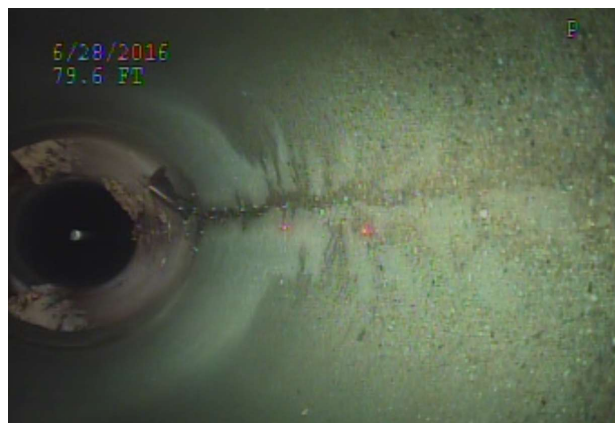
PIPE INVENTORY SUMMARY - PIPE 58A

BASIC INFORMATION			
Pipe No:	<u>58A</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>83.3</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2083+50</u>		

HYDRAULIC INFORMATION
<u>Pipe 58A is part of a closed-drainage system that conveys runoff from the median of I-85 NB to the right side of the I-85 NB Frontage Rd.</u>

DEFICIENCIES
<u>25' - Crack < 12";</u>
<u>68.1' - Condensation;</u>
<u>79.6' - Crack > 12"</u>

RECOMMENDATION
<u>No apparent issues from cracking. Pipe is in good condition.</u>



79.6' - CRACK > 12"

PIPE INVENTORY SUMMARY - PIPE 58B

BASIC INFORMATION			
Pipe No:	<u>58B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>69.5</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85 NB/I-85 NB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2083+50</u>		

HYDRAULIC INFORMATION
Pipe 58A is part of a closed-drainage system that conveys runoff from the median of I-85 NB to the right side of the I-85 NB Frontage Rd.

DEFICIENCIES
22.4' - Condensation;
45.2' - Circumferential Crack;
65.7' - Joint Separated > 1"

RECOMMENDATION
Pipe is in good condition. Replace last section of pipe due to separation.



45.2' - Circumferential Crack

PIPE INVENTORY SUMMARY - PIPE 59

BASIC INFORMATION			
Pipe No:	<u>59</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>253</u> LF
Date Inspected:	<u>7/11/16</u>	Inspection Started:	<u>RT Frontage Road</u>
Road Over Pipe:	<u>I-85 NB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2097+13</u>		

HYDRAULIC INFORMATION
<u>Pipe 59 is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>20' - Crack > 12";</u>
<u>29.5' - Crack > 12";</u>
<u>123' - Crack > 12"</u>

RECOMMENDATION
<u>No apparent issues due to cracks. Pipe is in good condition.</u>



20' - Crack > 12";

PIPE INVENTORY SUMMARY - PIPE 60

BASIC INFORMATION			
Pipe No:	<u>60</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>388.4</u> LF
Date Inspected:	<u>7/11/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2097+13</u>		

HYDRAULIC INFORMATION
<u>Pipe 60 is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>63.8' - Joint Offset; 68.8' - Joint Offset; 69.6' - Rebar Exposed;</u>
<u>70.2' - Crack > 12"; 81.8 - Crack > 12"; 131.6' - Crack > 12";</u>
<u>338.6' - Crack > 12"; 373.9 - Joint Offset; 388.4 - Pipe Collapsed</u>

RECOMMENDATION
<u>Pipe collapse is located in LT shoulder. Replace last section of pipe. No apparent issues from cracking. Retain remainder of pipe.</u>



388.4' - Pipe collapsed

PIPE INVENTORY SUMMARY - PIPE 61

<u>BASIC INFORMATION</u>			
Pipe No:	<u>61</u>	Pipe Size:	<u>6' x 6' Box</u> Pipe Length: <u>318</u> LF
Date Inspected:	<u>7/4/2016</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85 and I-85 NB and SB Frontage Rds.</u>		
Alignment & STA:	<u>I-85 STA. 2114+83</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 61 is a 6' x 6' box culvert near I-85 Sta. 2115+00.</u>
<u>It drains from the right side of I-85 NB Frontage Rd. to the left side of I-85 SB Frontage Rd.</u>

<u>DEFICIENCIES</u>
<u>Cracking along most of the length of pipe with some rebar exposed.</u>

<u>RECOMMENDATION</u>
<u>Repair cracks and expose rebar.</u>

PIPE INVENTORY SUMMARY - PIPE 62

BASIC INFORMATION			
Pipe No:	<u>62</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>158.2</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 NB/I-85 NB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2116+00</u>		

HYDRAULIC INFORMATION
<u>Pipe 62 is part of a closed-drainage system that conveys runoff from the left side of I-85 SB Frontage Rd. to the right side of the I-85 NB Frontage Rd.</u>

DEFICIENCIES
<u>Offset Joints - 2.8', 22.4', 35', 43',</u>
<u>Cracks > 12" - 67', 83', 96', 99'</u>

RECOMMENDATION
<u>No apparent issues from joint offsets or cracking. Retain pipe.</u>



67' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 63

<u>BASIC INFORMATION</u>			
Pipe No:	<u>63</u>	Pipe Size:	<u>4' x 6' Box</u> Pipe Length: <u>130</u> LF
Date Inspected:	<u>7/4/2016</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85 and I-85 NB and SB Frontage Rds.</u>		
Alignment & STA:	<u>I-85 STA. 2124+50</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 63 is a 4' x 6' box culvert near I-85 Sta. 2124+50.</u>
<u>It drains from the right side of I-85 NB Frontage Rd. to the left side of I-85 SB Frontage Rd.</u>

<u>DEFICIENCIES</u>
<u>Minor cracking and exposed rebar.</u>

<u>RECOMMENDATION</u>
<u>Repair cracking and exposed rebar.</u>

PIPE INVENTORY SUMMARY - PIPE 64A

BASIC INFORMATION			
Pipe No:	<u>64A</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>139.6</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB/I-85 SB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2130+20</u>		

HYDRAULIC INFORMATION
<u>Pipe 64A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>Angular Joints - 61', 65'; Root in Joints - 78', 87'; Broken pipe - 78';</u>
<u>Joints Separated > 1" - 99', 103'; Cracks > 12" - 103', 120', 129'</u>
<u>Multidirectional Crack - 125'</u>

RECOMMENDATION
<u>Pipe is located under I-85 SB. Slip line pipe due to joint issues.</u>



125' - Multidirectional Crack

PIPE INVENTORY SUMMARY - PIPE 64B

BASIC INFORMATION			
Pipe No:	<u>64B</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>78.3</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2130+20</u>		

HYDRAULIC INFORMATION
<u>Pipe 64B is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.</u>

DEFICIENCIES
<u>70' - Multidirectional Crack;</u>
<u>70' - Joint Separated > 1"</u>

RECOMMENDATION
<u>No apparent issues from cracks, repair/replace joint at 70' located outside of roadway pavement.</u>



70' - Joint Separated > 1"/Multidirectional Crack

PIPE INVENTORY SUMMARY - PIPE 64C

BASIC INFORMATION			
Pipe No:	<u>64C</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>78.7</u> LF
Date Inspected:	<u>6/28/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85 NB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2130+20</u>		

HYDRAULIC INFORMATION
Pipe 64C is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.

DEFICIENCIES
2' - Joint Offset appears to be grouted

RECOMMENDATION
Pipe is in good condition. Retain.



2' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 65A

BASIC INFORMATION			
Pipe No:	<u>65A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>63 (inspected) LF</u>
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>LT Shoulder</u>
Road Over Pipe:	<u>I-85 SB On-Ramp/I-85 SB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 STA. 2142+75</u>		

HYDRAULIC INFORMATION
Pipe 65A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.

DEFICIENCIES
62' - Water level in pipe

RECOMMENDATION
Clean outfall and reinspect pipe.



Water in pipe

PIPE INVENTORY SUMMARY - PIPE 65B-C

BASIC INFORMATION			
Pipe No:	<u>65B-C</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>179.6</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2142+75</u>		

HYDRAULIC INFORMATION	
<u>Pipe 65B-C is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd. 65B is located under the SB lanes and 65C is located under the NB lanes.</u>	

DEFICIENCIES	
<u>Crack > 12" - 27', 103'; Pipe 65B begins at 102.1'</u>	
<u>Joint Offset - 83'; Pipe 65C</u>	
<u>Root in Joint - 83'; Pipe 65C</u>	
<u>Crack in top of pipe 65B for entire length of pipe.</u>	

RECOMMENDATION	
<u>Joint offset in Pipe 65C is located under pavement and excessive cracking of 65B</u>	
<u>Slip line pipes 65B and 65C.</u>	



103' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 65D

<u>BASIC INFORMATION</u>			
Pipe No:	<u>65D</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>86.3</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85 NB Off-Ramp</u>		
Alignment & STA:	<u>I-85 NB Off-Ramp STA. 2142+75</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 64C is part of a closed-drainage system that conveys runoff from the right side of I-85 NB Frontage Rd. to the left side of the I-85 SB Frontage Rd.</u>

<u>DEFICIENCIES</u>
<u>7' - Multidirectional Crack</u>

<u>RECOMMENDATION</u>
<u>No apparent issues from crack. Pipe is in good condition. Retain.</u>



7' - Multidirectional Crack

PIPE INVENTORY SUMMARY - PIPE 76

<u>BASIC INFORMATION</u>			
Pipe No:	<u>66</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>185</u> LF
Date Inspected:	<u>7/8/2016</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2147+84</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 66 runs parallel to I-85 and conveys runoff under the SC5 embankment</u>

<u>DEFICIENCIES</u>
<u>Pipe not accessible.</u>

<u>RECOMMENDATION</u>
<u>Clean pipe and inspect.</u>

PIPE INVENTORY SUMMARY - PIPE 67A

BASIC INFORMATION	
Pipe No:	<u>67A</u> Pipe Size: <u>18 in.</u> Pipe Length: <u>72.8</u> LF
Date Inspected:	<u>6/29/16</u> Inspection Started: <u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>
Alignment & STA:	<u>I-85 STA. 2148+92</u>

HYDRAULIC INFORMATION
Pipe 67A is part of a closed-drainage system that begins at the entrance to the truck stop along Frontage Rd. Pipe 67A extends from the median under I-85 SB.

DEFICIENCIES
7.2' - Intruding Sealing Grout;
Cracks > 12" - 31', 43';
56' - Joint Separated > 1"; large amount of sediment in pipe.
60' - Joint Offset

RECOMMENDATION
Major joint separation is outside of roadway pavement. Replace from joint separation to end (approx. 16-LF). Remainder of pipe is in good condition.
No apparent issues from cracks.



56' - Joint Separated > 1";

PIPE INVENTORY SUMMARY - PIPE 67B

<u>BASIC INFORMATION</u>			
Pipe No:	<u>67B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>56.5</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2148+92</u>		

<u>HYDRAULIC INFORMATION</u>
Pipe 67B is part of a closed-drainage system that begins at the entrance to the truck stop along Frontage Rd. Pipe 67B extends under I-85 NB to the median.

<u>DEFICIENCIES</u>
There were no deficiencies observed during the inspection.

<u>RECOMMENDATION</u>
Pipe is in good condition. Retain.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 67C

BASIC INFORMATION			
Pipe No:	<u>67C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>65</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>RT Shoulder</u>
Road Over Pipe:	<u>I-85 NB On-Ramp</u>		
Alignment & STA:	<u>I-85 NB 2148+75</u>		

HYDRAULIC INFORMATION
Pipe 67C is part of a closed-drainage system that begins at the entrance to the truck stop along Frontage Rd. Pipe 67C extends under the existing I-85 on ramp.

DEFICIENCIES
2' - Broken pipe at joint/connection to drainage box

RECOMMENDATION
Pipe is in good condition. Repair/grout connection to drainage box.



2' - Broken pipe at joint

PIPE INVENTORY SUMMARY - PIPE 67D

<u>BASIC INFORMATION</u>			
Pipe No:	<u>67D</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>48.9</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>RT Ramp</u>
Road Over Pipe:	<u>I-85 NB Frontage Rd.</u>		
Alignment & STA:	<u>I-85 NB 2148+50</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 67D is part of a closed-drainage system that begins at the entrance to the truck stop along Frontage Rd. Pipe 67D is located under driveway to the truck stop.</u>

<u>DEFICIENCIES</u>
<u>7' - Intruding Sealing Grout;</u>
<u>Large debris in pipe.</u>

<u>RECOMMENDATION</u>
<u>Remove debris. Pipe is in good condition. Retain.</u>



Debris in pipe

PIPE INVENTORY SUMMARY - PIPE 67E

BASIC INFORMATION			
Pipe No:	<u>67E</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>60.9</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>RT Ramp</u>
Road Over Pipe:	<u>Parking Lot</u>		
Alignment & STA:	<u>I-85 NB RT. 2148+00</u>		

HYDRAULIC INFORMATION
Pipe 67E is part of a closed-drainage system that begins at the entrance to the truck stop along Frontage Rd. Pipe 67E is located under driveway to the truck stop.

DEFICIENCIES
6' - Crack > 12";
9' - Crack > 12";
49' - Crack > 12"

RECOMMENDATION
No apparent issues from cracking. Pipe is in good condition.



49' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 68A

BASIC INFORMATION			
Pipe No:	<u>68A</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>69.4</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Lt. Shoulder</u>
Road Over Pipe:	<u>I-85 SB Off-Ramp</u>		
Alignment & STA:	<u>I-85 SB Off-Ramp STA. 2152+05</u>		

HYDRAULIC INFORMATION
Pipe 68A is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Off-Ramp. Pipe 68A extends under I-85 SB off Ramp at Exit 104

DEFICIENCIES
45' - Chip

RECOMMENDATION
No apparent issues with chip at 45'. Pipe is in good condition. Retain.



45' - Chip

PIPE INVENTORY SUMMARY - PIPE 68B

BASIC INFORMATION			
Pipe No:	<u>68B</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>71.6</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2152+05</u>		

HYDRAULIC INFORMATION
Pipe 68B is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Off-Ramp. Pipe 68B extends under I-85 SB.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 68C

BASIC INFORMATION			
Pipe No:	<u>68C</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>86.1</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2152+05</u>		

HYDRAULIC INFORMATION	
Pipe 68C is part of a closed-drainage system that conveys runoff from the right side of I-85 NB to the left side of the I-85 SB Off-Ramp. Pipe 68C extends under I-85 NB.	

DEFICIENCIES	
Joint Offset Separated > 1" - 8', 36', 48';	
Pipe broken - 39', 48';	
Root in Joint - 67'	
Pipe holds runoff due to joint offsets creating a sag in the middle of the pipe.	

RECOMMENDATION	
Multiple joint and breaks as well as hydraulic issues. Replace pipe.	



8' - Joint Separated > 1"

PIPE INVENTORY SUMMARY - PIPE 69A

<u>BASIC INFORMATION</u>			
Pipe No:	<u>69A</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>127.8</u> LF
Date Inspected:	<u>7/7/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2158+60 to 2159+95</u>		

<u>HYDRAULIC INFORMATION</u>
<u>Pipe 69A is part of a closed-drainage system that conveys runoff along the right side of I-85 NB from Sta. 2158+60 to 2163+50.</u>

<u>DEFICIENCIES</u>
<u>Major debris accumulation in entire length of pipe.</u>

<u>RECOMMENDATION</u>
<u>Clean pipe and retain. Pipe is in good condition.</u>



Debris in pipe

PIPE INVENTORY SUMMARY - PIPE 69B

BASIC INFORMATION			
Pipe No:	<u>69B</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>94</u> LF
Date Inspected:	<u>7/7/16</u>	Inspection Started:	<u>Ahead Sta.</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2161+00</u>		

HYDRAULIC INFORMATION
Pipe 69B is part of a closed-drainage system that conveys runoff along the right side of I-85 NB from Sta. 2158+60 to 2163+50.

DEFICIENCIES
Debris throughout;
51' - Crack > 12"

RECOMMENDATION
Clean and retain. No apparent issues from crack. Some minor infiltration.
Pipe is located outside of I-85 travel lanes.



51' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 69C

<u>BASIC INFORMATION</u>	
Pipe No:	<u>69C</u> Pipe Size: <u>24 in.</u> Pipe Length: <u>94.1</u> LF
Date Inspected:	<u>7/7/16</u> Inspection Started: <u>Back Sta.</u>
Road Over Pipe:	<u>I-85 NB</u>
Alignment & STA:	<u>I-85 STA. 2162+00</u>

<u>HYDRAULIC INFORMATION</u>
Pipe 69C is part of a closed-drainage system that conveys runoff along the right side of I-85 NB from Sta. 2158+60 to 2163+50.

<u>DEFICIENCIES</u>
43' - Joint Offset;
45' - Chip

<u>RECOMMENDATION</u>
No apparent issues from joint offset other than minor debris accumulation.
Clean pipe and retain.



43' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 69D

BASIC INFORMATION			
Pipe No:	<u>69D</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>154</u> LF
Date Inspected:	<u>7/7/16</u>	Inspection Started:	<u>Back Sta.</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2163+00</u>		

HYDRAULIC INFORMATION
Pipe 69D is part of a closed-drainage system that conveys runoff along the right side of I-85 NB from Sta. 2158+60 to 2163+50.

DEFICIENCIES
27' - Joint Offset/Crack < 12"; 49' - Joint Offset;
59' - Infiltration/Crack > 12"; 74' - Broken; 108' - Broken; 115' - Broken/Hole

RECOMMENDATION
Pipe is located outside of I-85 travel lanes. Replace pipe due to structural issues.



59' - Infiltration in pipe

PIPE INVENTORY SUMMARY - PIPE 69E

BASIC INFORMATION			
Pipe No:	<u>69E</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>73.1</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2163+97</u>		

HYDRAULIC INFORMATION
Pipe 69E collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
8' - Joint Offset;
57' - Joint Separated > 1";
69' - Joint Separated > 1"

RECOMMENDATION
Major joint separations occur outside of roadway. No apparent issues within roadway. Replace 16' from downstream end. Retain remainder of pipe.



57' - Joint Separated > 1";

PIPE INVENTORY SUMMARY - PIPE 71A

<u>BASIC INFORMATION</u>			
Pipe No:	<u>70</u>	Pipe Size:	<u>4' x 6'</u> Pipe Length: <u>132</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2164+34</u>		

<u>HYDRAULIC INFORMATION</u>
Pipe 70 is a 4'x6' box culvert used as a cattle crossing.

<u>DEFICIENCIES</u>
No Defects

<u>RECOMMENDATION</u>
Culvert is in good condition.

PIPE INVENTORY SUMMARY - PIPE 71A

BASIC INFORMATION			
Pipe No:	<u>71A</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>63.8</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2170+41</u>		

HYDRAULIC INFORMATION
Pipe 71A is part of a cross-line that drains from the right side of I-85 NB to the left side of I-85 SB.

DEFICIENCIES
Joints Offset - 38.5', 47', 57';
Joints Separated > 1" - 38.5', 51'

RECOMMENDATION
Complete joint separation at 38.5' is under I-85 NB outside lane. Potential for undercutting of pipe. Recommend replacement.



57' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 71B

BASIC INFORMATION			
Pipe No:	<u>71B</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>69.9</u> LF
Date Inspected:	<u>6/30/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2170+41</u>		

HYDRAULIC INFORMATION
Pipe 71B is part of a cross-line that drains from the right side of I-85 NB to the left side of I-85 SB.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition. Retain.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 72A

BASIC INFORMATION			
Pipe No:	<u>72A</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>104.4</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2174+75</u>		

HYDRAULIC INFORMATION	
Pipe 72A extends from the offsite under I-85 SB and connects to Pipe 72B.	
Pipe 72A carries offite runoff under I-85.	

DEFICIENCIES	
6' - Crack > 12";	
24' - Condensation;	
100' - Joint Offset	

RECOMMENDATION	
Cracking apparent along the top of the pipe under the I-85 SB lanes. Some	
minor infiltration. Replace upstream segment due to joint offset. Slip line pipe.	



6' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 72B

BASIC INFORMATION	
Pipe No:	<u>72B</u> Pipe Size: <u>30 in.</u> Pipe Length: <u>103.1</u> LF
Date Inspected:	<u>6/29/16</u> Inspection Started: <u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>
Alignment & STA:	<u>I-85 STA. 2175+00</u>

HYDRAULIC INFORMATION
Pipe 72B extends from the median under the I-85 NB lanes. Pipe 72B serves as a cross-line for off-site drainage and roadway runoff.

DEFICIENCIES
12' - Multidirectional Crack;
37' - Crack > 12";
97' - Joint Offset

RECOMMENDATION
Replace last segment of pipe at the outfall. Cracking occurs within the median and NB lanes. Some infiltration from cracking. Slip line pipe.



97' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 74

BASIC INFORMATION			
Pipe No:	<u>74</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>96.4</u> LF
Date Inspected:	<u>9/26/2016</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2182+41</u>		

HYDRAULIC INFORMATION
Pipe 74 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
2.7' - Joint Offset; 9.2' - Joint Offset;
87.7' - Root in Joint

RECOMMENDATION
Clean pipe and outfall. Root intrusion is in last section of pipe. No apparent issues with joint offsets. Retain pipe.



87.7' - Root in Joint

PIPE INVENTORY SUMMARY - PIPE 75

BASIC INFORMATION			
Pipe No:	<u>75</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>91.6</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>RT</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2198+60</u>		

HYDRAULIC INFORMATION
Pipe 75 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
5.5' - Root in Joint;
9.2' - Joint Separated in Pipe;
21.9' Root in Joint;
25.2' - Joint Offset

RECOMMENDATION
Root intrusion into joints poses a risk to future performance. Remove roots and slip line.



5.5' - Root in Joint

PIPE INVENTORY SUMMARY - PIPE 76A

BASIC INFORMATION			
Pipe No:	<u>76A</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>144.9</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2204+23</u>		

HYDRAULIC INFORMATION
Pipe 76A collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
11' - Joint Offset/Crack > 12"; 15' - Intruding Sealing Grout; 46' - Angular Joint;
52' - Crack > 12"; 63' - Infiltration; 92' - Infiltration; 123' - Intruding Sealing Grout;
140' - Joint Separated > 1"

RECOMMENDATION
Some cracking and infiltration does not appear to affect the performance.
Recommend replacement due to size and structural issues.



11' - Joint Offset/Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 76B

BASIC INFORMATION	
Pipe No:	<u>76B</u> Pipe Size: <u>36 in.</u> Pipe Length: <u>243.1</u> LF
Date Inspected:	<u>7/11/16</u> Inspection Started: <u>LT</u>
Road Over Pipe:	<u>I-85</u>
Alignment & STA:	<u>I-85 STA. 2204+44</u>

HYDRAULIC INFORMATION
Pipe 76B is a cross-line that drains from the left side of I-85 SB to the right side of I-85 NB.

DEFICIENCIES
22' - Crack > 12"/Infiltration; 54' - Crack > 12"/Multidirectional Crack;
54' - Crack > 12"/Multidirectional Crack;
Cracks > 12" - 74', 81', 89', 119', 139', 165', 182', 204';
242' - Pipe collapsed; 243' - pipe collapsed/survey abandoned

RECOMMENDATION
Severe cracking along the majority of the length of pipe with infiltration through the cracks. Roots growing through top of pipe. Cracking along bottom of pipe.
Replace pipe.



182' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 79

BASIC INFORMATION			
Pipe No:	<u>79</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>215.3</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2218+40</u>		

HYDRAULIC INFORMATION
Pipe 79 is a cross-line that drains from the left side of I-85 SB to the right side of I-85 NB.

DEFICIENCIES
2' - Root in Joint; Crack > 12" - 21', 78', 174'; 64' - Infiltration;
203' - Joint Separated > 1"; 209' - Joint Separated > 1";

RECOMMENDATION
Sediment infiltration due to severe cracking of pipe. Replace pipe.



78' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 80

BASIC INFORMATION			
Pipe No:	<u>80</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>108.2</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2218+40</u>		

HYDRAULIC INFORMATION
Pipe 80 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
12' - Intruding Sealing Grout; 44' - Crack > 12";
Angular Joints - 76', 87'
Angular Joints - 76', 87'

RECOMMENDATION
Crack at 44' extends the entire length of the pipe segment, located under the right lane of I-85 NB. No apparent infiltration. Remainder of pipe is in good condition. Retain.



44' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 82

BASIC INFORMATION			
Pipe No:	<u>82</u>	Pipe Size:	<u>36 in.</u> Pipe Length: <u>336.1</u> LF
Date Inspected:	<u>7/7/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2223+93</u>		

HYDRAULIC INFORMATION
Pipe 82 is a cross-line that drains from the left side of I-85 SB to the right side of I-85 NB.

DEFICIENCIES
Cracks > 12" - 13', 22', 42', 86', 148', 208';
22' - Infiltration; 86' - Structural Deformation; 128' - Infiltration;
208' - Infiltration

RECOMMENDATION
Sediment infiltration due to severe cracking of pipe. Replace pipe.



128' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 83A-B

<u>BASIC INFORMATION</u>			
Pipe No:	<u>83A-B</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>149.1</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>LT Shoulder</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2224+64</u>		

<u>HYDRAULIC INFORMATION</u>	
Pipe 83A-B is part of a cross-line that drains from the Exit 106 SB on ramp gore to the right of I-85 NB.	
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<u>DEFICIENCIES</u>	
5' - Joint Collapsed;	
40' - Intruding Sealing Grout;	
73.4' - Crack > 12";	
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<u>RECOMMENDATION</u>	
Repair joint on upstream end. Slip line.	
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5' - Joint Collapsed

PIPE INVENTORY SUMMARY - PIPE 83C

BASIC INFORMATION			
Pipe No:	<u>83C</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>169.3</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2226+83</u>		

HYDRAULIC INFORMATION
Pipe 83C is a cross-line that drains from the left side of I-85 SB to the right side of I-85 NB.

DEFICIENCIES
4' - Joint Separated > 1"; 49' - Chip; 102' - Crack in pipe; 107' - Crack in 12";
115' - Infiltration; 130' - Crack > 12"; 151' - Broken; 156' - Angular Joint;
162' - Joint Separated > 1"; 169.3' - Joint Offset (survey abandoned)

RECOMMENDATION
Replace pipe due to excessive infiltration and cracking.



130' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 84A-B

BASIC INFORMATION			
Pipe No:	<u>84A-B</u>	Pipe Size:	<u>24 in.</u> Pipe Length: <u>103.8</u> LF
Date Inspected:	<u>7/7/16</u>	Inspection Started:	<u>LT</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2232+56</u>		

HYDRAULIC INFORMATION
Pipe 84A-B is a cross-line that drains from the left side of I-85 SB to the right side of I-85 NB.

DEFICIENCIES
15' - Intruding Sealing Grout;
57' - Joint Offset

RECOMMENDATION
Obstruction in pipe from median catch basin. No apparent issues with joint offset. Recommend debris removal and retain.



57' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 85A

BASIC INFORMATION			
Pipe No:	<u>85A</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>97.4</u> LF
Date Inspected:	<u>7/8/16</u>	Inspection Started:	<u>LT Ramp</u>
Road Over Pipe:	<u>I-85 SB Off-Ramp</u>		
Alignment & STA:	<u>I-85 SB Off-Ramp STA. 2243+23</u>		

HYDRAULIC INFORMATION
<u>Pipe 85A extends under the Exit 106 SB off-ramp to the shoulder of I-85 SB.</u>

DEFICIENCIES
<u>36' - Crack > 12";</u>
<u>50' - Multidirectional Crack</u>
<u>Cracking occurs under the pavement.</u>

RECOMMENDATION
<u>The cracking occurs in several locations around the circumference of the pipe.</u>
<u>Recommend replacing pipe under the ramp.</u>



50' - Multidirectional Crack

PIPE INVENTORY SUMMARY - PIPE 85B

<u>BASIC INFORMATION</u>			
Pipe No:	<u>85B</u>	Pipe Size:	<u>30 in.</u> Pipe Length: <u>204</u> LF
Date Inspected:	<u>7/7/16</u>	Inspection Started:	<u>RT Ramp</u>
Road Over Pipe:	<u>I-85</u>		
Alignment & STA:	<u>I-85 STA. 2243+23</u>		

<u>HYDRAULIC INFORMATION</u>
Pipe 85B is part of a cross-line that drains from the left side of I-85 SB Off-Ramp to the right side of I-85 NB.

<u>DEFICIENCIES</u>
25.5' - Crack > 12"; 47.5' - Multidirectional Crack; 160'-Joint offset/Gasket exposed. Pipe is full of sediment on downstream end.

<u>RECOMMENDATION</u>
Sediment infiltration likely from exposed gasket. Clean pipe and repair gasket.
Pipe is in good condition under I-85. Exposed gasket in I-85 NB shoulder.



25.5' - Crack > 12"

PIPE INVENTORY SUMMARY - PIPE 86A

BASIC INFORMATION			
Pipe No:	<u>86A</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>71.4</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2245+45</u>		

HYDRAULIC INFORMATION
Pipe 86A extends from the I-85 median under I-85 SB to a catch basin to the Exit 106 SB exit ramp gore.

DEFICIENCIES
33' - Chip on top of the pipe;
66' - Intruding Sealing Grout

RECOMMENDATION
No debris accumulation or apparent issues affecting hydraulics. Retain.



33' - Chip

PIPE INVENTORY SUMMARY - PIPE 86B

BASIC INFORMATION			
Pipe No:	<u>86B</u>	Pipe Size:	<u>15 in.</u> Pipe Length: <u>155.5</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2245+45</u>		

HYDRAULIC INFORMATION	
Pipe 86B extends from the Exit 106 ramp gore area under I-85 NB to the I-85 median.	

DEFICIENCIES	
65' - Joint Offset;	
83' - Joint Offset;	
139' - Joint Offset	

RECOMMENDATION	
Video shows multiple joint offsets however pipe appears to function without issues. No evidence of root intrusion or infiltration. Retain.	



83' - Joint Offset;

PIPE INVENTORY SUMMARY - PIPE 87

BASIC INFORMATION			
Pipe No:	<u>87</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>75.7</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2255+00</u>		

HYDRAULIC INFORMATION
Pipe 87 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
15' - Intruding Sealing Grout

RECOMMENDATION
Pipe is in good condition. Retain.



15' - Intruding Sealing Grout

PIPE INVENTORY SUMMARY - PIPE 88

<u>BASIC INFORMATION</u>		
Pipe No:	<u>88</u>	Pipe Size: <u>48 in.</u> Pipe Length: _____ LF
Date Inspected:	_____	Inspection Started: _____
Road Over Pipe:	<u>I-85 NB</u>	
Alignment & STA:	<u>I-85 STA. 2257+15</u>	

<u>HYDRAULIC INFORMATION</u>
Pipe 88 carries runoff under I-85 from north to south.

<u>DEFICIENCIES</u>
Pipe not accessible, no inspection completed.

<u>RECOMMENDATION</u>
Inspect pipe.

PIPE INVENTORY SUMMARY - PIPE 89

BASIC INFORMATION			
Pipe No:	<u>89</u>	Pipe Size:	<u>18 in.</u> Pipe Length: <u>84.9</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2261+00</u>		

HYDRAULIC INFORMATION
Pipe 89 collects median drainage and outlets on the right side of I-85 NB.

DEFICIENCIES
6.7' - Intruding Sealing Grout;
79' - Joint Offset

RECOMMENDATION
Recommend replacement of last segment of pipe along I-85 NB shoulder due to joint separation.



79' - Joint Offset

PIPE INVENTORY SUMMARY - PIPE 90A

BASIC INFORMATION			
Pipe No:	<u>90A</u>	Pipe Size:	<u>42 in.</u> Pipe Length: <u>42.3</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>LT Shoulder</u>
Road Over Pipe:	<u>-</u>		
Alignment & STA:	<u>I-85 STA. 2268+50</u>		

HYDRAULIC INFORMATION
Pipe 90A extends from a headwall north of I-85 to a catch basin along the I-85 SB shoulder.

DEFICIENCIES
There were no deficiencies observed during the inspection.

RECOMMENDATION
Pipe is in good condition. Retain.



Pipe is in good condition

PIPE INVENTORY SUMMARY - PIPE 90B

BASIC INFORMATION			
Pipe No:	<u>90B</u>	Pipe Size:	<u>42 in.</u> Pipe Length: <u>59.5</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 SB</u>		
Alignment & STA:	<u>I-85 STA. 2268+50</u>		

HYDRAULIC INFORMATION
Pipe 90B crosses under I-85 SB and connects to Pipe 90C.

DEFICIENCIES
55' - Joint Separated > 1"/Multidirectional Crack

RECOMMENDATION
Pipe is good condition for most of its length. Cracking and joint offset occur in last segment in median of I-85. Recommend replacement of last segment of pipe in median and reconnect to median drainage.



55' - Multidirectional Crack

PIPE INVENTORY SUMMARY - PIPE 90C

BASIC INFORMATION			
Pipe No:	<u>90C</u>	Pipe Size:	<u>42 in.</u> Pipe Length: <u>66.3</u> LF
Date Inspected:	<u>6/29/16</u>	Inspection Started:	<u>Median</u>
Road Over Pipe:	<u>I-85 NB</u>		
Alignment & STA:	<u>I-85 STA. 2268+50</u>		

HYDRAULIC INFORMATION
Pipe 90C extends under I-85 NB from a median catch basin.

DEFICIENCIES
59' from beginning of inspection - Joint Offset

RECOMMENDATION
Based on the location of the joint offset and size of the pipe. Recommend retaining pipe and repair joint offset with grout.

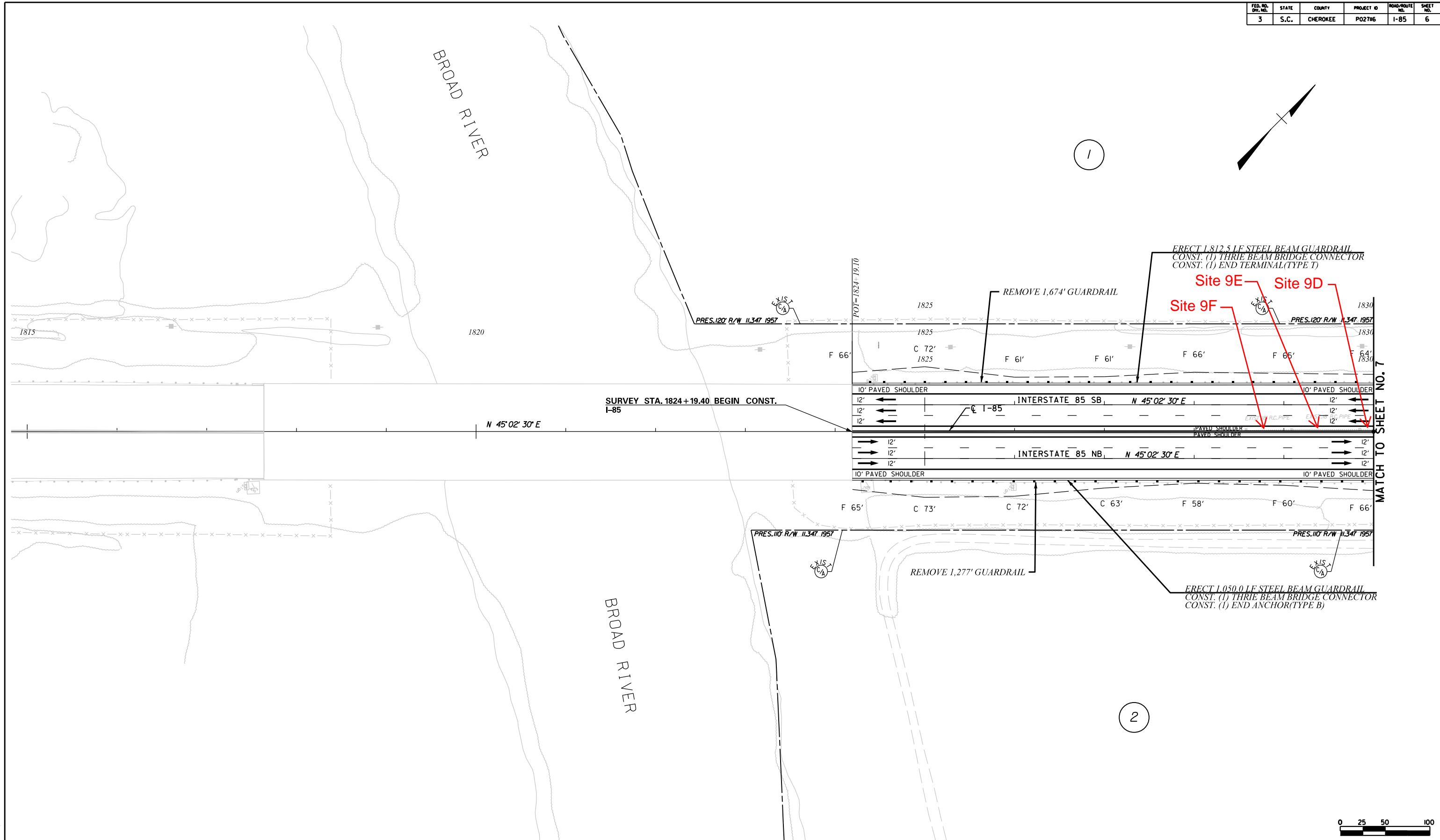
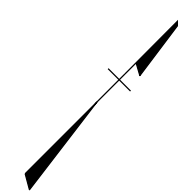


59' - Joint Offset

5 Pipe Location Figures

BROAD RIVER

1



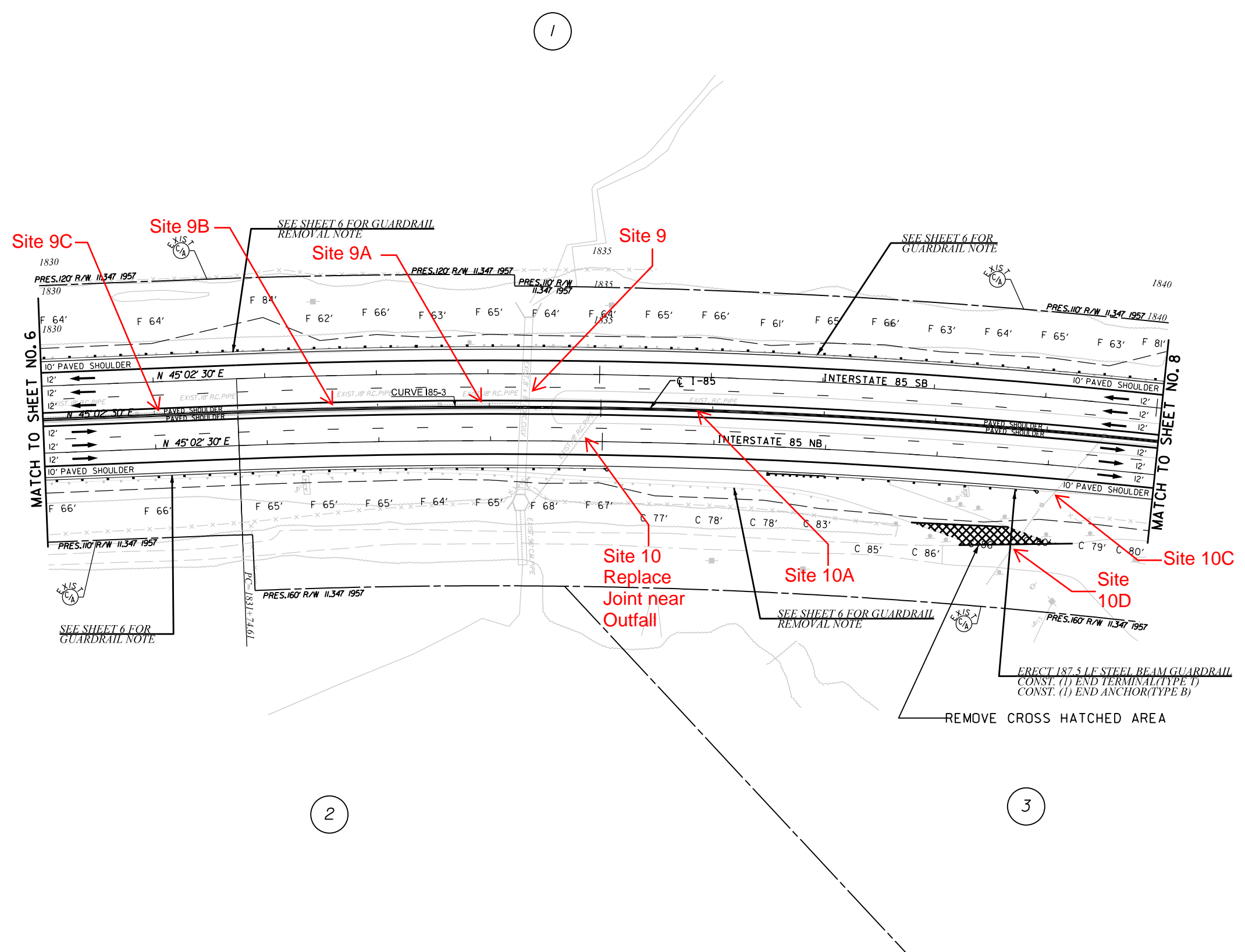
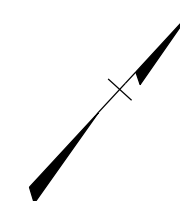
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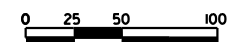
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MATCH TO SHEET NO. 6

MATCH TO SHEET NO. 8

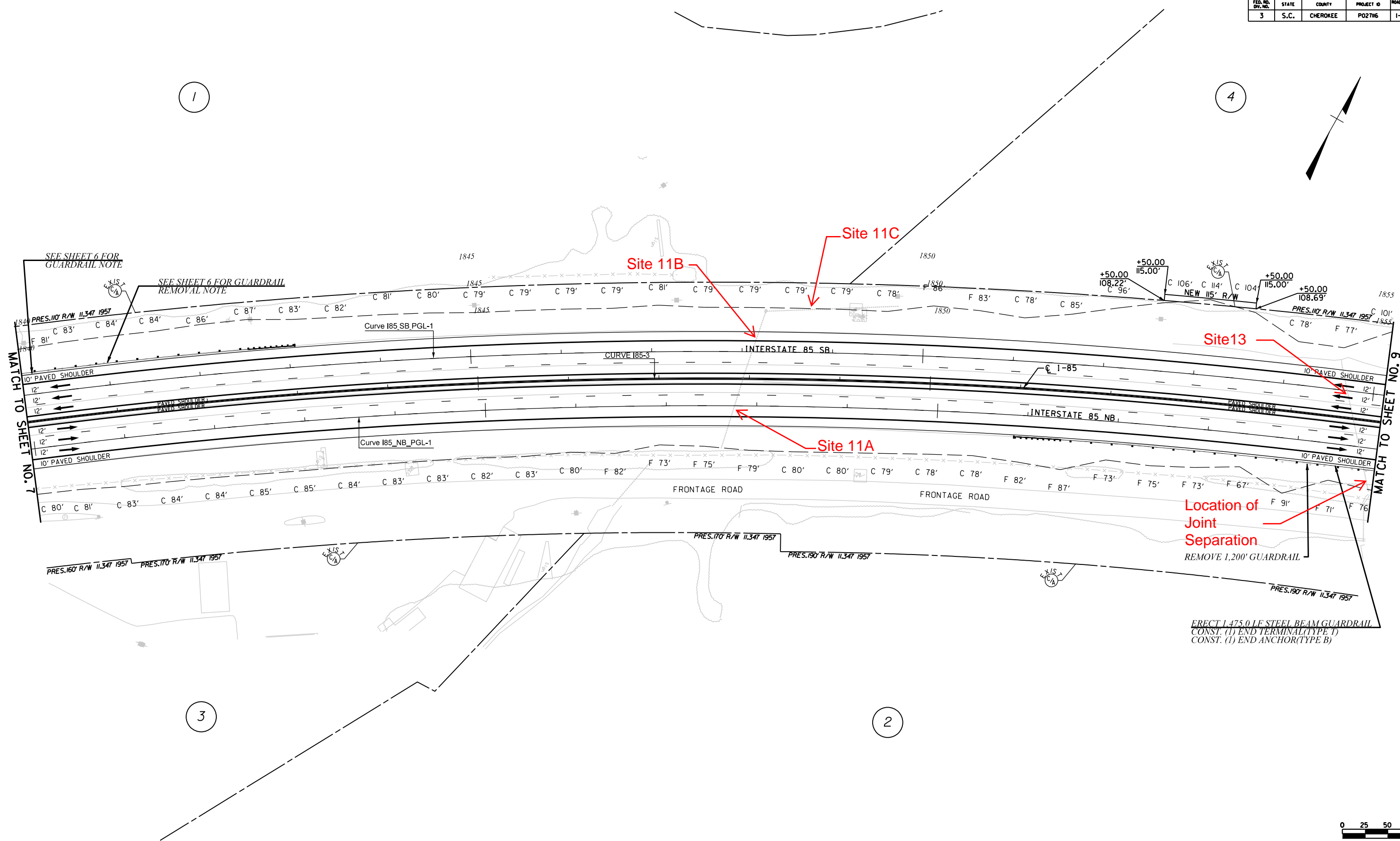
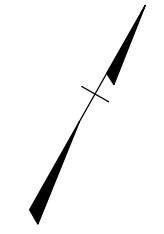
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				DWG.	DATE	PLAN SCALE 1" = 50'	
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MATCH TO SHEET NO. 7

MATCH TO SHEET NO. 9

Location of Joint Separation
REMOVE 1,200' GUARDRAIL

ERECT 1,475.0 L.F. STEEL BEAM GUARDRAIL
CONST. (1) END TERMINAL (TYPE T)
CONST. (1) END ANCHOR (TYPE B)

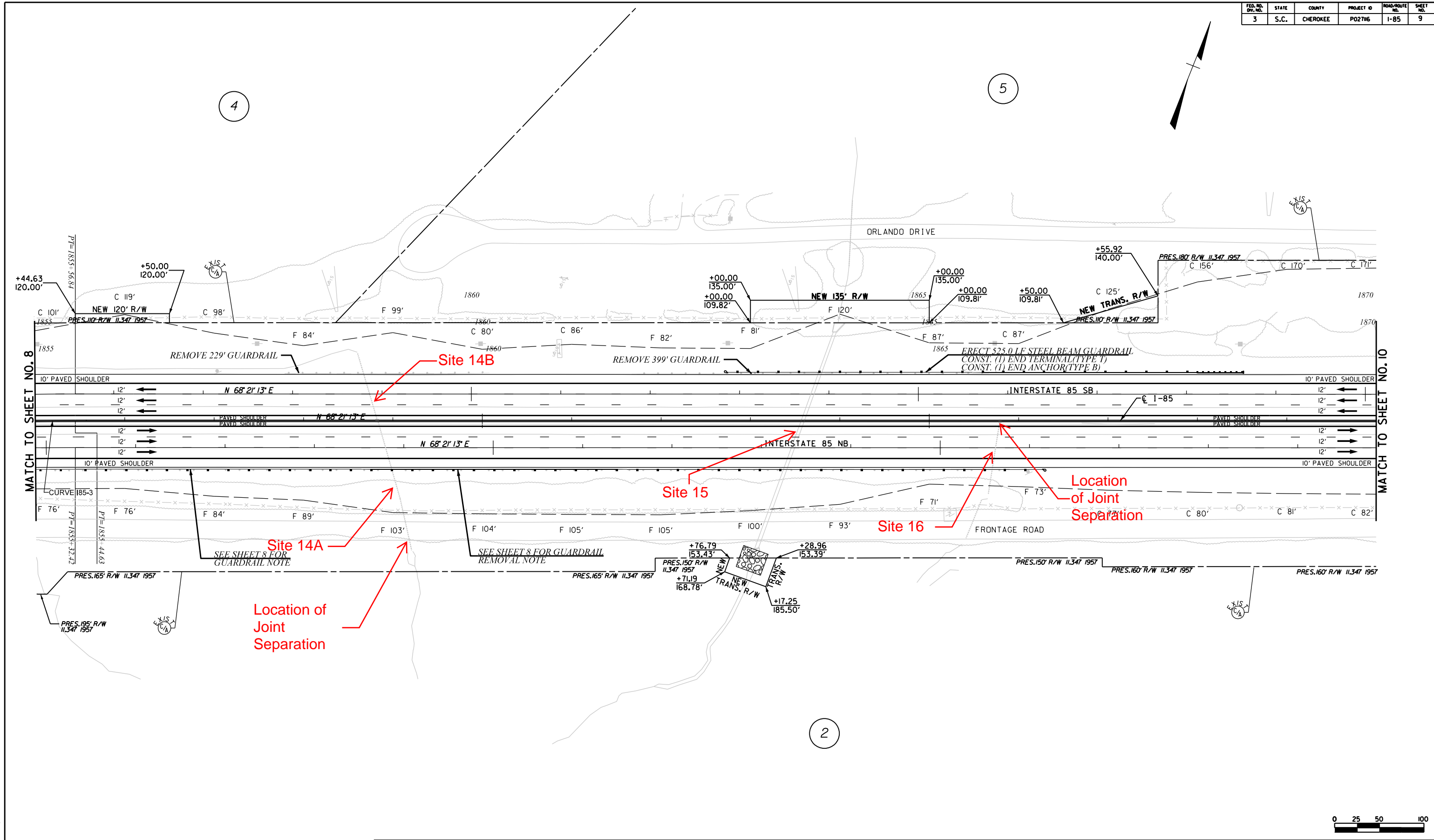


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CIVIL ENGINEERING CONSULTING SERVICES, INC.	ICA <small>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</small>	PRELIMINARY PLANS	NOT FOR CONSTRUCTION	4			SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 1840+00 TO STA. 1855+00 I-85 DWG. NO.
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				R/W	DATE		



MATCH TO SHEET NO. 8

MATCH TO SHEET NO. 10

Location of Joint Separation

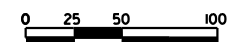
Site 14A

Site 14B

Site 15

Site 16

Location of Joint Separation

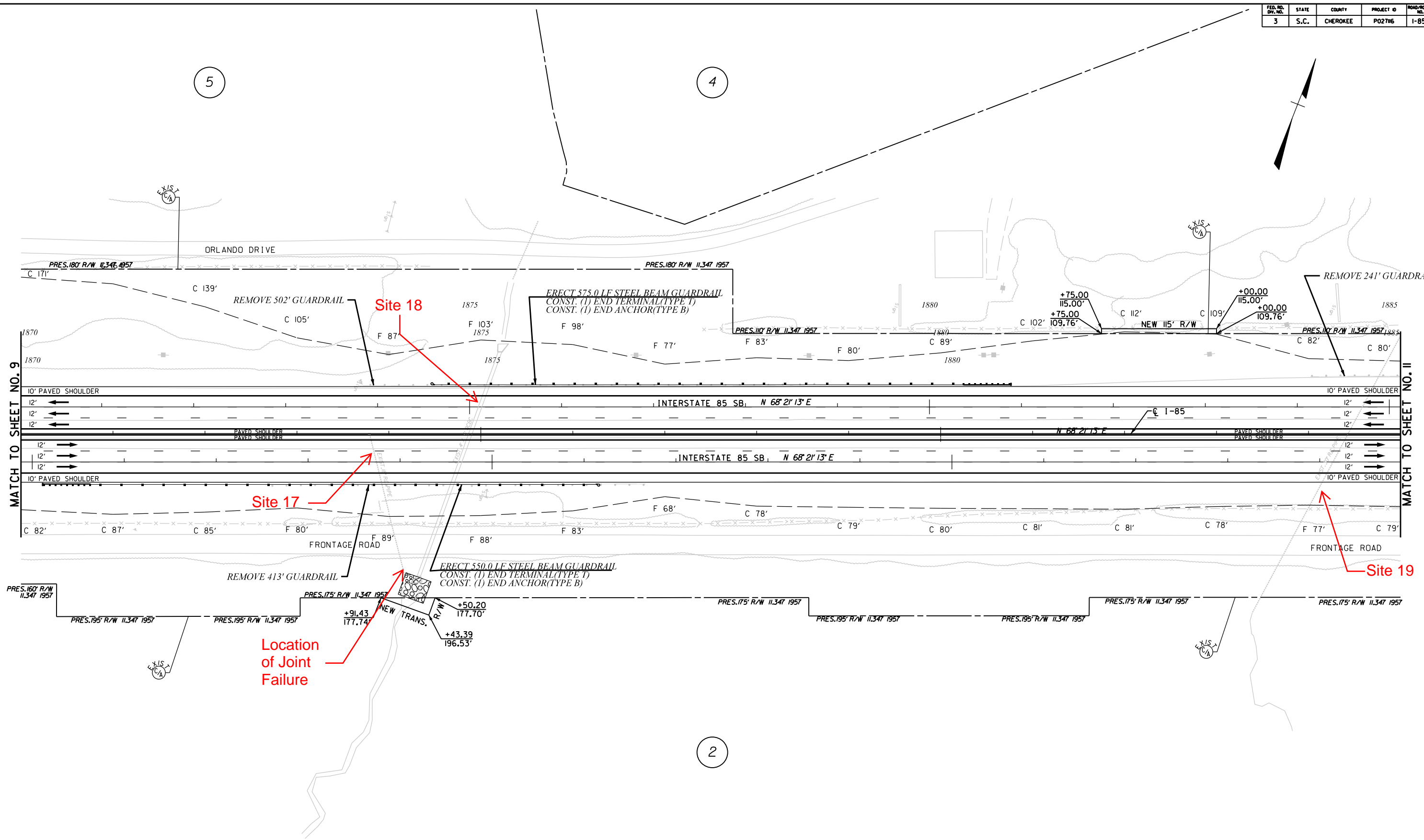


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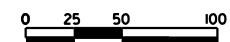
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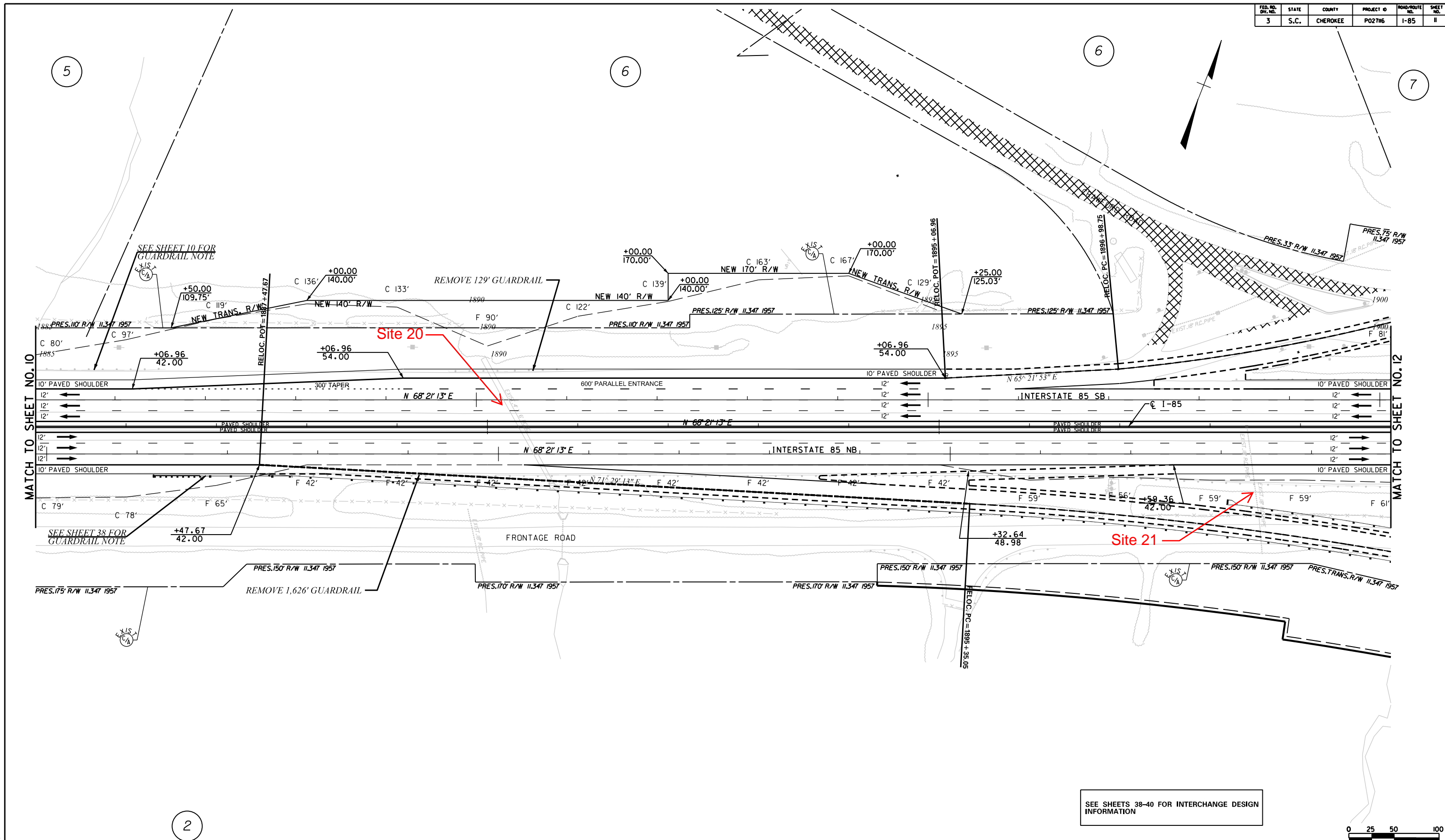
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MATCH TO SHEET NO. 11

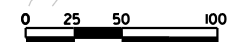


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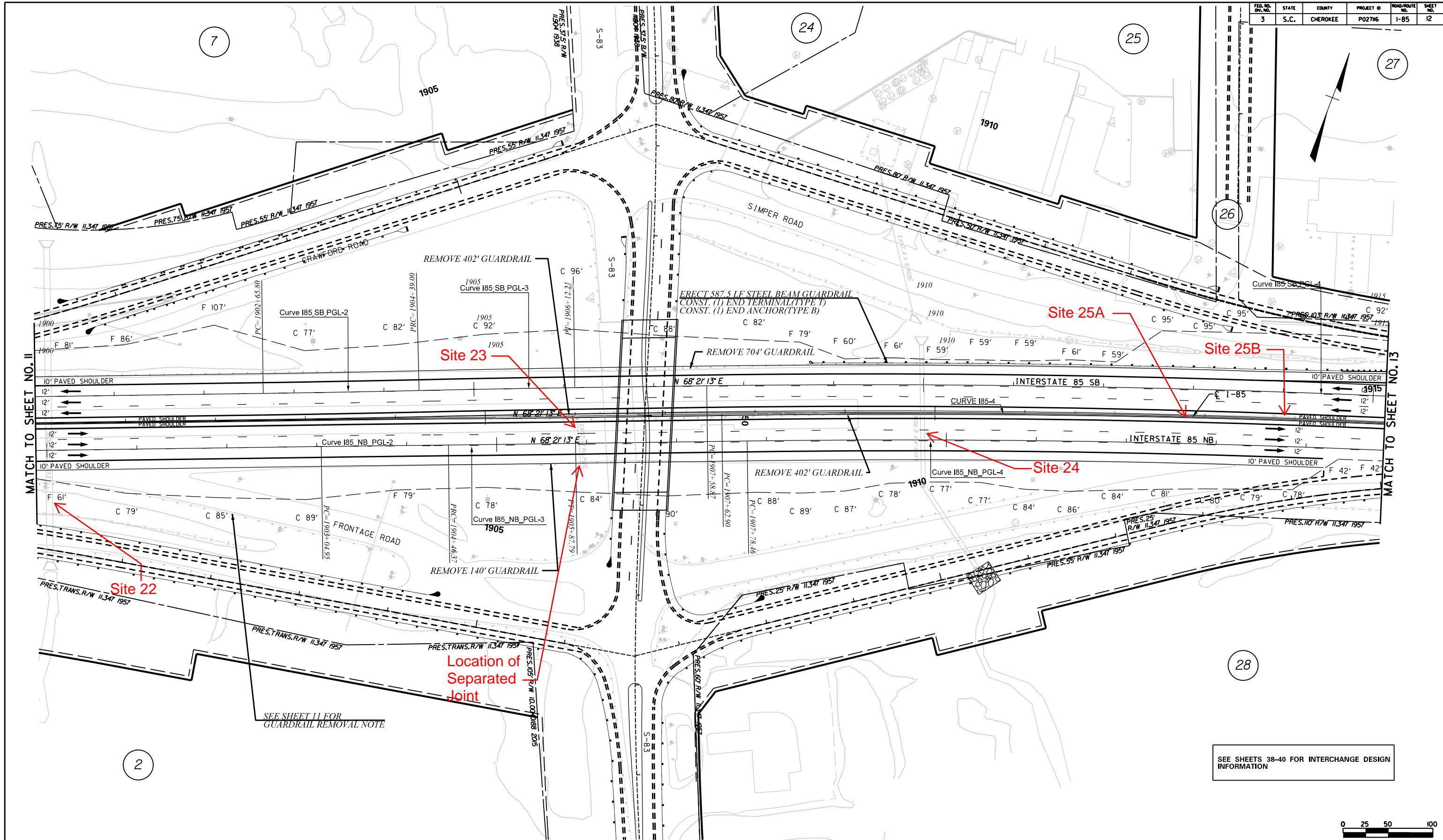


SEE SHEETS 38-40 FOR INTERCHANGE DESIGN INFORMATION



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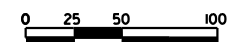
CIVIL ENGINEERING CONSULTING SERVICES, INC.	ICA <small>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</small>	PRELIMINARY PLANS	NOT FOR CONSTRUCTION	4			SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 1885+00 TO STA. 1900+00 I-85 DWG. NO.
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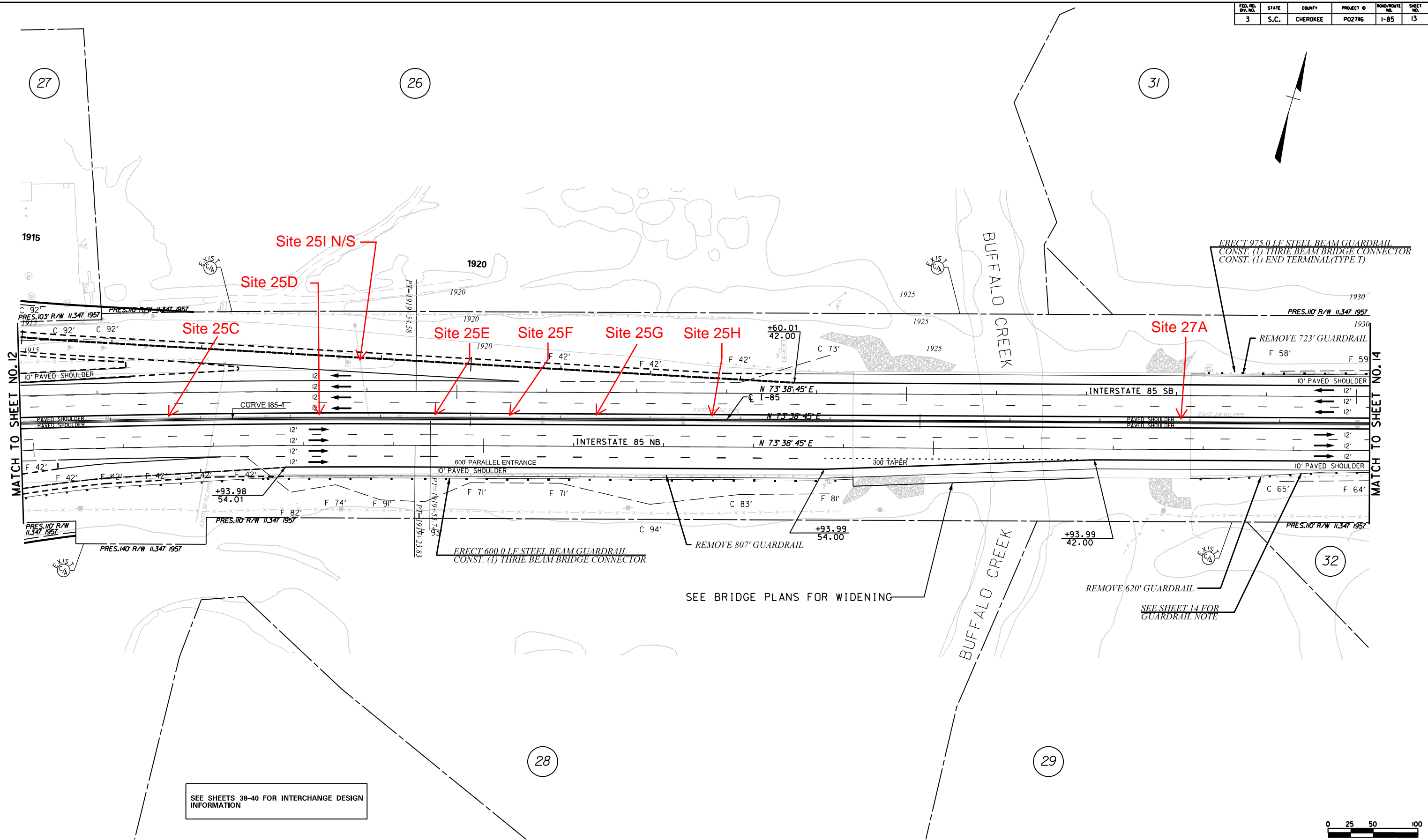
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SEE SHEETS 38-40 FOR INTERCHANGE DESIGN INFORMATION



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SEE SHEETS 38-40 FOR INTERCHANGE DESIGN INFORMATION

	CIVIL ENGINEERING CONSULTING SERVICES, INC.

HR ICA
ICA Engineering Inc.
1122 Lady Street, Suite 1100, Columbia, SC 29201

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

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TOPO.			
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PLAN SCALE 1" = 50'

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

INTERSTATE 85 IMPROVEMENTS
MM 98 TO MM 106

PLAN SHEET
STA. 1915+00 TO STA. 1930+00

I-85 DWG. NO.

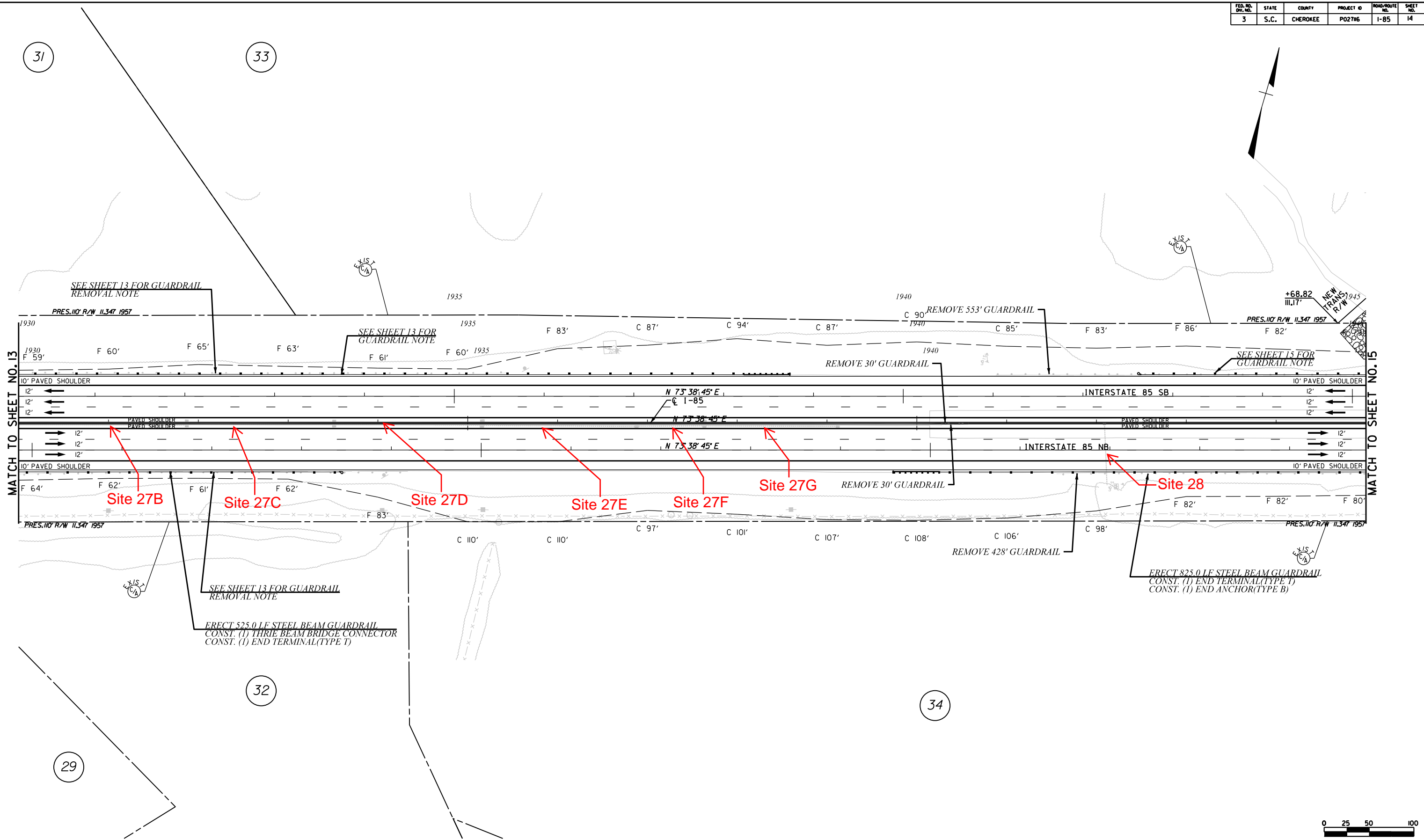
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MATCH TO SHEET NO. 13

MATCH TO SHEET NO. 15



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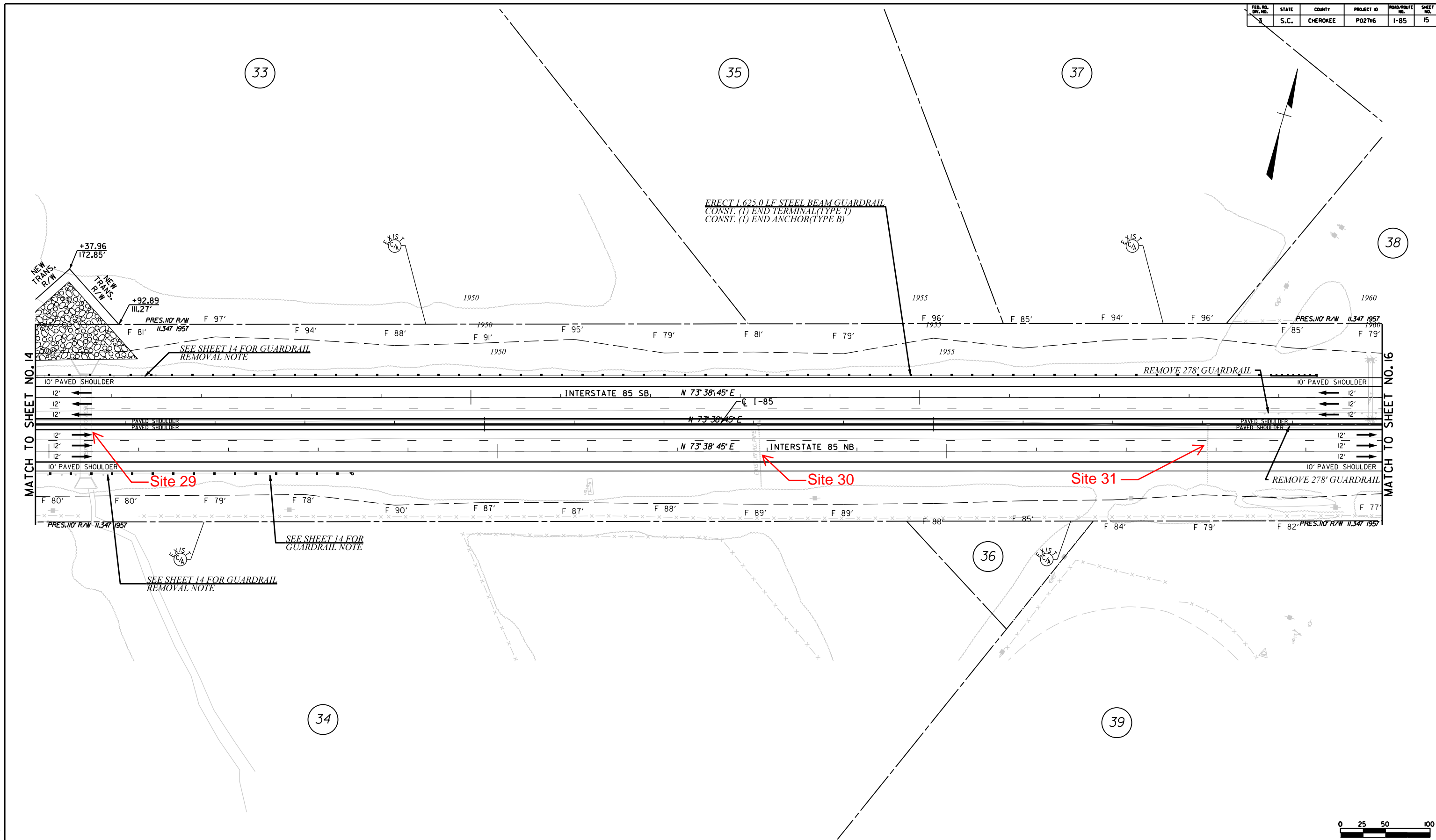
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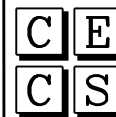

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FED. PROJ. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
5	S.C.	CHEROKEE	PO2786	I-85	15

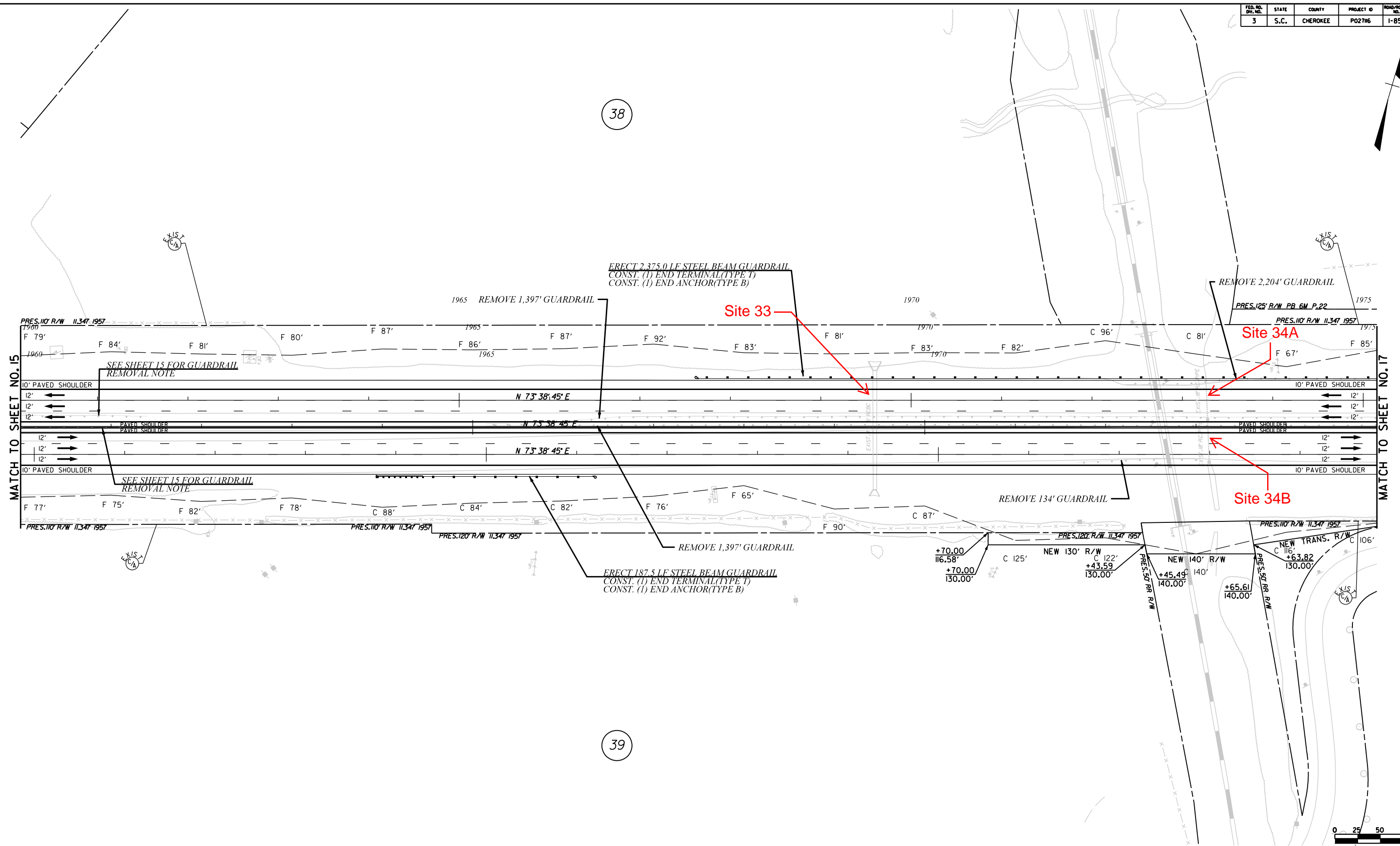


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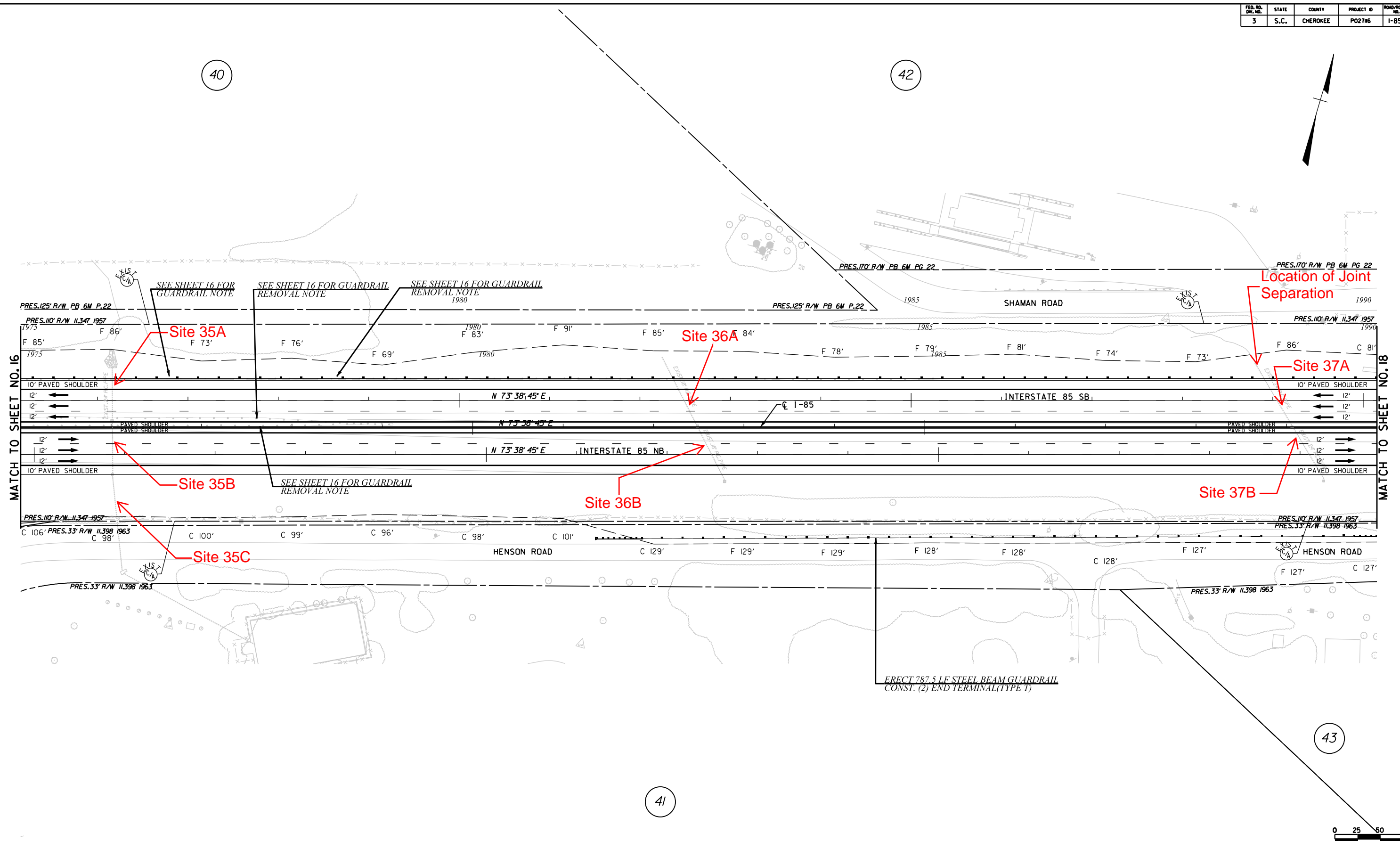


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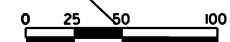


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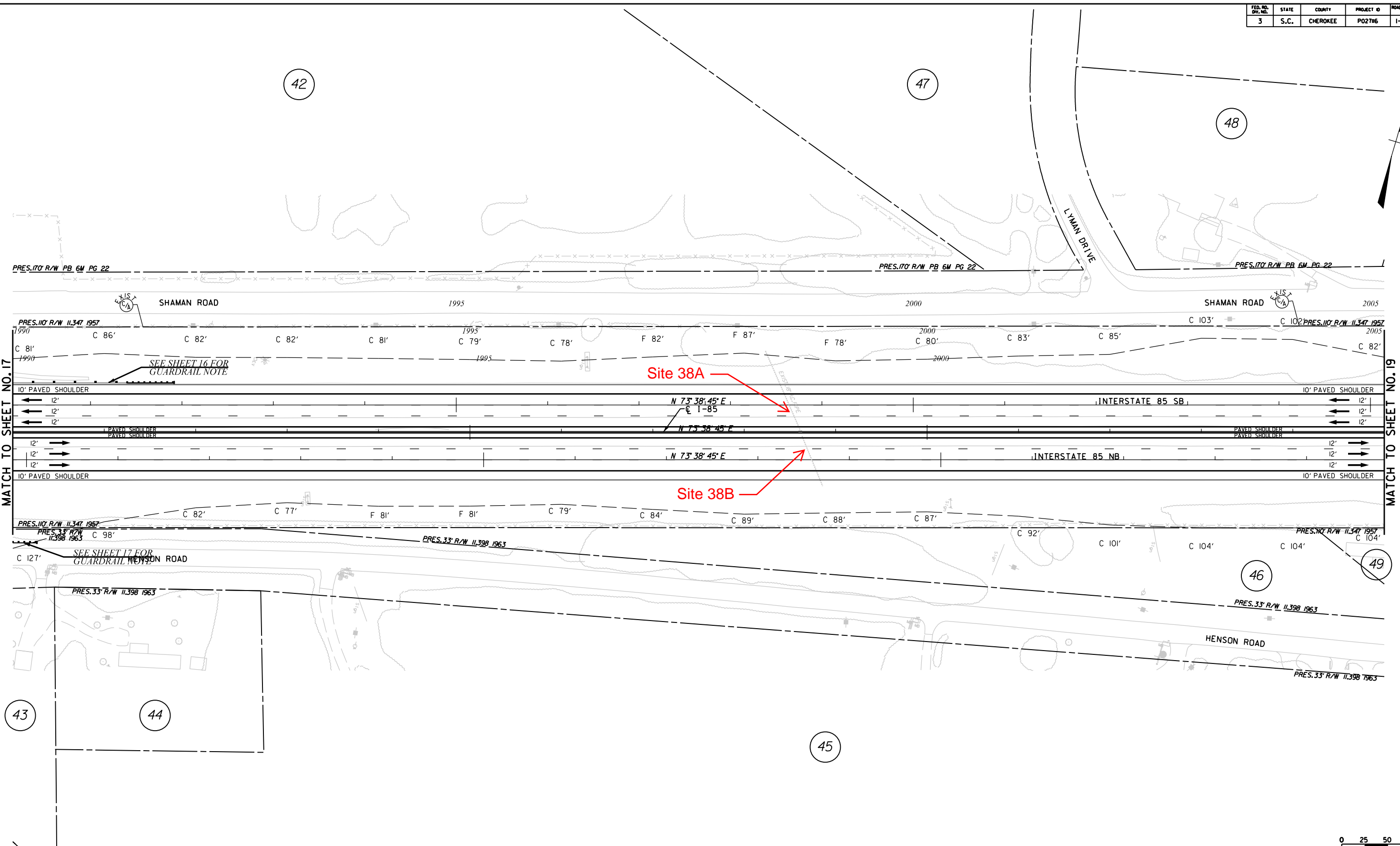
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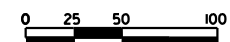
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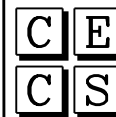



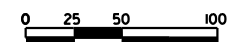
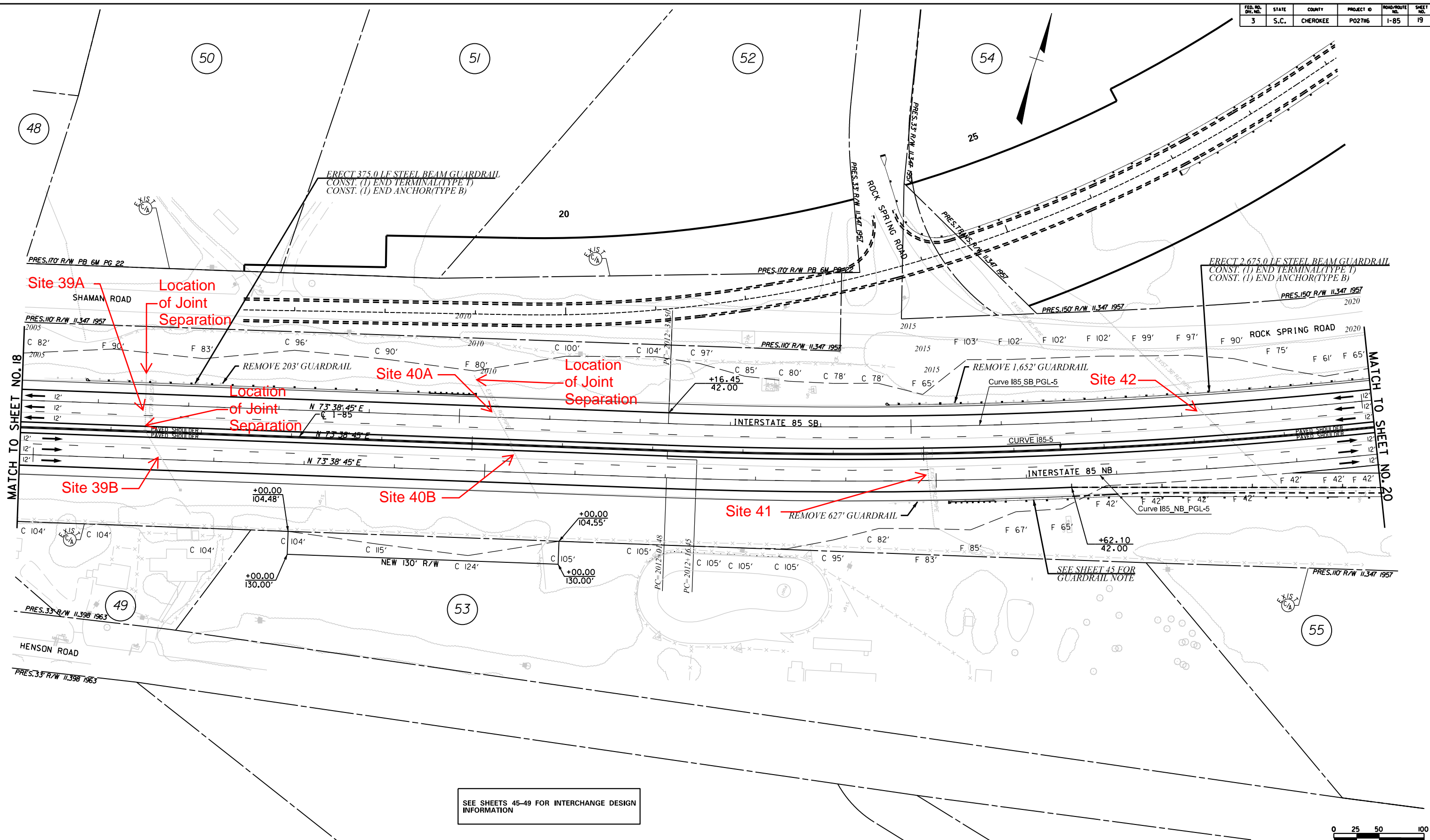
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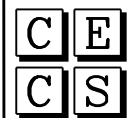



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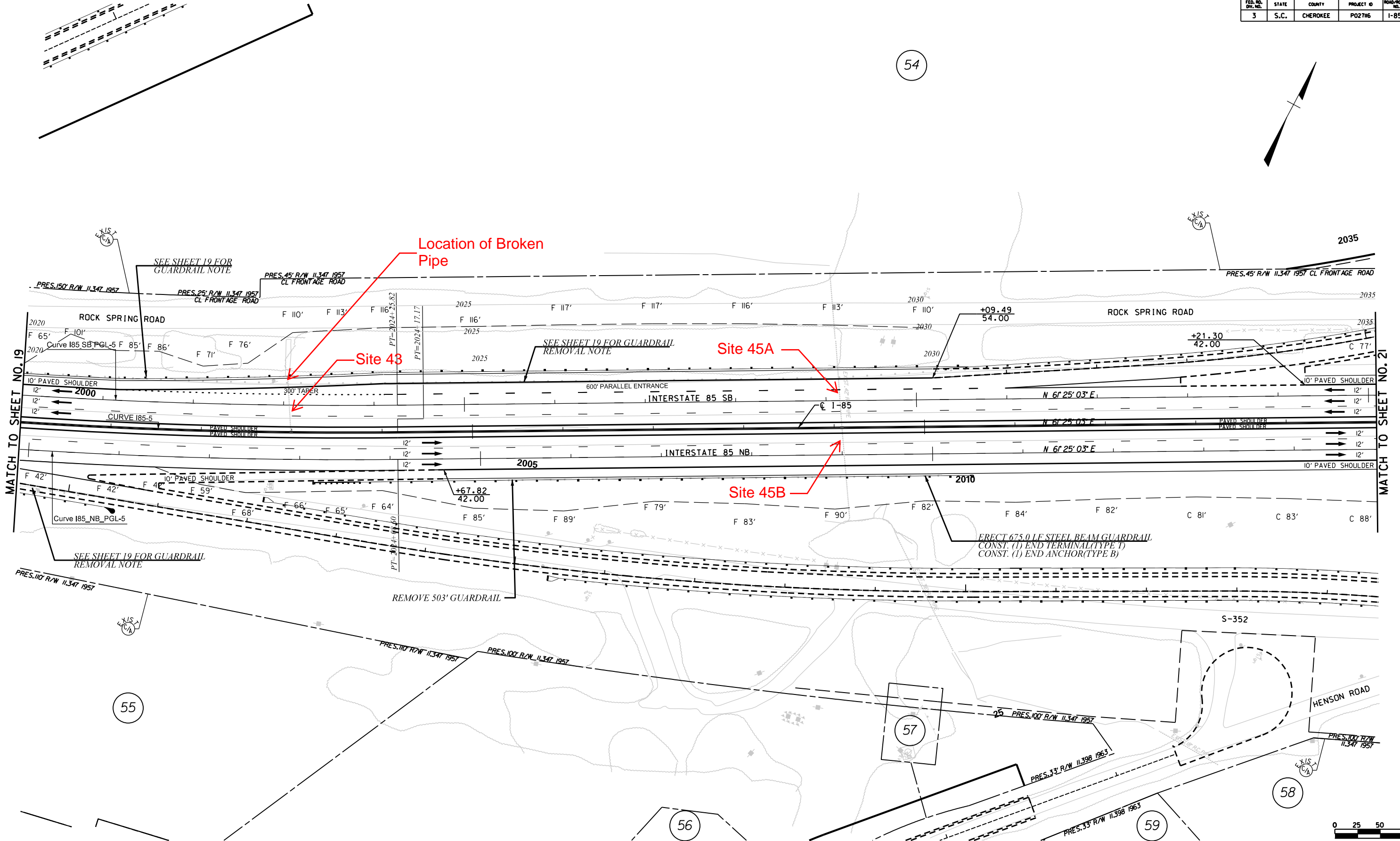
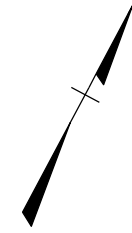
	<p>CIVIL ENGINEERING CONSULTING SERVICES, INC.</p>		<p>PRELIMINARY PLANS</p>	<p>NOT FOR CONSTRUCTION</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>4</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td></tr> <tr> <th>REV. NO.</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION OF REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	4				3				2				1				REV. NO.	BY	DATE	DESCRIPTION OF REVISION					<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.</p> <p>INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106</p> <p>PLAN SHEET STA. 1990+00 TO STA. 2005+00</p>
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 <p>CIVIL ENGINEERING CONSULTING SERVICES, INC.</p>	 <p>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</p>	<p>PRELIMINARY PLANS</p>	<p>NOT FOR CONSTRUCTION</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>REV. NO.</td> <td>BY</td> <td>DATE</td> <td>DESCRIPTION OF REVISION</td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </table>	REV. NO.	BY	DATE	DESCRIPTION OF REVISION	4				3				2				1				<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.</p> <p>INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106</p> <p>PLAN SHEET STA. 2005+00 TO STA. 2020+00</p>
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MATCH TO SHEET NO. 21

SEE SHEETS 45-49 FOR INTERCHANGE DESIGN INFORMATION



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DWG.			
R/W			

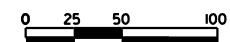
PLAN SCALE 1" = 50'

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.

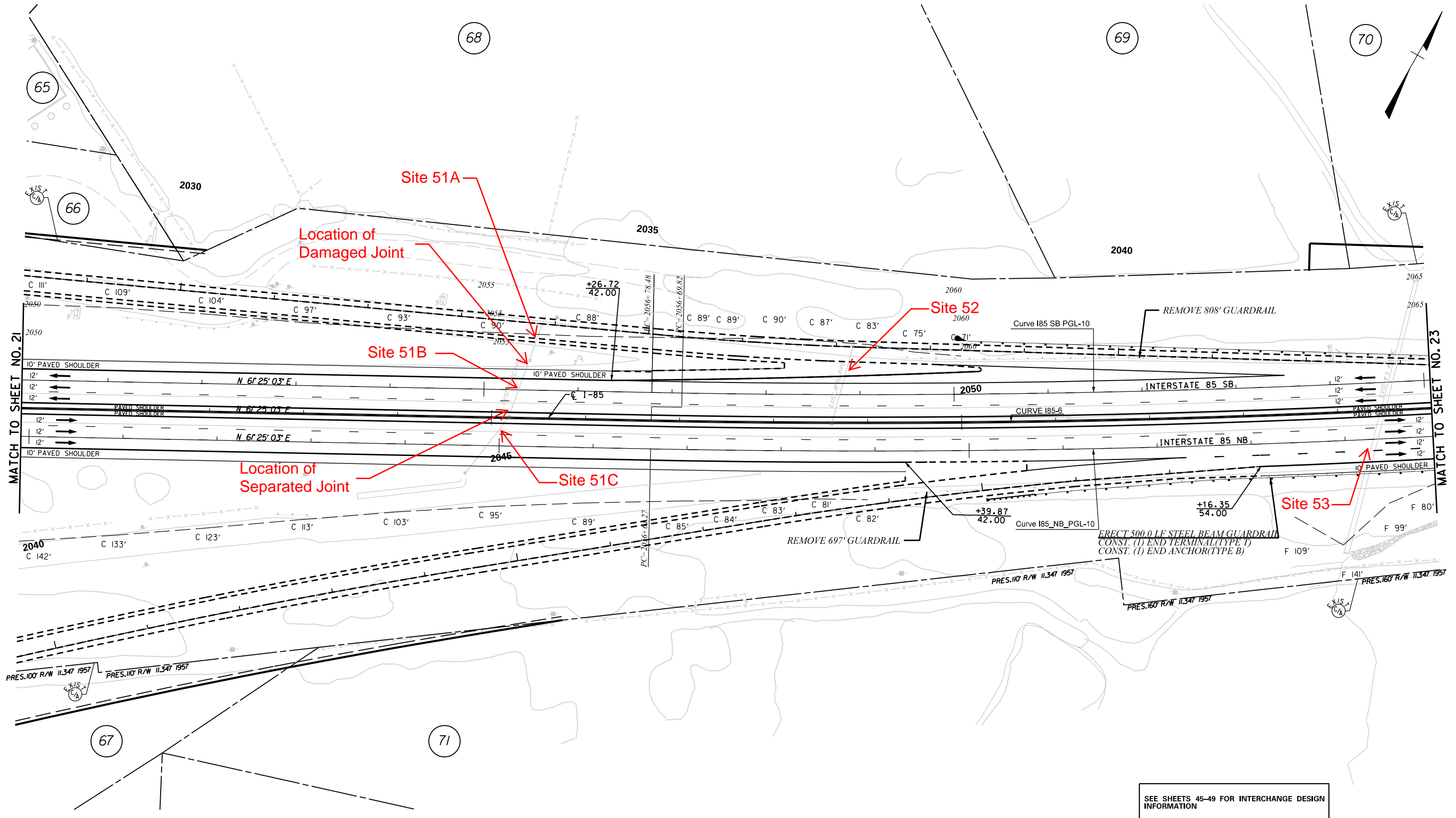
INTERSTATE 85 IMPROVEMENTS
MM 98 TO MM 106

PLAN SHEET
STA. 2020+00 TO STA. 2035+00

I-85 DWG. NO.



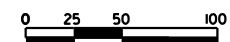
2/15/2017 ...Dgn\Plan Sheets\an20.dgn





MATCH TO SHEET NO. 21

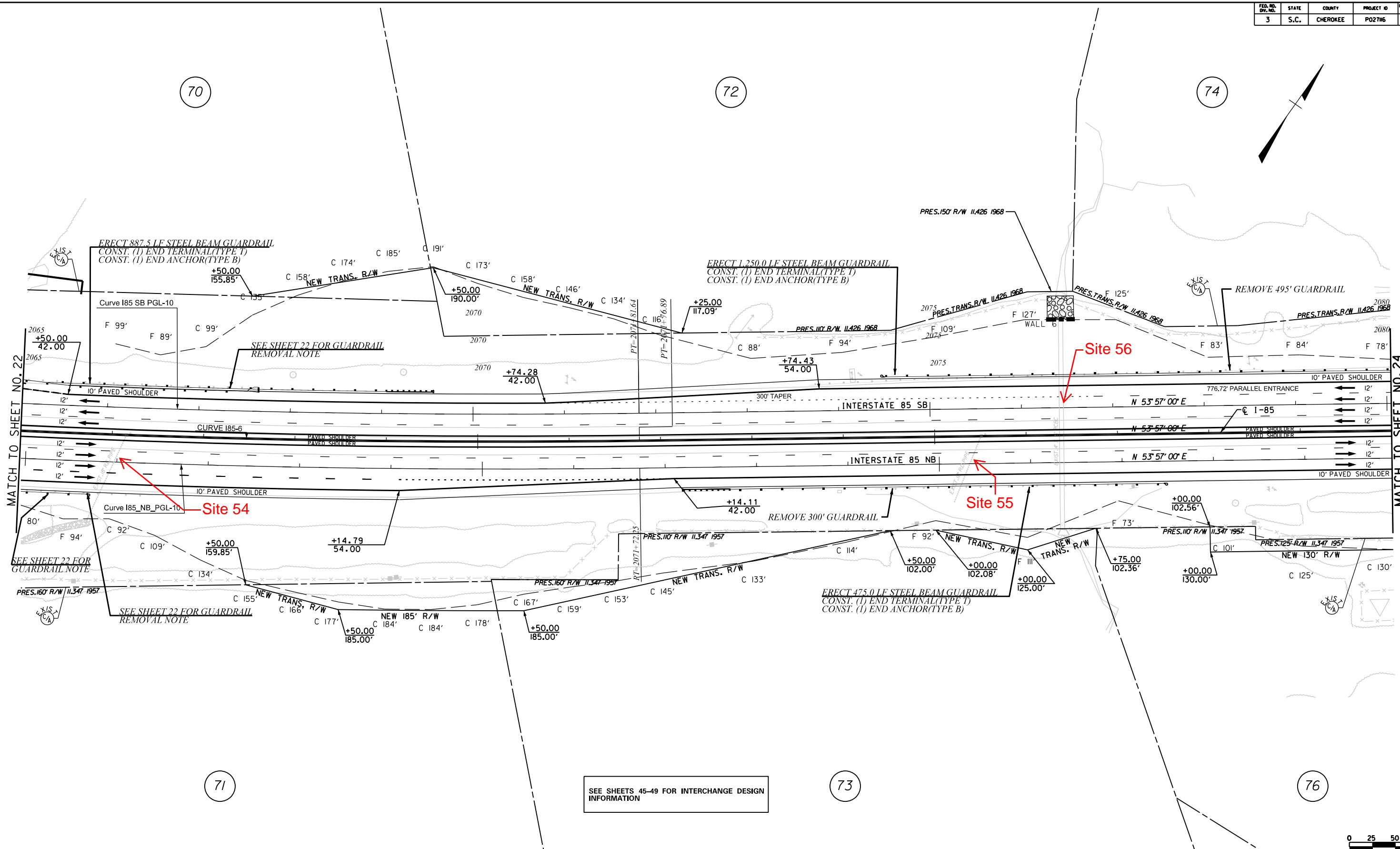
MATCH TO SHEET NO. 23

SEE SHEETS 45-49 FOR INTERCHANGE DESIGN INFORMATION



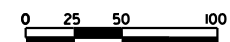
2/15/2017 ... \Dgn\Plan Sheets\sh22.dgn

 <p>CIVIL ENGINEERING CONSULTING SERVICES, INC.</p>	 <p>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</p>	<p>PRELIMINARY PLANS</p>	<p>NOT FOR CONSTRUCTION</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>4</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td></tr> <tr> <th>REV. NO.</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION OF REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	4				3				2				1				REV. NO.	BY	DATE	DESCRIPTION OF REVISION													<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.</p> <p>INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106</p> <p>PLAN SHEET STA. 2050+00 TO STA. 2065+00</p> <p>I-85 DWG. NO.</p>
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION																																		



MATCH TO SHEET NO. 24

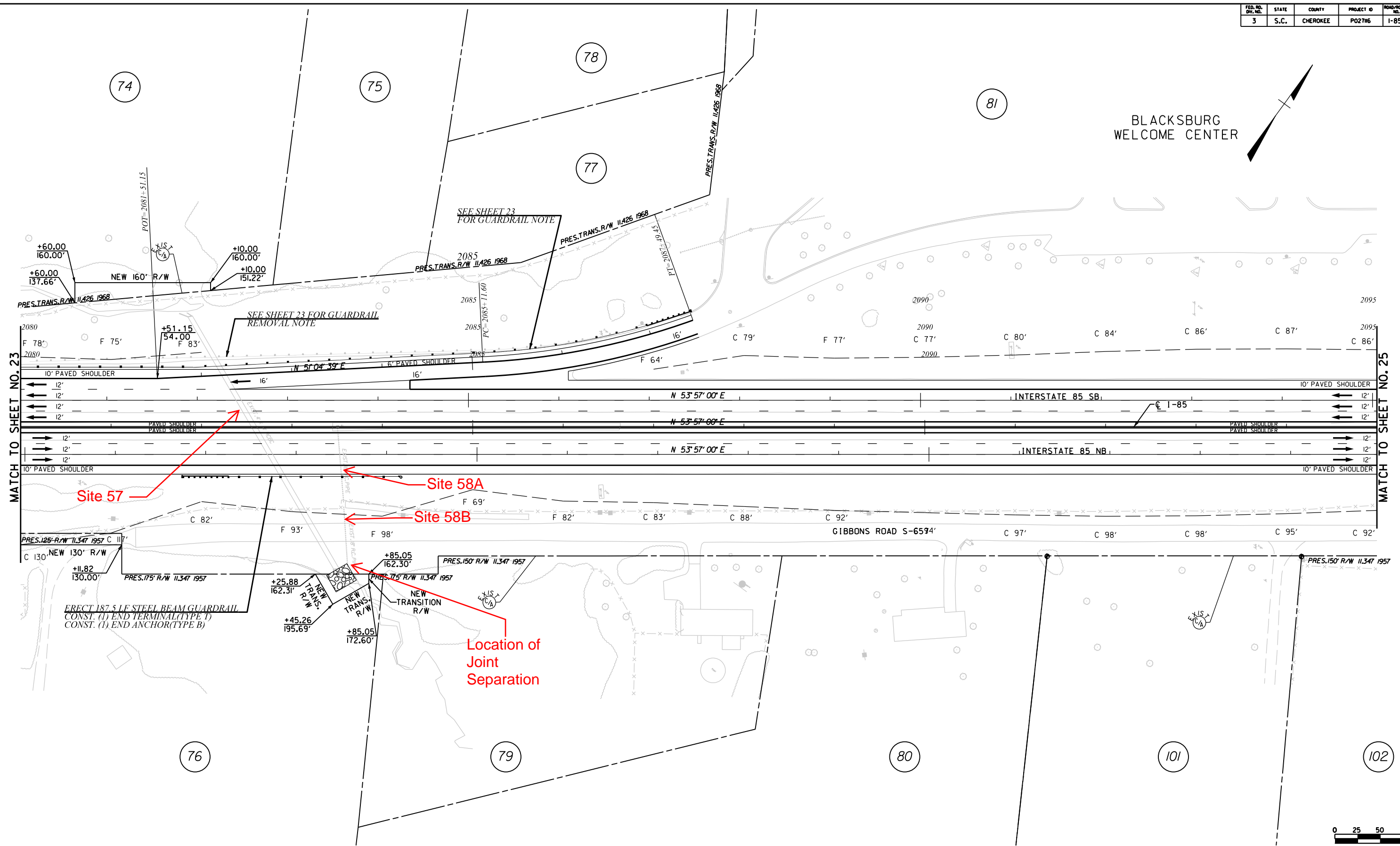
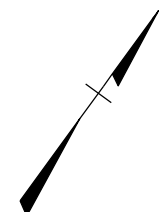
SEE SHEETS 45-49 FOR INTERCHANGE DESIGN INFORMATION



2/15/2017 ... \Dgn\Plan Sheets\sh23.dgn

CIVIL ENGINEERING CONSULTING SERVICES, INC.	ICA <small>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</small>	PRELIMINARY PLANS NOT FOR CONSTRUCTION	4				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 2065+00 TO STA. 2080+00 I-85 DWG. NO.
			3				
			2				
			1				
			REV. NO.	BY	DATE	DESCRIPTION OF REVISION	
			TOPO.	DATE			
			DWG.	DATE	PLAN SCALE 1" = 50'		
			R/W	DATE			

BLACKSBURG
WELCOME CENTER



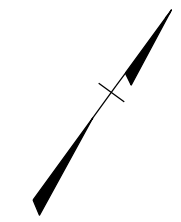
2/15/2017 ...Dgn\Plan Sheets\an24.dgn

 CIVIL ENGINEERING CONSULTING SERVICES, INC.	 ICA	PRELIMINARY PLANS	NOT FOR CONSTRUCTION	4 3 2 1	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____
				TOPO. _____ DATE _____ Dwg. _____ DATE _____ R/W _____ DATE _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____
				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.			
				INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106			
				PLAN SHEET STA. 2080+00 TO STA. 2095+00			
				I-85 _____ Dwg. No. _____			

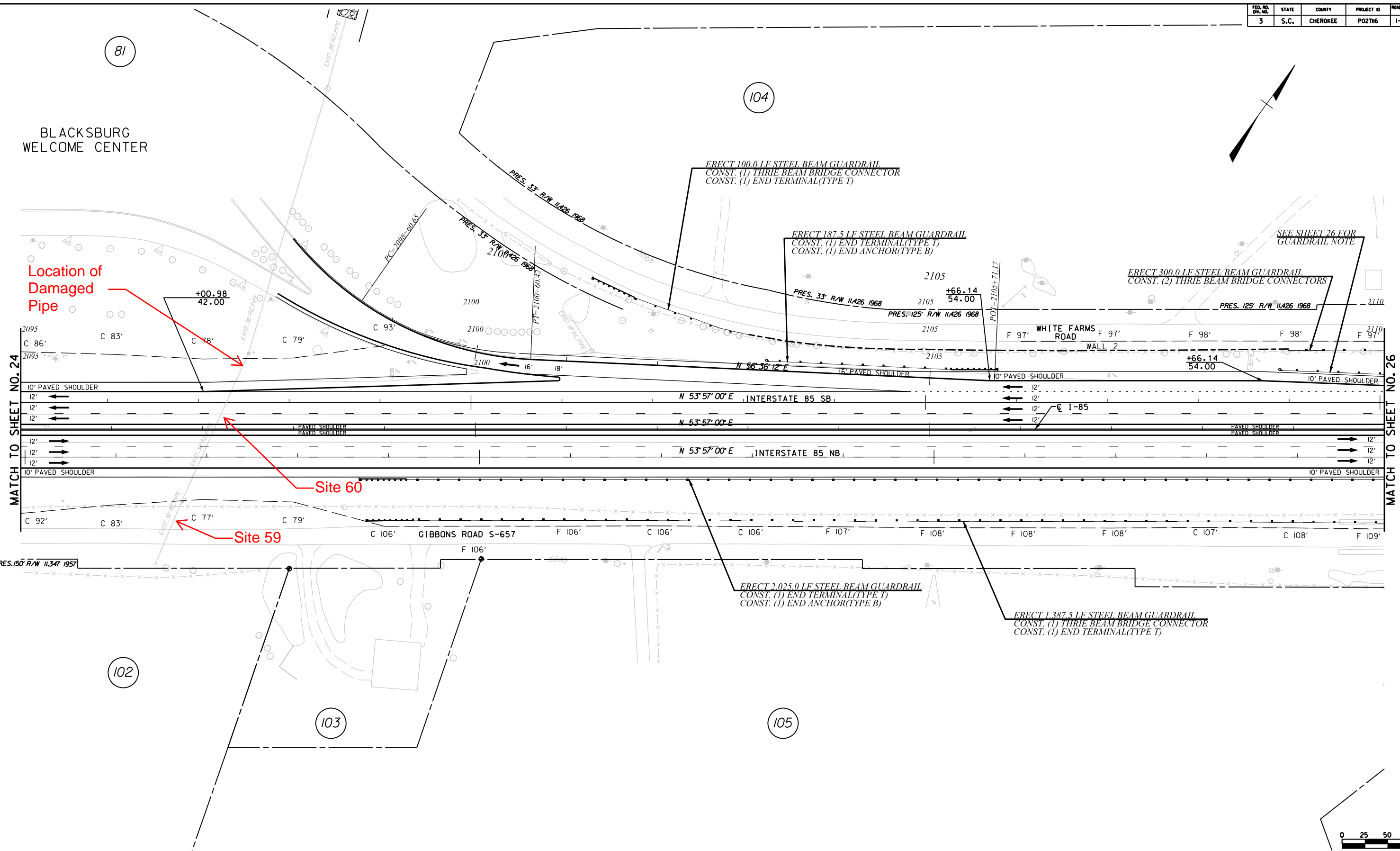
81

104

BLACKSBURG
WELCOME CENTER



Location of
Damaged
Pipe



MATCH TO SHEET NO. 24

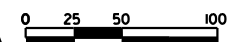
MATCH TO SHEET NO. 26

102

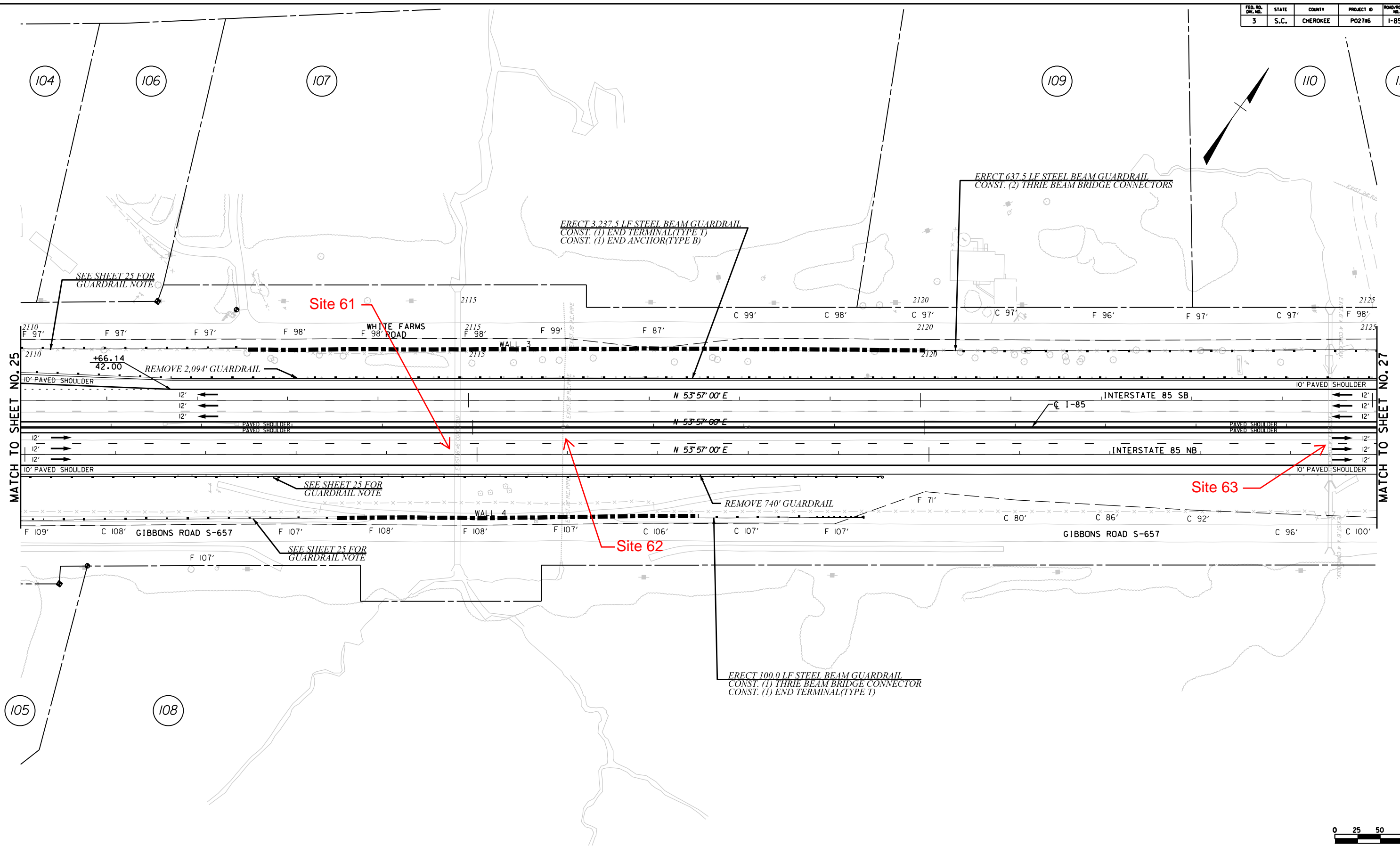
103

105

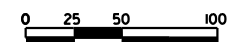
2/15/2017 ... \Dgn\Plan Sheets\sh25.dgn



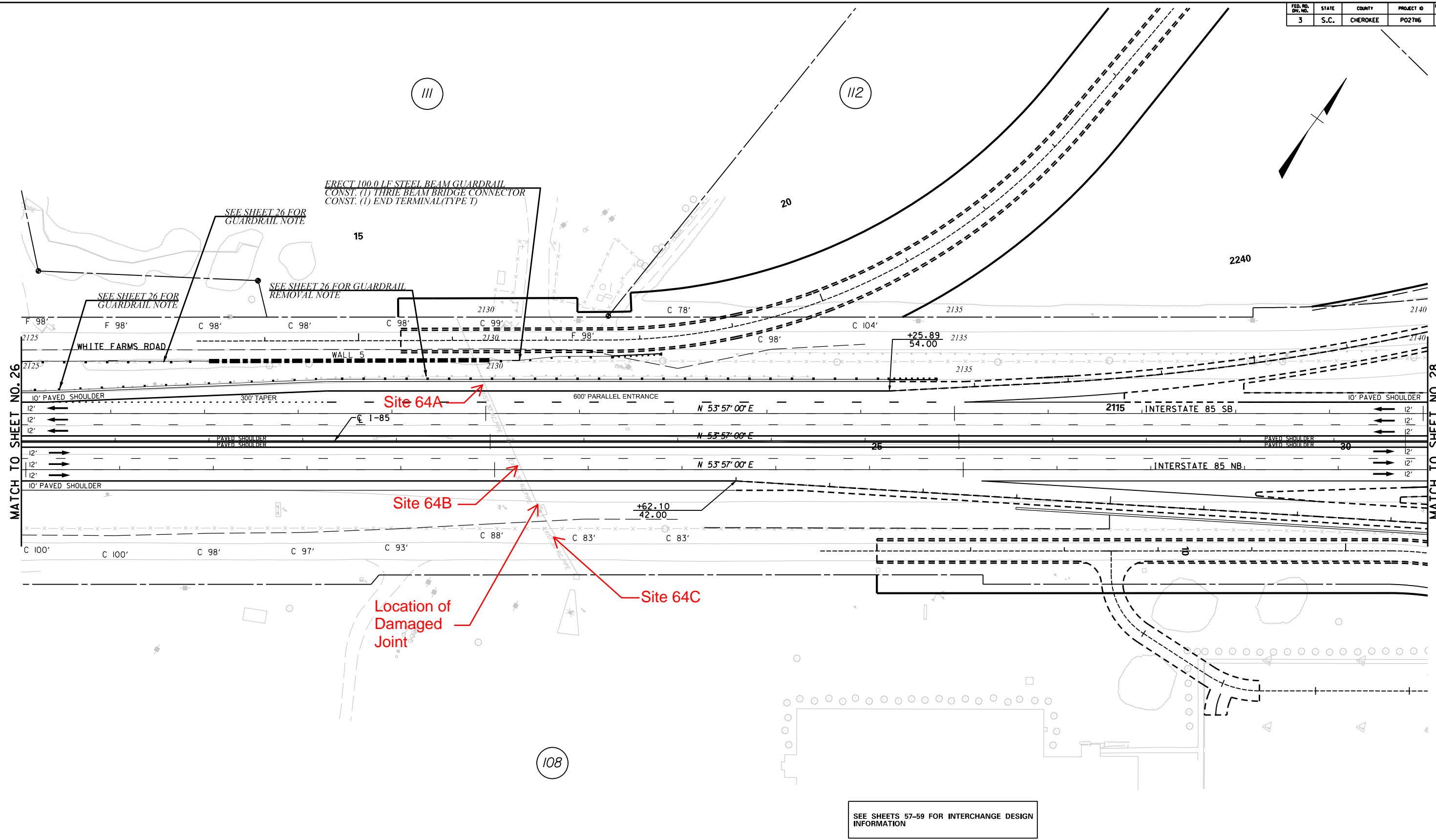
CIVIL ENGINEERING CONSULTING SERVICES, INC.	ICA <small>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</small>	PRELIMINARY PLANS	NOT FOR CONSTRUCTION	4				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 2095+00 TO STA. 2100+00 I-85 DWG. NO.
				3				
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1								
				REV. NO.	BY	DATE	DESCRIPTION OF REVISION	
				TOPO.	DATE			
				DWG.	DATE	PLAN SCALE 1" = 50'		
				R/W	DATE			



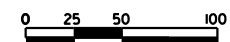
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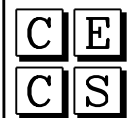



 CIVIL ENGINEERING CONSULTING SERVICES, INC.	 ICA	PRELIMINARY PLANS	NOT FOR CONSTRUCTION	4 3 2 1	_____ _____ _____ _____	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 2110+00 TO STA. 2125+00 I-85
				TOPO. _____ DATE _____ DWG. _____ DATE _____ R/W _____ DATE _____	PLAN SCALE 1" = 50'	

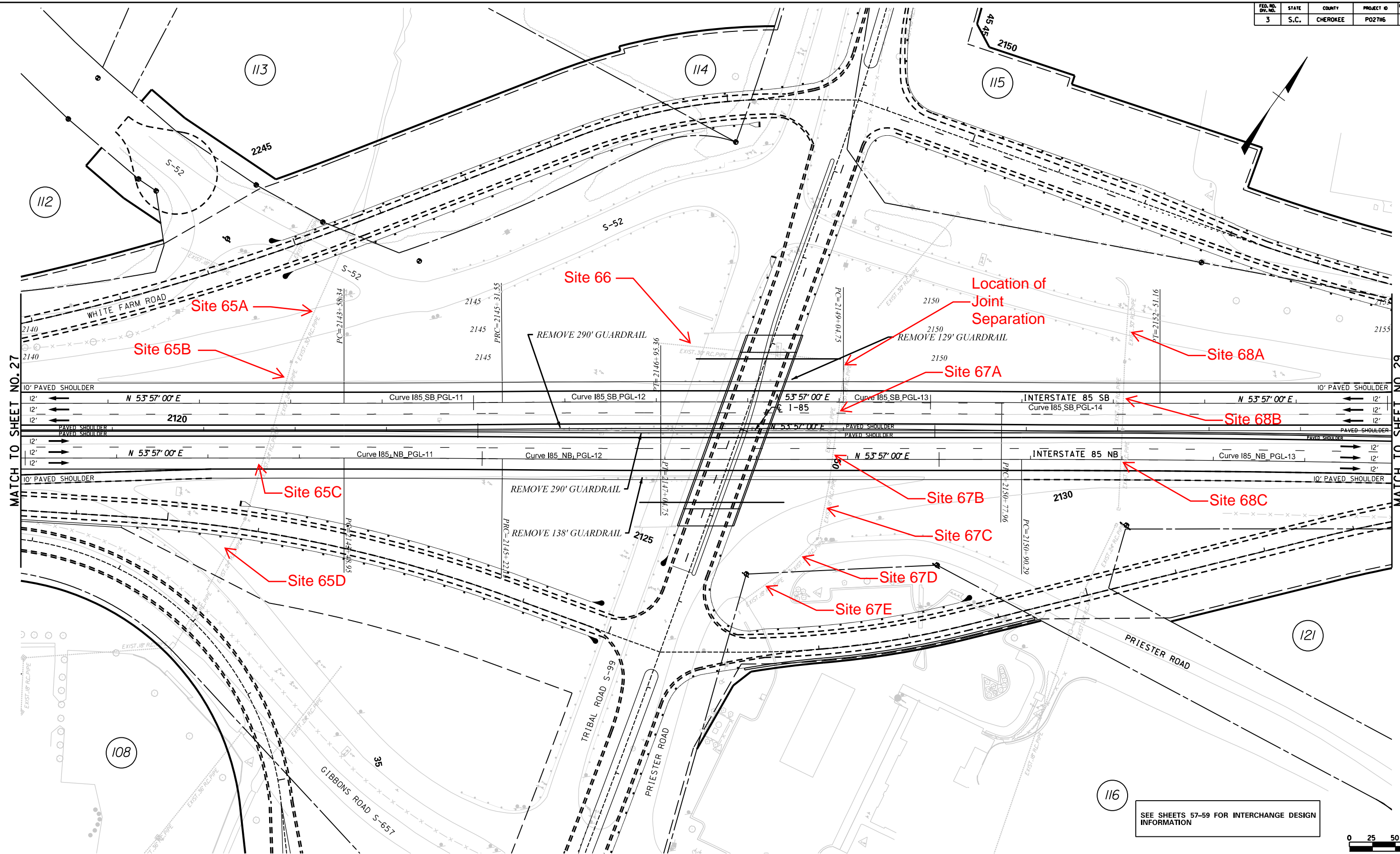


SEE SHEETS 57-59 FOR INTERCHANGE DESIGN INFORMATION



 CIVIL ENGINEERING CONSULTING SERVICES, INC.	 ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201	PRELIMINARY PLANS NOT FOR CONSTRUCTION	4 3 2 1	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 2125+00 TO STA. 2140+00 I-85 DWG. NO.
			REV. NO. TOPO. DWG. R/W	BY _____ _____ _____	DATE _____ _____ _____	DESCRIPTION OF REVISION _____ _____ _____	

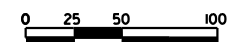
2/15/2017 ...\\Dgn\Plan Sheets\an27.dgn



MATCH TO SHEET NO. 27

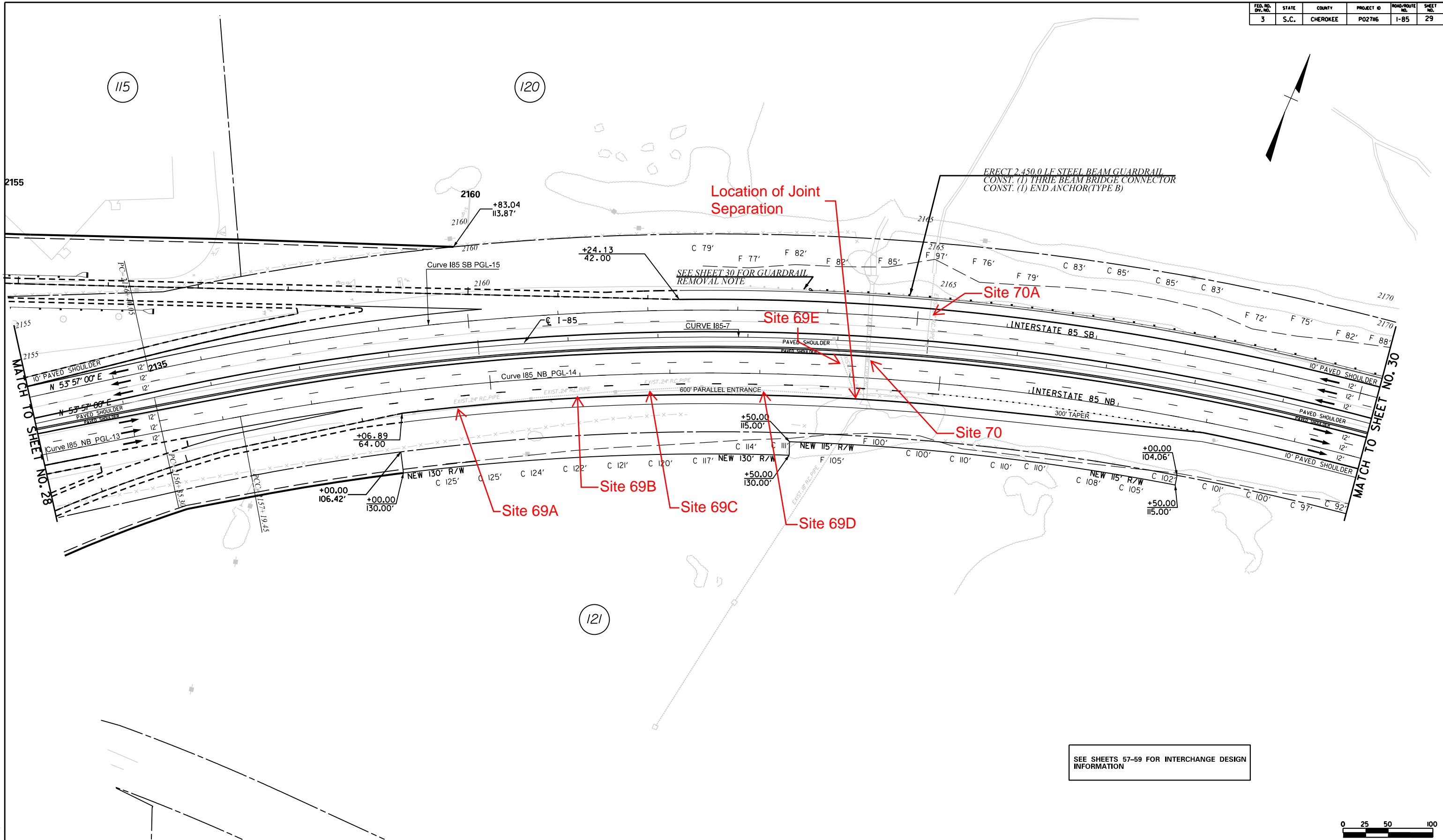
MATCH TO SHEET NO. 29

SEE SHEETS 57-59 FOR INTERCHANGE DESIGN INFORMATION

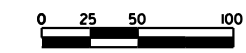


2/15/2017 ...Dgn\Plan Sheets\an28.dgn

 CIVIL ENGINEERING CONSULTING SERVICES, INC.	 ICA	PRELIMINARY PLANS	NOT FOR CONSTRUCTION	4				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 2140+00 TO STA. 2155+00 I-85 DWG. NO.
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				REV. NO.	BY	DATE	DESCRIPTION OF REVISION	
				TOPO.	DATE			
				DWG.	DATE	PLAN SCALE 1" = 50'		
				R/W	DATE			



SEE SHEETS 57-59 FOR INTERCHANGE DESIGN INFORMATION

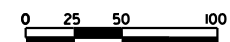
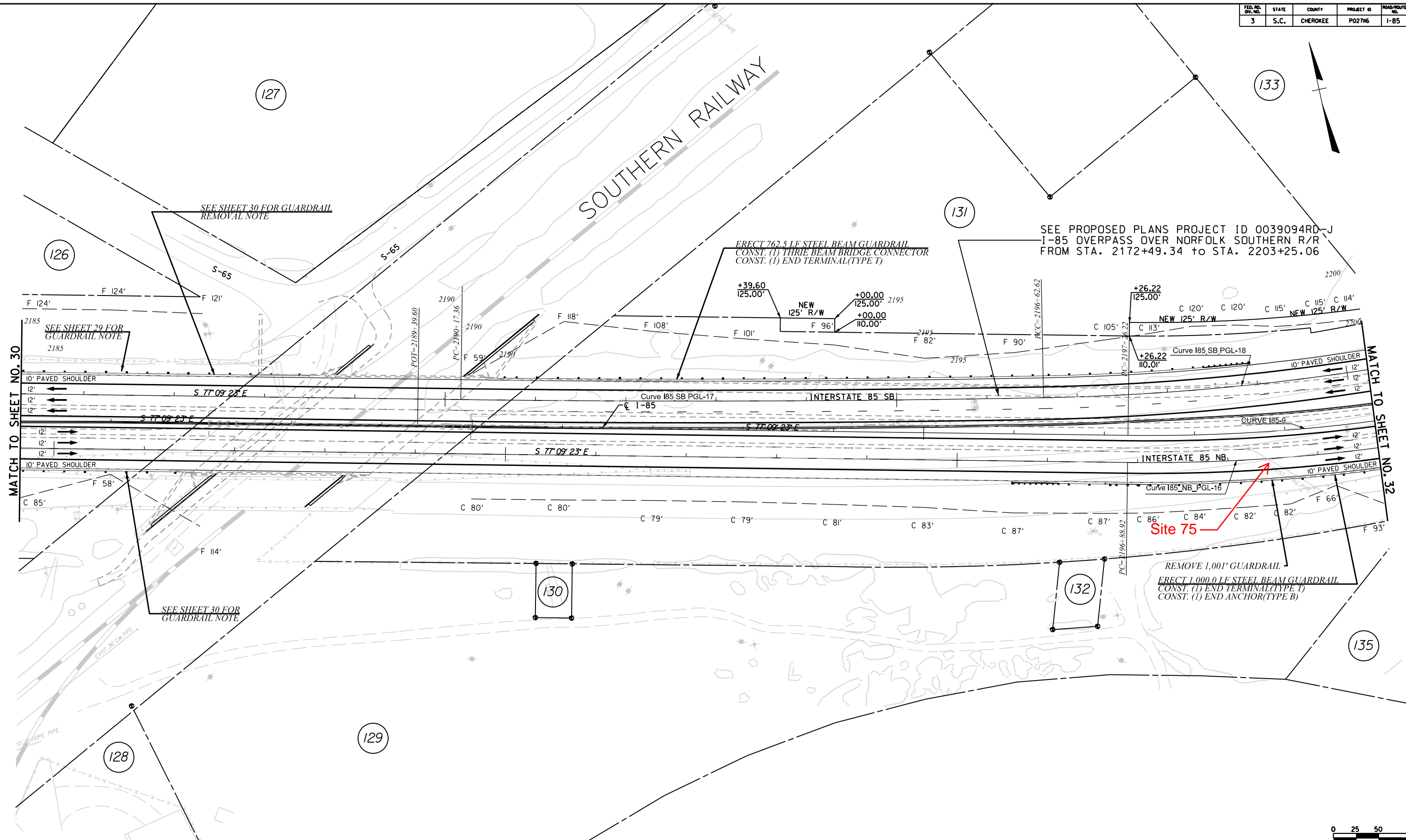


2/15/2017 ... \Dgn\Plan Sheets\sh29.dgn



CIVIL ENGINEERING CONSULTING SERVICES, INC.	ICA <small>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</small>	PRELIMINARY PLANS NOT FOR CONSTRUCTION	4			SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C. INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106 PLAN SHEET STA. 2155+00 TO STA. 2170+00 I-85 DWG. NO.
			3			
			2			
			1			
			REV. NO.	BY	DATE	DESCRIPTION OF REVISION
			TOPO.	DATE		
			DWG.	DATE	PLAN SCALE 1" = 50'	
			R/W	DATE		

SOUTHERN RAILWAY

SEE PROPOSED PLANS PROJECT ID 0039094RD-J
I-85 OVERPASS OVER NORFOLK SOUTHERN R/R
FROM STA. 2172+49.34 TO STA. 2203+25.06

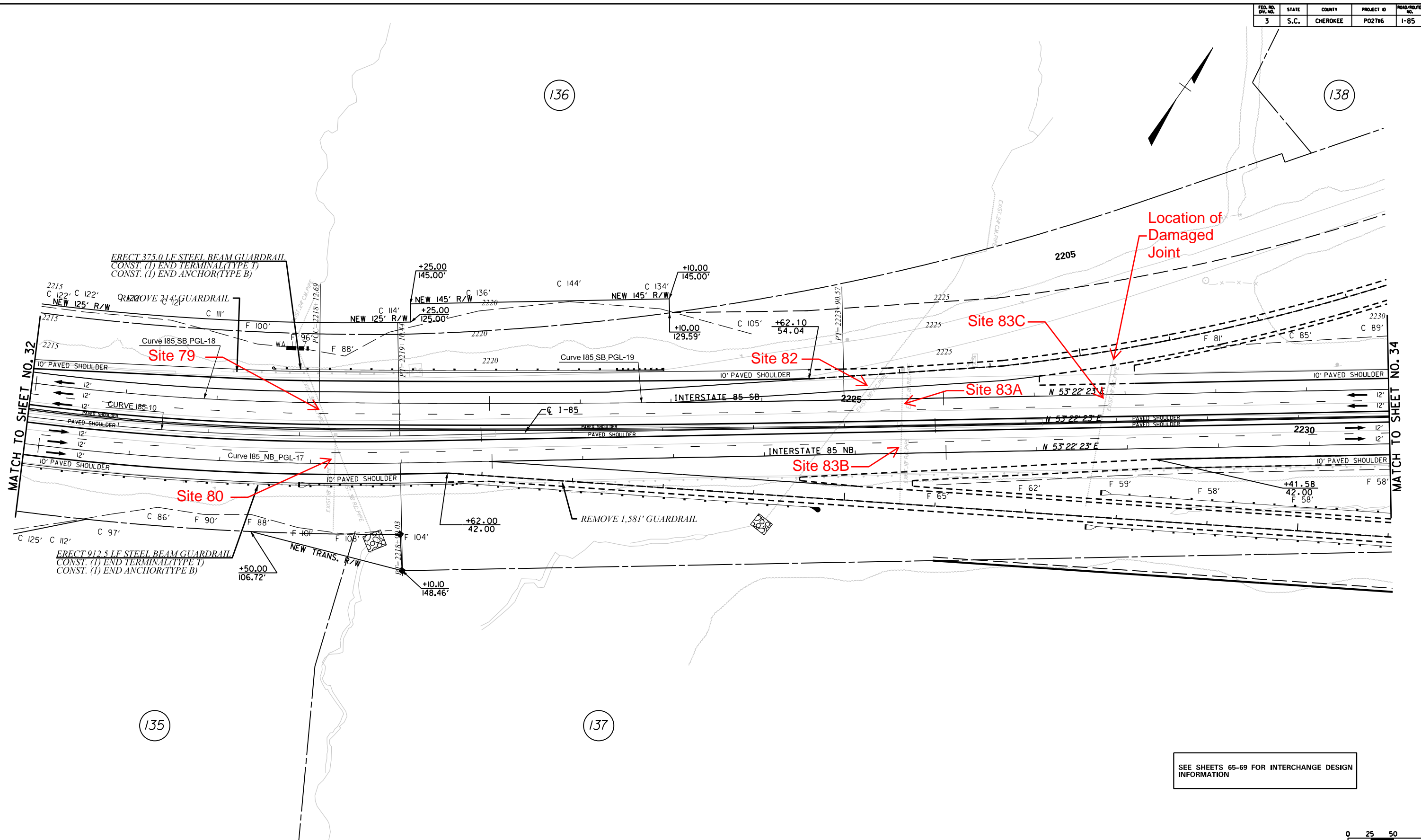
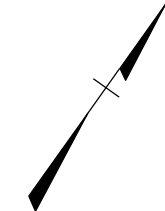


2/15/2017 ... \Dgn\Plan Sheets\sh31.dgn

 <p>CIVIL ENGINEERING CONSULTING SERVICES, INC.</p>	 <p>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</p>	<p>PRELIMINARY PLANS</p>	<p>NOT FOR CONSTRUCTION</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <th>REV. NO.</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION OF REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	4				3				2				1				REV. NO.	BY	DATE	DESCRIPTION OF REVISION					<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.</p> <p>INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106</p> <p>PLAN SHEET STA. 2185+00 TO STA. 2200+00</p> <p>I-85 DWG. NO.</p>
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION																										

136

138



MATCH TO SHEET NO. 32

MATCH TO SHEET NO. 34

Location of Damaged Joint

Site 79

Site 82

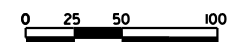
Site 83C

Site 83A

Site 80

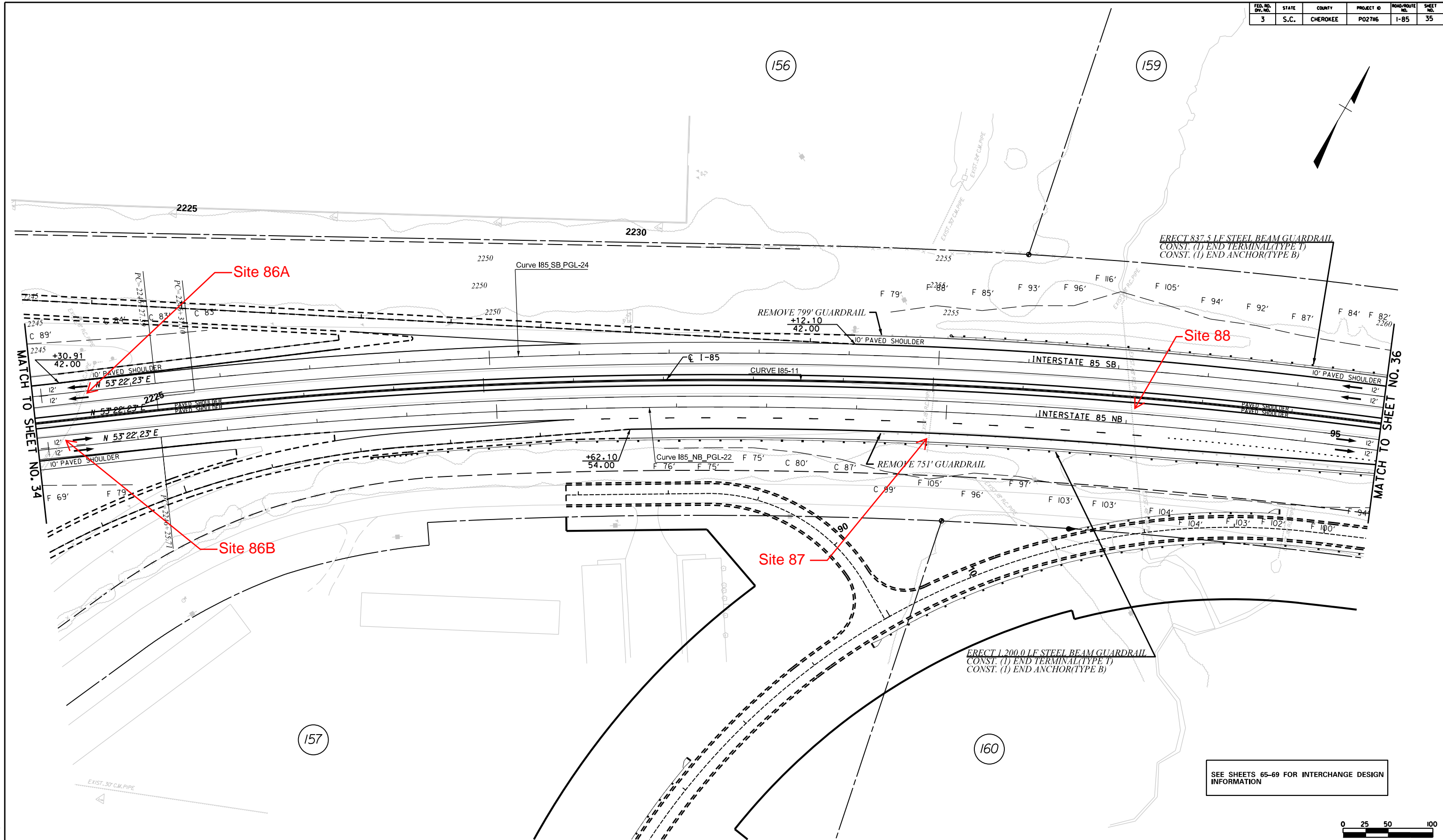
Site 83B

SEE SHEETS 65-69 FOR INTERCHANGE DESIGN INFORMATION

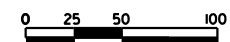


2/15/2017 ... \Dgn\Plan Sheets\sh33.dgn

<p>CIVIL ENGINEERING CONSULTING SERVICES, INC.</p>	<p>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</p>	<p>PRELIMINARY PLANS</p>	<p>NOT FOR CONSTRUCTION</p>	4				<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.</p> <p>INTERSTATE 85 IMPROVEMENTS MM 98 TO MM 106</p> <p>PLAN SHEET STA. 2215+00 TO STA. 2230+00</p> <p>I-85 DWG. NO.</p>
				3				
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				REV. NO.	BY	DATE	DESCRIPTION OF REVISION	
				TOPO.		DATE		
				DWG.		DATE	PLAN SCALE 1" = 50'	
				R/W		DATE		



SEE SHEETS 65-69 FOR INTERCHANGE DESIGN INFORMATION



2/15/2017 ...Dgn\Plan Sheets\sh35.dgn

<p>CIVIL ENGINEERING CONSULTING SERVICES, INC.</p>	<p>ICA Engineering Inc. 1122 Lady Street, Suite 1100, Columbia, SC 29201</p>	<p>PRELIMINARY PLANS</p>	<p>NOT FOR CONSTRUCTION</p>	4			<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION COLUMBIA, S.C.</p>
				3			
				2			<p>PLAN SHEET STA. 2245+00 TO STA. 2260+00</p>
				1			
				REV. NO.	BY	DATE	DESCRIPTION OF REVISION
				TOPO.	DATE	PLAN SCALE 1" = 50'	
				DWG.	DATE		
				R/W	DATE		

